SCUTDOG

National Capital Consortium
Pediatric Residency Program

ACADEMIC YEAR 2017-2018

ncc Pediatrics
national capital consortium pediatrics residency

the Children's Center
at Walter Reed Bethesda

7th Combined Hospital Edition

NATIONAL CAPITAL AREA RECOMMENDED PEDIATRIC IMMUNIZATION SCHEDULE – OCTOBER 2015

Pediatric Immunizations 	Hep B *See below	DTaP Diphtheria, Tetanus, And Pertussis	Polio IPV	Hepatitis A	MMR Measles, Mumps, Rubella	Varicella Chickenpox	Rotavirus Rotateq® Oral Vaccine **See below	Pneumococcal Prevnar 13®	Hib Haemophilus B PedVaxHib®	Pediarix® See below **** DTaP, IPV, Hep B	Influenza (Seasonal)
2 Months	1	1	1				1	1	1	1	
4 Months	2	2	2				2	2	2	2	
6 Months	3	3	3				3	3		3	Every year beginning at 6 months of age. Patient will need 2 total doses, 1 month apart, for initial flu vaccine under age 9 yrs. Only 1 dose is needed yearly in subsequent years.
12 Months				1	1	1		4			
15-18 Months		4		2 2nd dose 6 or more months after 1st dose.					One shot after 1st birthday 3 (given at 15-18 months)	Will need DTaP #4 and # 5 at appropriate times	
4-6 Years	All patients need 3 Hep B vaccines if not already received.	5 Given ≥ 4 years **KINRIX®** (DTaP and Polio)	4 Given ≥ 4 years	All patients need 2 Hep A vaccines if not already received.	2 Given at ≥ 4 years **ProQuad®** (Measles, Mumps, Rubella and Varicella)	2 Given at ≥ 4 years					
11-18+ Years		**Tdap** (Boostrix®- ≥ 10 years)	**HPV Gardasil 9®** *** See below		Every patient needs 2 doses of MMR	Every patient needs 2 doses of varicella	**MENINGOCOCCAL Conjugate:** (may need booster) ***** See below **MEN B** ******See below				

Please See CDC WEBSITE for catch up information and questions.

***At birth receive isolated Hep B vaccine.**
****Rotateq®: First dose needs to be started at 6-12 weeks and full series of three vaccines completed by 32 weeks of age (approx. 7 ½ months)**
*****Gardasil 9 ® (HPV) Three dose schedule at 0, 2 and 6 months. Start at 9-12 years of age.**
******Pediarix® If no Hep B at birth, 3rd dose of Pediarix® should be given on or after age 6 months.**
******* MENINGOCOCCAL: 1st dose age 11 or 12 years, Booster dose age 16 years or greater. If first dose at age 13 to 15 years, Booster dose at 16 – 18 years. If first dose given > 16 years, then only 1 dose is needed.**
********Meningococcal Group B Vaccine 10-25: Available for high risk patients. 1. Complement deficiency 2.Asplenia (anatomic or functional) 3.Use during an outbreak 4.Other risk factors -college students in dorms.**

IMMUNI THE PANDA SAYS, "STAY HEALTHY, GET IMMUNIZED"

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TEN MUST-KNOW FACTS OF MILITARY PEDIATRIC HISTORY

1. **COL Ogden Bruton**, charged with improving the health of WWII "**War Brides**" and their children, founds the pediatric department at Walter Reed in 1949. A clinician *par excellence*, his motto was that **"the patient is first, last, and always."** His evaluation and treatment of **Jay Holtener**, a USAF general's son with chronic infections, led to the discovery and successful treatment of **X-Linked Agammaglobulinemia**.

2. **LCDR Laurel Clark**, pediatric intern at Bethesda in 1987, was the **1st pediatric trained physician** in space. She perished on the space shuttle *Columbia* in 2003. The **Clark Auditorium** at Walter Reed is named for her.

3. **CAPT Robert A Phillips** of the US Navy Medical Research lab in Taiwan characterizes the glucose-sodium co-transporter and develops the first **Oral Rehydration Solution** with the proper Na:Glu ratio in 1964. This solution, now known as **WHO ORS**, has been credited with saving more pediatric lives than any other human development other than the invention of sewer systems.

4. The U.S. Army provides the first treatment of **infant botulism** using **equine anti-toxin**. The horse **"First Flight"** was a mediocre racer and a skittish caisson-bearer (he once bolted with a general's coffin at Arlington), but he was a prolific antibody producer. His anti-toxin saved the life of **Tess Baird**, an Ohio newborn who developed botulism in 1997. First Flight is buried at Ft. Detrick, MD.

5. **RSV Immunoglobulin** is developed by **Col Val Hemming** and the Department of Pediatrics at **USUHS**. Respigam, and then its successor Synagis, is used worldwide for prevention of RSV. Military medicine still collects royalties from the use of Synagis.

6. **COL James Bass**, develops guidelines for **evaluation of infant fever**, proves that erythromycin can treat pertussis, and establishes the **10 day course of PEN VK** for strep throat, among other contributions. He would blow a conch shell to start morning report at Tripler.

7. The **1st use of ECMO** for a neonate occurred at **Wilford Hall** in 1972. In 1985, that center became the 12th ECMO center nationwide and the 1st in the military and in Texas. **Maj David Cornish** established the **1st ECMO Transport** service in 1989, which is 1 of only 3 such services available today.

8. **COL Robert DeLemos**, neonatologist at **Wilford Hall**, along with RT Jimmy Schulz and COL Kirby, develop the 1st successful infant ventilator, which became the prototype for **Baby Bird Ventilator.**

9. **CPT Carolyn Sullivan**, a pediatrician assigned to the 3rd Armored Division in **Gulf War 1**, becomes the mission-critical medical asset when a **humanitarian crisis** erupts in Safwan, a Kuwait/Iraq border town. The press name her "the **Angel of Safwan**" and cement the valuable role of pediatricians in war.

10. **CAPT Andrew Margileth,** of Bethesda**,** first describes Parinaud syndrome in **pediatric cat-scratch disease** and attributes CSD as a cause of pediatric FUO. He is the **first to identify** microorganisms in CSD.

IMPORTANT WR-B NUMBERS

On Base (reachable from on– and off-base)	295-xxxx, 319-xxxx, 400-xxxx
On Base (ONLY reachable from on-base)	555-xxxx, 495-xxxx, 595-xxxx
Off Base	99-1-phone #
DSN (to call a USUHS number)	94-295-xxxx
INPATIENT CODE BLUE	**666**
INPATIENT RAPID RESPONSE	**Dial 321 from in-house phone**
OUTPATIENT CODE BLUE	**777**
CDO DESK	295-4611, Option 4
Operator	301-295-4000
Patient Administration (PAD)	295-2126
Nurse of the Day (NOD)	Lower: 106-0725 Upper: 178-5288
IT One-Stop	295-6300
Translation Services	1-866-340-7224 ext 9360

Morning Report Conference Room HEROES 3007/8	400-3746

WARD 3 WEST

Front Desk	**319-2400**
Resident Work Room	319-7955/54
Ward fax	319-7980
Intern Pager	106-0923
Senior Pager	157-6036
5W	295-2589
INPATIENT ADMISSIONS/ SENIOR PHONE	**301-676-7337 (PEDS)**

PICU

Front Desk	**400-2010**
Call Room	400-1613
PICU Provider/Resident Pager & Cell	p 106-0139, c 301-642-7667
Nursing Director	400-1593
SICU Charge Nurse (To find floated nurses)	295-4830

SEDATION UNIT

Front Desk	**400-2030 Option 4**
[Deshore] Osborne, Naomi	o 400-1596, c 240-441-3736
Sedation Scheduling	o 400-1594

NICU

Front Desk	**319-6428**
Fax	319-5110
Toll-Free	877-793-8321
Conference/Checkout Room	319-5087
Resident Work Room (“Bat Cave”)	319-8853
Fellows Office	319-5003/5095
Fellow Call Room	400-2922
On-Call Phone	c301-646-6727

MICC

Front Desk	**319-5100**
Dr. Greenwald	o 295-4923 c 240-401-1261
Well baby suite	319-5049
L & D Deck	319-5000
OB/GYN Work Room	319-5027
OB/GYN PACU	319-5130
Lactation Consultants	400-2352

SERVICE PAGERS AND FELLOWS

ADOLESCENT SERVICE PHONE	**c 301-318-6999**
AFCCP ON CALL	**c 301-633-6823**
CAPT Amy Gavril, MD	o 319-7769 c 210-260-4421 h 240-489-3488 Email: amy.r.gavril.mil@mail.mil
Donna Kahn, CPNP, PhD	o 295-1454 c 443-994-6703 h 410-573-9123 Email: donna.l.kahn.civ@mail.mil
Barbara Craig, MD	o 295-5648 c 240-731-7311 H 301-916-4742 Email: barbara.r.craig.civ@mail.mil
Forensic Interviews/Appointments: Kristen Webb, LCSW	o 295-0881 c 410-409-0828 kristen.e.webb.civ@mail.mil

*Suspected physical abuse? See page 54-56 for an algorithm

ALLERGY ON CALL	**p106-3366**
Punch, Chandra (fellow)	Evans, Martin (fellow)
Lindsey, Diana (fellow)	

CARDIOLOGY ON CALL	**p101-8850, c 301-385-9330**

CAPS (Behavioral Health)	**295-0576 (Front Desk)**
Duty-hours Inpatient Consults	Call front desk to page the on-call provider
After-hours Consults page PCLS	165-9956

CRITICAL CARE ON CALL	**p106-0139, c 301-642-7667**

DEVELOPMENT ON CALL	**c 301-646-8276**

ENDOCRINE ON CALL	**c 202-713-3321**
Bleach, Cortney (c 919-738-0696)	Isfort, Anna (c 513-633-0319)
Espinola, Dimas (c 978-821-8171)	

GENETICS ON CALL	**p105-0158, c 901-646-9017**
LTC Clesson Turner, MD	c 240-994-5298

GI ON CALL	**p170-1650, c 301-646-8201**
Heisel, Matthew (c 605-212-4072)	Daniels, Claire (c 443-904-3353)
Pasman, Eric (c 269-352-3416)	Short, Patrick (c 719-331-5764)

SERVICE PAGERS AND FELLOWS

HEME-ONC ON CALL	p106-7732, c 301-412-4549
Ortolano, Rebecca (c 518-526-9315)	Padial, Javier (c 787-505-7934)
Vasta, Lauren (c 267-312-9983)	Zanetti, Richard (c 410-591-6060)

ID ON CALL	p101-9518, c 301-648-0545
Jones (Carter), Milissa (c 210-334-9437)	Donahue, Megan (c 321-427-0566)

NEONATAL ON CALL	p170-0694, c 301-646-6727
Nadolsky, Jenna (c 757-848-7656)	Groberg, Andrew (c 208-520-6560)
Knickerbocker, Peter (c 215-298-2476)	Harrell, Matthew (c 937-371-9746)
Guggenbiller, Matthew (c 419-308-3035)	

NEUROLOGY ON CALL	p108-8517, c 301-412-7840
Dobbins, Kate (2018)	c 224-730-1451
Gall, Tim (2019)	c 540-204-0285
Eye, Philip (2019)	c 516-603-8849

NEPHROLOGY ON CALL	c 615–436-3962 (61KIDNEY62)

ORTHO (PEDS) ON CALL	p105-0842

PULMONOLOGY ON CALL	p178-5265, c 301-648-0144

PED PLASTIC SURG ON CALL	Lt Col Kerry Latham, c 210-385-3500

RHEUMATOLOGY ON CALL	p107-2860, c 301-648-0641
Dr. Olcay Jones	c 240-515-7987

SURGERY (PEDS) SOD	p157-2969

UROLOGY (PEDS) SOD	p170-1622, 2nd call p103-2387

SERVICE PAGERS

Universal Access Number: Dial **1-866-295-4913.** From In-House Phone: **444** Enter PIN, then "#", then call back number and press "#"	
Ward Attending (Service Pager)	106-1668 (pin 8956) / c 301-648-0726
Ward Senior Pager / Phone	157-6036 / c 301-676-7337 (PEDS)
Ward Intern Pager	106-0923
PICU Provider	106-0139 / c 301-642-7667
NICU Senior Pager	170-0863 / c 301-646-6727
NICU Charge Nurse	170-0812
NICU Fellow Pager	170-0694
MICC Intern Pager	115-1050

CHIEF RESIDENT

Childers, Molly	c 812-361-5840 molly.childers@nccpeds.com

PGY-3

Brockman, Shannon	c 407-361-6469 Shannon.brockman@nccpeds.com
Carter, Elizabeth	c 632-341-5955 elizabeth.carter@nccpeds.com
Erickson, Grant	c 952-484-3741 grant.erickson@nccpeds.com
Gulledge, Rebecca	c 719-359-2089 rebecca.gulledge@nccpeds.com
Jones, Katie	c 256-270-6364 katie.jones@nccpeds.com
Oparaji, Judy-April	c 832-524-8338 judyapril.oparaji@nccpeds.com
Puthawala, Christine	c 607-242-4548 christine.puthawala@nccpeds.com
Stark, Christopher	c 651-564-0249 christopher.stark@nccpeds.com

PGY2

Ahmed, Saira	c 727-871-9327	saira.ahmed@nccpeds.com
Carlson, Alyse	c 720-284-2733	alyse.carlson@nccpeds.com
Haberkorn, Chris	c 720-323-8697	christopher.haberkorn@nccpeds.com
Hidirsah, Arek	c 818-257-8294	arek.hidirsah@nccpeds.com
McFadden, Cory	c 904-504-2529	cory.mcfadden@nccpeds.com
Miller-Jaster, Kirsten	c 440-371-6523	kirsten.millerjaster@nccpeds.com
Patterson, Paul	c 202-288-8706	paul.patterson@nccpeds.com
Salgado, Shayla	c 828-406-9965	shayla.salgado@nccpeds.com
Thompson, Sarah	c 952-457-1242	sarah.thompson@nccpeds.com
Vereen, Rasheda	c 412-452-2757	rasheda.vereen@nccpeds.com

PGY1

Arora, Subodh	c (301) 404-9046	subodh.arora@nccpeds.com
Bloomfield, Graeme	c 610) 306-8822	graeme.bloomfield@nccpeds.com
Cirks, Blake	c 815) 370-6119	blake.cirks@nccpeds.com
Crutcher, Rob	c 804) 878-8095	robert.crutcher@nccpeds.com
Folker, Christin	c 570) 713-5632	christin.folker@nccpeds.com
Guentert. Dana	c 770) 597-6505	dana.guentert@nccpeds.com
Mauro, Alex	c 512) 587-9303	alexandra.mauro@nccpeds.com
Nguyen, Nathan (Nguyen)	c 301) 661-7213	nguyen.nguyen@nccpeds.com
Salzman, Sandy	c 920) 629-0622	sandra.salzman@nccpeds.com
Schneider, Coursen	c 845) 596-2364	coursen.schneider@nccpeds.com
Urbina, Theresa	c 360) 213-3924	theresa.urbina@nccpeds.com

PEDS ON GMO TOUR

Concepcion, Rachel (GMO, Okinawa)	c 314-606-8343
Laguarda, Mike (GMO, Lejeune)	c 703-303-3599
Maultsby, Meg (GMO, Lejeune)	c 336-692-6904
Agudelo-Uribe, Susana	c 315-706-4908
Bencze, Jenny	c 267-234-2885

Adolescent

Patient Appointment Line	319-7070
Check-in Desk	319-4287
Erickson, Kirra (Adol RN)	o 295-4907
Roach, Lindsay	c 210-332-0627 o 295-4941
Olson, Kathleen	c 651-283-5287 o 319-2333
Saxena, Harshita	c 301-404-9672
Thompson, Amy	c 253-592-4389 o 319-8422

Allergy (Peds Trained)

Banks, Taylor	c 703-965-7948
Petersen, Maureen	c 240-481-3701
Mikita, Celia	

Behavioral Health

Elmore, Corinn (Peds Clinic)	o 295-0461

Cardiology

Cardiology EKG Email	PedsEKG@nccpeds.com
Dobson, Craig	c 240-731-1525
May, Joseph	104-5264 c 650-421-6366
Mulreany, Michael	108-9359 c 808-265-4612
Needleman, Matt (EP)	c 301-807-0949
Scott, John	c 703-901-7445
Ghias, Farah (Echo)	400-1632 (echo room)
Taylor, Theresa CNA (EKGs)	400-1635

Dermatology

Green, Brian	c 240-620-9405 o 319-2398

Developmental

Anderson, Arne	c 301-801-1901 o 319-5057
Austin, Jennie (EDIS/NICU High Risk)	o 295-7932 p 165-3513
Baechler, Veronica	c 301-741-5766 o 295-0186
Erdie-Lalena, Christine (Fort Belvoir)	c 253-509-4169 o 571-231-1177
Fogarty, Kathryn (Devo RN)	o 295-5848
Goldman, Melody	o 295-5851
Williams, Stacey	o 295-5857
Physical Therapy (Nona Cedrone)	o 319-5036
Occupational Therapy (Mark Farinas)	o 319-4225
Speech Therapy (Melissa Covington)	o 319-8742

Endocrinology

Emerick, Jill	c 301-525-2132
Jensen, Kirk	c 240-678-0085 h 301-605-7295
Larsen, Noelle	c 301-792-2930
Svec, Rita	c 978-337-2139
Vogt, Karen	c 301-526-1310
Carter, Traci (Diabetes Educator)	o 295-5068 traci.m.carter.civ@mail.mil
FELLOWS	See Page 7

Gastroenterology

Fernandez, Minela (Fort Belvoir)	c 703-855-2226
Nazareno, Luz (GI Nurse)	113-4473 o 400-2915 c 301-956-6643
Nylund, Cade	105-0908 c 240-498-3358 o 301-295-1446
Min, Steve	105-0298 c 301-717-7859
O'Meara, Kevin (Fort Belvoir)	c 757-214-2663
Rogers, Philip (Chief, Inpatient Services)	106-1823 c 240-401-2436 h 301-217-9129
Sullivan, Carolyn	165-3430 c 240-498-7738 h 301-251-6179
FELLOWS	See Page 7

General Pediatrics

Adams, Aaron (William)	c 706-513-1471 o 319-3736
Baunchalk, Julie Anne	c 706-631-8725 o 400-0809
Carr, Cassandra	c 240-418-5551 o 295-4938
Cooper, Maura	c 301-922-8885 h 301-897-5398
Dunn, Ashley (Red Team Leader)	c 301-305-1700 o 295-0219
Engelhardt, Krystin (Navy APD)	c 321-356-0291
Eigner, David (EFMP Director)	c 910-916-8361 o 295-5178
Foster, Christopher (Clerkship Supervisor)	c 757-289-9181
Foxx, Wanda (Green Team Leader)	177-5123 c 703-447-0971 o 295-0540
Hawley, Susan	c 301-787-5247
Hepps, Jennifer (Army APD)	105-1774 c 215-760-3300
James, Cylyne (PNP)	c 757-589-7304 o 295-1744
Judd, Courtney	c 210-632-9404
Kimball-Eayrs, Catherine (Dep Med Dir)	105-0767 c 253-307-5314
Labow, Joel	165-9740 c 240-429-7060 o 295-5178 h 301-469-7468
Lipton, Leslie (PNP)	c 410-591-9912
Lopreiato, Joseph	c 301-275-5638 o 93-295-8136
McConnell , Rebecca	c 814-241-6180 o 319-3714
Richards, Autumn (Service Chief)	c 909-257-8439
Seide, Witzard (Now at USU, Public Health)	c 301-922-9741
Thompson, Jennifer	c 301-741-3649
Wells, Amy (Blue Team Leader)	106-1198 c 954-253-4977
Zawadsky, Peter	c 240-643-2902

Genetics

Krokosky, Alyson (Genetic Counselor)	c 864-201-1457 o 400-2916
Turner, Clesson	c 240-994-5298 o 400-1623
Estrada-Veras, Juvianee	c 917-754-7719

Hematology/Oncology

Front Desk	**400-1663/1664**
Nurse‘s Station (Internal use only)	400-1665 or 295-4228
Crouch, Gary	c 240-498-8685 o 295-3391
Hartman, Kip	165-2820 c 240-388-4608 o 400-1671
Lieuw, Ken	103-0879 c 530-574-2535
Merino, Margret	c 301-917-4711
Newton, Thomas (Chief, Dept of Pediatrics)	c 571-643-6416 p106-1043 o 400-1667
Parekh, Dina	106-1355 c 254-220-7929 o 400-1668
Stering, Allen	103-1730 c 781-330-9555 o 555-8888
Warwick, Anne	c 414-915-4577
FELLOWS	See page 8

Infectious Disease

Eberly, Matt	c 210-391-2849
Epstein, Judy	c 301-252-9026
Hickey, Pat	c 240-463-6844
Olsen, Scott (WRAIR)	o 319-9878
Ottolini, Martin	c 301-787-4164
Malloy, Allison	o 295-3665
Rajnik, Mike	c 240-394-0167
Robb, Merlin (HIV)	o 301-251-8302
Stagliano, David	106-5711 o 400-1622 c 301-237-9500
Weisse, Marty	304-685-7814
FELLOWS	See page 8

Lactation

Bascietto, Patty (Outpatient)	101-9169 o 319-4407
Kimball-Eayrs, Catherine	105-0767 c 253-307-5314 o 295-7851
Freese, Leasa (MICC/NICU Inpt)	o 400-2352
Weight Checks—No appt required Walk-in lactation support	Mondays 1200-1400 & Weds 0930-1130 Rm 4371 in Gen Peds Clinic

Neonatology

Bird, Danielle	c 808-258-1234
Dobson, Nicole	c 240-447-6187
Dintaman, Jay (NICU Service Chief)	o 319-8752 c 202-257-3176
Greenwald, Jeff (MICC)	170-0854 o 295-4923 c 240-401-1261
Rouse, Christopher (Air Force APD)	c 518-898-1848
Schultz, Cynthia	c 757-575-6441
Sierocka, Agnes	106-5186 c 301-742-0984 o 295-0180
Stokes, Theo	c 301-437-7627 o 319-8535
Wagner, Kari	c 240-460-5913
Wells, Nicholas	c 301-456-4507
FELLOWS	See Page 8

Neurology

Dennison, David	105-1532 c 571-245-2850 o 400-1779
Young, William	170-2085 c 240-277-6077 o 295-3477
FELLOWS	See Page 8

Nephrology

Gorman, Greg (Program Director)	106-0877 c 301-221-4853 h 301-891-2772
Lechner, Brent	165-4454 c 202-664-6571
Smith, Lorie	106-0595 c 912-247-7467
Ferrara, Elizabeth (Fort Belvoir)	c 858-229-4301

Nutrition

Camp, Kathy (NIH)	o 301-435-3608
Chen, Cindy (NICU)	170-8083 o 295-6538
Whitley, Andrea (Outpatient)	o 295-7872
Sami, Seppideh (Inpatient)	106-0762 c 202-531-8294 o 319-7948

PICU

Basu, Sonali (CNMC)	p 202-259-4203 c 703-517-7463
Bjorkland, Ashley (WRB)	c 612-644-6299
Corriveau,Christine (CNMC)	c 301-922-9283 h 301-519-8217
Dean, Nathan (CNMC)	p 202-259-0411 c 571-205-0838
Geracht, Jennifer (WRB)	c 310-592-2269 h 202-248-3615
Gibson, Cynthia (Fairfax)	c 703-855-8806 h 703-246-9217
Kline, Susan (NP)	c 301-928-9266
Levin, Amanda (CNMC)	p 202-259-4271 c 847-778-5387
Lu, Downing (WRB)	105-2325 c 617-596-7656 o 400-0709
Madrigal, Vanessa (CNMC)	p 202-259-1784 c 215-964-2233
Mills, Jason (PA)	c 703-598-0150
Oguike, Nikki (NP)	c 410-808-9383
Patel, Anita (CNMC)	c 703-869-9890
Sharron, Matt (CNMC)	p 202-259-4204 c 267-210-7328
Siems, Ashley (CNMC)	c 908-392-7959
Wratney, Angela (CNMC)	p 202-259-1219 c 240-478-7439

