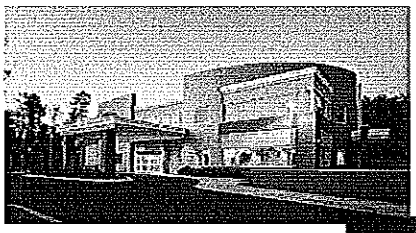
Tallahassee Memorial
Emergency Medical Services
Application for Renewal
of
Certificate of Public Convenience and Necessity



2016

TALLAHASSEE
MEMORIAL
HEALTHCARE

Certificate of
Public Convenience and Necessity Application

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1a) The name, age and address of the applicant and the length of time the applicant has resided in the county if the applicant is an individual; the business name of the partnership and the name, age and address of each partner and the length of time each partner has resided in the county if the application is a partnership; the names and residences of all officers and directors if the applicant is a corporation.

TALLAHASSEE MEMORIAL HEALTHCARE, INC.

BOARD OF DIRECTORS

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Tallahassee, FL 32308

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1300 Miccosukee Road
Tallahassee, FL 32308

b) The classification of the certificate of public convenience and necessity being applied for.

Tallahassee Memorial Emergency Medical Services is applying for a renewal of the Advance Life Support Ground Transport Services Certificate providing services as outlined in Section 4 of this application.

2) If the applicant is a corporation, the type and number of shares outstanding and the name and the addresses of shareholders.

Tallahassee Memorial is a nonprofit corporation.

3) The date of incorporation or formation of the entity.

June 27, 1979

4) A Description of the Services to be provided.

Tallahassee Memorial HealthCare (TMH) desires to continue the ambulance transportation services that we now provide Neonate, Infant and Pediatric Advanced Life Support Transport Services; non-medically necessary TMH campus interfacility transports; the transport of adult patients who do not meet medical necessity criteria as established by the Center for Medicare and Medicaid Services , from TMH to other local and regional facilities, with prior approval of Leon County; and the transport of patients from the TMH Emergency Center–Northeast to the main TMH facility. The services shall be provided within the territorial limits of Leon County.

5) The addresses of the applicants present and proposed base station location and all sub-stations, including the methodology used to determine their locations as well as the process to be used to relocate/add substations in the future.

Tallahassee Memorial Emergency Medical Services is a hospital based transport service.

- Station 1 1300 Miccosukee Road, Tallahassee, Florida.
- Station 2 1260 Metropolitan Drive, Tallahassee, FL

6) The names and certification numbers of all Emergency Medical Technicians, Paramedics, First Responders, or other attendants employed by or affiliated with the applicant.

Paramedics					
Name	Driver License Exp.	Paramedic License #	Expiration	ACLS Exp.	EVOC Taken
Aguilera, Abraham	10/11/19	PMD525095	12/01/16	04/13/18	12/11/10
Antworth, Jon	08/15/18	PMD3101	12/01/16	09/30/16	04/30/85
Azar, George	03/23/20	PMD13354	12/01/16	05/24/18	10/08/93
Baker, Thomas	11/18/19	PMD105	12/01/16	06/30/17	04/12/85
Barber, Charles E.	12/15/20	PMD511629	12/01/16	08/31/17	08/02/97
Beasley, Brian	08/12/17	PMD10024	12/01/16	03/31/18	09/28/91
Bowling, Brent	07/08/19	PMD522533	12/01/16	08/31/17	02/10/09
Burnett, Kendra	11/29/18	PMD525087	12/01/16	05/18/18	03/18/12
Cosper, Justin	03/08/19	PMD521186	12/01/16	04/02/17	05/13/06
Crampton, Charles	01/24/19	PMD440	12/01/16	09/30/16	04/30/85
Cuevas, Mark	08/25/20	PMD505376	12/01/16	08/31/17	11/09/01
Daniels, Jessica	08/07/20	PMD523620	12/01/16	03/31/17	06/24/11
Davis, Benton Ashton	11/11/16	PMD510687	12/01/16	01/31/17	07/16/03
Davis, Joseph	08/14/20	PMD519149	12/01/16	07/31/17	03/05/10
Davis, Kenneth	09/25/17	PMD18742	12/01/16	03/02/18	08/30/93
Farcas, David	12/14/20	PMD14390	12/01/16	04/01/18	02/21/93
Farris, Karen	08/20/22	PMD14158	12/01/16	11/30/17	04/16/95
Floyd, Clifton Forrest	07/11/17	PMD3194	12/01/16	03/31/17	04/07/83
Giangrosso, Joe	10/16/21	PMD17376	12/01/16	10/31/16	04/23/89
Goodwin, Mark	06/24/20	PMD525109	12/01/16	07/30/16	10/09/05
Gratton, Joseph Bradley	05/21/20	PMD525949	12/01/16	07/30/16	04/16/11
Herndon, Nancy	04/22/20	PMD3860	12/01/16	05/31/18	04/30/85
Hollaway, Rex	6/2/2018	PMD522590	12/01/16	04/30/17	03/13/04
Hunt, Christopher	06/06/20	PMD526965	12/01/16	12/20/17	02/13/12
Koegel, Robert Thomas	04/19/18	PMD19177	12/01/16	01/06/17	03/14/06
Kostic, Daniel	02/02/20	PMD526962	12/01/16	12/31/17	11/21/12
Law, Kristin	09/27/19	PMD524578	12/01/16	05/11/18	05/27/10
Lippman, Sharon	02/08/21	PMD4338	12/01/16	05/30/18	04/12/85

Paramedics (cont.)					
Name	Driver License Exp.	Paramedic License #	Expiration	ACLS Exp.	EVOC Taken
Livingston, Scott R	12/18/17	PMD15487	12/01/16	01/31/18	06/10/85
Lyons,Zachary	01/23/22	PMD508041	12/01/16	08/31/17	10/07/03
Malagarie, Susan	09/30/17	PMD205659	12/01/16	10/31/16	10/10/00
Manrique, Tracie	08/21/17	PMD526328	12/01/16	12/31/17	01/16/06
Mays, Stevan	06/11/20	PMD12524	12/01/16	05/30/18	09/01/89
Megna,Holly Smith	10/03/18	PMD519881	12/01/16	04/02/17	05/13/06
Miley, Chase	12/29/18	PMD525856	12/01/16	01/31/17	02/04/15
Miller, Brett	02/25/22	PMD518369	12/01/16	04/30/17	11/11/06
Mitchka, Jacqueline	02/05/18	PMD527499	12/01/16	05/30/17	12/08/12
Mott, John R	04/09/17	PMD1625	12/01/16	09/30/16	04/30/85
Price, Brandon	05/09/23	PMD528120	12/01/16	01/31/17	01/31/09
Pullen, Christopher	12/09/18	PMD524816	12/01/16	05/18/18	06/30/10
Register, Michael	03/05/21	PMD16255	12/01/16	07/30/16	01/22/95
Reilly, William	02/09/20	PMD526327	12/01/16	07/30/17	04/30/10
Rudy, Brenden	01/15/17	PMD522542	12/01/16	04/27/17	02/11/09
Sessions, Gary Scott	02/03/24	PMD510442	12/01/16	12/31/16	11/19/00
Shaver, Keith Douglas	02/27/22	PMD526120	12/01/16	11/30/16	01/11/15
Swain, Charles	07/08/17	PMD12945	12/01/16	05/03/18	01/25/91
Walker, Travis	09/13/20	PMD18830	12/01/16	07/30/16	03/26/97

As of 6/4/16

Emergency Medical Technicians					
Name	D.L. Exp.	E.M.T. License #	Expiration	BLS Exp.	EVOC Taken
Bowers, Warren	12/04/19	EMT531393	12/01/16	01/31/17	06/15/11
Boyd, Prince	06/22/19	EMT549566	12/01/16	07/30/16	04/19/15
Burnett, Katie	08/09/21	EMT537679	12/01/16	07/30/16	03/18/12
Chester, Patrick	02/23/19	EMT542718	12/01/16	06/30/17	05/11/13
Chronister, Cynthia	01/24/21	EMT68089	12/01/16	02/28/18	07/08/92
Coston, Samuel	07/08/22	EMT 545943	12/01/16	10/30/17	05/24/14
Jeudy, Jonathan	01/29/21	EMT548310	12/01/16	6/30/17	12/14/14
Lamb, Emily	04/08/22	EMT541757	12/01/16	7/31/17	12/03/12
Mclanahan, Todd	04/11/19	EMT69751	12/01/16	1/13/17	05/23/95
Moss. Jeremy	10/29/18	EMT547929	12/01/16	7/13/17	12/14/14
Pennock, Kyle	02/15/17	EMT546048	12/01/16	10/31/16	05/23/14
Rutten, Crystal	11/09/21	EMT534372	12/01/16	9/30/16	09/29/10
Sullivan , Alexis	02/08/17	EMT543027	12/01/16	5/13/17	06/30/12
Washington, Kevin	11/20/18	EMT505347	12/01/16	1/30/17	02/07/04

As of 6/4/16

Respiratory Therapists		License #	Expiration
Brown,Duncan		RT3853	05/31/17
Brookes, Antwan		RT11611	05/31/17
Cotton,Larry		RT3258	05/31/17
Johnson, Christopher Bryan		RT8715	05/31/17
Raymond, Kim		RT3910	05/31/17
Reinert,Jane		RT3686	05/31/17
Ritter,Mary		RT6562	05/31/17
Simmons,Michelle		RT3228	05/31/17
Sturgis, Stephanie		RT10037	05/31/17
Farris, Kristian		RT10847	05/31/17
Neonate Nurses		License #	Expiration
Forbes, Stacie		RN3203672	04/30/17
Johnson,Diana		RN9213080	04/30/17
Kuczynski, Rachel		RN9324694	04/30/17
Montes,Elaine		RN9359930	07/31/16
Nearhoof, Anabelle		RN9264446	04/30/17
Ritzel, Dolly		RN9168741	04/30/18
Tucker, Monica		RN9246672	04/30/18

7) The year, model, type, department permit number (when received by department), motor vehicle or FAA registration number and mileage of every ambulance, rescue vehicle or other type of transporting or responding vehicle used by the applicant.

TMH #	State EMS #	Manufacturer	Model	Year	Modified	Mileage	V.I.N.	Tag #
4-1	19611	Ford	F-350	2015	Frazer	11,822	1FDRF3GT0GEA29398	MFW 47E
4-2	16666	Ford	F-450	2010	Frazer	63,761	1FDAF4GRXAEB25750	MFV 42Q
4-3	17389	Dodge	RAM 3500	2012	Frazer	10,000	3C7WDSBL8CG180431	MIH 92Y
4-4	18343	Dodge	RAM 3500	2014	Frazer	30,732	3C7WRKBL9EG118122	MFW 52E

AS OF 6/1/2016

8) Applicants desiring to provide ground transport must provide a written plan describing the procedures to replace vehicles at intervals of no greater than five years or 200,000 miles, whichever occurs first.

POLICY AND PROCEDURE **EMS OPS # 13.00** **April 22,2006**

VEHICLE REPLACEMENT POLICY

I. PURPOSE:

To provide guidelines for Replacement of Emergency vehicles.

II. POLICY:

The policy of the Emergency Medical Services Department is to ensure that Tallahassee Memorial Hospital receives maximum service and efficiency throughout the life of all vehicles purchased and dedicated to serve its patients. This will be achieved through a practical preventative and routine maintenance program as well

III. PROCEDURE:

A. It shall include any medical transportation vehicle equipped or operated as an ambulance; and vehicle must be equipped with emergency lights, emergency siren and patient care equipment in accordance with Department of Transportation (DOT) KKK specifications for ambulances. All units are certified to meet or exceed KKK-1822 star of Life ambulance specifications by Atlanta Testing & Engineering, Norcross, Georgia. All future ambulance purchases beginning January 2013 will meet NFPA Ambulance Standards.

B. Ambulance manufacturer Division (AMD) Standards. All frontline vehicles will be replaced at 200,000 miles or 5 years whichever occurs first.

C. Vehicle over 5 years old that have not reached 200,000 miles will remain in the fleet in a reserve capacity or used for on campus/local transports only.

D. The Paramedic supervisor will be responsible for compiling an annual list of suggested vehicle replacements. This list will be based on age, mileage, safety and maintenance costs associated with the vehicle. This list will be provided to the Emergency Services Service Line Administrator review and approval to be passed on during the budget process for consideration..

IV. RESPONSIBILITY:

It is the responsibility of Paramedic supervisor to ensure compliance to this policy

Jon Antworth
Chief Transport Paramedic
Tallahassee Memorial
Emergency Medical Services

Policy and Procedure Review and Revision History:

April 22, 2006, September 1, 2009, May 19, 2013, June 2, 2016

9) Applicants desiring to provide ground transport must provide a written plan describing the procedures to replace non-disposable medical equipment based on manufacturer standards.

POLICY AND PROCEDURE EMS OPS # 14.00 April 22, 2006

NON-DISPOSABLE MEDICAL EQUIPMENT REPLACEMENT POLICY

I. PURPOSE:

To provide guidelines for replacement of non-disposable medical supplies and biomedical equipment.

II. POLICY:

The policy of the Emergency Medical Services Department is to ensure that Tallahassee Memorial Hospital receives maximum service and efficiency throughout the life of all medical equipment purchased and dedicated to serve its patients. This will be achieved through a practical preventative and routine maintenance program as well

III. PROCEDURE:

A. This policy is in reference to any non- disposable medical purchased for use on an Tallahassee Memorial ambulances.

B. Medical Supplies

1. Any medical supplies that are dated will be disposed of per manufacturers expiration date.
2. Any medical supplies that are not dated will be disposed of per manufacturer's recommendation of breach integrity of the sterile packaging.

C. Bio Medical Equipment

1. Medical electronic equipment (monitor, suctions, etc.)Biomedical equipment is inspected by Tallahassee Memorial Healthcare Biomedical Department every 6 months.

2. Equipment will be removed from service at their recommendation. Their recommendation will take in account age of equipment, patient and employee safety, serviceability of the equipment and availability of replacement parts.

D. The Paramedic supervisor will be responsible for compiling an annual list of suggested equipment replacements. This list will be based on age, patient safety, serviceability of the equipment, availability of replacement parts and Bio-med recommendations. This list will be provided to the Emergency Services Service Line Administrator review and approval to be passed on during the budget process for consideration.

IV. RESPONSIBILITY:

It is the responsibility of Paramedic supervisor to ensure compliance to this policy

Jon Antworth
Chief Transport Paramedic
Tallahassee Memorial
Emergency Medical Services

Policy and Procedure Review and Revision History:

April 22, 2006, September 20, 2009, May 21, 2013, June 2, 2016

10) Air ambulance providers must include a copy of their most recent operations manual and FAA Part 135 Certificate

Not applicable Tallahassee Memorial Emergency Medical Services only provides ground transport.

11) A description of the applicant(s communication system, including its assigned frequency, call number, mobiles, portables, range and hospital communications ability.

Tallahassee Memorial is assigned **MED 22 156.7** by the State Technology Office.

Tallahassee Memorial E.M.S. has the ability for State Medical Coordination on **MED 8 167.9**

Tallahassee Memorial E.M.S. has communications capabilities with Tallahassee Memorial Emergency Department on **MED 22 156.7**

Tallahassee Memorial E.M.S. has communications capabilities with Capital Regional Medical Center Emergency Department on **MED 42 156.7**

Tallahassee Memorial EMS uses Cellular Phone (Verizon) to provide a Data link to the Emergency Department Lifenet EKG receiving station.

Tallahassee Memorial Call Number KVZ472

12) A proposed operating budget for the purpose of demonstrating financial ability to perform and commitment to providing described services.

Salaries And Wages	272,564
Benefits	60,550
Pension	18,404
Supplies	43,652
Drugs	1,000
Food, Catering, Nourishments	2,200
Maintenance	20,929
Utilities	2,315
Dues,Subscriptions,Licenses	238
Taxes	0
Hardware, Software Licenses	5,780
Travel	3,180
Transportation	138
Total Expenses	**430,950**

13) Verified proof that the applicant and its employees possess all required federal and state licenses and permits.

All Paramedic, EMT, Nurse and Respiratory Therapist License Listed verified at State of Florida, Floridashealth.com License Verification site.

Copies of all Paramedic and Emergency Medical Technicians State licenses, CPR and Advance Cardiac Life Support Cards, and Driving Records and Driving Licenses kept on file in Tallahassee Memorial Emergency Medical Services office in State compliance file. Located at 1300 Miccosukee Rd., Tallahassee, Florida.

Medical Director's, Medical Doctor License

AC#6219669

STATE OF FLORIDA
DEPARTMENT OF HEALTH
DIVISION OF MEDICAL QUALITY ASSURANCE

DATE	LICENSE NO.	CONTROL NO.
10/31/2014	ME 88165	469450

The **MEDICAL DOCTOR**
named below has met all requirements of
the laws and rules of the state of Florida.
Expiration Date: **JANUARY 31, 2017**

SARMED GHASSAN ASHOO
BIXLER EMERGENCY CENTER / TMH
1300 MICCOSUKEE RD
TALLAHASSEE, FL 32308

Rick Scott
GOVERNOR

John H. Armstrong, MD, FACS
STATE SURGEON GENERAL

DISPLAY IF REQUIRED BY LAW

Medical Director's Controlled Substance Registration Certificate

DEA REGISTRATION NUMBER	THIS REGISTRATION EXPIRES	FEE PAID
BA8390635	06-30-2018	$731

SCHEDULES	BUSINESS ACTIVITY	DATE ISSUED
2,2N,3 3N,4,5	PRACTITIONER	05-05-2015

ASHOO, SARMED G MD
BIXLER EMERGENCY CENTER
TALLAHASSEE MEMORIAL HOSPITAL
1300 MICOUSSUKEE ROAD
TALLAHASSEE, FL 32308

CONTROLLED SUBSTANCE REGISTRATION CERTIFICATE
UNITED STATES DEPARTMENT OF JUSTICE
DRUG ENFORCEMENT ADMINISTRATION
WASHINGTON, D.C. 20537

Sections 304 and 1008 (21 U.S.C. 824 and 958) of the Controlled Substances Act of 1970, as amended, provide that the Attorney General may revoke or suspend a registration to manufacture, distribute, dispense, import or export a controlled substance.

THIS CERTIFICATE IS NOT TRANSFERABLE ON CHANGE OF OWNERSHIP, CONTROL, LOCATION, OR BUSINESS ACTIVITY, AND IS NOT VALID AFTER THE EXPIRATION DATE.

CONTROLLED SUBSTANCE REGISTRATION CERTIFICATE
UNITED STATES DEPARTMENT OF JUSTICE
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1300 MICOUSSUKEE ROAD
TALLAHASSEE, FL 32308

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THIS CERTIFICATE IS NOT TRANSFERABLE ON CHANGE OF OWNERSHIP, CONTROL, LOCATION, BUSINESS ACTIVITY, OR VALID AFTER THE EXPIRATION DATE.

Form DEA-223 (9/04)

State of Florida Department of Health
Bureau of Emergency Medical Services
Advanced Life Support License

STATE OF FLORIDA 3893

DEPARTMENT OF HEALTH
BUREAU OF EMERGENCY MEDICAL OVERSIGHT
ADVANCED LIFE SUPPORT LICENSE

This is to certify that TALLAHASSEE MEMORIAL HEALTHCARE, INC.
Name of Provider

1300 MICCOSUKEE ROAD, TALLAHASSEE, FL 32308
Address

has complied with Chapter 401, Florida Statutes, and Chapter 64J-1, Florida Administrative Code, and is authorized to operate as an Advanced Life Support Service subject to any and all limitations specified in the applicable Certificate(s) of Public Convenience and Necessity for the County(ies) listed below:

☒ TRANSPORT ☐ NON-TRANSPORT

LEON
County(ies)

Emergency Medical Services Administrator
Florida Department of Health

Date: 02/24/2015 Expires: 04/04/2017

DH Form 1161, March 2013

This certificate shall be posted in the above mentioned establishment

Clinical Laboratory Improvement Amendments, Certificate of Waiver

CLIA Laboratory Demographic Information Report

Report Options

CLIA Number: 10D1025091

Certificate / Application Type	Name and Address / CLIA Number	Telephone #	Certificate Expiration Date	Lab Testing Performed In
Waiver	TALLAHASSEE MEMORIAL HOSPITAL 1300 MICCOSUKEE RD TALLAHASSEE, FL 32308 #10D1025091	(850) 431-5818	4/27/2018	Ambulance

14) The name of the municipalities and the description of all geographic areas that the applicant has previously been authorized to serve, including Leon County, any other county in Florida, or any other state.

Tallahassee Memorial currently has a certificate of public convenience and necessity to operate in Leon County Florida.

Tallahassee Memorial also travels to Georgia and Alabama and the following counties in Florida Taylor, Madison, Calhoun, Bay, and Jackson to pick up neonates.

15) A list of current charges or a schedule of proposed charges for transportation and treatment of patients and a written statement of intent to notify the board in writing of any proposed future fee increase, including rationale for the increase.

See attached fee schedule of current rates. Tallahassee Memorial will increase fee annually on October 1st. That annual increase will be approximately equal to the Medical Care Consumer Price Index as reported by the US Department of Labor Bureau of Labor Statistics. Additionally, the hospital will consider factors directly impacting operating costs, such as fuel and insurance costs.

Description	CHG AMT
ALS EMERGENCY	1599.85
ALS SCHEDULED	1066.57
BLS EMERGENCY	1333.19
BLS SCHEDULED	799.93
SPECIAL CARE TRANSPORT	1866.48
AMBULANCE TRANSPORT /MILE,	25.00

16) A sworn statement signed by the applicant or his/her authorized representative stating that all the information provided by the applicant in the application is true and correct.

OATH
I swear or affirm that the information provided and statements contained in this Application (including any accompanying supplements) to the best of my knowledge and belief are true, correct, and complete.

6/28/16
SIGNATURE

17) Pursuant to Rules 64E-2.002(4) and 64E-2.003(7), F.A.C., a list of medical equipment and supplies to be equipped and maintained in each emergency medical services vehicle.

Tallahassee Memorial Emergency Medical Services complies with State of Florida Rules 64E-2.002(4) and 64E-2.003(7), F.A.C., Attached is a vehicle check-in sheet with equipment, medications and supplies carried on each licensed vehicle.

Tallahassee Memorial

Vehicle#: 4-1 EMERGENCY MEDICAL SERVICES Date:_____

Ambulance Check-In Sheet

Mileage:_____ Medics:_____/_____

CAB
- ___ Drive keys
- ___ Charge Keys
- ___ 2) Drivers License
- ___ 2) State Licenses
- ___ Fuel 7/8 Tank
- ___ Generator(start)
- ___ Fuel 7/8 Tank
- ___ Gas Cards BP GATE
- ___ 2) Sirens
- ___ Horn / Wipers
- ___ Csb Light
- ___ A/C & Heat
- ___ Headlights High/Low
- ___ Emergency Lights
- ___ Load Lights side/rear
- ___ Map Book
- ___ Brakes
- ___ Tail/Clearance Lights
- ___ Turn Signals
- ___ UHF Radio
- ___ Oil,Brake,Coolant Levels
- ___ Transmission Fluid
- ___ Back-up Alarm
- ___ Tire wear/Pressure
- ___ Cell Phone & Charger
- ___ Insurance Card
- ___ Vehicle Registration
- ___ Spotlight
- ___ NO SMOKING SIGN
- ___ DEF(4-3) _____%
- ___ Lift Operational (4-2)

Driver's Outside Front Comp.
- ___ 2) Spine Boards
- ___ 1) Folding Stretcher
- ___ 1) KED
- ___ Peds Board
- ___ 1) Sager Splint
- ___ 1) Adult Traction Splint
- ___ 1) Alum"D" Cylinder

Driver's Outside Middle UPPER Con
- ___ Fire Extinguisher
- ___ 2) Pair Gloves
- ___ 2) Safety Googles

Driver's Outside Middle lower Comp.
- ___ 1) Stair Chair
- ___ 1) Ped. Traction Splint

Driver Rear Comp. inside/outside
- ___ 1ea. C-Collars AD/PED
- ___ 3) Quick Straps
- ___ 1ea. Headbeds
- ___ 1) Extra O_2 Cylinder "E"
- ___ 1) Extra Air(NICU) "E"(4-2)
- ___ 1) Reflective Traingles
- ___ 1) Disinfectant wipes
- ___ 1) Bottle Cavicide

MODULE
- ___ 1)Rear Radio
- ___ AC/ Heat
- ___ Interior Lights
- ___ NO SMOKING SIGN
- ___ Fire Extinguisher
- ___ Sharps Box
- ___ 1ea. Gloves S/M/L
- ___ 1) Stretcher /3 straps
- ___ 1) Smooth Mover (4-2)

OXYGEN COMPARTMENT
- ___ H or M 1000psi Min.
- ___ 1) Wrench

Portable Oxygen
- ___ 1000psi "E" " Walk about"
- ___ 1) Adult NRB Mask
- ___ 1) Adult Nasal Cannula

LINENS
- ___ 6) Sheets
- ___ 2) Blankets
- ___ 2) Pillow
- ___ 2) Pillow Cases
- ___ 6) Towels

SUCTIONS

Portable Suction
- ___ 1) Suction Tubing
- ___ 1) Yankuer Cath.

Vehicle Suction
- ___ 1) Tubing
- ___ 1) Yankuer Cath.

Under CPR Seat
- ___ Bed Pan
- ___ Urinal
- ___ Toilet Paper

Driver Side

Seal#

Driver SideTop Shelf

Box 1 S
- ___ 1) OB Kit
- ___ 3) Isolation Gowns
- ___ 2) Burn Sheets
- 2 Multitrauma Dressings

Driver Side Middle Shelf

Box 1 S
- Asst. BP Cuffs

Box 2
- 1) Set of Restraints

Box 3 L
- 1) Infant BVM

Box 4 L
- 1) Pediatric BVM

Box 5 L
- 1) Adult BVM

Driver Side Bottom Shelf

Box 1 S
- ___ 2) Kerlix
- ___ 2) Kling
- ___ 2) ACE Wraps
- ___ 3) ABD Pads

Box 2 S
- ___ 10) Sterile 2X2
- ___ 10) Sterile 4X4
- ___ 2) Triangular Bandages
- ___ 2) Vasoline Gauze
- ___ 1) 1" Adhesive tape
- ___ 1) 3" Adhesive Tape

Box 3 S
- ___ 1) Nebulizer

Box 4 S
- ___ 2) # 14 Fr. Suction Caths.
- ___ 1) Tonsil Suction
- ___ 1) Suction Cannister
- ___ 1) Suction Tubing
- ___ 1) 60cc syringe (Cath tip)

Box 5 L
- ___ 2) Nasal Cannulas
- ___ 2 Non-Reb. Masks
- ___ 2) Nasal Cannulas Ped.
- ___ 2ea) Infant & child O2 Masks
- ___ 2) O2 Tubing
- ___ 1) O2 Connector

Box 6 S
- 10 Emisis Bags

Front Wall Left

Seal#

Front Wall Top Shelf (left)

Box 1 L
- ___ 1) 1000cc N.S.
- ___ 1) 500cc N.S.

Box 2
- ___ 2) 1000cc L.R.

Box 3
- ___ 1) Pressure Infuser

Box 4 L
- ___ 2) NS Irrigation Fluid

Front Wall Middle Shelf (left)

Front Wall Bottom Shelf (left)

Box 1 L
- ___ 2) ET Capno
- ___ 2) Capno Nasal
- ___ Electrodes Adult/Ped
- ___ 1) Adult Pacer Pad
- ___ 1) Roll LP Paper
- ___ 1) Ped. Pacer Pads
- ___ 1) Adt. Disp. SpO_2 Finger Probe
- ___ 1) Ped. Disp. SpO_2 Finger Probe
- ___ StandingOrders Adult
- ___ Standing Orders Peds.
- ___ EMS Comunnication Bk
- ___ Hazmat Book (orange)

Front Wall Top Shelf (right)

Front Wall Right Cabinet

Seal#_____

Box 1
- ___ 1) Stuffed animal

Box 2
- ___ 1) Neonate Circuit (4-2,4-4)

Front Wall Middle Shelf (right)

Box 1 L
- ___ 1) Pedi-Mate or Car seat

Box 2
- ___ 30) Disaster Tags

Front Wall Bottom Shelf (right)

Box 1 S
- ___ 3) Trash Bags
- ___ 2) Biohazard Bags
- ___ 1) Rain Cover
- ___ 2) "D" cell Batteries

Box 2 S
- ___ 5) Surgical Masks
- ___ 5)Resp. Protective Mask

CARDIAC BOX

*Seal #*_____
*Earliest Exp.Date:*_____
___ 3) Adenocard 6mg./2ml
___ 2) Albuterol
___ 3) Amioderone 150 mg.
___ 10) Aspirin 81 mg.
___ 3) Atropine 1 mg.
___ 2) Atrovent 0.5mg/2.5 ml
___ 1) Benadryl 50mg/ml
___ 1) Ca. Chloride 1G/10ml
___ 1) Cardizem 100mg/50cc
___ 1) Dextrose 50%
___ 1) Dopamine 400mg/250ml
___ 2) Epinephrine 1:1,000
___ 2) Epinephrine 1: 10,000
___ 1) Furosimide 100 mg.
___ 1) Glucogon
___ 1) Insta Glucose
___ 1) Labetalol 20 mg.
___ 2) Lidocaine 100 mg.
___ 1) Lidocaine Drip 2G/500m
___ 1) Mag. Sulfate.10G/20m
___ 2) Narcan 0.4 mg.
___ 1) Nitro Spray
___ 1) Nitro Bid Patch
___ 1) Pediatric Bicarb
___ 1) Procainamide 1G/10ml.
___ 1) Sodium Bicarb 50 mEq.
___ 1) Solumedrol 125 mg.
___ 1) Thiamine 100 mg.
___ 2) Toradol 30 mg./ml.
___ 2) Tylenol 500 mg.
___ 2) Vasopressin 20 units/ml
___ 2) Zofran 4mg./2ml
___ 2) Saline Flushes
___ 2ea. Angiocaths
14,16,18,20,22.24
___ 1) B.P / Stethoscope
___ 2) Blue Test tubes
___ 2) Orange Test tubes
___ 2) Purple Test tubes
___ 2ea. 1,3,5,10cc syringes
___ 1) 20 cc Syringe
___ 6 needles total
Between 18ga. & 25ga.
___ 2) Bioclusive Dressings
___ 1) Roll Tape
___ 1) Extension Set
___ 6) Alcohol Swabs
___ 1) 3-way Stopcock
___ 2ea. Micro/Macro Drips
___ 1) N.S. 500 cc

CARDIAC BOX (Cont.)

___ 1) Flashlight
___ 1) Trauma Scissors
___ 1) Kling
___ 1) IV Tourniquet

RESPIRATORY BOX

*Seal #*_____
*Earliest Exp.Date:*_____
___ 1) Adult BVM
___ 1) Laryngoscope
___ 2) "C" cell Batteries
___ 1ea. Miller Blades
Adult-Pediatric
___ 1ea. Mac Blades Adult- Infant

Endotracheal Tubes in the following ranges

___ 2) 2.5mm & 5.0mm uncuffed
___ 2) 5.0mm & 7.0mm cuffed
___ 2) 7.5mm & 9.0mm cuffed

___ 1) Stethoscope
___ 2) Surgilube
___ 1) Stylette Adult
___ 1) Roll cloth Tape
___ 2) Safety Glasses
___ 2) 10cc. Syringes
___ 1ea. Oral Airways Ped./Adult
___ 1ea. Nasal Airways
24,26,28,30
___ 1)Nebulizer Masks
___ 1) Adult Magill Forceps
___ 1) #4 King Airway
___ 1) 60cc. Luer lock
___ 1ea. Flowsafe II CPAP Med & Lrg

NARCOTICS Cabinet

___ Locked
Narcotics Box
Seal#_____
Earliest Exp. Date:_____
___ 2) Morphine Sulfate 10 mg.
___ 2) Diazepam (Valium) 10mg.
___ 2) Lorazapam (Ativan) 4mg.
___ 1) Hydromorphone (Dilaudid)2mg.
___ 1) Midazolam (Versed) 5mg.
___ 1) Sign Book
___ Send text

Glucometer

___ 1) Glucometer
___ 10-30 Test Strips
___ 5) Lancets
___ 1 ea. High/Low Control
___ Calibrator

BROSELOW PEDIATRIC BAG

*Seal #*_____
*Earliest Exp.Date:*_____

Large Bag Inside Lid

___ 1) Pediatric Arm Board
___ 1) Infant BP Cuff
___ 1) Pediatric BP Cuff
___ 1) L-Scope Handle
___ 1) Pediatric Stethoscope
___ 1) Ped. Magill Forceps

Inside Broselow

___ 1) Infant BVM with Mask
___ 1) Pediatric BVM w Mask

ZIPLOCK BAG

___ 2) Kling
___ 1) Tape
___ 1) Ped. Nasal Cannula
___ 1) Thermometer
___ 1) Thermal Blanket
___ 1) 3-way stopcock
___ 1) Meconium Suction
___ 1) Extra Bulb Syringe

Outside Pocket

___ 1) Broslow Tape

Red/Pink Pouch

___ I.V. & O_2 Module
___ Intubation Module
___ Intraosseous Acess Mod.

Purple Pouch

___ I.V. & O_2 Module
___ Intubation Module
___ Intraosseous Acess Mod.

Yellow Pouch

___ I.V. & O_2 Module
___ Intubation Module
___ Intraosseous Acess Mod.

White Pouch

___ I.V. & O_2 Module
___ Intubation Module
___ Intraosseous Acess Mod.

Blue Pouch

___ I.V. & O_2 Module
___ Intubation Module
___ Intraosseous Acess Mod.

Orange Pouch

___ I.V. & O_2 Module
___ Intubation Module
___ Intraosseous Acess Mod.

Green Pouch

___ I.V. & O_2 Module
___ Intubation Module
___ Intraosseous Acess Mod.

LIFEPAK 12/15

___ 3) Batteries
___ Charger
___ 1) 3 Leads Cable
___ 12 Leads cable
___ Electrodes Adult
___ Defib & Sync Check
___ Paper/ Printer
___ Time/Date Correct
___ 1) Defib Pads
___ 1) Prep Razor electric
___ 2) Benzoin Swabs
___ 1) Pacer Cables
___ 1) Adult BP Cuff
___ 1) Pediatric Cuff
___ 1) Infant Cuff
___ 1) Pulse ox Cable
___ 1) Pulse ox finger Probe
___ 1) Pulse ox disposible

PORTO$_2$Vent CPAP

___ 1) CPAP Unit
___ 2) CPAP Circuits
___ 1) O_2 Cylinder Full"D"alum
___ 1) Large Mask
___ 2) Medium Masks
___ 1) Small Mask
___ 1) O_2 Wrench

Notes:

REV.05/12/2016

18) A statement, policy, certificate, or irrevocable letter of commitment to insure, from an insurance company satisfactory to the board, shall be attached to the application, and shall specify coverages/limits for public liability, property damage and malpractice insurance as provided in this article or a surety bond conditioned for the payment and satisfaction of any final judgment as required by this article.

See Appendix A. Insurance Information

19) Compilation statement showing assets and liabilities prepared by a certified public accountant.

See Appendix B. Financial Information (on thumb drive)

20) A copy of the applicant's management plan which shall include a copy of standard operating procedures.

See Attached Thumb Drive

21) Proof that the applicant has employed or contracted with a medical director qualified pursuant to F.S. § 401.265.

See Appendix C. Medical Director Contract & Job Description (on thumb drive)

22) Any other information as may be reasonably required by the board.

23) The application fee except for renewals shall be in the amount of $5,000.00, except for the state, agencies of the state, and political subdivisions of the state, who shall not be required to submit such application fee.

Application is for renewal of current Certificate of Public Convenience and Necessity which expires December 31, 2016.

Appendix

A. Financials (see attached Thumb Drive)

B. Insurance Information

HEALTH CARE CASUALTY RISK RETENTION GROUP, INC.

ATTACHING TO AND FORMING PART OF POLICY NO. 14-HB005-AH ISSUED TO TALLAHASSEE MEMORIAL HEALTHCARE, INC.

SCHEDULE OF UNDERLYING AMOUNTS

TYPE OF POLICY OR COVERAGE	INSURER, POLICY NO., POLICY PERIOD AND RETROACTIVE DATE (if Claims Made)	LIMITS
Health Care Professional Liability – Coverage A Claims Made	Self Insured Retroactive Date: 01/01/1986 (Tallahassee Memorial)	$3,000,000 Each MEDICAL INCIDENT/$12,500,000 Aggregate (Indemnity and Claim Expenses erode S.I.R.)
Other Liability – Coverage B Occurrence	Self Insured	$3,000,000 Each EVENT/$12,500,000 Aggregate (Indemnity and Claim Expenses erode S.I.R.)
Automobile Liability	Markel Insurance Company 5-1-2015 to 5-1-2016 Policy # MTA7000096002	$5,000,000 CSL Each Occurrence

William H. Howe
Secretary

August 27, 2015
Date

HB005 0808 Decl

C. Medical Directors Contract (see attached thumb drive)

D. Certificate of Public Convenience and Necessity

LEON COUNTY

Certificate of Public Convenience and Necessity

Emergency Medical Services

Whereas, Tallahassee Memorial Healthcare, Inc., (TMH) , has made application for the renewal of their Certificate of Public Convenience and Necessity to provide Advanced Life Support and Basic Life Support Ground Ambulance Services to the citizens of Leon County, Florida; and

Whereas, the above named service provider affirms that it will maintain compliance with the requirements of the Emergency Medical Services Act (Chapter 401, F.S.) and rules (Chapter 64J, F.A.C.); and

Whereas, the above named service provider affirms that it will comply with Article III of the Code of Laws of Leon County, Florida; and

Whereas, the governing body of Leon County has considered recommendations of the Emergency Medical Services Advisory Council.

Now therefore, The Board of County Commissioners of Leon County hereby issues a Certificate of Public Convenience and Necessity with limitations as prescribed on the Certificate, to Tallahassee Memorial Healthcare, Inc., to provide the following services only: Neonatal, infant, and pediatric Advanced Life Support transport services; non-medically necessary TMH campus interfacility transports; the transport of adult patients who do not meet medical necessity criteria as established by the Center for Medicare and Medicaid Services, from TMH to other local or regional facilities, with prior approval of Leon County; and the transport of patients from the TMH Emergency Center – Northeast to the main TMH facility. The services shall be provided within the territorial limits of Leon County, Florida. The Certificate holder shall maintain the level of service as outlined in their application throughout the term of this Certificate, and shall conform and comply with all rights and duties granted by the certification.

Date Issued: September 24, 2013
Date of Expiration: December 31, 2016
(Unless Certificate is sooner revoked or suspended)

LEON COUNTY, FLORIDA

BY: _____
Nicholas Maddox, Chairman
Board of County Commissioners

ATTEST:
Bob Inzer, Clerk of the Court
Leon County, Florida

BY: _____

Approved as to Form:
Leon County Attorney's Office

BY: _____
Herbert W.A. Thiele, Esq.
County Attorney

E. Leon County E.M.S. Ordinance

ARTICLE III. - EMERGENCY MEDICAL TRANSPORTATION SERVICES[3]

Footnotes:
--- (3) ---
Editor's note—Ord. No. 04-09, § 1, adopted April 13, 2004, repealed art. III, §§ 8-56—8-77, in its entirety. Said ordinance further provided for a new art. III to read as herein set out. Formerly, said article pertained to similar subject matter as enacted by Ord. No. 90-22, adopted May 29, 1990; as amended. See the Code Comparative Table for a detailed analysis of inclusion.

Sec. 8-56. - Purpose and scope.

This article is enacted pursuant to F.S. § 401.25(6), for the purpose of providing standards and necessary regulations for the issuance of certificates of public convenience and necessity for basic and advanced life support services. This article shall apply and be in force within the incorporated and unincorporated areas of Leon County. To the extent this article is more restrictive than the requirements of Chapter 401, Florida Statutes, or Rule 64E-2, Florida Administrative Code, the provisions of this article shall prevail.

(Ord. No. 04-09, § 1, 4-13-04)

Sec. 8-57. - Definitions.

The definitions set forth in F.S. § 401.23, are incorporated herein by reference and are not generally repeated. When used in this article, the following terms shall have the meanings ascribed to them by this section:

Ambulance or emergency medical services vehicle: shall have the same meaning as defined in F.S. § 401.23, as amended from time to time.

Ambulance driver: Shall have the same meaning as defined in F.S. § 401.23, as amended from time to time.

Advanced life support: Shall have the same meaning as defined in F.S. 401.23, as amended from time to time.

Advanced life support service: Shall have the same meaning as defined in F.S. § 401.23, as amended from time to time.

Air ambulance: Shall have the same meaning as defined in F.S. § 401.23, as amended from time to time.

Basic life support: Shall have the same meaning as defined in F.S. § 401.23, as amended from time to time.

Basic life support service: Shall have the same meaning as defined in F.S. § 401.23, as amended from time to time.

Board: The Board of County Commissioners of Leon County, Florida.

Certificate: A certificate of public convenience and necessity for a specific classification of services issued by the board of county commissioners to a private or public entity which authorizes the entity to provide emergency medical services countywide.

Council: The Emergency Medical Services Advisory Council of Leon County.

County: The incorporated and unincorporated areas within the territorial limits of Leon County, Florida.

Department: The Florida Department of Health.

Emergency medical technician: Shall have the same meaning as defined in F.S. § 401.23, as amended from time to time.

First responder: Pursuant to F.S. § 401.435, an individual who possesses the required state certification and licensure credentials to provide first response and is acting under proper medical direction shall be permitted to respond to pre-hospital emergency medical incidents.

Hospital: Any facility located in the county licensed as a hospital in accordance with Chapter 395, Florida Statutes, and which operates a dedicated emergency department.

License: Any license or transfer of license issued by the department of health pursuant to Chapter 401, Florida Statutes.

Medical director: A board certified emergency physician who meets the requirements of the Florida Department of Health, Bureau of Emergency Medical Services and who provides clinical oversight, medical protocols and policy development, quality assurance and quality improvement services.

Operator: Any person engaged in business as the owner, proprietor, purchaser, or lessee of ambulances, emergency medical services vehicles, air ambulances, or other vehicles intended to be used for basic, advanced life support services or emergency transportation services in Leon County.

Paramedic: Shall have the same meaning as defined in F.S. § 401.23, as amended from time to time.

Patient: An individual who is ill, sick, injured, wounded or otherwise incapacitated and is in need of or can be expected to need emergency medical care.

Permit: Shall have the same meaning as defined in F.S. § 401.23, as amended from time to time.

Person: Any individual, firm, association, partnership, corporation, local government, or any other group, combination of individuals or entities acting as a unit.

Registered nurse: Shall have the same meaning as defined in F.S. § 401.23, as amended from time to time.

Rules and regulations: those specific requirements and guidelines which are promulgated and periodically revised by the board and codified in this article.

Vehicle: Includes aircraft, landcraft and watercraft.

(Ord. No. 04-09, § 1, 4-13-04)

Sec. 8-58. - Emergency medical services advisory council.

There is hereby created the Emergency Medical Services Advisory Council of Leon County (hereinafter referred to as "EMSAC"). Membership of the EMSAC shall consist of the county administrator or designee, who shall act as chairman of the EMSAC, the assistant county administrator or designee, the City Manager of the City of Tallahassee or designee, the Leon County EMS Medical Director, and the administrator, or designee, and emergency department medical director of each hospital. It shall be the duty of the EMSAC to make recommendations to the board and its administrative staff as to the significant needs, issues and opportunities relating to emergency medical services, including the provision of ambulance service in the county, and such other duties as may be prescribed under this article.

The EMSAC is hereby delegated the authority by the board to promulgate the rules and regulations necessary to carry out the provisions of this article. The EMS chief shall provide staff to the EMSAC.

(Ord. No. 04-09, § 1, 4-13-04)

Sec. 8-59. - Certificates required.

No person shall conduct, engage in, advertise for, or provide any of the services as described in this article unless a certificate of public convenience and necessity is first obtained from the board.

(Ord. No. 04-09, § 1, 4-13-04)

Sec. 8-60. - Classification of certificates.

Certificates shall be classified, and certificate holders shall operate in accordance with the classification of each service category as follows:

(1) *Advanced life support ground transport services certificate:* Holders of this certificate shall:

a. Provide advanced life support services as defined under F.S. § 401.23 and 64E-2.003, Florida Administrative Code;

b. Maintain its vehicle(s) and operate its service program with the intention of providing both medical transport and ALS service, on a regular 24-hour per day, seven-day per week basis throughout the county;

c. Abide by standard operating medical procedures and protocols promulgated by the county EMS medical director;

d. Participate in EMS system quality assurance activities as directed by the county EMS medical director.

(2) *Air ambulance service transport certificate:* Holders of this certificate shall:

a. Provide air ambulance services, rotary wing or fixed wing, as defined by F.S. § 401.23, and 64E-2.005, Florida Administrative Code;

b. Abide by standard operating medical procedures and protocols as directed by the providers' EMS air ambulance medical directors or that of the county EMS medical director, whichever provides a higher level of patient care;

c. Participate in EMS system quality assurance activities as directed by the county EMS medical director.

(3) *Basic life support transport services certificate:* Holders of this certificate shall:

a. Provide basic life support services as defined under F.S. § 401.23 and 64E-2.002, Florida Administrative Code;

b. Abide by standard operating medical procedures and protocols promulgated by the county EMS medical director;

c. Participate in EMS system quality assurance activities as directed by county EMS medical director;

d. Maintain its vehicle(s) and operate its service program with the intention of providing both medical transport and BLS service on a regular 24-hour per day, 7-day per week basis throughout the county.

(4) *Advanced life support non-transport services certificate:* Holders of this certificate shall:

a. Provide advanced life support services as defined under F.S. § 401.23, and 64E-2.005, Florida Administrative Code, excluding transport requirements;

b. Abide by standard operating medical procedures and protocols promulgated by the county EMS medical director;

c. Participate in EMS system quality assurance activities as directed by the county EMS medical director.

(Ord. No. 04-09, § 1, 4-13-04)

Sec. 8-61. - Certificate application.

Every application for a certificate of public convenience and necessity under this article shall be in writing, signed and sworn by the applicant and shall be filed with the board. The application shall contain the following:

(1) The name, age and address of the applicant and the length of time the applicant has resided in the county if the applicant is an individual; the business name of the partnership and the name, age and

address of each partner and the length of time each partner has resided in the county if the application is a partnership; the names and residences of all officers and directors if the applicant is a corporation; the classification of the certificate of public convenience and necessity being applied for.

(2) If the applicant is a corporation, the type and number of shares outstanding and the name and the addresses of shareholders.

(3) The date of incorporation or formation of the entity.

(4) A description of the services to be provided.

(5) The addresses of the applicants present and proposed base station location and all sub-stations, including the methodology used to determine their locations as well as the process to be used to relocate/add substations in the future.

(6) The names and certification numbers of all emergency medical technicians, paramedics, first responders, drivers or other attendants employed by or affiliated with the applicant.

(7) The year, model, type, department permit number (when received by department), motor vehicle or FAA registration number and mileage of every ambulance, rescue vehicle or other type of transporting or responding vehicle used by the applicant.

(8) Applicants desiring to provide ground transport must provide a written plan describing the procedures to replace vehicles at intervals of no greater than five years or 200,000 miles, whichever occurs first.

(9) Applicants desiring to provide ground transport must provide a written plan describing the procedures to replace non-disposable medical equipment based on manufacturer standards.

(10) Air ambulance providers must include a copy of their most recent operations manual and FAA Part 135 Certificate.

(11) A description of the applicant(s communication system, including its assigned frequency, call number, mobiles, portables, range and hospital communications ability.

(12) A proposed operating budget for the purpose of demonstrating financial ability to perform and commitment to providing described services.

(13) Verified proof that the applicant and its employees possess all required federal and state licenses and permits.

(14) The name of the municipalities and the description of all geographic areas that the applicant has previously been authorized to serve, including Leon County, any other county in Florida, or any other state.

(15) A list of current charges or a schedule of proposed charges for transportation and treatment of patients and a written statement of intent to notify the board in writing of any proposed future fee increase, including rationale for the increase.

(16) A sworn statement signed by the applicant or his/her authorized representative stating that all the information provided by the applicant in the application is true and correct.

(17) Pursuant to Rules 64E-2.002(4) and 64E-2.003(7), F.A.C., a list of medical equipment and supplies to be equipped and maintained in each emergency medical services vehicle.

(18) A statement, policy, certificate, or irrevocable letter of commitment to insure, from an insurance company satisfactory to the board, shall be attached to the application, and shall specify coverages/limits for public liability, property damage and malpractice insurance as provided in this article or a surety bond conditioned for the payment and satisfaction of any final judgment as required by this article.

(19) Compilation statement showing assets and liabilities prepared by a certified public accountant.

(20) A copy of the applicant(s management plan which shall include a copy of standard operating procedures.

(21) Proof that the applicant has employed or contracted with a medical director qualified pursuant to F.S. § 401.265.

(22) Any other information as may be reasonably required by the board.

(23) The application fee except for renewals, shall be in the amount of $5,000.00, except for the state, agencies of the state, and political subdivisions of the state, who shall not be required to submit such application fee.

(Ord. No. 04-09, § 1, 4-13-04)

Sec. 8-62. - Application review.

(a) Within five days of receipt of an application for a certificate under this article and the appropriate fee, the board shall transmit a copy of the application to the following: The City of Tallahassee, the Tallahassee Fire Department, the Leon County Director of Emergency Management, the medical directors of emergency departments at all hospitals, existing ambulance services, and the EMSAC members. All recommendations on the application shall be forwarded to the EMSAC within 30 days of receipt. The EMSAC shall then have 30 days in which to review the recommendations. Thereafter, the EMSAC shall submit its recommendation for granting (with or without limitations) or denying the certificate to the board.
(b) The EMSAC shall, within the time prescribed in subsection (a) of this section, review the application and cause an investigation to be made of the character and reputation of the applicant. The EMSAC's investigation and review of the application shall include, but not be limited to the following:

(1) The financial responsibility of the applicant to maintain safe, comfortable services, maintain or replace medical equipment, and maintain all insurance coverage required under this article.

(2) The condition of the emergency medical services vehicles and equipment provided by the service.

(3) The adequacy of the standard operating procedures of the applicant.

(4) The past performance and service record of the applicant obtained from sources such as hospitals, nursing homes, local public safety agencies and the department of health.

(5) The number and type of services and governmental entities currently providing emergency basic and advanced life support emergency medical services or air medical transportation services to the area, and the effect of the proposed services on the quality and cost of any existing medical transportation or rescue services.

(6) The basis for determination of need may include, but shall not be limited to:

a. A computation of the ratio of estimated annual requests for service in the particular certificate category, to the current number of vehicles satisfying requests;

b. A computation of the ratio of vehicles per 1,000 population.

c. A benchmark comparison with other entities of similar size and geography providing emergency medical services.

(7) The extent to which the applicant and all proposed equipment and personnel conform to the requirements of Chapter 401, Florida Statutes, any amendments thereto, and any rules promulgated thereunder.

(8) Such other facts which the EMSAC may deem relevant in determining the fitness of the applicant to assume the occupation of an operator.

(Ord. No. 04-09, § 1, 4-13-04)

Sec. 8-63. - Issuance or refusal.

(a) Within 30 days of receipt of the EMSAC's recommendation, the board shall review said recommendation and may uphold, amend or deny, in whole or in part, the recommendations of the EMSAC. Any substantive amendment made by the board shall be returned to the EMSAC for further review. If the board finds that the applicant meets the requirements for a particular classification of a certificate of public convenience and necessity, it may issue a certificate, subject to the limitations as the board deems necessary to protect the public health, safety and welfare. A certificate shall be valid for a period of three years and shall not be transferable or assignable without the prior written approval of the board.

(b) Every certificate issued under this article shall state:

(1) The name of the service.

(2) Certificate classification as specified in section 8-60 of this article.

(3) Date of issuance and the date of expiration.

(4) The minimum number of vehicles to be used by the applicant in the rendition of such services.

(5) Such conditions and limitations as the board may deem necessary or proper in the public interest.

(6) The signatures of the chairman of the board and the clerk of the courts.

(Ord. No. 04-09, § 1, 4-13-04)

Sec. 8-64. - Rights and duties granted by certification.

(a) *Advanced life support ground transport services certificate:* Acceptance of the advanced life support ground transport services certificate shall obligate the applicant to:

(1) Provide continuous and uninterrupted emergency medical services to the extent authorized by the certificate.

(2) Keep such records as may be required by the federal or state government or by the board and make such records available to the county administrator or his designee for inspection.

(3) Promptly respond to every emergency call for ambulance service. Patients shall be loaded and transported without being subject to unreasonable delays and without regard to financial ability to pay. All emergency response times shall be kept by the operator, and a log reflecting such response time shall be made available to the EMSAC annually, or as otherwise requested by the EMSAC.

(4) Operate a minimum number of advanced life support ambulances on immediate call at all times. The actual number of ambulances required to be maintained on "immediate call" shall be reviewed by the EMSAC and the actual numbers determined pursuant to the terms of subsection 8-62(b)(6).

(5) Provide advance notice of any proposed rate changes to the EMSAC.

(6) Complete an ambulance run report for all ambulance calls, noting the time, place of origin, destination requested by patient, actual destination, and identification of services (charge codes) for which charges are made, and such other operating and patient information as may be required by the EMSAC or Florida Department of Health Bureau of Emergency Medical Services, hereinafter BEMS. Every operator shall retain and preserve all daily run reports for at least five years, and such run reports shall be available for inspection by the EMSAC upon request. The EMSAC shall make an semi-annual review of said run reports for the year ending September 30 by no later than December 1 of each consecutive year and submit its report to the board; within 60 days thereafter.

(7) Maintain liability insurance in such amounts and with such coverage as the board may require upon issuance of the certificate.

(8) Operate in conformance with all federal and state laws and local ordinances.

(9) File an application for renewal of its certificate at least 180 days prior to the date of expiration.

(10) Notify the board in writing at least 180 days prior to the date of expiration in the event the operator determines that it will not file an application for renewal of its certificate.

(11) Notify the board in writing, in the event the operator determines that it will no longer provide services authorized under its certificate, at least 180 days prior to the date the operator plans to cease providing services in the county.

(b) *Air ambulance service transport certificate:* Acceptance of the air ambulance service transport certificate shall obligate the applicant to:

(1) Provide continuous and uninterrupted emergency medical services to the extent authorized by the certificate.

(2) Keep such records as may be required by the federal or state government or by the board and make such records available to the county administrator or his designee for inspection.

(3) Promptly respond to every emergency call for air ambulance service. Patients shall be loaded and transported without being subject to unreasonable delays and without regard to financial ability to pay. All emergency response times shall be kept by the operator, and a log reflecting such response time shall be made available to the EMSAC annually, or as otherwise requested by the EMSAC.

(4) Provide advance notice of any proposed rate changes to the EMSAC.

(5) Complete an air ambulance run report for all air ambulance calls, noting the time, place of origin, destination requested by patient, actual destination, and identification of services (charge codes) for which charges are made, and such other operating and patient information as may be required by the EMSAC or BEMS. Every operator shall retain and preserve all air ambulance run reports for at least five years, and such run reports shall be available for inspection by the EMSAC upon request. The EMSAC shall make an semi-annual review of said run reports for the year ending September 30 by no later than December 1 of each consecutive year and submit its report to the board; within 60 days thereafter.

(6) Maintain liability insurance in such amounts and with such coverage as the board may require upon issuance of the certificate.

(7) Operate in conformance with all federal and state laws and local ordinances.

(8) File an application for renewal of its certificate at least 180 days prior to the date of expiration.

(9) Notify the board in writing at least 180 days prior to the date of expiration in the event the operator determines that it will not file an application for renewal of its certificate.

(10) Notify the board in writing, in the event the operator determines that it will no longer provide services authorized under its certificate, at least 180 days prior to the date the operator plans to cease providing services in the county.

(c) *Basic life support services transport certificate:* Acceptance of the basic life support services transport certificate shall obligate the applicant to:

(1) Provide continuous and uninterrupted services to the extent authorized by the certificate.

(2) Keep such records as may be required by the federal or state government or by the board and make such records available to the county administrator or his designee for inspection.

(3) Promptly respond to every call for service. All emergency response times shall be kept by the operator, and a log reflecting such response time shall be made available to the EMSAC annually, or as otherwise requested by the EMSAC.

(4) Complete a run report for all calls, noting the time, place and such other operating and patient information as may be required by the EMSAC. Every operator shall retain and preserve all daily run reports for at lease five years, and such run reports shall be available for inspection by the EMSAC upon request.

(5) Maintain liability insurance in such amounts and with such coverage as the board may require upon issuance of the certificate.

(6) Operate in conformance with all federal and state laws and local ordinances.

(7) File an application for renewal of its certificate at least 180 days prior to the date of expiration.

(8) Notify the board in writing at least 180 days prior to the date of expiration in the event the operator determines that it will not file an application for renewal of its certificate.

(9) Notify the board in writing, in the event the operator determines that it will no longer provide services authorized under its certificate, at least 180 days prior to the date the operator plans to cease providing services in the county.

(d) *Advanced life support non-transport services certificate:* Acceptance of the advanced life support services non-transport certificate shall obligate the applicant to:

(1) Provide continuous and uninterrupted emergency medical services to the extent authorized by the certificate.

(2) Keep such records as may be required by the federal or state government or by the board and make such records available to the county administrator for inspection.

(3) Promptly respond to every call for service. All emergency response times shall be kept by the operator, and a log reflecting such response time shall be made available to the EMSAC annually, or as otherwise requested by the EMSAC.

(4) Complete an emergency run report for all calls, noting the time, place of origin, destination requested by patient, actual destination, and identification of services (charge codes) for which charges are made, and such other operating and patient information as may be required by the EMSAC or BEMS. Every operator shall retain and preserve all daily run reports for at least five years, and such run reports shall be available for inspection by the EMSAC upon request.

(5) Maintain liability insurance in such amounts and with such coverage as the Board may require upon issuance of the certificate.

(6) Operate in conformance with all federal and state laws and local ordinances.

(7) File an application for renewal of its certificate at least 180 days prior to the date of expiration.

(8) Notify the board in writing at least 180 days prior to the date of expiration in the event the operator determines that it will not file an application for renewal of its certificate.

(9) Notify the board in writing, in the event the operator determines that it will no longer provide services authorized under its certificate, at least 180 days prior to the date the operator plans to cease providing services in the county.

(Ord. No. 04-09, § 1, 4-13-04)

Sec. 8-65. - Certificate revocation, modification, suspension or affirmation.

Every certificate of public convenience and necessity issued pursuant to this article is subject to revocation, modification, or suspension by the board when it is found that:

(1) The certificate holder has failed or neglected to render services as required by the certificate, this article, the rules and regulations promulgated hereunder, Chapter 401, Florida Statutes, or the Florida Administrative Code; or

(2) The certificate holder or its agent has demanded money or other compensation in excess of that established in its schedule of charges filed with the EMSAC; or

(3) The certificate holder has been convicted of a felony which involved conduct indicating the certificate holder to be of such character and capable of such conduct which fail to meet standards considered by the board to be appropriate in the licensed activity. In determining whether to recommend revocation, suspension or modification of the certificate, the council shall consider (1) the nature and seriousness of the felony, and (2) the circumstances under which the felony occurred; or

(4) The certificate was obtained by an application in which any material fact was omitted or falsely stated; or

(5) Such revocation, modification or suspension of the certificate, upon good cause shown, will best serve the public interest.

(Ord. No. 04-09, § 1, 4-13-04)

Sec. 8-66. - Investigative procedures.

(a) All unresolved issues and complaints related to the services of a certificate holder shall be referred within five days of receipt of the complaint to the EMS chief for investigation. The EMS chief shall conduct an investigation and file a written report to the EMSAC within 60 days of receipt of the complaint.

(b) The county administrator shall notify the certificate holder by certified mail of the EMSAC's recommendation within five days of receipt thereof. If the EMSAC determines that revocation, suspension or modification of a certificate is warranted, the notice to the certificate holder shall state the reasons for such findings and establish a hearing date. The hearing and final determination shall be held by the board.

(Ord. No. 04-09, § 1, 4-13-04)

Sec. 8-67. - Rules and regulations.

The board is hereby authorized to adopt such forms, rules, regulations and policies as may be necessary or proper to implement this article.

(Ord. No. 04-09, § 1, 4-13-04)

Sec. 8-68. - Transfer or assignment.

No certificate issued pursuant to this article shall be assignable or transferable by the person to whom it is issued, except upon approval by the board in the same manner and subject to the same application, investigation, fees and public hearings original applications for certificates. Any majority transfer of shares of stock or interest of any person or operator so as to cause a change in the directors, officers, majority shareholders or managers of such person or operator shall be deemed a transfer or assignment as contemplated in this article and subject to the same rules and regulations as any other transfer or assignment.

(Ord. No. 04-09, § 1, 4-13-04)

Sec. 8-69. - The City of Tallahassee not to require license, permit or payment of fees, except occupational license authorized by general or special law.

The City of Tallahassee shall not require any operator holding a certificate issued pursuant to this article to obtain any municipal license, certificate or permit, nor require the payment of any fees for the right to operate within said municipality, except an occupational license authorized by general or special law.

(Ord. No. 04-09, § 1, 4-13-04)

Sec. 8-70. - Article not applicable to government ambulances.

Nothing in this article is intended to apply to any ambulance which is owned or operated by any agency of the state or federal government.

(Ord. No. 04-09, § 1, 4-13-04)

Sec. 8-71. - Turning in a false alarm.

Whoever, without reasonable cause, by telephone or otherwise, summons any emergency medical services vehicle pursuant to this article or reports that such vehicle is needed when such person knows or has reason to know that the services of such vehicle are not needed, shall be guilty of violation of this article subject to punishment as provided herein.

(Ord. No. 04-09, § 1, 4-13-04)

Sec. 8-72. - Violations and penalties.

Violations of this article shall be subject to punishment as provided by F.S. § 125.69. Violators shall be prosecuted by the office of the state attorney in the same manner as misdemeanors are prosecuted. Each day or fraction thereof that a violation continues shall be considered a separate offense.

(Ord. No. 04-09, § 1, 4-13-04)

Secs. 8-73—8-109. - Reserved.

Tallahassee Memorial HealthCare, Inc. and Subsidiaries

Consolidated Financial Statements and Supplemental Data
September 30, 2015 and 2014

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Report of Independent Certified Public Accountants

To the Board of Directors of
Tallahassee Memorial HealthCare, Inc.

We have audited the accompanying consolidated financial statements of Tallahassee Memorial HealthCare, Inc. and Subsidiaries ("TMH, Inc."), which comprise the consolidated balance sheets as of September 30, 2015 and 2014 and the related consolidated statements of operations, changes in net assets and cash flows for the years then ended.

Management's Responsibility for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

Independent Certified Public Accountants' Responsibility

Our responsibility is to express an opinion on the consolidated financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on our judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to TMH, Inc.'s preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of TMH, Inc.'s internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Tallahassee Memorial HealthCare, Inc. and Subsidiaries at September 30, 2015 and 2014, and the results of their operations, changes in net assets and cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

PricewaterhouseCoopers LLP

December 8, 2015

PricewaterhouseCoopers LLP, 4040 West Boy Scout Boulevard, Suite 1000, Tampa, FL 33607-5745
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Tallahassee Memorial HealthCare, Inc. and Subsidiaries
Consolidated Balance Sheets
September 30, 2015 and 2014

	2015	2014
Assets		
Current assets		
Cash and cash equivalents	$ 237,123,322	$ 179,738,995
Short-term investments	10,492,082	7,999,480
Assets limited as to use	6,914,410	13,471,190
Patient accounts receivable, net of allowance for doubtful accounts of approximately $75,335,000 and $71,841,000 as of September 30, 2015 and 2014, respectively	74,777,022	76,334,590
Inventories	9,660,502	8,446,225
Other current assets	14,989,106	16,146,422
Total current assets	353,956,444	302,136,902
Assets limited as to use		
Held by trustee	6,914,410	26,829,921
Less amount required to meet current obligations	(6,914,410)	(13,471,190)
Total assets limited as to use	-	13,358,731
Long-term investments	7,161,385	9,198,831
Property, plant and equipment, net	278,551,754	276,450,711
Other assets	8,922,512	8,714,459
Total assets	$ 648,592,095	$ 609,859,634
Liabilities and Net Assets		
Current liabilities		
Accounts payable and accrued expenses	$ 55,763,803	$ 50,208,258
Due to Medicare	9,050,142	6,269,108
Current portion of long-term debt	407,579	4,133,700
Current portion of pension liability	18,956,966	17,478,867
Other current liabilities	9,432,216	9,401,426
Total current liabilities	93,610,706	87,491,359
Long-term debt, net of current portion	133,357,713	124,738,856
Long-term pension liability	87,846,778	59,492,914
Other liabilities	23,472,318	21,921,564
Total liabilities	338,287,515	293,644,693
Commitments and contingencies		
Net assets		
Unrestricted	293,213,258	297,215,679
Temporarily restricted	9,957,237	9,827,731
Permanently restricted	7,134,085	9,171,531
Total net assets	310,304,580	316,214,941
Total liabilities and net assets	$ 648,592,095	$ 609,859,634

The accompanying notes are an integral part of these consolidated financial statements.

Tallahassee Memorial HealthCare, Inc. and Subsidiaries
Consolidated Statements of Operations
Years Ended September 30, 2015 and 2014

	2015	2014
Unrestricted revenues, gains and other support		
Net patient service revenue (net of contractual allowances and discounts)	$689,936,782	$621,259,177
Provision for bad debts	(99,678,985)	(87,628,477)
Net patient service revenue less provision for bad debts	590,257,797	533,630,700
Other revenue	13,402,432	15,631,247
Total revenues, gains and other support	603,660,229	549,261,947
Expenses		
Salaries, wages and benefits	280,545,123	263,996,603
Supplies and other	199,640,515	177,487,157
Professional fees	45,271,725	37,024,221
Depreciation and amortization	28,806,903	26,889,388
Interest	7,599,500	8,431,901
Total expenses	561,863,766	513,829,270
Operating income	41,796,463	35,432,677
Loss on extinguishment of debt	(1,491,492)	-
Other revenues and expenses, net	(1,086,337)	(1,209,864)
Excess of revenues over expenses	39,218,634	34,222,813
Net assets released from restrictions used for program services and purchase of equipment	1,201,512	1,404,205
Change in pension liability	(44,422,567)	(3,520,076)
(Decrease) increase in unrestricted net assets	$ (4,002,421)	$ 32,106,942

The accompanying notes are an integral part of these consolidated financial statements.