Pulmonology

Jacknewitz, Jane (NP)	165-3373 o 295-8720
Lipton, Andrew	113-4463 c 202-222-5131 o 295-4681
McCown, Michael	c 931-217-0241 o 319-7765
Mulreany, Laura	108-2035 c 240-205-5280
Harven, Kristina (RT)	o 319-4857

Residency

Gorman, Greg (Program Director)	c 301-221-4853 h 301-891-2772 o319-2466
Kiefer, Theresa (Program Coordinator)	o 301-319-5437 c 210-383-9433
Hepps, Jennifer (Army APD)	c 215-760-3300 o 295-9655
Rouse, Chris (Air Force APD)	c 518-898-1848
Engelhardt, Krystin (Navy APD)	c 321-356-0291
Carr, Cassandra (Continuity Clinic APD)	c 240-418-5551 o 295-4938
Martin, Angela (Associate PC)	c 301-996-9938
Engelhardt, Krystin (Navy APD)	c 321-356-0291
Childers, Molly (Chief Resident)	c 812-361-5840 o 295-0375

Rheumatology

Jones, Olcay	c 240-515-7987 o 301-400-1619
Katona, Ildy (USU Chief Pediatrics)	93-295-3365
Shanta, Dennis (Rheum RN)	o 295-4939

Toxicology/Emergency Medicine

Givens, Melissa (USU)	c 202-629-8901 email: melissa.l.givens2.mil@mail.mil

USUHS Peds

Main Office	93, 295-3130
Education Section	93, 295-9730

Pediatric Surgical Specialty Services

See page 28 for clinic numbers

Peds Surgery **1st call SOD 157-2969**	Duke, Duane	p 106-0104 c 215-380-3662
	Pryor, Howard	c 202-270-4440
Peds Neurosurgery **1st call 106-0157**	Davidson, Lawrence	106-0157 c 202-480-4033
Peds Ophtho	Bowsher, Jim (WRB)	c 330-447-6183
	Boden, John (FB)	o 571-231-1595
	Coyler, Marcus (WRB)	marcus.h.coyler.mil@mail.mil
Peds Ortho **1st call 105-0842**	Ahmed, Syed (FB)	c 619-955-0522 o 571-231-0363
	Jex, Jefferson (WRB)	c 240-447-4917 o 295-0730
Peds ENT **1st call 117-0900**	Maturo, Steve	c 210-422-8926
Peds Urology **1st call 170-1622**	Cartwright, Lisa	146-8414 c 814-558-5227 o 319-8029
Peds Plastics	Latham, Kerry	105-2049 o 319-4226

Peds Anesthesia *Call 123 from in-house for floor runner* ***Resident Coordinator: CPT Michael Stockin***	Fisher, Quentin	106-0073 o 295-4455 ext 156
	Laliberte, Brian	106-2353 c 202-246-4734 o 295-4455 ext 157
	Soloman, James	124-0902 o 295-8944
	Szpisjak, Dale	170-1627
Peds Sedation Unit See page 6		

Pediatric Radiology

Call 400-3799 for Pediatric Reading Room

Chung, Ellen	106-1802 o 400-3799
Fagen, Kimberly	103-2340 o 400-3799
Schroeder, Jason (Neurorads)	101-9226

Other Pediatric Specialty Services

Audiology *See Page 23 for clinic #* *Weekend pager **103-1209*** *Inpt consults **400-3939***	Branderas, Jerry (Newborns)	103-1209 o 295-4398
	Ortiz, Candice (Audiology/Ototoxicty)	106-0401 o 319-3853
	Jamis, Carmen (Peds)	c 330-881-6146 (text)
	Feleppelle, Natalie (Peds)	o 295-1658 c 614-264-3052 (text)
Peds Dental	Clinic Front Desk Sabina Yun	400-2060 c 248-977-6662
PICC Team	RN Castro	p 106-0258 o 400-0559
Peds Pharmacist	Tuan	p 106-025 o 295-8939
Peds PT	Cedrone, Nona	o 319-5036
Peds OT	Farinas, Mark	o 319-4225
Peds SLP	Cord, Laura	o 319-7031
	Covington, Melissa	o 319-8742 c 301-807-2950
Rec Therapy	Reza, Seema	o 319-4223
Wound Care	RN Aquino	o 319-8983 p 106-0027

Inpatient Social Work & Child Life

For outpatient social work, see Page 22

Terminiello, Elena (3W/PICU)	o 319-2857
Springer, Stacee (Heme/Onc)	c 301-676-6464 o 319-7943
Morgan, Marcela (NICU)	106-2130 o 319-7099
Casolari, Debby (Child Life)	165-9861 o 319-7947

Inpatient Discharge Planning

Beaston, Beth (NICU)	o 319-5117
Williams, Wonder (3W/PICU)	o 400-3211

GENERAL PEDIATRIC CLINIC

General Pediatrics Clinic	295-4941
Front Desk— Check In	319-4330
Front Desk – Check Out	295-6168 / 319-4330
Fax	295-6173
Continuity Conference Room (Rm 4547)	319-4406 VTC 38132
Resident Work Room	295-4925
Canyon Conference Room	319-4886 VTC 38126
Subspec. Conf Room (Rm 4603)	VTC 38135
Executive Hallway Conf Room (Rm 4638)	VTC 38129
Ped Pri Procedure Room	295-4382
Ped Pri Observation Room	319-8191

SUBSPECIALTY PEDIATRIC CLINIC

Subspecialty Clinic Front Desk Nancy Soto	295-4959 / 319-4095 400-2556
Austin, Jennie (EDIS/EFMP)	295-5060
Bobanie Brown, Linda (Data Manager)	319-2922
Campbell, Kimberly (Clinic Manager)	319-4245
Craig-Brewster, Frances (Devo Sched)	319-4095
Crawford, Patricia (Service Secretary)	400-1771
Keys, Lakisha (Admin Coordinator)	400-1769
Sanchez-Brady, Ramona LPN	380-3882
Sutton, Kimberly LPN	400-3625
Subspecialty Procedure Room	400-1633
Endo Fellows Office	400-1722 / 400-0087
ID Fellows Office	400-0085 / 400-1728

GENERAL PEDIATRIC CLINIC

Service Chief: Autumn Richards	295-1744
Clinic Manager: Sabrina Putney	295-4310, bb 202-427-5601
NCOIC: SSG Timothy Townsend	295-1866

Primary Care Red Team

Team Leaders: Ashley Dunn / Jennifer Thompson	295-0219 / 319-3716
Registered Nurses: Ms Doria	319-3714 / 295-6665
Administrators: Elizabeth Lingat / Linda Starks	319-4330 / 400-3797

Primary Care Blue Team

Team Leaders: Amy Wells / Rebecca McConnell	369-8183 / 319-3757
Registered Nurses: Ms Sugar & Ms Wandji	400-0809
Administrator: Ms Sambajon	319-4407

Primary Care Green Team

Team Leaders: Wanda Foxx / Cylyne James	295-0540 / 319-8958
Registered Nurses: Charlie Draughn / Sonia Casso / Jenn Koch	319-8430
Administrator: Adrian Bates / S Guillaume	400-2885

OUTPATIENT SOCIAL WORK

For inpatient social work, see Page 19

Call SW Dept for Gen Peds Consults	o 295-1719 or 319-8995
Springer, Stacee (Heme/Onc)	c 301-676-6464 o 319-7943

CASE MANAGEMENT

Broberg, Rhonda	o 400-1716
Coleman, Cindy	o 295-2182
Melendez-Warren, Jeannette	o 295-3806

EFMP

Francis, Ann	o 295-4092

Area installation Exceptional Family Member Program and School Liaison contacts:

Joint Base Andrews:
EFMP (301) 981-7088/87;
SLO – (301) 981-0057

Joint Base Anacostia-Bolling:
EFMP – (202) 767-0450;
SLO – (202) 433-2566

Fort Belvoir:
EFMP – (703) 805-2967;
SLO – (703) 805-9119

Fort Detrick:
EFMP – (301) 619-3385;
SLO – (301) 619-3247

Fort Meade:
EFMP – (301) 677-5590;
SLO – (301) 677-1227

JB Myer:
EFMP – (703) 696-8467/3510;
SLO – (703) 696-3817/7633

Henderson Hall:
EFMP – (703) 693-6368;
SLO – (703) 693-8378

NSA Bethesda:
EFMP – (301) 400-2542;
SLO – (301) 319-4087

NAS Patuxent River:
EFMP – (301) 995-4004;
SLO – (301) 757-1871

NSF Dahlgren:
EFMP – (540) 653-1839,
800-500-4947

NSF Indian Head:
EFMP – (301) 744-6725;
SLO – (301) 743-2138

Military One Source provides information on the full range of assistance available through the EFMP and lists of resources at www.militaryonesource.mil/efmp.

For information on the TRICARE Extended Care Health Option and other benefits, visit www.tricare.mil.

GENERAL WR-B NUMBERS

MAIN OPERATOR: 295-4000

Admissions (PAD) FAX	295-2126 295-2284
Audiology	Front Desk 295-7840; Inpt consults 400-3939
CDO Desk	295-4611 Option 4
Acute Care Clinic	295-1438
Army Command Element: A Co B Co. HHC AW2 Advocate (North)	 400-2858 / 400-2958 400-2872 400-2956 Julie Segel o 400-0356 Julie.F.Segel.ctr@mail.mil
Translation Services	1-866-340-7224 ext 9360
BEQ	295-5855
Blood Bank	295-0968
Central Distribution	295-4538
Chaplain	p 108-5008, o 295-1510
Credentials	295-2737
Decedent Affairs	295-2216
DMS Secretary (Geolie Escobar)	400-1324
ER	295-4810
Facilities Trouble Desk	295-1070 / 1146
Fisher House	295-5334
Immunizations	295-5798

GENERAL WR-B NUMBERS

Infection Control	319-8559
Lab - Main	**295-0250**
America Lab Front / Back Desk	555-3420 / 295-8349
Main/Accessioning	295-0250
Transfusion Services (Blood Bank)	295-0968
Apheresis	295-2104 / 05
Donor Center	295-1737
HIV Testing/Mail Out	295-6120
Chemistry	295-0280
Hematology	319-4185
Microbiology	295-2043
Serology/Virology/Immunology	295-4531
Pathology	295-5080 option 4
Heme Path	3194185
Coag/Urinalysis	295-5490
Kennedy Krieger Lab	443-923-2782 / 443-923-9400
Send-out (Mr. Pippin)	400-3364
Legal Office	295-6052
Med Evac	295-2620
Medical Records: Inpatient	295-5511
Outpatient	295-5150
Med. Photo	295-1014 / 1015

GENERAL WR-B NUMBERS

Mil. Family Health	295-0196 / 0284 / 2663
Morgue	295-2507
Navy Liaison	295-0974 / 5865
NOD (Nurse of the Day)	Lower: 106-0725 Upper: 178-5288
"One Stop" Shop (IT)	**295-6300**
OR	295-4991
Patient Admin	295-2126
Patient Escort	295-4010
Patient Relations	295-0156
Pharmacy Main	295-2122
Discharge	400-0981 / 400-3742
Outpatient	295-2123
Inpatient	295-2121
America	319-3436
Compounding	400-0905
Physical Therapy Outpatient	295-4880
Inpatient	295-2883
PICC Team	p 106-0258 o 400-0687
RN Castro	o 400-0559
Message	295-8858
Professional Affairs	319-4763 / 319-4790

GENERAL WR-B NUMBERS

PRT Office (Navy)	295-5502
PSD OIC/Admin.	295-0715 / 0716
Pay	295-0405
Records	295-0700
Pass & ID	295-4607 / 0103
Transfers	295-1150 / 0711
Travel	295-0605
Radiology On-call Pager	170-0827
Main	295-5030 / 5032
CT	295-4960 / 4962
CT Tech	295-4963
Ultrasound	295-4961 / 4971 / 4428
MRI	295-7842
Fluoro / VCUG	295-5032 / 295-6695
Interventional Radiology (IR)	295-4334
Nuclear Medicine	295-4974
Neuroradiology	295-4428
Radiology Reading Rooms	**319-8551** / 8553
Radiology Reading Phone Tree	301-319-2600
PEDIATRIC Reading Room	400-3799
CXR/Chest CT	319-4469 / 295-5028
Body CT/MRI	295-5205 / 5056
Musculoskeletal	295-0072
Fluoro	319-4284

GENERAL WR-B NUMBERS

Reprographics	295-6176 / 6167
Respiratory Therapy	146-3012 o 295-4846
SEAT (Staff Education & Training)	319-5209
Social Services Navy Relief	295-1207
Social Work	295-1719
Security	295-1246
Sleep Lab	295-4763

WR-B SUBSPECIALTY NUMBERS

Allergy	295-4510
Anesthesia	295-4455; ext 156
Audiology (weekend pager 103-1209)	295-7840; Inpatient consults 400-3939
Cardiology	295-4500
CT Surgery	295-2552
Dermatology	295-4551
Dental	295-5411 / 4059
Dietician	106-2346 o 295-4065
EEG/Sleep lab	295-4762 / 4763

WR-B SUBSPECIALTY NUMBERS

Endocrine	295-5165
ENT Peds Scheduling	295-4664 295-4661 / 319-3870 (Mr. Shepherd / Ms. Hollins)
General Surgery	295-4440
Infectious Diseases	295-6400
Internal Med	295-4630 / 0196
Neurology (Adult & Peds)	295-4770 / 4771
Neurosurgery	295-4420
Nutrition—Outpatient	295-4065
Ob/Gyn Clinic (Appt Line)	295-4400 / 6672
Ob/Gyn Acute Care	295-1438
Occupational Health	295-0786
Occupational Therapy (OT)	295-4866
Ophthalmology Peds Optho	295-4942 295-0070 / 1339
Orthopedics “Mo” - Peds Ortho Nurse	319-4428 319-7743
Podiatry	295-4295 / 295-4290
Prenatal Testing	319-5050
Preventative Med.	319-8733
Psychiatry	295-0500
Urology / Pediatric Urology	295-4270 / 4271
Wound Care Team Ms. Aquino RN	p 106-0027 o 319-8983 p 161-4236

FORT BELVOIR COMMUNITY HOSPITAL

Information Desk	571-231-3066 / 3067
Case managers: Pat Duvall Ms. Hill-Vest	571-231-2919 571-231-2925
Child/Adolescent Behavioral Health Outpatient Clinic Adolescent Partial Hospital	571-231-1204 / 1205 / 1206 / 1207 571-231-3224, option 1 571-231-1171
Emergency Dept. Reception Main ER	571-231-3124 / 3126 571-231-3162
Lab Chem/Heme Micro Send Out (CPT Houng)	571-231-3971 571-231-3915 571-231-3976
Labor and Delivery	571-231-4754
Mother Baby Unit Nursery	571-231-4735 / 4744 / 4733 571-231-4791
Nutrition	571-231-3369
Ophthalmology	571-231-1595 / 1596
Developmental	571-231-1064 / 1065 / 1066
PEDIATRIC CLINIC	571-231-1012 / 1013 / 1014 / 1015 Option 5
PEDIATRIC WARD	571-231-4872 / 4873 / 4871
PEDIATRIC SUBSPECIALTY	571-231-1065 / 1066
Pharmacy Outpt—Provider Line	571-231-4276 / 1399 / 1398
Pharmacy PX (~NEX)	703-806-5044
Radiology	571-231-4276
WIC	703-781-6509

FORT BELVOIR PEDIATRIC STAFF

ON-CALL PEDIATRICIAN phone 571-623-7906

Dove, Otto	o 571-231-1181
Everett, Yvonne (PNP)	o 571-231-1184
Falcon, Jennifer	o 571-213-1188 c 631-455-6496
Garcia, Amelia	c 703-644-1117 o 571-231-1183
Horn, Charles	c 703-627-9189 o 571-231-1180
Indyk, Diane LTC (GME Supervisor)	c 203-962-2819 o 571-231-1187
Kapoor, Shawn	c 301-802-5842 o 571-231-1189
O'Meara, Kevin (Dept Chief)	c 757-214-2663
Semanoff, Alison MAJ	c 717-329-5682
White, Jason LT (Quantico)	c 215-407-8096 o 571-231-0318
Clinic/Pharmacy Numbers	See p29

MALCOLM GROW (JBAB) PEDIATRICS

Peds Primary Care Clinic Front Desk	240-612-1278 / 1279 fax 240-612-4967
Barnes, Katina	240-612-1285
Savioli, Katrina (Rotation Sup)	o 240-612-1283 c 757-576-1057
Christi, Rebecca	240-612-1284
Stratton, Tiffany (Med Director)	240-612-1281
Wise, Michelle (PNP)	240-612-1282
MGMC Provider After Hours	240-605-9302

ED	240-857-2333 / 2158
Lab	240-857-9876
Pharmacy	240-857-4565 option 3
Radiology	240-857-2085
Dental	240-857-5029
Laurie Creel (USAF Med. Ed. Administrator)	240-612-1182

REFERRING HOSPITALS & CLINICS

Aberdeen (Kirk)	(410) 278-1727
Annapolis	Peds Clinic (410) 293-2273 Ortho/Sports Med (410) 293-1748 USNA Radiology (410) 293-2242
Benning (Martin)	(706) 544-1777 / 2273 Peds Pri: (762) 408-2273 option 1
Bolling (CO is LtCol Nicole Thomas—Peds ID)	Clinic 1-888-999-1212 After hours (202) 841-1688 Medical records (202) 404-1378
Bragg (Womack) Laela Hajiaghamohseni	(910) 907-7337 / 7338 / 7993 / 7114 301-655-5029
Campbell (Blanchfield)	(270) 798-8400 / 8055 / 8260
Carlisle Barrack (Dunham)	(717) 245-3400 / 3915
Drum	(315)772-2778 / 5236
Dumfries Clinic	703-441-7500
Fairfax	(703) 849-8191; Lab x4729; Rad x4273
Gordon (Eisenhower)	(706) 787-9250 / 9355
Hood	254-286-7700 ped clinic
Jackson	(803) 751-2253 / 2273
Knox (Ireland)	1-800-493-9602/ 9967
Landstuhl	94-314-486-8191 / 7261 / 8503 or 06371-9464-5762
Madigan	(253)968-3066
Lejune	910-450-4500 option 3
Meade (Kimbrough)	(301) 677-8800/ 8606 Pharmacy- 8288; Lab- 8765; Micro-8292 Fax-8485; ER- 8519
Fort Myer (Rader Clinic)	(703) 696-3614;
Newport:	Peds Clinic (401) 841-6037 Info (491) 841-3771; Nurse line- 6036

REFERRING HOSPITALS & CLINICS

Pax River Bethany God	Peds Clinic (301) 342-1506 301-708-1943
Portsmouth	Clinic 757-953-7716 Ward 757-953-4494/5/6
Quantico (Peds on site: Dr. Kramer, Dr. Lowry)	Peds Clinic (703) 784-1725 option 2,3 Pharm -1580 Lab -1647
San Antonio (SAUSHEC / Wilford Hall)	SAMMC 210-916-3160 WHASC 210-292-7520 Randolph 210-652-2543 Peds Resident Work Rm 210-916-8388
San Diego	619-532-8225
Scott	Peds (618) 256-7018; Appts 9355
Tripler	808-433-6697
USUHS FP Clinic	94, 295-3630
Wright Patterson	937-257-6991
Woodbridge	Peds 703-494-1144

CIVILIAN HOSPITALS

Anne Arundel (BW Med Ctr)	Main: 443-481-1000 ED: 1200
Civista (near Pax River)	(301) 609-4000; ED 4160 Lab 4720
Fairfax Inova (near Belvoir)	Main: 703-776-4001 ED: -3111
Mary Washington (near Quantico)	Main: 540-741-1100
St. Mary's (near Pax River)	(301) 475-8981, Pharm x6072 Rad x6121 ERx6110 Lab x6133

CHILDREN'S NATIONAL MEDICAL CENTER

Paging Instructions	Outside: 202-259-#### (4-digit pager #) 202-476-6600, then 4-digit # Inside: Dial 6600, then 4-digit # Text Page: http://www.arch.com
CICU	(202) 476-6670
ER	(202) 476-5203
Heart & Kidney Unit	5195
Information	(202) 476-5000
IT Help Desk	(202) 476-4357 [HELP]
Lab	(202) 476-5355
Receiving	2229 / 2227 / 2226
Send-out Results	3743
Chem	5354
Heme	5676
Micro	5350
NICU	5040
Pharmacy	(202) 476-3307 / 4080
PICU	(202) 476-2010
Radiology	(202) 476-5073
US	3410
Wet desk	4687
After 5pm	259-8643
Translator	Phone: dial 7100, PIN 3128 Pager: 259-0370
Transport	(202) 476-5433

CHILD PROTECTIVE SERVICES

District of Columbia:	(202) 671-7233 FAX: 202-727-6505
Maryland: Anne Arundel	(410) 421-8400; FAX: (410) 508-2041
Baltimore City	(410) 361-2235 FAX: (443) 423-7003
Baltimore County	(410) 853-3000; FAX: (410) 853-3698
Calvert County	(443) 550-6969, After hours: 1-866-898-9848 FAX: (410) 286-7429
Carroll County	(410) 386-3434; After hours: (410) 386-3434 FAX: (410) 386-3476 near Balto.(410) 876-2190
Charles County	Main: (301) 392-6400 Report: (301) 392-6739 FAX: (301) 934-2662
Frederick County	(301) 600-2464 FAX: (301) 600-2639
Harford County	(410) 836-4700; After hours: (410) 838-6600 FAX: (410) 836-4919
Howard County	(410) 313-2630 FAX: (410) 872-4303
Montgomery County	(240) 777-4417; FAX: (240) 777-4258
Prince George's County	(301) 909-2450 After hours: (301) 699-8605 FAX: (301) 909-7001

Virginia:	(State Child Abuse Hotline - 804-786-8536)
Alexandria County	(703) 746-5800; FAX: (703) 836-2355
Arlington County	(703) 228-1500; FAX: (703) 228-1122
Fairfax County	(703) 324-7400; FAX: (703) 222-9487
Fauquier County	(800) 552-7096; FAX: (540) 422-8451
King George County	(540) 775-3544; After Hours:1-800-552-7096
Loudon County	(703) 771-5437; FAX: (703) 771-5214
Newport News	(757) 926-6300; FAX: (757) 926-6118
Prince William County	(703) 792-4200; After Hours: (703) 792-6500
Stafford County	(540) 658-8720 ; After Hours: 1-800-552-7096

FAMILY ADVOCACY PROGRAMS (FAP)

WRNMMC	Business hours: 301-319-4087 After hours: 301-312-5531 DAVA After hours: 301-219-2816 SAPR 24/7: 301-442-8225 Ozzie Elie, Director: 301-319-4086
Fort Belvoir	571-231-1202
JB Andrews	240-857-9680
Ft Myer (Marine)	703-614-7204

MARYLAND EARLY INTERVENTION SERVICES

410-767-7770 or 800-535-0182

County	Early Intervention 0-3 Years	Child Find 3-21 Years
Anne Arundel	410-222-6911	410-222-5470
Baltimore County	410-877-2169	443-984-1011
Charles	301-609-6808	301-753-1745
Howard	410-313-7017	410-313-7046
Montgomery	240-777-3997	240-777-3997
Prince George	301-265-8415	301-952-6341

VIRGINIA EARLY INTERVENTION SERVICES

804-225-2675 / 800-234-1448

County	0-3 Years	3-21 Years
Alexandria	703-746-3387	703-578-8217
Arlington	703-228-1630	703-228-2700
Fairfax	703-246-7121	571-423-4121
Fredericksburg	540-372-3561	540-372-1127
Loudoun	703-771-0561	571-252-2180
Prince William	703-792-7879	703-791-8857
Spotsylvania	540-372-3561	540-582-8816 x4

DC EARLY INTERVENTION SERVICES

202-727-3665 (0-3y), 202-698-8037 (3-21y)

PROVDER WELLNESS RESOURCES

Provider Wellness Committee

Promotes the well-being of healthcare personnel through education and identifies factors associated with performance impairment. Roles may include promoting recovery, ensuring patient safety, limiting the clinical practice of privileged and non-privileged providers, and providing a mechanism for treatment
POC Provider Wellness Clinic: CDR Theophil Stokes, c 301-437-7627 or theophil.a.stokes.mil@mail.mil

Possible areas addressed: learning problems, cognitive strengths and weaknesses, ADHD, behavioral health conditions, personality traits potentially hampering learning and/or performance, personal stressors or other external factors interfering with performance

Neuropsychologic Referral Process

- Resident makes a self-referral, or formally referred by his/her PCM, by calling or emailing: Mark Kelly 301-400-1977, mark.kelly1.civ@mail.mil
- Evaluation is voluntary, not command directed, not ordered by PD (but may be suggested by the PD)
- Preliminary discussion by psychologist with resident about purpose and process

Behavioral Health Consults for Residents

- PDs can place the consult themselves, with the comment that the consult is for an NCC trainee
- Resident can make a self-referral by calling or emailing:
  Outpatient Behavioral Health, 201-400-1931
-

CALL ROOMS / DOOR CODES

7th Floor Eagle Rooms	8001*
Rm 7051	400-2446
Rm 7057	400-2449
2nd Floor Room	4+2,3
Rm 2982	319-4168

Door Codes:

MICC/NICU/Ward Door Code	Proximity Card
MICC Locker Rooms	Proximity Card
Resident Work Room America	2582*
Ward Resident Work Room	2582*
Ward Clean Utility Supply Room	2015*
Ward Treatment Room	4700*
PICU Call Room	1613*
PICU Supply Room	2010*
PICU Procedure Cart	4545*
Resident Fitness Room, 2nd flr	4+2, 3

ADMINISTRATIVE TIPS: PRINTERS

Web-based Outlook Access: (CAC reader required)
https://web.mail.mil

Web-based Home AHLTA/Essentris Access: (CAC reader required)
https://avhe-bethesda.health.mil

Group E-mail Addresses:

Individual addresses are firstname.lastname@nccpeds.com
faculty@nccpeds.com (no fellows/residents)
fellows@nccpeds.com
residents@nccpeds.com
pgy1@nccpeds.com, pgy2@nccpeds.com, pgy3@nccpeds.com

Printer Mapping:

Start -> Run -> type the server (e.g. \\nnmc-prnt03 or prnt04)
Then find your desired printer from the list that appears, right click on it, press connect

Printers:

Resi Workroom Bldg19	\\nnmc-prnt03\NNMCPRT-PEDSRESWK
Ward	\\nnmc-prnt04\NNMCPRT-3WEST PEDS
Clinic Continuity Room:	\\nnmc-prnt03\NNMCPRT-PEDSR01
Clinic Front Workroom	\\nnmc-prnt04\NNMCPRT-PEDIATRICS01
NICU	\\nnmc-prnt02\NNMCPRT-NICU10

CHCS Printers:

Peds Subspecialty	PEDSFD1
Adolescent Desk	PEDIS01
Clinic Front Workroom	PEDIATRICS01
Gen Peds Check-out Desk	PEDIS02

Essentris Printers:

Click File, Print Chart, Select Printer
Ward: 3-WEST Clinic Resi Workroom: PEDS

ORDERING MEDICATIONS

Non-Formulary Drug Request (NFDR):

You can find the order form under “Non-Formulary Drug Request” on the Intranet home page. You will need the following information:

1) Patient Details: Name, FMP/SSN, phone number
2) Preferred Pharmacy (MUST be at WRB)
3) Provider Details: Name, phone number, pager, email, MTF
4) Medication Details: generic and trade names, dose, form, quantity, refills, sig
5) Prescription Pick-up Details
6) Request Details: diagnosis and justification

You can submit the form directly from the Intranet or save the form and email it to NCRMD-NFDR@health.mil.

Calling in a Prescription to an Outside Pharmacy

1. Ask parent what local pharmacy is the most convenient. Look it up online using the cross-street. Let parent know there is a $3 co-pay.
2. Have on hand before calling: Patient name, DOB, patient phone #, your name, your office phone#, your NPI number (_____), name of med, strength/formulation (e.g. 400 mg/5 mL suspension or 20 mg tabs), prescription instructions, dispense amount, and refills.
3. Call the Pharmacy number. Press the button at the prompt to leave a message for the pharmacist.
4. Say “This is Dr. ____ from Walter Reed, office phone 301-295-4941, NPI number _____, calling a prescription for patient _____ , DOB ____, at phone number _____. Prescription is for _(name of med)_, (formulation). Sig Take _____ , Dispense (3 months supply), refills (___). Thank you.

PEDIATRIC ADMISSION PROCEDURES

UPDATED 07/2016

Management of surgical patients admitted to 3W:

- All pts <12 months on *sub-speciality services* (NSGY, uro, ENT, ortho, OMFS) are **admitted to Gen Peds** with the applicable surgical service in a consulting role.
- All pts 12-24 months on *sub-speciality services* can be admitted to the applicable surgical service with **Gen Peds consultation**.
- All pts <24 months on *general surgery service* will have automatic **Gen Peds co-follow consultation**.
- All pts >24 months, regardless of primary service, will have a mandatory **Gen Peds consult** if they have any of the following co-morbid conditions:

  Autism spectrum disorder, cerebral palsy, chronic kidney disease, congenital heart disease, cystic fibrosis, diabetes mellitus, inflammatory bowel disease, moderate or severe developmental delay, sleep apnea, uncontrolled asthma, any other chronic condition requiring active management during admission

****Gen Peds is the primary admitting team for all patients on intermediate care status on 3W****

Admit to 3W from Outpatient Settings (ED, clinic, sedation, PACU, etc)

The primary admitting medical or surgical team will:

- Evaluate the patient and determine need for admission
- Call PAD (295-2126)
- Page NOD (106-0725)
- Write admission orders
  ADT order: include MEPRS code in comments (ADAA = peds; ADBA = newborn)
- Write admission H&P (<48hr anticipated stay =

Admit to PICU from Outpatient Setting (ED, clinic, sedation, PACU, etc)

The PICU team will:

- Evaluate the patient and determine need for PICU admission
- Call PAD and page NOD
- Writes admission orders for all medical and surgical patients
- Writes admission H&P

Transfer from PICU to 3W

The PICU team will:

- Determine stability for transfer
- PICU provider(s) sign-out patient to accepting team
- Update discharge summary prior to transfer

The primary accepting team will:

- Evaluate patient for transfer
- Notifies NOD of transfer
- Reviews all orders (right click -> review), updates orders as applicable & writes transfer order

Transfer from 3W to PICU

The primary team will:

- Consult PICU for admission or call RRT/Code Blue

The PICU team will:

- Determine need for PICU admission
- Notifies NOD of transfer
- Reviews all orders, updates orders as applicable & writes transfer order

PEDIATRIC TRANSPORT PROCEDURES

THE WARD SENIOR ASSUMES COMMAND AND CONTROL OF THE PEDIATRIC TRANSPORT PROCESS UNDER THE SUPERVISION OF THE WARD OR PICU ATTENDING AS REQUIRED. DO NOT CEDE THIS RESPONSIBILITY TO A CONSULTANT. DO NOT DELAY TRANSPORT FOR NON-CRITICAL TESTING OR CONSULTATIONS.

LEVELS OF TRANSPORT

Level I—PRN (BLS) II—EMT x2, RN (PALS) III-EMTx2, RN, MD (PALS)

GUIDELINES FOR TRANSPORT:

1) Decide if WR-B has the bed space and capabilities. Identify an accepting attending physician (i.e. ward attending, PHO attending, or PICU attending).
2) Calculate the patients PEWS score to help decide what level of transport is required. NOT EVERY PEDIATRIC PATIENT NEEDS CNMC TRANSPORT!!
   *Use PALS Transport for all patients with a **PEWS ≥ 3**, unless of sufficient age and size (> 14yo or > 50kg) to be safely transported by a 1-way adult ACLS or critical care team.*
3) Use PEWS score to help decide the patient's disposition in WRB (ward v. PICU).
   *PICU admission for **PEWS ≥ 6** and/or and of the following diagnoses: cardiac arrest, respiratory arrest, respiratory failure, intubated, shock, coma, head trauma, multiple trauma, epiglottitis, burns > 15% TBSA, status epilepticus*
4) Write AHLTA T-con in Peds Referral Clinic: Must include vital signs reported by sending facility and PEWS Score. Must be completed before admission!

TRANSPORT PEARLS

The sending facility is ultimately responsible for transporting patients to WR-B. However, WR-B Peds facilitates any CNMC transports and transport for all pediatric patients from civilian facilities to WRB.

MTF to WRB Transport

FBCH: Has BLS and PALS transport capabilities.

MGMC: Has BLS capabilities only. If PALS transport indicated, facilitate thru CNMC.

Civilian Hospital to WRB Transport

BLS transport indicated: Facilitate transport through Lifestar by calling CDO Desk

PALS transport indicated: Facilitate transport through CNMC

CNMC Transport

Call CNMC: 202-476-5433 / 476-3356 (fax)

Supply: patient name, DOB, "one-liner" and Dx, VS & current condition, wt; name & phone number of responsible attending at transferring facility.

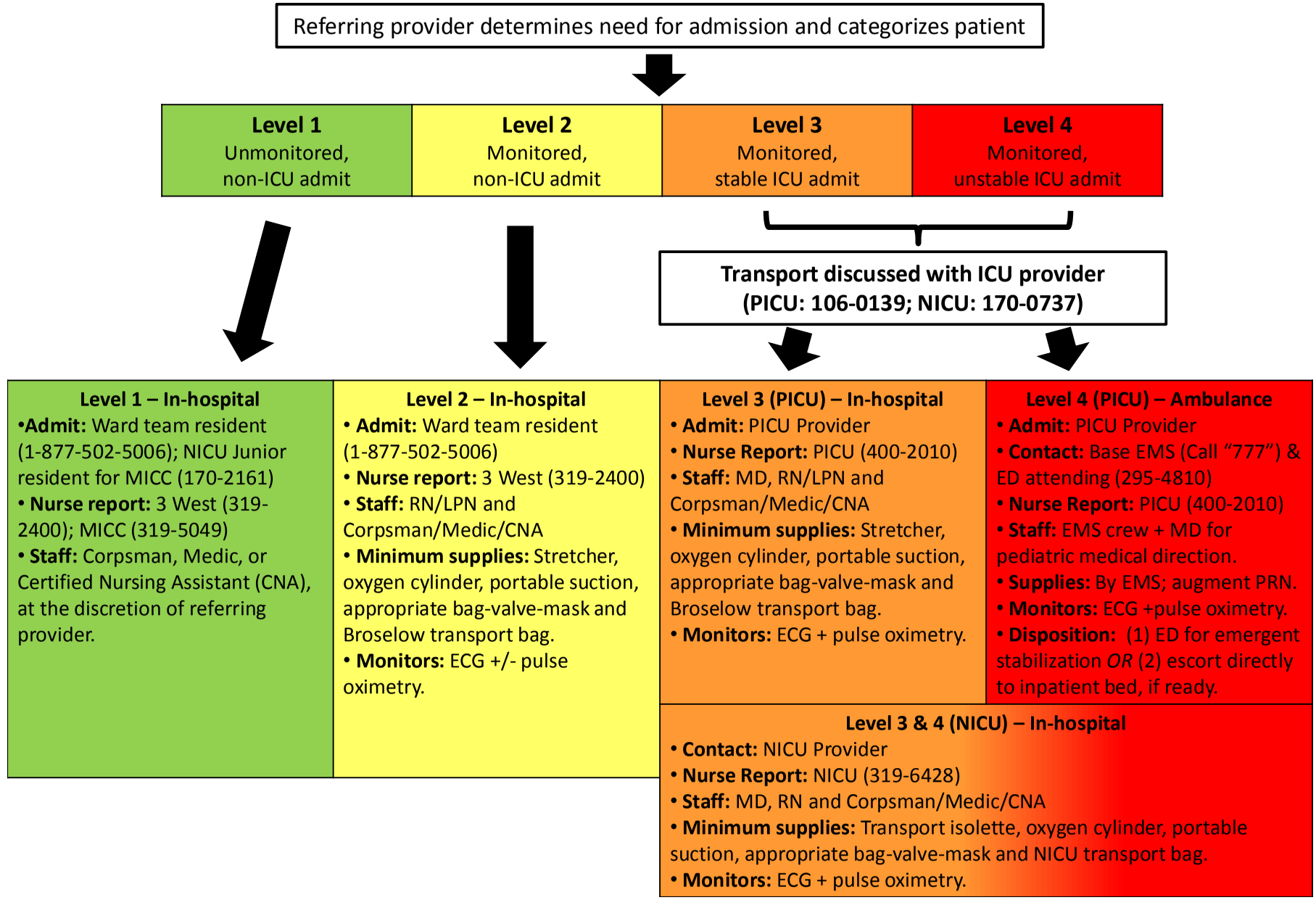
PEDIATRIC TRANSPORT PROCEDURES

Pediatric Early Warning Score (PEWS)				
	0	**1**	**2**	**3**
Behavior	Playing / Appropriate	Sleeping	Irritable	Lethargic/ confused **OR** Reduced pain response
CV	Pink **OR** CR 1-2 s	Pale or dusky **OR** CR ≥ 3 s	Grey or cyanotic **OR** CR ≥ 4 s **OR** Tachycardia of 20 above normal rate	Grey or cyanotic AND mottled **OR** CR ≥ 5 s **OR** Tachycadia 30 above NL **OR** Bradycardia
RESP	WNL, no retractions	> 10 above normal **OR** Using accessory muscles **OR** 30+% FiO2 or 3+ LPM	> 20 above normal parameters **OR** Retractions **OR** 40+% FiO2 or 6+ LPM	≥ 5 below NL w/ retractions or grunting OR 50+% FiO2 or 8+ LPM

Score by starting with the most severe parameters first.
Score +2 for q 15-min nebs (or continuous nebs) or persistent post-op vomiting
Use "L/min" to score regular NC / "FiO2" to score HFNC

	HR at rest	**RR at rest**
Newborn (birth – 1 month)	100 – 180	40 – 60
Infant (1 – 12 months)	100 – 180	35 – 40
Toddler (13 months – 3 yrs)	70 – 110	25 – 30
Preschool (4 – 6 years)	70 – 110	21 – 23
School age (7 – 12 years)	70 – 110	19 – 21
Adolescent (13 – 19 years)	55 – 90	16 – 18

WRNMMC Pediatric Transport from Outpatient Clinics



INTERMEDIATE CARE (CHARm)

Updated 06March2013

Application

- IMC status may be applied to patients on the ward or in the PICU
- Criteria for ward IMC (not limited to the following):
  VS, meds, labs, RT treatments, neuro evals q2h or more frequently
  May be q1h for 4-6hrs, then q2hr for longer periods
  If exceeds **24hrs** on IMC, consider transfer to PICU
- Criteria for PICU IMC:
  Invasive mechanical ventilation, non-invasive positive-pressure ventilation (incl HFNC), vasoactive support, invasive monitors, continuous infusions
- Excludes: pts on stable, chronic BiPAP/CPAP or Vapotherm settings at home

Responsibilities

- General Pediatrics (pts on 3W & all pts from other admitting locations)
  GEN PEDS IS THE PRIMARY TEAM FOR ALL PATIENTS ON IMC
  Consult PICU & notify charge RN of change
  Notify primary team of change in status, if not already on peds service
  Must place patients on CRM and ensure peripheral vascular access
  Initiate Essentris orders (ADT = IMC status) & change relevant orders
  Re-evaluate pts on IMC & document watch notes q6hr at minimum
- PICU
  If pt on 3W: provide recs to primary team, incl parameters which would trigger transfer to PICU; facilitate transfer to PICU if warranted; re-evaluate patient and document IMC note in Essentris q12-24hrs
  If pt in PICU: will be primary team until status improves for pt to be transferred to ward OR until bed space required for PICU pt, in which case the IMC pt will be transferred to the ward team with consultation from the PICU

Discharge Criteria

- Pts should be returned to general care on 3W, as appropriate, if:
  Stable hemodynamics
  Stable respiratory status
  Minimal oxygen requirement
  Neurologic stability with baseline seizure control
  Interventions compatible with policies for general care on 3W

CODE BLUE / CODE CRANBERRY / CODE PINK

CODE BLUE

Activated in the event of a cardiac or respiratory arrest or any emergency requiring immediate care beyond the capability of the local personnel.
BLDGs 9, 9A, 10, 100 (MRI), & METU: Call 666
All other others: Call 777

3W senior resident and PICU provider both carry the combined RRT/code pager.

Pediatrics is identified as the IO access team for ALL codes, adult and peds. Currently, the MICU corpsman responding with the jumpbag should have an EZ-IO drill as they are NOT stocked on all crash carts. Key locations like PICU, 3W, and peds clinic have their own EZ-IO. In future, manual IOs will be stocked in all crash carts.

CODE CRANBERRY

Activated in the event of an obstetrical or newborn emergency within buildings 9, 9a, or 10. Notification will occur via text page to delivery pager, which should include the indication and location of Code.

Code team comprised of designated NICU, OB, and OB anesthesia providers. NICU response team includes NICU fellow/attending, senior resident/interns, charge nurse, and RT.

NICU team is responsible for bringing the following equipment: transport bag, code cart or kangaroo bag, transport isolette, and Neopuff.

CODE PINK

Activated for the attempted abduction of an infant or child
Call: 777 for Security response. Call: 295-0102 to notify CDO desk. Activate hospital lockdown and pre-designated response teams.

RAPID RESPONSE TEAM (RRT)

Updated 24October2012

Activation

- Call '321' and identify as "PEDS RRT" and give location
- CDO desk will contact PICU Provider, RT, & Gen Peds
- All members **must respond within 15 min.**

Length of Response

- 30min - if longer, elevate to CHARm or transfer to PICU

Criteria

MANDATORY for any staff member, regardless of the presence of the primary team/physician

- **O2 sat < 90%** despite supplemental O2 (excl. cyanotic HD)
- **Worrisome changes** in V/S, work of breathing, mental status, etc
- Staff member or **patient's family concerned** about status

Under the direction of the attending, the Senior Resident may write an order suspending or modifying specific RRT activation criteria.

AGE	Sustained Abnormal HR	Sustained Abnormal RR	Sustained Abnormal SBP
Neonate (<28d.o.)	<80 or >200	<20 or >70	<60
Infant (1-12mo)	<80 or >190	<20 or >65	<65
Toddler (1-2 yrs)	<65 or >180	<16 or >60	<70
Pre-school (2-6 y)	<60 or >170	<10 or >50	<75
School age (7-11 y)	<50 or >160	<10 or >40	<80
Adolescent (>12yrs)	<40 or >140	<10 or >35	<85

RAPID RESPONSE TEAM (RRT)

Updated 24October2012

RRT Pager 101-8783

Gen Peds Team Responsibilities

- Respond w/in 15 min for ALL pediatric RRT alerts.
- Functions as primary team (notify primary team if not Gen Peds)
- Assists in escalated care of ward patient
- ATTENDING PHYSICIAN MUST BE CONTACTED
- Documents an event note in Essentris
- Follow-up with Charge Nurse on PSR documentation

PICU Team Responsibilities

- Respond w/in 15 min for ALL peds RRT alerts.
- Solicits patient info, conducts an assessment, and may implement initial RRT response tx
- Contacts PICU attending, together with attending evaluates for PICU, intermediate care, or Ward status
- Completes Peds RRT/IMC note in Essentris
- Documents RRT in PICU's RRT Log Book in Extender Call Room
- Follow up in 2-4 hrs & 12 hrs after initial RRT for ALL pts remaining on the Ward. No additional notes from PICU unless change in status.
- PICU team rounds on IMC pts daily

Respiratory Therapy Responsibilities

- Respond w/in 15min for ALL peds RRT alerts.
- Provides respiratory support as needed

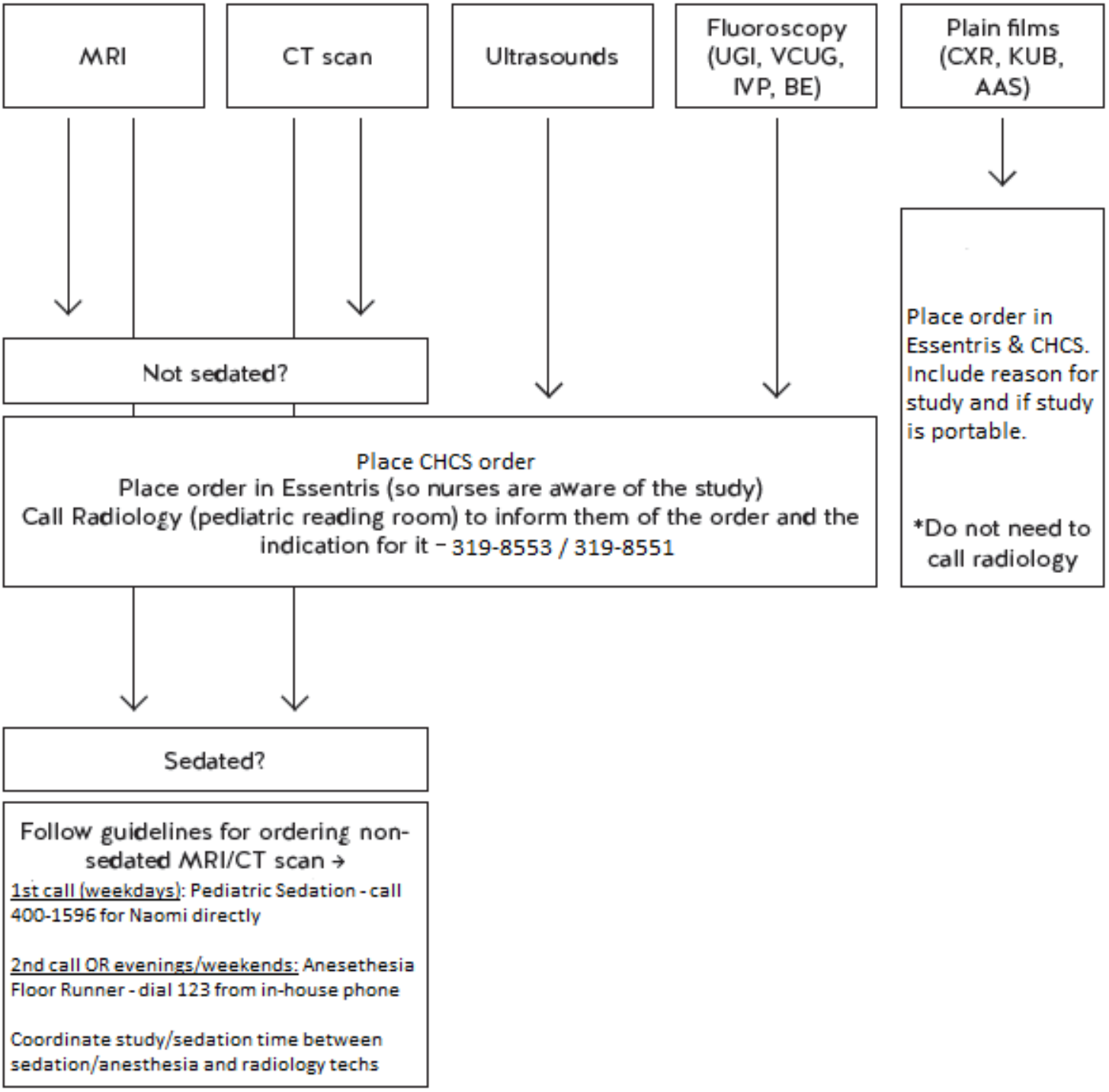
Ward Charge Nurse Responsibilities

- Fill out **PSR**

NPO Parameters

Clears: 2 hours Cow's Milk: 6 hours
Breast Milk: 4 hours Full Meal: 8 hours

ORDERING RADIOLOGY STUDIES



SCHEDULING ANESTHESIA & OR TIME

Inpatients

- H&P in Essentris, updated w/in 24h of procedure.
- Surgical Scheduling System (S3): Call S3 manager with case description: special equipment or other services involved (GI, heme/onc, gen surg)

Pre-Op Considerations

- Check with Naomi Osborne ***FIRST*** as peds sedation may be able to support more easily
- Antibiotics and/or SBE prophylaxis needed?
- Lab tests required?
- Cardiac work-up needed?
- Other consults indicated?