Tallahassee Memorial HealthCare, Inc. and Subsidiaries
Consolidated Statements of Changes in Net Assets
Years Ended September 30, 2015 and 2014

	2015	2014
Unrestricted net assets		
Excess of revenues over expenses	$ 39,218,634	$ 34,222,813
Net assets released from restrictions used for program services and purchase of equipment	1,201,512	1,404,205
Change in pension liability	(44,422,567)	(3,520,076)
(Decrease) increase in unrestricted net assets	(4,002,421)	32,106,942
Temporarily restricted net assets		
Contributions	1,733,825	1,615,777
Provision for bad debts	(500,010)	-
Contributions for equipment purchases	9,975	230,172
Income on investments	584,698	473,231
Net unrealized and realized losses on investments	(425,640)	(143,001)
Net assets released from restrictions–used for program services	(1,191,537)	(1,174,033)
Net assets released from restrictions–used for purchase of equipment	(9,975)	(230,172)
Net asset transfers from temporarily restricted net assets to permanently restricted net assets	(71,830)	(73,036)
Increase in temporarily restricted net assets	129,506	698,938
Permanently restricted net assets		
Contributions	303,505	(49,559)
Provision for bad debts	(2,506,900)	-
Income on investments	345,980	278,865
Net asset transfers to permanently restricted net assets from temporarily restricted net assets	71,830	73,036
Net unrealized and realized losses on investments	(251,861)	(84,268)
(Decrease) increase in permanently restricted net assets	(2,037,446)	218,074
(Decrease) increase in net assets	(5,910,361)	33,023,954
Net assets		
Beginning of year	316,214,941	283,190,987
End of year	$ 310,304,580	$ 316,214,941

The accompanying notes are an integral part of these consolidated financial statements.

Tallahassee Memorial HealthCare, Inc. and Subsidiaries
Consolidated Statements of Cash Flows
Years Ended September 30, 2015 and 2014

	2015	2014
Cash flows from operating activities		
Change in net assets	$ (5,910,361)	$ 33,023,954
Adjustments to reconcile change in net assets to net cash provided by operating activities		
Depreciation and amortization	28,806,903	26,889,388
Depreciation on office space rental property	1,086,452	1,123,408
Amortization of bond discount and bond issue costs	104,118	212,485
Net realized and unrealized losses on trading securities	1,676,827	339,828
Change in fair value of derivative	(1,423,936)	(614,913)
Provision for bad debts	99,678,985	87,628,477
Provision for bad debts on temporarily and permanently restricted pledges	3,006,910	-
Change in pension liability	29,831,964	(7,584,423)
Loss on sale of property, plant and equipment	362,825	181,624
Restricted contributions	(98,982)	(668,716)
Loss on extinguishment of debt	1,491,492	-
(Increase) decrease in		
Patient accounts receivable	(98,121,417)	(94,881,646)
Inventories	(1,214,278)	(243,080)
Other current assets	(1,849,594)	(2,363,244)
Other assets	4,828	(3,987)
Increase (decrease) in		
Accounts payable and accrued expenses	5,555,545	5,242,991
Due to Medicare	2,781,034	5,781,827
Other current liabilities	30,790	136,016
Other liabilities	2,974,690	(1,020,627)
Net cash provided by operating activities	68,774,795	53,179,362
Cash flows from investing activities		
Purchases of property, plant and equipment	(33,288,324)	(29,338,564)
Proceeds from disposals of equipment	931,101	167,394
Investments		
Purchases of investments	(12,736,370)	(14,023,507)
Proceeds from sales and maturities of investments	10,735,564	12,008,150
Assets limited as to use		
Purchases of investments	(700,265)	(3,606,857)
Proceeds from sales and maturities of investments	19,474,680	6,497,496
Decrease in notes receivable and deposits	127,441	84,854
Net cash used in investing activities	(15,456,173)	(28,211,034)
Cash flows from financing activities		
Payments on capital lease obligations	(283,701)	(460,954)
Repayment of Series 1992B Bonds, Series 2000 Bonds, and Series 2015 Notes	(123,065,230)	-
Proceeds from the issuance of Series 2015 Notes	21,000,000	-
Proceeds from the issuance of Series 2015A Bonds	111,332,927	-
Payments on long-term debt	(3,850,000)	(5,628,386)
Payments for debt issuance costs	(1,167,273)	-
Payments on pledges receivable	98,982	438,544
Restricted contributions	-	230,172
Net cash provided by (used in) financing activities	4,065,705	(5,420,624)
Net increase in cash and cash equivalents	57,384,327	19,547,704
Cash and cash equivalents		
Beginning of year	179,738,995	160,191,291
End of year	$ 237,123,322	$ 179,738,995
Supplemental disclosures of cash flow information		
Interest paid on debt obligations	$ 7,961,688	$ 8,321,136

The accompanying notes are an integral part of these consolidated financial statements.

Tallahassee Memorial HealthCare, Inc. and Subsidiaries
Notes to Consolidated Financial Statements
September 30, 2015 and 2014

1. Summary of Significant Accounting Policies

Organization and Reporting Entity
Tallahassee Memorial HealthCare, Inc. and Subsidiaries ("TMH, Inc.") is a not-for-profit parent holding corporation which manages and operates a health delivery system. Tallahassee Memorial Hospital (the "Hospital"), a not-for-profit health care facility, is the hospital division of TMH, Inc. Through common board control, provision of bylaws and direct stock ownership, TMH, Inc. is the parent corporation of Southeast Community Health Services, Inc. ("SECHS"), Tallahassee Memorial Health Ventures, Inc. ("TMHV"), Tallahassee Memorial HealthCare Foundation, Inc. ("Foundation") and Medicus Select, LLC. SECHS is a not-for-profit property holding company. TMHV is a for-profit corporation which manages activities which are not tax exempt. The Foundation is a not-for-profit organization which promotes the educational training and research programs of TMH, Inc. Medicus is a disregarded entity that provides the Hospital with leased labor.

The accompanying consolidated financial statements include the accounts of TMH, Inc. and all of the above mentioned controlled subsidiaries or divisions. All significant intercompany transactions have been eliminated in the consolidated financial statements.

Basis of Presentation
The accompanying consolidated financial statements have been prepared on the accrual basis of accounting. Net assets are identified as unrestricted, temporarily restricted, or permanently restricted.

- Unrestricted - Net assets that are not subject to donor-imposed restrictions.

- Temporarily restricted - Net assets whose use is subject to donor-imposed stipulations that can be fulfilled by actions of TMH, Inc. pursuant to those stipulations or that expire by the passage of time.

- Permanently restricted - Net assets subject to donor-imposed stipulations that they be maintained permanently.

Use of Estimates
The preparation of consolidated financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates. The significant estimates involve accounting for the allowance for doubtful accounts and contractual allowances, due to Medicare, self-insurance liabilities, accrued pension liability and depreciation and amortization expense.

Cash and Cash Equivalents
Cash and cash equivalents include certain investments in highly liquid debt instruments with original maturities of three months or less when purchased.

Investments
Short-term investments consist primarily of certificates of deposit with maturities of less than one year, money market funds, equities and private real estate funds. Long-term investments consist primarily of equities, corporate obligations, mutual funds, and U.S. government and agency obligations. All investments in debt securities and marketable equity securities with readily determinable fair values are measured at fair value in the accompanying consolidated balance sheets. Investment income or loss (including unrealized gains and losses on investments, interest and dividends) is included in the excess of revenues over expenses except for income or loss that is restricted by donor or law. Unrealized gains and losses on short-term and long-term investments classified as other than trading securities are excluded from the excess of revenues over expenses. TMH, Inc. evaluates the nature and classification of securities on a periodic basis under Accounting Standards Codification ("ASC") 958, *Not-for-Profit Entities* ("ASC 958"). Such securities are classified as trading securities.

Assets Limited as to Use
Assets limited as to use include assets held by trustees under indenture agreements and self-insurance trust arrangements. Amounts required to meet current liabilities of the Hospital have been presented as current assets in the accompanying consolidated balance sheets. Assets limited as to use are classified as trading securities and stated at fair market value. Amounts consist of cash and cash equivalents, U.S. government and agency obligations, mutual funds and equities. The Hospital evaluates the nature and classification of securities on a periodic basis and has designated all securities as trading.

Inventories
Inventories consist principally of unused supplies and are stated at the lower of cost (first-in, first-out method) or market.

Property, Plant and Equipment
Property, plant and equipment are stated at cost. Depreciation and amortization is computed on the straight-line method over the estimated useful lives of the assets generally as follows:

	Estimated Useful Lives
Building and building improvements	5–40
Leasehold improvements	5–25
Equipment	3–20

Expenditures for additions and improvements are capitalized. Costs incurred to acquire material and services in obtaining and installing internal-use software and payroll costs directly spent on the installation of such software are capitalized. Training and maintenance fees are expensed as incurred. Expenditures for maintenance and repairs are charged to operations as incurred. Upon sale or retirement of depreciable assets, the related cost and accumulated depreciation are removed from the respective accounts and any gain or loss is included in other revenues and expenses, net.

Debt Issuance Costs
Debt issuance costs incurred in connection with the bond issuances are being amortized over their respective terms utilizing the straight-line method, which approximates the effective interest method. Debt issuance costs of approximately $1,531,000, net of accumulated amortization of approximately $144,500 at September 30, 2015 remains to be amortized over future periods. Debt issuance costs of $3,574,000, net of accumulated amortization was approximately $2,515,000 at September 30, 2014. Net unamortized bond issuance costs are included in other assets in the accompanying consolidated balance sheets. The Series 1992B Health Facilities Revenue Refunding Bonds and Series 2000 Health Facilities Revenue Bonds were refunded during fiscal year 2015 and approximately $728,000 of unamortized debt issuance costs related to the refunded bonds was expensed and included in the loss on extinguishment of debt on the consolidated statement of operations.

Accrued Self-Insurance Liabilities
The provision for estimated self-insured professional liability (malpractice), workers' compensation and employee health includes estimates of the ultimate costs for both reported claims and claims incurred but not reported. The current portion of professional liability, workers' compensation and employee health are included in other current liabilities and the long-term portion is included in other liabilities in the consolidated balance sheets.

Net Patient Service Revenue
The components of net patient service revenue for the years ended September 30, 2015 and 2014 are as follows:

	2015	2014
Gross patient service revenue	$ 2,198,234,091	$ 1,971,788,496
Contractual adjustments and other deductions	(1,508,297,309)	(1,350,529,319)
Net patient service revenue	$ 689,936,782	$ 621,259,177

Net patient service revenue is reported at the estimated net realizable amounts from patients, third-party payors, and others for services rendered, including estimated retroactive adjustments under reimbursement agreements with third-party payors. Retroactive adjustments are accrued on an estimated basis in the period the related services are rendered and adjusted in future periods as final settlements are determined. Patient accounts receivable are stated at their estimated net realizable value as determined by management. Management's estimate is based on an assessment of historical and expected net collections, considering business and economic conditions, trends in health care coverage and other collection indicators.

Excess of Revenues Over Expenses
The consolidated statements of operations include the excess of revenues over expenses. Changes in unrestricted net assets which are excluded from excess of revenues over expenses, consistent with industry practice, include net assets released from restrictions used for program services and purchases of equipment and the change in pension liability.

Charity Care
The Hospital provides care to patients who meet certain criteria under its charity care policy without charge or at amounts less than its established rates. Because the Hospital does not pursue collection of amounts determined to qualify as charity care, they are not reported as net patient service revenue.

Donations
The Foundation reports gifts of cash and other assets as restricted support if they are received with donor stipulations that limit the use of the donated assets. When a donor restriction expires, that is, when a stipulated time restriction ends or purpose restriction is accomplished, temporarily restricted net assets are reclassified to unrestricted net assets and reported in the consolidated statements of operations as net assets released from restrictions. Donor-restricted contributions, other than for equipment, whose restrictions are met within the same year as received are reported as unrestricted contributions in the accompanying consolidated financial statements.

The Foundation reports gifts of land, buildings and equipment as unrestricted support unless explicit donor stipulations specify how the donated assets must be used. Gifts of long-lived assets with explicit restrictions that specify how the assets are to be used and gifts of cash or other assets that must be used to acquire long-lived assets are reported as restricted support. The Foundation reports expirations of donor restrictions when the donated or acquired long-lived assets are placed in service.

During the year ended September 30, 2014, the anticipated due date for a $3,000,000 pledge was extended by the donor. The original pledge due date was September 30, 2014 which was ultimately extended to September 30, 2017. The pledge was anticipated to be paid in three equal annual installments, beginning September 30, 2015. The donor did not make the anticipated payment in accordance with the pledge extension; therefore, the pledge balance of $3,000,000 has been fully reserved as of September 30, 2015.

Other Revenues and Expenses, Net
Other revenues and expenses, net consist primarily of interest income, rental income and the related rental expenses incurred to maintain rental property and the total change in the fair value of the derivative.

Derivative
TMH, Inc. recognizes the asset or liability for the derivative instrument on the consolidated balance sheets at fair value and the amount is included in other liabilities in the consolidated balance sheets. The fair value of the derivative instrument at September 30, 2015 and 2014 was a liability of approximately $453,000 and $1,877,000, respectively, which is included in other long-term liabilities (see Note 7). Changes in the fair value of the derivative are recorded each period in excess of revenues over expenses or as a change in unrestricted net assets, depending on the type of hedge transaction.

On March 22, 2001, the Hospital entered into a "Basis Rate Swap" agreement with a financial institution to receive or pay the spread between two variable interest rates for a notional amount equal to the outstanding principal on the Series 2000 Bond Issue. The purpose of the Basis Rate Swap is to reduce interest cost over the life of the Series 2000 Bonds. However, the swap agreement does not meet the definition of a hedge. Consequently, changes in the fair value of the instrument are required to be recorded in the excess of revenues over expenses in the consolidated statements of operations. The changes in the fair value of the swap required the recording of a gain of approximately $1,424,000 and $615,000 in other revenues and expenses, net, in the accompanying consolidated statements of operations for the years ended September 30, 2015 and 2014, respectively. The gains are unrealized and represent the amount the Hospital would be required to pay the Basis Rate Swap at the end of the fiscal year. The Series 2000 Bond Issue was refunded with the proceeds from the Series 2015A Healthcare Facilities Revenue Refunding Bonds; consequently the Basis Rate Swap agreement was amended effective May 28, 2015 with a financial institution with the same terms and conditions as the original agreement dated March 22, 2001.

The Hospital received funds related to the Basis Rate Swap of approximately $97,000 and $69,000 for the years ended September 30, 2015 and 2014, respectively, which is recorded in other revenues and expenses, net in the accompanying consolidated statements of operations. Furthermore, the Hospital was required to post collateral in the amount of approximately $939,000 and $3,229,000 at September 30, 2015 and 2014, respectively, as part of the margin call related to the Basis Rate Swap. The cash collateral is recorded in assets limited as to use in the accompanying consolidated balance sheets.

Fair Value Measurements
TMH, Inc. accounts for fair value in accordance with ASC 820, *Fair Value Measurements* ("ASC 820"). ASC 820 defines fair value, establishes a framework for measuring fair value under generally accepted accounting principles and enhances disclosures about fair value measurements. Fair value is defined under ASC 820 as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date.

ASC 820 establishes a hierarchy of valuation inputs based on the extent to which the inputs are observable in the marketplace. Observable inputs reflect market data obtained from sources independent of the reporting entity and unobservable inputs reflect the entity's own assumptions about how market participants would value an asset or liability based on the best information available. Valuation techniques used to measure fair value under ASC 820 must maximize the use of observable inputs and minimize the use of unobservable inputs. The standard describes a fair value hierarchy based on three levels of inputs, of which the first two are considered observable and the last unobservable, that may be used to measure fair value.

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The following describes the hierarchy of inputs used to measure fair value and the primary valuation methodologies used by TMH, Inc. for financial instruments measured at fair value on a recurring basis. The three levels of inputs are as follows:

Level 1 - Quoted prices in active markets for identical assets or liabilities.

Level 2 - Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the same term of the assets or liabilities.

Level 3 - Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

A financial instrument's categorization within the valuation hierarchy is based upon the lowest level of input that is significant to the fair value measurement.

The following tables present the financial instruments carried at fair value as of September 30, 2015 and 2014, by caption on the consolidated balance sheets by the ASC 820 valuation hierarchy defined above:

September 30, 2015	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Net Asset Value*	Total Fair Value
Assets				
Cash, investments and assets limited as to use				
Cash and cash equivalents	$ 242,090,829	$ -	$ -	$ 242,090,829
Corporate obligations	1,201,210	3,564,056	-	4,765,266
Mutual funds	931,883	993,501	-	1,925,384
U.S. government and agency obligations	-	5,832,143	-	5,832,143
Equities	6,020,357	-	-	6,020,357
Private real estate fund	-	-	1,057,220	1,057,220
Total cash, investments and assets limited as to use	250,244,279	10,389,700	1,057,220	261,691,199
Charitable remainder annuity trusts	-	125,919	-	125,919
Insurance contract	-	124,539	-	124,539
Total assets at fair value	$ 250,244,279	$ 10,640,158	$ 1,057,220	$ 261,941,657
Liabilities				
Basis rate swap payable	$ -	$ 453,226	$ -	$ 453,226
Total liabilities at fair value	$ -	$ 453,226	$ -	$ 453,226

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September 30, 2014	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Net Asset Value*	Total Fair Value
Assets				
Cash, investments and assets limited as to use				
Cash and cash equivalents	$ 200,782,881	$ -	$ -	$ 200,782,881
Corporate obligations	1,510,242	4,113,228	-	5,623,470
Mutual funds	838,199	1,007,114	-	1,845,313
U.S. government and agency obligations	-	8,894,310	-	8,894,310
Equities	6,621,253	-	-	6,621,253
Total cash, investments and assets limited as to use	209,752,575	14,014,652	-	223,767,227
Charitable remainder annuity trusts	-	125,922	-	125,922
Insurance contract	-	248,486	-	248,486
Total assets at fair value	$ 209,752,575	$ 14,389,060	$ -	$ 224,141,635
Liabilities				
Basis rate swap payable	$ -	$ 1,877,163	$ -	$ 1,877,163
Total liabilities at fair value	$ -	$ 1,877,163	$ -	$ 1,877,163

* *Under ASU 2015-07, investments that are measured at fair value using net asset value ("NAV") as a practical expedient have not been classified in the fair value hierarchy. The fair value amounts presented in this table are intended to permit reconciliation to the fair value hierarchy to the amounts presented in the consolidated balance sheets.*

Following is a description of TMH, Inc.'s valuation methodologies for assets and liabilities measured at fair value.

Fair value for Level 1 is based upon quoted prices in active markets that TMH, Inc. has the ability to access for identical assets and liabilities. Market price data is generally obtained from exchange or dealer markets. TMH, Inc. does not adjust the quoted price for such assets and liabilities.

Fair value for Level 2 is based on quoted prices for similar instruments in active markets, quoted prices for identical or similar instruments in markets that are not active and model-based valuation techniques for which all significant assumptions are observable in the market or can be corroborated by observable market data for substantially the full term of the assets. Inputs are obtained from various sources including market participants, dealers, and brokers.

Fair value for Level 3, is based on valuation techniques that use significant inputs that are unobservable as they trade infrequently or not at all.

Basis rate swaps are valued using both observable and unobservable inputs, such as quotations received from the counterparty, dealers or brokers, whenever available and considered reliable. In instances where models are used, the value of the interest rate swap depends upon the contractual terms of, and specific risks inherent in, the instrument as well as the availability and reliability of observable inputs. Such inputs include market prices for reference securities, yield curves, credit curves, measures of volatility, prepayment rates, assumptions for nonperformance risk, and correlations of such inputs. The basis rate swap arrangement has inputs which can generally be corroborated by market data and are therefore classified within Level 2.

Investments in the private real estate fund are valued at fair value, which generally is TMH, Inc.'s pro rata interest in the net assets of the fund. TMH, Inc. receives quarterly NAV statements from the fund and generally relies on such information as a practical expedient for purposes of calculating the NAV.

The methods described above may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. Furthermore, while TMH, Inc. believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different estimate of fair value at the reporting date.

Concentrations of Credit Risk

TMH, Inc. maintains its cash and cash equivalents with several large institutions. All accounts at each financial institution are guaranteed by the Federal Deposit Insurance Corporation up to $250,000 per bank. TMH, Inc. has cash deposits which exceed the federally insured deposited amount. Management does not anticipate nonperformance by financial institutions.

TMH, Inc. grants credit without collateral to its patients, most of whom are local residents and are insured under third-party payor agreements. The mix of receivables from patients and third-party payors on a net basis at September 30, 2015 and 2014 was as follows:

	2015	2014
Medicare	23%	22%
Medicaid	11%	9%
Managed Care	25%	26%
Blue Cross	16%	19%
Other (principally Commercial)	25%	24%
	100%	100%

Recent Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board (FASB) issued Accounting Standard Update (ASU) 2014-09 *Revenue from Contracts with Customers* (Topic 606) which will replace numerous requirements in U.S. GAAP, including industry-specific requirements, and provide companies with a single revenue recognition model for recognizing revenue from contracts with customers. The core principle of the new standard is that a company should recognize revenue to depict the transfer of goods or services to customers in an amount that reflects the consideration that it expects to be entitled to in exchange for those goods or services. An amendment to the ASU Update was issued in August 2015, (ASU) 2014-09 to defer the effective date for annual reporting periods beginning after December 15, 2018. TMH, Inc. is currently evaluating the potential changes from this ASU to our future financial reporting and disclosures.

In April 2015, the FASB issued ASU 2015-03 *Simplifying the Presentation of Debt Issuance Costs* (Subtopic 835-30), which will require that debt issuance costs related to a recognized debt liability be presented in the balance sheet as a direct deduction from the carrying amount of that liability, consistent with debt discounts. The recognition and measurement guidance for debt issuance costs are not affected by the amendments in this ASU update. The amendment is effective for financial statements issued for fiscal years beginning December 15, 2015. TMH, Inc. is currently evaluating the potential changes from this ASU to the presentation of the consolidated financial statements.

In May 2015, the FASB issued ASU 2015-07 *Disclosures for Investment in Certain Entities That Calculate Net Asset Value per Share (or its Equivalent)* (Topic 820), which removes the requirement to categorize within the fair value hierarchy all investments for which fair value is measured using the net asset value per share practical expedient. Current GAAP requires that investments for which fair value is measured at net asset value (or its equivalent) using the practical expedient in Topic 820 be categorized within the fair value hierarchy using criteria that differ from the criteria used to categorize other fair value measurements within the hierarchy. Under the amendments in this ASU Update, investments for which fair value is measured at net asset value per share (or its equivalent) using the practical expedient should not be categorized in the fair value hierarchy. Removing those investments from the fair value hierarchy not only eliminates the diversity in practice resulting from the way in which investments measured at net asset value per share (or its equivalent) with future redemption dates are classified, but also ensures that all investments categorized in the fair value hierarchy are classified using a consistent approach. The amendment is effective for financial statements issued for fiscal years beginning December 15, 2016. Effective September 30, 2015, TMH, Inc. early adopted the provisions of the amendment as disclosed in Note 1.

2. Net Patient Service Revenue

The Hospital has agreements with third-party payors that provide for payments to the Hospital at amounts different from its established rates. A summary of the payment arrangements with major third-party payors follows:

Medicare
Inpatient acute care services, skilled nursing services, hospital outpatient services and home health services rendered to Medicare program beneficiaries are paid at prospectively determined rates. These rates vary according to a patient classification system that is based on clinical, diagnostic, and other factors. Certain outpatient services rendered to Medicare beneficiaries, and direct graduate medical education costs are paid based upon a cost reimbursement methodology. The Hospital is reimbursed for cost reimbursable items at a tentative interim rate with final settlement determined after submission of annual cost reports by the Hospital and audits thereof by the Medicare fiscal intermediary.

The Hospital's Medicare cost reports have been audited and settled by Medicare for all years through September 30, 2011. Medicare cost report audits by the Florida Medicare Administrative Contractor (“MAC”) have begun but are not complete for fiscal years 2012 and 2013. Approximately 32% and 33% of net patient service revenue for the years ended September 30, 2015 and 2014, respectively, is subject to the provisions of Medicare agreements.

Medicaid
Inpatient admissions are paid upon a prospectively determined rate based upon diagnostic categories adjusted for severity. Outpatient services (except for laboratory and pathology services) and inpatient services prior to July 1, 2013 rendered to Medicaid program beneficiaries are reimbursed under a cost reimbursement methodology. Reimbursable cost is determined in accordance with the principles of reimbursement established by the State of Florida Title XIX Hospital Reimbursement Plan supplemented by the Medicare Principles of Reimbursement. The interim rates are tentatively established on an individual per diem basis for each hospital, subject to cost ceilings with exceptions. The Hospital is reimbursed at a tentative rate with final settlement determined when the prospectively determined rate is adjusted as a result of intermediary audit of the cost report used in the establishment of the prospective rate. Retroactive adjustments for

interim rate changes anticipated after the intermediary audit of the cost report are accrued on an estimated basis and adjusted in the period when final settlements are determined.

The Hospital's Medicaid cost reports have been audited by the fiscal intermediary through September 30, 2012; however, the revised audited per diem rates have not been issued by Medicaid. The Hospital does not estimate any repayment due to Medicaid resultant from the completion of these audits. Approximately 5% and 8% of net patient service revenue for the years ended September 30, 2015 and 2014, respectively, is related to services provided to Medicaid patients.

Laws and regulations governing the Medicare and Medicaid programs are complex and subject to interpretation. The Hospital believes that it is in compliance with all applicable laws and regulations and is not aware of any pending or threatened investigations involving allegations of potential wrongdoing. While no such regulatory inquiries have been made, compliance with such laws and regulations can be subject to future government review and interpretation as well as significant regulatory action including fines, penalties, and exclusion from the Medicare and Medicaid programs.

Other
The Hospital has also entered into payment agreements with certain commercial insurance carriers, health maintenance organizations, and preferred provider organizations. The basis for payment to the Hospital under these agreements includes prospectively determined rates per discharge, discounts from established charges, and prospectively determined daily rates. Some of these arrangements provide for review of paid claims for compliance with the terms of the contract and result in retroactive settlement with third parties. Retroactive adjustments for other third party claims are recorded in the period when final settlement is determined.

3. Charity Care

The Hospital maintains records to identify and monitor the level of charity care it provides. These records include the amount of charges foregone for services and supplies furnished under its charity care policy and equivalent service statistics. The direct and in-direct costs estimated by the Hospital related to charity care were approximately $21,907,000 and $22,008,000 as of September 30, 2015 and 2014, respectively. The costs were estimated using the best information available to management using the cost to charge ratio. There were no funds received related to offsetting or subsidizing charity care.

4. Tax Status

TMH, Inc., the Hospital and the Foundation are organized as Florida not-for-profit corporations and both are exempt from payment of income taxes under Internal Revenue Code Section 501(c)(3). Medicus is a disregarded entity. SECHS is organized as a Florida not-for-profit corporation and is exempt from payment of income taxes under Internal Revenue Code Section 501(c)(25) as a property holding company. The Internal Revenue Code provides for taxation of certain unrelated business income of tax exempt entities. TMHV is organized as a Florida corporation whose income is taxable under Subchapter C of the Internal Revenue Code.

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5. Investments and Assets Limited As To Use

The composition of assets limited as to use at September 30, 2015 and 2014 is set forth in the following table:

	2015	2014
Held by trustee under indenture agreements		
Cash, cash equivalents and short-term investments	$ 1,599,250	$ 15,795,311
U.S. government and agency obligations	-	3,337,866
	1,599,250	19,133,177
Held by trustee for self-insurance funding arrangements		
Cash, cash equivalents and short-term investments	839,929	376,537
U.S. government and agency obligations	162,216	472,234
Mutual funds	993,502	1,007,114
Equities	1,864,794	1,996,078
Corporate obligations	515,276	615,338
	4,375,717	4,467,301
Held by trustee as swap collateral		
Cash	939,443	3,229,443
	$ 6,914,410	$ 26,829,921

Short-term and long-term investments, stated at fair value, at September 30, 2015 and 2014 include:

	2015	2014
Cash and cash equivalents	$ 139,554	$ 90,242
Corporate obligations	4,249,990	5,008,132
Certificates of deposit	1,449,330	1,552,352
Private equities	27,300	27,300
U.S. government and agency obligations	5,642,627	5,056,910
Mutual funds	931,883	838,199
Equities	4,155,563	4,625,176
Private real estate fund	1,057,220	-
	17,653,467	17,198,311
Less: Long-term investments	(7,161,385)	(9,198,831)
Short-term investments	$ 10,492,082	$ 7,999,480

Investment income including net realized/unrealized (losses)/gains for assets limited as to use, cash equivalents, and other investments are comprised of the following for the years ended September 30, 2015 and 2014:

	2015	2014
Income		
Investment income		
Unrestricted	$ 1,555,101	$ 1,219,793
Temporarily restricted	584,698	473,231
Permanently restricted	345,980	278,865
Net realized losses on sales of trading securities		
Unrestricted	(599,612)	(625,897)
Temporarily restricted	(293,981)	(304,978)
Permanently restricted	(173,955)	(179,717)
Net unrealized (losses) gains on trading securities		
Unrestricted	(399,714)	513,338
Temporarily restricted	(131,659)	161,977
Permanently restricted	(77,906)	95,449
Total investment income	$ 808,952	$ 1,632,061

6. Property, Plant and Equipment

Property, plant and equipment as of September 30, 2015 and 2014 is summarized as follows:

	2015	2014
Land	$ 24,366,585	$ 23,552,673
Buildings	311,613,035	304,374,844
Equipment	235,058,227	222,026,038
Leasehold improvements	4,022,820	3,844,185
	575,060,667	553,797,740
Less: Accumulated depreciation	(317,890,427)	(289,830,624)
	257,170,240	263,967,116
Construction-in-progress	21,381,514	12,483,595
Property, plant and equipment, net	$ 278,551,754	$ 276,450,711

Depreciation expense for the years ended September 30, 2015 and 2014 was approximately $28,807,000 and $26,889,000, respectively. Depreciation expense on office space rental property for the years ended September 30, 2015 and 2014 was approximately $1,086,000 and $1,123,000, respectively, and was included in other revenues and expenses, net in the accompanying consolidated statements of operations. Construction-in-progress at September 30, 2015 consisted of routine facility renovations, enabling projects and committed costs associated with the hospital addition described in Note 17 and various information technology projects. Estimated costs to complete are approximately $17,427,000, of which approximately $12,803,000 is related to the M.T. Mustian Center (the “Center”) enabling projects. No estimate has been included in the cost to complete as of September 30, 2015 for the construction of the Center since final construction plans have not been completed, construction contracts have not been finalized, permits have not been obtained and financing has not been secured.

The Hospital leases substantially all of its property, plant and equipment from the City of Tallahassee under the terms of a lease, as amended, which expires in September 2045. The lease is automatically extended one year each September 30 unless the City of Tallahassee or the Hospital elects to nullify that year's extension. Any such election will not affect automatic renewals in future years. Property, plant and equipment acquired by the Hospital becomes a part of the leased properties, but are owned by the City of Tallahassee and are subject to the terms of the lease agreement. Obligations incurred for such acquisitions are the direct responsibility and liability of the Hospital. The Hospital leases the facility for $1 per year and is responsible for payment of related taxes, insurance, operating expenses and capital improvements of the property, plant and equipment. As further described in Note 17, subsequent to September 30, 2015, the term of the lease was extended until September 30, 2056.

The Hospital leases a portion of its office and equipment under agreements which expire at various dates through 2018. Rent expense for the years ended September 30, 2015 and 2014 was approximately $4,631,000 and $4,029,000, respectively. As of September 30, 2015, future minimum rental payments required under noncancelable operating leases are:

Years Ending	
2016	$ 333,537
2017	78,894
2018	6,275
	$ 418,706

The Hospital leases office space to tenants under operating leases. Lease terms range from one to ten years.

7. Other Liabilities

Other liabilities consist of the following at September 30, 2015 and 2014:

	2015	2014
Workers' compensation liability	$ 1,232,412	$ 1,278,095
Self-insured professional liability	11,519,050	8,893,231
Agency for HealthCare Administration statutory liability	3,082,870	2,791,292
Deferred compensation arrangement	2,546,149	2,312,973
Other liability	380,000	380,000
Fair value of interest rate swap	453,226	1,877,163
Obligation for supplemental executive retirement benefits	4,225,164	4,312,130
Due to outside organizations	33,447	76,680
	$ 23,472,318	$ 21,921,564

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8. Long-Term Debt

A summary of long-term debt and capital lease obligations at September 30, 2015 and 2014 follows:

	2015	2014
Health Facilities Revenue Refunding Bonds, Series 1992B, interest of 6% at September 30, 2014, final maturity December 2015.	$ -	$ 6,090,000
Health Facilities Revenue Bonds, Series 2000, interest of 6.25% to 6.375% at September 30, 2014, final maturity December 2030.	-	100,100,000
Healthcare Facilities Subordinated Revenue Bonds, Series 2008, interest of 9.3% at September 30, 2015 and 2014, final maturity June 2028.	600,000	600,000
Healthcare Facilities Revenue Refunding Bonds, Series 2015A, interest of 4.0% to 5.0% at September 30, 2015, final maturity December 2044.	107,290,000	-
Note payable, principal and interest installments of $42,500 due quarterly with an interest rate of 175 basis points above the LIBOR base rate which was 1.98% at September 30, 2014.	-	735,149
Capital lease obligations	21,882,389	22,166,090
	129,772,389	129,691,239
Less: Net amortized bond premium (discount)	3,992,903	(818,683)
Total long-term debt	133,765,292	128,872,556
Less: Current portion	(407,579)	(4,133,700)
Long-term portion	$ 133,357,713	$ 124,738,856

The Hospital, with the City of Tallahassee acting as a conduit, issued Health Facilities Revenue Refunding Bonds, Series 1987 and 1992B, of $54,905,500 and $38,840,000, respectively, in connection with two cross-over financings. In addition, Health Facilities Revenue Refunding Bonds, Series 1994 in the amount of $21,835,000 were issued in October 1994. On December 1, 1994, the Hospital elected that the Series 1987 Bonds provide for the payment of the Series 1984 Bonds. At the same time, the Series 1992B Bonds and the Series 1994 Bonds provided for the payment of the Series 1987 Bonds. The Hospital granted the City of Tallahassee a security interest in its revenue at the time of closing of the Health Facilities Revenue Refunding Bonds, Series 1994, and the cross-over of the Series 1992B Bonds.

On November 7, 2000, the Hospital, with the City of Tallahassee acting as a conduit, issued Health Facilities Revenue Bonds, Series 2000, in the amount of $100,100,000 for certain construction, renovation, and purchase of equipment. Interest rates range from 6.25% to 6.375% with final maturity in December 2030. The Series 2000 Bonds were collateralized by the gross revenues of the Hospital.

On September 12, 2008, the Hospital, with the City of Tallahassee acting as a conduit, issued Healthcare Facilities Subordinated Revenue Bonds, Series 2008, in the amount of $600,000 for the construction of a sleep center. The Series 2008 Bonds are privately placed and contain an interest rate of 9.3%.

On February 20, 2015, the Hospital issued the Series 2015 Notes in the amount of $21,000,000, the proceeds of which were used to reimburse the Hospital for the cost of construction and equipment of the Hospital's freestanding emergency room. The Series 2015 Notes were refunded on May 28, 2015.

On May 28, 2015, the Hospital, with the City of Tallahassee acting as a conduit, issued HealthCare Facilities Revenue Refunding Bonds, Series 2015A, in the amount of $107,290,000, the proceeds of which were used for the refunding of the outstanding (a) Health Facilities Revenue Bonds, Series 1992B, (b) Health Facilities Revenue Bonds, Series 2000, (c) Series 2015 Notes, and (d) to pay the costs of issuance of the Series 2015A Bonds. The Series 2015A Bonds are collateralized by the revenues of the Hospital.

The Series 1992B Bonds were collateralized by the unconditional and irrevocable guarantee of MBIA, Inc. (formerly the Municipal Bond Investors Assurance Corporation). The guarantee expired with the maturity of the Series 1992B Bonds.

The bond trust indentures require compliance with various restrictive covenants, such as minimum debt service coverage ratios, and include maintenance of certain debt service funds. The Hospital was in compliance with the various restrictive financial covenants at September 30, 2015 and 2014.

All entities under TMH, Inc., with the exception of SECHS, TMHV, Medicus and the Foundation, are part of the obligated group responsible for the repayment of these bonds per the bond indentures.

Scheduled principal payments on long-term debt and the capital lease obligations are as follows:

	Long-Term Debt	Capital Lease Obligations
Years Ending		
2016	$ -	$ 1,666,320
2017	-	1,707,978
2018	-	1,750,678
2019	-	1,794,445
2020	-	1,839,306
Thereafter	107,890,000	28,969,277
	$ 107,890,000	37,728,004
Less: Amount representing interest under the capital lease obligations		(15,845,615)
		$ 21,882,389

The following equipment and buildings were financed under capital leases and are included in property, plant and equipment on the consolidated balance sheets at September 30, 2015 and 2014:

	2015	2014
Equipment and buildings	$ 22,872,616	$ 22,872,616
Less: Accumulated depreciation	(4,603,789)	(3,598,165)
	$ 18,268,827	$ 19,274,451

9. Self-Insurance

The Hospital has professional liability insurance coverage through a captive insurer on a claims-made basis. The Hospital is currently self-insured for the first $3,000,000 of each claim. From May 1, 2003 through April 30, 2005, the Hospital was self-insured for the first $5,000,000 of each claim. From March 28, 2002 through April 30, 2003, the Hospital was self-insured for the first $3,000,000 of each claim. From March 15, 2001 through March 27, 2002, the Hospital was self-insured for the first $1,000,000 of each claim. From January 1, 1989 through March 14, 2001, the Hospital was self-insured for the first $250,000 and prior to January 1, 1989, the Hospital was self-insured for the first $100,000 of each claim. Malpractice claims, including amounts for which the Hospital is self-insured, have been asserted by various claimants, and additional claims may be asserted for known incidents occurring through September 30, 2015. The claims are in various stages of processing and some may ultimately be brought to trial. Moreover, additional claims arising from services provided to patients in the past may be asserted. The Hospital has engaged an independent actuary to assist in the computation of an accrual for self-insurance of professional liability coverage. The actuarial computations were based upon an evaluation of past incidents. A liability of approximately $20,056,000 and $17,395,000 has been recorded at September 30, 2015 and 2014, respectively, representing management's best estimates based upon the actuarial computations.

Effective May 1, 2005, the Hospital entered into a captive arrangement with Health Care Casualty Risk Retention Group, Inc. (“HCCR”) for professional and general liability reinsurance coverage. HCCR provides liability insurance coverage of $20,000,000 per occurrence in excess of the $3,000,000 retention; however, effective August 1, 2014, HCCR’s aggregate liability coverage increased from $20,000,000 to $25,000,000.

HCCR was incorporated under the Captive Insurance Company Act of 2004 and the District of Columbia Business Corporation Act, D.C. Code, 2001 edition, on December 14, 2004. HCCR was added to the list of registered Risk Retention Groups by the state of Florida on March 8, 2005. In addition, the Hospital owns shares of Health Care Casualty Insurance Limited (the “Captive”) which was incorporated as a limited liability company under the Companies Law of the Cayman Islands on August 30, 2002 and holds an unrestricted Class “B” Cayman Islands insurer’s license under Section 4(2) of the Cayman Islands Insurance Law. The license enables the Captive to transact insurance business, other than domestic business, from within the Cayman Islands. The Cayman Islands Monetary Authority has imposed a minimum capital requirement of $120,000.

HCCR and the Captive are owned by a number of healthcare institutions based in the United States. The owners are all not-for-profit hospitals and healthcare systems. The principal activity of the Captive and HCCR is to provide professional and general liability coverage on a claims made and occurrence basis for the risk associated with the delivery of healthcare services for the shareholders, their employees and medical staff members. The Hospital became a shareholder of

the Captive and HCCR on May 1, 2005. As of September 30, 2015, the Hospital is one of eight owners of the Captive, four of which are active and four are inactive and one of five owners of HCCR. TMH, Inc.'s investments in HCCR and the Captive are carried at cost. The investment in HCCR was $100,000 at September 30, 2015 and 2014 and the investment in the Captive was $857,000 at September 30, 2015 and 2014. The Captive's bylaws indicate that no more than 15 organizations can be owners. HCCR maintains a facultative reinsurance agreement with the Captive whereby all of the professional and general liability risk of the Hospital for in force (not expired) policies is effectively transferred to the Captive. Effective from August 1, 2009, the Captive entered into a reinsurance contract with limits reinsured of $14,000,000 per claim and aggregate in excess of $6,000,000 per claim in excess of each insured's retention. Effective August 1, 2006, the Captive entered into a three year reinsurance contract with limits of $14,000,000 per claim and $21,000,000 annual aggregate in excess of $6,000,000 per claim in excess of each insured's retention. Prior to August 1, 2006, the Captive retained $5,000,000 of professional liability risk for each claim and maintained a reinsurance treaty that provided $5,000,000 of excess coverage for each claim.

The Hospital is self-insured for workers' compensation up to $600,000 per occurrence, and has purchased excess coverage from commercial carriers up to the amount allowed by Florida Statutes. A liability of approximately $2,083,000 and $2,129,000 has been recorded at September 30, 2015 and 2014, respectively.

The combined liability for professional liability and workers' compensation self-insurance at September 30, 2015 and 2014 was as follows:

	2015	2014
Other current liabilities	$ 9,387,760	$ 9,353,027
Other liabilities	12,751,462	10,171,326
	$ 22,139,222	$ 19,524,353

10. Retirement Plans

The Hospital maintains a noncontributory defined benefit pension plan (the "Plan") covering substantially all employees. The Plan's benefits are based on years of service and the employees' compensation during the highest five years of credited service. TMH, Inc.'s funding policy is to contribute annually the minimum amount permitted under ERISA using the Projected Unit Credit Actuarial Cost Method. Plan assets consist primarily of listed stocks, corporate bonds, government bonds and notes, and mutual funds.

On October 20, 2004, the Board of Directors of TMH, Inc. approved a resolution to freeze benefit accruals under the Plan effective December 31, 2004. While continued service after December 31, 2004 will count towards eligibility for early retirement benefits and vesting purposes, no service or compensation after December 31, 2004 will be considered for benefit accruals.

The Hospital accounts for the Plan in accordance with ASC 715, *Compensation - Retirements* ("ASC 715"). ASC 715 requires an employer to recognize the net funded status of defined benefit pensions and other postretirement benefit plans as an asset or liability in its balance sheet and to recognize changes in the funded status through net assets. Additional minimum pension liabilities ("AML") and related intangible assets were derecognized upon adoption of ASC 715. For pension plans, the benefit obligation is the projected benefit obligation; for other postretirement plans, the benefit obligation is the accumulated postretirement benefit obligation.

The following table sets forth the approximate change in projected benefit obligation, change in plan assets, weighted average assumptions and component of net periodic pension cost for the Plan:

	2015	2014
Accumulated benefit obligation	$ 460,120,403	$ 425,276,572
Change in projected benefit obligation		
Projected benefit obligation, beginning of year	$ 425,276,572	$ 395,716,067
Interest cost	17,120,524	18,090,962
Actuarial loss	35,860,401	28,364,954
Benefits paid	(18,137,094)	(16,895,411)
Projected benefit obligation, end of year	$ 460,120,403	$ 425,276,572
Change in plan assets		
Plan assets at fair value, beginning of year	$ 348,304,791	$ 311,159,863
Employer contributions	14,400,000	14,400,000
Actual return on plan assets	8,748,962	39,640,339
Benefits paid	(18,137,094)	(16,895,411)
Plan assets at fair value, end of year	$ 353,316,659	$ 348,304,791
Funded status	$ (106,803,744)	$ (76,971,781)

	2015	2014
Amounts recognized in unrestricted net assets		
Net loss	$ 159,531,984	$ 115,109,417
Total amount recognized	$ 159,531,984	$ 115,109,417
Changes recognized in unrestricted net assets		
Net actuarial loss		
Net actuarial loss from liabilities	$ 35,860,401	$ 28,364,954
Net actuarial loss (gain) from assets	18,990,580	(14,842,415)
Total net actuarial loss	54,850,981	13,522,539
Amortization of actuarial loss	(10,428,414)	(10,002,463)
Net change in unrestricted net assets	$ 44,422,567	$ 3,520,076
Net periodic pension (benefit) cost	$ (190,603)	$ 3,295,501

Tallahassee Memorial HealthCare, Inc. and Subsidiaries
Notes to Consolidated Financial Statements
September 30, 2015 and 2014

	2015	2014
Weighted average assumptions for benefit obligations at September 30		
Discount rate	4.12%	4.11%
Rate of increase in future compensation levels	N/A	N/A
Weighted average assumptions for net periodic benefit costs at September 30		
Discount rate	4.11%	4.67%
Expected return on plan assets	8.00%	8.00%
Rate of compensation increase	N/A	N/A
Components of net periodic pension cost		
Interest cost	$ 17,120,524	$ 18,090,962
Expected return on plan assets	(27,739,541)	(24,797,924)
Amortization of loss	10,428,414	10,002,463
Net periodic pension (benefit) cost	$ (190,603)	$ 3,295,501

The Plan assets are administered by a trustee and are invested in the following percentages in various instruments at September 30, 2015 and 2014:

	2015	2014
Mutual funds and short-term investments	10%	6%
Equity securities	65%	81%
Debt securities	25%	13%
	100%	100%

The fair value of the Plan's assets at September 30, 2015 and 2014 are as follows:

September 30, 2015	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total Fair Value
Short-term investments	$ 37,494,854	$ -	$ -	$ 37,494,854
Corporate bonds and notes	-	47,812,258	-	47,812,258
U.S. government and agency obligations	-	39,732,889	-	39,732,889
Common stocks	228,276,658	-	-	228,276,658
Total investments	$ 265,771,512	$ 87,545,147	$ -	$ 353,316,659

September 30, 2014	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total Fair Value
Short-term investments	$ 19,409,222	$ -	$ -	$ 19,409,222
Corporate bonds and notes	-	26,373,663	-	26,373,663
U.S. government and agency obligations	-	18,798,320	-	18,798,320
Common stocks	283,723,586	-	-	283,723,586
Total investments	$ 303,132,808	$ 45,171,983	$ -	$ 348,304,791

Future benefit payments for years ending September 30 are as follows:

2016	$ 18,317,113
2017	19,136,868
2018	20,106,760
2019	21,041,261
2020	21,870,014
2021 – 2026	147,047,243
	$ 247,519,259

The Hospital expects to contribute approximately $14,400,000 to the Plan for the year ending September 30, 2016. Estimated amounts to be amortized out of unrestricted net assets for the year ending September 30, 2016 are approximately $11,352,000 and the amount will be recorded in pension expense.

During 2015, TMH, Inc. adopted the RP-2014 Mortality Tables with fully generated mortality improvements using scale MP-2015 for the Plan. The adoption of this mortality table increased the benefit obligation by $34.1 million.

Investment Strategy
The asset allocation and investment strategy of the Plan is designed to earn superior returns on Plan assets consistent with a reasonably prudent level of risk. Investments are diversified across classes, sectors, and manager style to minimize the risk of large losses. The Hospital uses investment managers specializing in each asset category and, where appropriate, provides the investment managers with specific guidelines, which include allowable and/or prohibited investment types. The Hospital regularly monitors manager performance and compliance with investment guidelines.

Expected Rate of Return
The expected long-term rate of return on Plan assets is based on historical and projected rates of return for current and planned asset categories in the Plan's investment portfolio. Assumed projected rates of return for each asset category were selected after analyzing historical experience and future expectations of the returns and volatility for assets of that category using benchmark rates. Based on target asset allocation among the asset categories, the overall expected rate of return for the portfolio was developed and adjusted for historical and expected experience of active portfolio management results compared to benchmark returns for the effect of expenses paid from Plan assets.

Retirement Savings Plan
During the year ended September 30, 2005, the Hospital established the Tallahassee Memorial HealthCare 401(A) Retirement Savings Plan (the "Savings Plan"), a qualified defined contribution plan covering all employees who are at least 21 years of age and have completed one year of service. TMH, Inc. contributes 4% of eligible income to each eligible employee and an additional matching contribution up to 2% of eligible income. Participants become fully vested after three years of service. The contribution required under the Savings Plan for the years ended September 30, 2015 and 2014 was approximately $9,282,000 and $8,760,000, respectively. These contributions have been included in salaries, wages and benefits expense in the accompanying consolidated statements of operations. Additionally, the amounts due to the Savings Plan as of September 30, 2015 and 2014 were approximately $1,355,000 and $1,081,000, respectively, and are included in accounts payable and accrued expenses in the accompanying consolidated balance sheets.

11. Temporarily Restricted Net Assets

Temporarily restricted net assets are available for the following purposes at September 30, 2015 and 2014:

	2015	2014
Angie C. Deeb Cancer Research and Treatment Trust (represents earnings on endowment fund)	$ 282,130	$ 272,994
Women's and Children's Center	1,126,161	1,133,400
Cancer Treatment	915,138	1,223,608
Diabetes Center	212,319	212,079
Pediatrics	1,286,446	1,110,819
Heart and Vascular Center	196,852	168,461
Other - multiple designated restrictions	3,175,510	3,018,999
Sharon Ewing Walker	300,847	279,142
Geriatric - Physician and Hospital Training	122,781	122,781
Dansby Trauma Center	430,254	453,889
Cancer Building	1,535,942	1,461,054
Dozier Charitable Remainder Annuity Trust	97,558	99,067
Family Practice Residency	275,299	271,438
Total temporarily restricted net assets	$ 9,957,237	$ 9,827,731

Net assets were released from donor restrictions during the years ended September 30, 2015 and 2014 by incurring expenses satisfying the restricted purpose or by occurrence of other events specified by donors.

Purpose restrictions accomplished during the years ended September 30, 2015 and 2014 were as follows:

	2015	2014
Diabetes	$ 23,811	$ 11,672
Angie C. Deeb	86,569	65,558
Give-a-Hand	146,583	86,842
Neurology	129,424	140,131
Woman's Pavilion	25,078	81,505
Cancer Center	96,618	99,334
Arts in Medicine	149,826	147,509
Cancer Building	162,857	102,606
Family Practice	8,900	6,000
Other	361,871	432,876
Total restrictions satisfied	$ 1,191,537	$ 1,174,033

Tallahassee Memorial HealthCare, Inc. and Subsidiaries
Notes to Consolidated Financial Statements
September 30, 2015 and 2014

12. Permanently Restricted Net Assets

Permanently restricted net assets are restricted to investment in perpetuity, the income from which is expendable to support the following programs at September 30, 2015 and 2014:

	2015	2014
General - TMH Endowment	$ 260,577	$ 252,059
General - F Rhodes Sanderson	183,402	181,306
General - Various	33,677	33,315
Nursing Scholarships - Frueauff	473,509	468,098
Nursing Scholarships - Various	157,217	153,710
Nursing - Brady Family Endowment	22,791	22,530
Nursing - Friends of Nursing	17,937	17,732
Cancer Treatment - Deeb	354,581	347,303
Cancer Treatment - Radiation Therapy	179,190	170,732
Cancer - Luca	48,917	47,008
Cancer - Saskia Kindness	4,950	10,863
Arts in Medicine - Akers	85,957	-
Arts in Medicine - Bender/Plescia	66,817	66,053
Arts in Medicine - C. Virginia Bert	123,391	121,981
Diabetes Care - Various	86,922	85,929
Diabetes Care - Proctor	1,119,467	1,043,731
Diabetes Youth Camp - Sweat	13,102	12,952
Cardiac Care - Smith	100,361	99,164
Cardiac Care - Owenby	40,413	39,951
Cardiac Intensive Care - Higdon	210,851	208,442
Cardiac - Various	83,313	81,361
Clinical Medicine - Dozier	738,461	730,021
Laboratory Research - Graham	85,195	84,221
Pediatric Care - Oven	16,594	16,404
Pediatric Care - Various	138,363	136,757
Pediatrics - Cohen	41,945	41,466
Pediatrics - Margaret Mosco	61,223	60,524
Pediatrics - Marco J. Ginaldi	40,229	39,972
Behavioral Health - Geissinger	153,111	151,362
Extended Care - Shelfer	297,858	294,379
Neurointensive Care - Vogter	573,784	544,526
Medical Library - Founding Physicians	57,429	56,773
Neurosciences - Bryan W. Robinson	589,492	578,787
Neurocognitive Rehab - Bender/Plescia	102,261	101,093
Primary Care - Pettit	175,580	175,015
Emergency Services - Bixler	310,653	305,533
Veller Endowment	84,565	83,597
Anonymous Donor Endowment	-	2,306,881
Total permanently restricted net assets	$ 7,134,085	$ 9,171,531

13. Financial Instruments

The carrying amount of certain of TMH, Inc.'s financial instruments (including cash and cash equivalents, short-term investments, and assets limited as to use) approximates fair value because of their relatively short maturities. Long-term investments consist of marketable equity securities and are reported in the consolidated balance sheets at fair value based on quoted market prices.

The estimated fair value of TMH, Inc.'s bonds and notes payable is estimated based on dealer quotations for hospital debt with similar terms and maturities for the same or similar issues. The aggregate carrying amount and estimated fair value of the bonds and notes payable, exclusive of the capital lease obligations, as of September 30, 2015 and 2014, are as follows:

	2015	2014
Carrying value	$ 107,890,000	$ 106,706,466
Estimated fair value	111,670,326	108,045,660

Certain financial instruments potentially subject TMH, Inc. to concentrations of credit risk. These financial instruments consist primarily of cash and cash equivalents, short-term investments, assets limited as to use, and patient accounts receivable. TMH, Inc. maintains its cash and cash equivalents and investments with what management believes to be high quality financial institutions and thus limits its credit exposure. Concentrations of credit risk with respect to patient accounts receivable include Medicare, Medicaid and various commercial payors.

14. Commitments

As of September 30, 2015, future minimum payments required under noncancelable maintenance agreements were as follows:

2016	$ 2,242,934
2017	181,236
2018	181,236
2019	181,236
2020 and thereafter	90,618
	$ 2,877,260

15. Contingencies

In the normal course of business, the Hospital is subject to various litigation and claims such as labor-related and other matters. Management has analyzed such pending unresolved disputes and estimated the potential cost of settlements, legal fees and other costs associated with an unfavorable outcome. The consolidated financial statements include accruals related to these disputes. In the opinion of management, after consultation with legal counsel, no other material liabilities are likely to result from the ultimate disposition of such matters.

16. Endowment

The Foundation operates under the Florida Uniform Management of Institutional Funds Act ("FUMIFA"). The FUMIFA defines an endowment fund as an institutional fund, or any part thereof, not wholly expendable by the institution on a current basis under the terms of the applicable gift. Furthermore, FUMIFA allows a governing board to expend that amount of an endowment fund

determined to be prudent for the uses and purposes for which the endowment fund is established and consistent with the goal of conserving the purchasing power of the endowment fund. In accordance with FUMIFA, the Foundation considers the following in expenditure decisions for its endowment funds:

- The purposes of the Foundation
- The intent of the donors of the endowment fund
- The terms of the applicable instrument
- The long-term and short-term needs of the Foundation in carrying out its purposes
- General economic conditions
- The possible effect of inflation or deflation
- The other resources of the Foundation
- Perpetuation of the endowment

The Foundation's endowment consists of individual donor restricted endowment funds and quasi-endowment funds which are internally designated by the Board of Trustees of the Foundation for a variety of purposes plus pledges receivable where the assets have been designated for endowment. The net assets associated with endowment funds including funds internally designated by the Board of Trustees to function as endowments, are classified and reported based on the existence or absence of donor imposed restrictions in a manner consistent with the standard of prudence prescribed by FUMIFA.

The Foundation’s investment policy requires the endowed assets be invested for the sole interest of Tallahassee Memorial Healthcare Foundation, Inc. and with the same care, skill and diligence as a prudent investor would use in a similar capacity. The endowed investments should earn the spending rate of the endowment, plus inflation, and preserve the assets for the Foundation. In addition, the endowed investments should outperform a blended benchmark consisting of 60% Russell 3000 and 40% Barclays Aggregate, over a 3 and 5 year time period, respectively.

The Foundation had the following endowment activities during the years ended September 30 delineated by net asset class and donor-restricted versus Board-designated funds:

	2015			
	Unrestricted	**Temporarily Restricted**	**Permanently Restricted**	**Total**
Donor-restricted endowment fund	$ -	$ 9,957,237	$ 7,134,085	$ 17,091,322
Board-designated endowment fund	963,065	-	-	963,065
Total endowment funds	$ 963,065	$ 9,957,237	$ 7,134,085	$ 18,054,387
Net assets, October 1, 2014	$ 879,438	$ 9,827,731	$ 9,171,531	$ 19,878,700
Gifts	1,932,485	1,733,825	303,505	3,969,815
Provision for bad debts	-	(500,010)	(2,506,900)	(3,006,910)
Appropriation of endowment assets for expenditure	(2,173,278)	(1,191,537)	-	(3,364,815)
Investment gain allocation	324,420	159,058	94,119	577,597
Net asset transfer to/from other restriction	-	(71,830)	71,830	-
Net assets, September 30, 2015	$ 963,065	$ 9,957,237	$ 7,134,085	$ 18,054,387

	2014			
	Unrestricted	Temporarily Restricted	Permanently Restricted	Total
Donor-restricted endowment fund	$ -	$ 9,827,731	$ 9,171,531	$ 18,999,262
Board-designated endowment fund	879,438	-	-	879,438
Total endowment funds	$ 879,438	$ 9,827,731	$ 9,171,531	$ 19,878,700
Net assets, October 1, 2013	$ 492,939	$ 9,128,793	$ 8,953,457	$ 18,575,189
Gifts	1,945,760	1,615,777	(49,559)	3,511,978
Appropriation of endowment assets for expenditure	(2,236,979)	(1,174,033)	-	(3,411,012)
Investment gain allocation	677,718	330,230	194,597	1,202,545
Net asset transfer to/from other restriction	-	(73,036)	73,036	-
Net assets, September 30, 2014	$ 879,438	$ 9,827,731	$ 9,171,531	$ 19,878,700

Description of Amounts Classified as Permanently Restricted Net Assets and Temporarily Restricted Net Assets (Endowments Only)
The portion of perpetual endowment funds that is required to be retained permanently by explicit donor stipulation as of September 30:

Permanently Restricted

	2015	2014
Permanently restricted for program support	$ 7,134,085	$ 9,171,531

Temporarily Restricted

	2015	2014
Temporarily restricted for program support	$ 9,957,237	$ 9,827,731

17. Subsequent Events

TMH, Inc. has developed plans for the construction of a 340,000 square foot addition to be located on the main campus.

The M.T. Mustian Center (the “Center”), as the new addition will be named, will contain replacement operating and interventional adult medical/surgical intensive care beds. The Center will also house all the necessary support services for the operating suites and the intensive care beds.

The Project is currently in the design and development phase which will lead to construction documents, bidding and governmental permitting. Construction is anticipated to commence in fiscal year 2016 and is expected to be completed in approximately thirty (30) months from the onset of work.

The Project will consist of construction of the Center, acquisition of operating suite and intensive care equipment, and a variety of required enabling projects to prepare the site (removal of existing buildings, relocation of infrastructure, improvements to storm water conveyance systems, roadway

and access improvements and relocation of certain access points to existing facilities). The anticipated cost of the Project is approximately $250 million. The proposed financing is a combination of equity and tax-exempt debt not to exceed $275 million. The required approvals for the proposed financing have been obtained from the City of Tallahassee.

On November 24, 2015, the City of Tallahassee, Florida and TMH, Inc. modified the term of the lease under which the Hospital leases substantially all of its property, plant and equipment to extend the expiration to September 30, 2056. All other terms and conditions remain the same other than the expiration date.

TMH, Inc. has evaluated subsequent events through December 8, 2015, which is the date the consolidated financial statements were issued.

pwc

Report of Independent Certified Public Accountants on Accompanying Consolidating Information

To the Board of Directors of
Tallahassee Memorial HealthCare, Inc.

We have audited the consolidated financial statements of Tallahassee Memorial Healthcare, Inc. and Subsidiaries as of September 30, 2015 and for the year then ended and our report thereon appears on page 1 of this document. That audit was conducted for the purpose of forming an opinion on the consolidated financial statements taken as a whole. The consolidating information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the consolidated financial statements. The consolidating information has been subjected to the auditing procedures applied in the audit of the consolidated financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the consolidated financial statements or to the consolidated financial statements themselves and other additional procedures, in accordance with auditing standards generally accepted in the United States of America. In our opinion, the consolidating information is fairly stated, in all material respects, in relation to the consolidated financial statements taken as a whole. The consolidating information is presented for purposes of additional analysis of the consolidated financial statements rather than to present the financial position, results of operations and cash flows of the individual companies and is not a required part of the consolidated financial statements. Accordingly, we do not express an opinion on the financial position, results of operations and cash flows of the individual companies.

PricewaterhouseCoopers LLP

December 8, 2015

PricewaterhouseCoopers LLP, 4040 West Boy Scout Boulevard, Suite 1000, Tampa, FL 33607-5745
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Tallahassee Memorial HealthCare, Inc. and Subsidiaries
Consolidating Balance Sheet – By Subsidiary/Division
September 30, 2015

Schedule I

	Hospital	SECHS	TMHV	Foundation	Medicus	Eliminations	2015 TMH, Inc.	2014 TMH, Inc.
Assets								
Current assets								
Cash and cash equivalents	$ 227,254,511	$ 2,783,496	$ 6,379,855	$ 705,460	$ -	$ -	$ 237,123,322	$ 179,738,995
Short-term investments	1,449,330	-	-	9,042,752	-	-	10,492,082	7,999,480
Assets limited as to use	6,914,410	-	-	-	-	-	6,914,410	13,471,190
Patient accounts receivable, net	74,777,022	-	-	-	-	-	74,777,022	76,334,590
Inventories	9,649,154	-	11,348	-	-	-	9,660,502	8,446,225
Other current assets	10,385,468	85,240	3,883,606	603,019	31,773	-	14,989,106	16,146,422
Total current assets	330,429,895	2,868,736	10,274,809	10,351,231	31,773	-	353,956,444	302,136,902
Assets limited as to use								
Held by trustee	6,914,410	-	-	-	-	-	6,914,410	26,829,921
Less amount required to meet current obligations	(6,914,410)	-	-	-	-	-	(6,914,410)	(13,471,190)
Total assets limited as to use	-	-	-	-	-	-	-	13,358,731
Long-term investments	27,300	-	-	7,134,085	-	-	7,161,385	9,198,831
Property, plant and equipment, net	265,233,451	8,626,583	3,901,485	790,235	-	-	278,551,754	276,450,711
Due from TMH, Inc.	6,220,675	-	521,854	-	1,121,861	(7,864,390)	-	-
Other assets	8,858,900	-	-	63,612	-	-	8,922,512	8,714,459
Total assets	$ 610,770,221	$ 11,495,319	$ 14,698,148	$ 18,339,163	$ 1,153,634	$ (7,864,390)	$ 648,592,095	$ 609,859,634

The accompanying notes are an integral part of these consolidated financial statements.

Tallahassee Memorial HealthCare, Inc. and Subsidiaries
Consolidating Balance Sheet – By Subsidiary/Division (Continued)
September 30, 2015

Schedule I

	Hospital	SECHS	TMHV	Foundation	Medicus	Eliminations	2015 TMH, Inc.	2014 TMH, Inc.
Liabilities and Net Assets								
Current liabilities								
Accounts payable and accrued expenses	$ 53,824,886	$ 221,868	$ 1,777,546	$ 120,172	$ 1,113,553	$ (1,294,222)	$ 55,763,803	$ 50,208,258
Due to Medicare	9,050,142	-	-	-	-	-	9,050,142	6,269,108
Current portion of long-term debt	407,579	1,170,449	-	-	-	(1,170,449)	407,579	4,133,700
Current portion of pension liability	18,956,966	-	-	-	-	-	18,956,966	17,478,867
Other current liabilities	9,387,760	21,250	-	23,206	-	-	9,432,216	9,401,426
Due to TMH, Inc.	-	4,234,511	1,017,176	107,951	40,081	(5,399,719)	-	-
Total current liabilities	91,627,333	5,648,078	2,794,722	251,329	1,153,634	(7,864,390)	93,610,706	87,491,359
Long-term debt, net of current portion	133,357,713	-	-	-	-	-	133,357,713	124,738,856
Long-term pension liability	87,846,778	-	-	-	-	-	87,846,778	59,492,914
Other liabilities	23,438,871	-	-	33,447	-	-	23,472,318	21,921,564
Total liabilities	336,270,695	5,648,078	2,794,722	284,776	1,153,634	(7,864,390)	338,287,515	293,644,693
Commitments and contingencies								
Net assets								
Unrestricted	274,499,526	5,847,241	11,903,426	963,065	-	-	293,213,258	297,215,679
Temporarily restricted	-	-	-	9,957,237	-	-	9,957,237	9,827,731
Permanently restricted	-	-	-	7,134,085	-	-	7,134,085	9,171,531
Total net assets	274,499,526	5,847,241	11,903,426	18,054,387	-	-	310,304,580	316,214,941
Total liabilities and net assets	$ 610,770,221	$ 11,495,319	$ 14,698,148	$ 18,339,163	$ 1,153,634	$ (7,864,390)	$ 648,592,095	$ 609,859,634

The accompanying notes are an integral part of these consolidated financial statements.

Tallahassee Memorial HealthCare, Inc. and Subsidiaries
Consolidating Statement of Operations - By Subsidiary/Division
Year Ended September 30, 2015

Schedule II

	Hospital	SECHS	TMHV	Foundation	Medicus	Eliminations	2015 TMH, Inc.	2014 TMH, Inc.
Unrestricted revenues, gains and other support								
Net patient service revenue (net of contractual allowances and discounts)	$ 689,936,782	$ -	$ -	$ -	$ -	$ -	$ 689,936,782	$ 621,259,177
Provision for bad debts	(99,678,985)	-	-	-	-	-	(99,678,985)	(87,628,477)
Net patient service revenue less provision for bad debts	590,257,797	-	-	-	-	-	590,257,797	533,630,700
Other revenue	5,807,331	667,946	6,179,709	2,256,905	10,639,242	(12,148,701)	13,402,432	15,631,247
Total revenues, gains and other support	596,065,128	667,946	6,179,709	2,256,905	10,639,242	(12,148,701)	603,660,229	549,261,947
Expenses								
Salaries, wages and benefits	278,274,492	47,858	1,500,702	823,408	10,559,889	(10,661,226)	280,545,123	263,996,603
Supplies and other	196,897,644	4,265	3,307,987	2,400,842	79,353	(3,049,576)	199,640,515	177,487,157
Professional fees	45,122,731	22,337	4,000	122,657	-	-	45,271,725	37,024,221
Depreciation and amortization	28,444,157	137,071	207,767	17,908	-	-	28,806,903	26,889,388
Interest	7,588,982	45,084	-	-	-	(34,566)	7,599,500	8,431,901
Total expenses	556,328,006	256,615	5,020,456	3,364,815	10,639,242	(13,745,368)	561,863,766	513,829,270
Operating income (loss)	39,737,122	411,331	1,159,253	(1,107,910)	-	1,596,667	41,796,463	35,432,677
Loss on extinguishment of debt	(1,491,492)	-	-	-	-	-	(1,491,492)	-
Other revenues and expenses, net	283,443	48,217	21,810	-	-	(1,439,807)	(1,086,337)	(1,209,864)
Excess (deficit) of revenues over expenses	38,529,073	459,548	1,181,063	(1,107,910)	-	156,860	39,218,634	34,222,813
Net assets released from restrictions used for program services and purchase of equipment	166,835	-	-	1,191,537	-	(156,860)	1,201,512	1,404,205
Change in pension liability	(44,422,567)	-	-	-	-	-	(44,422,567)	(3,520,076)
(Decrease) increase in unrestricted net assets	$ (5,726,659)	$ 459,548	$ 1,181,063	$ 83,627	$ -	$ -	$ (4,002,421)	$ 32,106,942

The accompanying notes are an integral part of these consolidated financial statements.