Anesthesia Pre-op: Call floor runner (301-295-1383, pin#0101 or dial 123 from in-house)
Consent: Signed by surgeon of record, obtained within 30 days
(do not delay - it WILL delay or CANCEL procedure)
Site Verification: Ensure 741-R signed on day of surgery
MRI Only: Schedule w/ Rads in addition to S3 scheduling.

Post-operative

Re-write orders in Essentris (they are discontinued upon transfer to PACU)

- if you are not the "surgeon" make certain the "surgeon's" name is in S3 - they are responsible for post-op orders
- If PICU admission needed, contact PICU directly and bed manager
- Notify Pediatric anesthesia group (outlook)

Outpatients (follow exact steps above, plus the following)

- H&P in AHLTA<30d, updated w/in 24h of procedure
- Pre-op Clinic: walk-in - pt with guardian must go in to clinic to be seen by pre-op RN & Anesthesia.

Exceptions (high repeat patient, extremely healthy patient): call 123 to ask who the pediatric anesthesiology consultant is for the day - that person can tell you if the patient can just go through the preop process the day of the surgery.

SCHEDULING ANESTHESIA & OR TIME

Outpatients continued

Post-operative admission/discharge plan:

Monitored bed required if: Diagnosed with OSA
< 60 weeks post-gestational age
PICU/SICU/PACU: Call ward first, then bed mngr

PLEASE call with questions before booking: you can call x123 (floor runner) to ask who the pediatric anesthesiology consultant is for the day.

Weekends/after-hours

A pediatric anesthesiologist is on call ONLY for EMERGENCIES (defined as a case that must be done within 12-24 hours) that CANNOT be handled by the in-house anesthesiologists (as defined by the anesthesiologist who is in-house on call).

The PICU has in-house attendings who are sedation-qualified who can assist. The weekend operative schedule is VERY full with Wounded Warriors who triage above nearly everything other than life-threatening emergencies per command instruction.

SEDATION PROCEDURES

Prerequisites:

1. Pre-sedation H+P e.g. ASA status, airway
2. NPO (clears = 2hrs, BM = 4hrs, milk & solids = 6hrs)
3. Emergency drug sheet
4. Consent. Document "time-out".

Algorithms:

1. Sedation Only < 15 kg (ECHO, CT, MRI – 1 body part):

Chloral hydrate 75-100mg/kg PO (MAX 1gm/dose).

If after 20min not adequately sedated, add 20-25mg/kg (MAX total dose 120mg/kg) combined with **Benadryl** (1mg/kg) PO.

Consider **Versed** after 20 minutes more, if IV access, (0.05mg/kg IV) and may repeat once.

Consider lower chloral hydrate dosing (50mg/kg) for newborns and former preemies.

Use with caution in less than 6 mos old infant

2. Sedation Only > 15 kg:

Versed 0.05mg/kg IV at 3min intervals up to 0.20mg/kg, (MAX total dosing).

If h/o difficulty to sedate, PDD, ADHD, weight >75 kg, consider 0.1mg/kg IV. (MAX single dose 2 mg).

Pentobarbital 3 mg/kg IV (MAX dose 100mg/dose). May repeat 1-2 mg/kg aliquots q 3 min up to 8mg/kg.

Versed 0.05mg/kg and Pentobarbital 5mg/kg total dose should induce sedation. If prolonged procedure, patient requires additional medication— alternate **Versed** 0.05mg/kg with **Pentobarbital** 1 mg/kg.

3. Sedation and Analgesia:

Versed & Fentanyl: Versed 0.05mg/kg & Fentanyl 1mcg/kg over 5-10min. May repeat both x 1.

Versed & Ketamine: Versed 0.05mg/kg & Ketamine 0.5-1mg/kg IV over 3-5min. May repeat both x 1.

Consider **Glycopyrollate** IV (0.004-0.01mg/kg), 5 minutes before Ketamine as antisialogue.

MEDICAL EQUATIONS

Alveolar Gas equation: $P_AO_2 = P_iO_2—(P_ACO_2/RQ)$

A-a gradient = (BP-pH20) * FiO2- (1.25 * PaCO2)-PaO2
- BP = barometric pressure = 760mmHg at sea level
- pHH20 = 47mm Hg
- PaCO2 & PaO2 = measured from ABG

Anion Gap = Na+ - (Cl- + HCO3-)

BMI = kg/m^2

Carrying capacity of arterial blood:
$C_aO_2 = (Hgb \times 1.34 \times S_aO_2) + (P_aO_2 \times 0.003)$

Corrected calcium
- A change in serum albumin of 1g/dL from 4 g/dL changes serum Ca++ in same direction by 0.8mg/dL

Corrected sodium
- Hyperlipidemia: Na+ decreased by 0.002 x lipid(mg/dL)
- Hyperproteinemia: Na+ decreased by 0.25 x [protein – 8]
- Hyperglycemia: Na+ decreased 1.6 for each 100 ↑glucose

Cerebral perfusion pressure (CPP) = MAP-ICP, goal >50-60, normal ICP <20

$FeNa = (U_{Na} * P_{Cr})/(P_{Na} * U_{Cr}) \times 100$

Free water deficit (mL)
$[(Na_{actual}/Na_{goal})-1] \times 1000mL/L \times 0.6\ mL/kg \times wt(kg)$

GFR ($ml/min/1.73m^2$) = 0.43 * L/sCr (L = height (cm), sCr = serum creatinine)

GIR (mg/kg/min) = (% glucose x ml/hr)/(6 x kg)

Mentzer index = MCV/RBC
(>13.5 suggests Fe deficiency, <11.5 suggests thal minor)

Mid-parental height
Male = [(Mom ht + 5in) + Dad ht]/2
Female = [(Dad ht – 5in) + Mom ht]/2
For centimeters, replace "5 in" with "13 cm"

Minute ventilation = Resp Rate (RR) x Tidal Volume (TV)

Oxygenation Index (OI) = (MAP (cmH20) * FiO2 *100)/PaO2
MAP = mean airway pressure; OI >25 consider HFOV, >30 consider ECMO

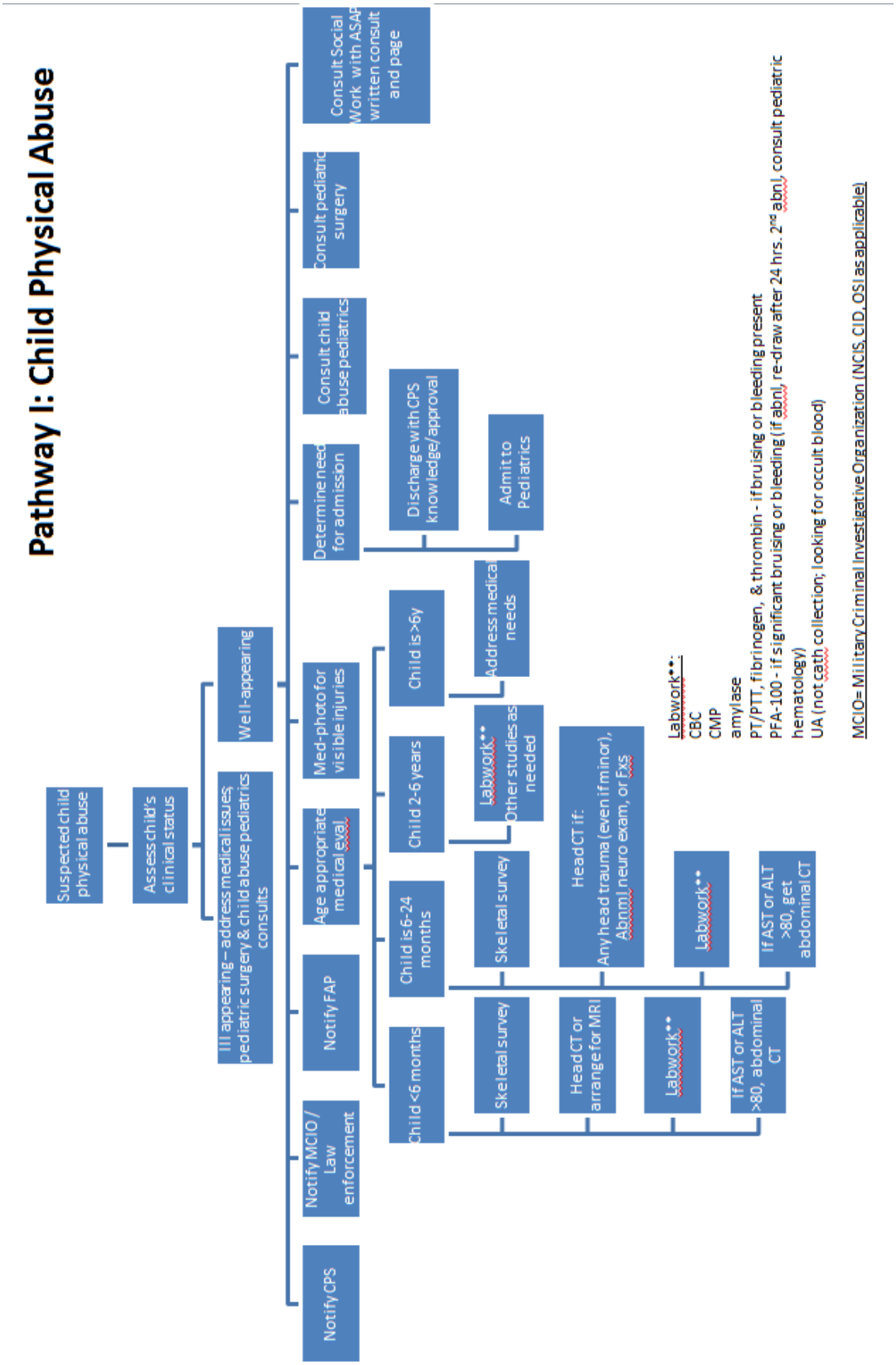
Parkland formula = 4mL x wt (kg) x TBSA (%). Give 1/2 in first 8 hrs, then next half over 16 hrs.

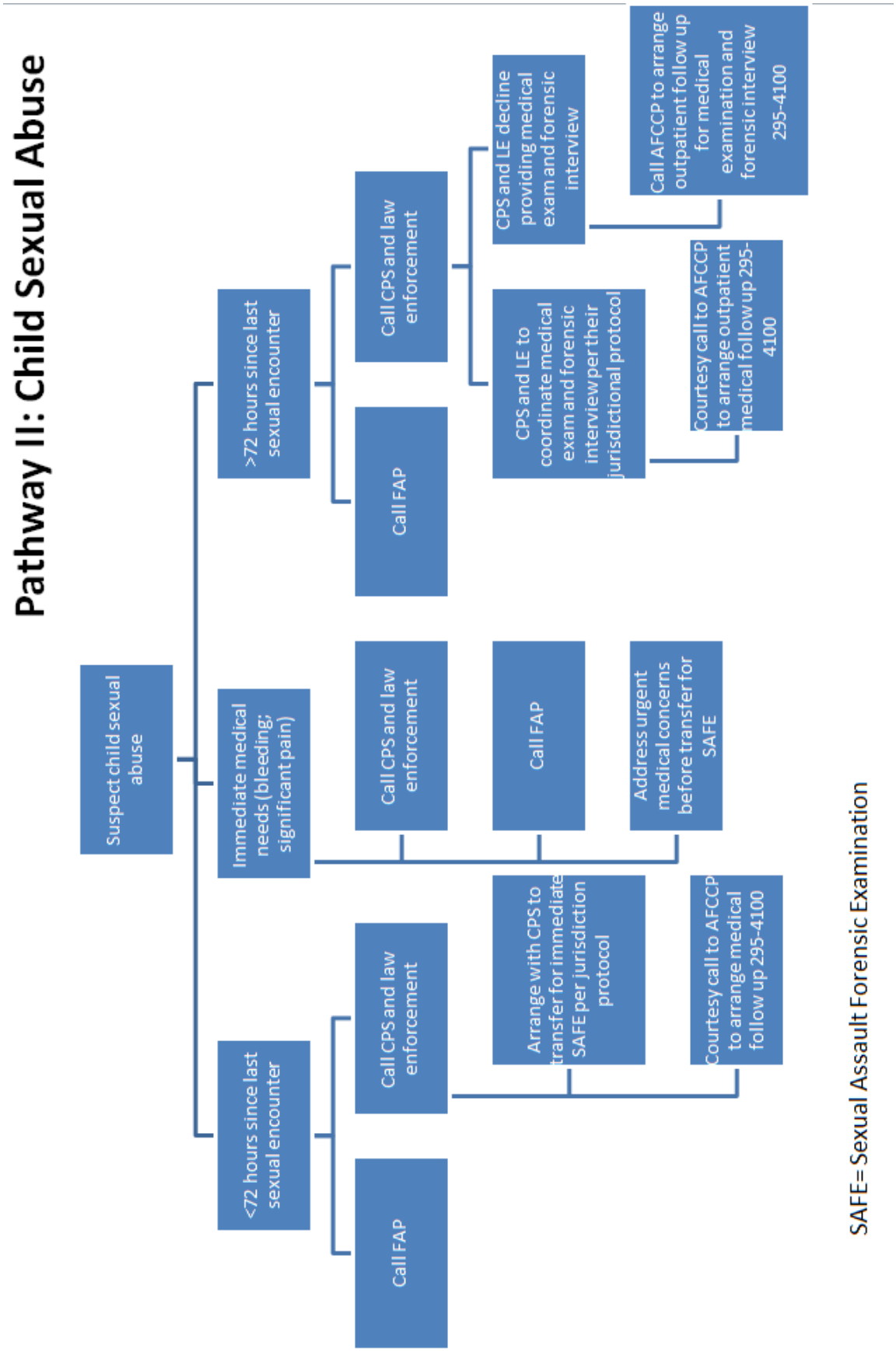
QTc = QT/√RR

Serum osmolality = 2[Na+] + glucose/18 + BUN/2.8

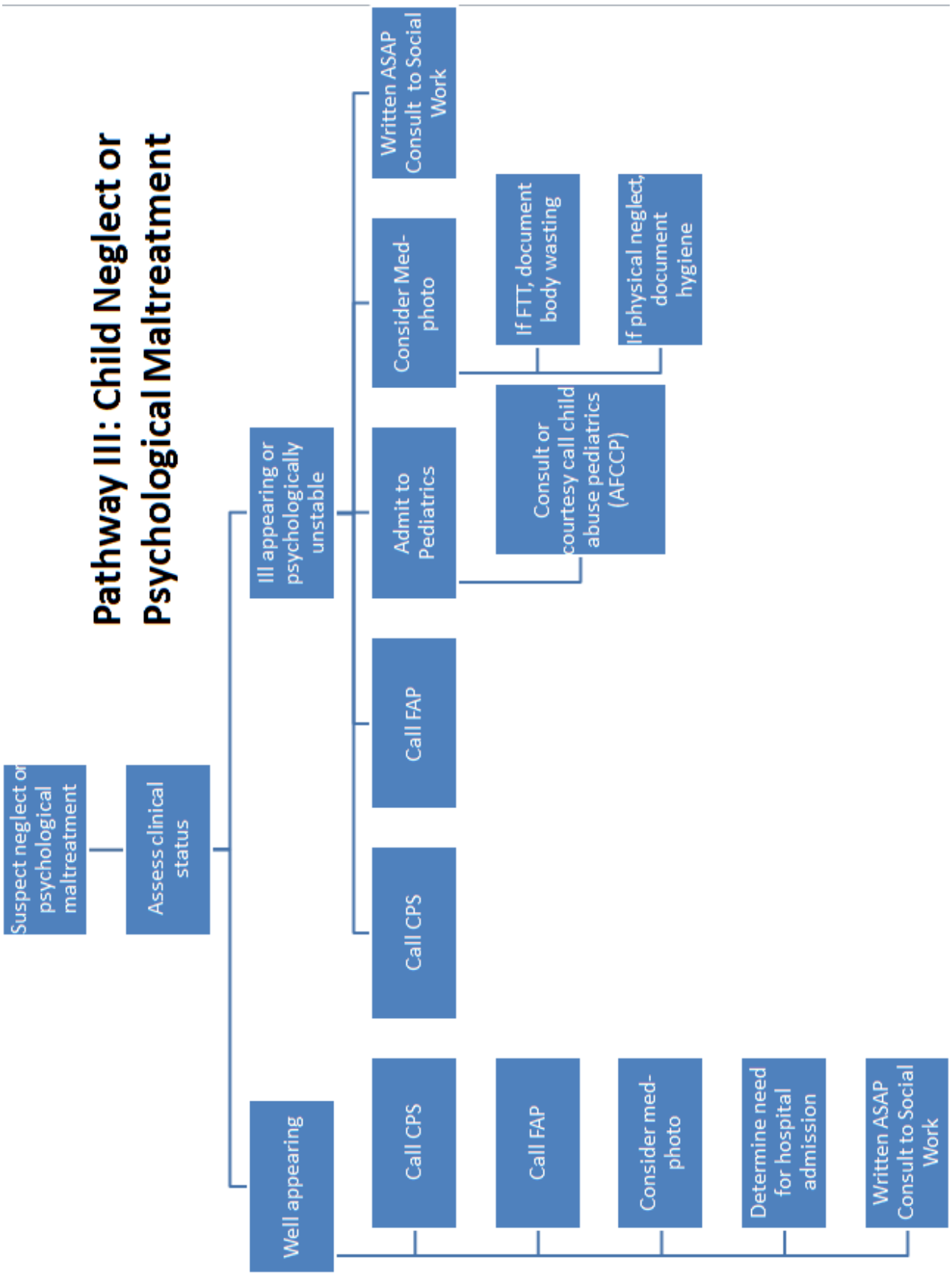
Temperature Conversion

AFCCP / CHILD ABUSE




Pathway II: Child Sexual Abuse
Suspect child sexual abuse
>72 hours since last sexual encounter
Call CPS and law enforcement
Call FAP
CPS and LE decline providing medical exam and forensic interview
CPS and LE to coordinate medical exam and forensic interview per their jurisdictional protocol
Call AFCCP to arrange outpatient follow up for medical examination and forensic interview 295-4100
Courtesy call to AFCCP to arrange outpatient medical follow up 295-4100
Immediate medical needs (bleeding; significant pain)
Call CPS and law enforcement
Call FAP
Address urgent medical concerns before transfer for SAFE
<72 hours since last sexual encounter
Call CPS and law enforcement
Call FAP
Arrange with CPS to transfer for immediate SAFE per jurisdiction protocol
Courtesy call to AFCCP to arrange medical follow up 295-4100
SAFE= Sexual Assault Forensic Examination

AFCCP / CHILD ABUSE



ADOLESCENT MEDICINE

*** Minor Consent Laws:**
www.guttmacher.org/statecenter/spibs/spib_OMCL.pdf

*** Parent of Teens Resource:**
parentingteensresourcenetwork.org

*** Sports Medicine:**
http://www.fairview.org/healthlibrary/content/sma_index.htm

MINORS MAY CONSENT TO ...

	CONTRACEP-TION	STI	PRENATAL
MD	All*	All*	All*
VA	All	All	All
DC	All	All	All

*** means that physicians may, but are not required to, inform the minor's parents.**
The Adol Clinic uses 14 yrs as a rule of thumb

ENDOCRINOLOGY

WRNMMC Pediatric DKA Clinical Practice Guideline

1. Suspect DKA

Defined based on following parameters:

Glucose >200 mg/dL **AND**
Venous pH <7.30 or HCO3 <15mEq/L **AND**
Ketonemia and ketonuria

2. Initial Evaluation

Include H&P, vitals, weight (kg) and labs to include:

Glucose, electrolytes, calcium, magnesium, phosphorus
Urinalysis
Blood ketones (i.e. Acetone)
CBC
pH (i.e. VBG)
Cultures, as indicated
EKG, if indicated (i.e. if serum potassium delayed)

3. Standard supportive measures per ED policy

Peripheral IV x 2 placement, continuous cardiorespiratory monitoring, PALS measures.

4. Volume Expansion

Initial Volume Expansion

Typically 10mL/kg NS over 1 hour.
May repeat if persistent hypotension and/or poor perfusion.
If in shock, consider initial 20mL/kg NS rapid bolus.

Subsequent Fluid Therapy

NS + 40 mEq/L potassium (20 mEq/L KCL + 20 mEq/L Kphos or 40 mEq/L KCl) at 1.5x maintenance therapy based on weight (kg).
May transition to ½ NS + 40 mEq/L potassium after 4-6 hours of subsequent fluid resuscitation.

WRNMMC Pediatric DKA Clinical Practice Guideline

5. Insulin Therapy

Start insulin infusion 1-2 hours after starting fluid therapy as above.

Regular insulin 0.1 unit/kg/hour

Dilute 250 units regular insulin in 250mL NS, 1 unit = 1mL

Dose should remain at 0.1 unit/kg/hour until resolution of DKA, however if marked sensitivity to insulin occurs, dose may be decreased to 0.05 units/kg/hour or less provided that metabolic acidosis continues to resolve.

Do not bolus IV insulin – increases the risk of cerebral edema.

6. Monitoring

Maintain q1 hour blood glucose, vitals, intake/output and neurological checks.

Recommend q2 hour serum glucose, electrolytes, calcium, magnesium, phosphorus and pH.

Aim to keep blood glucose at 150-250mg/dL

Add Dextrose 5% to IV fluid when serum glucose falls to 250-300 mg/dL

Add Dextrose 10% or 12.5% if necessary to keep blood sugars 150-250 mg/dL

Bicarbonate administration is not routinely recommended due to risk of paradoxical acidosis.

WRNMMC Pediatric DKA Clinical Practice Guideline

7. Cerebral Edema

A patient developing cerebral edema may exhibit any of the following clinical signs during the first 24 hours of DKA treatment: headache, change in level of consciousness/ responsiveness, unequal or dilated pupils, papilledema, delirium, incontinence, vomiting, bradycardia, increase in blood pressure (diastolic >90mm/Hg), abnormal respiratory pattern or respiratory arrest or sudden onset of polyuria (development of diabetes insipidus as a result of pituitary necrosis).

If cerebral edema is suspected, the following treatment should be employed immediately:

Reduce rate of IV infusion by one-third.

Elevate head of bed.

Hypertonic Saline (3%) 1 mL/kg over 15 minutes

Alternatively, give Mannitol 0.5-1 g/kg IV over 20 minutes and repeat if there is no initial response in 30 minutes to 2 hours.

Consider intubation and maintain pCO2 35-40 mm Hg. Hyperventilation (to a pCO2 <22 mm Hg) has been associated with poor outcome and is not recommended.

After treatment for cerebral edema has been started obtain a head CT to exclude other possible intracranial causes of neurologic deterioration (i.e. thrombosis, hemorrhage).

8. Transport Guidance

Call WRNMMCB PICU at 301-400-2010 for admission, to arrange PALS level transport, and for further guidance

References:

See ISPAD 2014 Consensus Statement. Wolfsdorf. Pediatric Diabetes 2014:15 (Suppl 20):154-179

***Clinical Practice Guideline Disclaimer Statement**: "This Clinical Practice Guideline is designed to provide clinicians a framework for evaluation and treatment of DKA. This Clinical Practice Guideline is not intended to establish a protocol for all patients with a particular condition not is it intended to replace a clinician's clinical judgement. A clinician's adherence to this Clinical Practice Guideline is voluntary. It is understood that some patients will not fit the clinical conditions contemplated by this Clinical Practice Guideline and that the recommendations contained in this Clinical Practice Guideline should not be considered inclusive of all proper methods or exclusive of other methods of care reasonably directed to obtaining the same results. Decisions to adopt any specific recommendation of this Clinical Practice Guideline must be made by the clinician in light of available resources and the individual circumstances presented by the patient."*

New onset labs: BMP, HbA1c, islet cell antibodies, insulin antibodies, thyroid antibodies, TFTs, endomesial antibody, TTG, IgA, beta-hydroxybutyrate, serum insulin, C peptide

ENDOCRINOLOGY

Hypoglycemia BG <50 mg/dL

- Work-up: Obtain critical sample prior to treatment:

  1st priority: electrolytes with serum glucose, insulin, free fatty acids, serum ketones (β-OH butyrate), GH, cortisol, acylcarnitine profile, ammonia, lactate/pyruvate

  2nd priority: Plasma amino acids, carnitine, C-peptide

  1st voided urine: ketones, urine organic acids, reducing substances, tox screen

  Tubes: Corvac-SST (multiple), Green (Na-heparin) – [acylcarnitine, PAA], Gray [lactate - ice/pyruvate, glucose], Lav- EDTA [ammonia – ice]

- Management: RULE OF 50s — Glucose 0.5-1 gm/kg IV bolus (PALS)

  D5 (0.05 g/ml) 10-20 ml/kg

  D10 (0.1 g/ml) 5-10 ml/kg – 2 ml/kg for neonates (0.2 gm/kg)

  D25 (0.25 g/ml) 2-4 ml/kg

  D50 (0.5 g/ml) 1-2 ml/kg

Adrenal Insufficiency/Crisis

1. Obtain IV access
2. Finger-stick blood glucose, stat electrolytes; ACTH and cortisol level if diagnosis is not known
3. NS 20 mL/kg bolus, use D5NS if hypoglycemia
4. Hydrocortisone (Solu-Cortef) 100 mg/m2 IV bolus
5. Continue dextrose-containing IV fluids
6. Continue hydrocortisone 100 mg/m2/day IV div q6 hours

Hypocalcemia

Cardiac monitor – prolonged QT on EKG

Calcium gluconate 60-100 mg/kg over 5-10 min slow IV push

Beware of bradycardia, asystole, hypotension, tissue necrosis

Correct low magnesium with Mag sulfate (50%) 25-50 mg/kg IV over 10-20 min

Hypercalcemia

Hydration: NS bolus 20 ml/kg IV, then D5NS + at least 20 KCl at 2x maintenance

Lasix 1 mg/kg IV q6 hours (watch K levels) – with caution, ensure adequate hydration

Bisphosphonate (pamidronate 1 mg/kg IV q4 hours) or calcitonin 4-8 IU/kg SQ q12 hours

For hypervitaminosis D: Prednisone 1-2 mg/kg/day (inhibits vit D dependent calcium absorption)

ENDOCRINOLOGY

Thyroid Storm

Support intravascular volume

B-blocker (unless CHF present): propranolol 2 mg/kg/day po div q6 hours or 0.1 mg/kg IV q10-20 min; contraindicated in asthma

Methimazole 0.5-1 mg/kg/dose q8 hours (blocks thyroid hormone synthesis)

Iodine: Lugols solution or SSKI 3-5 drops q8 hours, start 1 hour after methimazole (blocks thyroid hormone release)

Methyprednisolone 1 mg/kg IV q12 hours
anti-inflammatory effect, inhibits peripheral T4 → T3 conversion

Treat fever: acetaminophen, cooling blankets

Tanner Stages

	Female	Male	Pubic Hair
1	Pre-pubertal. No breast tissue	Pre-pubertal	Pre-pubertal
2	Areolar enlargement, breast bud	Testes enlarge (4ml); scrotum larger, skin reddened and coarser	Sparse, downy hair
3	Enlargement of breast and areola as single mound	Penis elongates, continued growth of testes and scrotum	Sparse, coarse hair
4	Projection of areola above breast as double mound	Growth of testes, penis length & breadth. Scrotum has increased pigmentation	Adult type hair, not on thighs
5	Adult. Areola is a part of breast contour, only nipple projects	Testes, scrotum, penis adult size	Adult type hair, spread to medial thighs

GENERAL PEDIATRICS: Steroids on Formulary

Steroids on Formulary at WR-B (Jan 2014)

Potency Group	Generic Name	Percentage Strength	Brand Name (Alt Brand Name)	Size
Class I	Augmented Betamethasone Dipropionate	0.05% lotion	Diprolene	30 ml
	Clobetasol Proprionate	0.05% ointment	Temovate (Cormax)	15 g, 30 g
	Clobetasol Proprionate	0.05% cream	Temovate-E (Cormax)	15 ml, 30 ml, 45 ml
	Clobetasol Proprionate	0.05% solution	Temovate Scalp (Cormax)	25 ml, 30 ml
	Flurandrenolide	4mcg/cm tape	Cordran	200 cm
Class II	Augmented Betamethasone Dipropionate	0.05% cream	Diprolene AF	15 g
	Betamethasone Dipropionate	0.05% ointment	Diprosone	15 g
	Fluocinonide	0.05% cream	Lidex	15 g, 60 g
	Fluocinonide	0.05% gel	Lidex	15 g, 60 g
	Fluocinonide	0.05% ointment	Lidex	15 g, 60 g
	Fluocinonide	0.05% solution	Lidex	60 ml
Class III	Amcinonide	0.1% cream	Cyclocort	15 g, 60 g
	Betamethasone Dipropionate	0.05% lotion	Diprosone	60 ml
	Fluocinonide Emollient	0.05% cream	Lidex-E	15 g, 60 g
Class IV	Hydrocortisone Valerate	0.2% ointment	Westcort	15 g, 60 g
	Triamcinolone Acetonide	0.1% ointment	Kenalog	15 g, 80 g, 454 g
	Triamcinolone Acetonide	0.2% aerosol	Kenalog	63 g
Class V	Betamethasone Valerate	0.1% cream	Valisone	15 g
	Betamethasone Valerate	0.1% lotion	Valisone	60 ml
	Desonide	0.05% ointment	Tridesilon (DesOwen)	15 g, 60 g
	Flurandrenolide	0.05% lotion	Cordran	60 ml
	Hydrocortisone Valerate	0.2% cream	Westcort	15 g, 60 g
	Triamcinolone Acetonide	0.1% cream	Kenalog (Aristocort EQ)	15 g, 80 g, 454 g
	Triamcinolone Acetonide	0.025% ointment	Kenalog	15 g
Class VI	Desonide ☺	0.05% cream	Tridesilon (DesOwen)	15 g, 60 g
	Fluocinolone Acetonide	0.01% oil	Dermasmooth (Capex)	120 ml
	Triamcinolone Acetonide	0.025% cream	Kenalog	15 g, 80 g
Class VII	Hydrocortisone	2.5% cream	(Hytone)	28 g
	Hydrocortisone (OTC) ☺	1% cream		30 g
		0.5% cream		30 g
		1% lotion		118 ml
		1% ointment		30 g

☺ Safe for facial use

GENERAL PEDIATRICS: ADHD Medications

NAME	DOSAGE	STARTING DOSE	FDA MAX/ DAY	OFF-LABEL MAX/DAY	DURATION OF EFFECT
Adderall	5, 7.5, 10, 12.5, 15, 20, 30 mg tabs 1 mg/mL soln	3-5yr: 2.5 mg qd >6yr: 5mg qd-bid	40 mg	>50kg: 60 mg	4-8 hrs
Dexedrine/ Dextrostat	5, 10 mg tab	3-5yr: 2.5 mg qd	40 mg	>50 kg: 60 mg	4-5 hrs
Adderall XR	5, 10, 15, 20, 25, 30 mg caps	>6 yr: 10 mg qd	40 mg	>50 kg: 60 mg	8-12 hrs
Dexedrine Spansule	5, 10, 15 mg caps	>6 yr: 5 mg qd-bid	40 mg	>50 kg: 60 mg	8-10 hrs
Vyvanse	20, 30, 40, 50, 60, 70 mg tabs	20-30 mg qd	70 mg	Unknown	12-14 hrs
Focalin	2.5, 5, 10 mg tabs	2.5 mg bid	20 mg	50 mg	4 hrs
Ritalin/Methylin	5, 10, 20 mg tabs	5 mg bid to tid	60 mg	>50 kg: 100 mg	3-4 hrs
Metadate ER	10, 20 mg tabs	10 mg qAM	60 mg	>50 kg: 100 mg	4-8 hrs
Metadate CD	10, 20, 30, 40, 50, 60 mg caps	20 mg qAM	60 mg	>50 kg: 100 mg	4-10 hrs, bimodal
Ritalin LA	10, 20, 30 40 mg caps	20 mg qAM	60 mg	> 50 kg: 100 mg	4-10 hrs, bimodal
Concerta	18, 27, 36, 54 mg tabs	18 mg qAM	72 mg	108 mg	8-12 hrs
Daytrana	10, 15, 20, 30 mg transdermal patch	10 mg patch qd	30 mg	Unknown	9-12 hrs
Focalin XR	5, 10, 15, 20 mg caps	5 mg qAM	30 mg	50 mg	12 hrs, bi-modal
Quillivant XR	25 mg/5 mL soln	20 mg	60 mg	60 mg	Peaks @ 5 hrs
Atomoxetine/ Strattera	10, 18, 25, 40, 60, 80 mg caps	< 70 kg: 0.5 mg/kg/ day for 4 days, then 1 mg/kg/day, then 1.2 mg/kg/day in qd or bid doses	Lesser of 1.4 mf/kg/day or 100 mg	Lesser of 1.8 mg/ kg or 100 mg	6-8 hrs
Clonidine	0.1, 0.2, 0.3 mg tabs, patch	<45 kg: 0.05 mg qhs >45 kg: 0.1 mg qhs	27-40.5 kg: 0.2 mg 40.5-45 kg: 0.3 mg >45 kg: 0.4 mg		Peaks in 3-5 hrs, t 1/2 12 -16 hrs
Guanfacine **Intuniv**	1, 2 mg tabs 1, 2, 3, 4 mg tabs	< 45 kg: 0.5 mg qhs >45 kg: 1 mg qhs	27-40.5 kg: 2 mg 40.5-45 kg: 3 mg >45 kg: 4 mg		Peaks 5 hours, t 1/2 16-18 hrs

HEMATOLOGY/ONCOLOGY

Transfusion Guidelines

Pediatric Specific Risks

- Bacterial and viral contamination (same as adults)
- Hypothermia: increased risk given pediatric surface area to weight ratio; consider blood warmer especially if large volume will be transfused
- Hyperkalemia: increased if whole or irradiated blood used
- Hypocalcemia: due to chelation from colloids; a rapid transfusion may cause hypotension since calcium is a potent inotrope in infants and children

Packed Red Blood Cells

- Dose: 10-15 mL/kg

  One unit of pRBCs is approximately 250-350 mL. Transfusing a pediatric patient 10-15 mL/kg raises Hgb by 3 gm/dL (or 4 mL/kg = Hgb 1 gm/dl = Hct 3%). Trans fusing an adult patient 1 unit will raises Hgb 1 gm/dL (Hct 3%).
- Rate: 5 mL/kg/hr, or 10-15 mL/kg over 2-4 hours

  Consider Lasix mid-transfusion or post-transfusion if concerned about fluid over load.
- Goals: Hgb >7 or as clinically indicated
- Ordering packed red blood cells

  Leukocyte reduced: ALL blood products need to be leukocyte reduced (aka CMV safe). Prevents febrile, non-hemolytic transfusion reactions.

  Irradiated: Eliminates possibility of GVHD by eliminating donor-derived T cells that can engraft in an immunocompromised recipient. *Indications = all neonates <4 months, severe known or suspected immunodeficiency or immunosuppression (chemo, radiation, stem cell transplant), and donor-directed blood products.*

  CMV Seronegative: Indications = infants <1000 grams, CMV negative/pending patient who is either receiving stem cells from CMV negative donor, AML or aplas tic anemia, high-risk neuroblastoma, or congenital or acquired immunodeficiency syndrome.

  Phenotype Matched: Indications = sickle cell, thalassemia, other chronic anemias

  Washed RBCs: Indications = cardiac patients <4 kg, GI patients <5 kg, history of serious febrile or allergic transfusion reaction, IgA deficiency, kidney or liver failure

Platelets

- Dose: 5-10 mL/kg, raises platelet count by 40,000-60,000 (for 10 mL/kg)

  One unit of platelets is approximately 50-60 mL.
- Rate: as fast as tolerated (30 minutes to 1 hour)
- Goals: >10K if not bleeding >20K if febrile or with recent hemorrhage

  >50K if bleeding or scheduled for major procedure >100K if CNS bleed

  If ITP, discuss all platelet transfusions with Heme/Onc team first.

HEMATOLOGY/ONCOLOGY

Transfusion Guidelines

Fresh Frozen Plasma

- Dose: 10-30 mL/kg
- Rate: No faster than 1 mL/kg/min or should be followed by calcium
- Contains: ALL factors and albumin

Cryoprecipitate

- Dose: 1 unit per every 5-10 kg (1 unit is appox. 250 mg fibrinogen)
- Rate: as fast as tolerated
- Contains: high-molecular weight proteins including fibrinogen, Factor VIII, vWF, and Factor XIII

Transfusion Reaction

Stop all transfusions when the temperature rises >1^{o}C or >2^{o}F from baseline

INFECTIOUS DISEASE

Dr. Eberly's Antibiotic Cheat Sheet

MSSA
Nafcillin or Oxacillin
Cefazolin (Ancef)
Clindamycin (*if D-test negative*)
Ampicillin/Sulbactam (Unasyn)
Piperacillin/Tazobactam (Zosyn)
Ticarcillin/Clavulanate (Timentin)
Fluoroquinolones (i.e. Cipro, Levaquin)
Cefuroxime

PO Cephalexin (Keflex)
PO Amoxicillin/Clav (Augmentin)
PO Dicloxacillin
PO Fluoroquinolones

MRSA (these will also cover MSSA)
Vancomycin
Linezolid – $$$
Clindamycin (*if D-test negative*)
TMP/SMX – does not cover GABHS
Doxycycline

PSEUDOMONAS
Ceftazidime
Cefepime
Piperacillin/Tazobactam (Zosyn)
Ticarcillin/Clavulanate (Timentin)
Fluoroquinolones
Aminoglycosides
→Gentamicin, Tobramycin, Amikacin
Meropenem
Imipenem
Aztreonam (for PCN-allergic)

ANAEROBES
Metronidazole (Flagyl)
Clindamycin (*not for CNS*)
Ampicillin/Sulbactam (Unasyn); PO Amox/Clav
Piperacillin/Tazobactam (Zosyn)
Meropenem
Imipenem
Ertapenem
Cefoxitin > Cefotetan
Moxifloxacin

ENTEROCOCCUS
Ampicillin, PCN, Amp/Sulbactam
+Gentamicin 1mg/kg/dose TID for synergy
Piperacillin/Tazobactam
Vancomycin – use only if Amp-R
Imipenem > Meropenem
Linezolid – for VRE
→*No Cephalosporins!*

OTHERS
Mycoplasma – Azithromycin, Doxycycline, Fluoroquinolones
Pneumococcus – Ceftriaxone, Cefotaxime, PO 3rd gen ceph,
or high-dose Amoxicillin (BID for AOM, TID for PNA)
add Vancomycin for meningitis until sens known
GABHS – PCN, Amp, Amox, Cephalosporins, Azithromycin
3-5% have resistance to Clindamycin
Group B Strep – PCN or Ampicillin ± Gentamicin
Coagulase negative Staph – Vancomycin
Neisseria - Ceftriaxone
Rickettsia - Doxycycline
Stenotrophomonas – TMP/SMX
TB – see me

Matt Eberly, MD

NICU

Emergency Management of the Neonate

1) UVC AND UAC LINES

o Placement calculation and size:

UAC = 3 * Wt (kg) +9; T6-T9

("T7 if heaven, T8 is great, T9 is fine")

(downward turn w/upward turn at internal iliac/hypogastric)

UVC = 0.5 * UAC depth +1

(IVC and right atrium at level of the diaphragm)

o Double lumen preferred for UVC and single lumen for UAC

<1000grams – 3.5F UVC and 2.5 or 3.5F UAC

>1000grams – 5F UVC and 3.5 UAC (5F UAC if term)

2) INTUBATION: ET tube guidelines

Age	Wt	Size	Depth	Blade
<28wks	<1kg	2.5	7cm	00 or 0 Miller
28-34	1-2	3.0	8cm	0 Miller
34-38	2-3	3.5	9cm	1 Miller
>38	>3	3.5-4	9-10cm	1 Miller

3) INITIAL VENTILATOR SETTING

Conventional: PIP 20, PEEP 5, Rate 40, FiO2 100% (wean to 40% ASAP)

4) PROSTAGLANDIN (Alprostadil)

Emergency dosing: 0.1 mcg/kg/min

NICU

Neonatal Ventilator Tips

Vent Types and Modes

AC: set pressure and pattern of ventilation (guaranteed It) delivered with every spontaneous breath; pt determines rate.
Set PIP, PEEP, IT.

PSV: set pressure delivered with every spontaneous breath; pt determines rate. Set PIP, PEEP, IT.

ACVG: ventilator varies pressure to deliver set volume, fixed It ventilation pattern as with AC. Set VT, PEEP, IT, Rate.

PSVG: ventilator varies pressure to deliver set volume, variable It ventilation pattern as with PC. Set VT, PEEP, IT, Rate.

Minute Ventilation = RR x volume (TV or PIP)

Pressure can indicate compliance

Physiologic TV: 4-6 mL/kg

Adjusting Ventilation

To ↓CO2: ↑rate or ↑PIP/TV

To ↑CO2: ↓rate or ↓PIP/TV

Adjusting Oxygenation

To ↑O2: ↑MAP (↑PIP, ↑PEEP, ↑It), ↑FiO2

To ↓O2: ↓MAP (↓PIP, ↓PEEP), ↓FiO2

Blood gases

pH/CO2/O2/Bicarb/Base excess or deficit

Respiratory acidosis (retaining CO2 – slow respirations)

pH↓, CO2↑, bicarb normal

Metabolic acidosis

pH↓, CO normal, bicarb↓

Respiratory alkalosis

pH↑, CO2↓, bicarb normal

NICU

Neonatal TPN

Common calculations:

GIR = (%dext x mkd)/144 = (%dextrose x rate in mL/hr)/(wt x 6)

Kcal/kg/day = mL in 24hrs/(30 x kcal/wt)

Kcal from glucose = (D x mkd x 4)/100

TPN ordering:

Day 1: Protein 1.5-2g/kg, GIR of 4-6, Calcium 2mEq/kg

Day 2: Add lipids 0.5-1g/kg/day

Nutrition Goals:

Kcals: Term 100-120, Preterm 120-140, Malnourished 120-160

Protein: 3-3.5g/kg/day (10-20% kcals)

Lipid 3g/kg/day (40-50% kcals)

Glucose (40-45%kcals)

Calcium 3mEq/kg with ratio of Phos 1.3-1.7:1

Sodium 3-6mEq/kg

Potassium 2-4mEq/kg

Mag, only if levels <2.0 (normal 1.8-2.2), add at 0.2-0.4mg/kg

Indicators of too much

BUN can indicate increased protein breakdown, high CO2 can also indicate excess

CO2 (retention) can indicated too much glucose

Too much lipid can result in free fatty acids binding to albumin and offsetting bilirubin

TPN Complications:

Cholestatic liver disease, hold copper and manganese

Osteopenia, rickets

Zinc deficiency (increased with ostomy)

NICU

NICU Health Maintenance

Retinopathy of Prematurity

- GA <30 weeks and/or BW <1500g -> 31wga at first exam, 28-30wga after birth

Head Ultrasound

- GA <32 weeks and/or BW <1500g -> HUS in first week of life, more frequently if abnormal or monthly if normal

Discharge MRI

- GA <30 weeks and/or BW <1500g, within one week of anticipated discharge

NICU Discharge Planning

[ ] Identify MTF and desired PCM for follow-up

[ ] Schedule PCM and specialty appointments (place consults in CHCS)

[ ] Hearing Screen

[ ] Car Seat Challenge

[ ] Newborn Screening status documented in DC Summary

[ ] Immunizations (including Synagis if applicable)

[ ] Discharge MRI (if applicable)

[ ] Pharmacy order for outpatient medications in CHCS (DC med request in Essentris)

[ ] EFMP enrollment completed (if applicable)

[ ] Early Intervention Services Referral (if applicable)

[ ] High Risk NICU Clinic follow up (if applicable)

[ ] Circumcision (if applicable)

[ ] DME orders and home services arranged (if applicable)

[ ] Discharge Instructions and education for parents

[ ] Fax or email discharge summary to PCM

[ ] Update immunizations in AHLTA record

SYNAGIS CRITERIA 2017-2018

(UNCHANGED SINCE 2015-16)

2015-2016 Synagis Guidelines: 7/28/14 (American Academy of Pediatrics) http://pediatrics.aappublications.org/content/134/2/415.full.html

Gestational Age:	
≤ 28 weeks and 6 days	• ≤ 12 months of age at the start of RSV season
CLD/CHD/Other:	
Chronic lung disease of prematurity (CLDP) defined as gestational age ≤ 31 weeks and 6 days and a requirement for > 21% oxygen for at least 28 days after birth	• ≤ 12 months of age at the start of RSV season **OR** • ≤ 24 months of age at the start of RSV season • Continue to require medical support (supplemental oxygen, chronic corticosteroid or diuretic therapy) during 6 month period before the start of RSV season.
Hemodynamically significant congenital heart disease (CHD)	• ≤ 12 months of age at start of RSV season • Diagnosis of at least one of the following: o Ayanotic heart disease with medication to control congestive heart failure and will require cardiac surgical procedures o Infants with moderate to severe pulmonary hypertension o Cyanotic heart defects and referred by pediatric cardiologist **OR** • ≤ 24 months of age at the start of RSV season • Cardiac transplantation during RSV season
Neuromuscular disorder or congenital anomaly that impairs the ability to clear secretions from the upper airway because of ineffective cough	• ≤ 12 months of age at start of RSV season
immunocompromised due to chemotherapy or other conditions	• ≤ 24 months of age at the start of RSV season • Profoundly immunocompromised during RSV season
Cystic Fibrosis (CF)	• Recommended if ≤ 12 months of age at start of RSV season and at least one of the following indications are present: o Evidence of CLD o Nutritional compromise **OR** • If ≤ 24 months of age at the start of RSV season with at least one of the following manifestations of severe lung disease: o Previous hospitalization for pulmonary exacerbation in first year of life o Abnormalities on chest radiography or chest computed tomography that persist when stable • Weight for length less than the 10th percentile
Clinicians may administer up to a maximum of five monthly doses of Palivizumab during the RSV season to infants who qualify for prophylaxis in the first year of life. Qualifying infants born during the RSV season will require fewer doses	