Tallahassee Memorial HealthCare, Inc. and Subsidiaries
Consolidating Statement of Changes in Net Assets - By Subsidiary/Division
Year Ended September 30, 2015

Schedule III

	Hospital	SECHS	TMHV	Foundation	Medicus	Eliminations	2015 TMH, Inc.	2014 TMH, Inc.
Unrestricted net assets								
Excess (deficit) of revenues over expenses	$ 38,529,073	$ 459,548	$ 1,181,063	$ (1,107,910)	$ -	$ 156,860	$ 39,218,634	$ 34,222,813
Net assets released from restrictions used for program services and purchase of equipment	166,835	-	-	1,191,537	-	(156,860)	1,201,512	1,404,205
Change in pension liability	(44,422,567)	-	-	-	-	-	(44,422,567)	(3,520,076)
(Decrease) increase in unrestricted net assets	(5,726,659)	459,548	1,181,063	83,627	-	-	(4,002,421)	32,106,942
Temporarily restricted net assets								
Contributions	-	-	-	1,733,825	-	-	1,733,825	1,615,777
Provision for bad debts	-	-	-	(500,010)	-	-	(500,010)	-
Contributions for equipment purchases	166,835	-	-	-	-	(156,860)	9,975	230,172
Income on investments	-	-	-	584,698	-	-	584,698	473,231
Net unrealized and realized losses on investments	-	-	-	(425,640)	-	-	(425,640)	(143,001)
Net assets released from restrictions–used for program services	-	-	-	(1,191,537)	-	-	(1,191,537)	(1,174,033)
Net assets released from restrictions–used for purchase of equipment	(166,835)	-	-	-	-	156,860	(9,975)	(230,172)
Net asset transfers from temporarily restricted net assets to permanently restricted net assets	-	-	-	(71,830)	-	-	(71,830)	(73,036)
Increase (decrease) in temporarily restricted net assets	-	-	-	129,506	-	-	129,506	698,938
Permanently restricted net assets								
Contributions	-	-	-	303,505	-	-	303,505	(49,559)
Provision for bad debts	-	-	-	(2,506,900)	-	-	(2,506,900)	-
Income on investments	-	-	-	345,980	-	-	345,980	278,865
Net asset transfers to permanently restricted net assets from temporarily restricted net assets	-	-	-	71,830	-	-	71,830	73,036
Net unrealized and realized losses on investments	-	-	-	(251,861)	-	-	(251,861)	(84,268)
Increase (decrease) in permanently restricted net assets	-	-	-	(2,037,446)	-	-	(2,037,446)	218,074
(Decrease) increase in net assets	(5,726,659)	459,548	1,181,063	(1,824,313)	-	-	(5,910,361)	33,023,954
Net assets								
Beginning of year	280,226,185	5,387,693	10,722,363	19,878,700	-	-	316,214,941	283,190,987
End of year	$ 274,499,526	$ 5,847,241	$ 11,903,426	$ 18,054,387	$ -	$ -	$ 310,304,580	$ 316,214,941

The accompanying notes are an integral part of these consolidated financial statements.

MEDICAL DIRECTOR SERVICES AGREEMENT

This MEDICAL DIRECTOR SERVICES AGREEMENT ("Agreement") is entered into effective as of the 27th day of October 2014, by and between **TALLAHASSEE MEMORIAL HEALTHCARE, INC.**, a Florida nonprofit corporation ("TMH") and, **SARMED (Sam) ASHOO, M.D.**, an individual ("Medical Director").

RECITALS

WHEREAS, TMH is the owner and operator of a general acute care hospital located at 1300 Miccosukee Road, Tallahassee, Florida, Leon County, and

WHEREAS, TMH operates a fully licensed hospital with medical and surgical facilities and Emergency Medicine Services located in Tallahassee, Leon County, Florida; and

WHEREAS, TMH has patients who are in need of Emergency Medicine services; and

WHEREAS, TMH needs a qualified medical director of the Emergency Medicine Service to insure efficient clinical management, quality performance and proper utilization of the resources of the Emergency Medicine Service.

WHEREAS, TMH desires to contract for certain administrative medical director services as defined in Section 1.3 of this Agreement in the Emergency Medicine Service to assist in the administration, management and operations of the Emergency Medicine Service; and

WHEREAS, Medical Director is a duly licensed physician who has the necessary qualifications to provide who have the necessary qualifications to provide supervision, direction and oversight of the Services within the Emergency Medicine Service in accordance with the terms of this Agreement; and

WHEREAS, the Medical Director provides services as an employee of TMH pursuant to the Emergency Department Specialty Physician (Full-time) Agreement.

WHEREAS, TMH and Medical Director desire to enter into this Agreement in order to provide a full statement of their respective responsibilities in connection with the provision of Services for the Emergency Medicine Service; and

WHEREAS, TMH has determined that entering into this Agreement with Medical Director is an appropriate way to assure satisfaction of the following objectives:

1. To advance TMH's charitable purposes and healing mission;

2. To provide appropriate supervision and proper and consistent administration of the Emergency Medicine Service;

3. To provide necessary control and to standardize procedures performed in the Emergency Medicine Service;

4. To provide appropriate and consistent supervision and training of Emergency Medicine Service personnel;

5. To enhance rapport, communication, teamwork, and morale among Emergency Medicine Service personnel and physicians providing services in the Emergency Medicine Service; and

6. To enhance the overall quality of patient care in the Emergency Medicine Service.

NOW, THEREFORE, in consideration of the foregoing recitals and the mutual promises and covenants contained herein, the parties agree as follows:

SECTION 1. MEDICAL DIRECTOR'S OBLIGATION

1.1 Medical Director Services. In consideration of the compensation set forth herein, Medical Director shall serve as Medical Director of Emergency Services during the term of this Agreement. In the provision of such Services, Medical Director shall report to and shall be subject to an annual performance appraisal and approval by TMH's President and Chief Executive Officer (CEO), or his designee.

1.2 Qualifications of Medical Director. Throughout the term of this Agreement, Medical Director shall:

a. Maintain an unrestricted license to practice medicine in the State of Florida;

b. Be a member in good standing of TMH's Medical Staff ("Medical Staff") with status in the active category with appropriate clinical privileges;

c. Be board certified in Emergency Medicine as required by American Colleges of Emergency Physicians in a specialty area of training and practice related to Emergency Medicine Services;

d. Maintain participating provider status with Medicare and Medicaid programs and not have been deemed excluded from participation in any federally-funded health care program, including Medicare or Medicaid;

e. Maintain an unrestricted federal DEA number and any applicable state drug permits; and

f. Maintain Emergency Center Medical Director qualifications as defined by the State of Florida for a level 2 trauma center.

g. Notify TMH immediately if he no longer meets any of the foregoing requirements.

The inability of Medical Director to fulfill or otherwise abide by the requirements set forth in this Agreement shall be deemed a material breach of this Agreement pursuant to Section 5.3.

1.3 Services of Medical Director. During the term of this Agreement, Medical Director shall:

a. Direct, coordinate, and supervise the quality, availability, safety and appropriateness of the medical services as defined in this Agreement

b. Conduct chart and case reviews and other such activities under the direction of TMH's President and CEO, or his/her designee(s), to evaluate the practice patterns of members of the Medical Staff and/or healthcare providers who are involved in the Emergency Medicine Service where there is a reasonable concern for complying with national or community standards of care;

c. Report on the Emergency Medicine Service to TMH's President and CEO, at least quarterly, and submit such data, reports, and records as may be requested or required by TMH, regulatory bodies, and accreditation agencies relative to the Emergency Medicine Service;

d. In conjunction with the Medical Staff, establish and maintain standards of medical care provided in the Emergency Medicine Service;

e. Assist in the design, implementation, maintenance, and coordination of comprehensive credentialing, quality assurance, risk management and utilization review programs and initiate the development of performance improvement/clinical effectiveness projects to enhance the quality of clinical services provided in the Emergency Medicine Service;

f. Participate in the development and evaluation of the Emergency Medicine Service's policies and procedures on an annual basis, and propose changes as necessary in order to assure that the Emergency Medicine Service meets the qualifications of state and federal law, standards of the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), and applicable

licensing requirements regarding services in the Emergency Medicine Service;

g. Assist in the implementation of recommendations of JCAHO and other applicable accrediting bodies and licensing agencies that pertain to the Emergency Medicine Service;

h As part of TMH's budget process, advise TMH's President and CEO, or his/her designee(s), in writing of recommended capital improvements for, and supply, equipment, maintenance and environmental needs of, the Emergency Medicine Service;

i. Actively participate on committees in the role of Medical Director as requested by TMH or the Medical Staff (in addition to the meeting and committee participation obligations required by virtue of membership on the TMH Medical Staff, for which Medical Director will not be compensated), and be available at reasonable times for consultation, see Exhibit "A".

j. Serve as the Principal Investigator for the Emergency Medicine Service. Attend all meetings and IRB's necessary to provide research to the Emergency Medicine Service. Work with the CO-PI;

k. Provide such technical advice and assistance as may be requested to facilitate the installation of equipment in or the expansion of the Emergency Medicine Service, which shall include, but not be limited to, providing assistance with general health planning;

l. Advise and assist TMH in such other special medico-administrative projects applicable to the Emergency Medicine Service as TMH may reasonably request, including, but not limited to, investigating trends and developments in Hospitalist practices and techniques, introducing innovative approaches that will lead to improved quality of care, participating in affiliation or other teaching agreements between TMH and educational institutions, and participating in the development and presentation of programs related to TMH's community relations; Consult with TMH's President and CEO, TMH administration, and appropriate Medical Staff committees on an ongoing basis to define other responsibilities as needed;

m. During and after the term of this Agreement, in the event litigation is brought against TMH or its directors, officers or employees, based upon a claim of negligence, professional liability or other cause of action related to the provision of Emergency Medicine Services, Medical Director shall, in his

capacity as Medical Director, voluntarily and at no additional cost to TMH (other than expense reimbursement), serve as a witness or otherwise assist in the litigation as requested by TMH;

n. Oversight development of well-defined review criteria for patients of the Emergency Medicine Service or to assure appropriateness of treatment and to prevent over-utilization of services;

o. Attend, organize, represent and participate in conferences, such as Quarterly ADI meetings, state meetings and such other activities as TMH shall designate in order to maintain and improve the quality of care in TMH and in the Emergency Medicine Service;

p. Assist, as requested, with the orientation, education, and in-service training of all non-medical and paramedical personnel engaged for the operation and conduct of the Emergency Medicine Service inside and outside of the Emergency Department; and

q. Participate and develop, as necessary, lines of communication between the Emergency Medicine Service, the Medical Staff, and other TMH departments to ensure harmonious interaction between the Emergency Medicine Services and other TMH operations.

r. Provide direct interactions, under the direction of TMH's President and CEO, or his/her designee(s) with all physicians who are employed or otherwise contracted to provide Emergency Medicine Services, and who fail to comply with the provisions of the Medical Staff Bylaws, Rules and Regulations and other related applicable documents, policies and procedures, manuals, laws and regulations; and

s. Work when requested with TMH personnel to recruit physicians to staff Emergency Medicine Service; and

t. As required, schedule physicians to staff the Emergency Medicine Service and periodically consult with TMH regarding such scheduling;

u. Evaluate and answer, in cooperation with TMH administration, all complaints or inquiries of patients concerning Emergency Medicine Services physician care, and furnish TMH with an analysis of all complaints with recommendations for correcting any identified deficiencies.

1.4 Availability; Time Report. Medical Director shall devote Medical Director's best efforts to carrying out the terms of this Agreement and shall be reasonably available and personally present at TMH on a regular basis to perform the Services, for an average of twelve (12) hours per week not to exceed 624 worked hours per year. Medical Director shall maintain office hours by appointment and shall also be available during such additional hours as are necessary and appropriate in accordance with standards of good medical practice. Medical Director shall meet with TMH's President and CEO or his designee, no less frequently than monthly and provide an oral report on current activities.

1.5 Compliance with Laws, Regulations, and Standards. In connection with the operation and conduct of the Emergency Medicine Service and provisions of Services, Medical Director shall at all times comply with all applicable federal, state, and local laws, rules, regulations and standards, including requirements for participation in the Medicare program, all applicable standards and recommendations of JCAHO and the American Medical Association, appropriate professional certification Board, TMH and the Medical Staff Bylaws, TMH policies and procedures, and all other rules and regulations established by TMH or the Medical Staff applicable to the operation of Emergency Medicine Service.

1.6 Compliance with TMH's Corporate Compliance Program and Code of Conduct. Medical Director recognizes that it is essential to the core values of TMH that all persons and entities contracting with TMH shall at all times conduct themselves in compliance with the highest standards of business ethics and integrity and applicable legal requirements as are reflected in TMH's Corporate Compliance Program and Code of Conduct, as may from time to time be amended by TMH. Medical Director acknowledges that he has received a copy of the Corporate Compliance Program and Code of Conduct and has read and understands the same and hereby agrees that so long as this Agreement remains in effect, Medical Director shall act in a manner consistent with, and shall at all times abide by, such Code of Conduct in Medical Director's practice of medicine and his fulfillment of the terms and conditions of this Agreement. In the event that TMH determines in good faith that Medical Director has breached Medical Director's obligations pursuant to this Section 1.10., TMH shall provide notice to Medical Director of such breach. If such breach is not cured within ten (10) days of such notice, TMH may, upon notice to Medical Director, immediately terminate this Agreement.

1.7 Disciplinary Notices. Medical Director shall notify TMH immediately of any actions for professional liability that are served against Medical Director, and of any disciplinary proceedings instituted against Medical Director at any other hospital or organization.

1.8 Hospital Records; Confidentiality. All proceedings, files, records, and related information of TMH, the Emergency Medicine Service, and the Medical Staff and its committees, including those pertaining to TMH's strategic and financial processes and to the evaluation and improvement of the quality of patient care and any and all patient records and charts produced as a result of either party's performance under this Agreement, shall be and remain the property of TMH

and shall be kept strictly confidential by Medical Director. Medical Director shall not voluntarily disclose such confidential information, either orally or in writing, except as expressly required by law or permitted pursuant to the prior written authorization of TMH. This covenant shall survive the termination of this Agreement for any reason.

1.9 Intentionally left blank.

1.10 Exclusivity. The Medical Director shall not open a competing Emergency Service in Leon County, Florida, nor shall he be affiliated, directly or indirectly, with any other Emergency Medicine Service in Leon County, Florida, or with any other physicians operating a Emergency Medicine Service in Leon County, Florida, or otherwise obtain any ownership or any equity interest in any other entity providing Emergency Medicine Service in competition with TMH within Leon County, Florida, during the term of this Agreement, except with the prior written approval of TMH.

1.11 Failure to Provide Services. Notwithstanding anything in this Agreement to the contrary, in the event Medical Director fails to provide services as required under this Agreement, TMH, in its discretion, shall have the right to contract with another provider to furnish the Medical Director Services. The cost of retaining services from another provider shall be paid by Medical Director during the period of time for which the Medical Director received payment and did not provide services described hereunder.

SECTION 2. COMPLIANCE WITH ALL LAWS, REGULATION AND STANDARDS

2.1 Definitions. For the purposes of this Section 2, the following capitalized terms shall be given the following meanings:

Covered Entity means TMH.

Disclose and *Disclosure* mean, with respect to Protected Health Information, the release, transfer, provision of access to, or divulging in any other manner of Protected Health Information outside Medical Director's internal operations or to other than his employees.

Protected Health Information or *PHI* means information, including demographic information that (a) relates to the past, present or future physical or mental health or condition of an individual; the provision of health care to an individual, or the past, present or future payment for the provision of health care to an individual; (b) identifies the individual (or for which there is a reasonable basis for believing that the information can be used to identify the individual); and (c) is received by Medical Director from or on behalf of Covered Entity, or is created by Medical Director, or is made accessible to Medical Director by Covered Entity.

Use or *Uses* means, with respect to PHI, the sharing, employment, application, utilization, examination or analysis of such PHI within Medical Director=s internal operations.

2.2 Warranty. Medical Director warrants that all the Medical Director Services to be provided hereunder, whether by him directly or by approved sub-contractors of Medical Director, shall fully comply with all applicable federal, state and local statutes, rules and regulations, and that it shall be deemed a material breach of this Agreement by Medical Director if he shall fail to observe this requirement. If such a breach is not cured in accordance with this Agreement, TMH may terminate this Agreement without penalty and without limiting any other rights and remedies set forth in this Agreement.

2.3 Compliance with Laws, Standards. Specifically, but not by way of limitation, Medical Director warrants that the Medical Director Services to be provided hereunder shall comply with all applicable rules, regulations and accreditation standards or requirements of Medicare or

Medicaid or other federal or state health programs, the Joint Commission on Accreditation of Healthcare Organizations, the Health Insurance Portability and Accountability Act of 1996 (HIPAA), the National Committee for Quality Assurance, and updates to incorporate any changes to such laws, rules, regulations, requirements, and standards.

2.4 Privacy Standard Assurances. More specifically, but not by way of limitation, insofar as Covered Entity is required to comply with the final regulations promulgated under HIPAA for the privacy of PHI and insofar as Medical Director has access to, has been provided with, or will be creating PHI of Covered Entity's patients, or employees, Medical Director warrants and agrees as follows:

a. Medical Director shall Use and Disclose PHI solely as necessary to perform the Medical Director Services. Medical Director shall not Use or Disclose PHI for any other purpose.

b. Medical Director warrants that he shall implement and maintain appropriate safeguards to prevent the Use or Disclosure of PHI in any manner other than as permitted by this Agreement.

c. Medical Director shall immediately notify Covered Entity of each Use or Disclosure, of which it becomes aware, that is made by Medical Director, his employees, representatives, agents or subcontractors that is not specifically permitted by this Agreement.

d. Upon termination or expiration of this Agreement, Medical Director shall either return or destroy, in Covered Entity's sole discretion and in accordance with any instructions by Covered Entity, all PHI in the possession or control of Medical Director. However, if Covered Entity determines that neither return or destruction of PHI is feasible, Medical Director may retain PHI provided that Medical Director (i) continues to comply with the provisions of this Section 2 for as long as it retains PHI, and (ii) limits further Uses and Disclosures of PHI to those purposes that make the return or destruction of PHI infeasible.

e. Notwithstanding the foregoing, Medical Director agrees to comply with all local state and federal rules, regulations, and statutes, as well as with community and industry standards relating to confidentiality.

2.5 Survival. This Section 2 shall survive the termination of this Agreement.

SECTION 3. TMH'S RESPONSIBILITIES

3.1 Space. TMH shall furnish, at its expense and in its sole discretion, the area required and necessary for the proper and efficient operation of the Emergency Medicine Service. No part of any such space shall be used, at any time, for the private practice of medicine, or for any purpose other than for services provided by TMH.

3.2 Furniture, Fixtures, Equipment, and Supplies.

a. TMH shall, at its own expense and within the limits of the Emergency Medicine Service budget, provide such furniture, fixtures, equipment, and supplies as TMH, in its sole discretion, deems reasonably necessary for the proper and efficient operation of the Emergency Medicine Service. Medical Director shall not, without the prior written authorization of TMH, obligate or commit TMH for the purchase, acquisition, or pilot trial of equipment or supplies.

b. TMH shall maintain the Emergency Medicine Service's equipment in good working order and repair. Medical Director shall advise TMH immediate of any malfunctions or needed repairs observed by others in the Emergency Medicine Service.

3.3 Services by TMH. TMH shall, at its expense and within the limits of the Emergency Medicine Service budget, furnish the Emergency Medicine Service with such ordinary utilities and services, including janitor, housekeeping, infectious and hazardous waste disposal, in-house messenger service, laundry, electricity, gas, telephone, water, heat and air-conditioning, as TMH, in its sole discretion, deems necessary for the efficient operation and conduct of the Emergency Medicine Service. TMH shall also provide the services of such other TMH departments, including without limitation, nursing, personnel, administrative, accounting, engineering, purchasing and medical records, as are reasonably necessary, in TMH's sole discretion, for the proper and efficient operation of the Emergency Medicine Service. The procurement of services shall be subject to TMH's usual purchasing practices and Medical Director shall not, without the prior written authorization of TMH, order, obligate or commit TMH for the purchase or pilot trial of services.

3.4 Non-Physician Personnel. TMH shall provide all nurses and technical, paramedical and other non-physician personnel as TMH, in its sole discretion, deems necessary for the proper and efficient operation of the Emergency Medicine Service. TMH shall be solely responsible for any and all salaries, other compensation, employer's payroll taxes, workers' compensation coverage and fringe benefits to which such personnel may be entitled as employees of TMH. Medical Director shall not at any time during the term of this Agreement, or for a period of one (1) year immediately following its termination for any reason, solicit, hire or employ, directly or indirectly, any employee of TMH. This covenant shall survive the termination of this Agreement for any reason.

3.5 Continuing Medical Education. TMH will provide a Continuing Medical Education (CME) allocation of an amount no more than one thousand five hundred dollars ($1,500.00) per year for the Medical Director to attend one (1) CME program related to emergency medicine and medical care. The Medical Director must present all receipts and documentation satisfactory to TMH's Chief Medical Officer, or designee, prior to being reimbursed for such expenses. The CME allocation is limited to the reimbursement of one (1) CME program in any given year, and the Medical Director shall not carry forward any monies from a current year's CME allocation into the following year's CME allocation.

SECTION 4. COMPENSATION

In consideration of Medical Director's provision of Services, Medical Director shall be compensated at a rate of [redacted] per hour not to exceed 1040 worked hours per year, during the term of this Agreement, with total annual compensation not to exceed [redacted]. TMH shall pay Medical Director no less frequently than monthly on the last day of each month or in such other more frequent installments as determined by the hospital.

SECTION 5. TERM AND TERMINATION

5.1 Term. Unless earlier terminated as set forth in this Agreement, this Agreement shall be for a term of two (2) years, commencing on November 01, 2014 (the "Commencement Date").

5.2 Termination Prohibition. If the Agreement is terminated with cause or without cause, the parties may not enter into a new or revised agreement which is the same, similar or substantially the same agreement as this Agreement, during the first year of the original two (2) term of this Agreement, unless to do so would not invoke the prohibition on referrals of Stark II, 42 U.S.C. ' 1395nn.

5.3 Without Cause Termination. Either party shall have the right to terminate this Agreement at any time, without cause or penalty, upon not less than ninety (90) days' prior written notice to the other party.

5.4 Termination by Hospital. This Agreement shall automatically terminate in the event that Medical Director fails to maintain the qualifications contained in Section 1.2 of this Agreement. Hospital may, in Hospital's sole discretion, also terminate this Agreement immediately upon the occurrence of any of the following events:

a. The conviction of Medical Director (whether final or on appeal) of any felony or any crime involving moral turpitude;

b. Any sanction upon or prohibition against utilization of the Hospital or any of its services applied to Medical Director;

c. Failure of Medical Director to maintain the qualifications contained in Section 1.2 of this Agreement;

d. Appointment of a receiver for Medical Director's assets, an assignment by Medical Director for the benefit of its creditors, or any relief taken or suffered by Medical Director under any bankruptcy or insolvency act;

e. Jeopardy to the tax-exempt status of the Hospital or to any debt financing arising out of this Agreement;

f. Jeopardy to Hospital's participating provider status in any federally-funded health program arising out of this Agreement;

g. Any jeopardy to patient health or safety;

h. Failure of Medical Director to maintain and operate the Emergency Medicine Service in accordance with the requirements and standards specified in this Agreement; or

i. In the event that Hospital, alone or as a member of a health care system, elects to merge, discontinue, downsize, integrate, restructure or otherwise materially alter the services for which Medical Director is engaged hereunder, Hospital may first request mutual discussions with Medical Director in this regard, which discussions shall continue for a thirty (30) day period subsequent to the Hospital's request ("Discussion Period"). After the expiration of the thirty (30) day Discussion Period, Hospital or Medical Director may elect to terminate this Agreement by providing Medical Director with at least thirty (30) days' advance written notice prior to the effective date of the termination.

5.5 With Cause Termination. In addition to the other termination rights provided herein, either party shall have the right to terminate this Agreement for cause upon fifteen (15) days' written notice to the other party. Any such notice shall specify the cause upon which it is based. The violating party shall have fifteen (15) days to rectify the cause specified in the notice of termination, and if such cause is not rectified within such fifteen (15) day period, this Agreement shall thereupon automatically terminate; provided, however, that if such cause cannot reasonably be rectified within such fifteen (15) day period, this Agreement shall not automatically terminate so long as the violating party has commenced to rectify the cause within such fifteen (15) day period and thereafter diligently and continuously proceeds to rectify such cause. It is understood and agreed by the parties that "cause" for termination subject to notice and cure under this Section includes material breach by either party of any of its obligations under this Agreement. The procedure contained in this paragraph shall not be construed to limit Hospital's liability to terminate as provided in the preceding Section 5.3.

5.6 Effect of Termination. In the event of termination of this Agreement, Medical Director shall cooperate with the orderly transfer of responsibilities to a successor medical director for a period of time not to exceed thirty (30) days. Upon the expiration or termination of this Agreement, the Medical Director shall immediately vacate the premises and shall remove at such time any and all of his personal property. Any personal property that is not so removed may be removed by Hospital at Medical Director's expense. The expiration or termination of this Agreement shall not be subject to the bylaws, rules, regulations, or policies of Hospital or the Medical Staff.

SECTION 6. JEOPARDY

Notwithstanding anything to the contrary herein contained, in the event the performance by either party hereto of any term, covenant, condition, or provision of this Agreement jeopardizes the licensure of Hospital, its participation in or the payment or reimbursement from, the Medicare program, state-sponsored Medicaid program or other reimbursement or payment programs, or its full accreditation by the Joint Commission on Accreditation of Healthcare Organizations or any other

state or nationally recognized accreditation organization, or the tax-exempt status of Hospital, any of its property or financing (or the interest income thereon, as applicable), or will prevent any physician, or any other health care professional or their patients from utilizing Hospital or any of its services, or if for any other reason said performance should be in violation of any statute, ordinance, or be otherwise deemed illegal, or be deemed unethical by any recognized body, agency, or association in the medical or hospital fields, Hospital may at its option (i) terminate this Agreement immediately; or (ii) initiate negotiations to resolve the matter through amendments to this Agreement and if the parties are unable to resolve the matter within thirty (30) days thereafter, Hospital may, at its option, terminate this Agreement immediately.

SECTION 7. INSURANCE AND INDEMNITY

7.1 Liability Insurance. The Employer shall furnish Physician with malpractice and other type of insurance coverage deemed necessary by Employer to the operation of the business of the Employer and the provision of the Emergency Medicine Services under this Agreement in an amount not less than that required by Florida Statutes. Subject to the statutory minimums aforementioned, the amount of malpractice liability insurance coverage for Physician, during the term hereof, or following termination shall be determined and set solely by Employer. Employer will continue to provide professional liability coverage for acts committed with regard to services provided hereunder during Employee's employment after Physician's employment has terminated until the applicable state statute of limitations has expired.

SECTION 8. COMPLIANCE WITH GOVERNMENTAL PROGRAMS AND OTHER HEALTH CARE BENEFIT PROGRAM REQUIREMENTS

8.1 Applicable Medicare Regulations. All references in this Agreement to Medicare regulations and all citations of Sections in this Article refer to those regulations contained at 42 Code of Federal Regulations, Part 415, Subpart C (415.100 to 415.130) and Subpart B (415.50 to 415.70), as those Sections now exist or as those Sections may be subsequently renumbered or revised.

8.2 Application of Requirements. Hospital and Medical Director specifically recognize that each party may provide services to patients covered by the Medicare program (Title XVIII of the Social Security Act) and that each has an obligation to comply with the requirements of the Medicare program for payment for services provided by hospital-based physicians, to the extent that such services are provided pursuant to this Agreement. Each party hereby agrees to cooperate with the other in order to assure that these requirements are met.

8.3 Medical Director Billing in Violation of Medicare Regulations. Medical Director agrees to comply with Section 415.102(c)(3), Florida Statutes, which provides: If the physician, the provider, or another entity bills the carrier or the beneficiary or another insurer for physician services furnished to the provider, as described in Section 415.55(a), CMS considers the provider to which the services are furnished to have violated its provider participation agreement, and may terminate that agreement. In the event Medical Director defrauds the Medicare program by billing either the Medicare carrier or a Medicare beneficiary for physician services in violation of this Section, Hospital shall have the right to immediately terminate this Agreement and Medical Director shall

indemnify Hospital for all losses suffered by Hospital as a result of the violation of this provision by Medical Director.

8.4 Access to Books and Records. Until the expiration of five (5) years after the furnishing of any Services pursuant to this Agreement, Medical Director shall make available upon request to the Secretary of the Department of Health and Human Services or the Comptroller General of the United States, or to any of their duly authorized representatives, this Agreement and such books, documents and records of Medical Director as are reasonably necessary to certify the nature and the reasonable costs of the Services rendered pursuant to this Agreement.

8.5 Excluded Provider. Medical Director hereby represents and warrants that Medical Director is not, and at no time has been, excluded from participation in any federally-funded health care program, including Medicare and Medicaid. Medical Director hereby agrees to immediately notify Hospital of any threatened, proposed or actual exclusion of Medical Director from any federally-funded health care program, including, but not limited to, Medicare and Medicaid. In the event that Medical Director is excluded from participation in any federally-funded health care program during the term of this Agreement, or if at any time after the Commencement Date, it is determined that Medical Director is in breach of this Section, this Agreement shall automatically terminate as of the date of such exclusion or breach.

8.6 Regulatory Compliance.

a. Hospital and Medical Director shall comply with all federal and state fraud and abuse prohibitions, as amended from time to time, including, but not limited to, the Federal Anti-Kickback Prohibition, 42 U.S.C. ' 1320a-7b, Stark II, 42 U.S.C. ' 1395nn, the Florida Patient Self-Referral Act of 1992, ' 456.053, Florida Statutes, and the Florida Patient Brokering Prohibition, ' 817.505, Florida Statutes. All payments between the parties shall be the reasonable fair market value for the health care services provided. None of the parties shall, directly or indirectly, determine the compensation or other exchanges of benefit, value or services based on the volume or value of referrals between the parties for designated health services as defined in 42 U.S.C. ' 1395nn, as amended from time to time. The values and consideration of all remuneration, goods and services exchanged between the parties are for a commercially reasonable business purpose, are determined by the fair market value, reflect the actual provision of health care and other goods and services provided and are not exchanged to induce and/or direct any direct or indirect referrals of goods and/or services that may be paid by a governmental program or any other health care benefit program.

b. If either party develops concern that any provision of this Agreement violates or may violate any applicable federal or state law, then such party shall immediately notify the other party in writing of such concern and the specific activities giving rise to such concerns. The parties then shall negotiate in good faith to amend this Agreement to bring it in compliance with applicable laws.

SECTION 9. INTENTIONALLY LEFT BLANK

SECTION 10. GENERAL PROVISIONS

10.1 Cumulative of Remedies. Except as expressly provided herein, the various rights, options, elections, powers and remedies of the respective parties hereto contained in, granted, or reserved by this Agreement, are in addition to any others that said parties may be entitled to by law, shall be construed as cumulative, and no one of them is exclusive of any of the others, or of any right or priority allowed by law.

10.2 Attorneys' Fees. In the event that any action is brought by either party to enforce or interpret the terms of this Agreement, the prevailing party in such action shall be entitled to its costs and reasonably attorneys' fees incurred therein from the non-prevailing party, in addition to such other relief as the court may deem appropriate.

10.3 Notices. All notices or other communications required or permitted to be given under this Agreement shall be in writing and shall be deemed to have been delivered to a party upon personal delivery to that party or: (i) twenty-four (24) hours following electronically confirmed delivery by facsimile transmission to the telephone number provided by the party for such purposes; (ii) twenty-four (24) hours following deposit for overnight delivery with a bonded courier holding itself out to the public as providing such services, with charges prepaid; or (iii) forty-eight (48) hours following deposit with the United States Postal Service, postage prepaid, and in any case addressed to the party's address set forth below, or to any other address that the party provides by notice, in accordance with this Section 10.3, to the other party:

To Hospital:	Tallahassee Memorial HealthCare, Inc. 1300 Miccosukee Road Tallahassee, Florida 32308 ATTN: Mark O'Bryant, CEO
With a copy to:	E. Murray Moore, Jr., Esquire Pennington, Moore, Wilkinson, Bell & Dunbar, P.A. 215 South Monroe Street, Second Floor Tallahassee, Florida 32301
To Medical Director:	Sarmed (Sam) Ashoo, M.D. To the address shown in his employment record
With a copy to:	Tallahassee Memorial Healthcare, Inc. William Giudice, CFO 1300 Miccosukee Road Tallahassee, Florida 32308

10.4 Assignment. Medical Director shall not have the right or the power to assign this Agreement nor any of the rights or obligations inuring to or imposed upon it herein, unless approved by Hospital; attempted or purported assignment shall be null and void and of no effect. Hospital may, upon written notice of Medical Director, assign this Agreement to any entity related by ownership or control to Hospital.

10.5 Binding on Successors and Assigns. Notwithstanding anything to the contrary in this Agreement, this Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective heirs, personal representatives, successors and assigns.

10.6 No Third Party Rights. This Agreement has been made and is made solely for the benefit of the parties hereto and their respective successors and permitted assigns. Nothing in this Agreement is intended to confer any rights or remedies under or by reason of this Agreement on any persons other than the parties to it and their respective successors and permitted assigns. Nothing in this Agreement is intended to relieve or discharge the obligation or liability of any third persons to any party to this Agreement.

10.7 Waiver. All waivers of rights, powers and remedies by a party to this Agreement must be in writing. No delay, omission or failure by a party to exercise any right, power or remedy to which a party may be entitled shall impair any such right, power or remedy, nor shall such be construed as a release by a party of such right, power or remedy or as a waiver of or acquiescence in any such action, unless such action shall have been cured in accordance with the terms of this Agreement. A waiver by a party of any right, power or remedy in any one instance shall not constitute a waiver of the same or any other right, power or remedy in any other instance.

10.8 Headings. The headings of the sections of this Agreement are included for the purposes of convenience only, and shall not affect the interpretation of any provision hereof.

10.9 Severability. Subject to Section 6, if any provision of this Agreement is found to be invalid or unenforceable by any court or other lawful forum, such provision shall be ineffective only to the extent that it is in contravention of applicable laws without invalidating the remaining provisions of this Agreement, unless such invalidity or unenforceability would defeat an essential business purpose of this Agreement.

10.10 Integration. This Agreement and all Exhibits hereto constitute the entire agreement between the parties with regard to the subject matter hereof and thereof. This Agreement supersedes all previous agreements between or among the parties. There are no agreements, representations or warranties between or among the parties other than those set forth in this Agreement or the documents and agreements referred to in this Agreement.

10.11 Amendments. This Agreement may be amended at any time by mutual agreement of the parties without additional consideration, provided that before any amendment shall become effective, it shall be reduced to writing and signed by each of the parties.

10.12 Governing Law. The validity, interpretation, and performance of this Agreement shall be governed by and construed in accordance with the laws of the State of Florida.

10.13 Confidentiality. Medical Director shall treat all non-public information obtained as part of this engagement as confidential and shall not, without written authorization from Hospital, release or share such information with any third party, except as may be required by law. Medical Director agrees that prior to reporting any actual or perceived violation of law to any governmental entity, even if required by law to do so, Medical Director will first discuss any potential legal or compliance matter with the Hospital Corporate Compliance Officer and Hospital Legal Counsel and, unless otherwise required by law, provide Hospital with an opportunity to investigate and

appropriately report any compliance matter brought to its attention by Medical Director. Further, Medical Director agrees that Medical Director will cause any financial benefit received as a result of reporting any violation or perceived violation of law based on any such non-public information so obtained to be donated to an organization determined by the Internal Revenue Service to be qualified under Section 510(c)(3) of the Internal Revenue Code.

10.14 Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be deemed an original, but all such counterparts together shall constitute one and the same instrument.

10.15 General Interpretation; Ambiguities. Ambiguities, if any, in this Agreement shall be reasonably construed in accordance with all relevant circumstances, including, without limitation, prevailing practices in the industry of the parties in the place where the contract is to be performed and shall not be construed against either party, irrespective of which party may be deemed to have authored the ambiguous provision.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement effective as of the day and year first above written.

TALLAHASSEE MEMORIAL
HEALTHCARE, INC.

G. MARK O'BRYANT, President and CEO

Date: 10/27/14

Corporate Seal
(HOSPITAL)

SARMED (SAM) ASHOO, M.D.

Date: 10/16/2014

Physician
(MEDICAL DIRECTOR)

Exhibit "A"

EMERGENCY CENTER (EC) MEDICAL DIRECTOR RESPONSIBILITIES

Emergency Center Operations

- Attends EC Executive Committee with focus on patient flow, electronic documentation, regulatory readiness and current issues related to the efficiency and safety of operations
- Attends EC Case Review meetings as scheduled
- Attends Trauma Committee and Case Review as scheduled
- Attends organization's patient flow committee as scheduled (Operation Overlord)
  Input and assistance with facility and equipment systems and practices.
  Participates and advises on appropriate medical instrumentation, capital budget requests and allocations for the EC
  Oversight of scheduling and quality practice patterns for mid-level providers of care
- Participates in the data and quality review processes for the TMH Transfer Center

Emergency Center Education

- Participation in the oversight and education necessary for Trauma and other program certifications
- Participation in multidisciplinary education programming related to emergency care in the EC and within the organization

Intradepartmental Activities

- Participates in Public Relations activities and assists with community education/information
- Participates on clinical process improvement teams as needed: pneumonia, asthma, sickle cell, etc.
- Serves as the Medical Director of the Chest Pain Center and participates in related case reviews
- Participates in Centers of Excellence designations: Stroke, Spinal Cord, Trauma, etc.

External Activities

- Serves as Medical Director for the TMH EMS service
- Serves on State advisory councils or committees, as appointed
- Serves on the North Florida Regional EMS Committee
- Participates in Paramedic and EMT education in the Region

Outcome Measures

- CMS Core Measures which apply to the operations and activities of the Emergency Center: Aspirin upon arrival for the acute coronary syndrome patient, appropriate utilization of Beta Blocker for the cardiac patient, antibiotic utilization for the community-acquired pneumonia patient, as examples.
- Time-sensitive cardiac and stoke protocol outcomes
- National Quality Forum (NQF) standards for hospital-based emergency department care: median time from EC arrival time to EC departure time for the admitted patient—specific to MD turn-around time; Median time from EC arrival to EC departure time for discharged patients—specific to MD turn-around time
- Improved communication between EC physicians and between EC physicians, staff and EC leadership.
- Maintain Level II Trauma Designation.

Tallahassee Memorial Emergency Medical Services
Adult Prehospital Protocol Manual
2016

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INTRODUCTION

The purpose of protocol and procedures for Tallahassee Memorial Hospital Emergency Medical Services (EMS) is to establish guidelines between EMS administration, the EMS provider and the Medical Director for the management, treatment, and transport of specific medical emergencies.

Pursuant to the Florida Administrative Code 64J-1.004(4)(a). The Medical Director responsibilities include the developing medically correct standing orders or protocols which permit specified Advance Life Support and Basic Life support procedures when communication cannot be established with a supervising physician or when any delay in patient care would potentially threaten the life or health of the patient.

Authorization for EMS personnel to provide pre-hospital medical care comes directly from the State approved Medical Director.

Tallahassee Memorial EMS providers are authorized to perform only pursuant to the written or verbal authorization of the departments Medical Director or medical control. We will measure up to the high standard required of emergency medical services only by, working together, and maintaining a high degree of professionalism.

The protocols set forth are not designed nor intended to limit the EMS provider in the exercise of good judgment or initiative in taking reasonable action in extraordinary circumstances. These protocols are intended to assist in achieving excellent, consistent prehospital care for patients. These protocols have been developed using the currently accepted standards of care, Leon County Medical Protocols, and *The American Heart Association 2015 Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care.*

The following protocols are not intended to provide a solution to every problem which may present. Prehospital care is a shared responsibility between Medical Director, physician medical control, and the EMS provider. All EMS personnel are required to use the protocols appropriate to their certification and training level.

Sarmed Ashoo, M.D.
Medical Director
Tallahassee Memorial
Emergency Medical Services

Kim Boyer, RN, BSN, MHSA
Emergency Service Line Administrator
Tallahassee Memorial Hospital

Jon Antworth RP, BS
Chief Transport Paramedic
Tallahassee Memorial
Emergency Medical Services

March 3, 2016

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2. Adult Medical Protocols

2.1 Adult Initial Assessment and Management

2.1.1 Initial Assessment Protocol
2.1.2 Airway Management
2.1.3 Medical Supportive Care
2.1.4 Trauma Supportive Care
2.1.5 Pain Management

2.2 Adult Respiratory Emergencies

2.2.1 Airway - Obstruction
2.2.2 Asthma
2.2.3 COPD - Dyspnea
2.2.4 Pulmonary Edema - CHF
2.2.5 Suspected Pneumonia

2.3 Adult Cardiac Dysrhythmias (Cardiac Care: Universal Algorithm)

2.3.1 Asystole
2.3.2 Bradycardia
2.3.3 Narrow Complex Tachycardia (PSVT, Junctional, Atrial Tachycardia)
2.3.4 Stable A-fib and A-flutter
2.3.5 Unstable narrow complex tachycardia
2.3.6 Premature Ventricular Ectopy (PVCs)
2.3.7 Pulseless Electrical Activity (PEA)
2.3.8 Wide Complex Tachycardia with pulse (V-tach with pulse)
2.3.9 V-Fibrillation and Pulseless V-Tach

2.4 Other Adult Cardiac Emergencies

2.4.1 Cardiogenic Shock
2.4.2 Chest Pain Suspected Acute MI/Coronary Syndrome
2.4.3 Hypertensive Emergencies
2.4.4 Hypotension/Shock Unknown Cause
2.4.5 Left Ventricular Assist Devices

2.5 Adult Neurological / Psychological / Behavioral Emergencies

2.5.1 Altered Mental Status – Unknown Etiology
2.5.2 Behavioral/Violent and/or Impaired Patient
2.5.3 Excited Delirium
2.5.4 Seizure Disorders
2.5.5 Suspected CVA

2. ADULT MEDICAL PROTOCOLS

2.1 Adult Initial Assessment & Management

Overview: Protocols in Section 2.1 are designed to guide the EMT or paramedic in his or her initial approach to assessment and management of adult patients. Supportive Care is specified as EMT and Paramedic (BLS) and Paramedic Only (ALS).

Protocol 2.1.1 should be used on all adult patients for initial assessment. During this assessment, if the EMT or paramedic determines that there is a need for airway management, Protocol 2.1.2 should be used for the management of the adult airway. These protocols are frequently referred to by other protocols, which may or may not override them in recommending more specific therapy.

Protocol 2.1.3 presents the basic components of preparation for transport of medical patients. Due to the significant differences in priorities and packaging in the pre-hospital care of trauma and hypovolemia cases, a separate Trauma Supportive Care protocol has been developed. After following Protocol 2.1.1, this Medical Supportive Care protocol may be the only protocol used in medical emergency situations where a specific diagnostic impression and choice of additional protocol(s) cannot be made. Judgment must be used in determining whether patients require ALS or BLS level care. This protocol is frequently referred to by other protocols, which may or may not override it in recommending more specific therapy.

Protocol 2.1.4 presents the basic components of preparation for transport of trauma patients. Due to the significant differences in priorities and packaging in the pre-hospital care of medical cases, a separate Medical Supportive Care protocol has been developed. After following Protocol 2.1.1, this Trauma Supportive Care protocol may be the only protocol used in trauma or hypovolemia situations where a specific diagnostic impression and choice of additional protocol(s) cannot be made. Judgment must be used in determining whether patients require ALS or BLS level care. This protocol is frequently referred to by other protocols, which may or may not override it in recommending more specific therapy.

Protocol 2.1.5 should be used by paramedics ONLY for pain management.

2.1.1 Initial Assessment Protocol: EMT and Paramedic

Purpose: This will be the initial protocol followed by EMTs and Paramedics on all calls you are dispatched to (or that you roll up on).

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. **Scene size up**.
    a. Review of dispatch information
    b. Assess need of body substance isolation
    c. Assessment of scene safety
    d. Determine mechanism of injury
    e. Determine location of patients
    f. Determine need for additional resources
2. **Initial assessment.**
    a. General impression of patient
    b. Assess mental status (AVPU) – Maintain spinal immobilization PRN.
        i. **A** = alert
        ii. **V** = responsive to verbal stimuli
        iii. **P** = responsive to painful stimuli
        iv. **U =** unresponsive
    c. Assess Airway
    d. Assess Breathing.
    e. Assess Circulation- Pulse, Major Bleeding, Skin color and temperature.
    f. Assess Disability- Movement of extremities/Defibrillate VF/VT without pulse
    g. Expose and Examine Head, Neck, Chest, Abdomen, and Pelvis (check back when patient is rolled on side).
    h. Identify Priority Patients
3. **Initial Management**
    a. Airway Management (2.1.2) Protocol/C-spine stabilization p.r.n.
    b. Medical Supportive Care (2.1.3) and/or Trauma Supportive Care (2.1.4) Protocols
4. **Secondary Assessment**
    a. Conduct a head-to-toe survey
    b. Neurological Assessment
        1) Pupillary response
        2) Glasgow Coma score
    c. Assess Vital Signs
        1) Respirations
        2) Pulse
        3) Blood Pressure
        4) Skin Condition
            - Color

- Temperature
- Moisture

5) Lung Sounds

d. Obtain a Medical History
   1) **S** – Symptoms, Chief Complaint
      a. O- Onset and Location
      b. P – Provocation
      c. Q – Quality
      d. R-Radiation
      e. R- Referred
      f. R- Relief
      g. S- Severity
      h. T-Time
   2) **A** – Allergies
   3) **M** – Medications
   4) **P** – Past Medical History
   5) **L** – Last Oral Intake
   6) **E** – Events leading to illness or injury
e. Refer to specific medical/trauma protocols for continued management

5. **Other assessment techniques to be used as the situation warrants**:
   a. Cardiac Monitoring (EMT can connect patient to monitor while paramedic performing other task)
   b. Pulse Oximetry
   c. Glucose Determination
   d. Monitor Core Temperature
   e. Capnography

2.1.2 Airway Assessment/Management Protocol

Purpose: Airway assessment and management is the most important and first order of business when patient contact is made (immediate removal from unsafe scene may on occasion trump airway management). An algorithm for general airway assessment/management provides a general overview and road map for the EMT/Paramedic to follow if needed. This algorithm will in turn direct the EMT/Paramedic to either a Non-breathing Airway Protocol or a Breathing Patient Airway Protocol. If a decision is made to intubate a patient, follow the Universal Airway Algorithm. Once the airway is controlled/secured, attention can be given to the other medical/trauma problems and care directed according to the appropriate protocol. **New 2010 ACLS guidelines recommend titrating oxygen delivery to maintain pulse ox at >94%.**

Procedure**:**

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Assessment Protocol 2.1.1
2. Monitor breathing during transport
3. Administer oxygen vía nasal cannula (2-6 L/min) to maintain pulse ox ≥ 94%
4. If spontaneous breathing is compromised:
    a. Maintain airway (e.g. modified jaw thrust)
    b. Administer oxygen to maintain pulse ox ≥ 94% via nasal cannula (2-4 L/min), simple mask (4-6 L/min) or non-rebreather mask (10-15 L/min)
    c. If unconscious, insert oropharyngeal or nasopharyngeal airway PRN (If patient accepts oropharyngeal airway, paramedic should consider need for intubation (ALS Level I)
    d. Assist ventilations with BVM PRN
5. Suction PRN
6. Monitor pulse oximetry and capnography, as soon as possible
7. If spontaneous breathing is absent or markedly compromised:
    a. Maintain airway (e.g. modified jaw thrust)
    b. If unconscious, insert oropharyngeal or nasopharyngeal
    c. Assist ventilations with BVM
    d. Suction PRN
    e. If unconscious and intubation is not available, insert King Airway (or other approved blind intubation device) (a).
    f. Monitor pulse ox and capnography or $ETCO_2$ monitoring device, as soon as possible

ALS LEVEL 1: PARAMEDIC ONLY

1. Consider CPAP if severe distress and patient able to cooperate with use of CPAP. See CPAP Protocol
2. If indicated, perform endotracheal intubation (stabilize C-spine prn).
    a. Confirm ETT placement by three methods and document
3. Secure ETT with commercial device

a. Apply cervical collar for additional security.

4. Attach end-tidal CO_2 monitoring device
5. Monitor SpO_2 with pulse oximeter.
6. If unable to intubate and patient cannot be adequately ventilated by any other means, perform a cricothyroidotomy (see Surg Cric Protocol or Needle Cric Protocol) and transport rapidly to the hospital. (b)

ALS LEVEL 2: MEDICAL CONTROL

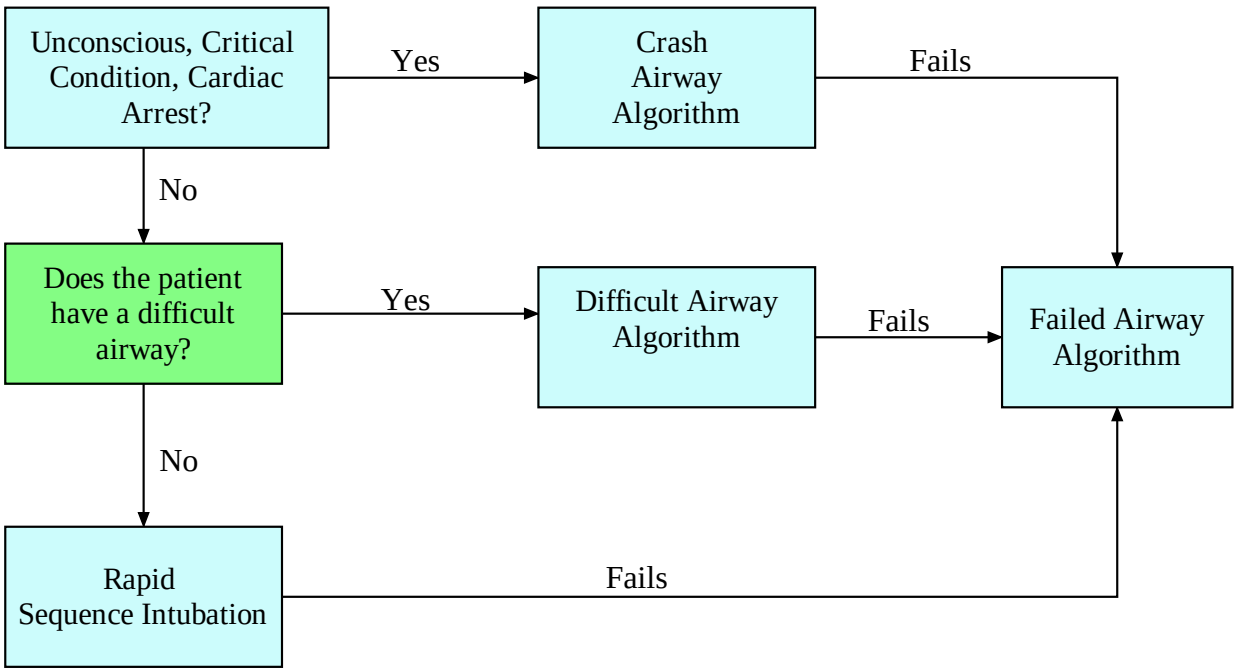
1. Contact medical control or medical director for questions or concerns.

NOTE:

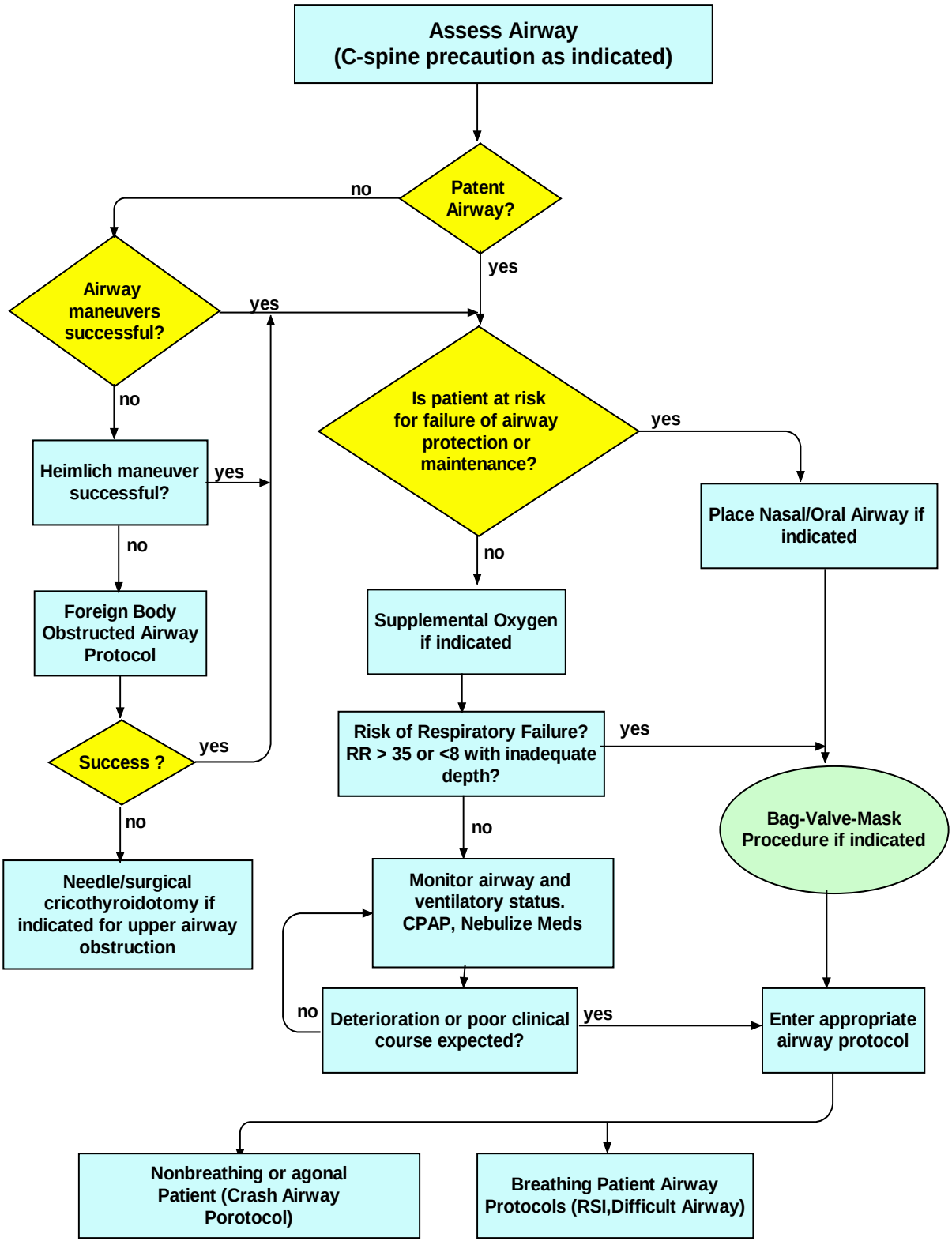
(a) An individual medical director may authorize other airway devices for use.

(b) Once decision to intubate has been made, follow Universal Airway Algorithm on all intubations (see Smart Airway Management Protocol for more algorithms and direction)

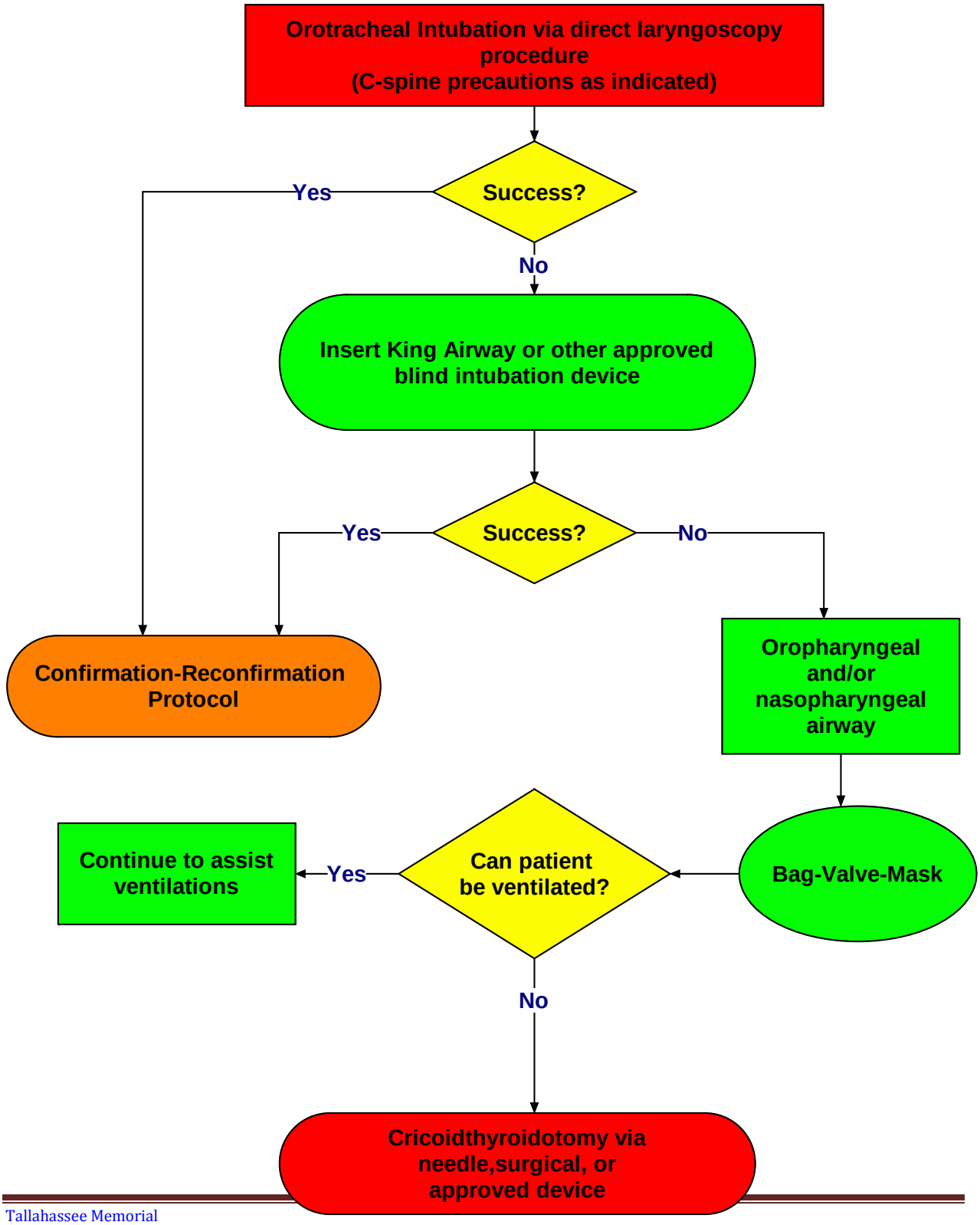
Universal Airway Algorithm



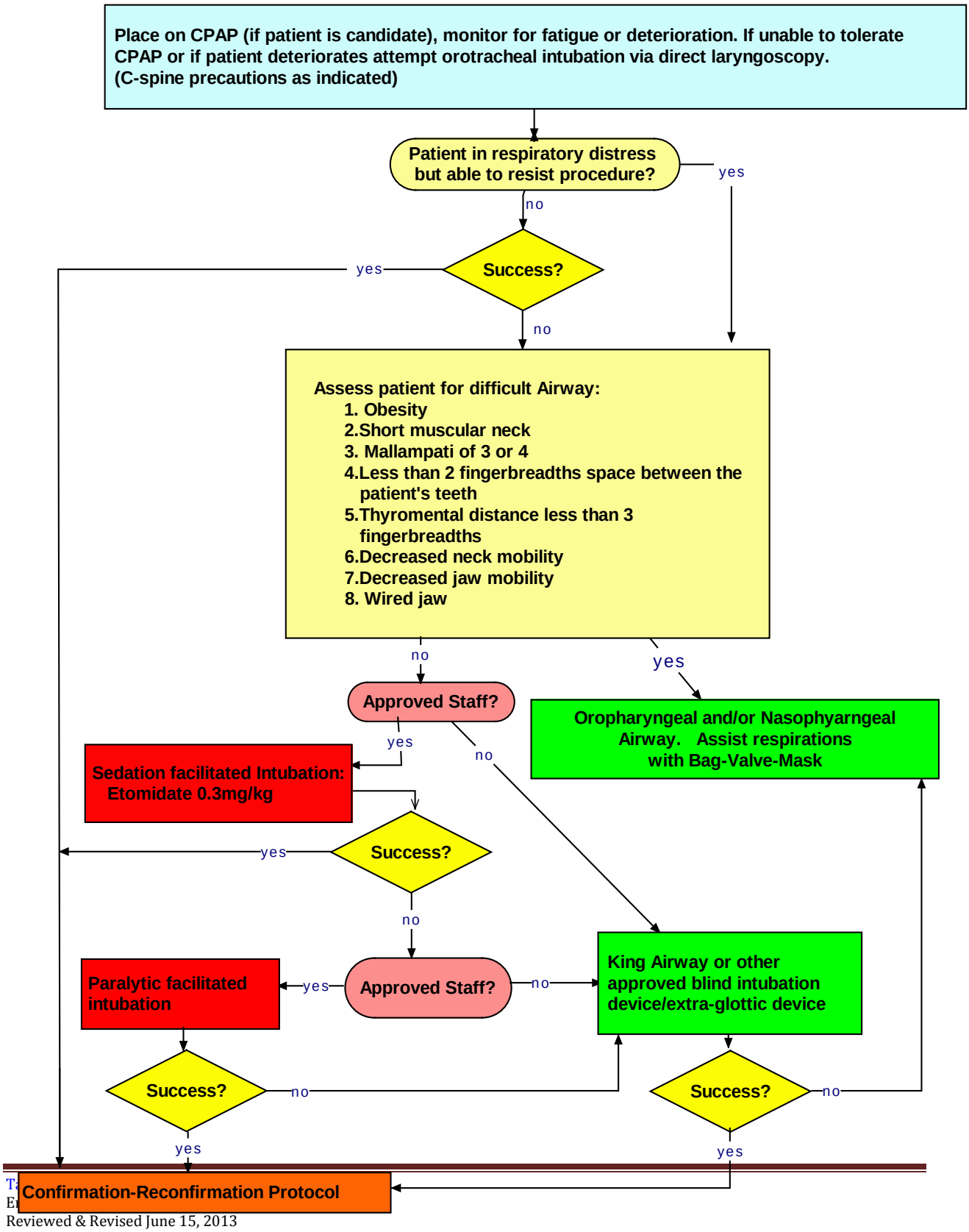
Adult Airway Assessment



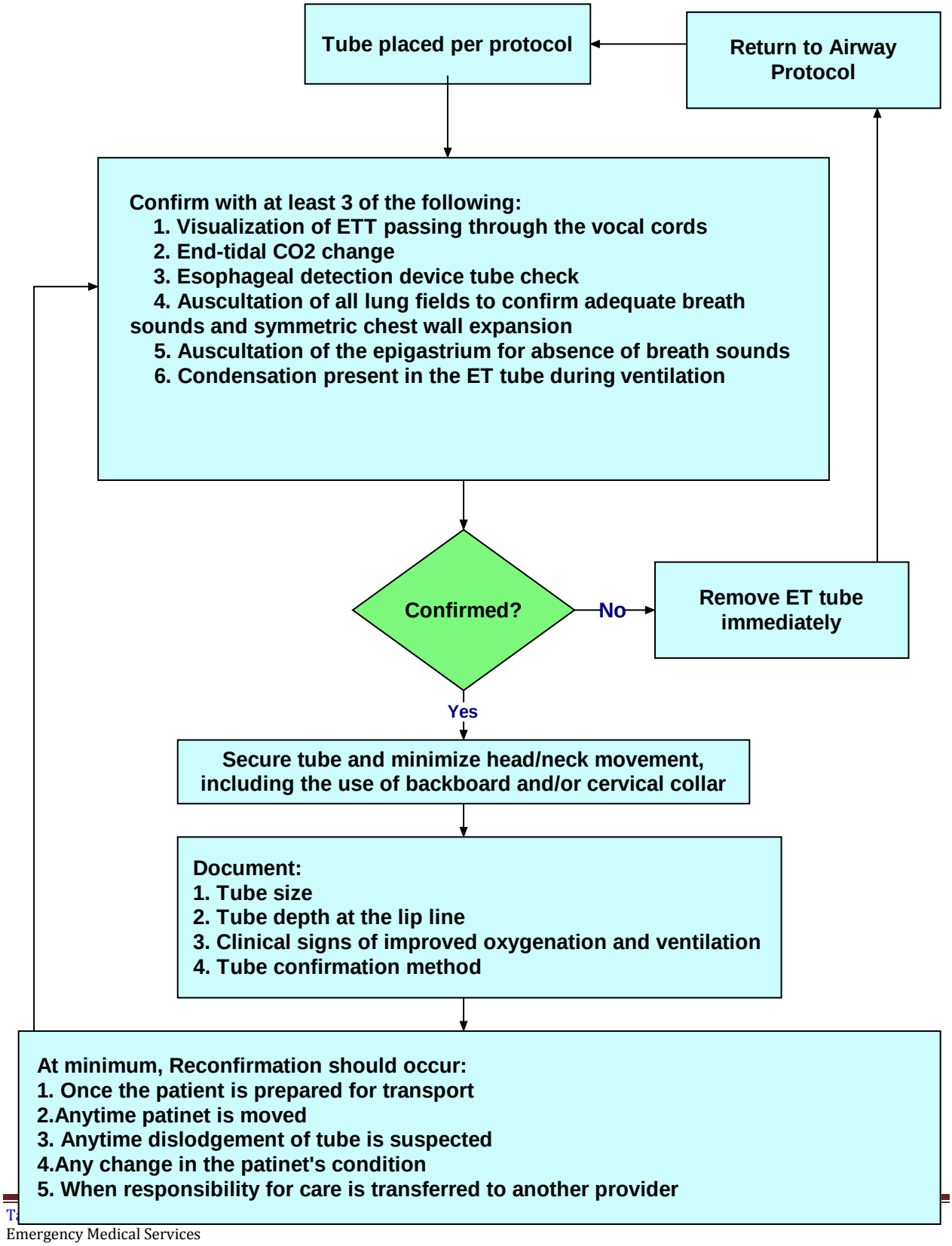
Airway Assessment Protocol: Non-Breathing Patient



Airway Assessment Protocol: Breathing Patient



Airway Confirmation-Reconfirmation Protocol:



2.1.3 Medical Supportive Care

Purpose: This protocol is used in conjunction with the Initial patient Assessment Protocol 2.1.1.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. **Initial assessment protocol 2.1.1**
2. If spontaneous breathing present without compromise:
   a. Monitor breathing during transport
   b. Administer oxygen vía nasal cannula (2-6 L/min) PRN to maintain pulse ox ≥ 94%.
3. If spontaneous breathing is present with compromise
   a. Maintain airway (e.g. modified jaw thrust)
   b. Administer oxygen via non-rebreather mask (10-15 L/min).
   c. In unconscious, insert oropharyngeal or nasopharyngeal airway PRN.
   d. Assist ventilations with BVM PRN
   e. Suction PRN
   f. Monitor pulse oximetry and capnography, as soon as possible
   g. Paramedic only: If patient accepts orophanyngeal airway, consider need for intubation (see ALS Level 1- advanced airway below)
4. If spontaneous breathing is absent or markedly compromised:
   a. Maintain airway (e.g. modified jaw thrust)
   b. If unconscious, insert oropharyngeal airway
   c. Assist ventilations with BVM
   d. Suction PRN
   e. If unconscious and intubation is not available, insert **King Airway** (or other approved blind intubation device) as per protocol.
   f. Monitor pulse oximetry and capnography or **$ETCO_2$ monitoring** device as soon as possible

ALS LEVEL 1: PARAMEDIC ONLY

1. Perform endotracheal intubation and document the following:
   a. Confirm ETT placement via three methods
   b. Secure ETT with commercial device
      1) Full spinal immobilization is recommended
   c. Attach end-tidal CO_2 monitoring device
   d. Monitor SpO_2 with pulse oximeter
2. If unable to intubate and patient cannot be adequately ventilated by other means, perform cricothyroidotomy (see **Surgical Cric Protocol 4.37** or **Needle Cric Procedure**)

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director if any concerns or questions.

2.1.4 Trauma Supportive Care

Purpose: This protocol is used in conjunction with the Initial Assessment Protocol 2.1.1.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. **Initial Assessment Protocol 2.1.1,** Initiate "Trauma Alert" if applicable
2. **Airway Management Protocol 2.1.2.**
3. Correct any open wound/sucking chest wound (occlusive dressing)
4. Control hemorrhage
5. Immobilize C-spine (if unable to clear in field) and secure patient to backboard per protocol 4.35 **Spinal Immobilization/Spinal Immobilization Clearance**
6. Expedite transport
7. The following steps should not delay transport:
    a. Complete bandaging, splinting and packaging PRN
    b. Establish hospital contact for notification of incoming patient and for the Paramedic to obtain consultation for level 2 orders

ALS LEVEL 1: PARAMEDIC ONLY

1. Correct any massive flail segment that causes respiratory compromise (intubate)
2. Correct any tension pneumothorax with needle decompression as per **Needle Decompression** protocol
3. Establish IV of Normal Saline with regular infusion set unless overridden by other specific protocol.

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director if any concerns or questions.

2.1.5 Pain (GENERAL) Management

Purpose: This protocol is to be used for managing pain in patients with the following conditions:

- Isolated Extremity Fracture
- **Acute** back strain
- Renal colic (kidney stone)
- Soft tissue injuries, burns, bites and stings.
- Discomfort related to attached devices or inserted tubes such as a foley catheter, NG tube, chest tube, etc. This will apply to intra-facility transfers.

Do not use this protocol if there is multisystem trauma or hemodynamic instability. Keep in mind that severe back pain can sometimes be indicative of a condition that may require emergency surgery such as appendicitis, ruptured or dissecting aneurysm, ruptured ectopic pregnancy, etc. Be sure you do a good abdominal exam on patients complaining of back pain. If any abdominal tenderness is found, do not give pain med until advised by medical control or medical director. If patient has severe enough back pain that you are considering giving pain medication for, be sure the history is consistent with back strain, e.g. lifting heavy material and felt a pull. **DO NOT USE TORADOL ON ANY PATIENT THAT MAY REMOTELY BE GOING TO SURGERY**, e.g. fractured extremities, serious soft tissue injures. If you're not sure, call med control for advice. Kidney stone patients may report a history of kidney stones and may or may not have hematuria (blood in urine). Use caution in the elderly with "kidney stone" pain, as this is how aneurysm problems can present. Always monitor respiratory status and pulse ox after administration of a narcotic. Intervene as needed to keep pulse ox ≥ 95 %

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. **Initial Patient Assessment Protocol 2.1.1**
2. **Airway Assessment/Management Protocol 2.1.2**. If indicated, Oxygen via nasal cannula @ 2 - 4 LPM to maintain pulse ox ≥ 94% (non-rebreather @15 LPM if SpO_2 < 91%).
3. Attach cardiac monitor and pulse oximeter if indicated

ALS LEVEL 1: PARAMEDIC ONLY

1. Initiate IV lactated Ringer's or Normal Saline at 100ml/hr.
2. If pain is from an isolated extremity injury or from discomfort related to attached devices or inserted tubes:
   a. Assess for circulation compromise (note color, swelling, sensation, palpable pulses)
   b. Reposition for comfort, reassess for circulatory compromise
   c. If extremity wrapped in a dressing, consider (per med control) removing dressing to assess for cause of pain
   d. Elevate affected extremity if edematous
   e. If extremity has obvious deformity and is not splinted, splint it.

f. If pain from attached device or inserted tube, be sure they are functioning properly.
g. If pain persist despite above, proceed as below

3. If systolic BP > 90 mm Hg give one of the following over several minutes:
   a. **Toradol 30 mg IV or 60 mg IM** (if patient is > 65 y/o limit dosage to 15mg IV or 30mg IM). After 30 minutes, the IV dose can be repeated x 1 PRN.
   b. **Fentanyl 50 – 100 mcg IV or IM**. For doses beyond 100 mcg (when given for pain control), you will need written MD order or contact medical control.
   c. **Morphine 2 – 10 mg IV or IM** (give in 2 mg increments) or PR. For doses beyond 10 mg, you will need written MD order or contact medical control
   d. **Dilaudid 1 – 2 mg IV or IM** (not all service areas carry this drug). For doses beyond 2 mg, will need written MD order or contact medical control.
4. If nausea also present from pain or the pain medication give one of the following;
   a. **Zofran** 4 – 8 mg IV or IM
   b. **Benadryl 25-50 mg IV or IM**

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director if any concerns or any questions.

2.2
Adult Respiratory Emergencies

2.2.1 Airway Obstruction

Purpose: This protocol is to guide you in management of a patient with an airway obstruction. Causes of upper airway obstruction include the tongue, foreign bodies, swelling of the upper airway due to angio-neurotic edema (from allergic reaction) and trauma to the airway. Differentiation of the cause of the upper airway obstruction is essential to determining the proper treatment.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol. 2.1.1
2. Airway Assessment/Management Protocol. 2.1.2 Oxygen via nasal cannula @2 - 4 LPM to maintain pulse ox at ≥ 94% (non-rebreather @15 LPM if SpO_2 < 90%).
3. If air exchange is inadequate and there is a reasonable suspicion of foreign body airway obstruction (FBAO) (see FBAO protocol), apply abdominal thrust (chest thrust if pregnant or obese). If air exchange is adequate with a partial airway obstruction, do not interfere and encourage patient to cough up obstruction. Continue to monitor for adequacy of air exchange. If air exchange becomes inadequate continue with protocol.
4. Attach cardiac monitor and pulse oximeter.

ALS LEVEL 1: PARAMEDIC ONLY

1. If unable to relieve FBAO, visualize with laryngoscope and extract foreign body with McGill forceps.
2. If obstruction is due to trauma and/or edema, or if uncontrollable bleeding into the airway causes life-threatening ventilatory impairment, perform endotracheal intubation.
3. If unable to intubate and patient cannot be adequately ventilated by other means, perform Cricothyroidotomy **(**see procedure **Needle Cric or Surgical Cric)**

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director for any questions or problems.

2.2.2 Asthma/Bronchospasm

Purpose: This protocol is used for patients who are complaining of dyspnea and who are wheezing. Whenever possible, allow these patients to assume whatever position is comfortable (they may not tolerate laying flat). A patient with a history of CHF that has wheezing on auscultation of lung sounds should not be automatically classified as an "asthma patient". If the CHF patient does not have a history of asthma or allergic reaction, the more prudent assessment would be that of CHF (cardiac asthma) (See **CHF/Pulmonary Edema protocol**)

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. **Initial Patient Assessment Protocol 2.1.1**
2. **Airway Assessment/Management Protocol 2.1.2** Oxygen via nasal cannula @2 - 4 LPM to maintain pulse ox at ≥ 94% (non-rebreather @15 LPM if SpO_2 < 90%).
3. Attach cardiac monitor and pulse oximeter.
4. Transport to designated hospital.

ALS LEVEL 1: PARAMEDIC ONLY

1. If severe distress consider CPAP with in-line nebulized medication may or may not help (keep in mind, it is the medications that will work best to break the bronchospasm)
2. Administer **Albuterol (Ventolin)** 2.5mg (in 2.5 mlnormal saline) by nebulizer. May repeat twice PRN. DO NOT GIVE ALBUTEROL OR IPRATROPIUM BROMIDE IF THE HEART RATE IS > 140
3. May add **Ipratropium Bromide (Atrovent)** 0.5 mg (0.5ml) to the first Albuterol neb only.
4. If indicated, start IV of Lactated Ringer's or Normal Saline at TKO
5. For persistent respiratory distress, give **Methylprednisolone Sodium Succinate (Solu-Medrol)** 125mg IV.
6. For severe dyspnea, **Epinephrine (1:1000)** **0.4 m**l IM Adult (Peds: 0.01 ml/kg.) Caution should be used with administration of Epinephrine when the patient has a history of hypertension or heart disease (call med control if you have any concerns)
7. Consider need for endotracheal intubation

ALS LEVEL 2: MEDICAL CONTROL

1. Repeat **Epinephrine (1:1000)** 0.4 mg IM
2. If patient still has dyspnea after SubQ Epi, 3 Albuterol nebs (first with Atrovent), and Solu-Medrol, medical control may order **Magnesium Sulfate 2 gms** IV (mixed with 50ml of D5W given over 10 – 15 minutes)

2.2.3 COPD / Dyspnea

Purpose: This protocol is used for patients with a history of emphysema and/or chronic bronchitis that complain of dyspnea. If at any point, the patient's respiratory status deteriorates, consider CPAP or endotracheal intubation and administration of Albuterol via the ET tube as a mist, and transport immediately. See Oxygen Tolerence in COPD in Appendix

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment 2.1.1
2. Airway Assessment/Management Protocol 2.1.2. Oxygen via nasal cannula @2 - 4 LPM to maintain pulse ox at ≥ 94% (non-rebreather @15 LPM if SpO_2 < 90%).
3. Attach cardiac monitor and pulse oximeter.

ALS LEVEL 1: PARAMEDIC ONLY

1. If patient is in moderate to severe distress and is still alert and cooperative, **consider CPAP (**with in-line nebulized medication) per CPAP Protocol .
2. Administer **Albuterol** 2.5 mg in 2.5ml of normal saline and **Atrovent (Ipratropium**) 0.5mg via nebulized breathing treatment.
3. Repeat **Albuterol** (only) every 15 minutes as needed x 3 doses total. Discontinue therapy if patient develops marked tachycardia (HR > 140) or chest pain.
4. If signs of severe hypoventilation despite CPAP and/or Nebulized bronchodilators: (See **Airway Assessment Protocol, 2.1.2)**
   a. Assist ventilations with BVM with 100% oxygen.
   b. Consider endotracheal intubation
5. Initiate IV lactated Ringer's or normal saline TKO.
6. For persistent respiratory distress, give **Methylprednisolone Sodium Succinate (Solu-Medrol**) 125 mg IV. (NOTE: If patient already on a steroid, **give 80 mg of Solu-Medrol IV**).

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director for any questions or problems.
2. Consider (per med control) **Valium** 2-5 mg or **Versed** 2-4 mg IVP for anxiety, however patient may then need to be intubated.

2.2.4 Pulmonary Edema /CHF (Congestive Heart Failure)

Purpose: This protocol is used for patients who are exhibiting signs/symptoms of pulmonary edema – CHF including: tachypnea, orthopnea, JVD, edema, dyspnea with rales and/or wheezing (cardiac asthma). The patient may also have diminished air exchange. In severe case, patient may be pursed lip breathing. Other treatment for the causes of pulmonary edema-CHF should be considered (e.g. supraventricular tachycardia, myocardial infarction and cardiogenic shock). A patient with a history of CHF that has wheezing on auscultation of lung sounds should not be automatically classified as an "asthma patient". The paramedic must remember that patients with CHF may also present with wheezing. If the CHF patient does not have a history of asthma or allergic reaction, the more prudent assessment would be that of CHF (cardiac asthma).

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. **Initial Patient Assessment Protocol. 2.1.1**
2. **Airway Assessment/Management Protocol.2.1.2**. Put patient in position of comfort. Oxygen via nasal cannula @2 - 4 LPM to maintain pulse ox at ≥ 94% (non-rebreather @15 LPM if SpO_2 < 90%).
3. Attach cardiac monitor and pulse oximeter.

ALS LEVEL 1: PARAMEDIC ONLY

1. Administer CPAP (if available). Titrate to 10cm of pressure (see **CPAP Protocol)**
2. If patient's respiratory status deteriorates (fatigues, does not respond to CPAP, obvious persistent distress), assist ventilations with BVM with 100% oxygen and consider endotracheal intubation. If patient has end-stage disease and has previously expressed to family (verbally or in writing) he/she does not want to be intubated, and then continue assisting with BVM or CPAP.
3. Initiate IV lactated Ringer's or Normal Saline TKO.
4. If systolic BP > 100 mm Hg; give **Nitroglycerine** 0.4mg sublingual (spray or tablet) followed by **Nitroglycerin paste** 1 inch to chest wall Avoid if patient used Viagra, Cialis, Levitra or other ED drugs. (May repeat sublingual Nitro every 3 minutes up to 3 doses total if patient is hypertensive or has chest pain).
5. Do 12 Lead EKG. Transmit if abnormal and time permits

ALS LEVEL 2: MEDICAL CONTROL

1. **Lasix** 40-80 mg IV.
2. Consider **Morphine Sulfate** slow IV in 2mg increments titrate to systolic BP > 100 (or signs of respiratory depression) up to10 mgs. Carefully monitor blood pressure and respirations. Be prepared to reverse with **Narcan** if needed.
3. Contact medical control or medical director for any concerns or questions.

2.2.5 Pneumonia (SUSPECTED)

Purpose: Patients complaining of dyspnea should be suspected of having pneumonia when they present with fever, productive cough, and possible pleuritic chest pain, history of being bedridden, known immune-compromise, diabetes, elderly and lung sounds indicative of consolidation (rales and/or rhonchi with egophony over area of consolidation).

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1
2. Airway Assessment/Management Protocol 2.1.2. Oxygen via nasal cannula @2 - 4 LPM to maintain pulse ox at ≥ 94% (non-rebreather @15 LPM if SpO_2 < 90%).
3. Attach cardiac monitor and pulse oximeter
4. Check temperature if able

ALS LEVEL 1: PARAMEDIC ONLY

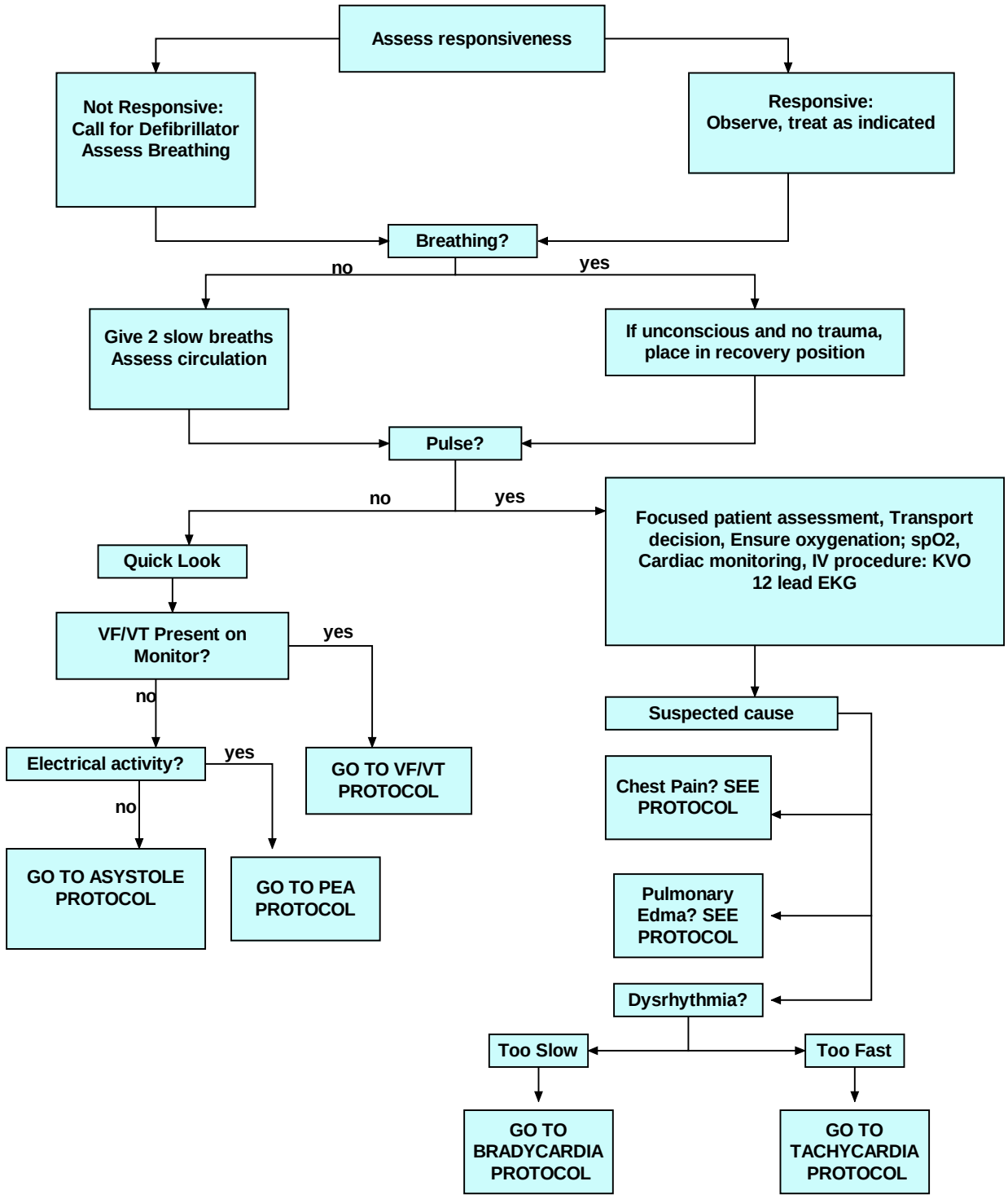
1. Consider CPAP (per CPAP protocol) for severe dyspnea/air hunger. It may or may not help but will not harm.
2. Initiate IV lactated Ringer's or Normal Saline at 125ml/hr. If patient hypotensive (systolic < 90 mm Hg) and/or tachycardic (HR > 110) bolus with 1- 2 liters of IV fluid in 250ml increments until systolic BP > 90 mm Hg (20 ml/kg for children). Recheck vital signs and lung exam in-between each increment. Discontinue bolus if signs of pulmonary edema or development of respiratory distress.
3. If dyspnea noted, administer **Albuterol** 2.5 mg in 2.5ml of normal saline and **Atrovent (Ipratropium)** 0.5mg via nebulized breathing treatment. Do not give if HR ≥ 140
4. Repeat **Albuterol** (only) every 15 minutes as needed x 3 doses total. Discontinue therapy if patient develops marked tachycardia (HR > 140) or chest pain.
5. If signs of severe hypoventilation despite CPAP and/or Nebulized bronchodilators: (See Airway Assessment Protocol 2.1.2)
    a. Assist ventilations with BVM with 100% oxygen.
    b. Consider endotracheal intubation
6. AVOID USE OF DIURETICS!!

ALS LEVEL 2: MEDICAL CONTROL

1. Notify medical control or medical director for any problems or concerns.

2.3
Adult Cardiac Dysrhythmias

2.3 CARDIAC CARE: UNIVERSAL ALGORITHM



2.3.1 Cardiac Dysrhythmias: ASYSTOLE

Purpose: Use this protocol for patients who are in asystole on the cardiac monitor.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol. 2.1.1
2. Airway Assessment/Management Protocol 2.1.2.
3. Initiate BLS/CPR as indicated
4. Attach cardiac monitor and pulse oximeter.

ALS LEVEL 1: PARAMEDIC ONLY

1. Intubate or Insert King Airway (or other extra glottic device) at once
2. Establish IV of Lactated Ringers or Normal Saline via Peripheral IV Site or Intraosseous site. Bolus with 250 ml then 100cc/hr. Bolus may be repeated up to one liter.
3. Confirm asystole in more than one lead.
4. Administer **Epinephrine** (1:10,000) 1mg every 3-5 minutes IV or IO. Follow each intravenous drug bolus with 20 milliliters of IV fluid and elevate extremity. If unable to establish IV or IO access, administer Epinephrine at twice the IV dose (maximum 0.1mg/kg) endotracheal.
5. For prolonged down time or known pre-existing metabolic acidosis give **Sodium Bicarb** (8.4%) 1mEq/kg IV or IO
6. Consider possible causes:

Possible cause:	Treatment:
Hypoxia	Oxygenate and Ventilate
Hyperkalemia (increased potassium)	**$NaHCO_3$**, **CaCl**
Hypokalemia (decreased potassium)	ABCs and transport
Pre-existing **Acidosis**	**$NaHCO_3$**
Drug overdose	**Narcan**,
Hypothermia	Re-warming

7. In the event that a patient who presents in asystole remains in asystole after 10 minutes of ACLS, including an advanced airway, IV/IO access, and at least two doses of Epinephrine, you may **discontinue** resuscitation efforts. (Refer to administrative section **Resuscitation Considerations** for further information on discontinuation procedures) Be sure to note the time of death in the PCR.

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director for any further directions or questions.

2.3.2 Cardiac Dysrhythmias: BRADYCARDIA

Purpose: This protocol is to be used for patients with heart rates < 60 per minute and any of the following signs and symptoms:

- Chest pain
- Shortness of breath
- Decreased level of consciousness
- Low blood pressure (< 90 mm Hg)
- Shock
- Pulmonary edema
- Congestive heart failure
- Acute MI or acute ischemia on 12 lead EKG
- Ventricular escape beats

If patient is asymptomatic, do not treat unless ordered to do so by medical control. Bradycardia with hypotension may be due to inferior wall MI associated with right ventricular infarction (confirmed by 12 lead EKG V4R ST Elevation). When an inferior wall MI is associated with right ventricular MI, avoid use of nitrates (Nitroglycerin). If bradycardia and hypotension exists, pacing and IV fluids may improve the patient's hemodynamic status.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient/Assessment Protocol. 2.1.1
2. Airway Assessment/Management Protocol 2.1.2
3. Attach cardiac monitor and pulse oximeter.

ALS LEVEL 1: PARAMEDIC ONLY

1. Start IV or IO of lactated Ringer's or normal saline TKO. Bolus with 250ml increments up to 1 liter as needed for hypotension. Check vitals and breathe sounds between each bolus.
2. Perform 12 lead EKG (transmit to hospital if capable). If inferior wall MI is identified, perform additional 12 lead EKG with V4R to confirm/rule out concurrent right ventricular MI
3. IF no inferior wall MI, administer **Atropine** 0.5 mg IV or IO. May repeat IV or IO **Atropine** every 3-5 minutes up to:
   - 2 mg for patients weighing less than 110 pounds (<50 kg)
   - 3 mg for patients weighing 110-165 pounds (50-75 kg)
   - 4 mg for patients weighing 165-220 pounds (75-100 kg)
4. Pace with external pacer per External Cardiac Pacing protocol.
5. IV fluid bolus 250ml increments up to 1 liter with vital sign and lung exam between each bolus
6. For 2nd degree AV block type II and 3rd degree AV block, omit Atropine and go to External Cardiac Pacing protocol.
7. If patient is conscious and aware of situation during pacing, administer one of the following benzodiazepines:
   a. **Diazepam (Valium)** 5mg IV or IO, may repeat once PRN (up to max of 10 mg).
   b. **Midazolam (Versed)** 2mg IV or IO, may repeat once PRN (up to max. 4 mg).

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director for any questions or problems.
2. Consider **Glucagon 1-2 mg** IV x 1 if on Beta Blockers
3. Consider **Calcium Chloride 1-2 gms** IV over 10 min if on Calcium Channel Blockers

2.3.3 Cardiac Dysrhythmias: STABLE NARROW COMPLEX TACHYCARDIA- PSVT (JUNCTIONAL OR ATRIAL TACH)

Purpose: Patients suffering from tachycardia may or may not exhibit symptoms. It is important to note that narrow complex tachycardia has many origins. The atrial rate may be helpful in differential interpretation of these types of tachycardia. The following rates should be considered:

- Sinus Tachycardia ranges from 100 - 160 per minute
- Junctional tachycardia ranges from 100 - 180 per minute
- Atrial tachycardia ranges from 150 - 250 per minute Atrial flutter ranges from 250 – 350 per minute
- Atrial fibrillation starts at 350 per minute (atrial rate)

In addition, wide complex tachycardia (QRS ≥ 0.12 seconds) should initially be considered as ventricular in origin, unless proven otherwise (e.g. documented QRS morphology consistent with pre-existing BBB).

Procedure:

PSVT (JUNCTIONAL OR ATRIAL TACHYCARDIA) AND HR ≥ 150/MIN

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient/Assessment Protocol. 2.1.1
2. Airway Assessment/Management Protocol.2.1.2
3. Attach cardiac monitor (Verify narrow complex tachycardia. If wide-complex tachycardia, see Ventricular Tachycardia Protocol) and pulse oximeter.

ALS LEVEL 1: PARAMEDIC ONLY

1. Start IV of lactated Ringer's or normal saline TKO.
2. Attempt vagal maneuvers (see procedure: Vagal Maneuver Protocol) if not contraindicated (have patient do a Valsalva maneuver).
3. If above fails or is contraindicated and the patient is not in A-fib or Aflutter, place patient in supine position and give **Adenosine Triphosphate (Adenocard)** 6mg rapid IVP followed by 20ml of NS flush
4. If, after 1-2 minutes, no response noted, administer **Adenosine** 12 mg IV push over 1-3 seconds, followed by 20ml of NS flush.

ALS LEVEL 2: MEDICAL CONTROL

1. Administer *ONE* of the following antiarrhymic drugs:
   a. **Verapamil** 2.5 – 5 mg over 2 minutes. May repeat 5 – 10 mg after 15 – 30 minutes. Max dose 20 mg.
   b. **Diltiazem (Cardizem)** 0.25mg/kg IV (over 2 minutes) (20mg for average patient) for narrow complex SVT. Do not use if patient has history of WPW. May repeat dose at 0.35mg/kg IV over two minutes (25mg for the average patient)
   c. **Amiodarone** 150mg in 50ml of D5W over 10 minutes if availa**ble. May repeat x 1 in no response to the first dose.**

2.3.4Cardiac Dysrhythmias: NARROW COMPLEX TACHYCARDIA- STABLE A-FIB OR A-FLUTTER

Purpose: This protocol is for patients who are in an **atrial fibrillation** or **atrial flutter** rhythm and considered stable (BP > 90 mm Hg, no chest pain, no dyspnea or diaphoresis). The ventricular rate in a-fib will be irregular and the p-waves may not be discernable. P-waves in a-flutter may have a saw tooth appearance and a rapid +/- regular ventricular rhythm. Adenocard generally does not work on A-fib/a-flutter. If HR ≥ 150 proceed with protocol.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient/Assessment Protocol. 2.1.1
2. Airway Assessment/Management Protocol. 2.1.2
3. Attach cardiac monitor (Verify narrow complex tachycardia. If wide-complex tachycardia, see Ventricular Tachycardia Protocol) and pulse oximeter.

ALS LEVEL 1: PARAMEDIC ONLY

1. Start IV of lactated Ringer's or normal saline TKO. Bolus as needed with 250mls of IV fluid. Repeat as needed up to 1 liter. Check vital signs
2. Administer one of the following anti-arrhythmic drugs: Do not use if patient has history of WPW.
   a. **Diltiazem (Cardizem)** 0.25mg/kg IV (over 2 minutes) (20mg for average patient) for narrow complex SVT. May repeat dose at 0.35mg/kg IV over two minutes (25mg for the average patient**.**
   b. **Verapamil** 2.5 – 5 mg over 2 minutes. May repeat 5 – 10 mg IV after 15– 30 minutes. Max dose 20 mg.

ALS LEVEL 2: MEDICAL CONTROL

1. **Amiodarone** 150mg in 50ml of D5W over 10 minutes if available. May repeat x 1 if no response to the first dose.
2. Contact medical control or medical director for any questions or problems.

2.3.5 Cardiac Dysrhythmias: UNSTABLE NARROW COMPLEX TACHYCARDIAS

Adult Medial Protocol

Purpose: This protocol is used for patients considered to be unstable with narrow complex tachycardia. Consider patient to be unstable and prepare for immediate cardioversion if patient exhibits any of the following signs or symptoms:

- Crushing chest pain, diaphoresis, heart rate ≥ 150
- Significant Shortness of breath
- Decreased level of consciousness
- Low blood pressure / shock (sys ≤ 90 mm Hg)
- Pulmonary edema / congestive heart failure
- Acute MI

.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient/Assessment Protocol. 2.1.1
2. Airway Assessment/Management Protocol. 2.1.2
3. Attach cardiac monitor (Verify narrow complex tachycardia. If wide-complex tachycardia, see Ventricular Tachycardia Protocol [w/pulse] or V-Fib and V-tach w/o pulse]) and pulse oximeter.

ALS LEVEL 1: PARAMEDIC ONLY

1. **NOTE: If the rhythm is a rapid atrial fibrillation and onset of a-fib has been greater than 48 hours, contact medical control for assistance with medication vs cardioversion! If ordered to cardiovert, proceed. All other unstable tachyarrhythmias proceed as below.**
2. Start IV of lactated Ringer's or normal saline TKO. Bolus as needed with 250mls of IV fluid for systolic BP < 90 mm Hg. Repeat as needed up to 1 liter. Check vital signs
3. If patient is conscious and aware of situation, sedate with one of the following benzodiazepines:
   a. **Midazolam (Versed)** 2mg IV, may repeat once PRN (up to max. 4mg.)
   b. **Diazepam (Valium)** 5mg IV, may repeat once PRN (up to max. of 10 mg).
4. Synchronized cardioversion, start at:
   a. **50 joules for a-flutter** (if no response try 100 then 200 joules)
   b. **100 joules for a-fib and PSVT** (if no response try 200 then 300 joules)

ALS LEVEL 2: MEDICAL CONTROL

1. Overdrive pacing (see procedure: External Cardiac Pacing protocols)
2. Contact medical control or medical director for any questions or problems.

2.3.6 Cardiac Dysrhythmias: PREMATURE VENTRICULAR ECTOPY (PVC'S)

Purpose: Treatment of ventricular arrhythmias after MI has been a controversial topic for two decades. Similarly, management of ventricular arrhythmias during the acute phase of MI continues to evolve as treatment strategies are reviewed in the context of new information and changing epidemiological data during the era of adjunctive medical and reperfusion therapy. At present, the treatment of asymptomatic premature ventricular ectopy (PVC's) is not recommended. If patient exhibits any of the following signs or symptoms: (Chest pain, Dizziness, Symptoms of acute MI), and premature contractions are malignant (>6/min, multi-focal, occurring in couplets, exhibiting "R on T phenomenon", exhibiting runs of V-tach), follow this protocol.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient/Assessment Protocol. 2.1.1
2. Airway Assessment/Management Protocol. 2.1.2
3. Attach cardiac monitor

ALS LEVEL 1: PARAMEDIC ONLY

1. Start IV of lactated Ringer's or normal saline TKO. Bolus as needed with 250mls of IV fluid. Repeat as needed up to 1 liter. Check vital signs
2. **Lidocaine** 1 – 1.5 mg/kg IV push (reduce dose by 50% if patient over the age of 70 or has known liver disease)
3. If, after 5 minutes, PVCs persist, repeat **Lidocaine** at ½ the initial dose. If PVCs are suppressed, begin **Lidocaine drip** at 2mg/min.
4. If PVCs do not respond to Lidocaine, give **Procainamide** at 30mg/min to a maximum of 17mg/kg.

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director for any questions or problems

2.3.7 Cardiac Dysrhythmias: PULSELESS ECLECTRICAL ACTIVITY (PEA)

Purpose: This protocol is used for: electromechanical dissociation (EMD), pseudo-EMD, idioventricular rhythms, bradyasystolic rhythms, and post-defibrillation idioventricular rhythms.

The most frequent cause of PEA includes:

Hypovolemia	**T**ablets (drug OD, accidents)
Hypoxia	**T**amponade, cardiac
Hydrogen Ion- Acidosis	**T**ension pneumothorax
Hyper-/Hypokalemia	**T**hrombosis, coronary (ACS)
Hypothermia	**T**hrombosis, pulmonary (PE)

Treatment should be given with respect to the identifiable cause and therefore, may not reflect the sequence suggested below.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient/Assessment Protocol. 2.1.1
2. Airway Assessment/Management Protocol. 2.1.2
3. Attach cardiac monitor
4. CPR as indicated

ALS LEVEL 1: PARAMEDIC ONLY

1. Start IV or IO of lactated Ringer's or normal saline and give initial bolus in 250ml increments of IV fluid up to 1 liter. Check vital signs and lung sounds between boluses. Repeat as needed with second liter.
2. **Epinephrine** (1:10,000) 1mg IV or IO and repeat every 3-5 minutes for duration of pulselessness. Can give via ETT at twice IV dose if no access. Consider cause and possible treatment options (see specific protocols).
3. For prolonged down time or known pre-existing metabolic acidosis, **Sodium Bicarbonate** (8.4%) 1mg/kg IV or IO
4. If patient taking calcium channel blocker, give **Calcium Chloride** 10% 1gm or 10ml IV or IO
5. If Return of Spontaneous Circulation (ROSC) and patient remains unconscious, begin **Induce Hypothermia Protocol**

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director for any questions or problems.

2.3.8 Cardiac Dysrhythmias: WIDE COMPLEX TACHYCARDIA WITH PULSE (V-TACH WITH PULSE)

Purpose: This protocol is for patients with V-tach and a pulse. If patient is stable (good vitals, no chest pain), treat with medication as per STABLE PATIENT below. If Unstable (systolic BP < 90 mm Hg, chest pain, dyspnea, CHF, altered mental status) treat with cardioversion per UNSTABLE PATIENT BELOW.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient/Assessment Protocol. 2.1.1
2. Airway Assessment/Management Protocol. 2.1.2
3. Attach cardiac monitor

ALS LEVEL 1: PARAMEDIC ONLY

FOR STABLE PATIENT:

1. Start IV or IO of lactated Ringer's or normal saline TKO. Bolus as needed in 250ml increments of IV fluid up to 1 liter. Repeat as needed with second liter. Check vital signs and lung sounds between boluses
2. Administer ONE of the following antiarrhythmics:
   a. If you are unsure if the wide complex tachycardia is V-tach vs an SVT with aberrancy; NOTE: 2010 ALS Guidelines allow for **Adenosine (Adenocard)** in the initial diagnosis and treatment of stable, undifferentiated REGULAR, monomorphic wide-complex tachycardia (DO NOT USE FOR IRREGULAR WIDE COMPLEX TACHY). If it is clearly V-tach, proceed as follows.
   b. **Amiodarone** 150mg in 50ml of D5W over 10 minutes IV or IO. May repeat every 10 minutes to maximum dose of 2 gm.

   OR if Amiodarone unavailable

   c. **Lidocaine** 1 – 1.5 mg/kg IV or IO. Repeat every 3 minutes at half initial dose (0.5 – 0.75 mg/kg) to a maximum total dose of 3mg/kg PRN. If Lidocaine converts rhythm, start **Lidocaine maintenance infusion** @ 2 – 4 mg/min. Drip based on total bolus dose given. IF:
      - 1mg/kg = 2mg/min
      - 1.5 - 2mg/kg = 3mg/min
      - 2.5 - 3mg/kg = 4mg/min
      - Reduce infusion by 50% for patients over age of 70 with CHF or liver disease.

   OR

   d. **Procainamide** 30mg/min., to maximum dose of 17 mg/kg. If Procainamide converts rhythm, start **Procainamide maintenance infusion** @ 1 – 4 mg/min (Reduce maintenance infusion by 50% for patients with kidney disease). Ending point for Procainamide administration includes:
      - Dysrhythmia is suppressed

- 17mg/kg total loading dose
- QRS widens by 50% of original width
- Systolic BP drops 10 mm Hg or more

3. Use only one antiarrhythmic medication. If patient does not convert with maximum dose, treat as unstable (synchronized cardiovert).

FOR UNSTABLE PATIENT: (systolic BP < 90 mm Hg, chest pain, dyspnea, CHF, altered mental status).

1. Start IV or IO of lactated Ringer's or normal saline TKO. Bolus as needed for systolic BP < 90 mm Hg in 250ml increments of IV fluid up to 1 liter. Repeat as needed with second liter. Check vital signs between boluses
2. If patient is conscious and aware of situation, sedate with one of the following benzodiazepines:
    a. **Midazolam (Versed)** 2mg IV, may repeat once PRN (up to max. 4mg.)
    b. **Diazepam (Valium)** 5mg IV, may repeat once PRN (up to max. of 10 mg).
3. Synchronized cardioversion @ 100, 200, 300, 360 joules if monomorphic V-tach. If polymorphic V-tach, treat as V-fib. If unsure if rhythm is polymorphic or monomorphic and patient is unstable, deliver unsynchronized defibrillation shock (200 joules)
4. If patient converts rhythm, give **Amiodarone** 150mg in 50ml of D5W over 10 minutes IV or IO. May repeat every 10 minutes to maximum dose of 2 gm. Or **Lidocaine 1 - 1.5 mg/kg IV.**

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director for any questions or problems.

2.3.7 Cardiac Dysrhythmias: V-FIBRILLATION and/or PULSELESS V-TACH

Purpose: Use this protocol for patients in V-Fib and V-Tach with no pulse. Changes in ACLS treatment of cardiac arrest have been designed to minimize interruptions in chest compressions for rhythm check, pulse check, and ACLS therapies. To minimize interruptions in chest compressions, the team leader should plan interventions such as rhythm check, insertion of an airway, and even drug administration around uninterrupted periods of CPR. There is much less emphasis on drug therapy during cardiac arrest and much more emphasis on CPR with minimal interruptions in chest compressions.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient/Assessment Protocol. 2.1.1
2. Airway Assessment/Management Protocol. 2.1.2
3. Attach cardiac monitor
4. Early CPR

ALS LEVEL 1: PARAMEDIC ONLY

1. Verify the patient is in V-fib (check for loose electrodes). Do CPR while defibrillator is charging!
2. **If a shock CAN** be delivered within 4 minutes of the onset of V-fib/pulseless V-Tach (onset occurs in presence of EMS), then give one shock at 200 joules (biphasic defibrillator) followed immediately by two minutes of CPR (5 cycles of 30:2 compressions: breaths) before checking for a pulse and assessing the rhythm on the monitor.
   If a shock CAN NOT be delivered within 4 minutes of onset of V-fib/pulseless V-tach, or if it is unknown how long patient has been in V-fib/pulseless V-tach at the time of patient contact, do 5 cycles (about 2 minutes) of CPR BEFORE delivering the first shock at 200 joules, immediately followed by two more minutes (5 cycles [30:2]) of CPR before checking for pulse and analyzing the rhythm.
3. Analyze rhythm/check pulse; if still in V-fib/pulseless V-tach, resume CPR, and perform the following actions with minimal interruptions in CPR.
4. Endotracheal Intubation or King Airway (or other blind insertion device). If an advanced airway is inserted, rescuers should no longer deliver “cycles” of CPR. Chest compressions should be delivered continuously (100-120 per minute) and rescue breaths delivered at a rate of 8 to 10 breaths per minute (1 breath every 6 to 8 seconds).
5. Establish IV or IO with Normal Saline or Lactated Ringers at KVO.
6. If establishing the IV/IO and administering the drug(s) cannot be done during the 5 cycles (or two minutes) of CPR prior to the second shock, give the second shock (if shockable rhythm), then immediately do

another 5 cycles (or two minutes) of CPR and continue working on getting the IV/IO established and the drugs administered.

7. Give one of the following drugs (drugs should be administered during uninterrupted CPR after the first or second shock):
    a. **Epinephrine (1:10,000) 1 mg** IV or IO (if no access, give via ETT at twice the IV dose, max 0.1mg/kg). May repeat every 3 – 5 minutes for duration of pulselessness.
8. Continue the sequence, escalating the shocks IF the monitor is capable:
    a. CPR (5 cycles of 30:2 ratio or two minutes)→ Rhythm check/Charge (↗) defibrillator to 200 joules (while checking rhythm) → shock → CPR (5 cycles of 30:2 ratio or two minutes) → Rhythm check/↗ defib to 300 joules (→ shock → CPR…..3rd shock would be 360 joules
    b. All subsequent shocks at 360 joules.

NOTE: Drugs may be administered during the CPR that is performed while the defibrillator is charging, or during the CPR performed immediately after the shock is delivered.

9. Continue defibrillating at appropriate escalating dose during the appropriate time in the sequence after each medication is administered for the duration of the VF or VT without pulse
10. Continue with **Epinephrine** as above but also give (if V-fib/pulseless V-tach persist)
    a. **Amiodarone 300mg IV or IO** (rapid IV push if pulseless/no BP, otherwise dilute in 50 ml of D5W and give over 10 minutes to decrease risk of hypotension). May repeat once at 150 mg in 3 – 5 minutes. If successfully converted after bolus, administer Amiodarone drip at 1mg/min. Mix 100mg Amiodarone in 100ml of D5W and administer at rate of 15gtts/min

    OR if Amiodarone not available

    b. **Lidocaine 1 - 1.5 mg/kg IV or IO, repeat in 3 – 5 minutes to maximum dose of 3** mg/kg. If Lidocaine converts rhythm, start **Lidocaine maintenance infusion** @ 2 – 4 mg/min. Drip based on total bolus dose given. IF:
        - 1mg/kg = 2mg/min
        - 1.5 – 2mg/kg = 3mg/min
        - 2.5 – 3mg/kg = 4mg/min
        - Reduce infusion by 50% for patients over age of 70 with CHF or liver disease.

    OR

c. **Procainamide 30 mg/min** to maximum of 17mg/kg IV or IO. If Procainamide converts rhythm, start **Procainamide maintenance infusion @ 1 – 4 mg/min** (Reduce maintenance infusion by 50% for patients with kidney disease). Mix 100mg (1ml) in 100ml of D5W or NS and administer 15 – 60 gtts/min with a microdrip. Ending point of Procainamide administration includes:
   - Dysrhythmia is suppressed
   - 17mg/kg total loading dose
   - QRS widens by 50% of original width
   - Systolic BP drops 10 mm Hg or more

11. Give 1 – 2 amps of **Sodium Bicarb (8.4%) 1mEq/kg IV or IO** if V-fib/pulseless V-tach is refractory to above meds and prolonged down time.
12. If Torsades de Pointes: give **Magnesium Sulfate 1– 2 gms IV or IO** (dilute in 100ml D5W) over 1 – 2 minutes. If magnesium converts rhythm, start **Magnesium Sulfate maintenance infusion** (1 gm in 250 D5W) @ 30 – 60 gtts/min
13. If Return of Spontaneous Circulation (ROSC) and patient remains unconscious, begin **Induce Hypothermia Protocol**

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director for any questions or problems.

2.4
Other Adult Cardiac Emergencies

2.4.1 Cardiogenic Shock

Purpose: This protocol is to be used for a patient that is hypotensive (systolic BP < 90 mm Hg) with signs and/or symptoms that are cardiac in origin, e.g. Pulmonary Edema-CHF (dyspnea with rales and/or wheezing), suspected acute myocardial infarction (ST segment elevations on EKG, severe substernal chest pain). If cardiogenic shock is suspected, medical control will need to help guide you in management. The treatment options will need to take into account medications that affect the contractile force of the heart, as well as pre-load and after-load concerns.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol. 2.1.1
2. Airway Assessment/Management Protocol 2.1.2.
3. Attach cardiac monitor and pulse oximeter.

ALS LEVEL 1: PARAMEDIC ONLY

1. Initiate IV lactated Ringer's or normal saline **TKO**.
2. If patient is short of breath with signs of pulmonary edema (dyspnea, wheezing, rales, tachypnea)
   a. Assist ventilations with BVM with 100% oxygen.
   OR
   b. Apply CPAP Mask if patient awake enough and able to tolerate
   OR
   c. Consider endotracheal intubation.
3. If hypotensive:
   a. Be sure to remove any transdermal nitroglycerine patch and inform medical staff that you have done so.
4. Obtain 12 lead EKG and transmit if capable.
5. Treat dysrhythmias per the appropriate protocol.
6. Further treatment based on evidence of fluid overload or no fluid overload.

ALS LEVEL 2: MEDICAL CONTROL

a. If hypotensive **WITH** evidence of fluid overload (peripheral edema and/or lung sounds with rales):
   i. Start **Dopamine** infusion @ 5-20 mcg/kg/min (1600 mcg/ml infusion concentration = 15 – 16 gtt/min). Titrate to maintain a minimum systolic BP of 90 mm Hg with good capillary refill or a maximum BP of 120 mm Hg (maximum dose 20 mcg/kg/min)
b. If hypotensive and **WITHOUT** evidence of fluid overload (lung sounds are clear (no rales) and/or NO peripheral edema):
   i. Administer 250 mL IV fluid bolus prn x 4, reassess vitals between boluses. If patient becomes dyspneic or redevelops pulmonary edema (dyspnea, wheezing, rales), do not give any further boluses

c. Contact medical control or medical director for further orders as needed.

2.4.2 Chest Pain-Suspected Acute MI-Acute Coronary Syndrome

Purpose: This protocol is used for patients experiencing chest pain or discomfort **suspicious** for cardiac cause. Pain may be described as dull, aching, squeezing, fullness, band-like sensation, tightness, and sensation of someone or something sitting on chest. The pain may or may not radiate to the neck, jaw, left shoulder or down left arm. The patient can also have the following symptoms with or without chest pain; diaphoresis, nausea, short of breath, feel a sense of doom, weak, fatigued. Treat patients for possible cardiac cause of pain IF:

- Age ≥ 30 (or if < than 30 with personal history of coronary artery disease)
- History of: HTN, Smoking, morbid obesity, Diabetes, Positive Family history of cardiac issues (when family member was same age as patient at onset of problem), hypercholesterolemia, cocaine use
- Anyone with abnormal/suspicious findings on the cardiac monitor, proceed with the following;

All other chest pain patients less than 30 yrs of age do not need to be treated with nitroglycerine and aspirin. If you have any doubt, contact medical control for guidance. Consider other causes in young patients such as musculoskeletal strain, respiratory (bronchitis, pneumonia, bronchospasm), trauma, GI (reflux, gall stones), etc.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol. 2.1.1
2. Airway Assessment/Management Protocol. 2.1.2 Oxygen via nasal canula @ 4 LPM if SpO_2 <94% (use non-rebreather @15 LPM if SpO_2 < 90%)
3. Attach cardiac monitor and pulse oximeter.
4. BLS Crews can assist patients in taking their own home meds such as aspirin or sublingual nitroglycerine (see medical procedure protocols).
5. Place in position of comfort

ALS LEVEL 1: PARAMEDIC ONLY

1. Obtain (and transmit if capable) 12 lead EKG as soon as possible. Notify medical control of any findings suggestive of acute myocardial infarction or other grossly abnormal tracing. For all arrhythmias identified, refer to the appropriate protocol. If ACUTE MI IS IDENTIFIED, NOTIFY THE APPROPRIATE RECEICVING FACILITY AND CALL A "CODE STEMI". If inferior wall MI is identified, perform additional 12 lead EKG with V4R to confirm/rule out concurrent right ventricular MI. (a).
2. Initiate an IV of lactated Ringer's or normal saline at a TKO rate. May require IV Bolus if hypotensive (systolic BP < 90 mm Hg). Give boluses in 250ml increments with vital sign and breath sound recheck in-between each bolus. Establish 2 IVs if possible.

3. Administer 1 **Aspirin tablet (325 mg) PO** or chew 4 Baby Aspirin if patient not allergic to Aspirin and does not have ulcer disease and has not taken a 325 mg dose within the past 24 hours.
4. Administer 1 **Nitroglycerin tablet or spray (0.4mg)** sublingually if systolic blood pressure greater than 90 mm Hg (avoid if HR < 50/min,or HR > 150/min). May be repeated every 5 minutes until:
    a. 3 tablets have been administered,
    b. Pain is relieved, or,
    c. Systolic blood pressure falls below 100 mm Hg.

    NOTE: DO NOT GIVE NITRO IF PATIENT HAS TAKEN Viagra, Cialis, Levitra or any other medication for erectile dysfunction in past 24-48 hours.
5. If pain was relieved to 0/10 by sublingual nitro, place 1 inch of **nitroglycerine paste** to chest wall (monitor blood pressure).
6. If pain continues and patient is not hypotensive (systolic BP < 90 mm Hg), administer **Morphine Sulfate slow IV in 2mg** increments every 3-5 minutes titrated to pain and BP > 90 mm Hg, up to maximum of 10 mg. Monitor respirations and blood pressure closely.
7. If patient becomes nauseated, give one of the following:
    a. Zofran 4 – 8 mg IVP or IM
    b. Benadryl 25-50 mg IVP
8. Minimize venipunctures.
9. IF time permits and transporting to a non cardiac cath facility (do not delay treatment or transport), perform Fibrinolytic screening checklist (see forms). This may prevent a delay if hospital will be giving thrombolytics in the event cardiac catheterization is not immediately available.

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control for further orders as needed.

NOTE:

(a) Bradycardia with hypotension may be due to inferior wall MI associated with right ventricular MI (confirmed on 12 lead EKG -V4R ST elevation). When an inferior MI is associated with right ventricular MI, **avoid use of nitrates (Nitroglycerin)**. If bradycardia and hypotension exists, pacing and IV fluids may improve the patient's hemodynamic status

(b) Other causes of non-traumatic chest pain include: angina pectoris, dissecting aortic aneurysm, pericarditis, spontaneous pneumothorax, pulmonary embolism, pneumonia, pleurisy, costochondritis, hiatal hernia, esophageal spasm, peptic ulcer, cholecystitis, pancreatitis, and cervical disk problem. The paramedic will not always be able to differentiate the cause of a patient's chest pain. It is imperative for the paramedic to obtain a good history and perform a good physical exam including a chest exam/breath sounds, abdominal exam and evaluation of peripheral pulses, as well as monitor cardiac activity and vital signs in order to identify those patients who are hemodynamically unstable.

Chest Pain Protocol Checklist

- ❑ **Assure ABC's.**
- ❑ **Administer oxygen via nasal cannula or non-re-breather, titrate to SpO_2 >94%.**
- ❑ **Obtain symptom duration, time of onset or last time patient was seen normal.**
- ❑ **Obtain 12 lead EKG and transmit as soon as possible (if capable).**
- ❑ **Notify medical control of any findings that indicate MI or other abnormalities.**
- ❑ **Place patient in position of comfort.**
- ❑ **Pulse ox.**
- ❑ **Vital signs.**
- ❑ **Initiate intravenous line. Establish two if possible.**
- ❑ **Determine serum glucose level if history of diabetes or Altered Mental Status.**
- ❑ **Administer 1 Nitro tablet (0.4mg) sublingually if systolic pressure greater than 100 mm Hg. (Do not give Nitro if patient has had Viagra or similar medication in the past 24-48 hours.**
- ❑ **Repeat Nitro till pain relieved, 3 tablets administered, or systolic pressure drops below 100 mm Hg.**
- ❑ **1 inch of Nitro Paste to chest wall if pain is relieved.**
- ❑ **Administer 4 baby aspirin or 1 325mg tablet if patient is not allergic or have ulcers.**
- ❑ **Treat dysrhythmias per protocol.**
- ❑ **Consider Morphine 2 mg IVP and every 3-5 minutes up to 10mg.**
- ❑ **Consider Zofran 4-8 mg IVP or IM for nausea.**
- ❑ **Transport. Document all items on run report.**

FIBRINOLYTIC INCLUSION/EXCLUSION CHECKLIST:

Patient Name: _____ Date: _____

Inclusion Criteria	YES	NO
1. Patient ≥ 18 years old		
2. Ischemic discomfort ≥ 30 min. but not > 12 hours		
3. ST segment > 1mm in ≥ 2 contiguous leads or ST elevation ≥ 2mm in ≥ 2 contiguous precardial leads or presumed new LBBB		

Exclusion Criteria	YES	NO
Any "YES ANSWER" to the below listed questions will "EXCLUDE" the patient from being a candidate for thrombolytic therapy. Paramedic must check each box as the question is answered.		
1. Any active internal bleeding within the last 4 weeks (e.g. black tarry stools, hematemesis).		
2. History of CVA or TIA.		
3. ANY surgery within the past 4 weeks		
4. Brain tumor, AVM (arterial-venous malformation), Cerebral aneurysm		
5. Hemophilia or any known bleeding disorder		
6. Presenting hypertension, any blood pressure PRIOR to the delivery of thrombolytics that exceeds 180 systolic or 110 diastolic.		
7. Use of cocaine or amphetamines in the past 3 days		
8. Patient in cardiogenic shock (BP < 90), or intubated		
9. Recent trauma, including CPR > 2 minutes		
10. Back Pain indicative of a Dissecting Aneurysm, presenting as a tearing or ripping pain, in the upper back, accompanied by unequal blood pressures or distal pulses.		
11. Being treated for pericarditis, endocarditis		
12. Pregnancy		
13. Patient taking oral anticoagulation meds within the past 3 days		
Paramedic Signature:		

2.4.3 Hypertensive Emergencies

Purpose: You are NOT trying to correct a patient's chronic elevation of blood pressure on a one time EMS visit. You will NOT always see a significant change in blood pressure during the short time patient is in your possession. This protocol should be applied to patients who are:

Asymptomatic:

1. IF patient has a persistent systolic BP > **220** mm Hg and/or a diastolic BP > **130** mm Hg after 2 separate readings, 5 minutes apart, proceed as below. (If possible, take BP in other arm for one of the readings). DO NOT delay transport for BP readings/treatment. The goal is to gradually lower the BP to a more manageable range of a systolic < or = 180 mm Hg and a diastolic BP < or = 95. Should you arrive at the hospital before both readings are obtained, inform ED staff and treatment can be provided by the ED staff. If either of the two BPs falls below the 220 systolic or 130 diastolic, do not treat unless you contact medical control first.

Symptomatic:

1. IF patient has systolic BP >**180** mm Hg and/or diastolic BP > **110** mm Hg AND has **Chest pain and/or CHF/Pulmonary Edema symptoms**, follow protocol for symptoms (Suspected AMI/Acute Coronary Syndrome, and/or Pulmonary Edema/CHF). High blood pressure will be treated by following those protocols.
2. IF systolic BP > **180** mm Hg and/or diastolic BP > **110** mm Hg AND patient has epistaxis (nosebleed), follow protocol below
3. IF systolic BP > **180** mm Hg and/or diastolic BP > **110** mm Hg AND patient has severe headache with or without blurred vision, follow protocol below. If you suspect a stroke (protocol CVA/Stroke), **do not lower BP** unless ordered to do so by medical control.
4. Eclampsia should be considered with female patients in their third trimester or postpartum who are hypertensive and/or seizing (Refer to 2.7.4 Eclampsia Protocol)

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1
2. Airway Assessment/Management Protocol 2.1.2. Oxygen via nasal cannula @ 2 - 4 LPM to maintain pulse ox ≥ 94% (non-rebreather @15 LPM if SpO_2 < 90%).
3. Attach cardiac monitor and pulse oximeter

ALS LEVEL 1: PARAMEDIC ONLY

1. Establish an IV of Lactated Ringers or Normal Saline at KVO prn.
2. For nose bleed;
   a. Hold pressure against nostril on affected side. (Apply ice pack if possible).
   b. Keep head of bed elevated between 45 – 90 degrees.

c. Verify elevated BP with two separate readings (one in each arm or one in same arm 5 minutes apart). If elevated BP (systolic >180 mm Hg or diastolic > 110 mm Hg) x 2 readings, proceed to #4 below.

3. For severe headache with or without blurred vision;
   a. Review patient's home medications and inquire if any medications are taken for high blood pressure.
   b. Inquire if patient has taken their high blood pressure medication as scheduled. If patient has not yet taken their blood pressure medication and is due a dose now or over the next 2 -3 hours, have them take a dose of their prescribed medication if no nausea/vomiting. Transport and report the name of medication taken by patient to ED Staff
   c. Inquire if patient has taken any medication for the headache in the past 6 hours (Tylenol, Motrin/Ibuprofen, any prescribed pain Rx), if not, give or assist patient with taking 1 gm of Tylenol (if not allergic) po.
   d. Examine patient for stroke symptoms (Cincinnati Stroke Scale). Do not lower BP if stroke suspected without med control
   e. After above measures, verify elevated BP with two separate readings (one in each arm or one in same arm 5 minutes apart). If elevated BP (systolic >180 mm Hg or diastolic > 110 mm Hg) x 2 readings, proceed to #4 below.
4. Administer **Nitroglycerine** 0.4mg (1 tab or spray) sublingually. Repeat q 5 - 10 min prn x 3. Monitor vital signs every 3-5 minutes. Make sure patient has not taken any erectile dysfunction drugs in previous 24 – 48 hours prior to giving nitro
5. Apply 1 inch of **Nitro paste** to patient's chest.
6. If blood pressure falls too low (systolic < 90), remove the Nitro Paste and give IV fluid as needed to maintain systolic between 90-110

ALS LEVEL 2: MEDICAL CONTROL

1. **Labetalol (Normadyn) (Trandate)** 10- 20 mg IV slowly over 2 minutes. May repeat q 10 minutes to max dose of 300mg. Contact medical control if pulse < 60.
2. **Clonidine (Catapress)** 0.1 mg p.o. May be repeated in 30 – 60 minutes. Max dose 2.4mg/day
3. Contact medical control or medical director if any concerns or any questions.

2.4.4 Hypotension/Shock (Unknown Cause or Immediate Cause Not Identified)

Purpose: This protocol is to be used for patients who are found to be hypotensive (Systolic BP ≤ 90 mm Hg) and the immediate cause may not be known. Possible causes include (but not limited to):

1. **Medications** (As per intended purpose such as any of the antihypertensive medications or as an adverse reaction or side effect of a non-antihypertensive medication):
    a. Beta Blockers
    b. Calcium Channel Blockers
    c. ACE Inhibitors
    d. Diuretics
2. **Cardiac Causes**
    a. Low Cardiac Output (e.g. Myocardial Infarction, myocarditis)
        i. Cardiogenic Shock
    b. Cardiac Tampanode
3. **Low Volume States**
    a. Severe Dehydration
    b. Anemia acute or chronic
    c. Acute hemorrhage (e.g. Acute GI bleed, ruptured Aortic Aneurysm)
4. **Medical Causes**
    a. Sepsis
    b. Anaphylaxis
    c. Endocrine Derangements (Adrenal Crisis)
5. **Traumatic Causes (refer to appropriate trauma protocol)**
    a. Acute traumatic hemorrhage
6. **Neurologic causes**
    a. Head Injury
    b. Spinal Cord Injury
    c. CVA
    d. Vasovagal Fainting

Signs and Symptoms:

1. Hypotension (systolic ≤ 90 mm Hg)
2. Normal or Decreased LOC
3. Tachycardia (may not be present due to certain medications)
4. Tachypnea and Bradycardia may be seen in spinal cord injuries
5. NOTE: Spinal Shock: Clinical presentation differs from hemorrhagic shock in that there is no catecholamine release, thus:
    a. No pallor
    b. No tachycardia or diaphoresis
    c. Decreased blood pressure with normal or slow heart rate
    d. Skin warm, dry and pink
    e. Patient may be more alert than expected for his/her blood pressure.

If an immediate or obvious cause can be identified, refer to the appropriate protocol for additional guidance, e.g. if trauma involved, refer to the appropriate trauma protocol, for cardiac causes, refer to the appropriate cardiac protocol.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol. 2.1.1
2. Airway Assessment/Management Protocol.2.1.2.
3. Attach cardiac monitor and pulse oximeter.
4. Consider placing in Trendelenburg

ALS LEVEL 1: PARAMEDIC ONLY

1. Initiate IV of Normal Saline (or Lactated Ringers if trauma related). If BP Systolic ≤ 90 mm Hg, bolus with 250 ml IV fluid and repeat up to 1 liter (2 liters if trauma). Check vital signs and breath sounds in-between each bolus.
2. If patient develops pulmonary edema during fluid bolus, discontinue bolus and follow cardiogenic shock protocol,

ALS LEVEL 2: MEDICAL CONTROL

1. If after first liter (or second liter for trauma) of IV fluid bolus (and no obvious cause of hypotension), and patient's systolic BP is still ≤ 90 mm Hg, contact medical control for advice on giving a second liter of fluid bolus or starting a **Dopamine** drip. It will depend on the circumstances.

Left Ventricular Assist Devices

Purpose: The purpose of this protocol is to guide the EMS crew with managing a patient tethered to a left ventricular assist device. A ventricular assist device is a mechanical pump that is used to support heart function and blood flow in people who have weakened hearts. The device takes blood from the lower chamber of the heart and helps pump it to the body and vital organs just as a healthy heart would. Patients and family members are well versed on the management of these devices and should be able to guide you in management. Be sure when transporting patients with LVADs, that ALL the necessary supplies accompany the patient. This includes the extra batteries, chargers, and any other spare/backup components. Keep in mind, with many LVADs, you will not hear or detect a blood pressure. You will instead rely on the patient's level of consciousness, and the skin color and condition. Pulses may or may not be palpable. When the chest is auscultated, you will hear the humming of the device.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol. 2.1.1
2. Airway Assessment/Management Protocol.2.1.2. Supplemental oxygen if any respiratory signs or symptoms are present
3. Attach cardiac monitor and pulse oximeter. Pulse ox may not work on these patients.

ALS LEVEL 1: PARAMEDIC ONLY

1. Auscultate Heart Sounds to determine if the device is functioning and what type of device it is. If it is continuous flow device, you should hear a "whirling sound"
2. Assess the device for any alarms.
3. Look on controller usually found around the waist of the patient to see what color tag and device it is.
4. Match the color on the device tag to the EMS Guide LVAD Devices
5. Intervene appropriately based on the type of alarm, tag (device) and EMS Guide.
6. Initiate IV of Normal Saline or LR at KVO.
7. Assess vital signs – Use Mean BP with Doppler – with the first sound you hear is the Mean Arterial Pressure (MAP).
8. If no Doppler, use the Mean on the non-invasive blood pressure machine. A manual blood pressure may not be obtainable, but with an automated cuff you will be able to obtain a pressure with a narrow pulse pressure.
9. Transport to closest VAD center if possible, otherwise to closest hospital if patient is hemodynamically unstable or to hospital of choice

if patient is stable. Call the number on the device for the LVAD coordinator on call.

10. Bring all of the patient's equipment.
11. Bring the significant other if possible to act as an expert on the device in the absence of consciousness in the patient.
12. If the patient is unconscious, unresponsive to stimuli, and pulseless listen to the patient's chest. If you hear the whirling sound of the LVAD, **DO NOT PERFORM CPR**. The LVAD device has been surgically placed into the left ventricle and CPR could dislodge this device, causing death. If you cannot hear the device then CPR should be performed per cardiac arrest protocol.
13. Monitor blood glucose level if any weakness, altered mental status or history of diabetes. Treat per Diabetes Protocol
14. Nothing by mouth, unless patient is known diabetic with hypoglycemia and is able to self-administer oral glucose paste, or a glucose containing beverage.
15. Above all else please remember that these patients, along with their families, have been well trained in the care of themselves and their devices. LISTEN TO THEM!
16. Evaluate a 12 lead ECG if chest pain or ischemic equivalent symptoms (i.e. abdominal pain above the umbilicus, nausea, dizziness, chest tightness or shortness of breath.)
17. If patient meets STEMI criteria on 12 lead ECG, follow Chest Pain Protocol
18. All dysrhythmias should be treated in accordance with appropriate Dysrhythmia Protocol.
19. For conscious electrical defibrillation, the patient may be sedated with **Versed** 2-4mg if the MAP is greater than 65mmHg.
20. Record and monitor continuous O2 saturation, sometimes not obtainable with LVAD patients. In addition you may utilize End Tidal Co2 capnography.
21. If evidence of dehydration, bolus 250 ml of Normal Saline with a max of 500 ml of NS until patient is normotensive, (= or > 65 MAP). If patient shows signs of Congestive Heart Failure (crackles on auscultation of lungs, JVD or peripheral edema) withhold fluid bolus.
22. . If patient suffering from severe nausea or vomiting, follow Protocol Nausea and Vomiting .
23. . Minimize on scene time when possible

ALS LEVEL 2: MEDICAL CONTROL

2.5
Adult Neurological/Psychological/Behavioral Emergencies

2.5.1 Altered Mental Status/Coma

Purpose: This protocol is to be used for any patient with an altered mental status or unconscious for unknown reasons. Remember, the cause could be multifactorial. Look for clues at the scene, i.e. empty pill bottles, notes. Check for medical alert bracelets or necklace that may identify diabetics or other medical conditions. Use appropriate discretion regarding immediate intubation of patients who may quickly regain consciousness, such as hypoglycemics after D50 or opiate overdose cases after Narcan. Remember C-spine precautions if indicated.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1
2. Airway Assessment/Management Protocol 2.1.2
3. Attach cardiac monitor and pulse oximeter.
4. Alcoholics with any evidence of head trauma and altered mental status must be considered to have a closed head injury until proven otherwise. Treat them as such including C-spine precautions.
5. Notify law enforcement for assistance with any combative or uncooperative alcoholic with an altered mental status.
6. Assess for and document Glascow Coma Scale
7. Transport to designated hospital.

ALS LEVEL 1: PARAMEDIC ONLY

1. Consider need for intubation and always remain vigilant of the patient's respiratory status
2. Initiate IV of lactated Ringer's or normal saline at TKO. If patient is tachycardia and/or hypotensive, give a 250 ml bolus then run at 100cc/hr.
3. Determine serum glucose level with Glucometer or Dextrostix;
   a. If sugar 60 mg/dl - 80 mg/dl; Sublingual glucose paste, or **Glucagon** 1mg IM or ½ amp of 25gm **50% Dextrose** IV
   b. If Blood sugar < 60 mg/dl; 1 amp 25gm **50% Dextrose** IV or **Glucagon** 1 mg IM
   c. If Blood sugar > 300mg/dL with signs of dehydration, administer bolus of IV normal saline 500 mlthen run in at 100cc/hr
4. If history of drug abuse, and patient has constricted pupils or respiratory depression, assist respirations as needed and administer **Narcan** 0.4- 0.5 mg and titrate to effect up to 2.0 mg IV
5. If history suspicious for alcoholism, administer **Thiamine 100 mg** IV (slow) or IM.
6. If history of Benzodiazepine usage, monitor/support respirations and report to Emergency Department staff.