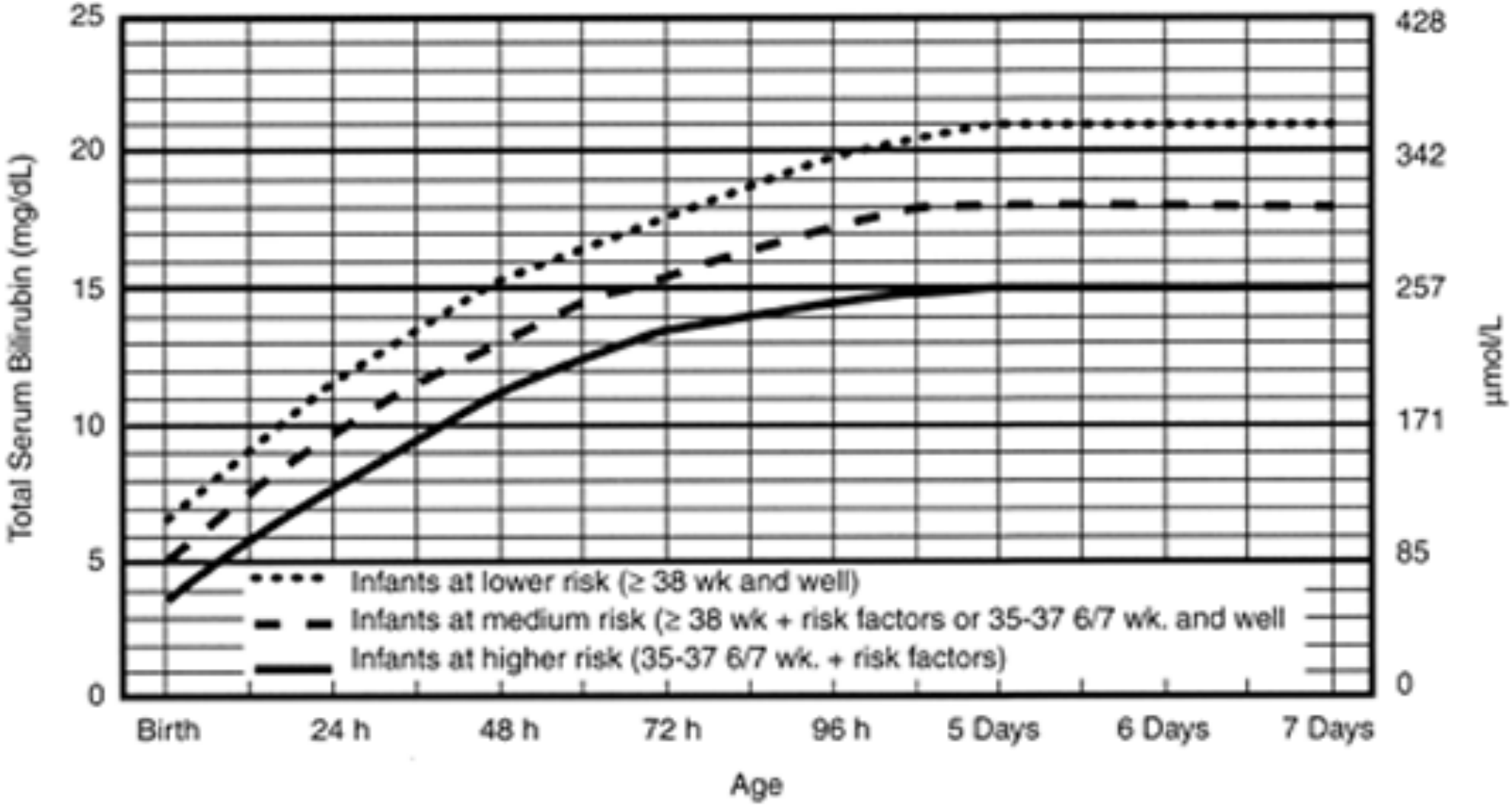
TABLE 1. Standard Recipe Charts for Powdered Formula

Calorie/Oz	Type of Formula LEGEND: WRNMMC Pediatric Formulary Substituions	Volume of Water	1 Scoop Level	Final Volume
20	Similac Advance, Alimentum, Similac Soy, Similac Sensitive, Similac PM60 40, Enfamil Gentlease, Enfamil Premium Infant, Enfamil Premium Newborn, Enfamil Prosobee, Enfagrow, Gentleease Toddler, Enfamil A.R., Elecare, Nutramigen AA	2oz/60ml	Unpacked	2.2oz/67ml
20	Neocate	1oz/30ml	Unpacked	1.1oz/33ml
20	Neosure, Enfacare	2.2oz/66ml	Unpacked	2.4oz/75ml
20	Pregestimil, Nutramigen with Enflora	2oz/60ml	Packed	2.2oz/67ml
22	Similac Advance, Alimentum, Similac Soy, Similac Sensitive, Similac PM60 40, Enfamil Gentlease, Enfamil Premium Infant, Enfamil Premium Newborn, Enfamil Prosobee, Enfagrow, Gentleease Toddler, Enfamil A.R., Elecare, Nutramigen AA	1.8oz/53ml	Unpacked	2oz/60ml
	Neocate	0.9oz/27ml	Unpacked	1oz/30ml
	Neosure, Enfacare	2oz/60ml	Unpacked	2.2oz/66ml
22	Pregestimil, Nutramigen with Enflora	1.7oz/53ml	Packed	2oz/60ml
24	Similac Advance, Alimentum, Similac Soy, Similac Sensitive, Similac PM60 40, Enfamil Gentlease, Enfamil Premium Infant, Enfamil Premium Newborn, Enfamil Prosobee, Enfagrow, Gentleease Toddler, Enfamil A.R., Elecare, Nutramigen AA	1.6oz/48ml	Unpacked	1.9oz/54ml
	Neocate	0.8oz/25ml	Unpacked	0.9oz/28ml
	Neosure, Enfacare	1.8oz/55ml	Unpacked	2oz/60ml
24	Pregestimil, Nutramigen with Enflora	1.6oz/48ml	Packed	1.8oz/54ml
26	Similac Advance, Alimentum, Similac Soy, Similac Sensitive, Similac PM60 40, Enfamil Gentlease, Enfamil Premium Infant, Enfamil Premium Newborn, Enfamil Prosobee, Enfagrow, Gentleease Toddler, Enfamil A.R., Elecare, Nutramigen AA	1.5oz/45ml	Unpacked	1.7oz/60ml
	Neocate	0.7oz/22ml	Unpacked	0.85oz/26ml
	Neosure, Enfacare	1.7oz/48ml	Unpacked	2oz/60ml
26	Pregestimil, Nutramigen with Enflora	1.5oz/45ml	Packed	2oz/60ml
27	Similac Advance, Alimentum, Similac Soy, Similac Sensitive, Similac PM60 40, Enfamil Gentlease, Enfamil Premium Infant, Enfamil Premium Newborn, Enfamil Prosobee, Enfagrow, Gentleease Toddler, Enfamil A.R., Elecare, Nutramigen AA	1.4oz/42ml	Unpacked	1.6oz/48ml
27	Neocate	0.7oz/21ml	Unpacked	0.8oz/25ml
27	Neosure, Enfacare	1.6oz/48ml	Unpacked	1.8oz/54ml
27	Pregestimil, Nutramigen with Enflora	1.4oz/42ml	Packed	0.8oz/25ml
28	Similac Advance, Alimentum, Similac Soy, Similac Sensitive, Similac PM60 40, Enfamil Gentlease, Enfamil Premium Infant, Enfamil Premium Newborn, Enfamil Prosobee, Enfagrow, Gentleease Toddler, Enfamil A.R., Elecare, Nutramigen AA	1.4oz/42ml	Unpacked	1.6oz/48ml
28	Neocate	0.7oz/21ml	Unpacked	0.8oz/24ml
28	Neosure, Enfacare	1.5oz/45ml	Unpacked	1.7oz/51ml
28	Pregestimil, Nutramigen with Enflora	1.4oz/42ml	Packed	1.6oz/48ml
30 (1cal/ml)	Similac Advance, Alimentum, Similac Soy, Similac Sensitive, Similac PM60 40, Enfamil Gentlease, Enfamil Premium Infant, Enfamil Premium Newborn, Enfamil Prosobee, Enfagrow, Gentleease Toddler, Enfamil A.R., Elecare, Nutramigen AA	1.3oz/39ml	Unpacked	1.5oz/45ml
30	Neocate	0.6oz/18ml	Packed	0.7oz/21ml
30	Neosure, Enfacare	1.4oz/42ml	Unpacked	1.6oz/48ml
30	Pregestimil, Nutramigen with Enflora	1.3oz/39ml	Packed	1.5oz/45ml
30	Elecare Jr	1.25oz/38ml	Unpacked	1.5oz/45ml
30	Neocate Jr	1.2oz/36ml	Unpacked	1.3oz/39ml

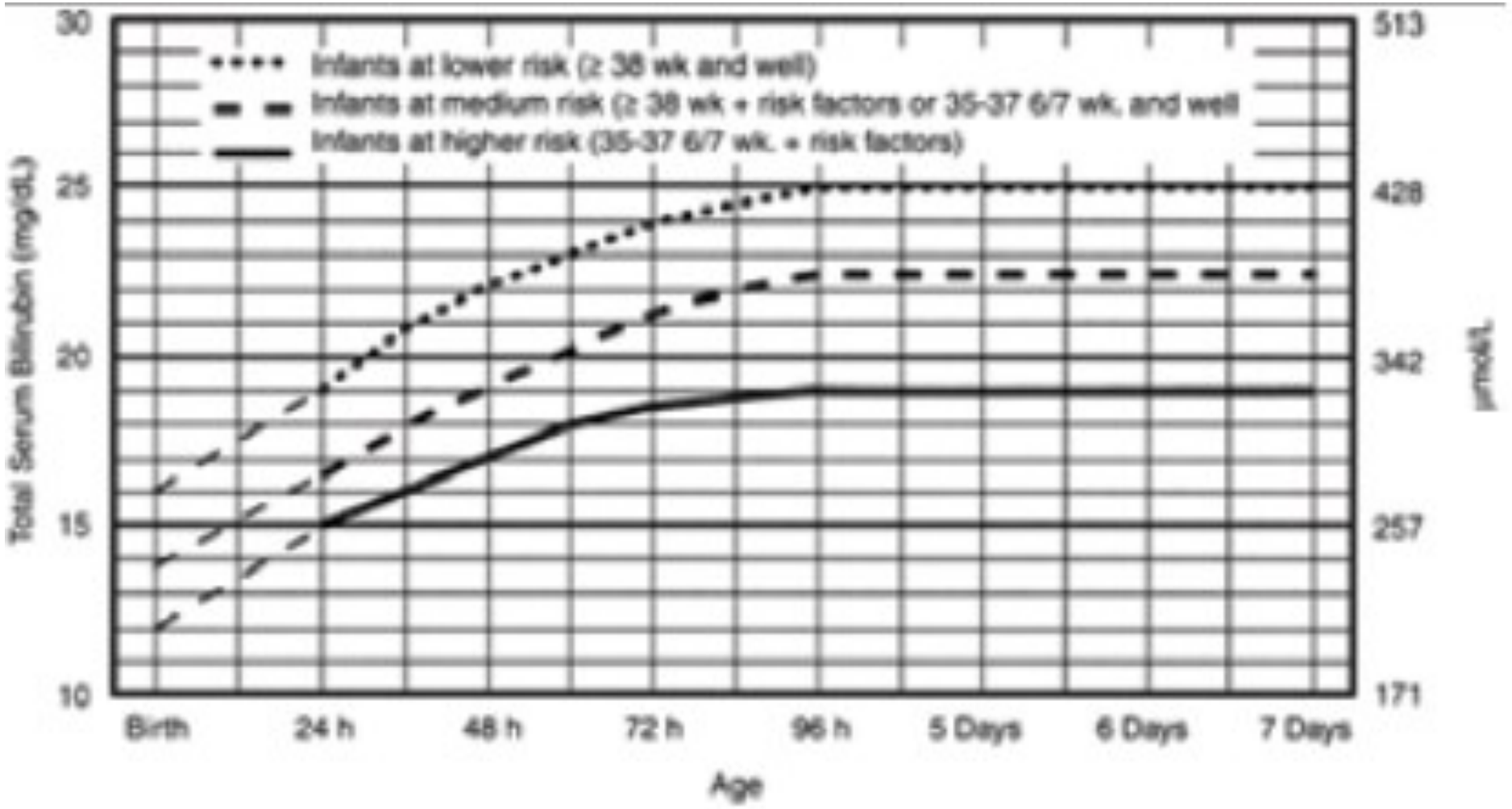
TABLE 2. Standard Recipe Charts for Diluting the 1.5cal/ml Liquid Formula

Calorie/Oz	Type of Formula: Using the 1.5cal/ml Liquid Formula as the main ingredient LEGEND: WRNMMC Pediatric Formulary Substituions	Volume of Water	Volume of Formula	Final Volume
36 (1.2cal/ml)	PediaSure 1.5, PediaSure Peptide 1.5, Boost Kid Essentials 1.5	25ml	100ml	125ml
40 (1.3cal/ml)	PediaSure 1.5, PediaSure Peptide 1.5, Boost Kid Essentials 1.5	15ml	100ml	115ml
42 (1.4cal/ml)	PediaSure 1.5, PediaSure Peptide 1.5, Boost Kid Essentials 1.5	7ml	100ml	107ml

Guidelines for phototherapy
(≥ 35 wk GA and≥2500 gm)

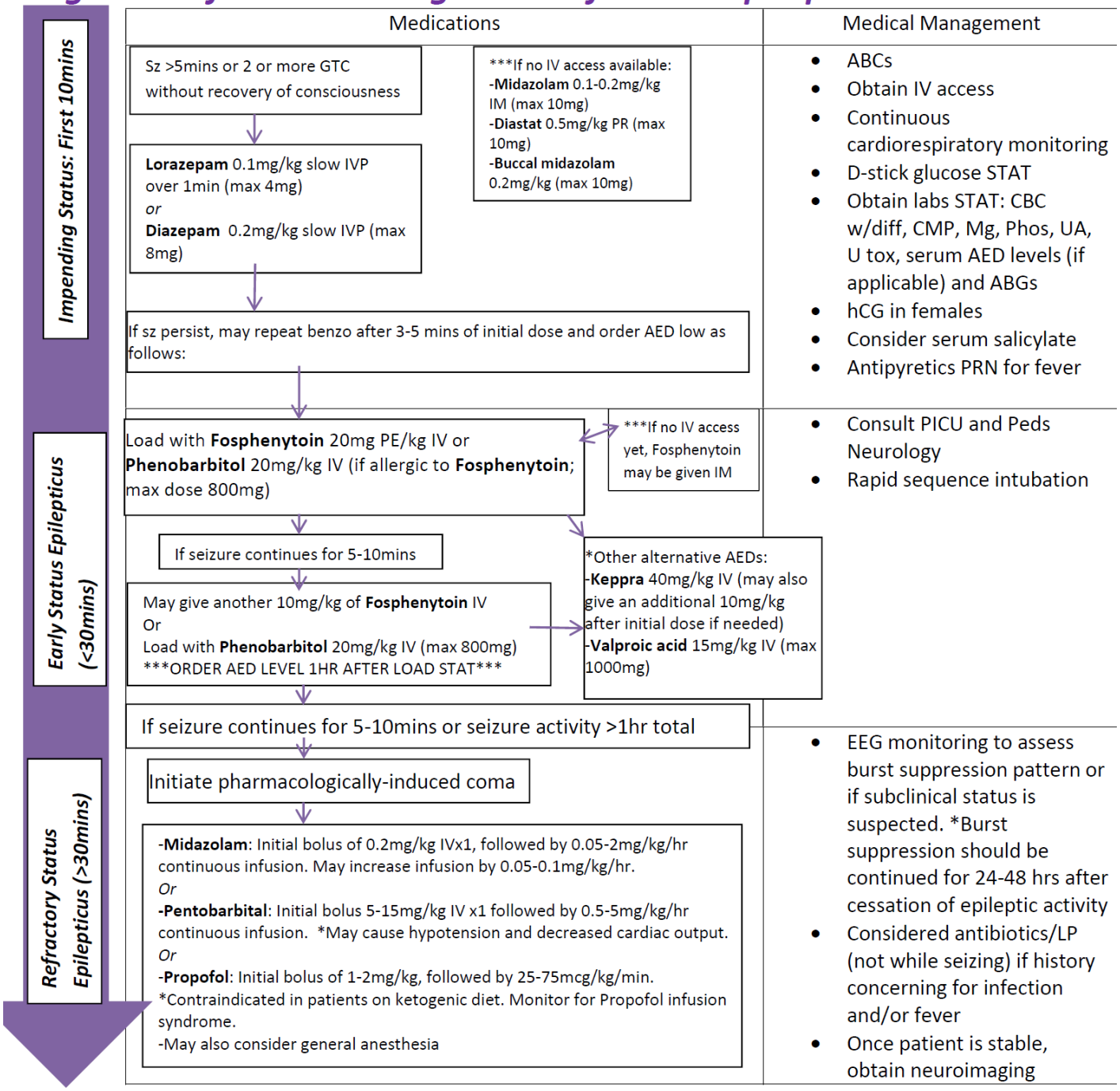


Guidelines for exchange transfusion
(≥ 35 wk GA and≥2500 gm)



NEUROLOGY

Algorithm for the Management of Status Epilepticus in Children



*References:
Uptodate.com
AAN Continuum: Status Epilepticus
Neurology, Practice Parameter: Diagnostic assessment of the child with status epilepticus

Developed by: CPT Rahe Hiraldo, MD, PGY-5, Pediatric Neurology Fellow (Updated 11-19-2015)
Reviewed and approved by: Dr William Young, Chief of Pediatric Neurology, and Dr Joseph Brown, Epileptologist

NEUROLOGY

ACUTE MANAGEMENT OF INCREASED INTRACRANIAL PRESSURE (ICP) ALGORITHM

GCS ≤ 8 in absence of: hypotension, hypoxemia, hypothermia

Remember: Cushing's Triad (HTN, bradycardia, abnormal respirations) is a late /preterminal event

↓

Airway - Breathing - Circulation
Continuously monitor vital signs and pulse oximetry
Administer oxygen and perform airway maneuvers
Assist ventilation if indicated
Establish IV/IO access and begin NS at maintenance
Use rapid sequence protocol for intubation
Obtain emergent head CT
Neurosurgery consult for EVD / ICP monitor placement

↓

PATIENT CARE GOALS:
SpO_2 100%; **Temperature** 35 - 37° C; **$PaCO_2$** 35 - 40 mmHg; **CVP**: 5 - 10 mmHg;
ICP: < 20 mmHg
CPP (MAP – ICP): 0 - 5 yo mmHg ≥ 40 mmHg; 6 - 17 yo ≥ 50 mmHg; adult ≥ 60 mmHg
Serum sodium > 140 < 155; **Serum osmolarity**: > 290 < 320; **Glucose** < 180

ICP > 20 mmHg? ↓ **Yes**

Tier 1 Therapies:
CSF diversion with EVD
HOB at 30 degrees
Maintain $PaCO_2$ 35 - 40 mmHg
Optimize sedation / paralysis
Consider thiopental for ICP spikes
Consider lidocaine IV prior to suctioning

ICP Remains > 20 mmHg? ↓ **Yes**

Tier 2 Therapies:
Repeat head CT
Fluids / Pressors to maintain CPP
Mannitol therapy (if serum Osm < 320)
Hypertonic saline therapy (if serum Osm < 370)
Mild hyperventilation ($PaCO_2$ 30 - 35 mmHg)
Consider barbiturate coma

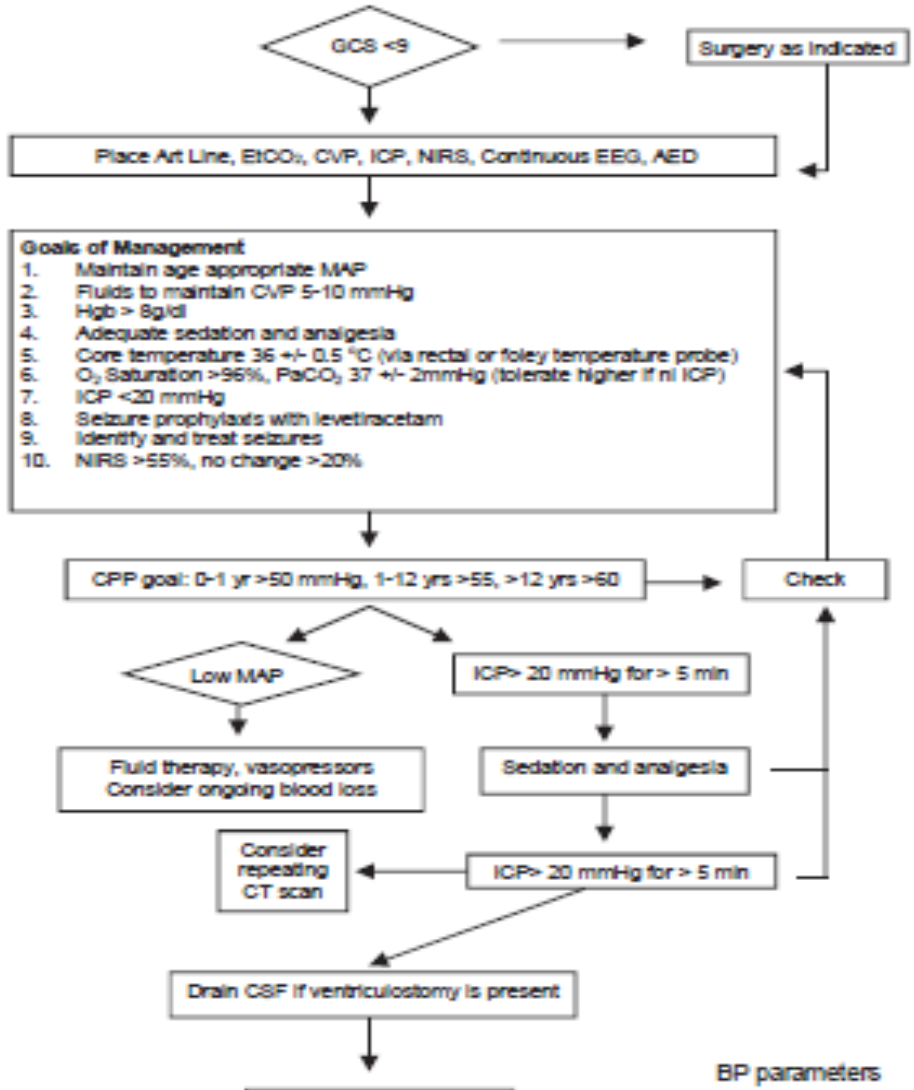
Refractory ICP > 20 mmHg? ↓ **Yes**

Tier 3 Therapies:
Decompressive craniectomy
Moderate hypothermia (32 - 34° C)
Transient hyperventilation to $PaCO_2$ < 30 mmHg