ALS LEVEL 2: MEDICAL CONTROL

1. Contact Medical Control or Medical Director for any questions or problems.

NOTE:

(a) To avoid infiltration and tissue necrosis, Dextrose 50% should be given slow IV with intermittent aspiration of IV line to confirm IV patency followed by saline flush.

(b) Consider restraints if necessary for patient and/or personnel's protection per restraint procedure protocol.

2.5.2 Behavioral / Violent /Psychiatric Emergencies

Purpose: This protocol is for patients with psychiatric problems. If patient is violent and an immediate threat to him/herself, EMS crew or bystander safety exists, restraint should be used to prevent patient from harming him/herself or others. If patient is not violent, be observant for possibility of violence and avoid provoking patient. Particular caution should be exercised when any "non-lethal" law enforcement device (e.g. pepper spray, taser, etc.) has been employed. Respect the dignity of the patient. Teamwork between EMS personnel and law enforcement will improve patient care.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1
2. Airway Assessment/Management Protocol 2.1.2. If indicated Oxygen via nasal cannula @ 2 - 4 LPM to maintain pulse ox ≥ 94% (non-rebreather @15 LPM if SpO_2 < 90%).
3. Rule out other causes other than psychiatric (e.g. hypoglycemia, hypoxia, CVA, drug overdose, ETOH).
4. If attempts at verbal control are unsuccessful, use reasonable physical restraints. Every attempt should be made to avoid injury to the patient when using physical restraint. If necessary, use standard restraining techniques and devices. Use sufficient padding on extremity restraints on elderly patients or others with delicate skin.
5. **Avoid positional asphyxia!!! Do Not transport patient in a "hog tied" prone position. Transport patient lying on their side or supine. If patient still agitated, have law enforcement ride in back of ambulance. If law enforcement refuses to reposition a restrained prone patient on their side, law enforcement MUST ride in with patient.**
6. Communicate in a calm and non-threatening manner.
7. Attach cardiac monitor and pulse oximeter if indicated (must be on any patient restrained, physical or chemical)
8. Constantly monitor and observe the patient to prevent injury.
9. Carefully document the rationale for the use of restraints.
10. All individuals being transported for psychological evaluation under the premise of a Baker Act (or equivalent document for involuntary evaluation/treatment) should be accompanied by a police officer. The paramedic in charge shall determine whether the police officer will ride in back or follow behind the EMS unit.
11. In those situations where a female patient is being transported and a female is not part of the EMS crew, the paramedic should attempt to have a female police officer accompany the patient to the hospital. This is imperative in situations such as possible rape. Also document beginning and ending mileage with dispatch via radio.

ALS LEVEL 1: PARAMEDIC ONLY

1. If altered mental status, determine serum glucose level with Glucometer or DextroStix:
    a. If sugar 60 mg/dl - 80 mg/dl; give; ½ amp of **50% Dextrose** 25gm IV or **Glucagon** 1mg IM or Sublingual glucose paste, May repeat x 1 if after 15 minutes recheck fingerstick glucose < 80 mg/dl
    b. If Blood sugar < 60 mg/dl; 1 amp 25gm **50% Dextrose** IV or **Glucagon** 1 mg IM
    c. If glucose > 80 mg/dl and < 200 mg/dl, provide supportive care, keep NPO
    d. If glucose > 200 mg/dl, go to Hyperglycemia Protocol.
2. Use chemical restraints in conjunction with physical restraint if the latter is unsuccessful in controlling violent behavior.
3. For Chemical restraint:
    a. Establish and IV of Lactated Ringers or Normal Saline at KVO (if patient's extremity can be held down for the procedure [with assistance]), otherwise give medications IM
    b. Administer one of the following benzodiazepines:
        i. **Diazepam (Valium)** 5 – 10mg IV or IM. Higher dosing per medical control
        ii. **Midazolam (Versed)** 2-4 mg IV or IM. May repeat x 1 PRN. Higher dosing per medical control
    c. If additional sedation needed for severely agitated patient or if extrapyramidal side effects from medical control ordered Haldol, administer **Diphenhydramine (Benadryl)** 25 – 50 mg IV or IM. Use the higher dose for very large patients.
4. If history of alcoholism, or alcoholism suspected administer **Thiamine** 100 mg IV or IM.
5. Monitor any physically or chemically restrained patient closely for respiratory compromise and plan to intervene accordingly

ALS LEVEL 2: MEDICAL CONTROL

1. For agitated/violent patient: **Haldol (haloperidol)** 5 -10 mg IM.
2. Notify medical control or medical director for any problems or concerns.

2.5.3 Excited Delirium

Medical adult protocol

Purpose: This protocol is to be used on patients suspected of being in a state of excited delirium. Excited delirium is reported to result from substance intoxication (especially cocaine, Spice and Bath Salts), psychiatric illness, alcohol withdrawal, head trauma, or a combination of these. Excited delirium is sometimes called **excited delirium syndrome** if it results in sudden death (usually via cardiac or respiratory arrest), an outcome that is sometimes associated with the use of physical control measures, including police restraint and tasers. The signs and symptoms for excited delirium may include:

- Paranoia
- Insensitivity to pain
- Psychomotor agitation
- Anxiety
- Disorientation
- **Hyper-aggression**
- Tachycardia
- Hallucination
- Incoherent speech or shouting
- **Seemingly superhuman strength or endurance (typically while trying to resist restrain efforts)**
- Hyperthermia (overheating)/profuse sweating (even in cold weather)

Other medical conditions that can resemble excited delirium are panic attack, hyperthermia, diabetes, head injury, delirium tremens, and hyperthyroidism.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. THESE PATIENTS ARE HYPER-AGITATED AND CAN HAVE SUPER-HUMAN STRENGTH. DO NOT ATTEMPT TO APPROACH PATIENT UNTIL SCENE IS SCECURED BY LAW-ENFORCEMENT
2. YOU MUST HAVE SUFFICIENT NUMBER OF TEAM MEMBERS TO MANAGE THESE PATIENTS.
3. Initial Patient Assessment Protocol 2.1.1 when able to gain control of patient
4. Airway Assessment/Management Protocol 2.1.2. Oxygen via nasal cannula @ 2 - 4 LPM to maintain pulse ox ≥ 94% (non-rebreather @15 LPM if SpO_2 < 90%). (Patient is using a lot of oxygen during hyper-metabolic state)
5. Rule out other causes other than psychiatric (e.g. hypoglycemia, hypoxia, CVA, drug overdose, ETOH).

6. If attempts at verbal control are unsuccessful, use reasonable physical restraints until such time as patient can be medicated. Use the least restrictive method of restraint; allow the patient to correct inappropriate behavior. Every attempt should be made to avoid injury to the patient when using physical restraint. If necessary, use standard restraining techniques and devices. Use sufficient padding on extremity restraints on elderly patients or others with delicate skin.
7. **Avoid positional asphyxia!!! Do not transport patient in a "hog tied" prone position. Transport patient lying on their side or supine. If patient still agitated, have law enforcement ride in back of ambulance.**
8. Communicate in a calm and non-threatening manner.
9. Attach cardiac monitor and pulse oximeter as soon as it is feasible (**must** be on any patient restrained, physical or chemical)
10. Constantly monitor and observe the patient to prevent injury.

ALS LEVEL 1: PARAMEDIC ONLY

1. If it is not possible to safely manage patient due to hyper-aggression and agitation, administer one of the following:
   a. **Versed 2 – 4 mg IM** (or IV if able to safely get an IV) may repeat 3 – 5 minutes PRN up to 10 mg.
   b. **Diazepam (Valium)** 5 – 10mg IM (or IV if able to safely get an IV) may repeat x 1 PRN.
   c. **Haldol 5 – 10 mg** IM (DO NOT GIVE HALDOL IV!) followed by **Diphenhydramine (Benadryl)** 25-50 mg IM or IV. Must be on cardiac monitor
2. If IV had not been established before, start IV of Lactated Ringers or NS at KVO. Bolus with 250 mg increments as needed for systolic BP < 90 mm Hg and/or HR > 120.
3. If altered mental status, and when safe to do so, determine serum glucose level with Glucometer or DextroStix:
   a. If sugar 60 mg/dl - 80 mg/dl; give; ½ amp of **50% Dextrose** 25gm IV or **Glucagon** 1mg IM or Sublingual glucose paste, May repeat x 1 if after 15 minutes recheck fingerstick glucose < 80 mg/dl
   b. If Blood sugar < 60 mg/dl; 1 amp 25gm **50% Dextrose** IV or **Glucagon** 1 mg IM
   c. If glucose > 80 mg/dl and < 200 mg/dl, provide supportive care, keep NPO
   d. If glucose > 200 mg/dl, go to Hyperglycemia Protocol
4. If patient body temperature exceeds 102° F, move patient to cooler environment, and remove clothing. Cool aggressively with wet sheets, cool packs, and/or evaporative airflow. Avoid ice packs and cold water immersion. Lower body temperature to 102° F (39C).
5. If patient goes into cardiac arrest, treat accordingly and administer **1 amp of Sodium Bicarb** early as they are usually very acidotic.

6. Monitor any physically or chemically restrained patient closely for respiratory compromise and plan to intervene accordingly

ALS LEVEL 2: MEDICAL CONTROL

1. Notify medical control or medical director for any problems or concerns.

2.5.4 Seizures

Purpose: This protocol should be used when the patient has witnessed continuous convulsions (generalized tonic-clonic seizure or Grand Mal) or repeating episodes without regaining consciousness or sufficient respiratory decompensation. Consider underlying etiology, such as: hypoglycemia, drug overdose, head injury, or fever. Other types of seizures include: absence (Petit Mal), simple partial (focal motor and Jacksonian), complex partial (Psychomotor or Temporal Lobe), atonic (drop attacks), and myoclonic. When the patient is continuously showing signs of these other types of seizures, medical supportive care should be initiated and the paramedic should contact medical control for further direction. Females in their second or third trimester of pregnancy (≥ 20 weeks gestation) that are seizing should be assumed to have eclampsia. It should also be noted that eclampsia can occur postpartum (≤ 1 week).

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1
2. Airway Assessment/Management Protocol 2.1.2. Oxygen via nasal cannula @ 2 - 4 LPM to maintain pulse ox ≥ to 94% (non-rebreather @15 LPM if SpO_2 < 90%).
3. Attach cardiac monitor and pulse oximeter
4. Assess for and document the Glascow Coma Scale
5. **If not actively seizing**:
   a. Open airway and suction PRN.
   b. Proceed with secondary survey.
   c. Obtain history.
6. **If actively seizing**:
   a. Protect patient from injury.
   b. Do not attempt to insert tongue blade or oral airway.
   c. Suction p.r.n.
   d. Nasopharyngeal airway may be useful.
7. **If recent seizure, and patient is postictal:**
   a. Place in recovery position.
   b. Suction p.r.n.
   c. Transport.

ALS LEVEL 1: PARAMEDIC ONLY

1. Initiate IV lactated Ringer's or Normal Saline at 125ml/hr. If patient hypotensive (systolic < 90 mm Hg) and/or tachycardic (HR > 110) bolus with 1- 2 liters of IV fluid in 250ml increments until systolic BP > 90 mm Hg (20 ml/kg for children). Recheck vital signs and lung exam in-between

each increment. Discontinue bolus if signs of pulmonary edema or development of respiratory distress.

2. If Eclamptic female (go to Eclampsia Protocol), administer **Magnesium Sulfate** 4gms IV (mixed in 50 ml of D5W given over 5 – 10 minutes)
3. If seizing, administer one of the following benzodiazepines:
    a. **Midazolam (Versed) 5 mg IM or 2-4 mg IV**. May repeat each x 1 PRN
    b. **Diazepam (Valium)** 5 – 10mg IV or IM
4. Determine serum glucose level with Glucometer or DextroStix:
    a. If sugar 60 mg/dl - 80 mg/dl; give; ½ amp of **25 gm 50% Dextrose IV** or **Glucagon 1mg** IM. May repeat x 1 if after 15 minutes recheck fingerstick glucose < 80 mg/dl
    b. If Blood sugar < 60 mg/dl; 1 amp 25gm 50% **Dextrose** IV or **Glucagon** 1 mg IM
    c. If glucose > 80 mg/dl and < 200 mg/dl, provide supportive care, keep NPO
    d. If glucose > 200 mg/dl, go to Hyperglycemia Protocol.

ALS LEVEL 2: MEDICAL CONTROL

1. Notify medical control or medical director for any problems or concerns.

2.5.5 CVA / Stroke

Purpose: This protocol is used for those patients exhibiting signs consistent with acute stroke/CVA/"Brain Attack" (altered mental status, slurred speech, loss of function of any body part, hemiplegia, loss of vision, weakness of facial muscles, loss of sensation, drooling, etc.). Other causes should be ruled out (hypoglycemia, drug overdose, hypoxia, etc.).

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1.
2. Airway Assessment/Management Protocol 2.1.2. Oxygen via nasal canula @2 - 4 LPM to maintain pulse ox of ≥ 94% (non-rebreather @15 LPM if SpO_2 < 90%)
3. When CVA is suspected, transport to the hospital should not be delayed. Determine if patient has facial droop, abnormal speech, or arm drift.
4. If possible place in supine position with head of bed flat for transport (if patient unable to tolerate, transport in Semi-Fowler's with the head of bed no greater than 30 degrees).
5. Assess for and document Glasgow Coma Scale
6. Attach cardiac monitor and pulse oximeter.
7. Keep patient NPO.
8. **Determine time of onset of symptoms (time last seen normal). If onset of symptoms is within 5 - 6 hours notify hospital of a possible "stroke alert".**
9. Try to ascertain if patient had a seizure prior to onset of "stroke" symptoms as he/she may have a condition called Todd's paralysis, which is NOT treated with thrombolytics. Relay this information to the hospital
10. If applicable, transport to the appropriate designated Stroke Center.
11. Cincinnati Pre-hospital Stroke Scale:
    a. Assess for the unilateral presence of at least one of the following:

Item Description

1. Facial droop: Ask the patient to smile. Watch for weakness on one side of the face.
2. Arm drift: Ask the patient to hold both arms out with palms up and eyes closed for 10 seconds. Watch for a drift of one side. A positive result is present if there is weakness in one arm. Weakness in both arms or normal strength is a negative test result.
3. Slurred speech: Ask the patient to repeat a simple sentence such as "The sky is blue in Cincinnati." Inability to repeat the words correctly and intelligibly is a positive result.

ALS LEVEL 1: PARAMEDIC ONLY

1. Endotracheal intubation if patient does not have an intact gag reflex or for markedly decreased LOC, inability to maintain a patient airway, or for GCS <= 8.
2. Initiate IV lactated Ringer's or normal saline at 75cc/hr for patients 12 yrs. or older. Obtain two intravenous lines if possible.
3. Determine serum glucose level with Glucometer or DextroStix:
    a. If sugar 60 mg/dl - 80 mg/dl; give; ½ amp of 25gm **50% Dextrose IV** or **Glucagon** 1mg IM or Sublingual glucose paste, may repeat x 1 if after 15 minutes recheck fingerstick glucose < 80 mg/dl
    b. If Blood sugar < 60 mg/dl; 1 amp 25gm **50% Dextrose** IV or **Glucagon** 1 mg IM
    c. If glucose > 80 mg/dl and < 200 mg/dl, provide supportive care, keep NPO
    d. If glucose > 200 mg/dl, go to Hyperglycemia Protocol.
4. If a stroke patient is found to be hypertensive, do not treat in the pre-hospital setting unless ordered to do so by medical control. Hypertension could represent a compensatory response to the stroke to increase the cerebral perfusion pressure.
5. If CVA is suspected and if time permits, complete the thrombolytic/fibrinolytic screening form (see forms section)
6. Treat seizures with:
    a. **Valium** 5-10 mg IVP or **Versed** 5 mg IM or 2-4 mg IVP (may repeat x 1). Monitor respiratory efforts and intervene as indicated.

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control if seizure did not respond to Valium
2. Contact medical control for treatment of agitation with:
3. **Valium** 2-5 mg IVP. May repeat every 10 minutes to a maximum of 10 mg. Or **Versed** 2 mg IV. May repeat x 1 PRN. Maximum dose 4mg.
4. In the presence of acute stroke (CVA), hypertension may be lowered in special circumstances only with a physician order.

The **Cincinnati Prehospital Stroke Scale** is a system used to diagnose the presence of a stroke in a patient. It tests three signs for abnormal findings which may indicate that the patient is having a stroke. If any one of the three tests shows abnormal findings, the patient may be having a stroke and should be transported to a hospital as soon as possible.

1. *Facial droop:* Have the person smile or show his or her teeth. If one side doesn't move as well as the other so it seems to droop, that could be sign of a stroke.
    - Normal: Both sides of face move equally
    - Abnormal: One side of face does not move as well as the other (or at all)
2. *Arm drift:* Have the person close his or her eyes and hold his or her arms straight out in front for about 10 seconds. If one arm does not move, or one arm winds up drifting down more than the other, that could be a sign of a stroke.

- Normal: Both arms move equally or not at all
- Abnormal: One arm does not move, or one arm drifts down compared with the other side

3. *Speech:* Have the person say, "You can't teach an old dog new tricks," or some other simple, familiar saying. If the person slurs the words, gets some words wrong, or is unable to speak, that could be sign of stroke.
    - Normal: Patient uses correct words with no slurring
    - Abnormal: Slurred or inappropriate words or mute

Patients with 1 of these 3 findings as a new event have a 72% probability of an ischemic stroke. If all 3 findings are present the probability of an acute stroke is more than 85%

Stroke Protocol Checklist

- ☐ **Assure ABC's.**
- ☐ **Administer oxygen prn O2 sat < 94% by nasal cannula.**
- ☐ **Obtain symptom duration, time of onset or last time patient was seen normal.**
- ☐ **If patient is a "stroke alert" patient then transport in most expeditious mode possible.**
- ☐ **Position head of bed 30 degrees, if patient unable to tolerate, transport flat.**
- ☐ **If symptoms are within 5 - 6 hours of onset notify receiving facility of a "stroke alert".**
- ☐ **Cardiac monitor. Document cardiac rhythm.**
- ☐ **Pulse ox.**
- ☐ **Vital signs.**
- ☐ **Initiate intravenous line. Establish two if possible. Run fluids on 12 yrs or older at 75cc/hour.**
- ☐ **Determine serum glucose level**
- ☐ **Treat seizures with Valium 5-10 mg.**
- ☐ **Keep patient NPO.**
- ☐ **History of seizures?**
- ☐ **Facial droop?**
- ☐ **Abnormal speech?**
- ☐ **Arm drift?**
- ☐ **Glasgow coma scale.**
- ☐ **Do not lower blood pressure in suspected strokes.**
- ☐ **Document all protocol items on run report.**
- ☐ **Bring a family member to the hospital if it is possible, to answer questions regarding the patients condition.**

2.5.6 Syncope

Purpose: This protocol should be used for patients with a chief complaint of syncopal episode. Consider history and possibility of dysrhythmia, medication side effects, glucose imbalance, inner ear disorder, CVA, TIA, and MI. Bradycardia with hypotension may be due to inferior wall MI associated with right ventricular infarction (confirm on 12 lead ECG V4R ST elevation). When an inferior wall MI is associated with right ventricular MI, use extreme caution giving nitrates (Nitroglycerine). If bradycardia and hypotension exists, pacing and IV fluids may improve the patient's hemodynamic status.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. **Initial Patient Assessment Protocol 2.1.1**
2. **Airway Assessment/Management Protocol 2.1.2**. If indicated Oxygen via nasal cannula @ 2 - 4 LPM to maintain pulse ox ≥ 94% (non-rebreather @15 LPM if SpO_2 < 90%).
3. Obtain pertinent history:
    a. Time of syncopal episode and length of unconsciousness.
    b. Patient's position at time of syncope.
    c. Symptoms preceding event (dizziness, nausea, chest pain, headache, seizures, etc.)
    d. Medications / ETOH / drug usage
    e. Relevant past medical history.
4. Assess for and document the Glasgow Coma Scale
5. Attach cardiac monitor and pulse oximeter if indicated

ALS LEVEL 1: PARAMEDIC ONLY

1. Initiate IV lactated Ringer's or Normal Saline at 125ml/hr. If patient hypotensive (systolic < 90 mm Hg) and/or tachycardic (HR > 110) bolus with 1- 2 liters of IV fluid in 250ml increments until systolic BP > 90 mm Hg (20 ml/kg for children). Recheck vital signs and lung exam in-between each increment. Discontinue bolus if signs of pulmonary edema or development of respiratory distress.
2. Determine serum glucose level with Glucometer or DextroStix:
    a. If sugar 60 mg/dl - 80 mg/dl; give; ½ amp of 25gm **50% Dextrose** IV or **Glucagon** 1mg IM. May repeat x 1 if after 15 minutes recheck fingerstick glucose < 80 mg/dl
    b. If Blood sugar < 60 mg/dl; 1 amp 25gm **50% Dextrose** IV or **Glucagon** 1 mg IM
    c. If glucose > 80 mg/dl and < 200 mg/dl, provide supportive care, keep NPO
    d. If glucose > 200 mg/dl, go to **Hyperglycemia Protocol.**
3. Perform **12 lead ECG**. Transmit 12 Lead ECG to destination hospital, if available. If inferior wall MI is identified (ST segment elevation in leads II, III, and AVF), perform additional 12 Lead ECG with V4R to confirm/rule out concurrent right ventricular MI.
4. If any dysrhythmias, go to the appropriate protocol.

ALS LEVEL 2: MEDICAL CONTROL

1. Notify medical control or medical director for any problems or concerns.

2.6
Adult Toxicology Emergencies

2.6.1 Bites and Stings

Purpose: This protocol is for patients who have been bitten or stung by snakes, animals, humans, insects, and spiders. If any marine life was involved please refer to the separate **Marine Envenomation Protocol**. If you have any questions or concerns about the treatment of a particular bite or sting, **Contact Poison Information Center (1-800-222-1222)**. The ALS Level 1 and 2 procedures below apply to all the bites and stings, no matter what the cause. Do not use hydrogen peroxide on deep puncture wounds or wounds exposing fat. Apply sterile dressings to all wounds when appropriate.

Procedure:

SNAKEBITE

BASIC LEVEL: EMT and PARAMEDIC

1. **Initial Patient Assessment Protocol 2.1.1**
2. **Airway Assessment/Management Protocol 2.1.2**. If indicated, Oxygen via nasal cannula @2 - 4 LPM to maintain oxygen saturation ≥ to 94% (non-rebreather @15 LPM if SpO_2 < 90%).
3. Attach cardiac monitor and pulse oximeter if indicated
4. Kill the snake if concerned it is poisonous, if practical, and bring the dead snake to the emergency department (or identify). Do not mutilate the snake's head.
5. If bite on extremity, immobilize affected extremity in dependent position. Patient should remain still. A constricting band may be of some use in a few circumstances such as immediate care not available or prolonged transport time. Contact med control for order/advise.
6. Remove watches, rings, and jewelry from affected extremity (or all jewelry if general anaphylaxis).
7. Wash area of bite with copious amounts of water.
8. Check temperature and pulse distal to bite on extremity and mark level of swelling and time with pen every 15 minutes
9. If signs of toxicity (local edema and hypotension):
    a. Increase oxygen delivery to 100% via non-rebreather mask. IV as below in ALS Level 1.
10. If obvious severe reaction developing from obvious poisonous snake, i.e. large amount of ascending edema and ecchymosis from bite of rattlesnake or water moccasin, alert medical control as early as possible so they can start acquiring anti-venom from the pharmacy, some of which takes time to prepare.

General Information:

Pit Vipers: rattlesnake, water moccasin, and copperhead typically cause puncture wounds. There may be ecchymosis at site, localized pain, swelling, weakness, tachycardia, nausea, shortness of breath, dim vision, vomiting, or shock.

Coral Snakes: Usually chewed wound. There may be slight burning pain, mild swelling, blurred vision, drooping eyelids, slurred speech, drowsiness, salivation and sweating, nausea and vomiting, shock, respiratory difficulty, paralysis, convulsions, and coma.

DOG, CAT, AND WILD ANIMAL BITES

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1
2. Airway Assessment/Management Protocol 2.1.2. If indicated, Oxygen via nasal cannula @2 - 4 LPM to maintain pulse ox greater than or equal to 94% (non-rebreather @15 LPM if SpO_2 < 90%).
3. Attach cardiac monitor and pulse oximeter if indicated
4. Clean area with soap and water.
5. Advise Dispatch to contact animal control and/or law enforcement for identification and quarantine of animal.

INSECT STING (INCLUDING: CENTIPEDES, SCORPIONS, AND SPIDERS)

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1
2. Airway Assessment/Management Protocol 2.1.2. If indicated, Oxygen via nasal cannula @2 - 4 LPM to maintain pulse ox greater than or equal to 94% (non-rebreather @15 LPM if SpO_2 < 90%).
3. Attach cardiac monitor and pulse oximeter if indicated
4. Remove stinger by scraping skin with edge of flat surface (e.g. credit card). Do not attempt to pull stinger out, as this may release more venom.
5. Clean area with soap and water.

HUMAN BITES

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1
2. Airway Assessment/Management Protocol 2.1.2. If indicated, Oxygen via nasal cannula @2 - 4 LPM to maintain pulse ox greater than or equal to 94% (non-rebreather @15 LPM if SpO_2 < 90%).
3. Attach cardiac monitor and pulse oximeter if indicated
4. Clean area with soap and water.

ALS LEVEL 1: PARAMEDIC ONLY (For all the above causes):

1. Initiate IV (if indicated, in unaffected extremity) Lactated Ringer's or Normal Saline at 125ml/hr. If patient hypotensive (systolic < 90 mm Hg) and/or tachycardic (HR > 110) bolus with 1- 2 liters of IV fluid in 250ml increments until systolic BP > 90 mm Hg (20 ml/kg for children). Recheck vital signs and lung exam in-between each increment. Discontinue bolus if signs of pulmonary edema or development of respiratory distress.
2. Refer to Allergic Reaction Protocol if indicated
3. If severe pain, refer to Pain Protocol.

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director if any concerns or any questions.

2.6.2 Toxicology - (Drug Overdose /Poisoning)

Purpose: This protocol is to be used for those patients suspected of exposure to toxic substances via any route of exposure. A history of the events leading to the illness or injury should be obtained from the patient and/or bystanders to include: What drugs, poisons, or other substance(s) was the patient exposed? Consider multiple substances, especially on overdoses.

- Route of exposure (ingested, inhaled, injected, surface contamination.)?
- Type and amount of poison/drug?
- Duration of symptoms?
- Is patient depressed, suicidal? History of previous overdose?
- Accidental? Nature of accident?
- Duration of exposure (if applicable)
- Has patient vomited? If so, when?
- History of drug or ETOH usage.
- Pre-existing medical problems

Contact Poison Information Center (**1-800-222-1222**) as needed for assistance and advice. The following is a partial list of drugs/chemicals you may encounter in overdose/exposure situations and a brief review of the signs and symptoms.

CNS DEPRESSANTS: Altered mental status, respiratory depression, hypotension, bradycardia, pulmonary edema, coma, and constricted pupils (opioids only).

Benzodiazepines: generic (trade name)

- Alprazolam (Xanax)
- Chlordiazepoxide (Librium)
- Clonazepam (Klonopin)
- Clorazepate (Tranxene)
- Diazepam (Valium)
- Flunitrazepam (Rohypnol)
- Flurazepam (Dalmane)
- Halazepam (Paxipam)
- Lorazepam (Ativan)
- Midazolam (Versed)
- Oxazepam (Serax)
- Prazepam (Centrax)
- Quazepam (Doral)
- Temazepam (Restoril)
- Triazolam (Halcion)

Barbiturates: generic (trade name)

- Butabarbital sodium (Butisol Sodium)
- Mephobarbital (Mebaral)

- Pentobarbital sodium (Nembutal Sodium)
- Phenobarbital
- Secobarbital sodium (Seconal Sodium)

Designer Drugs:

- Blue nitro, GHB

Opiods, Narcotics, Synthetics and Combinations: generic (trade name)

- Acetaminophen & Codeine phosphate (Tylenol #3, Tylenol #4)
- Alfentanil HCL (Alfenta)
- Alfentanyl (Alfenta)
- Alphaprodine (Nisentil)
- Aspirin & codeine phosphate (Empirin with Codeine #3 and #4)
- Belladonna and opium (B & O Supprettes)
- Buprenorphine HCL (Buprenex)
- Butalbital, aspirin, caffeine, Codeine phosphate (Fiorinol or Fioricet with Codeine)
- Butorphanol (Stadol)
- Codeine
- Dextromethorphan
- Diamorphine (Heroin)
- Diacetylmorphine (Heroin)
- Dihydrocodeine bitartrate, acetaminophen, caffeine (DHC plus)
- Diphenoxylate HCL, atropine sulfate (Lomotil)- no miosis
- Difenoxin HCL with atropine sulfate (Motofen)
- Fentanyl citrate (Sublimaze)
- Fentanyl transdermal (Duragesic)
- Fentanyl citrate & droperidol (Innovar)
- Hydromorphone HCL (Dilaudid, Hydrostat)
- Hydrocodone bitartrate (Lortab, Hycodan, Anexsia)
- Hydrocodone bitartrate & acetaminophen (Hydrocet, Loracet, Vicodin)
- Loperamide HCL (Immodium, Immodium A-D)
- Levorphanol tartrate (Levo-Dromoran)
- Meperidine HCl (Demerol) – no miosis
- MeperidineHCl & promethazine HCl (Mepergan) – no miosis
- Methodone HCl(Dolophine)
- Morphine sulfate (Astramorph/PF, Duramorph, Infumorph 200, Infumorph 500, MS Contin, MSIR, Oramorph, Rescudose, Roxanol)
- Nalbuphine HCL(Nubain)
- Napsylate (Darvocet-N)
- Oxymorphone HCl (Numorphan)
- Oxycodone (Percodan, Percocet, Tylox, Roxicodone)
- Pentazocine HCl (Talwin, Talacen)
- Propoxyphene HCl (Darvon-N)
- Propoxyphene HCl & acetaminophen (Wygesic)

- Sufentanil (Sufenta)

Sedative Hypnotics: generic (trade name)

- Compoz
- Estazolam (Prosom)
- Etomidate (Amidate)
- Ethchlorvynol (Placidyl)
- Propofol (Diprivan)
- Sleep-ez
- Sominex
- Zolpidem tartrate (Ambien)

SSRI- Selective Sereotonine Reuptake Inhibitors: generic (trade name)

- Fluoxetine (Prozac)
- Paroxetine (Paxil)
- Sertraline (Zoloft)
- Fluvoxamine (Luvox)
- Citalopram (Celexa)

CNS STIMULANT: Dilated pupils, agitation, paranoia, bizarre behavior, PVCs, tachycardia, hypertension, hyperthermia, seizures, etc.

Cocaine:

- Crack
- Cocaine

Amphetamines:

- Amphetamine variants (DMA, PMA, PMMA, STP, MDA, MDMA, TMA, DOM,DOB)

Designer Drugs:

- Ecstasy

DIGITALIS: Digitalis toxicity should be suspected in patients who are taking digitalis and have a dysrhythmia associated with digitalis toxicity (e.g. bradycardia, AV blocks with rapid ventricular response, supraventricular tachycardia, ventricular ectopy, and other ECG changes: Wide PR interval, short QT interval-rate dependent, spoon-shaped ST segment, peaked T wave). The oleander tree can also cause a digitalis type toxicity, which will cause the same type of dysrhythmias and requires the same treatment.

Digitalis: generic (trade name)

- Digoxin (Lanoxicaps, Lanoxin, Digoxin)
- Digitoxin (Crystodigin)

HALLUCINOGEN: Illusions, hallucinations, poor perception of time and distance, possible paranoia, anxiety, panic, unpredictable behavior, emotional instability, possible flashbacks, dilated pupils, and rambling speech.

- LSD (acid, microdot)
- Mescaline and Peyote (mesc, buttons, cactus)
- DET

- MET
- Psilocybin

TRICYCLIC ANTIDEPRESSANTS: CNS depression, tachycardia, dilated pupils, respiratory depression, slurred speech, twitching and jerking, seizures, ST and T wave changes, wide QRS complex, R waves in lead AVR, S waves in leads AVL and lead I, and shock.

Tricyclic Antidepressant:

- Doxepin HCl (Adapin, Sinequan)
- Amitriptyline HCl (Elavil, Endep)
- Protiptyline HCl (Vivactil)
- Chlordiazepoxide & amitriptyline HCl (Limbitrol)
- Trimipramine maleate (Surmontil)
- Perphenazine & amitriptyline HCl (Etrafon, Triavil)
- Clomipramine HCl (Anafranil)
- Amoxapine (Asendin)
- Desipramine HCl (Norpramin)
- Nortriptyline (Pamelor, Aventyl)
- Imipramine pamoate (Tofranil)

Cyclic Antidepressants:

- Venlafaxine (Effexor)

ORGANOPHOSPHATES; Excessive; salivation, lacramation (tears)/sweating, urinary incontinence, diarrhea, gastrointestinal distress, emesis and bradycardia (tachycardia may occur). CNS; anxiety, restlessness, emotional lability, tremor, headache, dizziness, mental confusion, delirium, hallucinations, and seizures.

Insecticides:

- Diazinon
- Orthene
- Malathion
- Parathion
- Chlorpyrifos

PHENOTHIAZINE: CNS; CNS depression, Dystonic reaction, extrapyramidal symptoms, tartive dyskinesia, neuroleptic malignant syndrome. Cardiovascular; tachycardia, prolonged QT interval, widened QRS, AV blocks, torsade de pointes. Dilated pupils, seizures, cardiac dysrhythmias

- Chlorpromazine (Thorazine)
- Prochlorperazine maleate (Compazine)
- Trifluoperazine (Stelazine)
- Thioridazine (Mellaril)
- Thiothixene (Navane)

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1
2. Airway Assessment/Management Protocol 2.1.2. Oxygen via nasal cannula @ 2 - 4 LPM to maintain pulse ox ≥ 94% (non-rebreather @15 LPM if SpO_2 < 90%).
3. Attach cardiac monitor and pulse oximeter
4. Assess for and document the Glasgow Coma Scale
5. Collect all pill bottles, empty or full, and check for suicide notes (if applicable). Transport any/all information or items that may assist in the treatment of the patient to the emergency department.
6. **If inhaled poison:**
    a. Assure personal safety.
    b. Remove patient to fresh air.
    c. Administer 100% oxygen via non-rebreather mask.
7. **If skin or eye contamination:**
    a. Assure personal safety.
    b. Remove contaminated clothes.
    c. Irrigate with water or normal saline.
8. **If actively seizing:**
    a. Protect patient from injury.
    b. If seizing before airway was controlled, do not attempt to insert tongue blade or oral airway. Nasopharyngeal airway may be useful.
    c. Suction p.r.n.

ALS LEVEL 1: PARAMEDIC ONLY

1. Consider need to support respirations/ventilation including need for intubation at any time if respiratory status deteriorates.
    a. Monitor respiratory status frequently.
    b. Use appropriate discretion regarding immediate intubation of patients who may quickly regain consciousness, such as hypoglycemics after D50 or opiate overdose after Naloxone.
2. If condition warrants, initiate IV lactated Ringer's or Normal Saline at 125ml/hr (draw blood sample if possible prior to any drug administration). If patient hypotensive (systolic < 90 mm Hg) and/or tachycardic (HR > 110) bolus with 1- 2 liters of IV fluid in 250ml increments until systolic BP > 90 mm Hg (20 ml/kg for children).
    a. Recheck vital signs and lung exam in-between each increment.
    b. Discontinue bolus if signs of pulmonary edema or development of respiratory distress.
3. If altered mental status, determine serum glucose level with Glucometer or DextroStix:
    a. If sugar 60 mg/dl - 80 mg/dl; give; ½ amp of 25gm **50% Dextrose** IV or **Glucagon** 1mg IM. May repeat x 1 if after 15 minutes recheck fingerstick glucose < 80 mg/dl
    b. If Blood sugar < 60 mg/dl; 1 amp 25gm **50% Dextrose** IV or **Glucagon** 1 mg IM

c. If glucose > 80 mg/dl and < 200 mg/dl, provide supportive care, keep NPO
d. If glucose > 200 mg/dl, go to **Hyperglycemia Protocol** .

4. Treat any dysrhythmias per appropriate protocol.

5. If actively seizing administer one of the following benzodiazepines:
    a. **Diazepam (Valium)** 5 – 10mg IV or IM
    b. **Midazolam (Versed)** 2mg IV or IM. May repeat x 1 PRN.
6. If patient is experiencing chest pain, go to chest pain protocol
7. If patient combative, consider need for physical and chemical restraints (see psychiatric emergency protocol)
8. If bronchospasm is present give an **Albuterol (Ventolin)** nebulized treatment, containing 2.5mg of Albuterol pre-mixed with 2.5 ml normal saline. May repeat x 2 PRN. Add **Ipratropium Bromide (Atrovent)** 0.5 mg (0.5 ml) to the first neb treatment only. Do not give Albuterol or Ipratropium Bromide if heart rate is ≥ 140.
9. If ingestion is suspected with unknown substance and there is no altered mental status and caustic ingestion can be ruled out, if patient is willing/cooperative; place patient in Fowler's position and administer **Activated Charcoal** 50 – 100 grams po. If the timing of the ingestion has been less than an hour of EMS's arrival, hold off giving the charcoal until you discuss with medical control as some physicians may instead, choose to lavage the patient on arrival to the emergency department
10. For symptomatic **CNS DEPRESSANT OVERDOSE**:
    a. Do 12 lead ECG. If QRS complex is wide (> 0.10 seconds), administer **Sodium Bicarbonate** 1 mEq/kg IV
    b. If respiration is depressed, administer **Naloxone (Narcan)** 2mg IV. May repeat **Naloxone (Narcan)** 2mg IV PRN
11. For symptomatic **STIMULANT OVERDOSE**:
    a. If patient is hyperthermic (hot to touch), aggressively cool patient
    b. NOTE: Beta-blockers are contraindicated in cocaine overdose!
12. For symptomatic **DIGITALIS TOXICITY**:
    a. Treat tachydysrhythmias with medication per specific protocol. Avoid the use of Calcium Chloride.
    b. If unstable tachycardia > 150/min, synchronize cardiovert with energy settings between 5 – 20 jules
    c. If unstable bradycardia with wide QRS (> 0.10 seconds), give **Sodium Bicarbonate** 1 mEq/kg
13. For symptomatic **TRICYCLIC ANTIDIPRESSANTS OVERDOSE:**
    a. Do 12 lead ECG. If QRS complex is wide (> 0.10 seconds), administer **Sodium Bicarbonate** 1 mEq/kg IV
    b. ROMAZICON, PROCAINAMIDE, AND LABETALOL (ALL BETA BLOCKERS) ARE CONTRA-INDICATED IN TRICYCLIC ANTIDEPRESSANT OVERDOSE.
14. If symptomatic **ORGANOPHOSPHATE POISONING**:
    1. **Atropine** 0.03 mg/kg IVP every 5-10 minutes until atropinization occurs.
15. If symptomatic **PHENOTHIAZINE** (Thorazine, Compazine, Stelazine, Mellaril, Navane)
    a. **Diphenhydramine (Benadryl)** 25-50mg IV or deep IM

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director for any problems or concerns.

2.6.3 Marine Envenomations

Purpose: This protocol is for patients who are injured by any type of marine life. Call Poison Information Center (**1-800-222-1222**) as needed for assistance. If non-scalding hot soaks are advised, do not delay transport. Soak enroute to hospital.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1
2. Airway Assessment/Management Protocol 2.1.2. If indicated, Oxygen via nasal cannula @ 2 - 4 LPM to maintain pulse ox ≥ 94% (non-rebreather @15 LPM if SpO_2 < 90%).
3. Attach cardiac monitor and pulse oximeter if indicated

For Sponges:

1. Gently dry skin and remove spicule. Adhesive tape may aid in removal.
2. Soak with 5% vinegar or 40-70% isopropyl alcohol.

For Coelenterates (JELLYFISH):

1. Rinse wound with saltwater or seawater
2. Do not rub skin, do not apply ice, and do not rinse with fresh water.
3. Inactivate toxin with 30 minute soak using one of the following:
   a. 5% vinegar soaks.
   b. Ammonia/meat tenderizer paste mixture.
4. Remove remaining nematocysts with razor.
5. Consider topical anesthetics once nematocyst is removed.

For Echinodermata (Starfish, sea urchins, sea cucumber,):

1. Immerse in non-scalding hot water for pain relief for 30 – 90 minutes (do not delay transport, soak en-route)
2. Remove any remaining spines.
3. After hot water soak, 5% vinegar soaks.

For Mollusks (Cone shells):

1. Hot water (non-scalding) immersion for pain relief
2. Be prepared for cardiac or respiratory support

For Stingrays:

1. Copious irrigation with removal of any visible spines.
2. Hot water (non-scalding) soaks for pain relief.

For Scorpion fish:

1. Hot water (non-scalding) soaks for pain relief and venom inactivation.
2. Copious irrigation with removal of any visible spines.
3. Patient may require stonefish antivenin for severe envenomation.

For Catfish:

1. Hot water (non-scalding) soaks for pain relief and venom inactivation.
2. Copious irrigation with removal of any visible spines.

For Sea Snakes:

1. Immobilize bitten extremity.
2. Apply pressure bandage for venous occlusion.
3. Keep patient warm and still.
4. Notify medical control, as hospital may need to acquire polyvalent sea snake antivenin.
5. Closely monitor cardiac and respiratory status.

ALS LEVEL 1: PARAMEDIC ONLY

1. Establish large bore IV of lactated Ringer's to maintain systolic pressure > 90 mm Hg.
2. If any chest tightness, wheezing, shortness of breath, difficulty swallowing, intraoral swelling, and/or severe hives;
   a. Administer **Diphenhydramine (Benadryl)** 25-50 mg IV (for peds 2- 12 yrs old, give 1- 1.25mg/kg IV or IM).
   b. Consider **Epinephrine 1:1,000** 0.4ml IM or SUB-Q (for peds; 0.01mg/kg, Max 0.3ml).
3. For severe pain consider one of the following:
   a. **Toradol** 30 mg IV
   b. **Morphine Sulfate** 2-10 mg IV or IM
   c. **Fentanyl** 50 – 100 mcg IV or IM
4. For nausea, give one of the following:
   a. **Zofran** 4 – 8 mg IV or IM
   b. **Benadryl 25-50 mg IV or IM**

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director if any concerns or any questions.

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2.7
Adult OB/GYN Emergencies

2.7.1 Childbirth – Complications

Purpose: This protocol outlines the specific treatment for complications to labor and delivery.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1.
    a. Secondary survey should include pertinent OB/GYN history:
        - Number of pregnancies/deliveries.
        - History of problems with pregnancy (vaginal bleeding, prior cesarean sections, high blood pressure, premature labor, premature rupture of membranes.
        - Last menstrual period and due date (if known).
        - Current complaints (onset of labor, timing of contractions, rupture of membranes, or urge to push.)
        - Past medical history (including medications.)
2. Airway Assessment/Management Protocol 2.1.2. Oxygen via nasal cannula.
3. Attach cardiac monitor and pulse oximeter.
4. Perineal examination (do not perform internal vaginal examination)
    a. Vaginal bleeding or leakage of fluid.
    b. Presence of meconium.
    c. Crowning during a contraction.
    d. Presenting part (head, face, foot, arm, cord.)

5. IF HEAVY VAGINAL BLEEDING WITH SIGNS OF SHOCK (SYS BP < 90 mm Hg)
    a. Transport with patient in left lateral recumbent position.
    b. Transport immediately, notify labor and delivery
    c. ALS LEVEL 1: Cardiac monitor.
    d. ALS LEVEL 1: IV lactated Ringer's or normal saline Bolus as needed with two liters of IV fluid in 250 – 500 ml increments to maintain systolic BP > 90 mm Hg. Check vital signs frequently.
6. IF CORD PROLAPSED:
    a. Place mother on back with hips elevated (pillow under her hips) or place her in knee/chest position.
    b. Do not attempt to push cord back. Wrap cord in sterile saline soaked dressing
    c. With a gloved hand, palpate the cord for pulse.
    d. If pulse is absent in umbilical cord, and positioning of mother does not restore pulse, insert sterile gloved index and middle fingers into the vagina and push the infant up to relieve pressure on the cord. With the other hand, press on the mother's lower

abdomen in an upward and cephalic (towards head) direction. Push the fetus back only far enough to regain a pulse in the umbilical cord.

e. Transport and notify receiving hospital of impending arrival.

7. IF BREECH PRESENTATION:
   a. Do not pull on the newborn. Allow the delivery to proceed normally, supporting the newborn with the palm of your hand and arm, and allowing the head to deliver.
   b. If the head is not delivered within 3 minutes, place a gloved hand in the vagina with your palm towards the newborn's face. Form a "V" with your index finger and middle finger on either side of the newborn's nose and push the vaginal wall away from the newborn's face to create airspace for the newborn until delivery of the head. Suction may be provided PRN.
   c. Transport immediately, while maintaining the airspace for the newborn.
8. IF LIMB PRESENTATION:
   a. Place mother in either the knee-chest position or supine position with a pillow under the buttocks.
   b. Transport immediately
9. IF SHOULDER DYSTOCIA:
   a. Determine presence of shoulder dystocia as follows: head will deliver normally and then it will retract back into the perineum because the shoulders are trapped between the symphysis pubis and the sacrum (this is called "turtle sign").
   b. If this occurs, Do Not pull on head
   c. Have mother drop her buttocks off the end of the bed and flex her thighs upward to facilitate delivery.
   d. Apply firm pressure with an open hand immediately above the symphysis pubis
   e. If delivery does not occur, transport immediately

ALS LEVEL 1: PARAMEDIC ONLY

1. For any of the above complications do not delay transport. An IV in the mother is not necessarily going to help with any of the above complications except the heavy vaginal bleeding with signs of shock. Even then, any attempts at an IV should be done enroute to the hospital.
2. Monitor cardiac rhythm

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control for any questions or problem

2.7.2 Childbirth – Normal Delivery

Purpose: This protocol is to guide the EMS crew with delivering a newborn. If during your evaluation or during the delivery itself, if any complications arise, refer to the Childbirth-complications protocol that follows.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1.
    a. Secondary survey should include pertinent OB/GYN history:
        - Number of pregnancies/deliveries.
        - History of problems with pregnancy (vaginal bleeding, prior cesarean sections, high blood pressure, premature labor, premature rupture of membranes.
        - Last menstrual period and due date (if known).
        - Current complaints (onset of labor, timing of contractions, rupture of membranes, or urge to push.)
        - Past medical history (including medications.)
2. Airway Assessment/Management Protocol 2.1.2 Oxygen via nasal cannula.
3. Attach cardiac monitor and pulse oximeter.
4. Perineal examination (do not perform internal vaginal examination)
    - Vaginal bleeding or leakage of fluid.
    - Presence of meconium.
    - Crowning during a contraction.
    - Presenting part (head, face, foot, arm, cord.)
5. If active labor, and no vaginal bleeding or crowning:
    a. Check for fetal heart tones.
    b. Transport.
6. If active labor, no crowning and vaginal bleeding with no signs of shock (systolic >90 mm Hg):
    a. Transport.
    b. ALS LEVEL 1: IV lactated Ringer's or normal saline at 100 ml/hour.
    c. ALS LEVEL 1: Cardiac monitor.
7. If imminent delivery:
    a. Place mother in lithotomy position.
    b. Drape mother.
    c. Prepare for neonatal resuscitation.
    d. Assist delivery. Gently and carefully assist expulsion of the newborn from the birth canal in its natural descent. Do not pull or push the newborn.
    e. Suction mouth and then nose with bulb suction (if meconium stained fluid, suction baby's airway until clear before stimulating first breath) after head delivers and before torso delivers.

f. Check for cord around neonate's neck when head is visible and after suctioning. If present, carefully unwrap the cord from the neck. If unable to remove the cord, apply 2 umbilical clamps and cut between the clamps to release the cord (careful not to injure the newborn). Once airway is clear and cord is free from around neck, instruct mother to push on her next contraction to complete delivery.

g. Upon complete delivery of the newborn:
   - ✓ Keep the newborn at the level of the vagina to prevent over or under transfusion of the blood from the cord
   - ✓ Clear mouth and nose p.r.n. with gentle suction using bulb syringe
   - ✓ Clamp cord in two places (if not done as described above to free cord from around neck) approximately 8" and 10" from neonate. Cut cord between clamps
   - ✓ Warm, dry, and stimulate infant.
   - ✓ Wrap infant in sterile drape or dry blanket. Be sure to cover the newborn's head, as this is a major source of heat loss.
   - ✓ Check vitals: if compromised, initiate resuscitation

h. Evaluate Newborn:
   - ✓ Note time of delivery and APGAR scores at birth and five minutes
   - ✓ If newborn is not breathing or APGAR < 7 see Newborn Resuscitation Protocol.

ALS LEVEL 1: PARAMEDIC ONLY

1. Infuse mother with IV of lactated Ringer's or normal saline at 125 ml/hour.
2. If excessive maternal bleeding, massage uterus gently
3. Transport, do not wait to deliver placenta. Do not pull on the umbilical cord.
4. If delivery completed before arrival, or in-field:
   a. Protect infant from fall and temperature loss.
   b. Check infant's vital signs (perform CPR or assist ventilations as necessary.)
   c. Clamp cord in two places, six inches from infant, and cut cord between clamps.
   d. Suction, warm, dry, and stimulate infant.
   e. Give infant to mother.
   f. Massage uterus gently.
   g. Do not pull on cord or attempt to deliver placenta.
   h. Transport.

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director for any questions or problems.

2.7.3 Vaginal Bleeding (NON-TRAUMATIC)

Purpose: This protocol should be used for female patients who may or may not be pregnant that present with non-traumatic vaginal bleeding. Examples of causes include: ante-partum hemorrhage (abruption placenta, placenta previa and uterine rupture), post-partum hemorrhage, ruptured ectopic pregnancy, ruptured ovarian cyst, spontaneous abortion, etc.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1
2. Airway Assessment/Management Protocol 2.1.2. If indicated Oxygen via nasal cannula @ 2 - 4 LPM to maintain pulse ox $\geq$ 94% (non-rebreather @15 LPM if SpO_2 < 90%).
3. Attach cardiac monitor and pulse oximeter if indicated
4. Place all products of delivery (undeveloped fetus, placenta, etc) in a plastic bag and transport with patient to hospital. Do not discard any products on scene. If irretrievable, document the reason and contact supervisor or medical director prior to leaving the scene.

ALS LEVEL 1: PARAMEDIC ONLY

1. Initiate IV lactated Ringer's or Normal Saline at 125ml/hr. If patient hypotensive (systolic < 90 mm Hg) and/or tachycardic (HR > 110) bolus with 1- 2 liters of IV fluid in 250ml increments until systolic BP > 90 mm Hg (20 ml/kg for children). Recheck vital signs and lung exam in-between each increment. Discontinue bolus if signs of pulmonary edema or development of respiratory distress.

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director for any problems or concerns.

2.7.4 Eclampsia/ Pre-Eclampsia

Purpose: This protocol should be used for the patient in her second or third trimester of pregnancy (≥ 20 weeks gestation) that is exhibiting signs of pre-eclampsia or eclampsia. The signs of toxemia include proteinuria (dark colored urine), excessive weight gain, and hypertension. The presence of two of these signs constitutes pre-eclampsia and all three constitutes eclampsia. The seizing patient in her third trimester of pregnancy should be assumed to be eclamptic and treated as specified below. Eclamptic seizures can also occur postpartum (≤ 1 week). Witnessed continuous convulsions (generalized tonic-clonic seizure or Grand Mal) or repeating episodes without regaining consciousness or sufficient respiratory decompensation demonstrates a need for immediate treatment.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1
2. Airway Assessment/Management Protocol 2.1.2. Oxygen via nasal cannula @ 2 - 4 LPM to maintain pulse ox ≥ 94% (non-rebreather @15 LPM if SpO_2 < 90%)
3. Attach cardiac monitor and pulse oximeter

ALS LEVEL 1: PARAMEDIC ONLY

1. Establish IV of lactated Ringer's or normal saline at 125 ml/hr.
2. Determine serum glucose level with Glucometer or DextroStix.
   a. If glucose <80mg/dl:
      i. If sugar 60 mg/dl - 80 mg/dl; Sublingual **Glucose Paste**, or **Glucagon 1mg IM** or ½ amp of 25gm **50% Dextrose** IV. Give 2nd half of the D50W amp if glucose still < 80 mg/dl when glucose rechecked in 5 minutes
      ii. If Blood sugar < 60 mg/dl; 1 amp 25gm **50% Dextrose** IV or **Glucagon** 1 mg IM
3. If glucose is given, give **Thiamine** 100 mg IV or IO
4. If seizing: give **Magnesium Sulfate** 4 gm IV or IO (mixed in 50 ml of D5W given over 5 – 10 minutes). May repeat once at 2 gm IV or IO (mixed in 50 ml of D5W given over 5 – 10 minutes) PRN. Remember, magnesium sulfate can cause respiratory depression with cardiovascular collapse. If patellar reflexes are absent, shut off the infusion and contact medical control immediately. Antidote is calcium chloride IV over 5 minutes.
5. If patient continues seizing, administer one of the following:
   a. **Diazepam (Valium)** 5 - 10 mg IV or IO (if unable to start IV or IO give Valium 10mg per rectum). May repeat PRN up to 20 mg maximum dose. Monitor respiratory status and intervene as needed.
   b. **Midazolam (Versed)** 2mg IV or IO. May repeat once PRN (4 mg maximum dose)

6. Monitor EKG, vital signs, fetal heart tones, level of consciousness, patellar reflexes, respiratory rate, and oxygenation status every 5 minutes.
7. Keep the patient in left lateral recumbent position.
8. Evaluate for pulmonary edema. If present, apply **CPAP** per protocol.
9. If patient seized and transport time is > 20 min, administer **Magnesium Sulfate** maintenance infusion. Place 10 grams of magnesium sulfate (20 ml of 50% solution) in 250 ml of LR or NS and infuse at 50 ml/hr (2 grams/hr).

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director if any concerns or any questions.
2. If patient is in third trimester and is hypertensive (systolic > 140 mm Hg or diastolic > 90 mm Hg) especially with no prior history of hypertension, call for order of **Labetalol 10mg IV then 5 – 10 mg** increments for desired effect

2.7.5 Pre-Term Labor

Purpose: This protocol will be used during intra-facility transfers. On occasion a patient in pre-term labor will need to be transferred to a higher level of care. The transferring physician will have determined that the benefits out weigh the risk to the patient and should have initiated the proper EMTALA transfer paperwork. The key to this type of transfer is for the transferring physician to have done everything possible to arrest the labor process prior to EMS leaving with the patient. EMS should only have to continue the care and medications initiated by the transferring hospital. If the patient is ≤ 20 weeks gestation then there is very little chance of delivering a viable fetus. EMS should not transfer a patient in active labor as care for the fetus by the physician at the hospital is better than what can be provided by a paramedic in back of an ambulance (or in an aircraft) with little resources and the need to provide care for the mother as well. A neonatal team can then respond to the transferring hospital with specialty equipment to manage the neonate.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1
2. Airway Assessment/Management Protocol 2.1.2. Oxygen via nasal cannula @ 2 - 4 LPM to maintain pulse ox ≥ 94% (non-rebreather @15 LPM if SpO_2 < 90%).
3. Attach cardiac monitor and pulse oximeter

ALS LEVEL 1: PARAMEDIC ONLY

1. Confirm with transferring physician that patient is NOT in active labor.
2. IV fluids should already be in progress per the hospital. If so, continue at the rate ordered by the transferring physician. If not initiate IV lactated Ringer's or Normal Saline at 100ml/hr. Consider fluid bolus as initial tocolytic therapy. If patient hypotensive (systolic < 90 mm Hg) and/or tachycardic (HR > 110) bolus with 1- 2 liters of IV fluid in 250ml increments until systolic BP > 90 mm Hg (20 ml/kg for children). Recheck vital signs and lung exam in-between each increment. Discontinue bolus if signs of pulmonary edema or development of respiratory distress.
3. Record frequency, character and duration of contractions, fetal heart tones, blood pressure, and pulse every 15 minutes.
4. Patient may be on one of the following tocolytics as ordered by transferring MD. Must be on an IV pump.
    a. **Magnesium Sulfate** 4 – 6 gms IV over 20 min. Then 2- 4 g / hr x 12- 24 hr.
    b. **Brethine (terbutaline)** 0.25mg SUB-Q q 30 min. (Max: 1mg/4h); or 2.5- 10 mcg/min IV up to max of 17.5- 30 mcg/min.

ALS LEVEL 2: MEDICAL CONTROL

1. Notify medical control or medical director for any problems or concerns.

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2.8
Other Adult Medical Emergencies

2.8.1 Allergic Reactions (ANAPHYLAXIS)

Purpose: This protocol is to be used for patients who may be experiencing and allergic reaction. The reaction could be triggered by a contact with some object or substance, something ingested or something injected beneath the skin (sting, bite, IM, IV, or SubQ medication or chemical, etc). The reaction could range from a mild irritation and/or itching (with or without a rash) of a localized area of the skin/body to a full-blown anaphylactic reaction with respiratory and cardiovascular collapse.

Signs and symptoms consistent with allergic reaction**:**

- Skin – flushing, itching, hives, swelling, cyanosis.
- Respiratory – dyspnea, sneezing, coughing, wheezing, stridor, laryngeal edema, laryngospasm, bronchospasm.
- Cardiovascular – vasodilatation, increased heart rate, decreased blood pressure
- Gastrointestinal – nausea/vomiting, abdominal cramping, diarrhea
- CNS - dizziness, headache, convulsions, tearing

Treatment is outlined according to the severity of the allergic reaction (mild, moderate, and severe or anaphylaxis).

Procedure:

MILD REACTIONS (redness and/or itching, hives, stable vital signs with a systolic BP > 110 mm Hg without dyspnea)

BASIC LEVEL: EMT and PARAMEDIC

1. **Initial Patient Assessment Protocol 2.1.1**
2. **Airway Assessment/Management Protocol (O_2 PRN) 2.1.2**
3. Attach cardiac monitor and pulse oximeter.
4. Transport to designated hospital.

ALS LEVEL 1: PARAMEDIC ONLY

1. Initiate IV of lactated Ringer's or normal saline at TKO.
2. **Diphenhydramine HCL (Benadryl)** 25-50mg IV or IM (Peds; 1-2 mg/kg IV or IM)
3. **Ranitidine (Zantac) 150 mg PO if able to swallow.**

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any concerns or help

MODERATE ALLERGIC REACTIONS: (edema, hives, dyspnea, wheezing, "lump in throat" feeling, difficulty swallowing, facial swelling and stable vital signs with a systolic BP > 90 mm Hg)

BASIC LEVEL: EMT and PARAMEDIC

1. **Initial Patient Assessment Protocol 2.1.1**
2. **Airway Assessment/Management Protocol 2.1.2**
3. Attach cardiac monitor and pulse oximeter.

4. Transport to designated hospital.

ALS LEVEL 1: PARAMEDIC ONLY

1. Initiate IV of lactated Ringer's or normal saline at 70cc/hr.
2. **Diphenhydramine HCL (Benadryl)** 25-50 mg IV or IM (Peds; 1-2 mg/kg IV or IM)
3. **Ranitidine (Zantac)150 mg po (**peds dose 2 mg/kg po**)**
4. **Methylprednisolone Sodium Succinate (Solu-Medrol)** 125mg IV
5. **Epinephrine** (1:1000) 0.4 ml IM Adult (Pedi: 0.01 ml/kg.) Caution should be used with administration of Epinephrine when the patient has a history of hypertension or heart disease (call med control if you have any concerns)
6. **IF** patient is on a Beta Blocker medication, give **Glucagon 2 mg IV** over 2-5 minutes. If you are not sure which drugs is a beta blocker, contact medical control to discuss.
7. If patient shows signs of respiratory distress give; **Albuterol (Ventolin)** 2.5mg mixed with 2.5ml of normal saline nebulizer treatment. May repeat twice PRN
8. Add **Atrovent (Ipratropium Bromide**) 0.5mg to the first Albuterol nebulizer treatment only

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any concerns or help

SEVERE ALLERGIC REACTION/ANAPHYLAXIS (edema, hives, severe dyspnea and wheezing, unstable vital signs with systolic BP < 90 mm Hg, and possible cyanosis and laryngeal edema)

BASIC LEVEL: EMT and PARAMEDIC

1. **Initial Patient Assessment Protocol 2.1.1**
2. **Airway Assessment/Management Protocol 2.1.2**
3. Attach cardiac monitor and pulse oximeter.
4. Transport to designated hospital.

ALS LEVEL 1: PARAMEDIC ONLY

1. Initiate IV of lactated Ringer's or normal saline bolus with 250 mlprn up to 1 liter (reassess vitals and respiratory status between each bolus) then rate of 125cc/hr. (Bolus children with 20ml/kg then 40cc/hr)
2. **Diphenhydramine HCL (Benadryl)** 25-50mg IV or IM (Peds; 1-2 mg/kg IV or IM)
3. **Ranitidine (Zantac) 150 mg po (**peds dose 2 mg/kg po**)**
4. **Methylprednisolone Sodium Succinate (Solu-Medrol)** 125mg IV
5. **Epinephrine (1:1000)** 0.4 ml IM Adult (Peds: 0.01 ml/kg.) Caution should be used with administration of Epinephrine when the patient has a history of hypertension or heart disease (call med control if you have any concerns)
6. **IF** patient is on a Beta Blocker medication, give **Glucagon 2 mg** IV over 2-5 minutes. If you are not sure which drugs are beta blockers, contact medical control to discuss?

7. If patient shows signs of respiratory distress give; **Albuterol (Ventolin)** 2.5mg mixed with 2.5ml of normal saline nebulizer treatment. May repeat twice PRN
8. Add **Atrovent (Ipratropium Bromide)** 0.5mg to the first Albuterol nebulizer treatment only
9. If the nebulized treatments do not significantly resolve the respiratory distress,
10. Consider need for intubation

ALS LEVEL 2: MEDICAL CONTROL

1. **Epinephrine (1:10,000)** 0.3 mg SLOW IV in 0.1 mg increments over 2 minutes. Caution should be used with administration of Epinephrine when the patient has a history of hypertension or heart disease
2. For refractory hypotension obtain order for **Dopamine** drip starting at 5 mcg/min and titrate to effect. **Dopamine** infusion @ 5-20 mcg/kg/min (1600 mcg/ml infusion concentration = 15 – 16 gtt/min). Titrate to maintain a minimum systolic BP of 90 mm Hg with good capillary refill or a maximum BP of 120 mm Hg (maximum dose 20 mcg/kg/min)

2.8.2 Diabetic Emergencies (Hypo and Hyper-glycemic)

Purpose: This protocol is used for diabetic patients with blood sugars below 80 mg/dl or blood sugars over 250 mg/dl. Keep in mind that low or elevated blood sugars (in diabetics) can be affected by medications, infections, stress, alcohol, etc.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. **Initial Patient Assessment Protocol 2.1.1**
2. **Airway Assessment/Management Protocol 2.1.2**. Oxygen via nasal cannula @ 2 - 4 LPM to maintain pulse ox ≥ 94% (non-rebreather @15 LPM if SpO_2 < 90%)
3. Attach cardiac monitor and pulse oximeter

ALS LEVEL 1: PARAMEDIC ONLY

1. Initiate IV of Lactated Ringer's or normal saline at 125ml/hr. Draw tube of blood (if tubes are available label the pre-treatment blood vial and provide it to the receiving hospital with the patient.). If patient is tachycardic (HR > 110) and/or hypotensive (systolic BP < 90 mm Hg), bolus with 1 – 2 liters of IV fluid in 250 ml increments with vital sign recheck and lung exam between each increment. Discontinue bolus if HR slow < 110, systolic BP > 90 or if signs of pulmonary edema. If no sign/symptoms of pulmonary edema, resume rate at 125 ml/hr. If no IV access, consider an IO ONLY if patient is seriously ill (hypotensive and tachycardic). Do not place IO simply for high or low blood sugar when patient is otherwise stable.
2. Determine serum glucose level with Glucometer or DextroStix.
   If glucose <80mg/dl and patient is:
   Asymptomatic (No headache, nausea and/or altered mental status):
   - **If sugar 60 mg/dl – 80 mg/dl**; No emergency treatment (OK for patient to drink a cola, juice or other oral form of glucose they may have with them.
   - **If sugar < 60mg/dl**; Oral glucose (juice, piece of candy, or sublingual glucose)

   Symptomatic (Headache, nausea, and/or altered mental status):
   - **If sugar 60 mg/dl - 80 mg/dl**; **Sublingual glucose paste**, or **Glucagon** 1mg IM, or ½ amp of 25gm **50% Dextrose IV**. Give 2nd half of the **D50W** amp if glucose still < 80 mg/dl when glucose rechecked in 5 minutes.
   - **If Blood sugar < 60 mg/dl;** 1 amp 25gm **50% Dextrose** IV or **Glucagon** 1 mg IM
3. **If glucose > 80 mg/dl and < 250 mg/dl**, no specific treatment, supportive care
4. **If glucose > 250 mg/dl**, and patient exhibiting altered mental status, Kussmaul respirations, dry skin with poor turgor, and/or ketotic breath:

- Bolus with 1 – 2 liters of IV fluid in 250 ml increments with vital sign recheck and lung exam between each increment. Discontinue bolus if signs of pulmonary edema.
- Asymptomatic patients with glucose > 250 mg/dl, just give IV fluids at 125ml/hr.

5. If patient appears malnourished or is a chronic alcoholic, give **Thiamine** 100mg IV

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director if any concerns or any questions.

2.8.3 Abdominal Pain (NON-TRAUMATIC)

Purpose: This protocol should be used for patients that complain of abdominal pain without a history of trauma. Assessment should include specific questions pertaining to the GI/GU systems. See Abdominal Pain Differential in Appendix

Abdominal physical assessment includes:
Asking patient to point to area of pain (palpate this area last)
Gently palpate for tenderness, rebound tenderness, distention, rigidity, guarding, and pulsatile masses. Also palpate the flank area for CVA tenderness.

Abdominal History Includes:

- ❑ Hx of pain (OPQRST)
- ❑ Hx of nausea/vomiting (color, bloody, coffee grounds)
- ❑ Hx of bowel movement (last BM, diarrhea, bloody, tarry)
- ❑ Hx of abdominal surgery
- ❑ Hx of acute onset of back pain
- ❑ SAMPLE (attention to last meal)

Additional questions should be asked of the female patient regarding OB/GYN history. All female patients of childbearing age complaining of abdominal pain should be considered to have an ectopic pregnancy (even if vaginal bleeding is absent) until proven otherwise.

Non-traumatic abdominal pain can be caused by: appendicitis, cholecystitis, duodenal ulcer perforation, diverticulitis, abdominal aortic aneurysm, pelvic inflammatory disease (PID), pancreatitis, mesenteric ischemia, renal stones, hepatitis, cirrhosis of the liver, bowel obstruction, gastroenteritis, etc.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. **Initial Patient Assessment Protocol 2.1.1**
2. **Airway Assessment/Management Protocol 2.1.2**
3. Attach cardiac monitor and pulse oximeter.

ALS LEVEL 1: PARAMEDIC ONLY

1. Initiate IV of lactated Ringer's or normal saline at TKO. If patient is tachycardic and/or hypotensive, give a 250 ml bolus. May repeat bolus for total of 2 liters of IV fluid. Assess vital signs and breath sounds in-between each bolus. If vital signs respond to the bolus(s) (pulse rate slowed down and/or blood pressure improved) run at 100cc/hr. If still hypotensive/tachycardic cautiously bolus a second liter in 250ml increments.
2. If patient is nauseated, give one of the following:
   a. **Ondansetron (Zofran)** 4 – 8 mg IV or IM (If oral form available, give subliqual)
   b. **Diphenhydramine (Benadryl) 25-50 mg IV or IM**

ALS LEVEL 2: MEDICAL CONTROL

1. This is one of the times you will need medical control for pain medication orders.

2.8.4 Sickle Cell Anemia

Purpose: This protocol is for patients with a history of Sickle Cell Disease. Sickle cell anemia is a chronic hemolytic anemia occurring almost exclusively in African-Americans and is characterized by sickle-shaped red blood cells. Sickle cell crisis results from the occlusion of a blood vessel by masses of sickle-shaped red blood cells. Pain is the principle manifestation, and this represents the most common type of crisis. Typical pain occurs in the joints and back. Hepatic, pulmonary, or central nervous system involvement can occur, each with its own group of symptoms. Keep in mind that patients with sickle cell disorder have a high incidence of life-threatening disorders at a very young age.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1
2. Airway Assessment/Management Protocol 2.1.2. Oxygen via nasal cannula @ 2 - 4 LPM (non-rebreather @15 LPM if SpO_2 < 90%).
3. Attach cardiac monitor and pulse oximeter prn

ALS LEVEL 1: PARAMEDIC ONLY

1. Initiate IV lactated Ringer's or Normal Saline. Give a fluid challenge of 500 ml then set rate at 125ml/hr. If patient hypotensive (systolic < 90 mm Hg) and/or tachycardic (HR > 110) bolus with 1- 2 liters of IV fluid in 250ml increments until systolic BP > 90 mm Hg (20 ml/kg for children). Recheck vital signs and lung exam in-between each increment. Discontinue bolus if signs of pulmonary edema or development of respiratory distress.
2. If systolic BP > 90 mm Hg give one of the following:
   a. **Toradol** 30 mg IV or 60 mg IM (if patient is > 65 y/o limit dosage to 15mg IV or 30mg IM). After 30 minutes, the IV dose can be repeated x 1 PRN.
3. If nausea also present from pain or the pain medication give one of the following;
   a. **Zofran** 4 – 8 mg IV or IM
   b. **Benadryl** 25 mg IV or IM

ALS LEVEL 2: MEDICAL CONTROL

a. **Fentanyl** 50 – 100 mcg IV or IM

OR

b. **Morphine** 2 – 10 mg IV or IM

Notify medical control of any problems or concerns.

2.8.5 Alcohol Emergencies

Purpose: This protocol is to be used on patients who are suspected of being intoxicated with alcohol. Treat all intoxicated patients with respect even though they may be agitated and potentially violent. Just because you can smell ETOH on or around your patient, you MUST consider other possible causes for a patient's abnormal behavior or altered mental status, such as head injury from trauma, co-ingestion of drugs, low blood sugar, severe hypoxia (including carbon monoxide poisoning).

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. **Initial Patient Assessment Protocol 2.1.1**
2. **Airway Assessment/Management Protocol 2.1.2**
3. Attach cardiac monitor and pulse oximeter.
4. Alcoholics with any evidence of head trauma and altered mental status must be considered to have a closed head injury until proven otherwise. Treat them as such including C-spine precautions.
5. Notify law enforcement for assistance with any combative or uncooperative alcoholic with an altered mental status.
6. Transport to designated hospital.

ALS LEVEL 1: PARAMEDIC ONLY

1. Initiate IV of lactated Ringer's or normal saline at TKO. If patient is tachycardic and/or hypotensive, give a 250 ml bolus then run at 100cc/hr.
2. Determine serum glucose level with Glucometer or Dextrostix
   a. If sugar 60 mg/dl - 80 mg/dl; **Sublingual glucose paste, or Glucagon** 1mg IM or ½ amp of 25gm **50% Dextrose IV**
   b. If Blood sugar < 60 mg/dl; 1 amp **25gm 50% Dextrose** IV or **Glucagon 1 mg IM**
3. If history of drug abuse, and patient has constricted pupils or respiratory depression, assist respirations as needed and administer **Narcan** 1-2 mg IV
4. If history suspicious for alcoholism, administer **Thiamine** 100 mg IV (slow) or IM.

ALS LEVEL 2: MEDICAL CONTROL

1. **Contact Medical Control or Medical Director for any questions or problems.**

2.8.6 Dehydration

Purpose: This protocol is for patients who have been unable to keep themselves sufficiently hydrated due to a decrease p.o. intake (inadequate intake to keep up with the fluid/metabolic demands of the body) or increase loss of water/electrolytes from the body from such conditions as vomiting, diarrhea, excessive sweating, burns. Other conditions can lead to dehydration such as DKA (diabetic ketoacidosis), metabolic acidosis, serious infections, high fever, etc. Signs and symptoms may include: hot, very dry skin, poor skin turgor, dry mucus membranes, little or no moisture in eyes, sunken appearance of the eyes in the socket, tachycardia, and hypotension.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. **Initial Patient Assessment Protocol 2.1.1.**
2. **Airway Assessment/Management Protocol 2.1.2.**
3. Attach cardiac monitor and pulse oximeter.

ALS LEVEL 1: PARAMEDIC ONLY

1. Initiate IV lactated Ringer's or Normal Saline at 125ml/hr. If patient hypotensive (systolic < 90 mm Hg) and/or tachycardic (HR > 110) bolus with 1 liter of IV fluid in 250ml increments until systolic BP > 90 mm Hg Recheck vital signs and lung exam in-between each increment. Discontinue bolus if signs of pulmonary edema or respiratory distress develop.
2. Monitor cardiac rhythm and vital signs
3. Determine serum glucose level with Glucometer or DextroStix:
   a. If sugar 60 mg/dl - 80 mg/dl; give; ½ amp of 25gm **50% Dextrose** IV or **Glucagon** 1mg IM or Sublingual glucose paste, may repeat x 1 if after 15 minutes recheck fingerstick glucose < 80 mg/dl
   b. If Blood sugar < 60 mg/dl; 1 amp 25gm **50% Dextrose** IV or **Glucagon** 1 mg IM
   c. If glucose > 80 mg/dl and < 200 mg/dl, provide supportive care, keep NPO
   d. If glucose > 200 mg/dl, go to Hyperglycemia Protocol 2.8.2.
4. If patient has a history of malnutrition or alcohol abuse give **Thiamine** 100mg IV.

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director for any questions or problems.

2.8.7 Motion Sickness

Purpose: This protocol is for patients who may become ill with nausea, vomiting and/or dizziness due to motion sickness during a long transport. This may develop or be aggravated by the rear facing position in back of the ambulance or on an aircraft. Inquire if patient has a history of motion sickness.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. **Initial Patient Assessment 2.1.1**
2. Assure ABCs are stable. Position of comfort
3. **Airway Assessment/Management Protocol 2.1.2.** Oxygen if indicated via nasal cannula @ 2 - 4 LPM to maintain pulse ox ≥ 94% (non-rebreather @15 LPM if SpO_2 < 90%).
4. Attach cardiac monitor and pulse oximeter if indicated
5. Provide appropriate comfort measures (i.e. cool cloth to forehead).

ALS LEVEL 1: PARAMEDIC ONLY

1. Initiate IV of lactated Ringer's at 125 ml/hr. Give 250 ml fluid bolus if systolic pressure < 90 mm Hg (20 ml/kg for children).
2. Be alert for dysrhythmias.
3. If patient nauseated or has recently vomited, administer one of the following:
   a. **Zofran** 4 – 8 mg IV or IM
   b. Benadryl 25-50 mg IV or IM.
4. If patient complains of dizziness or motion sickness, consider administering:
   a. **Valium** 2-10 mg IV
   b. **Versed 2 – 4 mg IV**

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director if any concerns or any questions.

2.8.8 Nausea and Vomiting

Purpose: Use this protocol for patients who are nauseated and vomiting due to their illness, pain, side effect of medications, etc. If the patient's nausea and vomiting is associated with an altered mental status or a seriously ill appearance, consider the cause to be a decompensation of their medical problem such as DKA (if diabetic)

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol
2. Airway Assessment/Management Protocol. If indicated, Oxygen via nasal cannula @2 - 4 LPM to maintain pulse ox at ≥ 94% (non-rebreather @15 LPM if SpO_2 < 90%).
3. Attach cardiac monitor and pulse oximeter if indicated
4. Provide appropriate comfort measures (i.e. cool cloth to forehead).

ALS LEVEL 1: PARAMEDIC ONLY

1. Initiate IV lactated Ringer's or Normal Saline at 125ml/hr. If patient hypotensive (systolic < 90 mm Hg) and/or tachycardic (HR > 110) bolus with 1- 2 liters of IV fluid in 250ml increments until systolic BP > 90 mm Hg (20 ml/kg for children). Recheck vital signs and lung exam in-between each increment. Discontinue bolus if signs of pulmonary edema or development of respiratory distress.
2. If patient nauseated or has recently vomited, administer one of the following:
   a. **Zofran** 4 – 8 mg IV or IM (or the ODT Tablet sublingual if available)
   b. **Benadryl** 25-50 mg IV or IM.

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director if any concerns or any questions.

2.8.9 Hyperkalemia (Elevated Potassium)

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Purpose:

This protocol is to be used on patients with dangerously elevated levels of potassium (>7 mmol/L or 6 -7 mmol/L with EKG changes). Potassium is an extremely important electrolyte and is involved in maintaining electrical potential across cell wall membranes. It is essential to the normal function of cardiac cells. Potassium levels can elevate for a variety of reasons, including but not limited to; problems with excretion (renal 90%, GI 10%), potassium distribution (Extracellular 2%, intracellular 98%), increased absorption/intake. Normal serum potassium levels range from 3.5 – 5 mmol/L.

Signs and symptoms of elevated potassium levels include but are not limited to:

1. Weakness that can progress to paralysis,
2. Dyspnea (owing to respiratory muscle weakness)
3. EKG findings of peaked T wave, prolonged pr interval, widening of QRS complex and eventual sinusoidal wave form

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. **Initial Patient Assessment Protocol 2.1.1**
2. **Airway Assessment/Management Protocol (O_2 PRN) 2.1.2**
3. Attach cardiac monitor and pulse oximeter.
4. Transport to designated hospital

ALS LEVEL 1: PARAMEDIC ONLY

1. Initiate IV Normal Saline at 125ml/hr. If patient hypotensive (systolic < 90 mm Hg) and/or tachycardic (HR > 110) bolus with 1- 2 liters of IV fluid in 250ml increments until systolic BP > 90 mm Hg (20 ml/kg for children). Recheck vital signs and lung exam in-between each increment. Discontinue bolus if signs of pulmonary edema or development of respiratory distress.
2. Perform 12 lead ECG.
   a. Look for peaked T-wave, prolonged P-R interval, Widened QRS complexes, bradycardia
   b. As potassium elevates further, EKG may show dropped P waves, very wide QRS (sinusoid wave form)
   c. Transmit 12 Lead ECG to destination hospital, if available. If inferior wall MI is identified (ST segment elevation in leads II, III, and AVF), perform additional 12 Lead ECG with V4R to confirm/rule out concurrent right ventricular MI.
3. If EKG suggest hyperkalemia or patient is very weak (and is a renal patient or taking potassium supplements), measure serum potassium if equipment available (I-STAT), or obtain value (if it's been within two hours) from record at transferring facility. If level is > 7 mmol/L or 6 – 7 with EKG changes proceed to next step. If EKG changes suggesting elevated

potassium levels after Succinylcholine was administered for RSI, proceed to next step

4. Give one amp (if available) of **Calcium Gluconate (or Calcium Chloride)** IV over 1 – 3 minutes. Give only if EKG changes. Avoid if suspect Digoxin toxicity.
5. Give **Albuterol** (only) via neb x 1
6. Give **Sodium Bicarb** 1 amp IV
7. Notify the hospital as additional treatment will be needed on arrival such as
   d. Reg Insulin and D50W
   e. Kayexcelate PO
   f. Possible dialysis

ALS LEVEL 2: MEDICAL CONTROL

1. Notify medical control or medical director for any problems or concerns.

2.8.10 Dystonic Reaction

Purpose:

This protocol is to be used to treat patients who are experiencing extra-pyramidal or dystonic reactions related to side effects of certain drugs (phenothiazine, anti-psychotic, neuroleptic). Dystonia is prolonged involuntary muscular contractions that may cause twisting (torsion) of body parts, repetitive movements, and increased muscular tone. Patients head may be twisted to one side due to uncontrolled muscle spasms of the neck. Patient may have abnormal movement or position of tongue due to spasm of the tongue muscle. This may also cause the patient with difficulty speaking. Patient's eyes may also be deviated to one side.

Common medications that can cause acute dystonic reaction:

Generic Name	Trade Name	General Use
Prochlorperazine	Compazine	Antiemetic, migraine headache
Hydroxyzine	Vistaril, Atarax	Antiemetic, antipruritic
Promethazine	Phenergan	Antiemetic, antipsychotic
Haloperidol	Haldol	Antipsychotic, Tourette's syndrome
Thioridazine	Mellaril	Antipsychotic
Alprazolam	Xanax	Antianxiety
Metoclopramide	Reglan	Antiemetic
Droperidol	Inapsine	Antiemetic, antipsychotic
Fluphenazine	Prolixin	Neuralgia, antipsychotic

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. **Initial Patient Assessment Protocol 2.1.1**
2. **Airway Assessment/Management Protocol (O_2 PRN) 2.1.2**
3. Attach cardiac monitor and pulse oximeter.
4. Transport to designated hospital
5. Keep in mind, until patient is treated, he/she may be able to hear and understand you but will not be able to follow commands.

ALS LEVEL 1: PARAMEDIC ONLY

1. Initiate IV of lactated Ringer's or normal saline at TKO. If patient is tachycardic and/or hypotensive, give a 250 ml bolus then run at 100cc/hr.
2. Determine serum glucose level with Glucometer or Dextrostix
   a. If sugar 60 mg/dl - 80 mg/dl; **Sublingual glucose paste, or Glucagon** 1mg IM or ½ amp of 25gm **50% Dextrose IV**
   b. If Blood sugar < 60 mg/dl; 1 amp **25gm 50% Dextrose** IV or **Glucagon 1 mg IM**

3. If patient exhibiting signs and symptoms of dystonic reaction (extrapyramidal side effect) from one of the common medications listed above, give **Benadryl (Diphenhydramine)** 25 – 50 mg IV or IM
4. If history of drug abuse, and patient has constricted pupils or respiratory depression, assist respirations as needed and administer **Narcan** 1 -2 mg IV

ALS LEVEL 2: MEDICAL CONTROL

1. Contact Medical Control or Medical Director for any questions or problems.

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2.9
Adult Environmental Emergencies

2.9.1 Diving (Scuba) Emergencies/Barotrauma (Decompression Sickness)

Purpose: This protocol is for patients who suffer the effects of sudden changes in atmospheric pressure due to diving related activity. Barotrauma and decompression illness is caused by changes in the surrounding atmospheric pressure beyond the body's capacity to compensate for excess gas load. These injuries are most commonly associated with the use of SCUBA (Self-Contained Underwater Breathing Apparatus). SCUBA diving emergencies can occur at any depth with the most serious manifesting symptoms after a dive. It should be understood that if a patient took a breath underwater, from any source of compressed gas (e.g. submerged vehicle, SCUBA, etc) while greater than 3 feet in depth, the patient might be a victim of barotrauma. Barotrauma may cause several injuries to occur including: arterial gas embolism (AGE), pneumothorax, pneumomediastinum, subcutaneous emphysema, and the "Sub-Queeze." decompression illnesses may also include decompression sickness ("Bends").

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1.
2. Airway Assessment/Management Protocol 2.1.2. Administer Oxygen via non-rebreather @15 LPM
3. Attach cardiac monitor and pulse oximeter
4. Place the patient in a supine head-down left lateral decubitus position.
5. Complete the Dive Accident Signs and Symptoms Checklist and Rapid Field Neuro Exam Record (see appendix)
6. Start Dive History Profile (see blank forms), if possible (the patient's dive buddy may be helpful in answering many of these questions
7. Protect against hypothermia and hyperthermia.
8. If applicable, have the local legal authority in charge secure all of the victims dive gear with proper chain of custody for testing, analysis, etc.
9. Monitor closely for complications (pneumothorax, shock, seizures) and treat per protocols.
10. Transport to the closest Emergency Department or Trauma Center. If transporting by helicopter, fly below 1000 feet (if traveling by fixed wind, request pilot pressurize the cabin to sea level). If applicable and pre-arranged agreement exists, consider transport to a hyperbaric facility. Provide hyperbaric personnel with a detailed history of the dive (depth and duration, timing and onset of symptoms, complications, and any treatment rendered).
11. **Contact Diver's Alert Network (DAN) at Duke University Medical Center at (919) 684-4326** for assistance as needed for further assistance.
12. Bring Dive Computer to the hospital, if available

ALS LEVEL 1: PARAMEDIC ONLY

1. Start an IV of lactated Ringer's or normal saline TKO.

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director if any concerns or any questions.

2.9.2 Cold Related Emergencies/Hypothermia/Frostbite

Purpose: This protocol is to be used for patients who suffer from hypothermia. Factors that predispose and/or cause a patient to develop hypothermia include: geriatric and pediatric patients, poor nutrition, diabetes, hypothyroidism, brain tumors or head trauma, sepsis, use of alcohol and certain drugs, and prolonged exposure to water or low atmospheric temperature. Hypothermia patients can be divided into three categories: Mild (temperature 94-96 degrees F), Moderate (Temperature 86 – 94), and Severe (Temperature < 86 degrees F). It should be noted that most oral thermometers would not register below 96 degrees F. There are some newer digital thermometers that will register lower temperatures.

Frostbite is local tissue freezing.

Mild to Moderate Hypothermia: Patients will generally present with shivering, lethargy.

Severe Hypothermia: Patients may be disoriented and confused to stupor and coma. Shivering usually stops and physical activity will be uncoordinated. In addition, severe hypothermia will frequently produce an Osborn J wave on an ECG, as well as dysrhythmias (bradycardia, ventricular fibrillation).

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1
2. Airway Assessment/Management Protocol 2.1.2. Oxygen via nasal cannula @ 2 - 4 LPM to maintain pulse ox ≥ 94% (non-rebreather @15 LPM if SpO_2 < 90%).
3. Attach cardiac monitor and pulse oximeter
4. Remove all wet clothes and dry patient.
5. Protect from heat loss and wind chill.
6. Maintain in a horizontal position
7. Check core temperature if possible
8. Frost Bite cases:
   a. Protect injured areas from pressure, trauma, and friction. Bandage with dry sterile dressing if able.
      Do not rub or break blisters.
   b. Do not allow limb to thaw if there is a chance it will re-freeze.
   c. Do not allow patient to ambulate once the limb has started to thaw.
   d. Maintain core temperature by keeping victim warm with blankets.
   e. Warm fluids may be administered orally to conscious patients.
   f. Consider using the pulse oximeter probe to detect peripheral perfusion in affected tissues.

ALS LEVEL 1: PARAMEDIC ONLY

1) If severe pain, give **Morphine** 2-10 mg IM or IV, or **Fentanyl** 50 – 100 mcg IM or IV, for pain control.

Mild to moderate (86 - 96°): Hx of exposure to cold, altered LOC, shivering, muscle stiffness, stumbling or staggering gait, cool or cold skin, mottled or pale skin;

BASIC LEVEL: EMT and PARAMEDIC

1. Warm humidified oxygen 12-15 L/M by non-re-breathing mask. Maintain pulse ox > 95%
2. Remove wet garments
3. Cover with blankets
4. Gentle handling
5. Warm environment
6. If patient has normal LOC may give warm fluids to drink

ALS LEVEL 1: PARAMEDIC ONLY

1. Large bore IV, warm saline at 75cc/hr
2. If altered mental status, determine serum glucose level with Glucometer or Dextro Stix:
   a. If sugar 60 mg/dl - 80 mg/dl; give; ½ amp of 25gm **50% Dextrose** IV or **Glucagon** 1mg IM or Sublingual glucose paste, may repeat x 1 if after 15 minutes recheck fingerstick glucose < 80 mg/dl
   b. If Blood sugar < 60 mg/dl; 1 amp 25gm **50% Dextrose** IV or **Glucagon** 1 mg IM
   c. If glucose > 80 mg/dl and < 200 mg/dl, provide supportive care, keep NPO
   d. If glucose > 200 mg/dl, go to Hyperglycemia Protocol 2.8.2.

Severe with vital signs present (<86°F): Same as mild to moderate but may not have shivering. Should have altered LOC and difficult to detect but present vital signs:

BASIC LEVEL: EMT and PARAMEDIC

1. Same as above
2. NPO

ALS LEVEL 1: PARAMEDIC ONLY

1. Same as above

Severe with absence of vital signs: Same as above but will be unresponsive with no detectable pulse or respirations:

BASIC LEVEL: EMT and Paramedic

1. Warm humidified oxygen by BVM
2. CPR
3. Gentle handling

4. Warm environment as much as possible

ALS LEVEL 1: PARAMEDIC ONLY

1. Intubate and ventilate with warm humidified oxygen, if possible
2. Cardiac Monitor: If V-FIB: defibrillate up to 3 times (200J, 300J, 360J); If biphasic Zoll defibrillator 120J, 150J, 200J; (Peds = 2J/kg, 4J/kg, 4J/kg)
3. Medication therapy may be ineffective due to the decrease in core temperature. Usually meds withheld till core temp warmed to >86°F. Just continue CPR till temp > 86° F. If temp > 86° F, follow appropriate dysrhythmia protocol.
4. Large bore IV or IO, warm saline at 75cc/hr

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director if any concerns or any questions.

2.9.3 Heat Related Emergencies/Hyperthermia

Purpose: This protocol is for patients suffering the effects of hyperthermia. Hyperthermia occurs when the patient is exposed to increased environmental temperature and can manifest as heat cramps, heat exhaustion, or heat stroke. Certain drugs may cause an increase in the body's temperature (e.g. cocaine, ecstasy, certain psychiatric medications, etc.). Heat related injuries can be divided into one of the following;

Heat Cramps: Signs and symptoms include: muscle cramps in extremities and/or abdomen, hot sweaty skin, weakness, dizziness, tachycardia, normal BP, and normal temperature

Heat Exhaustion: Signs and symptoms include: cool and clammy skin, profuse sweating, nausea/vomiting, diarrhea, tachycardia, weakness, dizziness, transient syncope, muscle cramps, headache, positive orthostatic vital signs, normal or slightly elevated temperature.

Heat Stroke: Signs and symptoms include: Hot dry skin (sweating may be present), confusion and disorientation, rapid bounding pulse followed by slow weak pulse, hypotension with low or absent diastolic reading, rapid and shallow respirations (which may later slow), seizures, coma, elevated temperature above 105° F.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1
2. Airway Assessment/Management Protocol 2.1.2. Oxygen via nasal cannula @ 2 - 4 LPM to maintain pulse ox ≥ 94% (non-rebreather @15 LPM if SpO_2 < 90%).
3. Attach cardiac monitor and pulse oximeter
4. Assess vital signs, including temperature, every 10 minutes.
5. Remove from warm environment and cool patient
6. For mild to moderate heat cramps and heat exhaustion, if patient is conscious and alert, encourage patient to drink water, follow by salt containing fluids (e.g. half-strength Gatorade or 10 K or equivalent drink)
7. If history and findings suggestive of heat stroke:
    a. Remove to cooler environment
    b. Cool with ice packs or moist sheets (must have good ambient air flow)
    c. Stop cooling measures when core body temp is 39° c (102.2° F).

ALS LEVEL 1: PARAMEDIC ONLY

1. Initiate IV lactated Ringer's or Normal Saline at 125ml/hr. If patient hypotensive (systolic < 90 mm Hg) and/or tachycardic (HR > 110) bolus with 1 liter of IV fluid in 250ml increments until systolic BP > 90 mm Hg Recheck vital signs and lung exam in-between each increment. Discontinue bolus if signs of pulmonary edema or respiratory distress develop.
2. If altered mental status, determine serum glucose level with Glucometer or DextroStix:
    a. If sugar 60 mg/dl - 80 mg/dl; give; ½ amp of 25gm **50% Dextrose** IV or **Glucagon** 1mg IM or Sublingual glucose paste, may repeat x 1 if after 15 minutes recheck fingerstick glucose < 80 mg/dl
    b. If Blood sugar < 60 mg/dl; 1 amp 25gm **50% Dextrose** IV or **Glucagon** 1 mg IM
    c. If glucose > 80 mg/dl and < 200 mg/dl, provide supportive care, keep NPO
    d. If glucose > 200 mg/dl, go to Hyperglycemia Protocol.
3. If seizures are present, and suspected to be heat-related:
    a. Protect airway with appropriate airway adjuncts.
    b. **Valium** 5-10 mg IV/IO, or **Versed** 2 – 4 mg IV/IO.

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director if any concerns or any questions.

2.9.4 Near-Drowning

Purpose: Near drowning patients are those who have been submerged in fresh or salt water and may or may not be conscious. Patients who ingested and/or aspirated water during the near drowning experience may initially decline to be transported to the hospital if after they have coughed, vomited and/or rested, they are feeling better following the incident. These patients should be strongly encouraged to be transported for evaluation as there are often delayed complications due to pulmonary edema or aspiration pneumonia.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1. Immobilize cervical spine if trauma suspected
2. Airway Assessment/Management Protocol 2.1.2. If indicated, Oxygen via nasal cannula @2 - 4 LPM to maintain pulse ox 94% (non-rebreather @15 LPM if SpO_2 < 90%).
3. Attach cardiac monitor and pulse oximeter if indicated
4. Determine pertinent history (duration of submersion, depth, water temperature, possible seizure, drug and/or alcohol use).
5. Maintain body temperature, dry and warm patient. Start passive re-warming if patient hypothermic.

ALS LEVEL 1: PARAMEDIC ONLY

1. Initiate IV lactated Ringer's or Normal Saline at 125ml/hr. If patient hypotensive (systolic < 90 mm Hg) and/or tachycardic (HR > 110) bolus with 1- 2 liters of IV fluid in 250ml increments until systolic BP > 90 mm Hg (20 ml/kg for children). Recheck vital signs and lung exam in-between each increment. Discontinue bolus if signs of pulmonary edema or development of respiratory distress.

If apneic:

1. Initiate and maintain mechanical ventilation with 100% oxygen.
2. Endotracheal intubation (with in-line cervical immobilization).
3. Treat any dysrhythmias per appropriate protocol.
4. Transport and contact medical control en route.

If apneic and pulseless:

1. Initiate and maintain mechanical ventilation with 100% oxygen.
2. CPR.
3. Endotracheal intubation (with in-line cervical immobilization.)
4. Treat any dysrhythmias per appropriate protocol.
5. Transport and contact medical control en route.
6. If altered mental status, determine serum glucose level with Glucometer or DextroStix:
    a. If sugar 60 mg/dl - 80 mg/dl; give; ½ amp of 25gm 50% **Dextrose** IV or **Glucagon** 1mg IM or Sublingual glucose paste, May repeat x 1 if after 15 minutes recheck fingerstick glucose < 80 mg/dl
    b. If Blood sugar < 60 mg/dl; 1 amp 25gm **50% Dextrose** IV or **Glucagon** 1 mg IM
    c. If glucose > 80 mg/dl and < 200 mg/dl, provide supportive care, keep NPO
    d. If glucose > 200 mg/dl, go to Hyperglycemia Protocol 2.8.2.

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director if any concerns or any questions.
2. Initiate **Dopamine** drip if patient unresponsive to fluid challenge. Begin infusion at 2 mcg/kg/min and titrate to maintain systolic BP >90 mm Hg.

2.9.5 Electrical Emergencies / Lightning Strike

Purpose: This protocol is for patients who suffer the effects of an electrical injury. A wide range of injuries can be caused from a lightning strike or contact with electricity. Electrical injury can occur from direct contact, an arc, or a flash of the electricity and a direct hit or splash from lightning. The movement of electrical current through the body can cause violent muscle contractions that can lead to fractures, and therefore, the C-spine should be protected. The thermal energy can cause external burns, but in many cases the majority of thermal damage is internal, with few external signs of injury. Dysrhythmias are also common (e.g. ventricular fibrillation). The rescuer should be sure that the patient is no longer in contact with the electrical current before initiating treatment. Asystole is a common presentation with lightning strike. These patients should be aggressively resuscitated unless injuries are incompatible with life

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1. C-spine precautions if indicated. Move patient to a protected area (to prevent additional lightning strike).
2. Airway Assessment/Management Protocol 2.1.2. Oxygen via nasal cannula @2 - 4 LPM to maintain the pulse ox $\geq$ 94% (non-rebreather @15 LPM if SpO_2 < 90%)
3. If cardiac arrest or dysrhythmias, standard ALS measures (see appropriate protocol 2.3).
4. Remove smoldering clothes and assess for trauma. Look for entrance and exit wounds.
5. Treat burns per Burn Protocol 2.10.8
6. Initiate Trauma Alert if applicable and meets criteria
7. Correct any open/sucking chest wound
8. Control hemorrhage
9. Cover burns with moist sterile dressing.
10. Attach cardiac monitor and pulse oximeter
11. Complete bandaging, splinting, packaging PRN. Immobilize injured extremities, making note of pulses, sensation, motor function, and color of distal extremities.
12. Try to determine amps, volts, and duration of contact, if possible

ALS LEVEL 1: PARAMEDIC ONLY

1. Initiate IV lactated Ringer's or Normal Saline at 125ml/hr. If patient hypotensive (systolic < 90 mm Hg) and/or tachycardic (HR > 110) bolus with 1- 2 liters of IV fluid in 250ml increments until systolic BP > 90 mm Hg (20 ml/kg for children). Recheck vital signs and lung exam in-between each increment. Discontinue bolus if signs of pulmonary edema or development of respiratory distress.

2. Correct any massive flail segment that causes respiratory compromise. Intubate if necessary.

3. Correct any tension pneumothorax (see needle decompression protocol)
4. If altered mental status, determine serum glucose level with Glucometer or DextroStix:
    a. If sugar 60 mg/dl - 80 mg/dl; give; ½ amp of 25gm **50% Dextrose** IV or **Glucagon** **1mg** IM or Sublingual glucose paste, May repeat x 1 if after 15 minutes recheck fingerstick glucose < 80 mg/dl
    b. If Blood sugar < 60 mg/dl; 1 amp 25gm **50% Dextrose** IV or **Glucagon** **1 mg** IM
    c. If glucose > 80 mg/dl and < 200 mg/dl, provide supportive care, keep NPO
    d. If glucose > 200 mg/dl, go to Hyperglycemia Protocol 2.8.2.
5. If patient is in severe pain with no evidence of a head injury, chest or abdominal trauma, give one of the following:
    a. **Morphine Sulfate** 2 – 10 mg IV or IM
    b. **Fentanyl** 50 – 100 mcg IV or IM

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director if any concerns or any questions.

2.10
Adult Trauma Emergencies

2.10.1 Head and Spine Injuries / Trauma

Purpose: This protocol is for patients who are suspected of having a head and/or spinal injury. If history, symptoms, or signs of head or spinal injuries are present, manually immobilize the head and neck while maintaining a patent airway using a modified jaw-thrust method. Immobilization of the entire spine is indicated following initial stabilization. Hangings without Trauma Alert Criteria ARE NOT Trauma Alert Patients (e.g. "suffocation type", patient without C-spine deformity). **NOTE**: protocol **4.35 Spinal Immobilization Clearance** should be used on a completely alert and cooperative patient at low risk for c-spine injury to determine if spinal immobilization is needed.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1.
2. Airway Assessment/Management Protocol 2.1.2. Oxygen via nasal cannula @ 2 - 4 LPM to maintain pulse ox ≥ 94% (non-rebreather @15 LPM if SpO_2 < 90%).
3. Determine if C-spine immobilization is needed via Spinal Immobilization Clearance Protocol.
4. Attach cardiac monitor and pulse oximeter
5. If isolated head injury, elevate head of backboard 30 degrees (12 – 18 inches).
6. Determine level of consciousness (AVPU).
7. Assess for and document the Glasgow Coma Scale
8. Complete motor examination (paralysis, weakness, posturing), if possible.
9. Pupillary examination (size, equality).
10. Complete sensory examination, if possible.
11. Open wounds, which expose the brain tissue, should be covered with saline-soaked gauze.
12. If combative, check airway, ensure oxygen delivery, and restrain as needed.

ALS LEVEL 1: PARAMEDIC ONLY

1. Intubation and ventilation with 100% oxygen for markedly decreased LOC, inability to maintain a patient airway, or for GCS <= 8.
2. If signs of brainstem herniation exist (e.g. pupillary dilatation, asymmetric pupillary reaction, or motor posturing), ventilate patient to achieve optimal $ETCO_2$ of 35 – 40 mm Hg.
3. If unresponsive or pulseless, apneic:
    a. Intubate with neck in neutral position (stabilized with traction by second EMT).
    b. Ventilate with 100% oxygen.
    c. CPR if pulseless.
4. If BP <90 mm Hg systolic, or signs of shock:

a. IV Lactated Ringer's en route. Bolus with 250 ml increments of IV fluid p.r.n. x 2 liters. Recheck vitals after each bolus

5. If patient has seizures give one of the following:
    a. **Valium** 2 - 10 mg IVP
    or
    b. **Versed** 2 – 4 mg IVP for seizures and agitation.
6. Consider need or RSI to control airway. See procedure **4.31 RSI**

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director if any concerns or any questions.

2.10.2 Eye Injuries

Purpose: This protocol covers a variety of injuries to the eye. If other injuries to the body exist, priority of care should be given as appropriate.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1
2. Airway Assessment/Management Protocol 2.1.2. Oxygen if applicable via nasal cannula @2 - 4 LPM to maintain pulse ox ≥ 94% (non-rebreather @15 LPM if SpO_2 < 90%).
3. Attach cardiac monitor and pulse oximeter as indicated.
4. Remove or ask patient to remove contact lens, if still in affected eye(s).
5. **If Penetrating Trauma:**
   a. Stabilize penetrating object(s) and cover affected eye with an ocular shield or similar rigid device. Cover both eyes to minimize eye movement. Avoid direct pressure on eye or penetrating object.
   b. DO NOT delay transport.
6. **If Blunt Trauma**:
   a. Cover both eyes
   b. Do Not delay transport
7. If eyeball has been forced out of the socket, cover the entire eye area with a rigid container, such as a disposable drinking cup. Avoid contact with the exposed globe. If bleeding, control by direct pressure with a sterile dry dressing.
8. **If Loss of Vision**: (If sudden painless and non-traumatic loss of vision, consider Retinal Artery Occlusion);
   a. Apply cardiac monitor and assess for changes
   b. Apply vigorous pressure using heel of hand to affected eye for 3-5 seconds, then release. (Patient may perform this procedure)
   c. Do Not delay transport

ALS LEVEL 1: PARAMEDIC ONLY

1. If chemical injury or foreign body sensation;
   a. Instill (if available) 2 drops **Tetracaine ophthalmic drops** (0.5% solution) in affected eye if patient not allergic to Tetracaine or the "caine" class of local anesthetics. Contraindicated in penetrating eye injuries or laceration of the cornea or globe.
   b. If chemical injury, flush immediately with sterile normal saline and continue flushing en route.
   c. Bring chemical container or name of chemical with patient to the emergency department.
2. Initiate IV lactated Ringer's or Normal Saline at KVO PRN if injury seems serious.

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director if any concerns or any questions.

2.10.3 Chest Trauma: Blunt and Penetrating

Purpose: This protocol covers both blunt and penetrating chest trauma and should be part of initial resuscitation if breathing is compromised. Chest pain due to blunt trauma may be an indication of underlying injury. Blunt injuries such as a pulmonary contusion and cardiac contusion may cause respiratory insufficiency and /or myocardial infarction.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol. 2.1.1
2. Airway Assessment/Management Protocol. 2.1.2. Oxygen via nasal cannula @ 4 LPM to maintain pulse ox ≥ 94% (use non-rebreather @15 LPM if SpO_2 < 90%)
3. Attach cardiac monitor and pulse oximeter.
4. If penetrating or sucking chest or upper back wound (look for bubbles, listen for air leaks):
5. Place occlusive dressing (or commercially available covering) during exhalation (tape on 3 sides) or apply Asherman Chest Seal. Once occluded, monitor for tension pneumothorax.
6. Impaled objects should be stabilized in place. If impaled object is very large or unwieldy, attempt to cut object to no less than six inches from chest.

ALS LEVEL 1: PARAMEDIC ONLY

1. Start two large bore IVs or IOs of lactated Ringer's or normal saline TKO. Bolus as needed with two liters of IV fluid in 250 – 500 ml increments to maintain systolic BP > 90 mm Hg. Check vital signs frequently.
2. Call Trauma Alert if patient meets criteria (see Trauma Alert Criteria)
3. If flail chest (unstable segment that does not expand with the remainder of the chest on inspiration):
    a. If conscious, stabilize flail segment with gauze pad, IV bag, etc.
    b. If unconscious, immobilize neck and intubate. Ventilate with 100% oxygen by BVM.
4. If tension pneumothorax develops, (unilateral absent breath sounds with or without tracheal deviation or bilaterally absent breath sounds:
    a. Perform needle decompression per protocol.
5. If continued inadequate ventilations and decreasing LOC:
    a. Rapid secondary survey for additional injuries.
    b. Immobilize neck.
    c. Control hemorrhage.
    d. Intubate with cervical stabilization.
    e. Ventilate with 100% oxygen via BVM.
    f. Cardiac compressions if pulseless.
6. Treat any dysrhythmias per cardiac dysrhythmia protocols.

7. If patient being transferred to another facility with chest tube(s) already in place:
    a. Keep chest tubes tubing from kinking.
    b. Check dressing over chest tube site to assure adequately adhered.
    c. Keep pleuravac upright at all times.
    d. Monitor if on suction for intermittent bubbling.
    e. If patient with chest tube begins to experience severe respiratory distress:
        1) Rapidly assess ABCs.
        2) Assist ventilations as needed.
        3) Check chest tube tubing for kinks or leaky connections or blood in tube. If so, unkink, seal leak, or milk tubing.
        4) If patient is on board air ambulance, immediately ascertain the cabin altitude pressure. If greater than sea level, have the pilot descend the aircraft to achieve cabin altitude of sea level.

ALS LEVEL 2: MEDICAL CONTROL

1. medical control or medical director for further orders as needed.

2.10.4 Abdominal / Pelvic Trauma

Purpose: This protocol covers blunt and penetrating abdomino-pelvic trauma. Penetrating injuries may also include the chest. Patients who may initially appear normal can rapidly deteriorate and therefore should be closely monitored and have serial exams.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1
2. Airway Assessment/Management Protocol 2.1.2
3. Attach cardiac monitor and pulse oximeter.
4. If patient pregnant and back boarded, tilt board 30 degrees left
5. Impaled objects should be stabilized in place.
6. Eviscerations should be covered with saline-soaked gauze. Do not attempt to push the organs back into the abdomen. For penetrating injuries cover with an occlusive dressing (e.g. Vaseline gauze).
7. Do not log roll patient with a suspected pelvic fracture (may use scoop stretcher)
8. If pelvic fracture suspected, wrap in sheet splint
9. Rapid transport.

ALS LEVEL 1: PARAMEDIC ONLY

1. Establish two large bore IVs of lactated Ringer's to maintain systolic pressure > 90 mm Hg. Run in two liters of IV fluid. Monitor vital signs and lung sounds after each 250 ml bolus. Discontinue if signs of pulmonary edema. If systolic pressure still < 90 contact medical control for further IV orders. IF IV access is unavailable, insert one or two EZ-IOs in the appropriate extremities
2. Call a trauma alert on all patients that meet criteria (see trauma alert protocol).

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director for any questions or problems.
2. Pain management for abdominal pain ONLY by medical control orders

2.10.5 Extremity Injuries

Adult Medial Protocol

Purpose: This protocol will cover extremity injuries including fractures, crush, lacerations, and amputations. Time is critical if there is any chance of re-implanting the amputated part. Lacerations should be repaired as soon as possible (ideally wounds should be repaired within 6 hours), as the risk of infection increases with each passing hour before repair. Urgently transport any injury with vascular compromise.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1
2. Airway Assessment/Management Protocol 2.1.2
3. Control bleeding
4. Rinse any grossly contaminated wound with saline and cover with sterile dressing.
5. Attach cardiac monitor and pulse oximeter as indicated for seriously injured patient (may not be necessary for an isolated distal extremity wound or fracture).
6. Trauma Alert patients who meet criteria (see Trauma Alert Criteria)
7. Transport to designated facility.
8. If severe life threatening hemorrhage cannot be controlled by direct pressure or other simple measures, apply a CAT tourniquet as per Tourniquet Protocol

FRACTURES

1. Any fracture or suspected fracture should be splinted appropriately and if possible, apply ice pack to area.
2. Remove and secure all jewelry on the affected extremity. Have your partner witness the disposition of the jewelry, i.e. given to patient or family member, and document disposition in the chart.
3. Check pulse, sensation, and movement before and after splinting.
4. Closed angulated fractures without distal pulse should be aligned using proximal and distal traction during splinting, except fractures that involve a joint, which should be splinted in position found.
5. Traction splints should be used in cases of closed femur fractures, unless a pelvic fracture is suspected. Hip fractures or pelvic fractures can be treated with sheet splint. Femur fractures can also be treated with HARE Traction Splint or Sager Traction Splint.

AMPUTATIONS

1. The amputated stump should be dressed with bulky dressing
2. Rinse the amputated part with saline to remove loose debris.
3. Wrap amputated part in gauze moistened with saline
4. Placed wrapped part in plastic bag and seal. Label with name, date and time.
5. Place plastic bag on ice for transport.

ALS LEVEL 1: PARAMEDIC ONLY

1. One or two large bore IV(s) of lactated Ringer's solution at appropriate rate to maintain systolic > 90 mm Hg. If intraosseous IV is started, do not use injured extremity. If BP < 90, bolus with 250 ml increments of IV fluid up to 2 liters with vital sign rechecks between each bolus.
2. Treat for shock, if indicated.
3. If patient's blood pressure is stable AND isolated extremity wounds AND patient has no allergies to specific pain medication give one of the following:
    a. **Morphine** IV in 2mg increments, titrate to pain up to 10mg
    b. **Fentanyl** 50 – 100 mcg IV or IM
4. If nauseated, give one of the following:
    a. **Zofran** 4-8mg IV or IM
    b. **Benadryl** **25-50 mg** IV or IM.

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director for any questions or problems.
2. For IV fluid orders beyond 2 liters if patient remains hypotensive and tachycardic
3. For further pain medication orders beyond the amount allowed in ALS LEVEL 1

2.10.6 Burns

Purpose: Burns can be caused by solar, thermal, chemical, and electrical sources. First-degree burns (reddened skin, only the epidermal layer), and second-degree burns (red skin with blisters, extends into the dermis) are painful. Third degree burns (full thickness, charred appearance, All epidermal and dermal structures are destroyed) are painless and leathery. Many burns are associated with inhalation injury. The signs and symptoms of inhalation injury include: nasal and orophyarngeal burns, charring of the tongue or teeth, sooty (blackened) sputum, singed nasal and facial hair, abnormal breath sounds (e.g. stridor, rhonchi, wheezing, etc.), and respiratory distress. In cases of inhalation injury, attention should be given to the patency of the airway. Acute swelling can cause an airway obstruction. The paramedic should consider the need for early intubation to avoid a complete airway obstruction that requires a Cricothyroidotomy.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1.
2. Airway Assessment/Management Protocol 2.1.2.
3. Attach cardiac monitor and pulse oximeter.
4. Extinguish any flames on patient; remove smoldering clothing (leather), and any constricting jewelry. Do not remove or peel off skin or tissue.
5. Stop the burning process:
   - THERMAL BURNS; Lavage the burned area with tepid water (sterile, if possible) to cool the skin. Do not attempt to wipe off semisolids (grease, tar, wax, etc)
   - CHEMICAL: Flush with water or normal saline. Brush off dry chemicals. Refer to hazmat protocols as indicated.
   - ELECTRICAL: Remove from contact with current source if equipped to do so. (Note any secondary fractures and Exit wounds caused by current.)
6. Assess the extent of the burn using the Rule of Nines and the degree of burn severity. Call trauma alert if patient meets criteria (2° or 3° burns > 20% BSA): (SEE TRAUMA ALERT CRITERIA) (See Burn Rule of Nine Appendix) (see Burn Severity Catagories)
7. Apply dry sterile dressings to burn areas
8. Prevent hypothermia, keep patient warm and insure that all outer layers of dressings are dry
9. If altered LOC and/or signs of head injury (consider carbon monoxide and/or cyanide poisoning if closed space burn):
10. Transport to designated hospital.

ALS LEVEL 1: PARAMEDIC ONLY

1. 1 or 2 large bore IVs (in non burned area if possible) with Lactated Ringer's or Normal Saline. Rate should be based on 4cc/kg/%TBS area burned. ½ of this amount will be given over the first 8 hours, so divide

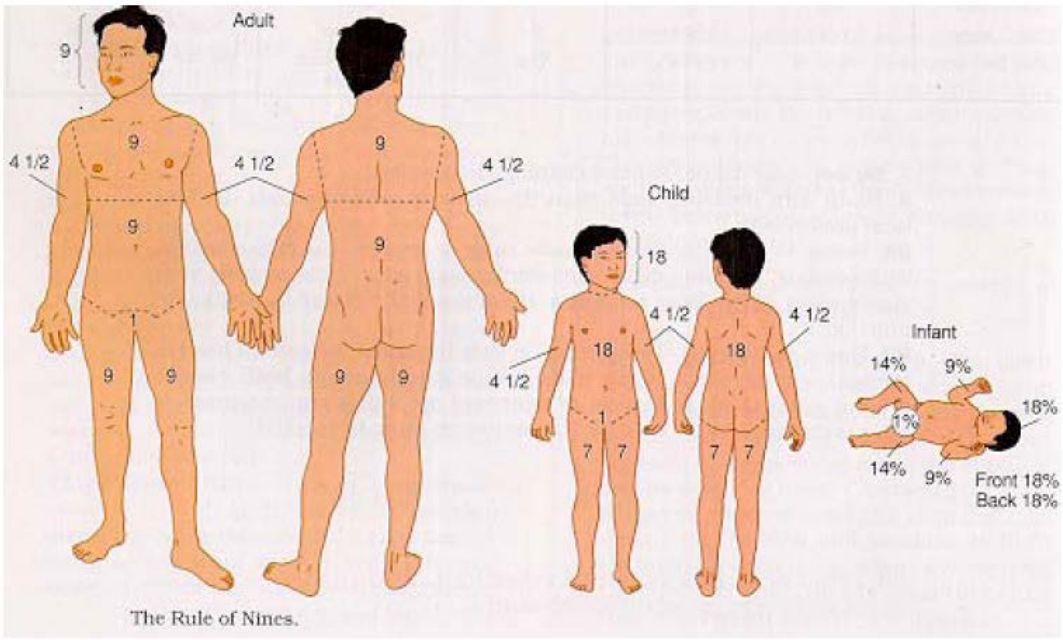
the total amount by 2 then again by 8 and this is the cc/hr needed.
Example: 70 kg patient with 60% burns to his body.
4 ml x 70kg x 60 (%burned) = 16,800
16,800 ÷ 2 = 8,400 (amount of fluid need in 8 hours)
8,400 ÷ 8 = 1050 (amount of IV fluid /hour)

2. If respiratory distress, or airway burns exist, prepare to intubate or support/assist ventilations.
3. If pulseless or apneic, go to Cardiac Arrest Protocol.
4. If additional injuries, go to specific protocol.
5. If patient has isolated burn injuries and no evidence of head injury, altered mental status, chest trauma or abdominal trauma and normal vital signs, CHECK ALLERGIES, give one of the following pain meds for major burns;
   - **Morphine** 2mg increments IV and titrate to pain up to 10mg
   - **Fentanyl** 50 – 100 mcg IV or IM
   - For minor burns, give **Toradol** 30mg IV or 60mg IM.

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control for additional pain medication orders as needed.
2. Consider escharotomy per med control if circumferential burns of the neck, chest, or extremities are interfering with effective ventilations or circulation.
3. Contact medical control or medical director for any questions or problems

Burn Classification	Characteristics
Minor burn injury	◆1°burn ◆2° burn < 15% BSA in adults ◆2° burn < 5% BSA in children/aged ◆3° burn < 2% BSA
Moderate burn injury	◆2° burn 16-25% BSA in adults ◆2° burn 5-20% BSA in children/aged ◆3° burn 2-10% BSA
Major burn injury	◆2° burn > 25% BSA in adults ◆2° burn > 20% BSA in children/aged ◆3° burn > 10% BSA ◆Burns involving the hands, face, eyes, ear feet, or perineum ◆Most patient with inhalation injury, electric injury, concomitant major trauma, or significant pre-existing diseases



The Rule of Nines.

2.10.7 Dental Trauma /Avulsed Tooth/Teeth

Purpose: This protocol can be used for patients who sustained dental trauma. Broken teeth, dentures or partial plates can potentially cause airway obstruction, have high index of suspicion if patient is having any respiratory distress following dental trauma. These should be removed to clear the airway. If a tooth is completely knocked out and is not a primary (baby) tooth, make all possible attempts to locate the tooth. If the tooth can be located, AND the root is not broken (completely intact) follow this protocol to manage the situation.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1
2. Airway Assessment/Management Protocol 2.1.2 (oxygen PRN)
3. Attach cardiac monitor and pulse oximeter PRN.
4. Transport to designated hospital.
5. If the avulsed tooth (teeth) can be located, pick it up by the crown and avoid touching the root. Inspect the tooth to make sure it is completely intact (not broken and the entire root of the tooth is intact).
6. Rinse in normal saline (DO NOT rub or scrub) and placed in moistened gauze, but there is no need to cool or ice. Transport with patient to the hospital. As an alternative, if re-implantation is NOT feasible and the patient is a fully conscious adult, then the best procedure is to place the tooth in the mouth, either under the tongue or in the buccal vestibule. This is not recommended for children
7. Re-implantation is recommended if possible at the scene as time is of the essence. The sooner an avulsed tooth can be re-inserted into its original socket, the greater the chance the tooth will survive. The following guidelines pertain to re-implantation at the scene:
    a. Applicable only for permanent teeth (i.e., with patients over 6.5 years of age)
    b. Applicable when only one or two teeth are cleanly avulsed and the entire root is present
    c. Applicable only to anterior teeth (front 6, upper and lower)
    d. The patient must be conscious, cooperative, and not under the influence of alcohol or drugs.
    e. Should be attempted within the first 30 minutes; the sooner, the greater success rate
    f. Have the patient rinse his/her mouth with saline and spit. Do this several times to rinse the oral cavity.
    g. Rinse the tooth with saline (do not scrub), gently reposition it into the original socket and in as best anatomical position as possible (as even with the adjacent teeth as possible).
    h. Do not force reimplantation. Gentle insertion is all that is necessary. Slight incorrect positioning can be corrected later.

i. Roll a piece of gauze and place between the patient's teeth. Ask the patient to lightly bite down to hold the re-positioned tooth in place with the rolled gauze.

ALS LEVEL 1: PARAMEDIC ONLY

1. Chances are this patient will not need IV fluids. Pain meds can be given IM however at paramedic's discretion, IV access can be established.
2. If this is isolated dental trauma with no signs of head injury, c-spine injury, or airway compromise, you may give one of the following:
   a. **Morphine** 2mg increments IV up to 10 mg or **Morphine** 5mg IM
   b. **Fentanyl** 50 – 100 mcg IV or IM,

ALS LEVEL 2: MEDICAL CONTROL

1. Notify medical control or medical director if any problems and/or questions

2.10.8 Sexual Assault

Purpose: This protocol is to be used for patients who are alleged victims of sexual assault. Treat patient with dignity. Be careful what and how you document. Avoid comments that may be construed as fact by an attorney but for which you have no proof. For example don't write; "patient sustained a large wound on her leg that occurred during the rape". Unless you were there and witnessed the incident, you cannot say for a fact that the wound occurred as the result of the rape. This also implies that you know for a fact that a rape occurred. It is better to use statements such as "the alleged rape" or "the patient states she was raped". Attorneys will back you into a corner and discredit your whole testimony if you make such statements.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1
2. Airway Assessment/Management Protocol 2.1.2. If indicated Oxygen via nasal cannula @ 2 - 4 LPM to maintain pulse ox ≥ 94% (non-rebreather @15 LPM if SpO_2 < 90%).
3. Attach cardiac monitor and pulse oximeter if indicated
4. Reassure patient and provide emotional support.
5. Perform secondary survey.
6. Treat all injuries appropriately, preferably with a relative present.
7. Protect the scene and preserve evidence. Do not allow the patient to bathe, change clothes, go to the bathroom, or douche. Do not allow patient to place any potential evidence in plastic bags.
8. Notify police if not already informed.
9. Transport to hospital that is equipped to perform sexual assault examinations.

ALS LEVEL 1: PARAMEDIC ONLY

1. Unless patient has serious injuries and/or is hemodynamically unstable, no ALS Level 1 needed
2. Initiate IV only if indicated by seriousness of injury

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director for any questions or problems.

2.10.9 Taser / Stun Device Protocol

Purpose: This protocol if for patients who have been injured by a taser, stun gun, or similar incapacitating device.

DEFINITIONS:

Taser Device - means any device which is powered by electrical charging units, such as batteries, and which fires one or several barbs attached to a length of wire and which, upon hitting a human, can send out a current capable of disrupting a person's nervous system in such a manner as to render him/her incapable of normal functioning.

Stun Device – means any weapon or other device (except taser devices), which emits an electric or current, intended to temporarily disable a person.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Assessment Protocol 2.1.1
2. Approach scene/patient only when scene is secure per law enforcement
3. Be sure wires are snipped from barb before evaluating/treating patient.
4. Airway Assessment Protocol 2.1.2. (Assess/treat the ABC's as per any medical/trauma call). C-spine precautions if indicated
5. Evaluate and treat the patient for any trauma that may have resulted from a fall due to the taser/stun gun incident.
6. If patient has a specific complaint, evaluate/treat the area of concern according to protocol, (i.e. chest pain, shortness of breath, etc).
7. Management of the barbs:
    a. Any penetrating barb in the skin above the clavicles or in the genitalia will be stabilized and transported to the hospital for removal.
    b. Barbs penetrating the skin other than above the clavicles or the genitalia can be removed at the scene if the paramedic or EMT is comfortable doing so, otherwise, stabilized for removal at the hospital. To remove barbs, simply stabilize the skin on either side of the barb and pull straight out. Cleanse area with alcohol or Betadine afterwards.

8. Decision to transport to hospital:
    a. Any patient who sustained obvious trauma from the incident will be transported.
    b. Any patient with any medical complaint following incident will be transported (i.e. chest pain, shortness of breath, nausea, headache, muscle cramps, etc.)
    c. Any patient with an altered mental status resulting from the taser/stun gun incident or perhaps under the influence of any mind altering substance (which may have led to the incident) will be transported.
    d. Any patient who request transport for evaluation for any reason, will be transported.
    e. Any patient who refuses to be transported to the hospital for further evaluation must meet the dry run/refusal criteria.
9. Law enforcement personnel should accompany paramedic for high risk (violent, dangerous) patients.

ALS LEVEL 1: PARAMEDIC ONLY

1. None unless significant trauma then refer to appropriate protocol.

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any concerns or questions.

2.10.10 General Crush Injury

Purpose:

This protocol should be considered when the patient has been **entrapped at the scene for more than two hours,** one or more full extremities trapped by an object capable of causing a crush injury, including machinery, dirt, rock, and rubble or there is entrapment of patient with history of previous cardiac or renal disease or dialysis treatment.

Crush *Syndrome* should be suspected in patients with entrapment/compression of greater than one hour, especially when a large muscle mass/group is involved. Treatment of the patient at risk for Crush Syndrome ***should begin before the patient is removed when practical.*** After the skeletal muscle injury occurs and the crushing object is removed, the accumulation of cellular toxins (myoglobin) and electrolytes (potassium) are released into the circulation and may cause lethal cardiac arrhythmias, acute renal failure and sudden death. The systemic effects of Acute Crush Syndrome only occur after the object is removed and the injured extremity is re-perfused. Removal of the object causes a massive fluid shift into the injured muscle, resulting in acute hypovolemia and hypotension.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1
2. Airway Assessment Protocol 2.1.2. Oxygen via nasal cannula @2 - 4 LPM to maintain pulse ox at ≥ 94% (non-rebreather @15 LPM if SpO_2 < 90%) (environmental considerations, dust)
3. Spinal immobilization if applicable
4. Confirm entrapment of 1 or more extremities
5. Complete trauma assessment to evaluate for other injuries and treat immediate life threats immediately
6. Hemorrhage control, may require Tourniquet (see Tourniquet Protocol 4.42)
7. Place on Cardiac Monitor and pulse oximeter. Take vitals
8. If the extremity is reachable, check for decreased sensation, motor function, skin color changes and diminished distal pulses
9. Rapid transport once extricated

ALS LEVEL 1: PARAMEDIC ONLY

PRE-EXTRICATION;

1. Establish two large bore IVs of NS (or LR). 2 liters NS bolus, followed by 500 ml/hr (limit fluid bolus for pediatric (20 ml/kg) and patients with history of cardiac or renal dysfunction
2. Pain control per Pain Protocol 2.1.5. **Fentanyl** is preferred to **Morphine**.
    a. **Fentanyl** 50 – 100 mcg IV or IM
    b. **Morphine** 4 mg initial then 2 mg increments prn up to 10 mg
3. IMMEDIATELY PRIOR TO EXTRICATION; Give **Sodium Bicarbonate** 1 mEq/kg up to 100 mEq IVP
4. Extrication

POST-EXTRICATION

5. Continue cardiac monitoring and assess for hyperkalemia; i.e. widening of QRS (>0.12 seconds) and peak T waves, hypotension
6. If hyperkalemic changes on monitor, give; **Calcium Chloride** 1 gm IV slow (over 5 minutes)
7. Give an **Albuterol** (only) Neb 2.5 mg
8. Dress/splint wound/extremity
9. Call Trauma Alert if criteria are met

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director for any questions or problems.

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2.11
Adults
With Special Health Care Needs

2.11 Adults with Special Healthcare Needs

Overview: These protocols cover specific types of special healthcare needs in adult patients. Adults with special healthcare needs are those who have or are at risk for chronic physical, developmental, behavioral, and emotional conditions that necessitate use of health and related services of a type or amount not usually required by typical adults.

The general approach to adults with special healthcare needs includes the following:

1. Priority is given to ABCs.
2. Do not be overwhelmed by the machines
3. Listen to the caregiver.
4. If a nurse is present, rely on their judgment.
5. Remember…the patient's cognitive level of function may be altered.
6. Assume that the patient can understand exactly what you say.
7. Bring all medications and equipment to the hospital.

Obtaining a history includes asking the parent/caregiver the following:

1. Patient's normal vital signs
2. Patient's actual weight.
3. Developmental level of the patient.
4. Patient's allergies- include latex.
5. Pertinent medications/therapies.

2.11.1 Home Mechanical Ventilators

Purpose: This protocol is for patients who are on home ventilators. Home mechanical ventilators may be indicated for chronically ill adult with abnormal respiratory drive, severe chronic lung disease, or severe neuromuscular weakness. Some patients require continuous mechanical ventilation, while others only require intermittent support during sleep or acute illness. Home ventilators may either be volume limited or pressure limited. All are equipped with alarms. Types of ventilator alarms:

- Low pressure or apnea: May be caused by a loose or disconnected circuit or an air leak in the circuit or at the tracheostoma, resulting in inadequate ventilation.
- Low power: caused by a depleted battery.
- High pressure: can be caused by a plugged or obstructed airway or circuit tubing, by coughing, or by bronchospasm.
- Setting error: is caused by ventilator setting outside the capacity of the equipment.
- Power switchover: occurs when the unit switches from alternating-current power to the internal battery.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1
2. Airway Assessment/Management Protocol 2.1.2. If ventilator-dependant patient is in respiratory distress and the cause is not easily ascertained and corrected, remove the ventilator and provide assisted manual ventilations with a bag-valve device.
3. Suction PRN
4. Attach cardiac monitor and pulse oximeter if indicated
5. Consider need for other protocols

ALS LEVEL 1: PARAMEDIC ONLY

1. None

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director for any problems or concerns.

2.11.2 Tracheostomy

Purpose: Tracheostomies are indicated for long-term ventilatory support, to bypass an upper airway obstruction, and to aid in the removal of secretions. Tracheostomies come in a variety of sizes and can be either single lumen or double lumen. Special attachments include: tracheostomy nose (filtration device), tracheostomy collar (for oxygen or humidification), and Passy-Muir valve (speaker valve).

Signs of tracheostomy tube obstruction:

- Excess secretions.
- No chest wall movement.
- Cyanosis.
- Accessory muscle use.
- No chest wall rise with bag-valve ventilations.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1
2. Airway Assessment/Management Protocol 2.1.2. If obstruction is present, inject 1-3 ml of normal saline into the tracheostomy tube and suction PRN.
3. If unable to clear obstruction by suctioning, remove tracheostomy tube and insert new tube (same size or one size smaller). DO NOT FORCE TUBE.
4. If unable to insert new tracheostomy tube or if unavailable, insert endotracheal tube of similar size into stoma and ventilate with bag-valve-device PRN.
5. If unable to insert endotracheal tube, ventilate with bag-valve-mask over stoma or over patient's mouth while covering stoma PRN.
6. Attach cardiac monitor and pulse oximeter if indicated.
7. Consider need for other protocols.

ALS LEVEL 1: PARAMEDIC ONLY

1. None

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director for any problems or concerns

2.11.3 Central Venous Lines

Purpose: Central venous lines are indicated for administration of medications, delivery of chemotherapy, nutritional support, infusion of blood products, and blood draws. Types of central venous lines include: Broviac/Hickman, Port-a-cath/Med-a-port, and percutaneous intravenous catheters (PIC). Central venous line emergencies include: catheter coming completely out, bleeding at the site, catheter broken in half, blood embolus, thrombus, air embolus, and internal bleeding. **Use of SUB-Q ports require special training and should not be used for IV access.**

Signs of blood embolus, thrombus, air embolus and internal bleeding:

- Chest pain
- Cyanosis
- Dyspnea
- Shock

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient Assessment Protocol 2.1.1
2. Airway Assessment/Management Protocol 2.1.2. If indicated Oxygen via nasal cannula @ 2 - 4 LPM to maintain pulse ox at ≥ equal to 94% (non-rebreather @15 LPM if SpO_2 < 90%).
3. Attach cardiac monitor and pulse oximeter if indicated
4. If catheter is completely out, apply direct pressure.
5. If there is bleeding at the site, apply direct pressure.
6. If catheter is broken in half, clamp end of remaining tube.
7. If suspect blood embolus, thrombus, or internal bleeding: clamp line.
8. If suspected air embolism, clamp line and place patient on left side.
9. Consider need for other protocols

ALS LEVEL 1: PARAMEDIC ONLY

1 CVP and PIC lines may be used for emergency IV access under sterile conditions

2 If central ports need accessing for emergencies, refer to (Protocol **4.42 Indwelling Vascular Catheter**)

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or medical director for any problems or concerns

2.11.4 Feeding Tubes

Purpose: Feeding tubes are indicated for administration of nutritional supplements and in patients that have an inability to swallow. Types of feeding tubes include: nasogastric tube (temporary) and gastrostomy tubes (G tube). Types of G tubes include those that are surgically placed, percutaneous endoscopic gastrostomy tubes, PEG tubes, and jejunal tubes (J-tube). Complications include: leaks, bleeding around the site, and displacement of the tube.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care 2.1.3
2. If catheter is completely out, cover site with Vaseline gauze and apply direct pressure to site.
3. If there is bleeding at the site, apply direct pressure.

ALS LEVEL 1: PARAMEDIC ONLY

1. None

ALS LEVEL 2: MEDICAL CONTROL

1. Contact medical control or the medical director for any questions or concerns.

2.11.5 Blood Product Administration

Purpose: To monitor and maintain a patient with an already established blood or blood product transfussion during an interfacility transport.

Procedure:

ALS LEVEL 1: PARAMEDIC ONLY

A. All blood products to be infused must be initiated by the transferring facility. This protocol does not authorize the paramedic to start, hang or otherwise initiate the infusion of blood products.

B. Before accepting responsibility for the patient, confirm together with a nurse or physician from the transferring facility that the name on the patient's armband is the same as the name on the unit(s) of blood which is(are) infusing. The patient must have an armband, no exceptions.

C. Obtain a written order from the transferring physician as to the rate of infusion, the total amount to be infused during transport of the patient. This must be attached to the Patient care reportand must be delivered to the Recieving facility.

D. Vital signs, including body temperature, must be recorded prior to the transport and every ten minutes during transport, until arrival at the receiving facility.

E. Patient Monitoring – In addition to vital signs monitoring, the patient should be assessed on an ongoing basis for:

1. Signs and symptoms of adverse reaction to the infusion (hives, rash, rigor, chills, difficulty breathing, etc).
2. Correct rate of flow
3. Any pain or swelling at/around the IV site
4. an increase of more than 1° C, or 1.8° F above the patient's initial temperature, indicates a febrile response.

F. If the patient develops any sign of allergy/sensitivity reaction, including; chills, fever (an increase of more than 1° C, or 1.8° F above the patient's initial temperature), chest pain, flank pain, hives, wheezing, or the patient begins showing signs of shock; then the following actions should be initiated immediately:

1. The infusion of blood products must be immediately stopped and the blood administration tubing removed. The tubing, the blood container, and any unused blood must be saved for delivery to the receiving facility.
2. A 0.9 Sodiun Chloride infusion should be initiated and fluid should be administered as indicated in the shock protocol if shock is present.
3. Anaphylactic reactions (hives, wheezing, and shock without fever) should be treated as indicated in the Anaphylaxis protocol.
4. Hemolytic reactions (fever, chills, chest pain, flank pain, and/or shock) may require a diuretic in addition to large amounts of fluid to maintain intravascular volume. Treat shock as indicated in the Shock Protocol and contact TMH Medical Control for orders regarding diuretic administration in hemolytic reactions.

G. Document all observed signs and symptoms on the PCR and include any interventions or actions taken as well as the patients' response to those actions.