Children's National Medical Center

Pediatric Severe TBI Acute Phase Management Flowsheet

Sept 2011



Check

- Patient position (head neutral, HOB at 30°)
- Equipment functioning properly
- No recent interventions (respiratory, nursing)
- Exclude seizure activity

Seizures

- Prophylaxis:
  - Load– Levetiracetam (Keppra) 20 mg/kg IV
  - Maintenance– Levetiracetam 10 mg/kg/dose IV Q12 hrs
- Treatment
  - notify Neurology service immediately
  - Versed 0.1 mg/kg bolus for acute control
  - Load fosphenytoin 20 mg PE/kg

Fluid Therapy, Vasopressors

- Maintain CVP 5 to 10 mmHg (NS for fluid resuscitation)
- If <6 mos, use D5W/NS for maintenance
- If >6 mos use NS for maintenance
- Maintain serum glucose between 80-150
- Maintain Hgb >8 g/dl
- Once volume loaded, use inotropic/vasopressor
  - 1st line– Dopamine
  - Once Dopamine >10 mcg/kg/min, start Norepinephrine (warm ext) or Epinephrine (cool extremeties)

Sedation and Analgesia

- Versed
- Morphine or Fentanyl
- Avoid hypotension secondary to sedative/ analgesic agents
- Consider NMB agents for ICP control– see NMB algorithm

CSF Drainage Options

- Initial settings and changes to drainage level per Neurosurgical service
- Drain CSF for 15 minutes, then re-evaluate ICP. If persistent ICP >20, consider continuous CSF drainage with intermittent reading of ICP (close drain for 5 min to obtain reading)

Hyperosmolar Therapies

- Hypertonic Saline (3%) bolus 5 ml/kg (max 250 ml), and continuous infusion at 1 ml/kg/hr, titrate for serum Na 150-160 and/or serum osmolality <360
- Mannitol 1gm/kg
- See hyperosmolar algorithm for more details

Consider 2nd Tier Therapies

- Consider **transient** controlled hyperventilation ($PaCO_2$ 25-35 mmHg) and monitor effect on markers of cerebral blood flow (NIRS, Ilocx)
- Is the patient salvageable?
  - Assess: mech of injury, best GCS, age, pupil reactivity, CT scan
  - Frontal/ focal contusions with initial good GCS, consider decompressive craniotomy
  - Barbiturate therapy: bolus pentobarbital 5 mg/kg q30 minutes until 2-3 bursts per screen. Then start infusion of 1 mg/kg/hr. If # of bursts increase, repeat bolus until appropriate # of bursts are seen and then increase infusion
  - Stop infusion if brain death is suspected (do not wean)

NIRS

- If rSO2 <55% or, change > 20%, evaluate for changes in-
  - Ventilation (EtCO2 appropriate?)
  - Perfusion (MAP and CPP appropriate?)
  - Increased metabolic demand (fever, seizure, shivering?)
  - Consider transcranial doppler to evaluate for vasospasm

ICP monitoring

- Indications- GCS </= 8
- Contraindications-
  - Coagulopathy (consider Factor VII if >20 ml/kg of FFP is required to correct)
  - Keep INR <1.35, plts >100K
- Ventriculostomy if open ventricles

BP parameters

Age	MAP*
1-2 yrs	53-59
3-4 yrs	61-65
5-6 yrs	67-69
7-8 yrs	70-72
9-10 yrs	73-75
11-12 yrs	75-77
13-14 yrs	77-79
15-17 yrs	80-84

*MAP value is 50%ile for 50% of height

Children's National Medical Center

Ventricular Shunt Malfunction Diagnostic Algorithm

June 2013

Acute Symptoms		
• Nausea	• Headache	• Irritability
• Vomiting	• Positional Headache	• Lethargy
• Hypertension	• Double Vision	• Stupor
• Bradycardia	• Sundown Sign	• Coma
• Seizures	• Transient visual obscurations (e.g. visual blackouts)	

Subacute/Chronic Symptoms	
• Change in behavior (e.g. agitation)	• Developmental regression
• Altered gate	• Change in cognitive function (e.g. attention span)
• Change in feeding patterns	• Daily headaches
• Change in school performance	• Increased head size

History to be Obtained Prior to Neurosurgical Consult

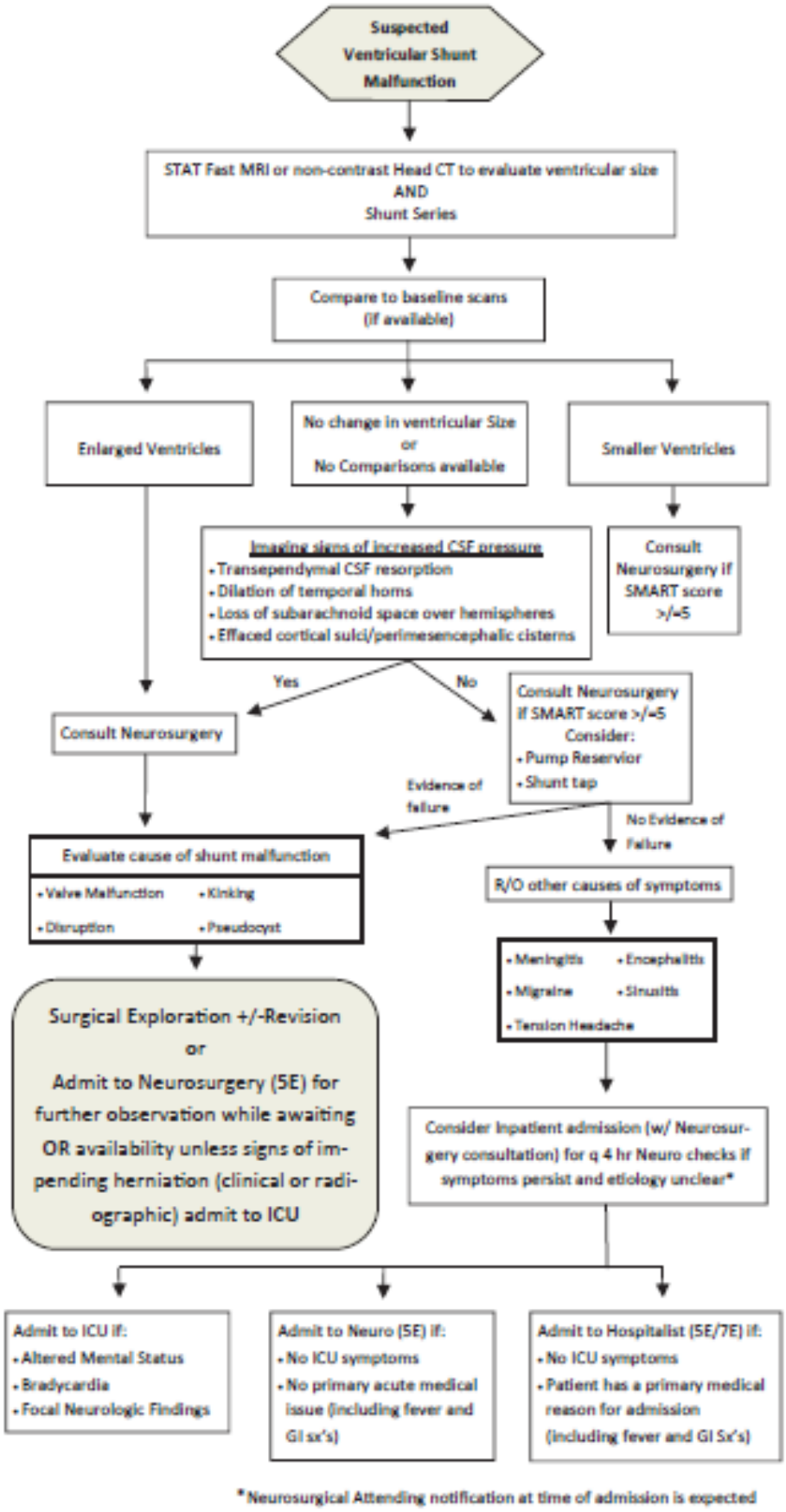
- Prior history of shunt failure
- Size of ventricles at last shunt failure
- Prior history of shunt failure without change in ventricular size
- Presence or absence of fevers
- Presence or absence of above acute and chronic symptoms

Fast MRI vs Head CT

- Available weekdays 8 am– 10 pm and weekends 8 am – 4 pm
- Patient must be able to lie still/cooperate for 10 minutes without sedation (roughly age >/~5 yrs)

Contraindications to Fast MRI

- History of trauma
- Altered mental status
- r/o hemorrhage or pneumocephalus
- If shunt catheter needs to be visualized
- Programmable VP shunts
- Patients with other MRI contraindication (ex– pacemaker)
- Unable to obtain within 1 hour of presentation



Children's National Medical Center.

SMART SCORE
(SHUNT MALFUNCTION ASSESSMENT AND REASSESSMENT TOOL)

Inclusion Criteria: Patient with VA or VP shunt and age > 1 month
Exclusion Criteria: Patients in the NICU

Major Criteria: (10 points each)

* Clinical signs of herniation (including Cushing's Triad)
* Imaging with signs of herniation/impending herniation
* Papilledema

Minor Criteria:

Tier 1 (5 points each)

* Positional headache (include awakening from sleep due to headache pain)
* New diplopia/CN VI palsy
* Altered MS (e.g. irritability, lethargy) in a patient w/ no (or mild) prior neurological deficit
* Neuroimaging with increased size of ventricles and/or decrease in sulci and/or cisterns (more sensitive if baseline large ventricles)
* History of VP shunt failure without prior change in ventricular size
* Head circumference increasing across percentiles (e.g. > 10%)

Tier 2 (2 points each)

* Nausea/vomiting
* Headache
* Bradycardia (not baseline)
* Increased seizure frequency from baseline
* Recent manipulation of VP shunt (e.g. change of setting of valve, revision in the last 30 days)
* Change in baseline in a patient with moderate to severe baseline deficits
* Neuroimaging with inc size of ventricles and no change in sulci and/or cisterns
* Radiographic evidence of shunt tubing disconnection

Recommended response based on assigned score

10 = immediate response from neurosurgery attending

5 -9 = high suspicion for shunt malfunction, neurosurgical consult. If no intervention prescribed, consider escalation to neurosurgical attending.

4 = moderate suspicion for shunt malfunction. Observation recommended. If symptoms not easily explained by other medical condition, consult neurosurgery.

** If score remains ≥ 4 consider repeat imaging Q2-3 days and/or ophthalmology evaluation for papilledema, even if other explanations plausible for observed symptoms.

NEUROLOGY

KETOGENIC DIET THERAPY: ADMISSION GUIDELINES

Criteria for Initiation of Ketogenic Diet

Patient has greater than or equal to two (2) seizures per week (Hopkins)
Patient has failed at least two (2) anti-convulsants (Hopkins). Some require failure of 3+.
Patient's whose seizure control is at the expense of med toxicity or side effects
Family is motivated and able to follow through with diet at home
Home environment conducive to managing diet
Patient has pre-admission evaluation by WRNMMC Ketogenic Diet Clinic
Confirm that Fatty Acid and Carnitine Defects have been tested and ruled out prior to starting Ketogenic Diet
Contraindications for Ketogenic Diet Therapy

Exclusion Criteria ***Epilepsia 2009; (50):10**
-Malnourished patient -Non-compliance with antiepileptic drug regimen -Carnitine deficiency (primary), --Carnitine palmitoyltransferase (CPT) I or II deficiency -Carnitine translocase deficiency, -Beta oxidation defects : *Medium- Chain acyl dehydrogenase deficiency (MCAD), Long- Chain acyl dehydrogenase deficiency (LCAD), Short-chain 3-hydroxyl-CoA deficiency (SCAD), Long-chain 3-hydroxyl-CoA deficiency,* *Medium-chain 3-hydroxyl-CoA deficiency* -Pyruvate Carboxylase deficiency -Porphyria

Admit to Pediatric Ward Team; Plan for 3-5 day admission

Consults on Admission:

Neurology Nutrition Pharmacy
Social work Discharge planner

Lab Orders:

Admission Labs:CBC, CMP, Mg, Phos, Lipid panel, Carnitine (total, free, acyl), AED levels
Daily Labs: BMP, Mg, Phos, UA

Crystalloid Orders: Daily maintenance IVF (NO DEXTROSE)

Medication Orders:

Limit carbohydrates for all medications; total daily carbs for meds usually <1 gm
Continue Antiepileptic drugs
No dextrose-containing carrier fluids (use NS)
Sodium Citrate/Citric Acid (Bicitra) 1mEq/kg/day PO/GT divided TID
Polyethylene glycol (Miralax) PRN
Diazepam (Diastat Acudial) RECTAL order to hold at bedside

Ketogenic Diet

Day 1 Order (see RD (registered dietician) consult for dosing)
Ketogenic Diet must be reordered DAILY by RD under NOTES in ESSENTRIS.
Ketogenic Diet Initiated as follows:

Day 1: Regular breakfast + keto beverage & 1 keto meal
Day 2: 1/3 kcals from ketogenic beverage + 2 keto meals
Day 3: Full strength diet (3 keto meals)
Child must eat and keep down 3 full-strength meals prior to discharge

SEE NEXT PAGE

NEUROLOGY

Recommended Dietary Supplements:

Multivitamins

Nano VM (multivitamin with adequate calcium & vitamin D supplementation);
www.solacenutrition.com/products/nanovm/nanovm; not available through DoD pharamacies

Calcium and Vitamin D Oral Citrates

Mirilax and GI medications including anti-reflux medications

Carnitine MCT oil Omega 3 Selenium

Nursing Orders:

Daily Training to parents per SOP Ketogenic Therapy Initiation; Nutritionist for bedside teaching

Seizure precautions

Daily AM weights

V/S q4hrs until patient tolerates diet, without any emesis or hypoglycemia, the V/S qshift

Blood glucose checks: GOAL = 50-80mg/dl

<1yr, q 2 hours x 24hrs; Then q 4 hrs if not hypoglycemic or asymptomatic

>1yr, q 4 hours x 24hrs; Then q 4 hrs if not hypoglycemic or asymptomatic

Notify HO for BG <40 mg/dl

PO: give 15 ml apple juice; recheck BG in 30 minutes

NPO: give 50ml D5W or 0.25g/kg of D10W; recheck BG in 30min

Recheck BG: q2 hours if <1 year, until >50 and stable

q4 hours if >1 year, until >50 and stable

For intractable hypoglycemia (3 episodes of BG <40mg/dl within 24hrs consider D5W continuous to maintain BG 50-80mg/dl)

Urinalysis qVOID

Ketones: GOAL=80-150mg/dl

Urine specific gravity: GOAL=1.010-1.025

SG >1.025 encourage fluids; >1.030 over 24hrs, give IVF bolus (no dextrose)

PH: GOAL= 6-8

Serum Bicarb: GOAL= 16-18mg/dL

CO2< 12mg/dL: consider starting IVF

Discharge Criteria:

Patient is ready for discharge after physician evaluation

Patient has consumed and tolerated full ketogenic diet for at least 24 hrs (3 full-strength keto meals or feedings)

Patient's lab values are within GOAL therapy (U. Ketones, U. SG, S. Bicarb, S. Glucose)

Normal glycemic (>50 mg%) for previous 12 hours

Ketones in urine are moderate to large. Absence of excessive ketosis

Carbon dioxide (CO2) level should be normal.

Family education completed by SOP KDT Protocol and caregivers are competent in managing ketogenic diet therapy.

Discharge Instructions:

Patient to be weighed on discharge

Follow up with Neurology and Outpatient Registered Dietician in one month

Standard Prescriptions needed:

Keto stix Disp.#50 (1bottle) Check ketones qam and pm

Multistix Disp. #100 (1bottle) Check urine for blood 1x per week

Blood glucose test strips (brand varies) Disp. #50 Test blood sugar prn w symptoms of low BG

Other Rx as needed

INTUBATION MANAGEMENT ALGORITHM

"LEMON" Airway Assessment:
Always ask: Is this a potentially difficult mask-ventilation and/or difficult intubation?
• **Look externally**: Midface/palatal/mandibular abnormalites (micrognathia, obesity, trauma, etc.)?
•**Evaluate** 3-3-2 Rule (using patient's fingerbreadth as "ruler"):
Mouth opening > 3 fingers, hyoid-chin > 3 fingers, and thyroid cartilage to floor of mouth > 2 fingers
•**Mallampati score**
•**Obstruction**: Evaluate for stridor, foreign bodies, and other evidence of obstruction
•**Neck mobility**: Should be able to extend at least 35 degrees

•**Assess last oral intake:** Clears > 2 hours, breast milk > 4 hours, solids > 6 hours
•**Position patient:** Align external auditory meatus with the clavicle (consider shoulder roll < 2 yo)
•**Assess vascular access**

↓

Needed Personnel:
Laryngoscopist, medications, cricoid pressure, recorder, respiratory therapist, and charge RN

Monitors
EKG leads hooked-up and working
SpO_2 probe placed and set to AUDIBLE tones
$EtCO_2$ monitor turned on and ready

Equipment: "SOAP"
Suction – Yankauer functional and on
Oxygen – Appropriate bag and mask
Airways – Laryngoscope, ETT tubes (1 size above and below), and oral/nasal airways (1 size above and below)
Pharmacology Considerations (next box)

↓

Medications (see RSI section above)
Premedications:

Atropine: All < 5 yo & if using ketamine or succinylcholine	Lidocaine: All patients with increased ICP or head injury

Sedatives/hypnotics:
Normotensive : Thiopental, midazolam, etomidate, or propofol
Status asthmaticus: Ketamine ± midazolam

Hypotension	Head injury
Mild: Etomidate, ketamine, or midazolam Severe: Etomidate, ketamine, or none	Normal BP: Thiopental, propofol, or etomidate Low BP: Etomidate or low-dose thiopental

↓

Management

Preoxygenate with 100% O_2
Premedicate (wait 3 min)
Sedate and hold cricoid pressure
Paralyze
Intubate trachea
Confirm placement: auscultate, $EtCO_2$, CXR
Determine maintenance sedation plan

PICU

Age (regardless of wt)	Laryngoscope	ETT Size = (Age/4) + 4
Term newborn	Miller 0-1	3.0 cuffed, 3.5 uncuffed
6 months – 1 year	Miller 1	3.5 cuffed, 4.0 uncuffed
1 – 2 years	Miller 1, Mac 1	4.0 cuffed, 4.5 uncuffed
2 – 4 years	Miller 2, Mac 2	4.0 cuffed, 4.5 uncuffed
4 – 6 years	Miller 2, Mac 2	4.5 cuffed, 5.0 uncuffed
6 – 8 years	Miller 2, Mac 2	5.0 cuffed, 5.5 uncuffed
8 – 12 years	Miller 2-3, Mac 2-3	6.0 cuffed, 7.0 uncuffed
12 years and up	Miller 3, Mac 3	7.0 cuffed, 8.0 uncuffed

RAPID SEQUENCE INTUBATION

ADJUNCTS	
Atropine	0.01 - 0.02 mg/kg/dose IV/IO for < 5 yo to blunt vagal reflex. -Min dose 0.1 mg, max dose child 0.5 mg, max dose adolescent 1 mg
Lidocaine	1 mg/kg/dose IV/IO for patients at risk for increased ICP.

INDUCTION	
Etomidate	0.3 mg/kg/dose IV/IO
Fentanyl	2 - 4 mcg/kg/dose IV/IO/IM
Ketamine	1 - 2 mg/kg/dose IV/IO; 2-4 mg/kg/dose IM.
Midazolam	0.1 - 0.3 mg/kg/dose IV/IO (max 4 mg)
Propofol	2 mg/kg/dose IV/IO
Thiopental	4 - 7 mg/kg/dose IV/IO if normotensive 2 - 4 mg/kg/dose IV/IO if hypotensive

PARALYTICS – Intubation	
Rocuronium	0.6 - 1.2 mg/kg/dose IV/IO
Succinylcholine	1 - 2 mg/kg/dose IV/IO; 2 - 4 mg/kg/dose IM. (Premedicate with atropine for < 5 yo)
Vecuronium	0.1-0.2 mg/kg/dose IV/IO

PARALYTICS – Maintenance	
Cisatracurium	0.1 - 0.2 mg/kg/hr IV/IO
Pancuronium	0.1 mg/kg/hr IV/IO
Vecuronium	0.1 mg/kg/hr IV/IO

STARTING POINTS FOR RESPIRATORY SUPPORT

Adjust settings based on clinical status & pre-existing cardiorespiratory disease

Pediatric—Initial Ventilator Settings

Mode: SIMV PC/PS

PEEP: 5 PS: 10 + 5 (i.e. 15) PIP: 20

FiO2: 100% —-> Wean to at least 40% as soon as possible

Goal Tidal Volumes 6-8 ml/kg.

End Tidal CO2: Goal depends on condition.