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3. Pediatric Protocols

3.7 Pediatric Other Medical Emergencies

- 3.7.1 Allergic Reaction/ Anaphylaxis
- 3.7.2 Diabetic Emergencies
- 3.7.3 Non-Traumatic Abdominal Pain
- 3.7.4 Non-Traumatic Chest Pain
- 3.7.5 Violent and/or Impaired Patient
- 3.7.6 Suspected Child Abuse
- 3.7.7 Sickle Cell Anemia
- 3.7.8 Pediatric Fever
- 3.7.9 Peds Hyperkalemia

3.8 Pediatric Environmental Emergencies

- 3.8.1 Near Drowning
- 3.8.2 Heat Related Emergencies
- 3.8.3 Cold Related Emergencies
- 3.8.4 Barotraumas / Decompression Illness- Dive Injuries
- 3.8.5 Electrical Emergencies

3.9 Pediatric Trauma Emergencies

- 3.9.1 Head and Spine Injuries
- 3.9.2 Eye Injuries
- 3.9.3 Chest Injuries
- 3.9.4 Abdomino-Pelvic Injuries
- 3.9.5 Extremity Injuries
- 3.9.6 Traumatic Arrest
- 3.9.7 Burn Injuries

3.10 Pediatric with Special Healthcare Needs

- 3.10.1 Home Mechanical Ventilators
- 3.10.2 Tracheostomy
- 3.10.3 Central Venous Lines
- 3.10.4 Feeding Tubes

Pediatric Protocols Overview

3.1 Pediatric Initial Assessment and Management

Introduction:

Protocols in Section 3.1 are designed to guide the EMT or paramedic in his or her initial approach to assessment and management of pediatric patients. The Basic Level care is specified as EMT and Paramedic (BLS) and Level 1 is Paramedic only (ALS). ALS Level 2 designates medical control orders.

Protocol 3.1.1 Initial Assessment should be used on all pediatric patients for initial assessment. During this assessment, if the paramedic determines that there is a need for airway management, Protocol 3.1.2 Airway Management should be used for the management of the pediatric airway. These protocols are frequently referred to by other protocols, which may or may not override them in recommending more specific therapy.

Protocol 3.1.3 Medical Supportive Care presents the basic components of preparation for transport of medical patients. Due to the significant differences in priorities and packaging in the pre-hospital care of trauma and hypovolemia cases, a separate Trauma Supportive Care protocol has been developed. After following Protocol 3.1.1 Initial Assessment, this Medical Supportive Care protocol may be the only protocol used in medical emergency situations where a specific diagnostic impression and choice of additional protocol(s) cannot be made. Judgment must be used in determining whether patients require ALS or BLS level care. This protocol is frequently referred to by other protocols, which may or may not override it in recommending more specific therapy.

Protocol 3.1.4 Trauma Supportive Care presents the basic components of preparation for transport of trauma patients. Due to the significant differences in priorities and packaging in the pre-hospital care of medical cases, a separate Medical Supportive Care protocol has been developed. After following Protocol 3.1.1, this Trauma Supportive Care protocol may be the only protocol used in trauma or hypovolemia situations where a specific diagnostic impression and choice of additional protocol(s) cannot be made. Judgment must be used in determining whether patients require ALS or BLS level care. This protocol is frequently referred to by other protocols, which may or may not override it in recommending more specific therapy.

Paramedics only for pain management should use protocol 3.1.5.

Overview of Evaluating and Managing Pediatric Emergencies:

1. Remember that children are not small adults. Treatments vary as do drug dosages and fluid administration rates.
2. Cardiac arrest in children is not a sudden event. It is almost always due to a respiratory problem, which leads to hypoxia, bradycardia, and eventually asystole. Ventricular fibrillation is a rare event in children. Initial treatment should be directed at establishment of an airway, administration of supplemental oxygen, and mechanical ventilation.
3. EOAs, EGTAs, PTL airways, and esophageal combitubes should not be used in children. The preferred method of airway management is endotracheal intubation. Demand valves should not be used in children because of the tendency to cause barotrauma.
4. The intraosseous route of fluid and medication administration is available in children less than 6 years of age.
5. Blood pressure is a late sign of shock in children. Instead, you should evaluate end-organ perfusion.

Anticipating Cardiopulmonary Arrest

All sick children should undergo a rapid cardiopulmonary assessment. The goal is to answer the question, ***"Does this child have pulmonary or circulatory failure that may lead to cardiopulmonary arrest?"*** Recognition of the physiologically unstable infant is made by physical examination alone. Children who should receive the rapid cardiopulmonary assessment include those with the following conditions.

- Respiratory rate greater than 60
- Heart rate greater than 180 or less than 80 (under 5 years)
- Heart rate greater than 180 or less than 60 (over 5 years)
- Respiratory distress
- Trauma
- Burns
- Cyanosis
- Altered level of consciousness
- Seizures
- Fever with petechiae (small skin hemorrhages)

Rapid Cardiopulmonary Assessment

The rapid cardiopulmonary assessment is designed to assist you in recognizing respiratory failure and shock, thus anticipating cardiopulmonary arrest. The rapid cardiopulmonary assessment follows the new basic ABCs (or CAB) of CPR.

Airway Patency

Inspect the airway and ask yourself the following questions.

- Is the airway patent?
- Is it maintainable with head positioning, suctioning, or airway adjuncts?
- Is the airway unmaintainable? If so, what action is required?

(Endotracheal intubation, removal of a foreign body, and so on)

Breathing

Evaluation of breathing includes assessment of the following conditions.

- Respiratory rate. Tachypnea is often the first manifestation of respiratory distress in infants. An infant breathing at a rapid rate will eventually tire. Thus, a decreasing respiratory rate is not necessarily a sign of improvement. A slow respiratory rate in an acutely ill infant or child is an ominous sign.
- Air entry. Observing for chest rise, breath sounds, stridor, or wheezing can assess the quality of air entry.
- Respiratory mechanics. Nasal flaring and use of the accessory respiratory muscles is evidence of increased work of breathing in the infant and child.
- Color. Cyanosis is a fairly late sign of respiratory failure and is most frequently seen in the mucous membranes of the mouth and the nail beds. Cyanosis of the extremities alone is more likely due to circulatory failure (shock) than respiratory failure.

Circulation

The cardiovascular assessment consists of the following procedures.

- Heart rate. Infants develop sinus tachycardia in response to stress. Thus, any tachycardia in an infant or child requires further evaluation to determine the cause. Bradycardia in a distressed infant or child may indicate hypoxia and is an ominous sign of impending cardiac arrest.
- Blood pressure. Hypotension is a late and often sudden sign of cardiovascular decompensation. Even mild hypotension should be taken

seriously and treated quickly and vigorously, since cardiopulmonary arrest is imminent.

- Peripheral circulation. The presence of pulses is a good indicator of the adequacy of end-organ perfusion. The pulse pressure (the difference between the systolic and diastolic blood pressure) narrows as shock develops. Loss of central pulses is an ominous sign.
- End-organ perfusion. The end-organ perfusion is most evident in the skin, kidneys, and brain. Decreased perfusion of the skin is an early sign of shock. A capillary refill time of greater than 2 seconds is indicative of low cardiac output. Impairment of brain perfusion is usually evidenced by a change in mental status. The child may become confused or lethargic. Seizures may occur. Failure of the child to recognize the parents' faces is often an ominous sign. Urine output is directly related to kidney perfusion. Normal urine output is 1-2 ml/kg/hr. urine flow of less than 1 ml/kg/hr is an indicator of poor renal perfusion.

The rapid cardiopulmonary assessment should be repeated throughout initial assessment and patient transport. This will help you determine whether the patient's condition is deteriorating or improving. Any decompensation or change in the patient's status should be immediately treated.

3.1.1 Initial Assessment

Purpose: The initial assessment of the pediatric patient will vary with the age of the patient. However, there are some initial components of assessment that are consistent with all patients, regardless of age. The paramedic or EMT should follow the appropriate approach to patient assessment with respect to the patient's age. In addition to the patient, the parents or caregiver may be needed to gain information needed for a complete assessment of the patient.

Procedure:

Basic Level: EMT and PARAMEDIC

1. **Scene Size-up.**
    - A. Review of Dispatch Information.
    - B. Assess Need for Body Substance Isolation.
    - C. Assessment of Scene Safety.
    - D. Determine Mechanism of Injury.
    - E. Determine Number and Location of Patients.
    - F. Determine Need for Additional Resources.
    - G. Observe Environment of Pediatric Patient.
2. **Pediatric Assessment Triangle - Rapid Cardiopulmonary Assessment.**
    - A. Appearance.
        1. Alertness.
        2. Distractibility.
        3. Consolability.
        4. Eye Contact.
        5. Speech/Cry.
        6. Spontaneous motor activity.
        7. Color.
    - B. Work of Breathing.
        1. Appearance (as above).
        2. Use of accessory muscles.
            - a. Intercostal and/or supraclavicular retractions.
            - b. Diaphragmatic breathing (see-saw type breathing).
        3. Respiratory rate.
        4. Tidal volume (chest expansion).
        5. Other signs of respiratory distress.
            - a. Nasal flaring.
            - b. Grunting.
            - c. Cyanosis.

C. Circulation to Skin.
    1. Strength of pulses (central vs. peripheral).
    2. Color and temperature of extremities (central vs. peripheral).
    3. Capillary refill time.
    4. Pulse rate.
    5. Blood pressure (may be difficult to assess in infants).

3. **Initial Assessment.**
    A. Assess Airway, C-Spine and Initial Level of Consciousness (AVPU).
    B. Assess Breathing.
    C. Assess Circulation and Presence of Hemorrhage.
    D. Assess Disability - Movement of Extremities.
    E. Expose and Examine Head, Neck, Chest, Abdomen, and Pelvis (check back when patient is rolled on side).
    F. Identify Priority Patients.
4. **Initial Management** (see Pediatric Protocol 3.1.3 - Medical Supportive Care or 3.1.4 -Trauma Supportive Care).
5. **Secondary Assessment.**
    A. Conduct a Toe-to-Head Survey.
    B. Neurological Assessment.
        1. Pupillary Response.
        2. Pediatric Glasgow Coma Score.
    C. Repeat Assessment Triangle - Rapid Cardiopulmonary Assessment (as above).
    D. Obtain a Medical History.
        1. S - Symptoms - Assessment of Chief Complaint.
        2. A - Allergies.
        3. M - Medications.
        4. P - Past Medical History.
        5. L - Last Oral Intake.
        6. E - Events Leading to Illness or Injury.
6. **Other Assessment Techniques.**
    A. Cardiac Monitoring.
    B. Glucose Determination
    C. Pulse Oximetry

3.1.2 Airway Management

Purpose: Airway assessment and management is the most important and first order of business when patient contact is made (immediate removal from unsafe scene may on occasion trump airway management). An algorithm for general airway assessment/management provides a general overview and road map for the EMT/Paramedic to follow if needed. This algorithm will in turn direct the EMT/Paramedic to either a Non-breathing Airway Protocol or a Breathing Patient Airway Protocol. Once the airway is controlled/secured, attention can be given to the other medical/trauma problems and care directed according to the appropriate protocol.

NOTE: New 2010 ACLS guidelines recommend titrating the amount of oxygen delivered to maintain pulse ox > 94%. If this can be done via nasal cannula then it is not necessary to use a 100% NRM.

Procedure:

Basic Level: EMT and PARAMEDIC

1. Initial Assessment Protocol 3.1.1.
2. **If spontaneous breathing is present without compromise**:
    - A. Monitor breathing during transport.
    - B. Administer oxygen PRN (Oxygen should only be administered and titrated to the patient that shows signs of respiratory compromise and/or is unable to maintain $SpO_2 \geq 94\%$).
        1. Infants via infant mask @ 2-4 L/min.
        2. Small child (1-8 years) via pediatric nasal cannula @ 2 – 4 L/min or pediatric face mask @ 6-8 L/min.
        3. Older child (9-15 years) via nasal cannula @ 2 – 4 L/min, simple mask @4-6 L/min or non-rebreather mask @ 10-15 L/min.
        4. If mask is not tolerated administer via blow-by method.
3. **If spontaneous breathing is present with compromise:**
    - A. Maintain airway (e.g. modified jaw thrust)
    - B. Suction PRN.
    - C. Administer oxygen and titrate to pulse ox of > 94%.
        1. Infants via infant mask @ 2-4 L/min.
        2. Small child (1-8 years) via via pediatric nasal cannula @ 2 – 4 L/min or pediatric mask @ 6-8 L/min.
        3. Older child (9-15 years) via nasal cannula @ 2 – 4 L/min, simple mask @4-6 L/min or non-rebreather mask @ 10-15 L/min.
        4. If mask is not tolerated administer via blow-by method.
    - D. If unable to maintain airway, insert oropharyngeal or

nasopharyngeal airway PRN.
E. Assist ventilations with BVM PRN.
F. Pulse oximeter, as soon as possible.

4. **If spontaneous breathing is absent or markedly compromised**:
A. Maintain airway (e.g. modified jaw thrust).
B. Suction PRN.
C. If unable to maintain airway, insert oropharyngeal or nasopharyngeal airway.
D. Ventilate with BVM @ 20/minute for the child and 30/minute for the infant.
E. Monitor pulse oximetry and capnography or $ETCO_2$ monitoring device, as soon as possible.

ALS Level 1: PARAMEDIC ONLY

A. Perform endotracheal intubation PRN and document the following (The BVM should be initially used for ventilatory support. Endotracheal intubation should only be used when the BVM is ineffective or prolonged ventilatory support is necessary).
(1) Confirm ETT placement (see confirmation protocol).
a. Negative epigastric sounds
b. Positive bilateral breath sounds
(2) Secure ETT with tape and bite block or commercial device.
a. Full spinal immobilization is recommended
(3) Attach end-tidal CO_2 monitoring device.
(4) Monitor SpO_2 with pulse oximeter.
B. Insert Nasogastric tube and decompress stomach PRN (when gross gastric distension is noted, an NG tube should be inserted to relieve gastric distension that may be compromising ventilatory effort).
C. If unable to intubate and patient cannot be adequately ventilated by other means, perform needle cricothyroidotomy and transport rapidly to the hospital.

ALS LEVEL 2: MEDICAL CONTROL

None

3.1.3 MEDICAL SUPPORTIVE CARE

Purpose: This protocol is used in conjunction with the Initial patient Assessment Protocol.

Procedure:

Basic Level: EMT and PARAMEDIC

1. Initial Assessment Protocol 3.1.1.
2. Airway Management Protocol 3.1.2.
3. Attach cardiac monitor and pulse oximeter if indicated
4. Keep patient warm (except if treating heat stroke, cool patient).

ALS LEVEL 1: PARAMEDIC ONLY

1. Monitor ECG PRN.
2. Establish IV (or EZ-IO if critical condition and in need of urgent fluids and/or drugs) of Normal Saline with regular infusion set PRN (a)(b)(c)(d), unless overridden by other specific protocol. EMT and Paramedic
3. Establish hospital contact for notification of incoming patient and obtaining consultation for level 2 orders.

ALS Level 2: MEDICAL CONTROL

1. Contact medical control or medical director if any concerns or any questions.

Note:

(a) Authorized IV routes include all peripheral venous sites. External jugular veins may be utilized when other peripheral site attempts have been unsuccessful or would be inappropriate. A large bore intracath should be used for unstable patients; avoid sites below the diaphragm.
(b) A Buretrol, Volutrol, or Soluset should be used in lieu of a minidrip when starting an IV on patients that are eight years old or less.
(c) An IV lock or medication access point (MAP) may be used in lieu of an IV bag in some patients with intravenous lines, when appropriate
(d) An EMT that has been authorized by their Medical Director may establish and IV.
(e) When unable to establish an IV in the pediatric patient that needs to be resuscitated, an intraosseous line may be used by the paramedic only.

3.1.4 TRAUMA SUPPORTIVE CARE

Purpose: This protocol is used in conjunction with the Initial Assessment Protocol.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Assessment Protocol 3.1.1. Initiate trauma alert, if applicable.
2. Airway Management Protocol 3.1.2. (manually stabilize c-spine PRN).
3. Correct any open wound/sucking chest wound (occlusive dressing).
4. Control hemorrhage
5. Immobilize C-spine and secure patient to backboard or Pediatric Immobilizer PRN (a)
6. Attach cardiac monitor and pulse oximeter if indicated
7. Expedite transport
8. The following steps should not delay transport:
    a. Complete bandaging, splinting and packaging PRN
    b. Establish hospital contact for notification of incoming patient and for the Paramedic to obtain consultation for level 2 orders
9. Keep patient warm.

ALS LEVEL 1: PARAMEDIC ONLY

1. Correct any massive flail segment that causes respiratory compromise (intubate)
2. Correct any tension pneumothorax with needle decompression as per protocol
3. Establish IV (or EZ-IO if critical condition and in need of urgent fluids and/or drugs) of Normal Saline with regular infusion set PRN (b)(c)(d), unless overridden by other specific protocol.
4. Monitor ECG PRN.

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director if any concerns or questions.

Note:
(a) Infants and small children in car seats may be immobilized without removing them from the car seat, as long as it will not interfere with patient assessment and other needed procedures and car seat is intact. If patient is not in car seat on arrival, do not put patient back into car seat to immobilize; use backboard or pediatric immobilizer.
(b) Authorized IV routes include all peripheral venous sites. External jugular vein may be utilized when other peripheral site attempts have been unsuccessful or would be inappropriate. Two IVs using large bore intracath should be used for unstable patients, avoid sites below the diaphragm. Rapid transport should not be delayed to establish an IV.
(c) A Buretrol, Volutrol, or Soluset should be used in lieu of a regular infusion set when starting an IV on patients that are less than eight years old.
(d) When unable to establish an IV in the pediatric patient that needs to be resuscitated, an intraosseous line may be used by the paramedic only.

3.1.5 PAIN MANAGEMENT

Purpose: This protocol is to be used for managing pain in pediatric patients with the following conditions:

- Isolated Extremity Fracture
- Acute back strain
- Soft tissue injuries, burns, bites and stings.
- Discomfort related to attached devices or inserted tubes such as a foley catheter, NG tube, chest tube, etc. This will apply to intra-facility transfers.

Do not use this protocol if there is multisystem trauma or hemodynamic instability. Keep in mind that severe back pain can sometimes be indicative of a condition that may require emergency surgery such as appendicitis, ruptured or dissecting aneurysm, ruptured ectopic pregnancy, etc. Be sure you do a good abdominal exam on patients complaining of back pain. If any abdominal tenderness is found, do not give pain med until advised by medical control or medical director. If patient has severe enough back pain that you are considering giving pain medication for, be sure the history is consistent with back strain, e.g. lifting heavy material and felt a pull. **DO NOT USE TORADOL ON ANY PATIENT THAT MAY REMOTELY BE GOING TO SURGERY,** e.g. fractured extremities, serious soft tissue injures**.** If you're not sure, call med control for advice. Kidney stone patients may report a history of kidney stones and may or may not have hematuria (blood in urine). Always monitor respiratory status and pulse ox after administration of a narcotic. Intervene as needed to keep pulse ox ≥ 95 %

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3

Isolated Extremity Fracture

The purpose of this procedure is to manage pain associated with isolated extremity fractures not associated with multisystem trauma or hemodynamic instability.

ALS LEVEL 1: PARAMEDIC ONLY

1. Patients should be asked to quantify their pain on an analog pain scale (0=least severe to 10=most severe) or Wong-Baker Faces Scale or Infant Behavior Score (a)(b). This should be documented and used to measure the effectiveness of analgesia.
2. Distal circulation, sensation and movement should be noted and recorded in the injured extremity.

3. The extremity should be immobilized as described in Adult Protocol Extremity Injuries.
4. Extremity fractures should be elevated, if possible, and cold applied.

ALS LEVEL 2: MEDICAL CONTROL

1. If pain persists and systolic BP is adequate (see Appendix - Pediatric Vital Signs), chose one of the following:
   a. **Morphine Sulfate** may be given intravenously in increments every 3 – 5 minutes, titrated to pain to a maximum of 5 mg. Administer at a rate not to exceed 1 mg/min. Pediatric dose:
      < 6 months; 0.05 – 0.2 mg/kg SUB-Q/IM/IV (avoid IM route if possible)
      6 months- 12 yrs; 0.1-0.2 mg/kg IV/IM/SUB-Q.

   b. **Fentanyl (Sublimaze)**
      Pediatric dosage: 1-3 yrs old: 2 – 3 mcg/kg IV
      3 – 12 yrs old: 1 – 2 mcg/kg IV
      >12 yrs old: 0.5 – 1 mcg/kg IV

Acute Back Strain:

This procedure should be used in the isolated back strain where an acute abdominal process is not suspected.

ALS LEVEL 1: PARAMEDIC ONLY

1. Patients should be asked to quantify their pain on an analog pain scale (0=least severe to 10=most severe). This number should be documented and used to measure the effectiveness of analgesia.
2. Secure patient to back board PRN.

ALS Level 2: MEDICAL CONTROL

1. If pain persists and systolic BP is adequate (see Appendix Pediatric Vital Signs), give one of the following:
   - **Morphine Sulfate** may be given intravenously in increments every 3 – 5 minutes, titrated to pain to a maximum of 5 mg. Administer at a rate not to exceed 1 mg/min.
     Pediatric dose:
     < 6 months; 0.05 – 0.2 mg/kg SUB-Q/IM/IV (avoid IM route if possible)
     6 months- 12 yrs; 0.1-0.2 mg/kg IV/IM/SUB-Q.

   - **Fentanyl (Sublimaze)**
     Pediatric dosage: **1-3 yrs old**: 2 – 3 mcg/kg IV

3 – 12 yrs old: 1 – 2 mcg/kg IV
>12 yrs old: 0.5 – 1 mcg/kg IV

- If > 2 years of age, **Ketorolac Tromethamine (Toradol)** may be given 0.5 mg/kg (maximum 15mg) IV or 1 mg/kg (maximum 30 mg) IM

Soft Tissue Injuries, Burns, Bites and Stings

This procedure is used for pain associated with soft tissue injuries, burns, bites and stings not associated with multisystem trauma or hemodynamic instability.

ALS LEVEL 1: PARAMEDIC ONLY

1. Patients should be asked to quantify their pain on an analog pain scale (0=least severe to 10=most severe). This number should be documented and used to measure the effectiveness of analgesia.

ALS Level 2: MEDICAL CONTROL

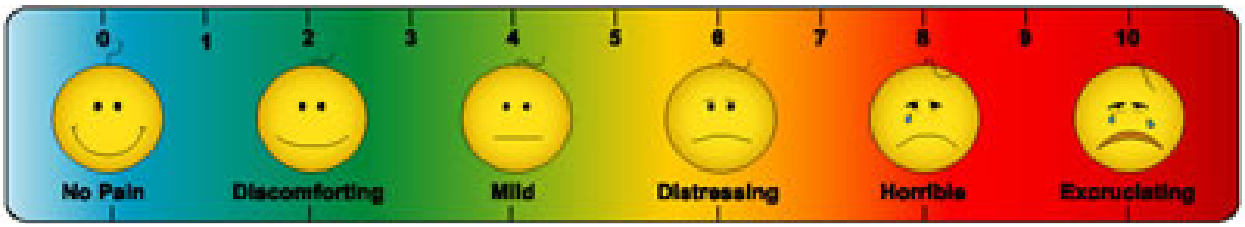
1. If pain persists and systolic BP is adequate (see Appendix Pediatric Vital Signs), give one of the following:
   a. **Morphine Sulfate** may be given intravenously in increments every 3 – 5 minutes, titrated to pain to a maximum of 10 mg. Administer at a rate not to exceed 1 mg/min.
   Pediatric dose:
   < 6 months; 0.05 – 0.2 mg/kg SUB-Q/IM/IV (avoid IM route if possible)
   6 months- 12 yrs; 0.1-0.2 mg/kg IV/IM/SUB-Q.

   b. **Fentanyl (Sublimaze)** Pediatric dose:
   1-3 yrs old: 2 – 3 mcg/kg IV
   3 – 12 yrs old: 1 – 2 mcg/kg IV
   >12 yrs old: 0.5 – 1 mcg/kg IV

   c. If > 2 years of age, **Ketorolac Tromethamine (Toradol)** may be given 0.5 mg/kg (maximum 15mg) IV or 1 mg/kg (maximum 30 mg) IM

Note:

(a) **Wong-Baker Facial Scale**:



(b) Infant Behavior Score

Assessment of Behavior Score:

0 "Relaxed" – Infant comfortable, not distressed

1-2 Some transitory distress caused; returns immediately to "relaxed".

3-4 Transitory distress, likely to respond to consolation

5 Infant experiences pain; if no response to consolation, may require analgesia.

6 "Anguished" and "exaggerated" – infant experiencing acute pain; is unlikely to respond to consolation, will probably benefit from analgesia.

6-8 "Inert"- (no response to traumatic procedure) infant is habituated to pain; will not respond to consolation; systematic pain control by analgesia should be considered.

Infant Behavior Score:

Facial Expression

0 "relaxed"	Smooth muscled; relaxed expression; either in deep sleep or quietly alert.
1 "anxious"	Anxious expressions; frown; REM behind closed lids; wandering gaze; eyes narrowed; lips parted; pursed lip as if "oo" is pronounced.
2 "anguished"	Anguished expression/crumped face; brow bulge; eye-squeeze; nasolabial furrow pronounced; square-stretched mouth; cupped tongue; "silent cry"
3 "inert"	(Only during or immediately after traumatic procedure) no response to trauma; no crying; rigidity; gaze avoidance; fixed/staring gaze; apathy; diminished alertness

Body Movement

0 "relaxed"	Relaxed trunk and limbs; body in tucked position; hands in cupped position or willing to grasp a finger
1 "restless"	Moro reflexes; startles; jerky or uncoordinated movement of limbs; flexion/extension of limbs; attempt to withdraw limb from site of injury.
2 "exaggerated"	Abnormal position of limbs; limb/neck extension; splaying of fingers and/or toes; flailing or thrashing of limbs; arching of back; side swiping/guarding site of injury
3 "inert"	(Only during or immediately after traumatic procedure) no response to trauma; inertia; limpness/rigidity; immobility

Color

0	Normal skin color (depending on skin type)
1	Redness; congestion
2	Pallor; mottling; grey

(c)

Extreme caution should be used with administering Morphine to a patient with an $SpO_2 < 95\%$

(d)

Toradol is contraindicated in the following patients:

1. Potential surgical candidate (e.g. trauma patient)
2. Know allergies to nonsteroidal anti-inflammatory drugs (e.g. aspirin, ibuprofen)
3. History of nasal polyps
4. Angioedema
5. Bronchospastic reactivity (e.g. asthma)
6. Kidney dysfunction

3.2
PEDIATRIC RESPIRATORY EMERGENCIES

3.2 PEDIATRIC RESPIRATORY EMERGENCIES

Overview: Most children requiring urgent intervention have primary respiratory problems. 80-90% of all pediatric cardiac arrests originate in the respiratory system. When the child in respiratory distress can no longer compensate, respiratory failure will be followed by cardiac failure. It is crucial to recognize respiratory distress and dysfunction early, so that cardiopulmonary failure may be prevented. Note that the respiratory system is also used to compensate for the hypoxia and acidosis found in primary circulatory failure. Assessment of the pediatric respiratory system should focus not on clinical status, as reflected by general appearance (adequacy of cerebral oxygenation and ventilation) and work of breathing.

Components of Appearance

1. **Alertness**: How responsive and interactive is the child with a stranger or other changes in the environment? Is the patient restless, agitated or lethargic?
2. **Distractibility**: How readily does a person, object, or sound draw the child's interest or attention? Will the patient play with a toy or new object?
3. **Consolability** Can the patient be comforted by the caregiver or by the paramedic?
4. **Eye Contact** Does the child maintain eye contact with objects or people? Will the patient fix his/her gaze on a face?
5. **Speech/Cry** Is the speech/cry strong and spontaneous? Weak and muffled? Hoarse?
6. **Spontaneous Motor Activity** Is the patient moving and resisting vigorously and spontaneously? Is there good muscle tone and responsiveness?
7. **Color** Is the patient pink? Or is the patient pale, ashen, blue or mottled? Does the skin coloring of the trunk differ from that of the extremities?

Signs of Work of Breathing

1. **Use of Accessory Muscles** Pediatric patients will use accessory muscles early to compensate for deficiencies in perfusion. Intercostal and supraclavicular retractions, as well as diaphragmatic breathing (see-saw) may be very apparent.
2. **Respiratory Rate** Significant finding if >60/min. or <10-20/min.

3. **Tidal Volume** Inspection of chest wall movement may not be adequate for assessment of tidal volume. It is imperative to auscultate bilateral lung sounds to determine adequacy of tidal volume.
4. **Nasal Flaring** Flaring of the external nares indicates respiratory distress.
5. **Grunting** Grunting is an ominous sign associated with severe distress. It is caused by a premature closure of the glottis on exhalation due to atelectasis. The patient is attempting to maintain a positive end expiratory pressure (PEEP) to allow for better lung inflation.
6. **Cyanosis** Cyanosis is usually a late finding and will initially be visible around the mouth and gums (perioral) and nail beds.
7. **Pulse Oximeter** SpO_2 <90% is suggestive of respiratory insufficiency.
8. **Lung Sounds** Auscultation of bilateral lungs sounds not only assesses tidal volume but may uncover abnormal sounds (eg. wheezing, stridor, rales).

Specific treatments for the different causes of respiratory distress are outlined in the following protocols. When the paramedic is unsure as to which protocol to follow, he or she should follow the protocols in Section 3.1 and contact medical control for further direction.

References: Dieckmann, RA, et al: Pediatric Education for Paramedics, National PEP Task Force, 1995.

American Heart Association/American Academy of Pediatrics: Textbook of Pediatric Advanced Life Support, Dallas, 1994.

American Heart Association: Guidelines 2000 for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care: Supplement to Circulation 102: 8, 2000.

3.2.1 AIRWAY OBSTRUCTION

Purpose: Causes of upper airway obstruction include the tongue, foreign bodies, swelling of the upper airway due to angio-neurotic edema (see Pediatric Protocol - Allergic Reactions/Anaphylaxis), trauma to the airway, and infections {see Pediatric Protocol - Upper Airway (Stridor - Croup/Epiglottitis)}. Differentiation of the cause of upper airway obstruction is essential to determining the proper treatment.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3
2. If air exchange is inadequate and there is a reasonable suspicion of foreign body airway obstruction (FBAO), apply abdominal thrust (a).
    a. Child:
        i. If conscious, ask, “Are you choking?”
        ii. If patient unable to speak and/or shakes head yes, give abdominal thrust
        iii. Repeat abdominal thrust until effective or patient become unconscious.
        iv. If patient becomes unconscious, perform a tongue-jaw lift, visualize object and perform a finger sweep to remove object. Do not perform blind finger sweep.
        v. Open airway and attempt to ventilate. If still obstructed, reposition airway and try to ventilate again.
        vi. Give 5 abdominal thrusts
        vii. Repeat steps iv through vi twice.
        viii. If still unrelieved, go to ALS Level 1 Treatment.
    b. Infant:
        i. If conscious, determine airway patency
        ii. If patient is unable to move air or has poor air exchange, give 5 back blows between the shoulder blades and then 5 chest thrusts with patient in a head dependent position
        iii. Repeat back blows and chest thrusts until effective or patient becomes unconscious
        iv. If patient becomes unconscious, perform a tongue-jaw lift and look in the mouth for the object. If object can be seen, remove the object.
        v. Open airway and attempt to ventilate; if still obstructed, reposition airway and try to ventilate again.
        vi. Give 5 back blows and 5 chest thrusts, with patient in a head dependent position.
        vii. Repeat steps iv. through vi. twice.

viii. If still unrelieved, go to ALS Level 1 treatment

ALS LEVEL 1: PARAMEDIC ONLY

1. If unable to relieve FBAO, visualize with laryngoscope and extract foreign body with Magill forceps.
2. If obstruction is due to trauma and/or edema, or if uncontrollable bleeding into the airway causes life-threatening ventilatory impairment, perform endotracheal intubation
3. If unable to intubate and patient cannot be adequately ventilated by other means, perform needle cricothyroidotomy.

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director if any concerns or questions.

Note:
(a) If air exchange is adequate with a partial airway obstruction, do not interfere and encourage patient to cough up obstruction. Continue to monitor for adequacy of air exchange. If air exchange becomes inadequate continue with protocol.

3.2.2 UPPER AIRWAY (STRIDOR CROUP / EPIGLOTTITIS)

Purpose: **Stridor** is a high pitched "crowing" sounds caused by restriction of the upper airway. In addition to FBAO (see Pediatric Protocol Airway Obstruction), stridor can be caused by croup and epiglottitis.

Croup (laryngotracheobronchitis) is a viral infection of the upper airway, which causes edema/ inflammation below the larynx and glottis with a resultant narrowing of the lumen of the airway. Croup most often occurs in children 6 months to 4 years of age. The child with croup will have stridor, as well as, a distinctive barking cough and cold symptoms (low-grade fever (100-101 degrees F), with a gradual onset of respiratory distress.

Epiglottitis is an acute infection and inflammation of the epiglottis that potentially is life threatening. Since the availability of Hemophilus influenza, type B (Hib) vaccine, epiglottitis has markedly decreased, yet it may still occur from other bacterial pathogens. Epiglottitis usually occurs in children 4 years of age and older. The child with epiglottitis will present with stridor, as well as, acute respiratory distress, sore throat, pain upon swallowing which causes the distinctive drooling, high grade fever (102-104 degrees F), and may assume the classic tripod position.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3, including pulse oximeter (avoid IVs in these patients) (a).
2. Avoid agitating the child with suspected epiglottitis. Never examine the epiglottis (a).
3. Administer humidified oxygen. If humidified oxygen is unavailable, use nebulized saline (do not force oxygen mask on pediatric patient - use blow-by technique if necessary) (a).

ALS LEVEL 1: PARAMEDIC ONLY

1. None

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director if any concerns or questions.

Note:

(a) Avoid any procedure that will agitate patient.

3.2.3 LOWER AIRWAY (WHEEZING ASTHMA / BRONCHIOLITIS)

Purpose: This protocol for pediatric patients with wheezing. Wheezing is a whistling type breath sound associated with narrowing or spasm of the smaller airways. Wheezing in the child under one year of age is usually the result of **bronchiolitis**, a viral infection of the bronchioles which causes prominent expiratory wheezing, clinically resembling asthma.
Asthma is a chronic inflammatory disease that is triggered by many different factors (e.g. environmental allergens, cold air, exercise, foods, irritants, and certain medications). Asthma has a two-phase response. The first phase is associated with a histamine release, which causes bronchoconstriction and bronchial edema. Early treatment with bronchodilators may reverse the bronchospasm. The second phase consists of inflammation of the bronchioles and additional edema. The second phase will usually not respond to ronchodilators. An anti-inflammatory medication (e.g. corticosteroid) is typically required. Assessment of the asthma patient usually includes a history of asthma with associated medications. The patient will be tachypneic and may have an unproductive cough. Use of accessory muscles is evident and wheezing may be heard, most commonly on expiration. In a severe asthma attack, the patient may not wheeze at all due to a lack of airflow.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3, including pulse oximeter.

ALS LEVEL 1: PARAMEDIC ONLY

1. **Albuterol (Ventolin)** 1 nebulizer treatment (if <1 year or <10 kg, mix 1.25 mg in 1.5 ml of Normal Saline {0.083%}; if >1 year or >10 kg, mix 2.5 mg in 3 ml of Normal Saline {0.083%}). May repeat twice PRN (a).
2. Add **Ipratropium Bromide (Atrovent)** If < 8 years, add 0.25 mg (1.25 ml); if > 8 years, add 0.5 mg (2.5 ml) of Atrovent to first **Albuterol** nebulizer treatment (on first nebulizer treatment only) and flow O_2 at 6-8 L/min.
3. Consider need for assisted ventilation and intubation
4. If respiratory distress is severe, **Epinephrine** (1:1000) 0.01mg/kg IM (if < 8 years, 0.15 mg up to maximum dose of 0.3mg; if > 8 years, maximum dose is 0.3 –0.5 mg).
5. If respiratory distress is severe, give **Methylprednisolone Sodium Succinate (Solu-Medrol)** 2mg/kg IV (Maximum dose 125 mg).

ALS LEVEL 2: MEDICAL CONTROL

1. Repeat **Epinephrine** (1:1000) 0.01 mg/kg IM (if < 8 years, 0.15 mg up to maximum dose of 0.3 mg; if > 8 years, maximum dose is 0.3 –0.5 mg).
2. Call medical control or medical director if any concerns or questions.
3. For severe dyspnea, consider giving **Magnesium Sulfate;** 25 – 40 mg/kg (maximum 2gm) IV (mixed in 50 ml of D5W given over 10 – 20 minutes).

3.3
PEDIATRIC
CARDIAC DYSRHYTHMIAS

3.3 PEDIATRIC CARDIAC DYSRHYTHMIAS

Overview:

Cardiac dysrhythmias in pediatric patients are uncommon and are usually due to noncardiac problems, unless the patient is known to have congenital or acquired cardiac disease. Cardiac arrest is usually the end result of hypoxemia and acidosis resulting from respiratory insufficiency or shock. Therefore, attention should be given initially to support of the respiratory system. Pediatric dysrhythmias can be divided into three categories: slow rhythms, fast rhythms, or no rhythm. The most common dysrhythmia is bradycardia, which is the result of hypoxia or acidosis. Tachycardias can be a compensatory mechanism or a result of a reentry mechanism. Ventricular fibrillation, although rare in pediatrics, is usually the result of hypoxia. Asystole is a terminal event, following prolonged, untreated bradycardia.

"On the basis of the published evidence to date, the Pediatric Advanced Life Support (PALS) Task Force of the International Liaison Committee on Resuscitation (ILCOR) has made the following recommendation (July 2003):

Automated external defibrillators (AEDs) may be used for children 1 to 8 years of age who have no signs of circulation. Ideally the device should deliver a pediatric dose. The arrhythmia detection algorithm used in the device should demonstrate high specificity for pediatric shockable rhythms, i.e., it will not recommend delivery of a shock for nonshockable rhythms (Class IIb)." [1]

1. American Heart Association, National ECC Training Memo, August 15, 2003.

3.3.1 ASYSTOLE

Purpose: This protocol is for pediatric patients found to be in asystole.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3, including pulse oximeter.
2. CPR

ALS LEVEL 1: PARAMEDIC ONLY

1. Check other leads to confirm asystole.
2. Intubate and ventilate @ 20/minute for the child and 30/minute for the infant
3. **Epinephrine**
   First dose: **Epi 1:10,000** 0.01 mg/kg IV/IO initially (maximum 1 mg).
   Second and subsequent doses: **Epi 1:1000** 0.1 mg/kg IV/IO.
   If unable to establish an IV/IO, administer **Epinephrine** (1:1000) 0.1 mg/kg ET (maximum ET is 15 mg). Repeat every 3-5 minutes for duration of pulselessness.
4. Perform glucose test with finger stick. If glucose is below 60 mg/dL, administer: If neonate to infant: 5ml/kg of D10 IV/IO.
   If child <8 years: **D25** 2 ml/kg IV/IO;
   If >8 years: **D50** 1 ml/kg IV/IO (a).
5. For known acidosis or prolonged down time, consider **Sodium Bicarbonate** (8.4% solution) 1 mEq/kg IV/IO (1ml/kg). For infants dilute 8.4% 1:1 with sterile water (not normal saline) to make 4.2% and give 1mEq/kg IV/IO (NOTE: 1mEq = ~ 84 mg Bicarbonate). This reduces the hyperosmolarity of the solution.

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director if any concerns or questions.

Note
(a) To avoid infiltration and resultant tissue necrosis, Dextrose 25% and 50% should be given slow IV with intermittent aspiration of IV line to confirm IV patency followed by saline flush.

3.3.2 BRADYCARDIA

Purpose: Use this protocol for pediatric patients with bradycardia. Causes of symptomatic bradycardia include hypoxemia, hypothermia, head injury, heart block, heart transplant (special situation), and toxin/poison/drug overdose.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3, including pulse oximeter.
2. Assure adequate ventilation and oxygenation.
3. If heart rate is <60/min. in infant or child associated with poor systemic perfusion, start chest compressions

ALS LEVEL 1: PARAMEDIC ONLY

1. **Epinephrine** (1:10,000) 0.01 mg/kg IV/IO (maximum 1 mg) q 3-5 min.
   If unable to establish IV/IO, administer **Epinephrine** (1:1,000) 0.1 mg/kg ET (maximum ET is 10 mg). Repeat every 3-5 minutes at same dose (a).
2. **Atropine** 0.02 mg/kg IV/IO (Minimum single dose 0.1 mg)
   Maximum **single** dose: (child 0.5 mg) (adolescent 1mg)
   Maximum **total** dose: (child 1 mg) (adolescent 2 mg)
   If unable to establish IV/IO, administer **Atropine** 0.04 mg/kg ET (same minimum dose as IV/IO). May repeat Atropine once (a).
3. Identify and treat possible causes.
4. External pacemaker (see Medical Procedure).

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director if any concerns or questions.

Notes

(a) Administer Atropine before Epinephrine for bradycardia due to suspected increased vagal tone or primary AV block.

3.3.3 NARROW COMPLEX TACHYCARDIA

Purpose: Pediatric patients suffering from tachycardia may or may not exhibit symptoms. Narrow complex tachycardia (QRS < 0.08 seconds) is either sinus tachycardia or supraventricular tachycardia. The following rates should be considered:

Sinus tachycardia is greater than normal (see Appendix; Pediatric Vital Signs 7.10) and usually for a child: <180/minute and infant: <220/minute. Rate may vary with sinus tachycardia.

Supraventricular tachycardia is usually >220/minute for infants. If >2 years of age, SVT may be slower (e.g. 180-220/minute). Rate will not vary with SVT.

Wide complex SVTs are rare in children and, therefore, should initially be considered as ventricular in origin, unless proven otherwise (e.g. documented QRS morphology consistent with pre-existing BBB or WPW).

Possible causes of pediatric tachycardia include:

4 H's	4 T's
Hypoxemia	**T**amponade
Hypovolemia	**T**ension pneumothorax
Hyperthermia	**T**oxins
Hyper/hypokalemia and metabolic disorders	**T**hromboembolism

3.3.3a UNSTABLE SINUS TACHYCARDIA (DIMINISHED PERFUSION)

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3.

ALS LEVEL 1: PARAMEDIC ONLY

1. Fluid challenge Normal Saline 20 ml/kg IV.
2. Consider other cause (e.g. 4 H's, 4 T's).

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director if any concerns or questions.

3.3.3b STABLE SVT (Normal perfusion)

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3.

ALS LEVEL 1: PARAMEDIC ONLY

1. Perform 12 lead ECG (see Medical Procedure 4.38).
2. Consider cause (e.g. 4 H's, 4 T's).

ALS LEVEL 2: MEDICAL CONTROL

1. Vagal maneuvers; begin with ice water (see Medical Procedure Vagal maneuvers 4.39).
2. **Adenosine Triphosphate (Adenocard)** 0.1 mg/kg (6 mg max.) rapid IVP followed by 6 ml NS flush.
3. Repeat in 2 minutes, **Adenosine Triphosphate (Adenocard)** 0.2 mg/kg (12 mg max.) rapid IVP followed by 6 ml NS flush.
4. Repeat in 2 minutes, **Adenosine Triphosphate (Adenocard)** 0.2 mg/kg (12 mg max.) rapid IVP followed by 6 ml NS flush.

3.3.3c UNSTABLE SVT (Diminished perfusion)

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3.

ALS LEVEL 1: PARAMEDIC ONLY

1. Consider cause (eg. 4 H's, 4 T's).
2. Consider sinus tachycardia as the underlying, not SVT.
3. If patient is responsive, **Adenosine Triphosphate (Adenocard)** 0.1 mg/kg (6 mg max.) rapid IVP or IOP followed by 6 ml NS flush.
4. If patient is responsive, repeat in 2 minutes, **Adenosine Triphosphate (Adenocard)** 0.2 mg/kg (12 mg max.) rapid IVP followed by 6 ml NS flush.
5. If patient is responsive, repeat in 2 minutes, **Adenosine Triphosphate (Adenocard)** 0.2 mg/kg (12 mg max.) rapid IVP followed by 6 ml NS flush.

ALS LEVEL 2: MEDICAL CONTROL

1. If patient is conscious and aware of situation, consider sedation with one of the following benzodiazepines:
    a. **Lorazapam (Ativan)** 0.05 to 0.1 mg/kg IV, maximum; 1 mg.
    b. **Diazepam (Valium)** 0.1 mg/kg IV/IO.
    c. **Midazolam (Versed)**
    For procedural sedation; ***IV/IO route***;
    6 mo – 5 yr; 0.05 – 0.1 mg/kg IV/IO x 1 repeat q 2 – 3 min prn; max 0.6 mg/kg total
    6 – 12 yr; 0.025 – 0.05 mg/kg IV/IO x 1, repeat q 2 – 2 min prn; max 0.4 mg/kg total
    > 12 yr old: 0.5 – 2 mg IV/IO x 1; may repeat q 2 -3 min prn; max 10 mg

    For procedure sedation: ***IM route***;
    > 6 mo; 0.1 - 0.15 mg/kg IM; max 0.5 mg/kg (use ideal body wt in obese pt)
2. If patient is poorly responsive, synchronized cardioversion
    a. @ 0.5 joule/kg. (or equivalent biphasic energy level) if no response :
    b. synchronized cardioversion @ 1 joule/kg (or equivalent biphasic energy level). If no response:
    c. synchronized cardioversion @ 2 joules/kg (or equivalent biphasic energy level).
3. **Amiodarone** 5 mg/kg IV/IO over 20 minutes.

3.3.4 PULSELESS ELECTRICAL ACTIVITY (PEA)

Purpose: This protocol is used for: electromechanical dissociation (EMD), pseudo-EMD, idioventricular rhythms, bradyasystolic rhythms, post-defibrillation idioventricular rhythms.

Possible causes of pediatric PEA include:

4 H's	4 T's
Hypoxemia	Tamponade
Hypovolemia	Tension pneumothorax
Hypothermia	Toxin/poisons/drugs
Hyper/hypokalemia	Thromboembolisim
And metabolic disorders	

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3
2. CPR.

ALS LEVEL 1: PARAMEDIC ONLY

1. Intubate and ventilate (see Medical Procedure Oraltracheal Intubation4.27).
2. **Epinephrine**
   First dose: **Epi 1:10,000** 0.01 mg/kg IV/IO initially (maximum 1 mg).
   Second and subsequent doses: **Epi 1:1000** 0.1 mg/kg IV/IO. If unable to establish IV/IO, administer **Epi** (1:1000) 0.1 mg/kg ET (maximum ET is 15 mg). Repeat every 3-5 minutes for duration of pulselessness.
3. Consider cause (e.g. 4 H's, 4 T's) and possible treatment options (e.g. glucose) (see specific protocols).
4. Check blood glucose: Below 60 mg/dL, administer:
   a. Neonates: 10% Dextrose: 2-5 ml/kg (0.2-0.5 g/kg)
   b. Infants: 10% Dextrose: 5 ml/kg (0.5 g/kg)
   c. Children < 8 yrs: D25 2 ml/kg IV/IO (0.5 g/kg)
   d. Children > 8 yrs: D50 1 ml/kg IV/IO.
5. Fluid challenge of Normal Saline 20 ml/kg IV/IO.
6. Consider **Sodium Bicarbonate** (8.4%) 1 mEq/kg IV/IO (a).

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director if any concerns or questions.

Note

(a) Sodium Bicarbonate (4.2%) 1 mEq/kg IV/IO should be administered to infants (dilute 8.4% 1:1 with Normal Saline to make 4.2%).

3.3.5 WIDE COMPLEX TACHYCARDIA WITH A PULSE (VENTRICULAR TACHYCARDIA)

STABLE (normal perfusion)

Purpose: This protocol is used in wide complex tachycardia (QRS > 0.08 seconds) with a rate > 150/minute.

Possible causes of pediatric tachycardia include:

4 H's	4 T's
Hypoxemia	Tamponade
Hypovolemia	Tension pneumothorax
Hypothermia	Toxin/poisons/drugs
Hyper/hypokalemia	Thromboembolisim
And metabolic disorders	

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3

ALS LEVEL 1: PARAMEDIC ONLY

1. Consider cause (e.g. 4 H's, 4 T's).
2. Administer one of the following antiarrhythmics:
   a. **Amiodarone** 5 mg/kg IV/IO over 20 minutes.
   b. **Lidocaine** 1% 1 mg/kg IV/IO. Repeat every 5 minutes to a maximum total dose of 3 mg/kg (a)(c). Use if Amiodarone is unavailable.
   c. **Procainamide** 15 mg/kg IV/IO over 30 minutes.

ALS LEVEL 2: MEDICAL CONTROL

1. Use only one antiarrhythmic medication. If rhythm does not convert with maximum dose, treat as unstable (synchronized cardiovert).
2. Call medical control or medical director if any concerns or questions.

Notes

(a) Dilute Lidocaine 2% 1:1 with Normal Saline to make 1%.
(b) If unable to establish IV/IO, administer Lidocaine 3 mg/kg ET. May repeat every 5 minutes up to 6 mg/kg ET.
(c) If Lidocaine suppresses ectopy, start Lidocaine maintenance infusion; Mix 120 mg in 100 ml of D5W (or 60 mg in 50 ml of D5W) and flow at 20-50 mcg/kg/min.

(d) If patient converts rhythm, give Lidocaine 1% 1 mg/kg IV/IO, refer to (a)(b)(c).

3.3.5 WIDE COMPLEX TACHYCARDIAWITH A PULSE (VENTRICULAR TACHYCARDIA)

UNSTABLE (diminished perfusion)

Purpose: This protocol is used in wide complex tachycardia (QRS > 0.08 seconds) with a rate > 150/minute.

Possible causes of pediatric tachycardia include:

4 H's	4 T's
Hypoxemia	Tamponade
Hypovolemia	Tension pneumothorax
Hypothermia	Toxin/poisons/drugs
Hyper/hypokalemia	Thromboembolisim
And metabolic disorders	

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3.

ALS LEVEL 1: PARAMEDIC ONLY

1. Consider cause (e.g. 4 H's, 4 T's).

ALS LEVEL 2: MEDICAL CONTROL

1. If patient is conscious and aware of situation, consider sedation with one of the following benzodiazepines:
   a. **Lorazapam (Ativan)** 0.05 to 0.1 mg/kg IV, maximum; 1 mg.
   b. **Diazepam (Valium)** 0.1 mg/kg IV/IO.
   c. **Midazolam (Versed)**
      IV/IO Route:
      6 mo – 5 yr; 0.05 – 0.1 mg/kg IV/IO x 1 max 0.6 mg/kg total
      6 – 12 yr; 0.025 – 0.05 mg/kg IV//IO x 1, max 0.4 mg/kg total
      > 12 yr old: 0.5 – 2 mg IV/IO x 1; max 10 mg
      IM Route:
      > 6 mo; 0.1 - 0.15 mg/kg IM; max 0.5 mg/kg (use ideal body wt in obese pt)

2. Synchronized cardioversion @ 0.5 joule/kg (or equivalent biphasic energy) (d).
3. Synchronized cardioversion @ 1 joules/kg (or equivalent biphasic energy) (d).

4. Administer one of the following antiarrhythmics:
    a. **Amiodarone** 5 mg/kg IV/IO over 20 minutes.
    b. **Lidocaine** 1% 1 mg/kg IV/IO. Repeat every 5 minutes to a maximum total dose of 3 mg/kg (a)(b)(c).
    c. **Procainamide** 15 mg/kg IV/IO over 30 minutes.
5. Synchronized cardioversion @ 2 joules/kg (or equivalent biphasic energy) (c).
6. Synchronized cardioversion @ 4 joules/kg (or equivalent biphasic energy).

Notes

(a) Dilute Lidocaine 2% 1:1 with Normal Saline to make 1%.
(b) If unable to establish IV/IO, administer Lidocaine 3 mg/kg ET. May repeat every 5 minutes up to 6 mg/kg ET.
(c) If Lidocaine suppresses ectopy, start **Lidocaine** maintenance infusion: Mix 120 mg in 100 ml of D5W (or 60 mg in 50 ml of D5W) and flow at 20-50 mcg/kg/min.
(d) If patient converts rhythm, give **Lidocaine** 1% 1 mg/kg IV/IO, refer to (a)(b)(c).

3.3.6 WIDE COMPLEX TACHYCARDIA WITHOUT A PULSE AND VENTRICULAR FIBRILLATION

Purpose: This protocol if for pediatric patients in V-Fib and V-tach without a pulse.

Consider and Treat Possible Causes

6 Hs	6 Ts
Hypoxia	**T**ablets
Hypovolemia	**T**amponade
Hypothermia	**T**ension pneumothorax
Hypoglycemia	**T**oxins – poisons, drugs
Hypo/hyperkalemia	**T**hrombosis – coronary **(AMI)** – pulmonary **(PE)**
Hydrogen ion **(acidosis)**	**T**rauma

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3.
2. CPR

ALS LEVEL 1: PARAMEDIC ONLY

Defibrillate @ 2 joules/kg x1, followed by 5 cycles (or two minutes) of CPR then check rhythm. If arrhythmia still persists, resume CPR while charging defibrillator.

Check blood glucose: Below 60 mg/dL, administer:

a. Neonates: 10% Dextrose: 2-5 ml/kg (0.2-0.5 g/kg)
b. Infants: 10% Dextrose: 5 ml/kg (0.5 g/kg)
c. Children < 8 yrs: D25 2 ml/kg IV/IO (0.5 g/kg)
d. Children > 8 yrs: D50 1 ml/kg IV/IO.

Defibrillate @ 4 joules/kg x1, followed by 5 cycles (or two minutes) of CPR then check rhythm. If arrhythmia still persists, resume CPR while charging defibrillator.

Epinephrine

First dose: **Epi 1:10,000** 0.01 mg/kg IV/IO initially.
Second and subsequent doses: **Epi 1:1000** 0.1 mg/kg IV/IO.
If unable to establish IV/IO, administer **Epinephrine (1:1000)** 0.1 mg/kg ET, followed by 5 cycles (or two minutes) of CPR if no conversion. Repeat every 3-5 minutes for duration of pulselessness. (a)

Defibrillate @ 4 joules/kg x1, followed by 5 cycles (or two minutes) of CPR then check rhythm. If arrhythmia still persists, resume CPR while charging defibrillator.

Administer one of the following antiarrhythmics:

a. **Amiodarone** 5mg/kg IV/IO (a)

b. **Lidocaine** 1 mg/kg IV/IO (if Amiodarone is unavailable), followed by 5 cycles of CPR if no conversion. Repeat **Lidocaine** 1 mg/kg IV/IO every 3-5 minutes (max. 3 mg/kg). (a)(b)(c)(d)
c. If Torsades de Pointes, **Magnesium Sulfate** 25 – 40 mg/kg (maximum 2gm) IV/IO (mixed in 50 ml of D5W given over 10 – 20 minutes). (a)

Consider and treat possible causes: 6H's and 6T's.
Repeat steps 3 thru 7 for duration of pulselessness.
For prolonged event, give **Sodium Bicarb** 1 mEq/kg initially IV/IO (1ml/kg of 8.4% solution) followed by 0.5 mEq/kg every 10 minutes. In neonates and infants, dilute the 8.4% solution 1:1 with sterile water (not saline) making a 4.2% solutiuon to reduce the hyperosmolarity of the solution. (a)(e)

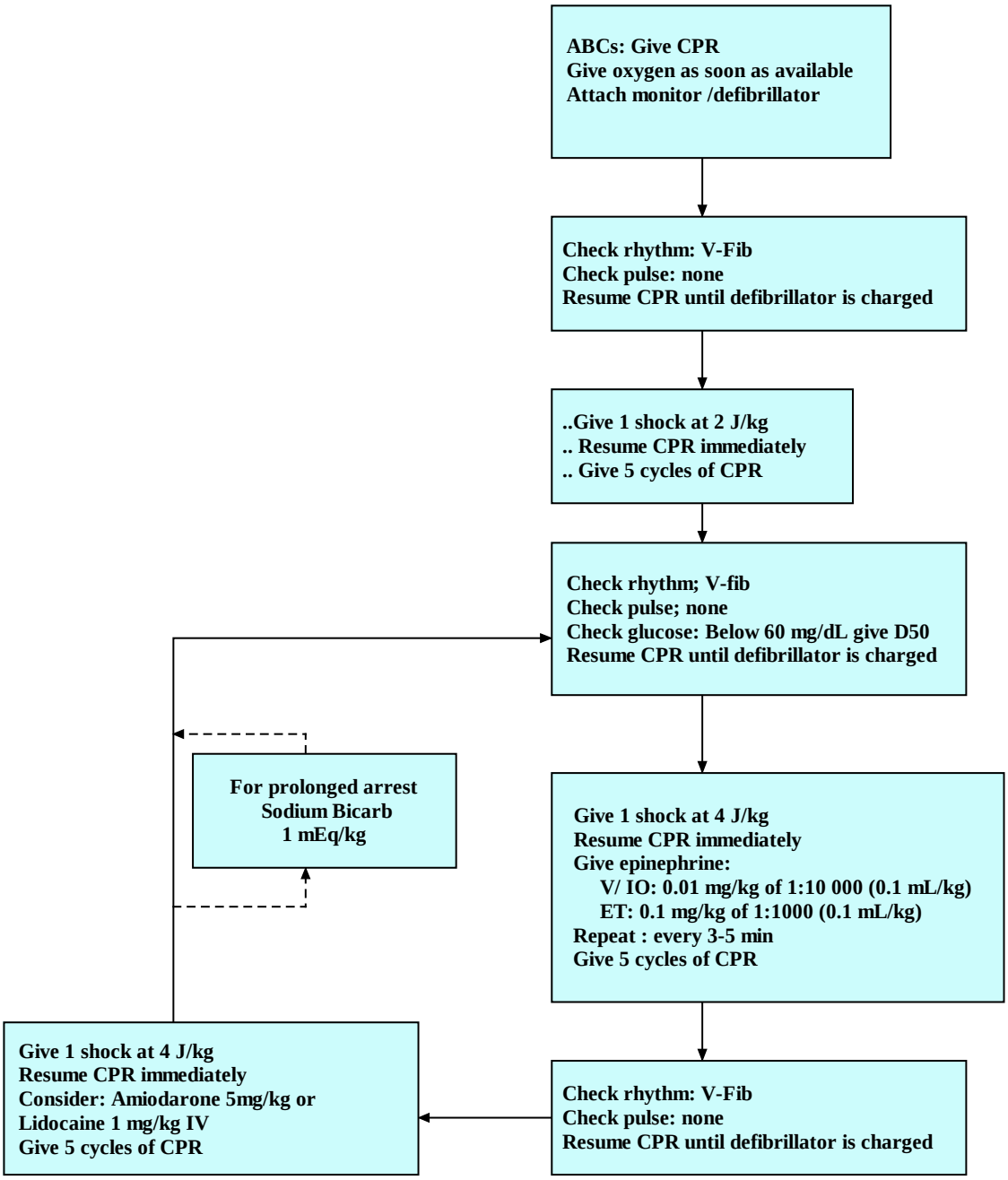
ALS Level 2: MEDICAL CONTROL

1. Consider termination of resuscitation attempt.
2. Call medical control or medical director if any concerns or questions.

Notes:

(a) Defibrillate @ 4 joules/kg after every drug is circulated for 30 seconds.
(b) Dilute Lidocaine 2% 1:1 with Normal Saline to make 1%.
(c) If unable to establish IV/IO, administer Lidocaine 3 mg/kg ET. May repeat every 5 minutes up to 9 mg/kg.
(d) If Lidocaine converts rhythm, start Lidocaine maintenance infusion @ 20-50 mcg/kg/min.
(e) Sodium Bicarbonate (4.2%) 1 mEq/kg IV/IO should be administered to infants (dilute 8.4% 1:1 with Normal Saline to make 4.2%).

Pediatric Ventricular Fibrillation/Pulseless V-Tach



3.4
NEWBORN / INFANT CARDIOPULMONARY ARREST

3.4 NEWBORN / INFANT CARDIOPULMONARY ARREST

Overview:

Infant and newborn cardiopulmonary arrest is usually a result of prolonged poor oxygenation and\or severe circulatory collapse. Newborns should be resuscitated using Pediatric Protocol 3.4.1.Unless there are obvious signs of death (see Administrative Protocol; DNR / RESUSCITATION CONSIDERATIONS / DOA) the infant in cardiopulmonary arrest should be resuscitated using the protocols in Pediatric Protocol 3.3. Some infants may not appear to be salvageable, where the Paramedic determines a resuscitation attempt is warranted for psychological reasons (e.g. parent's peace of mind). Consideration should also be given to SIDS (see Pediatric Protocol 3.4.2).

3.4.1 NEWBORN RESUSCITATION

Purpose: This protocol is to be used for newborns (immediately following delivery) that are in need of resuscitation (all other neonates should be treated as infants, with the exception of Atropine).

Procedure:

BASIC LEVEL: **EMT and PARAMEDIC**

1. Dry and keep baby warm (cover with thermal blanket or dry towel and cover scalp with stocking cap).
2. Position patient to open airway (a).
3. Clear airway - suction mouth and nose with bulb syringe PRN.
   Paramedic Only: If newborn has signs of thick meconium, after suctioning with bulb syringe, intubate and suction trachea (see below)(b).
4. Stimulate baby (rub baby's back).
5. Clamp and cut cord, if not already done. Apply 2 umbilical clamps, 2 inches apart and at least 8 inches from the navel and cut between clamps.
6. Assess skin color, respirations, and heart rate.
7. Ventilate @ 40-60 breaths/minute with 100% oxygen under the following conditions:
   a. Apnea.
   b. Heart rate <100 beats/minute.
   c. Persistent central cyanosis after high-flow oxygen.
8. Perform chest compressions at 120/minute (3:1 ratio, one third of the anterior-posterior diameter of chest in depth), using two thumbs side by side (or superimposed one on top of the other) over the mid-sternum just below the nipple line with the fingers encircling the chest and supporting the back, under the following conditions:
   a. Heart rate <60 beats/minute and not rapidly increasing despite adequate ventilation with 100% oxygen for approximately 30 seconds.

ALS LEVEL 1: PARAMEDIC ONLY

1. Intubate under the following conditions:
   a. Bag-valve-mask ventilation is ineffective (>2 minutes).
   b. Tracheal suctioning is required, especially for thick meconium (b).
   c. Prolonged positive pressure ventilation is needed.

2. **Epinephrine** (1:10,000) 0.01-0.03 mg/kg IV/IO/ET under the following conditions:
    a. Asystole.
    b. Heart rate <60 beats/minute despite adequate ventilation with 100% oxygen and chest compressions.
    c. Repeat every 3-5 minutes, PRN.
3. Fluid challenge Normal Saline 10 ml/kg IV under the following conditions:
    a. Pallor that persists after adequate oxygenation.
    b. Faint pulses with a good heart rate.
    c. Poor response to resuscitation with adequate ventilations.
4. Check blood glucose level on all resuscitations that do not respond to initial therapy. Use heel stick.
    a. If blood glucose is <40 mg/dL, administer D10 2 -5 ml/kg IV/IO (dilute D50 1:4 with Sterile Water or Normal Saline = D10).
5. Perform Pediatric Assessment Triangle - Rapid Cardiopulmonary Assessment (see Pediatric 3.1.1 - Initial Assessment) frequently.

ALS LEVEL 2: MEDICAL CONTROL

1. If neonate continues to have altered mental status with depressed respirations, consider Narcan 0.1 mg/kg (1 mg/ml concentration) IV/IO/IM/ET (c).

Notes

(a) The neonate should be placed on his or her back or side with the neck in a neutral position. To help maintain correct position, a rolled blanket or towel may be placed under the back and shoulders of the supine neonate, to elevate the torso 3/4 or 1 inch off the mattress to extend the neck slightly. If copious secretions are present, the neonate should be placed on his or her side with the neck slightly extended to allow secretions to collect in the mouth rather than in the posterior pharynx.
(b) Tracheal suctioning for thick meconium should be done via the endotracheal tube using a meconium aspirator attached to the 15 mm adaptor of the ETT. The suction unit is then attached and placed on low (no more than 100 mm Hg). Suctioning should be performed until the ETT is clear (maximum 5 seconds). It may be necessary to repeat the intubation and continue suctioning until clear (maximum 3 times).
(c) Avoid the use of Narcan if the mother has a history of drug use/abuse, as Narcan may precipitate seizures in the newborn due to acute withdrawal.

3.4.2 SUDDEN INFANT DEATH SYNDROME (SIDS)

Purpose: Sudden Infant Death Syndrome, or "crib death," is the sudden and unexpected death of an apparently healthy infant, usually under one year of age, which remains unexplained after a complete medical history, death scene investigation and postmortem examination. SIDS almost always occurs when the infant is asleep or thought to be asleep. See Appendix Sudden Infant Death Syndrome

The majority of SIDS deaths (90%) occur in infants less than six months of age. SIDS is more common in males (60%) then females (40%). SIDS almost always occurs when the infant is asleep or thought to be asleep. SIDS is more prevalent in winter months and in infants with low birth weights. SIDS occurs in all socio-economic, racial and ethnic groups. Occasionally, a mild upper respiratory infection may be present prior to death.

Physical examination of a SIDS infant may reveal lividity or settling of blood, which produces mottled, blue or gray skin. The lividity may give the appearance of "bruising." There may also be froth, blood tinged mucus draining from the infant's mouth and nostrils. In addition, cooling and rigor mortis may be present. The SIDS infant usually appears well developed and does not exhibit any signs of external injury.

SIDS should not be confused with child abuse (see Appendix - Signs of Child Abuse 7.13). Initially it is difficult to distinguish a SIDS death from other causes of death in infants. SIDS is the leading cause of death between one week and one year of age in the United States.

Although there may be obvious signs of death, the Paramedic may attempt resuscitation of the infant for psychological reasons (e.g. parents peace of mind). There may also be some infants in which the Paramedic determines that a resuscitation attempt is not warranted (see Administrative Protocol - DNR/DOA 1.2.5). In either event, the Paramedic should be prepared for a myriad of grief reactions from the parents and/or caregiver.

It should also be noted, that some SIDS deaths are mistaken for child abuse. If there are possible signs of abuse (see Appendix - Signs of Child Abuse 7.13), the Paramedic should continue as if it were a SIDS death, to avoid any unnecessary grief on the part of the parents and/or caregiver. The Paramedic should not attempt to determine whether or not child abuse has taken place. The scene should be treated as any other death scene, with attention to preservation of potential evidence. Remember, it is more common for an unexpected death of an infant to be SIDS.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. In most instances, resuscitation should be attempted (see appropriate Pediatric Protocols).
2. Assign a crewmember to assist the parents and/or caregiver and to explain the procedures.

3. If time permits, elicit a brief history and perform an environmental check. Document all findings on the EMS run report.
4. Once resuscitation is started, do not stop until directed to do so in the hospital by a physician.

ALS LEVEL 1: PARAMEDIC ONLY

1. As per appropriate protocol

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

3.5
PEDIATRIC
NEUROLOGIC EMERGENCIES

3.5 PEDIATRIC NEUROLOGIC EMERGENCIES

Overview:

This section covers the most common pediatric neurologic emergencies, altered mental status and seizures. It is important for the paramedic to understand appropriate behavior for the child/infant's age in order to properly assess level of consciousness (see Appendix - Glasgow Coma Score for pediatric patients). Attention should be given to how the child interacts with parents and the environment and whether or not the patient can make good eye contact. Parents may be invaluable for a baseline comparison of level of consciousness. The parents may simply state that the patient is not acting right. Causes of pediatric altered mental status include: hypoxia, head trauma, intoxication, infection, and hypoglycemia.

Approximately 4-6% of all children will have at least one seizure. Seizures may be due to an underlying disease (e.g. epilepsy) or may simply be a result of fever. Other causes of pediatric seizures include: hypoxia, brain hemorrhage, infection of brain and spinal cord (e.g. meningitis), hypoglycemia, and intoxication.

3.5.1 ALTERED LEVEL OF CONSCIOUSNESS (ALTERED MENTAL STATUS)

Purpose: Use this protocol for pediatric patients with altered mental status. Common signs of altered mental status in pediatric patients include: combative behavior, decreased responsiveness, lethargy, weak cry, moaning, hypotonia, ataxia, and changes in personality. Initial approach should be based on the assumption that the patient is suffering from hypoxia, ischemia, hypoglycemia or dehydration. Secondary considerations should include medications, illicit drugs, plants, trauma, etc.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3, consider need for spinal immobilization.
2. Consider need for ventilatory assistance.
3. Assess for and document the Glasgow Coma Scale

ALS LEVEL 1: PARAMEDIC ONLY

1. If child remains unresponsive and prolonged ventilatory assistance is needed, consider need for intubation (a).
2. Perform glucose test with finger stick. If glucose is below 60 mg/dL (< 40mg/dl for newborns), administer:
    a. Neonates: 10% Dextrose: 2-5 ml/kg (0.2-0.5 g/kg)
    b. Infants: 10% Dextrose: 5 ml/kg (0.5 g/kg)
    c. Children < 8 yrs: 25% Dextrose: 2 ml/kg (0.5 g/kg) slow IV (b)
    d. Children > 8 yrs: 50% Dextrose: 1 ml/kg IV/IO (b)
3. If mental status is depressed and signs of dehydration exist, administer fluid challenge of Normal Saline @ 20 ml/kg IV.
4. If mental status and respiratory effort is depressed, administer **Narcan** 0.1 mg/kg (maximum 2 mg) IV/IO/IM. May repeat every 5 minutes PRN.
5. If toxicology (poisoning) is suspected, **Contact Poison Information Center (1-800-222-1222)**

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

Notes:

(a) Use appropriate discretion regarding immediate intubation of pediatric patients who may quickly regain consciousness, such as hypoglycemics after D25 or opiate overdose cases after Narcan.

(b) To avoid infiltration and resultant tissue necrosis, Dextrose 25% should be given slow IV with intermittent aspiration of IV/IO line to confirm IV/IO patency followed by saline flush.

3.5.2 SEIZURE DISORDERS

Purpose: This protocol should be used when the patient has witnessed continuous convulsions or repeating episodes without regaining consciousness or sufficient respiratory compensation. Consider underlying etiology, such as: fever, hypoxia, head trauma, infection of brain and spinal cord (e.g. meningitis), hypoglycemia, and intoxication.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3. Apply gentle support of the patient's head to avoid trauma and loosen tight fitting clothing.
2. Assess for and document the Glasgow Coma Scale.

ALS LEVEL 1: PARAMEDIC ONLY

1. Perform glucose test with finger stick. If glucose is below 60 mg/dL, administer:
   a. If Neonate or Infant: **D10** 5ml/kg IV/IO
   b. If <8 years: **D25** 2 ml/kg IV/IO;
   c. If >8 years: **D50** 1 ml/kg IV/IO (a)(b).
2. If seizure continues, administer one of the following benzodiazepines:
   a. **Lorazapam (Ativan)** 0.05 to 0.1 mg/kg IV, maximum; 1 mg.
   b. **Diazepam (Valium**)
      IV/IO: [1 mo – 5 yr] 0.1 - 0.3 mg/kg IV/IO q 5-10 min. Max 5 mg total.
      [5 yr – 12 yr] 0.1- 0.3 mg/kg IV/IO q 5-10 min. Max 10 mg total.
      [> 12 yr] 5 – 10 mg IV/IO q 10 – 15 min. Max 30 mg total.
      Rectal: Varify dose with Broselow tape
      [up to 5 yrs] 0.5 mg/kg PR x 1
      [6 – 11 yrs] 0.3 mg/kg PR x1
      [> 11 yrs] 0.2 mg/kg PR x 1
      (Maximum 20 mg) rectally (d) (e)
   c. **Midazolam (Versed)** 2 mo – 12 yrs;
      IV/IO: start 0.15 mg/kg x1(Max 4 mg),
      IM: 0.2mg/kg. Maximum 10 mg
      IN (intranasal): 0.2 mg/kg. Maximum 10 mg (c)

ALS LEVEL 2: MEDICAL CONTROL

1. If seizure continues for 5 minutes, administer one of the following benzodiazepines:
    a. **Lorazapam (Ativan)** 0.05 to 0.1 mg/kg IV, maximum; 1 mg.
    b. **Diazepam (Valium)**,
    IV/IO: 0.2 mg/kg IV/IO
    Rectal: 0.5 mg/kg (maximum 20 mg) rectally.(d)(e)
    c. **Midazolam (Versed)** 0.1 mg/kg (maximum 4 mg) IV or 0.2 mg/kg intranasal (maximum 10mg) (c)
2. Call medical control or medical director for any questions or concerns.

Notes:

(a) For newborns and infants, perform heel stick. In newborns, if blood glucose is <40 mg/dL, administer D10 5 ml/kg IV/IO (dilute D50 1:4 with Normal Saline = D10).

(b) To avoid infiltration and resultant tissue necrosis, Dextrose 10%, 25%, and 50% should be given slow IV with intermittent aspiration of IV/IO line to confirm IV/IO patency followed by saline flush.

(c) Intranasal administration of benzodiazepines requires the use of a mucosal atomization device (same as IV dose).

(d)Use a lubricated tuberculin or 3-5 ml syringe **without the needle.** Position patient in a decubitus knee position or supine with legs held apart and insert lubricated syringe approximately 5 cm into the rectum. Inject Valium, remove syringe and tape buttocks closed.

(e) If Diastat (rectal diazepam preparation) is used, administer 2.5 mg.

3.6
PEDIATRIC
TOXICOLOGIC EMERGENCIES

3.6 PEDIATRIC TOXICOLOGIC EMERGENCIES

Overview:
This protocol is to be used for those patients suspected of exposure to toxic substances via any route of exposure (e.g. drug overdose, snake bite, etc.). The protocols will give specific considerations for each type of exposure, as well as general treatment guidelines. Additional assistance may be necessary in certain cases (e.g. hazardous materials team for toxic exposure, police for scene control, including violent and/or impaired patient - see Pediatric Protocol 3.7.5).

A history of the events leading to the illness or injury should be obtained from the patient and bystanders to include:

1. What drugs, poisons, or other substances was the patient exposed to? Consider multiple substances, especially on overdoses. Also consider plants and herbal remedies.
2. When and how much?
3. Duration of symptoms?
4. Is patient depressed, suicidal? History of previous overdose? (if applicable).
5. Accidental? Nature of accident?
6. Duration of exposure (if applicable).

Collect all pill bottles, empty or full, and check for "suicide notes" (if applicable). Transport any/all information or items that may assist in the treatment of the patient to the emergency department.

Contact the Poison Information Center (1-800-222-1222) for consultation regarding specific therapy and then contact on-line medical control for confirmation of Level 2 orders.

3.6.1 PEDIATRIC INGESTION (OVERDOSE)

Purpose: This protocol should be used on most types of ingestion (e.g. acetaminophen, benzodiazepines, narcotics, tricyclic antidepressants, vitamins with iron, etc.). Symptoms vary with the substance involved (also see Pediatric Protocol 3.6.4 - Organophosphate Poisoning).

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3.
2. Consider need for ventilatory support
3. Assess for and document the Glasgow Coma Scale

ALS LEVEL 1: PARAMEDIC ONLY

1. Consider need for intubation
2. Perform glucose test with finger stick. If glucose is below 60 mg/dL (< 40 mg/dl newborn), administer:
   a. Neonates: 10% Dextrose: 2-5 ml/kg (0.2-0.5 g/kg) (a)(b)
   b. Infants: 10% Dextrose: 5 ml/kg (0.5 g/kg) (a)(b)
   c. Children < 8 yrs: 25% Dextrose: 2 ml/kg (0.5 g/kg) slow IV
   d. Children > 8 yrs: 50% Dextrose: 1 ml/kg IV/IO
3. If hypoglycemic and unable to start IV/IO, and patient is:
   a. < 20 kg give Glucagon 0.5 mg Sub-Q/IM
   b. > 20 kg give Glucagon 1 mg SUB-Q/IM.
4. If any questions, contact **Poison Information Center (1-800-282-3171).**
5. If suspected narcotic overdose in non-neonate, administer **Narcan** 0.1 mg/kg (maximum 2 mg) IV/IO/IM/Intranasal. May repeat every 5 minutes PRN. (c)
6. If suspected tricyclic antidepressant overdose (QRS > 0.10), administer **Sodium Bicarbonate** 1 mEq/kg IV/IO (d).

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

Notes:

(a) For newborns and infants, perform heel stick. In newborn, if blood glucose is <40 mg/dL, administer D10 5 ml/kg IV/IO (dilute D50 1:4 with Normal Saline = D10).
(b) To avoid infiltration and resultant tissue necrosis, Dextrose 10%, 25%, and 50% should be given slow IV with intermittent aspiration of IV/IO line to confirm IV/IO patency followed by saline flush.

(c) Intranasal administration of Naloxone requires the use of a mucosal atomization device (same as IV dose).
(d) If patient is seizing, also see Pediatric Protocol Seizures 3.5.2).

3.6.2 BITES AND STINGS

Purpose: This protocol includes the treatment for snake and spider bites, dog and cat bites, insect stings, marine animal envenomations and stings. **All bites should be transported to the hospital.** For questions or concerns, contact Poison Information Center (1-800-222-1222).

Procedure:

Snake Bites

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3.
2. Consider need for Pediatric Protocol 3.7.1 – Allergic Reactions/Anaphylaxis.
4. Splint affected area, place patient supine with extremities at a neutral level, keep patient quiet, remove and secure all jewelry.
5. Wash area of bite with copious amounts of water.
6. Attempt to identify snake, if safe to do so.
7. Check temperature and pulse distal to bite on extremity and mark level of swelling and time with pen every 15 minutes.

ALS LEVEL 1: PARAMEDIC ONLY

1. Refer to Pediatric Pain Protocol 3.1.5 for pain management.

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

Dog and Cat and Wild Animal Bites

BASIC LEVEL:

1. Medical Supportive Care Protocol 3.1.3
2. Trauma Supportive Care Protocol 3.1.4 if indicated
3. Wound care - BLS (do not use hydrogen peroxide on deep puncture wounds or wounds exposing fat).
4. Advise dispatch to contact animal control and PD for identification and quarantine of animal.

ALS LEVEL 1: PARAMEDIC ONLY

1. Refer to Pediatric Pain Protocol 3.1.5 for pain management.

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

Insect Stings (including: Centipedes, Scorpions and Spiders)

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Support Protocol 3.1.3
2. Trauma Supportive Care Protocol 3.1.4, if indicated
3. Consider need for Pediatric Protocol 3.7.1 - Allergic Reactions/ Anaphylaxis.
4. Remove stinger by scraping skin with edge of flat surface (e.g. credit card). Do not attempt to pull stinger out, as this may release more venom.
5. Clean area with soap and water.

ALS LEVEL 1: PARAMEDIC ONLY

1. Refer to Pediatric Pain Protocol 3.1.5 for pain management.

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

Marine Animal Envenomations -Stingray, Scorpionfish (Lionfish, Zebrafish, Stonefish), Catfish, Weeverfish, Starfish, and Sea Urchin

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3
2. Trauma Supportive Care Protocol 3.1.4, if indicated
3. Consider need for Pediatric Protocol 3.7.1 - Allergic Reactions/ Anaphylaxis.
4. Immerse the punctures in nonscalding hot water to tolerance (110-113 degrees F) to achieve pain relief (30-90 minutes). Transport should not be delayed, immersion in nonscalding hot water may be continued during transport.
5. Remove any visible pieces of the spine(s) or sheath. Gently wash wound with soap and water, then irrigate vigorously with fresh water (avoid scrubbing).

ALS LEVEL 1: PARAMEDIC ONLY

1. Refer to Pediatric Pain Protocol 3.1.5 for pain management.

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

Marine Animal Stings -Jellyfish, Man-of-War, Sea Nettle, Irukandji, Anemone, Hydroid, Fire Coral

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3
2. Trauma Supportive Care Protocol 3.1.4, if indicated
   Consider need for Pediatric Protocol 3.7.1 - Allergic Reactions/ Anaphylaxis.
3. Rinse the skin with seawater (Do not use fresh water, do not apply ice, do not rub the skin).
4. Apply soaks of acetic acid 5% (vinegar) until pain is relieved. If vinegar is not available, use a paste of baking soda or unseasoned meat tenderizer.
5. Remove large tentacle fragments using forceps (use gloves to avoid contact with bare hands).
6. Apply a lather of shaving cream or a paste of baking soda and shave the affected area with edge of flat surface (e.g. credit card).
7. Apply heat pack to area.

ALS LEVEL 1: PARAMEDIC ONLY

1. Refer to Pediatric Pain Protocol 3.1.5 for pain management.

A LS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

Human Bites

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3
2. Trauma Supportive Care Protocol 3.1.4 if indicated.
3. Wound care - BLS (do not use hydrogen peroxide on deep puncture wounds or wounds exposing fat). Clean area with soap and water.
4. Advise dispatch to contact PD for possible domestic violence.

ALS LEVEL 1: PARAMEDIC ONLY

1. Refer to Pediatric Pain Protocol 3.1.5 for pain management.

A LS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

3.6.3 CARBON MONOXIDE POISONING

Purpose: Carbon Monoxide poisoning should be suspected when the patient has been exposed to the products of combustion (e.g. smoke, automobile exhaust, exhaust fumes from fuel powered machinery, etc.) and are experiencing symptoms. These symptoms may vary with the level of carbon monoxide exposure. See Hazardous Expsure Chemical Treatment Guideline for more details.

Mild CO exposure signs and symptoms include: headache, nausea/vomiting, poor concentration, irritability, agitation, and anxiety.

Moderate to severe CO exposure signs and symptoms include: altered mental status, chest pain, cardiac dysrhythmias, pale skin, cyanosis, seizures, and rarely cherry red skin.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3.
2. Remove patient from hazardous area.
3. Administer high-flow oxygen (100%). Ventilatory support as needed/indicated (see Peds Airway Management Protocol)

ALS LEVEL 1: PARAMEDIC ONLY

1. Consider need to intubate.
2. Treat specific dysrhythmias (see Pediatric Cardiac Dysrhythmia Protocol 3.3).
3. Treat seizures according to seizure protocol (see Pediatric Seizure Protocol)

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

3.6.4 ORGANOPHOSPHATE POISONING

Purpose: Organophosphate compounds are used as insecticides in residential as well as commercial agriculture. Organophosphates affect both the parasympathetic (muscarinic effects) and the sympathetic (nicotinic effects) nervous systems. Signs and symptoms are described as the classic SLUDGE syndrome (excessive Salivation, Lacrimation, Urination, Diarrhea, Gastrointestinal distress, and Emesis). The patient may have constricted pupils (miosis). Bradycardia is also common; however stimulation of nicotinic receptors will produce tachycardia. Also see Chem Exposure Guideline Green for additional information and management guidelines.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Avoid exposure to patient's sweat, vomit, stool, and vapor emitting from soaked clothes (a).
2. If patient was exposed externally, remove clothing and decontaminate skin.
3. Medical Supportive Care Protocol 3.1.3
4. Airway Management Protocol 3.1.2, administer high-flow oxygen.
5. Contact Poison Information Center (1-800-282-3171) if any questions or concerns.

ALS LEVEL 1: PARAMEDIC ONLY

1. If patient is symptomatic, administer **Atropine**
   < 2 yr old: 0.05 mg/kg (max. 3 mg) IM or 0.02 mg/kg IV/IO, repeat q 5-10 minutes until atropinization occurs. (If nerve agent, Start 0.05 mg/kg IM x 1 for mild/moderate sx. Start 0.1 mg/kg IM for severe sx).
   2 – 10 yrs: 1 – 2 mg IM/IV/IO q 10 – 30 min prn; Start 1 mg IM/IV x 1. (If nerve agent, Start 1 mg/kg IM x 1 for mild/moderate sx. Start 2 mg/kg IM for severe sx).
   > 10 yrs: 1-2 mg IM/IV/IO q 10 – 30 min prn; Start 2 mg IM/IV x 1. (If nerve agent, Start 2 mg/kg IM x 1 for mild/moderate sx. Start 4 mg/kg IM for severe sx).
2. If seizing, see Pediatric Seizure Protocol 3.5.2.
3. Alert emergency department to prepare for contaminated patient.
4. Do not induce vomiting.

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.
2. Repeat **Atropine** 0.05 mg/kg IV/IO (maximum 3 mg) every 5-10 minutes until secretions are inhibited.

Note:
(a) If risk of exposure from fumes is high, call HAZMAT team. Refer to appropriate HAZMAT PPE protocol, as the risk of secondary contamination is very high.

3.7
OTHER PEDIATRIC MEDICAL EMERGENCIES

3.7 OTHER PEDIATRIC MEDICAL EMERGENCIES

Overview:
The paramedic should use these protocols to guide him/her through the treatment of patients with other medical emergencies that are exhibiting signs and symptoms. In addition to these protocols, the paramedic may need to refer to additional protocols for continued treatment.

3.7.1 ALLERGIC REACTIONS/ ANAPHYLAXIS

Purpose: This protocol should be used for patients exhibiting signs and symptoms consistent with allergic reaction as follows:
Skin - flushing, itching, hives, swelling, cyanosis.
Respiratory - dyspnea, sneezing, coughing, wheezing, stridor, laryngeal edema, laryngospasm, bronchospasm.
Cardiovascular - vasodilation, increased heart rate, decreased blood pressure.
Gastrointestinal - nausea/vomiting, abdominal cramping, diarrhea.
CNS - dizziness, headache, convulsions, tearing.

Treatment is outlined according to the severity of the allergic reaction (mild, moderate, and severe or anaphylaxis).

Procedure:

Mild Reactions - (redness and/or itching, normal perfusion without dyspnea)

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3
2. Trauma Supportive Care Protocol 3.1.4 if indicated

ALS LEVEL 1: PARAMEDIC ONLY

1. For severe itching, administer **Diphenhydramine (Benadryl)** 1-2 mg/kg IM/IV (max. 50 mg IM or 25 mg IV).

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

Moderate Reactions - (edema, hives, dyspnea, wheezing, and normal perfusion)

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3
2. Trauma Supportive Care Protocol 3.1.4 if indicated

ALS LEVEL 1: PARAMEDIC ONLY

1. **Diphenhydramine (Benadryl)** 1-2 mg/kg (maximum 50 mg IM or 25 mg IV) IM/IV.
2. **Zantac (Ranitadine)** 2-5 mg/kg po if child able to swallow pills.
3. **Methylprednisolone Sodium Succinate (Solu-Medrol)** 2 mg/kg IV/IM (maximum dose 125 mg) x 1.
4. **Epinephrine** (1:1000) 0.01 mg/kg (max. 0.3 mg) IM/SUB-Q (a).

5. If patient has signs of respiratory distress, administer **Albuterol (Ventolin)** 1 nebulizer treatment;
    a. If <1 year or <10 kg, mix 1.25 mg in 1.5 ml of Normal Saline (0.083%)
    b. If >1 year or >10 kg, mix 2.5 mg in 3 ml of Normal Saline (0.083%)
    c. May repeat twice (a)
6. If bronchodilator is administered, add **Ipratropium Bromide (Atrovent)** 0.5mg (0.5 ml) to first nebulize treatment only.
7. May repeat **Epinephrine** (1:1000) 0.01 mg/kg (max. 0.15) SUB-Q (a).

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

Severe Reactions - (edema, hives, severe dyspnea and wheezing, poor perfusion, and possible cyanosis and laryngeal edema)

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3
2. Trauma Supportive Care Protocol 3.1.4 if indicated

ALS LEVEL 1: PARAMEDIC ONLY

1. **Diphenhydramine (Benadryl)** 1mg/kg (maximum 50 mg IM or 25 mg IV) IM/IV.
2. **Zantac (Ranitadine)** **2mg/kg po** if child able to swallow pills.
3. **Methylprednisolone Sodium Succinate (Solu-Medrol)** 2 mg/kg IV/IM (maximum dose 125 mg) x 1.
4. **Epinephrine** (1:1000) 0.01 mg/kg (max. 0.15 mg) SUB-Q (a).
5. If patient shows signs of respiratory distress, administer **Albuterol (Ventolin)** 1 nebulizer treatment;
    a. If <1 year or <10 kg, mix 1.25 mg in 1.5 ml of Normal Saline (0.083%)
    b. If >1 year or >10 kg, mix 2.5 mg in 3 ml of Normal Saline (0.083%)
    c. May repeat twice (a)
6. If bronchodilator is administered, add **Ipratropium Bromide (Atrovent)** 0.5mg (0.5 ml) to first nebulized treatment only.
7. May repeat **Epinephrine** (1:1000) 0.01 mg/kg (max. 0.15) SUB-Q (a).

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

Note

(a) The EPI-Jr.® may be used if other means of Epinephrine administration are not available.

3.7.2 DIABETIC EMERGENCIES

Purpose: This protocol is to be used for those patients whose blood glucose is below 60 mg/dL (see Pediatric Protocol 3.4.1 for newborn).

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3.
2. If patient is conscious with an intact gag reflex, assist with self-administration of oral glucose, if possible.

ALS LEVEL 1: PARAMEDIC ONLY

1. Perform glucose test with finger stick (heel stick for newborn). If glucose is below 60mg/dL (< 40 mg/dl for newborns), administer:
   a. Neonates: 10% Dextrose: 2-5 ml/kg (0.2-0.5 g/kg)
   b. Infants: 10% Dextrose: 5 ml/kg (0.5 g/kg)
   c. Children < 8 yrs: 25% Dextrose: 2 ml/kg (0.5 g/kg) IV/IO
      Children > 8 yrs: 50% Dextrose: 1 ml/kg IV/IO (a)
2. Repeat glucose test after 15 minutes with finger stick (heel stick for newborn). If glucose is still below 60 mg/dL (< 40 mg/dl in newborn), repeat dosing as above.
3. If unable to start IV/IO administer Glucagon if patient is:
   [< 20kg] 0.5mg SUB-Q/IV/IM x 1, max dose 1mg/dose
   [>20 kg] 1 mg SUB-Q/IV/IM x 1, max dose 1mg/dose
   Following Glucagon, once patient is alert enough to swallow, give oral glucose. Glucagon efficacy may be limited in glycogen-depleted patients (chronic alcoholics, malnourished, starvation).
4. If blood glucose is >300 mg/dL with signs of dehydration, administer Normal Saline 20 ml/kg IV, unless contraindicated.

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

Note:
(a) To avoid infiltration and resultant tissue necrosis, Dextrose 25% and 50% should be given slow IV with intermittent aspiration of IV line to confirm IV patency followed by saline flush.

3.7.3 NON-TRAUMATIC ABDOMINAL PAIN

Purpose: This protocol should be used for patients that complain of abdominal pain without a history of trauma (refer to Appendix – Signs of Child Abuse).

Assessment should include specific questions pertaining to the GI/GU systems.

Abdominal physical assessment includes:
Ask patient to point to area of pain (palpate this area last).
Gently palpate for tenderness, rebound tenderness, distension, rigidity, guarding, and pulsatile masses. Also palpate flank for CVA (costovertebral) tenderness.

Abdominal history includes:
Hx of pain (OPQRST).
Hx of nausea/vomiting (color, bloody, coffee grounds).
Hx of bowel movement (last BM, diarrhea, bloody, tarry).
Hx of urine output (painful, dark, bloody).
Hx of abdominal surgery.
SAMPLE (attention to last meal).

Additional questions should be asked of the female adolescent patient regarding OB/GYN history (see Adult OB/GYN Emergencies).

An acute abdomen can be caused by: appendicitis, diabetic ketoacidosis, incarcerated hernia, intussuception, cholecystitis, cystitis -UTI (bladder inflammation), duodenal ulcer, diverticulitis, abdominal aortic aneurysm, kidney infection - UTI (urinary tract infection), kidney stone, pelvic inflammatory disease - PID (female), pancreatitis (see Appendix - Abdominal Pain Differential 7.1).

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care protocol 3.1.3
2. Trauma Supportive Care Protocol 3.1.4, if indicated

ALS LEVEL 1: PARAMEDIC ONLY

1. If decreased perfusion (see Appendix 7.10 - Pediatric Vital signs), administer fluid challenge of Normal Saline 20 ml/kg IV.

ALS LEVEL 2: MEDICAL CONTROL

1. Consider pain control (see Pediatric Pain Protocol 3.1.5 for pain scale and medication dosage-same as isolated extremity fracture pain protocol).
2. Call medical control or medical director for any questions or concerns.

3.7.4 NON-TRAUMATIC CHEST PAIN UNDIFFERENTIATED

Purpose: Causes of non-traumatic chest pain in the pediatric patient include: wheezing associated illness, spontaneous pneumothorax, pleurisy, costochondritis, pulmonary embolism, pneumonia, peptic ulcer, drug usage (e.g. stimulants - cocaine), dissecting aortic aneurysm, pericarditis, hiatal hernia, esophageal spasm, cholecystitis, pancreatitis, cervical disk problem, and rarely cardiac problems (see Appendix Chest Pain Differential). Also refer to Appendix – Signs of Child Abuse 7.13.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3.
2. Airway Management Protocol 3.1.2
3. Consider need for other protocols (e.g. Pediatric Protocol 3.2 - Pediatric Respiratory Emergencies).

ALS LEVEL 1: PARAMEDIC ONLY

1. None

ALS LEVEL 2: MEDICAL CONTROL

1. Consider pain control (see Pediatric Pain Protocol 3.1.5 for pain scale and medication dosage-same as isolated extremity fracture pain protocol).
2. Call medical control or medical director for any questions or concerns.

3.7.5 VIOLENT AND/OR IMPAIRED PATIENT

Purpose: This treatment protocol is used in conjunction with Adult Medical Protocol-Behavioral Violent Psychiatric Emergencies. If patient is violent and an immediate threat to the patient, EMS crew or bystander safety exists, restraint should be used to prevent patient from harming him or herself or others. If patient is not violent, be observant for possibility of violence and avoid provoking patient. Particular caution should be exercised when any "non-lethal" law enforcement device (e.g. pepper spray, taser, etc.) has been employed.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Have patient placed under Baker Act (or equivalent commitment form) when appropriate and refer to Impaired/Incapacitated Persons Act
2. Medical Supportive Care 3.1.3.
3. Airway Management 3.1.2
4. Rule out causes other than psychiatric (e.g. drug overdose, ETOH, head trauma, hypoxia, hypoglycemia).
5. Physically restrain patient when appropriate (see Medical Procedure Physical Restraints 4.28).

ALS LEVEL 1: PARAMEDIC ONLY

1. Administer one of the following benzodiazepines**(< 12 yr old contact med control first):**
   a. **Lorazapam (Ativan)** 0.05 to 0.1 mg/kg IV, maximum; 1 mg.
   b. **Diazepam (Valium)** 0.2 mg/kg (maximum 5 mg) IM/IV or per rectum, may repeat once PRN (up to max. 10 mg) (b).
   c. **Midazolam (Versed)** 0.1mg/kg (maximum 2mg) IM/IV or Intranasal. May repeat once PRN (up to max. 4 mg) (b).
2. **Diphenhydramine HCL (Benadryl)** 1 mg/kg (maximum 50 mg IM or 25 mg IV) IM or IV (a).

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

Notes:
(a) In some instances, IV administration may present a safety concern; therefore IM or intranasal administration of sedatives may be the more desirable route.
(b) Intranasal administration of benzodiazepines requires the use of a mucosal atomization device (same as IV dose).

3.7.6 SUSPECTED CHILD ABUSE

Purpose: This protocol should be used when the paramedic suspects that child abuse may have occurred. See Appendix - Signs of Child Abuse 7.13 and Report of Abuse 7.12. Child abuse is when a person intentionally inflicts, or allows to be inflicted, physical or psychological injury to a child, which causes or results in risk of death, disfigurement, or distress. Child neglect is when a child's physical, mental, or emotional condition is impaired or in danger because of failure of the legal guardian to supply basic necessities, including: adequate food, clothing, shelter, education, or medical care.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Support Protocol 3.1.3.
2. Trauma Supportive Care Protocol 3.1.4 if indicated.
3. Advise Police that child abuse is suspected.
4. Protect child from further abuse.
5. Obtain information in a non-judgmental manner.
6. Do not confront caregiver and/or parent.
7. Transport patient to the hospital for evaluation and possible treatment (a).
8. Report suspected child abuse (Florida Child Abuse Hotline:1-800-342-9152) (b).

ALS LEVEL 1: PARAMEDIC ONLY

1. None

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

Note

(a) If Parent's refuse to have patient transported to hospital, request police assistance.

3.7.7 SICKLE CELL ANEMIA

Purpose: Sickle cell anemia is a chronic hemolytic anemia occurring almost exclusively in African Americans and is characterized by sickle-shaped red blood cells. Sickle cell crisis results from the occlusion of a blood vessel by masses of sickle shaped red blood cells. Pain is the principle manifestation, and this represents the most common type of crisis. Typical pain occurs in the joints and back. Hepatic, pulmonary, or central nervous system involvement can occur, each with its own group of symptoms. Keep in mind that patients with sickle cell disorder have a high incidence of life-threatening disorders at a very young age.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3
2. Provide emotional support

ALS LEVEL 1: PARAMEDIC ONLY

1. IV of normal saline. Give fluid challenge of 20 ml/kg, and then maintain IV at KVO.
2. If pain persist and systolic BP is adequate (see Appendix – Pediatric Vital Signs 7.10), choose one of the following pain meds:
   a. **Morphine Sulfate** may be given intravenously in increments every 3-5 minutes, titrated to pain to a maximum of 10 mg. Administer at a rate not to exceed 1 mg/min.
      i. Pediatric dose: 0.1 mg/kg (maximum 10 mg) IV.
      ii. Infant dose: 0.05 mg/kg IV (a)
   b. **Fentanyl (Sublimaze)**
      1-3 yrs old: 2 – 3 mcg/kg IV
      3 – 12 yrs old: 1 – 2 mcg/kg IV
      >12 yrs old: 0.5 – 1 mcg/kg IV

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

Note:

(a) Extreme caution should be used with administering narcotic analgesics to a patient with a $SpO_2 \leq 95\%$

3.7.8 PEDIATRIC FEVER

Purpose: Use this protocol for pediatric patients who are feverish. Child should be awake and able to swallow with no difficulty. You may allow/assist the parent with administration of any medication. Fever in an infant less than 30 days old is potentially very serious. Child should be transported to an emergency department for a possible septic work up. Should parent or legal guardian decline transport, contact supervisor or medical control prior to accepting a refusal.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3
2. Obtain a temperature. If the child is less than two years of age this should be done rectally (or with newer thermo-sensing skin thermometers). Inquire if Tylenol has been given in previous four hours. If so, do **NOT** administer more Tylenol.
3. Consider cooling the child with tepid water applied with a wet cloth to head, axillary, and groin regions.
4. If transport time is greater than thirty minutes a follow-up temperature should be taken.

ALS LEVEL 1: PARAMEDIC ONLY

1. For a child less than twelve years old who has a temperature greater than 101.5 degrees F. and unimpaired ability to swallow TYLENOL 15mg/kg P0. may be administered once. (The same dose may be administered rectally if parents have suppositories at home.)
2. Should patient experience a febrile seizure, treat according to Pediatric Seizure Protocol.

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

Note:
Due to the inability to determine the origin of the fever in the field; this Patient Order Set can only be used when the patient is transported to an Emergency Department.

3.7.9 Pediatric Hyperkalemia

Purpose: This protocol is to be used on pediatric patients found to be in a state of hyperkalemia. Hyperkalemia is a serum potassium level of > 5.5 mEq/L. Hyperkalemia in children can be caused by renal failure, rhabdomyolysis, the use of potassium- sparing diuretics, and adrenal cortical insufficiency.Metabolic acidosis can result in hyperkalemia due to the hydrogen-potassium shift. In the pre-hospital setting, hyperkalemia may be an unintentional adverse consequence of rapid sequence intubation using Succinylcholine. It is important for the paramedic to recognize the developing EKG signs of hyperkalemia following RSI of child in order to initiate immediate therapy. EKG evidence of hyperkalemia includes sudden change in the apprearence of the EKG from a NSR to sudden peaked T-waves followed by prolongation of the PR interval as well as widening of the QRS complex. Eventually the P wave drops, the QRS becomes very wide and blends in with the peaked T wave giving the appearance of a sinusoid wave.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Initial Patient A Protocol 3.1.1
2. Pediatric Airway Management 3.1.2
3. Medical Supportive Care Protocol 3.1.3
4. Attach cardiac monitor and pulse oximeter if indicated
5. Keep patient warm (except if treating heat stroke, cool patient).

ALS LEVEL 1: PARAMEDIC ONLY

1. Establish IV with NS at KVO
2. Perform 12 lead EKG and confirm changes in EKG from baseline, suggestive of hyperkalemia
    a. Peaked T-wave
    b. Prolonged PR interval
    c. Widening of QRS
3. If iSTAT available, run potassium level on sample of blood. If K+ found to be > 5.5 mEq/Liter AND EKG changes as above, proceed with treatment below.
4. If there is strong evidence to suggest hyperkalemia (elevated K+ level and/or definite EKG changes) and an you are unable to start an IV, place an IO in patient.
5. Give **Albuterol 0.5% solution**; give 2.5mg via nebulizer (DO NOT use Atrovent with the Albuterol when treating hyperkalemia).

6. Give **Sodium Bicarb;** 1 mEq/kg initially IV/IO (1ml/kg of 8.4% solution). In neonates and infants, dilute the 8.4% solution 1:1 with sterile water (not saline) making a 4.2% solutiuon to reduce the hyperosmolarity of the solution.
7. **Calcium Chloride 20 mg/kg IV/IO** q 10 min prn
8. Notify hospital staff ASAP as child will need additional Rx upon arrival (Regular Insulin, Kayexcelate)

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

3.8
PEDIATRIC ENVIRONMENTAL EMERGENCIES

3.8 PEDIATRIC ENVIRONMENTAL EMERGENCIES

Overview: The following protocols cover a range of problems due to the environment, including: trauma due to changes in atmospheric pressure, exposure to heat and cold extremes, water submersion, and exposure to electricity. Initial efforts should focus on removing the patient from the harmful environment.

3.8.1 NEAR DROWNING

Purpose: Near drowning patients are those that have been submerged in fresh or salt water and may or may not be conscious. If the patient is still in open water on arrival of EMS, a Dive Rescue Team should be utilized to remove the patient from the water whenever possible. Additional protocols may be needed for treatment decisions (e.g. Pediatric Barotrauma Protocol 3.8.4 -).

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Trauma Supportive Care Protocol 3.1.4 (protect C-spine) .
2. Determine pertinent history (duration of submersion, depth, water temperature, possible seizure, drug and/or alcohol use, possible trauma).
3. Maintain body temperature, dry and warm patient.
4. All near drowning patients should be transported to the hospital, regardless of how well they may seem to have recovered. Delayed death or complications due to pulmonary edema or aspiration pneumonia are not uncommon. The most devastating injury is due to asphyxia.

ALS LEVEL 1: PARAMEDIC ONLY

1. Treat dysrhythmias per specific protocol (see Pediatric Dysrhythmia Protocol 3.3).
2. Consider Nasogastric Tube (see Medical Procedure NG Insertion 4.22) (b).

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

Notes

(a) The routine use of abdominal thrusts for near-drowning victims is not recommended. This maneuver should only be used in cases of FBAO (see Medical Procedure 4.15 – Foreign Body Obstructed Airway).
(b) Any near-drowning patient with a decreased ability to protect their airway, with gross abdominal distension, or who requires ventilator assistance needs an NG tube.

3.8.2 HEAT RELATED EMERGENCIES

Purpose: Hyperthermia occurs when the patient is exposed to increased environmental temperature and can manifest as heat cramps, heat exhaustion, or heat stroke. Certain drugs may cause an increase in temperature (e.g. cocaine, ecstacy, etc.)

Some tympanic thermometers (Braun Thermoscan™ Pro-1 and Pro 3000) will register from 68 – 108 degrees F (tympanic thermometers should not be used in infants (<1yr)).

Heat Cramps	signs and symptoms include: muscle cramps of the fingers, arms, legs, or abdomen, hot sweaty skin, weakness, dizziness, tachycardia, normal BP, and normal temperature.
Heat Exhaustion	signs and symptoms include: cold and clammy skin, profuse sweating, nausea/vomiting, diarrhea, tachycardia, weakness, dizziness, transient syncope, muscle cramps, headache, positive orthostatic vital signs, normal or slightly elevated temperature.
Heat Stroke	signs and symptoms include: hot dry skin (sweating may be present), confusion and disorientation, rapid bounding pulse followed by slow weak pulse, hypotension with low or absent diastolic reading, rapid and shallow respirations (which may later slow), seizures, coma, elevated temperature above 105 degrees F.

Procedure:

Heat Cramps and Heat Exhaustion

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3
2. Trauma Supportive Care Protocol 3.1.4 if indicated.
3. Remove from warm environment and cool patient.
4. Monitor temperature.
5. For mild to moderate heat cramps and heat exhaustion, if patient is conscious, encourage patient to drink salt containing fluids (e.g. half-strength Gatorade® or 10K®).

ALS LEVEL 1: PARAMEDIC ONLY

1. If heat cramps are severe or patient's level of consciousness is diminished, administer fluid challenge of Normal Saline 20 ml/kg IV.

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

Heat Stroke

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3
2. Trauma Supportive Care Protocol 3.1.4 if indicated
3. Remove from warm environment and aggressively cool patient. Remove patient's clothing and cover patient with wet sheets. Also, turn A/C and fans on high and apply ice packs to head, neck, chest and groin.
4. Monitor temperature. Cool patient to 102 degrees F, then remove wet sheets, ice packs, and turn off fans (avoid lowering temperature too much).

ALS LEVEL 1: PARAMEDIC ONLY

1. Treat hypotension with a 500ml bolus of IV fluid followed by an IV drip at a rate of 250 ml/hr. Vigorous IV fluid resuscitation should be avoided unless severe dehydration is present. Avoid using vasopressors and anticholinergic drugs (may potentiate heat stroke by inhibiting sweating). Administer fluid challenge of Normal Saline 20 ml/kg IV.
2. Treat seizures as per Pediatric Seizure Protocol

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

3.8.3 COLD RELATED EMERGENCIES

Purpose: Factors that predispose and/or cause a patient to develop hypothermia include: geriatric and pediatric patients, poor nutrition, diabetes, hypothyroidism, brain tumors or head trauma, sepsis, use of alcohol and certain drugs, and prolonged exposure to water or low atmospheric temperature. Hypothermia patients can be divided into three categories: Mild (temperature 94-97 degrees F), Moderate (temperature 86-94 degrees F), and Severe (temperature <86 degrees F).

It should be noted that most oral thermometers will not register below 96 degrees F.However, some tympanic thermometers (Braun Thermoscan™ Pro-1 and Pro 3000) will register from 68 – 108 degrees F (tympanic thermometers should not be used in infants).

Mild to Moderate hypothermia	patients will generally present with shivering, lethargy, and stiff, uncoordinated muscles.
Severe hypothermia	patients may have altered mental status, ranging from confusion to lethargy or coma. Shivering will usually stop and physical activity will be uncoordinated. In addition, severe hypothermia will frequently produce an Osborn wave or J wave on the ECG, as well as dysrhythmias (bradycardia, ventricular fibrillation).

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3 (d)
2. Trauma Supportive Care Protocol 3.1.4 if indicated (a).
3. Remove all wet clothes and dry patient.
4. Protect from heat loss and wind chill.
5. Maintain horizontal position.
6. Avoid rough movement and excess activity (careful gentle handling) (b) (c) (d).
7. Monitor temperature.
8. Add heat to patient's head, neck, chest, and groin.
9. For severe hypothermia, warm IV fluids, if possible.
10. For Severe Hypothermic Cardiac Arrest: Start CPR(c).

ALS LEVEL 1: PARAMEDIC ONLY

1. For VF or pulseless VT, defibrillate x 1 @ 2 J/kg and immediately resume CPR for 5 cycles (or two minutes) before checking rhythm (e).
2. Intubate and ventilate with warm humidified oxygen, if possible.
3. Establish IV with warm Normal Saline.
4. Determine blood glucose and treat as per Peds Hypoglycemic Protocol.

If temperature is above 86 degrees F:

4. If patient's core temperature ≥ 30°C (86°F), follow appropriate dysrhythmia treatment (see Pediatric Cardiac Dysrhythmia Protocol 3.3) (d) (e).

If temperature is below 86 degrees F:

5. Continue CPR and transport immediately. Do not treat dysrhythmias in severe hypothermia (warm patient prior to treatment) (e).

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

Note:

(a) Cases of frostbite should be bandaged with dry sterile dressings and transported without attempting rewarming in the prehospital setting.

(b) Manipulation can precipitate ventricular fibrillation in the irritable hypothermic myocardium

(c) To avoid inappropriate chest compressions, a patient who is unmonitored or in a "non-arrested rhythm" (a rhythm other than ventricular fibrillation or asystole, such as sinus bradycardia or atrial fibrillation) should be examined carefully for respiratory activity and pulses. 30 to 45 seconds should be spent attempting to do detect respiratory activity and palpate a pulse. If none detected, CPR should be initiated.

(d) Although dysrhythmias in hypothermic patient may represent an immediate threat to life, most rhythm disturbances (e.g., Sinus bradycardia, atrial fibrillation or flutter) require no therapy and revert spontaneously with rewarming.

(e) Ventricular fibrillation may be refractory to therapy until the patient is rewarmed. The hypothermic heart is relatively resistant to atropine, pacing, and counter shock. The American Heart Association suggests a single defibrillation attempt. If this is unsuccessful, CPR should be instituted and rapidly rewarming begun. Defibrillation should be reattempted when the core temperature reaches 30°C (86°F).

3.8.4 BAROTRAUMA / DECOMPRESSION ILLNESS - DIVE INJURIES

Purpose: Barotrauma and decompression illness is caused by changes in the surrounding atmospheric pressure beyond the body's capacity to compensate for excess gas load. These injuries are most commonly associated with the use of SCUBA (Self-Contained Underwater Breathing Apparatus). SCUBA diving emergencies can occur at any depth with the most serious injuries manifesting symptoms after a dive. It should be understood that if a patient took a breath underwater, from any source of compressed gas (e.g. submerged vehicle, SCUBA, etc) while greater than three (3) feet in depth then ascended to the surface, the patient may be a victim of barotrauma. Barotrauma may cause several injuries to occur including: arterial gas embolism (AGE), pneumothorax, pneumomediastinum, subcutaneous emphysema, and the "squeeze". Decompression illnesses may also include decompression sickness ("Bends").

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Trauma Supportive Care Protocol 3.1.4,
2. High-flow O_2.
3. Place patient supine. Vomiting patient s should be placed in the left lateral decubitus position to prevent aspiration. (c).
4. Complete the Dive Ac Adent Signs and Symptoms Checklist (see Forms Section).
5. Start Dive History Profile (see Forms Section), if possible (the patient's dive buddy maybe helpful in answering many of these questions).
6. Start Rapid Neuro Field Exam Record (see Forms Section).
7. Whenever possible, have the legal authority in charge (e.g. police, Florida Marine Patrol, U.S. Coast Guard, etc.) secure all of the victims dive gear with proper chain of custody for testing, analysis, etc.
8. Manage patient according to appropriate protocol(s).
9. Transport to closest Emergency Department or Trauma Center.
10. If using air transport for diving accident patient; cabin altitude must be below 1000 feet.
11. Contact Diver's Alert Network (DAN) at Duke University Medical Center collect at (919) 684-4326 or (919) 648-8111 for further assistance (a).

ALS LEVEL 1: PARAMEDIC ONLY

1. None .

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

NOTE:

(a) DAN may be contacted while on scene or after arrival at the hospital. If at hospital, give name of ED physician and ED phone number.

(b) The two most serious dive related accidents are **Air Embolism** (arterial gas embolism), and **Decompression Sickness** (venous gas embolism)

(c) According to the U.S. Navy Diving Manual, dive accident victims should be transported lying flat. Although most of the diving community teaches that victims should be transported with the victim on his left side, head lower than the rest of the body. When placing a victim in the Dive Accident Management Position lay him flat on a backboard. The only time a victim should be placed on his side is if a pneumothorax exists, or there is a possibility of regurgitation. If the patient has a pneumothorax, place him on the affected side otherwise, left lateral decubitus if vomiting.

3.8.5 ELECTRICAL EMERGENCIES

Purpose: A wide range of injuries can be caused from a lightning strike or contact with electricity. Electrical injury can occur from direct contact, an arc, or a flash of the electricity and a direct hit or a splash from lightning. The movement of electrical current through the body can cause violent muscle contractions that can lead to fractures, and therefore, the C-spine should be protected. The thermal energy can cause external burns, but in many cases the majority of thermal damage is internal, with few external signs of injury. Dysrhythmias are also common (e.g. ventricular fibrillation). The rescuer should be sure that the patient is no longer in contact with the electrical current before initiating treatment.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Trauma Supportive Care Protocol 3.1.4 (protect C-spine).
2. Treat burns per Pediatric Burn Protocol 3.9.7.
3. Consider need to transport to a trauma center

ALS LEVEL 1: PARAMEDIC ONLY

1. Treat dysrhythmias per specific protocol (see Pediatric Cardiac Dysrhythmida Protocol 3.3).

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

3.9
PEDIATRIC
TRAUMA EMERGENCIES

3.9 PEDIATRIC TRAUMA EMERGENCIES

Overview: These protocols cover specific types of injuries and their treatment. The initial assessment of the trauma patient should include determination of trauma alert criteria (see appendix for trauma alert criteria). When the situation demands (e.g. trauma alert criteria is met), scene time should be limited as much as possible (e.g.10 minutes) and the patient should be expeditiously transported to a trauma center. Do not delay transport to establish vascular access or bandage and splint every injury. Priority should be given to airway management, rapid preparation for transport (e.g. full immobilization on a backboard) and control of gross hemorrhage.

If a vascular access is obtained and hypovolemia is suspected (e.g. signs and symptoms of shock), a fluid challenge of 20 ml/kg should be administered. If the patient is still in shock, repeat fluid challenge at 20 ml/kg until a maximum of 60 ml/kg is administered. However, administration of large volumes of IV fluids has been found to be deleterious to the survival of patients with uncontrolled hemorrhage, internally or externally. In recent studies (NEJM 1994), it has been shown that maximal fluid resuscitation may increase the bleeding, preventing the formation of a protective thrombus or dislodging it once the intraluminal pressure exceeds the tamponading pressure of the thrombus. Therefore, **consult with the physician should be made prior to the administration of large volumes of IV fluids when the transport time is relatively short (e.g. < 20 minutes).**

Avoid the use of vasopressors agents (e.g. Dopamine) in trauma patients that are hypotensive (see appendix- pediatric vital signs)

The pregnant adolescent female in her third trimester should be placed on her left side for transport. If the injuries require the use of a backboard, following full immobilization to the backboard, said board should be tilted to the left. Failure to follow this practice may cause hypotension due to decreased venous return.

3.9.1 HEAD AND SPINE INJURIES

Purpose: If history, symptoms, or signs of head or spinal injuries are present, manually immobilize the head and neck while maintaining a patent airway using a modified jaw-thrust method. Immobilization of the entire spine is indicated following initial stabilization.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Trauma Supportive Care Protocol 3.1.4. with appropriate C-Spine precautions
2. If not hypotensive (see Appendix 7.10 - Pediatric Vital Signs), elevate head of backboard 30 degrees (12-18 inches).
3. If child is asleep upon arrival, gently arouse him/her to assess the level of consciousness or irritability. If the child is upset, allow some time for the child to settle down before comtinuing with the exam.
4. Perform a through head-to-toe assessment for trauma, including an age-appropriate neurologic exam and musculoskeletal exam.
5. Assess for and document a Glasgow Coma Scale

ALS LEVEL 1: PARAMEDIC ONLY

1: If signs of brainstem herniation exist (e.g. pupillary dilation, asymmetric pupillary reactivity, or motor posturing), consider intubation and ventilate @ 20/minute for child and 30/minute for infant

2. If patient is seizing, see Pediatric Seizure Protocol 3.5.2 (avoid glucose containing solutions and medications).

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

3.9.2 EYE INJURIES

Purpose: This protocol covers a variety of injuries to the eye. If other injuries to the body exist, priority of care should be given as appropriate.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Trauma Supportive Care Protocol 3.1.4 (establish IV PRN).
2. Remove or ask to the patient to remove contact lenses, if still in the affected eye(s).
3. For penetrating object, stabilize object and cover affected eye with an ocular shield or similar rigid device. Cover both eyes to minimize eye movement. Avoid direct pressure on eye or penetrating object.
4. If eyeball has been forced out of the socket, cover the entire eye area with a rigid container, such as a disposable drinking cup. Avoid contact with the exposed globe. If bleeding, control by direct pressure with a sterile dry dressing.
5. If there are signs and symptoms or suspicion of ocular exposure to chemicals or foreign body, without obvious or suspected penetrating injury or laceration of the cornea or globe, irrigate with Normal Saline IV solution.

ALS LEVEL 1: PARAMEDIC ONLY

1. none

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.
2. Contact med control for pain medication order if needed.

3.9.3 CHEST INJURIES

Purpose: This protocol covers both blunt and penetrating chest trauma and should be part of initial resuscitation if breathing is compromised.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Trauma Supportive Care Protocol 3.1.4.
2. Penetrating injuries to the chest or upper back should be covered immediately with an occlusive dressing (e.g. Vaseline gauze).
3. Do not attempt to remove an impaled object (stabilize with bulky dressing, etc.). If impaled object is very large or unwieldy, attempt to cut object to no less than six inches from chest.

ALS LEVEL 1: PARAMEDIC ONLY

1. Do not delay transport to establish vascular access or bandage and splint every injury
2. For tension-pneumothorax, with evidence of respiratory and circulatory compromise, decompress chest on affected side (see Medical Procedure Needle Decompression 4.26).
3. For massive flail chest with severe respiratory compromise, intubate and ventilate @ 20/minute for child and 30/minute for infant. If flail chest does not cause severe respiratory compromise, stabilize externally using ipsilateral arm in sling and swathe.
3. For crush injury, establish two large bore IVs. If crushing object is still on patient, infuse a minimum of 20 ml/kg of fluid before attempting to lift object off of patient.
4. For traumatic asphyxia**, Sodium Bicarbonate (8.4%)** 1 mEq/kg IV (a).
5. If a vascular access is obtained (IV or IO) and hypovolemia is suspected (e.g. signs and symptoms of shock), a fluid challenge of 20 ml/kg should be administered. If the patient is still in shock, repeat fluid challenge at 20 ml/kg until a maximum of 60 ml/kg is administered.
6. Avoid the use of vasopressors agents (e.g. Dopamine) in trauma patients that are hypotensive

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.
2. Consult with the physician should be made prior to the administration of large volumes of IV fluids when the transport time is relatively short (e.g. < 20 minutes).

Note:

(a) Sodium Bicarbonate (4.2%) 1 mEq/kg IV/IO should be administered to

infants (dilute 8.4% 1:1 with Normal Saline to make 4.2%).

3.9.4 ABDOMINO-PELVIC INJURIES

Purpose: This protocol covers blunt and penetrating abdomino-pelvic trauma. Penetrating injuries may also include the chest (see Pediatric Protocol 3.9.3 - Chest Injuries). Also refer to Appendix – Signs of Child Abuse.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Trauma Supportive Care Protocol 3.1.4. (CALL TRAUMA ALERT IF APPROPRIATE)
2. For penetrating injuries, cover with an occlusive dressing (e.g. Vaseline gauze).
3. For evisceration, cover organs with saline soaked sterile dressing and then cover with an occlusive dressing (e.g. foil). Do not attempt to put organs back into abdomen.
4. Do not log roll patient with suspected pelvic fracture (may use scoop stretcher if appropriate to patient size).

ALS LEVEL 1: PARAMEDIC ONLY

1. Do not delay transport to establish vascular access or bandage and splint every injury
2. If a vascular access is obtained and hypovolemia is suspected (e.g. signs and symptoms of shock), a fluid challenge of 20 ml/kg should be administered. If the patient is still in shock, repeat fluid challenge at 20 ml/kg until a maximum of 60 ml/kg is administered.
3. Avoid the use of vasopressors agents (e.g. Dopamine) in trauma patients that are hypotensive

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.
2. Consult with the physician should be made prior to the administration of large volumes of IV fluids when the transport time is relatively short (e.g. < 20 minutes).

3.9.5 EXTREMITY INJURIES

Purpose: This protocol covers open and closed injuries to the extremities, including amputation.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Trauma Supportive Care Protocol 3.1.4 (establish IV PRN).
2. Any fracture or suspected fracture should be splinted appropriately with ice to area. Remove and secure all jewelry. Check and document distal neurovascular status pre and post splinting.
3. Angulated fractures should be aligned using proximal and distal traction during splinting, except in fractures that involve a joint, which should be splinted in the position found.
4. Traction splints should be used in cases of femur fractures, unless a pelvic fracture is suspected. Sheet splint suspected pelvic fractures.
5. Amputations should be dressed with bulky dressings and amputated part should be wrapped in moistened sterile gauze and placed in plastic bag and then the bag placed on ice for transportation to the hospital.
6. Do not delay transport to establish vascular access or bandage and splint every injury

ALS LEVEL 1: PARAMEDIC ONLY

1. See Pediatric Pain Protocol 3.1.5 for pain management.
2. If a vascular access is obtained and hypovolemia is suspected (e.g. signs and symptoms of shock), a fluid challenge of 20 ml/kg should be administered. If the patient is still in shock, repeat fluid challenge at 20 ml/kg until a maximum of 60 ml/kg is administered.

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.
2. Consult with the physician should be made prior to the administration of large volumes of IV fluids when the transport time is relatively short (e.g. < 20 minutes).

3.9.6 TRAUMATIC ARREST

Purpose: The decision to attempt resuscitation of a traumatic arrest should be based on the paramedic's judgment as to the possibility of survival and/or the possibility of organ harvest. There are instances where resuscitation of a traumatic arrest is not warranted (see Administrative Guidelines-1.2.5 DNR/Resuscitation Considerations/DOA).

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Trauma Supportive Care Protocol 3.1.4.
2. Rapidly prepare patient for transport and then expeditiously transport patient to the trauma center.

ALS LEVEL 1: PARAMEDIC ONLY

1. If IV(s) can be established, infuse Normal Saline 20 ml/kg up to 60 ml/kg IV.
2. Avoid use of vasopressors in cases of suspected hypovolemia.
3. Call Trauma Alert if applicable

ALS LEVEL 2: MEDICAL CONTROL

3. Call medical control or medical director for any questions or concerns.

3.9.7 BURN INJURIES

Purpose: Burns can be caused by thermal, chemical, and electrical sources. If an electrical burn is suspected, also see **Pediatric Protocol 3.8.5 - Electrical Emergencies**. Remember that burn patients are volume depleted. However, burns do not bleed; therefore, look for other sources of bleeding. Assume that any patient with compromised perfusion has other injuries and treat accordingly. Many burn injuries are associated with inhalation injury. The signs and symptoms of inhalation injury include: nasal and oropharyngeal burns, charring of the tongue or teeth, sooty (blackened), sputum, singed nasal and facial hair, abnormal breath sounds (e.g. stridor, rhonchi, wheezing, etc.), and respiratory distress. In cases of inhalation injury, attention should be given to the patency of the airway. Acute swelling can cause an airway obstruction. The Paramedic should consider the need for early intubation to avoid a complete airway obstruction that requires a cricothyroidotomy.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Trauma Supportive Care Protocol 3.1.4.
2. Stop the burning process, if necessary (do not cause hypothermia):

Thermal Burns: Lavage the burned area with tepid water (sterile, if possible) to cool skin. Do not attempt to wipe off semisolids (grease, tar, wax, etc.).

Dry Chemical Burns: Brush off dry powder, then lavage with copious amounts of tepid water (sterile, if possible) for 15 minutes.

Liquid Chemical Burns: Lavage the burned area with copious amounts of tepid water (sterile, if possible) for 15 minutes. (When Phenol has caused the burn, flush with copious amounts of tepid water and then apply vegetable oil to area, if available. Isopropyl alcohol may be used for very small areas.)

3. Remove clothing from around burned area, but do not remove/peel off skin or tissue.
4. Remove and secure all jewelry and tight fitting clothing.
5. Assess the extent of the burn using the Modified Rule of Nines and the degree of burn severity (see **Appendix - Burn Severity Categorization**

and **Appendix - Rule of Nines**). An additional method is to use the palmar surface of the patient as 1% BSA.

6. Apply dressing to burn area as follows:
    a. If there is ≥ 20% 2nd degree or 5% 3rd degree burns, cover burned areas with dry sterile dressings.
    b. If there is < 20% 2nd degree and 5% 3rd degree burns, apply wet sterile dressings to burned areas for 15 minutes to aid in pain control.
7. Prevent hypothermia, keep patient warm and insure that all outer layers of dressings are dry.

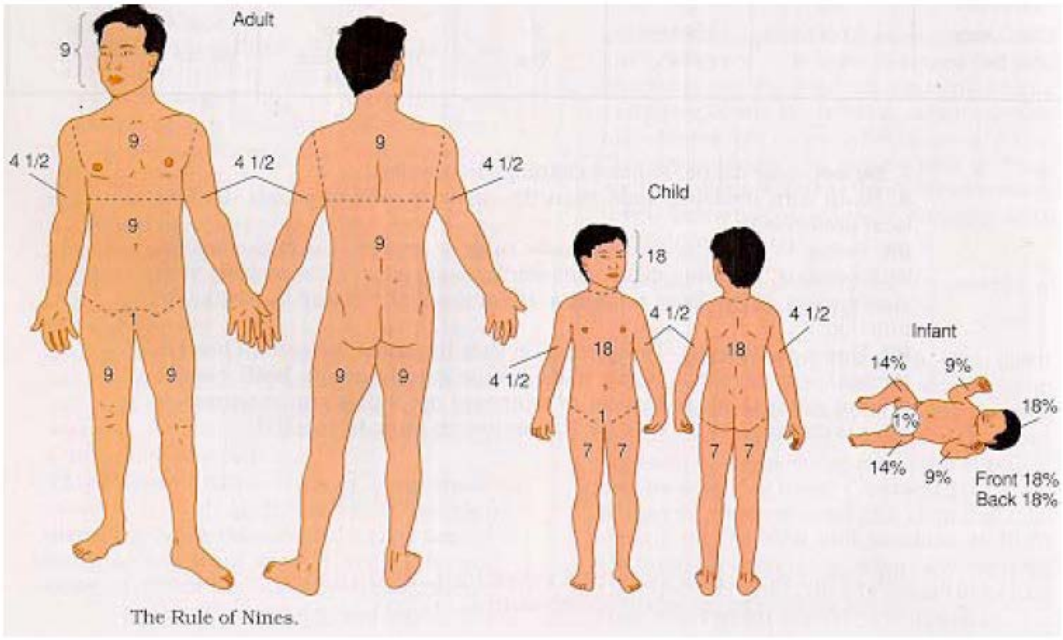
ALS LEVEL 1: PARAMEDIC ONLY

1. If respiratory distress, or airway burns exist, prepare to intubate (**RSI** if indicated) or support/assist ventilations.
2. Establish IV (may start IO for severe burns) of Lactated Ringers or Normal Saline. IV fluid administration based on the
    a. **Parkland formula**: % body surface burned X wt (in kg) X 4 cc/kg. One half of this total is given in the first 8 hours from time of burn (if burn occurred 2 hours before you start treatment, then the first half of the amount needs to be given over the next 6 hours).
3. If pulseless or apneic, go to Cardiac Arrest Protocol 3.3.6.
4. If additional injuries, go to specific protocol.
5. For pain management, (see **Pediatric Pain Management Protocol** 3.1.5).

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

Burn Classification	Characteristics
Minor burn injury	◆1°burn ◆2° burn < 15% BSA in adults ◆2° burn < 5% BSA in children/aged ◆3° burn < 2% BSA
Moderate burn injury	◆2° burn 16-25% BSA in adults ◆2° burn 5-20% BSA in children/aged ◆3° burn 2-10% BSA
Major burn injury	◆2° burn > 25% BSA in adults ◆2° burn > 20% BSA in children/aged ◆3° burn > 10% BSA ◆Burns involving the hands, face, eyes, ear feet, or perineum ◆Most patient with inhalation injury, electric injury, concomitant major trauma, or significant pre-existing diseases



The Rule of Nines.

3.10
CHILDREN WITH SPECIAL HEALTHCARE NEEDS

3.10 CHILDREN WITH SPECIAL HEALTHCARE NEEDS:

Overview: These protocols cover specific types of special healthcare needs in pediatric patients. "Children with special healthcare needs are those who have or are at risk for chronic physical, developmental, behavioral, and emotional conditions that necessitate use of health and related services of a type or amount not usually required by typically developing children."

The general approach to children with special healthcare needs includes the following:

1. Priority is given to the ABCs.
2. Do not be overwhelmed by the machines.
3. Listen to the caregiver.
4. If a nurse is present, rely on their judgment.
5. Remember…the child's cognitive level of function may be altered.
6. Assume that the child can understand exactly what you say.
7. Bring all medications and equipment to the hospital.

Obtaining a history includes asking the parent/caregiver the following:

1. Child's normal vital signs.
2. Child's actual weight.
3. Developmental level of the child.
4. Child's allergies – include latex.
5. Pertinent medications/therapies.

American Heart Association: PALS Provider Manual, 2002: p.287.

3.10.1 HOME MECHANICAL VENTILATORS

Purpose: Home mechanical ventilators may be indicated for chronically ill children with abnormal respiratory drive, severe chronic lung disease, or severe neuromuscular weakness. Some children require continuous mechanical ventilation, while others only require intermittent support during sleep or acute illness. Home ventilators may either be volume limited or pressure limited. All are equipped with alarms.

Types of ventilator alarms:

1. Low pressure or apnea – may be caused by a loose or disconnected circuit or an air leak in the circuit or at the tracheostoma, resulting in inadequate ventilation.

2. Low power – caused by a depleted battery.

3. High pressure – can be caused by a plugged or obstructed airway or circuit tubing, by coughing, or by bronchospasm.

4. Setting error – is caused by ventilator settings outside the capacity of the equipment.

5. Power switchover – occurs when the unit switches from alternating-current power to the internal battery.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3.
2. If ventilator-dependant child is in respiratory distress and the cause is not easily ascertained and corrected, remove the ventilator and provide assisted manual ventilations with a bag-valve device.
3. Consider need for other protocols (e.g. Pediatric Protocol 3.2 - Pediatric Respiratory Emergencies).
4. Don't hesitate to ask the parents or caregiver for help managing the home ventilator since they are likely well versed on its use.

ALS LEVEL 1: PARAMEDIC ONLY

1. None

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

3.10.2 TRACHEOSTOMY

Purpose: Tracheostomies are indicated for long-term ventilatory support, to bypass an upper airway obstruction, and to aid in the removal of secretions. Tracheostomies come in neonatal, pediatric, and adult sizes and can be either single lumen or double lumen. Special attachments include: tracheostomy nose (filtration device), tracheostomy collar (for oxygen or humidification), and Passymuir valve (speaker valve).

Signs of tracheostomy tube obstruction:

1. Excess secretions.
2. No chest wall movement.
3. Cyanosis.
4. Accessory muscle use.
5. No chest wall rise with bag-valve ventilations.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3.
2. If obstruction is present, inject 1-3 ml of Normal Saline into the tracheostomy tube and suction PRN (set suction at 100 mm Hg or less).
3. If unable to clear obstruction by suctioning, remove tracheostomy tube and insert new tube (same size or one size smaller). DO NOT FORCE TUBE. If long term trach patient, parent and/or caregiver usually familiar with this procedure so allow them to assist if they offer.
4. If unable to insert new tracheostomy tube or if unavailable, insert endotracheal tube of similar size into stoma and ventilate with bag-valve-device PRN.
5. If unable to insert endotracheal tube, ventilate with bag-valve-mask over stoma or over patient's mouth while covering stoma PRN.
6. Consider need for other protocols (e.g. Pediatric Protocol 3.2 - Pediatric Respiratory Emergencies).

ALS Level 1: PARAMEDIC ONLY

1. None

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

3.10.3 CENTRAL VENOUS LINES

Purpose: Central venous lines are indicated for administration of medications, delivery of chemotherapy, nutritional support, infusion of blood products, and blood draws. Types of central venous lines include: Broviac/Hickman, Port-a-cath/Med-a-port, and percutaneous intravenous catheters (PIC). Central venous line emergencies include: catheter coming completely out, bleeding at the site, catheter broken in half, blood embolus, thrombus, air embolus, and internal bleeding. The uses of SUB-Q ports require special training and should not be used for IV access unless you have been trained and signed off to do so by medical director.

Signs of blood embolus, thrombus, air embolus, and internal bleeding:

1. Chest pain.
2. Cyanosis.
3. Dyspnea.
4. Shock.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3.
2. If catheter is completely out, apply direct pressure to site.
3. If there is bleeding at the site, apply direct pressure.
4. If catheter is broken in half, clamp end of remaining tube.
5. If suspected blood embolus, thrombus, or internal bleeding: clamp line.
6. If suspected air embolism, clamp line and place patient on left side.
7. Consider need for other protocols (e.g. Pediatric Protocol 3.2 - Pediatric Respiratory Emergencies).

ALS Level 1: PARAMEDIC ONLY

1. None

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.

3.10.4 FEEDING TUBES

Purpose: Feeding tubes are indicated for administration of nutritional supplements and in patients that have an inability to swallow. Types of feeding tubes include: nasogastric tube (temporary) and gastrostomy tubes (G tube). Types of G tubes include those that are surgically placed, percutaneous endoscopic gastrostomy tubes, PEG tubes, and jejunal tubes (J-tube). Complications include: leaks, bleeding around the site, and displacement of the tube.

Procedure:

BASIC LEVEL: EMT and PARAMEDIC

1. Medical Supportive Care Protocol 3.1.3.
2. If catheter is completely out, apply direct pressure to site.
3. If there is bleeding at the site, apply direct pressure.

ALS LEVEL 1: PARAMEDIC ONLY

1. None

ALS LEVEL 2: MEDICAL CONTROL

1. Call medical control or medical director for any questions or concerns.