Normal Lungs Goal of 35-45

ALI/ARDS: Permissive Hypercapnea

Vent Parameter	Definition	Starting Setting
Tidal Volume (V_t)	Volume given with each mandatory breath	6-10ml/kg, if very stiff lungs (poor compliance) aim lower = 4-6ml/kg
Pressure control (PC)	Inspiratory pressure over PEEP, this is not PIP (PIP=PC+PEEP)	Usually around 14-20cmH_2O, look for good chest rise and V_t
Pressure support (PS)	Support given by the vent for each spontaneous breath	Usually 10cmH_2O for OETT, lower for tracheostomy
Positive end-expiratory pressure (PEEP)	Pressure left in the circuit at the end of each breath, used to maintain FRC	5cmH_2O for normal lungs, higher in atelectasis. If >10, paralysis is recommended to avoid a PTX.
Respiratory Rate	# of mandatory breaths/min	Age appropriate
Inspiratory time (I_t)	Amount of time over which the vent will deliver the set V_t or PC **Remember I_t determines E_t.	Newborn to 1yo: 0.50 – 0.70 s >1 yo: 0.60 – 1 second. **E_t= (60/RR) - I_t**
F_iO_2	Fraction of inspired air that is O_2	Titrate as soon as possible to <60%
Mean Airway Pressure	Not Set→measured by ventilator	Physiologic MAP 8-16cmH_2O
Peak inspiratory pressure (PIP)	PEEP + PC, not set-just observed	Goal < 30 cmH_2O to avoid barotrauma

Pediatric BiPAP:

Rate: Age appropriate

IPAP: 10 EPAP: 5 FiO2: 100% —> Wean to 40%

CPAP:

PEEP: Minimum of 5 FiO2: 100% —> Wean to 40%

HFNC:

Infant/Child Cartridge: Set Flow and FiO2. Max of 8 LPM

Adult Cartridge: Flow can exceed 8 LPM

PICU

Glasgow Coma Scale

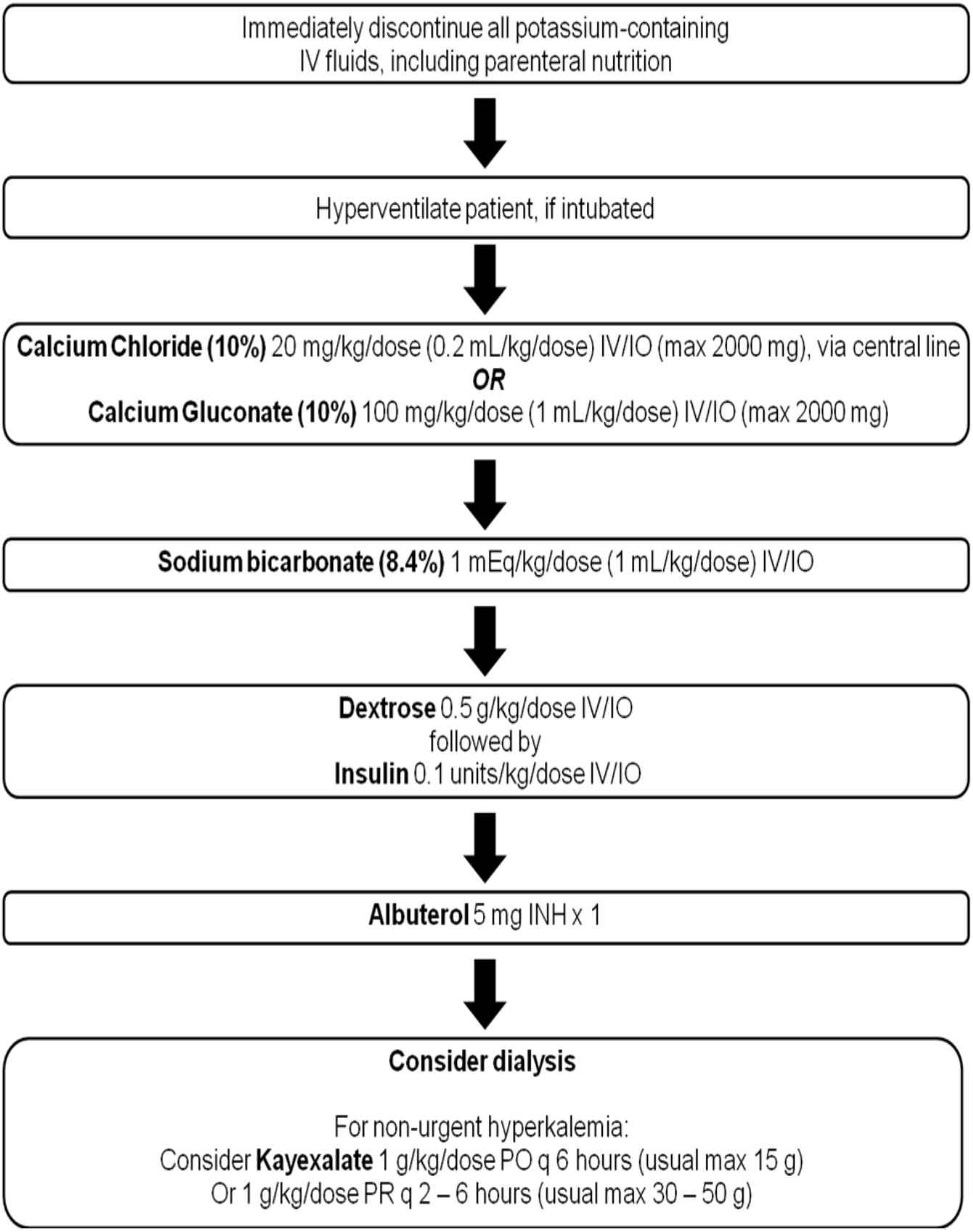
Activity	Infant	Child/Adult	Score
Eye Opening	Spontaneous	Spontaneous	4
	To speech	To speech	3
	To pain only	To pain only	2
	No response	No response	1
Best Verbal Response	Coos and babbles	Oriented, appropriate	5
	Irritable cries	Confused	4
	Cries to pain	Inappropriate words	3
	Moans to pain	Incomprehensible sounds	2
	No response	No response	1
Best Motor Response	Moves spontaneously & purposefully	Obeys commands	6
	Withdraws to touch	Localizes painful stimulus	5
	Withdraws to pain	Withdraws to pain	4
	Abnormal flexion posture to pain	Flexion response to pain	3
	Abnormal extension posture to pain	Extension response to pain	2
	No response	No response	1

ACUTE PAIN MANAGEMENT			
ANALGESICS			
Acetaminophen	10 – 15 mg/kg/dose (max 1000 mg) PO/PR q 4 – 6 hours PRN Max 90 mg/kg/day up to 4000 mg/day		
Ibuprofen	10 mg/kg/dose PO q 4 – 6 hours PRN (max dose 40 mg/kg/day)		
Ketorolac	0.5 mg/kg/dose IV/IM (max 30 mg) q 6 hours x 72 hours (do not exceed 5 days)		
Trisalicylate	7.5 – 15 mg/kg/dose (max 1.5 g) PO q 6 – 8 hours PRN		
NARCOTICS	Morphine 0.1 mg = Methadone 0.1 mg = Hydromorphone 0.02 mg = Fentanyl 0.001 mg		
Fentanyl	0.5 – 2 mcg/kg/dose IV/IO q 1 - 2 hours PRN		
Hydromorphone	0.015 mg/kg/dose IV/IO q 4 – 6 hours PRN		
Morphine	0.05 – 0.1 mg/kg/dose IV/IO q 2 hours PRN		
Oxycodone	0.05 – 0.15 mg/kg/dose (max 5 mg) PO q 4 – 6 hours PRN		
Patient-Controlled Analgesia (PCA)*	***Bolus***	***Basal***	***Max Dose*** (recommended: 0 – 5 doses / hour)
Fentanyl	0.25 – 1 mcg/kg/dose	0.25 – 1 mcg/kg/hour	3 doses / hour; lock out q 10 min
Hydromorphone	0.003 – 0.006 mg/kg/dose	0.003 – 0.006 mg/kg/hour	5 doses / hour; lock out q 7 – 15 min
Morphine	0.01 – 0.03 mg/kg/dose	0.01 – 0.03 mg/kg/hour	5 doses / hour; lock out q 7 – 15 min
*Child should be ≥ 5 yo and able to understand the PCA concept. Start low and titrate to effect. Use of basal may improve overall analgesia stead-state to include sleep pattern. Consider nalaxone infusion for side effect alleviation (below).			

SEDATIVES (MAINTENANCE)		
NARCOTICS	***Infusion (Titrate as necessary)***	
Fentanyl	1 – 6 mcg/kg/hour IV	
Hydromorphone	0.010 – 0.015 mg/kg/hour IV	
Morphine	0.06 – 0.2 mg/kg/hour IV	
Remifentanyl	Load: 0.5 – 1 mcg/kg/dose IV x 1; Infusion: 0.05 – 0.5 mcg/kg/min IV	
Naloxone	Anti-pruritic dosing: 0.25 – 1 mcg/kg/hour IV	
OTHER	***Load / PRN***	***Infusion (Titrate as necessary)***
Dexmedetomidine	Load: 0.5 mcg/kg/dose IV x 1	0.2 – 1 mcg/kg/hour IV
Ketamine	0.5 – 2 mg/kg/dose IV q 1 – 2 hours	0.5 – 2 mg/kg/hour IV
Midazolam	0.05 – 0.1 mg/kg/dose IV q 1 – 2 hours	0.05 – 0.1 mg/kg/hour IV
Pentobarbital	1 – 3 mg/kg/dose IV or 2 – 6 mg/kg/dose PO/PR/IM q 2 – 4 hours (max 150 mg)	1- 2 mg/kg/hour IV
ADJUNCTS		
Clonidine	5 mcg/kg/day topical patch (in 50 mcg intervals up to 300 mcg patch) Consider enteral load: 2.5 mcg/kg/dose PO q 12 hours x 4 doses	
Diphenhydramine	0.5 – 1 mg/kg/dose (max 50 mg) IV/PO q 6 hours	
Lorazepam	0.05 – 0.1 mg/kg/dose IV/PO q 4 – 8 hours PRN	
Methadone	0.1 mg/kg/dose IV/PO q 4 hours x 3 doses, then q 6 – 12 hours (max dose 10 mg)	

RENAL

ACUTE MANAGEMENT OF HYPERKALEMIA



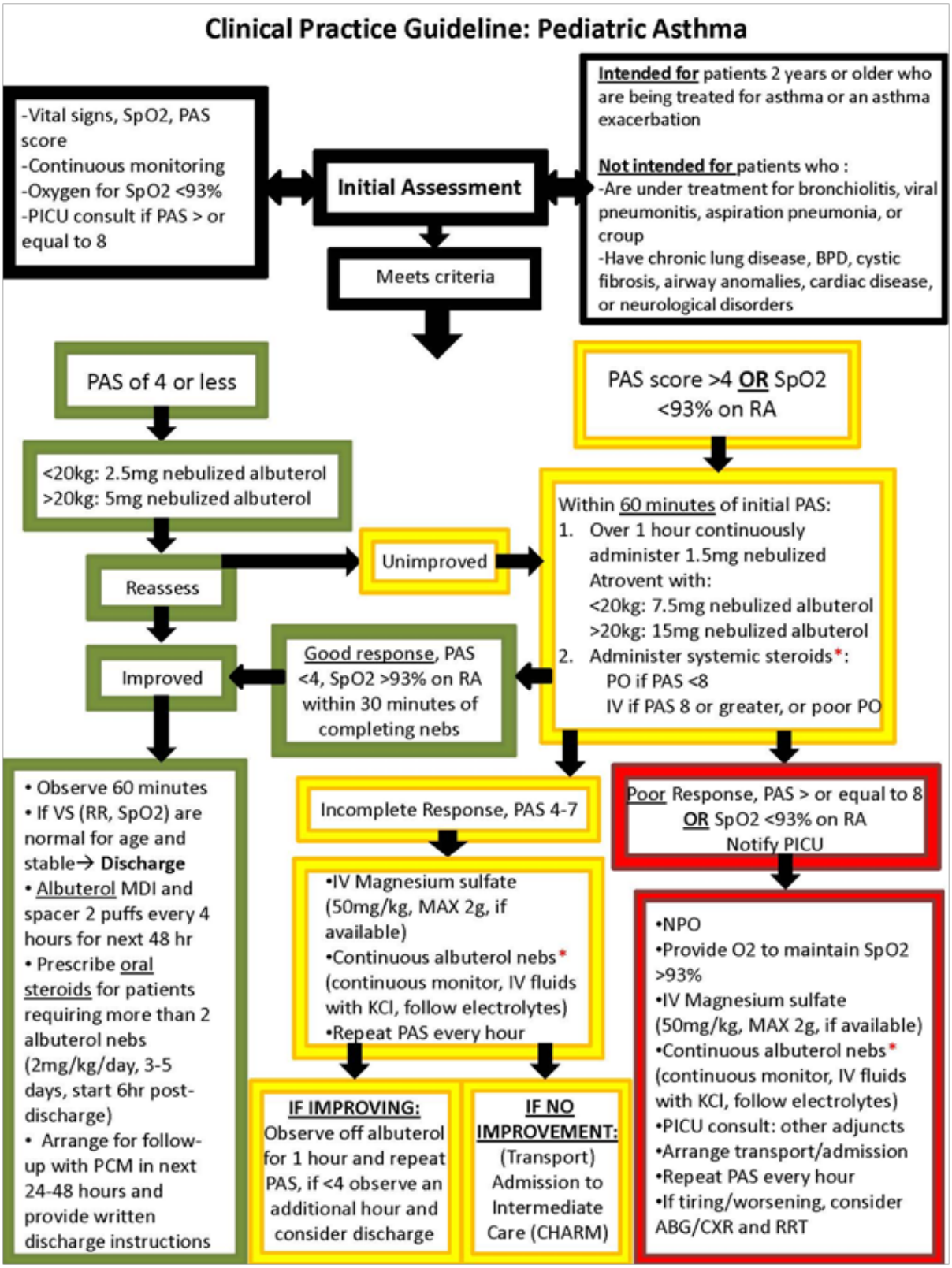
RENAL

Other Electrolyte Abnormalities

Abnormality	Differential Dx	Symptoms	Treatment
Hyponatremia (Na<130)	SIADH, CSW, Free water intox, iatrogenic, CAH, diuretics, hepatic or cardiac failure	Lethargy, seizures, coma from cerebral edema	3%NS in mL (if symptomatic) = 0.6*wt*($Na_{desired}$-Na_{actual})
Hypernatremia (Na>145)	DI, dehydration, iatrogenic, free water loss from skin, drugs	Seizures, renal failure, lethargy and coma	Free water deficit (mL)= [(Na_{actual}/$Na_{desired}$) - 1]*1000*0.6*wt
Hypocalcemia (Ca<4.5)	Hypoparathyroidism, multiple pRBC tx, diet, alkalosis, CRRT, lasix, malabsorption, hyperphosphatemia, hyperlipidemia	Paresthesias, bronchospasm, apnea, seizures, prolonged QT, Rickets, Chvostek sign (facial spasm), Trousseau sign (carpopedal spasm)	Calcium supplementation, need to replete magnesium as well
Hypercalcemia (Ca>10)	Iatrogenic, dietary intake, increased renal absorption or bone destruction, malignancy, Williams syndrome, salicylate ingestion, familial, acidosis	Poor feeding, emesis, FTT, confusion, psychosis, weakness, short QT, renal failure, Nephrogenic DI, Calcinosis	Hydration (IVF at 2-3xmaint), low dose loop diuretics; Calcitonin and bisphosphates if severe; CRRT
Hypokalemia (K<3)	Diet, medications, alkalosis, diarrhea, Adrenal-cortical excess, Bartter syndrome	Arrhythmias (PACs, PVCs), mild muscle weakness	KCl supplementation *KPhos is poor K supplier*
Hyperkalemia (K>6)	Renal failure, acute acidosis, tumor lysis, rhabdomyolysis, pRBCs tx, medications, adrenal insufficiency	Fatal arrhythmias, fatigue, mm weakness, disorientation, palpitations, paresthesias	CaCl, Bicarb ($NaHCO_3$), insulin/glucose, kayexalate (C BIG K pneumonic) also albuterol, Lasix, +/-CRRT
Hypomagnesemia (Mg<2)	Diarrhea, iatrogenic, diet, insulin for DKA, massive RBC tx, CPB, burns	Symptoms usu from resultant ↓Ca: mm weakness, tetany, seizures, hypokalemia	Magnesium supplemenation
Hypermagnesemia (Mg>4)	Diet, iatrogenic, massive cellular release	Mm weakness, resp depression, prolonged QT and PR	Hydration and loop diuretic if causing arrhythmias, CRRT if in renal failure
Hypophosphatemia (Phos<1.5)	↓intake or absorption, ↑bone formation, re-feeding syndrome	ATP depletion = hemolysis, WBC failure, plat dysfunction, mm atrophy and weakness, respiratory failure	Phosphate supplementation with KPhos or NaPhos
Hyperphosphatemia (Phos>9.5)	↑intake or ↓renal excretion	Refractory hypocalcemia	Hydration, stop Phos sources; Phosphate binders

PULMONOLOGY

WRNMMC Asthma Clinical Practice Guideline



*Prednisone: 2mg/kg po to MAX of 80mg
Methylprednisolone: 2mg/kg IV to MAX of 80mg
Dexamethasone: 6mg po for 7-10kg; 10mg po for 10-20kg; 16mg po for 20-30kg

*Continuous Albuterol: 5mg/hr for 5-10kg
10mg/hr for 10-20kg
15mg/hr for 20-30kg

PULMONOLOGY

WRNMMC Asthma Clinical Practice Guideline

Admit Criteria: Unable to wean Albuterol to every 4 hours or SpO2 less than 93% on room air

PICU	General Ward
-Requires terbutaline infusion -Requires continuous nebs -Consideration for Heliox -Change in mental status -Impending respiratory failure -Noninvasive ventilation required	- Albuterol no more than every 2 hours - Normal mental status

Pediatric Asthma Score

Characteristic	0	1	2
Respiratory Rate[1]			
1 -3 years	≤ 34	35 – 39	≥ 40
4 – 5 years	≤ 30	31 – 35	≥ 36
6 – 12 years	≤ 26	27 – 30	≥ 31
> 12 years	≤ 23	24 – 27	≥ 28
O_2 Saturation[2]	> 93% on RA	89 – 93% on RA	≤ 88% on RA
Auscultation	Normal BS	Expiratory Wheezes	Insp and Exp Wheezes to Diminished BS
Retractions[3]	≤ 1 accessory muscle	2 accessory muscles	≥ 3 accessory muscles
Dyspnea	Speaks full sentences, playful, and good oral intake	Speaks partial sentences, short cry, or poor oral intake	Speaks short phrases, grunting, or unable to PO

[1]Respiratory rate must be obtained over a 30-second time period and then multiplied by 2.

[2]O_2 requirement must be obtained after the patient has been on room air for 2 minutes.

[3]Accessory muscle use includes the following:
1) Nasal flaring
2) Supra-sternal muscle group use
3) Intra-costal muscle group use
4) Sub-sternal muscle group use

Weaning Guidelines:
Wean from cont. nebs → q2 if score ≤ 4
Wean from q2 → q4 if score ≤1
Discharge if score on q4 ≤ 1

If asthma score ≥5 and patient is on q2 nebs, increase to continuous nebs
If asthma score ≥2 and patient is on q4 nebs, increase to q2 nebs

EMERGENCY FORMULARY

RESUSCITATION

Adenosine	0.1 mg/kg/dose (max 6mg) rapid bolus IV/IO. If no effect, repeat 0.2 mg/kg/dose, (max 12mg rapid IV/IO.
Amiodarone	5 mg/kg/dose IV/IO bolus (max 300mg) if pulseless arrest. If pulse present, give over 20-60 minutes Repeat to daily max 5 mg/kg (or 2.2g).
Atropine	0.02 mg/kg/dose IV/IO or 0.04 - 0.06 mg/kg/dose ETT. Min dose 0.1 mg, max dose child= 0.5 mg, max dose adolescent 1 mg. Repeat q 5 min to max total dose= 1 mg child, 2 mg adolescent.
Calcium Chloride (10%)	20 mg/kg/dose (0.2 mL/kg/dose) IV/IO slow push during arrest (max 2000 mg)
Calcium Gluconate (10%)	100 mg/kg/dose (1 mL/kg/dose) IV/IO slow push during arrest (max 2000 mg)
Dextrose	0.5 to 1 g/kg/dose IV/IO - D10 5-10 mL/kg for < 2 mo - D25 2-4 mL/kg for 2 mo to 2 yrs - D50 1-2 mL/kg for > 2 yrs
Epinephrine	<u>Pulseless Arrest, Bradycardia (w/symptoms):</u> 0.01 mg/kg/dose (0.1 mL/kg/dose) 1:10,000 IV/IO q 3 to 5minutes (max 1 mg; 10 mL) 0.1 mg/kg/dose (0.1 mL/kg/dose) 1:1,000 ETT q 3 to 5 minutes. <u>Anaphylaxis:</u> 0.01 mg/kg/dose (0.01 mL/kg/dose) 1:1,000 IM (max 0.5 mg) Auto-injector 0.3 mg/dose (wt ≥ 30 kg) or Auto-Jr. 0.15 mg/dose (wt 10-30kg)

Insulin (HyperK+)	0.1 units/kg/dose IV/IO, following 0.5 g/kg/dose of dextrose
Magnesium sulfate	25 – 50 mg/kg/dose IV/IO bolus (pulseless VT) or over 10 to 20 minutes (VT with pulses)
Sodium bicarb 8.4%	1 mEq/kg/dose (1 mL/kg/dose) IV/IO; dilute 1:1 with sterile water for neonates.
Vasopressin	0.5 units/kg/dose (max 40 units) IV/IO. Push for pulseless arrest.

EMERGENCY FORMULARY

CARDIOVERSION / DEFIBRILLATION

SVT or VT w/ pulse	CARDIOVERT: 0.5 – 1 joules/kg synchronized x 1; if no response, 1-2 joules/kg synchronized.
VF or Pulseless VT	DEFIBRILLATE: 2 joules/kg x 1, 4 joules/kg x 2; adult: monophasic 360 joules, biphasic 200 joules.

REVERSAL

Naloxone	Respiratory depression 0.001 mg/kg/dose IV/IO/IM/SQ every 1-2 minutes until respirations adequate Respiratory arrest / full reversal 0.1 mg/kg/dose IV/IO/IM/SQ (max 2 mg/dose)
Flumazenil	0.01 mg/kg/dose (max dose 0.2mg) IV/IO Repeat q1 min to max total dose 0.05 mg/kg/dose or 1 mg as necessary.

POST-RESUSCITATION

DOBUTamine	2 – 20 mcg/kg/min IV/IO
DOPAmine	2 – 20 mcg/kg/min IV/IO
Epinephrine	0.03 – 1 mcg/kg/min IV/IO
Milrinone	Loading dose: 50 mcg/kg/dose IV/IO over 5 min Infusion: 0.25 –1 mcg/kg/min IV/IO
Norepinephrine	0.05 – 1 mcg/kg/min IV/IO
Phenylephrine	0.1 – 4 mcg/kg/min IV/IO
Vasopressin (Pressor)	0.3 – 2 milliunits/kg/MIN (18 – 120 milliunits/kg/HOUR) IV/IO

MISCELLANEOUS

Albumin	0.5 g/kg/dose (5%: 10 mL/kg; 25% : 2 mL/kg)

EMERGENCY FORMULARY

ANTI-HYPERTENSIVES

Esmolol	Load: 500 mcg/kg IV x 1 Infusion: 25 – 300 mcg/kg/min IV, repeat load PRN
Hydralazine	0.1 – 0.5 mg/kg/dose (max 20 mg) IV/IM q 4 – 6 hours PRN
Labetolol	0.25 – 1 mg/kg/dose (usual max 20 mg) IV q 10 min PRN Infusion: 0.25 – 1 mg/kg/hour IV
NICARdipine	0.5 – 5 mcg/kg/min IV
NitroPRUSSIDE	0.5 – 10 mcg/kg/min IV; monitor CN and thiocyante for > 4 mcg/kg/min.

Aim for a 10% drop in BP during a hypertensive crisis—no more than that!

DIURETICS

Bumetanide	≤ 6 mo: 0.01 – 0.05 mg/kg/dose (max 1 mg) IV/PO daily > 6 mo: 0.02 – 0.1 mg/kg/dose (max 10 mg) IV/PO daily Adult: 2 mg IV/PO daily - BID
Chlorothiazide	10 – 20 mg/kg/dose IV/PO q 12 hr (max IV 500 mg/dose; max PO 188 mg/dose for < 2 y; max PO 1000 mg/dose >2 y)
Furosemide	1 – 2 mg/kg/dose IV/PO q 6 – 24 hours (usual starting max 20 mg) Infusion: 0.05 – 0.3 mg/kg/hour
Spironolactone	1 mg/kg/dose (max 100 mg) PO q 12 hrs

EMERGENCY FORMULARY

ENDOCRINE

Vasopressin (DI)	0.5 – 3 milliunits/kg/HOUR; titrate to maintain UOP < 2 ml/kg/hour.
STEROIDS	Dexamethasone 1 mg = Methylprednisolone 5 mg = Hydrocortisone 20 mg
Dexamethasone	Airway edema: 0.1 – 0.6 mg/kg/dose (max 10 mg) IV q6h x 4 – 6 doses. Croup: 0.6 mg/kg IM/PO x 1
Methylpred-nisolone	Loading dose for asthma: 2 mg/kg/dose IV x 1 Maintenance: 0.5 – 1 mg/kg/dose (usual max 60 mg) IV q 6 – 12 hours
Hydrocortisone	Stress Dose: 50 mg/m2/dose (max 100 mg) IV x 1, then 25 mg/m^2/dose (usual max 75 mg) IV q 6 hours. Maintenance dose: 5 mg/m2/dose (usual max 10 mg) IV q 8 hours.

RESPIRATORY

Albuterol	2.5 mg/dose in 3 mL NS nebulized; may repeat q 20 minutes x 3 or . . . Continuous: 0.5 mg/kg/hr (max 20 mg/h) * < 7.5 kg: 2.5 mg/hour INH * 7.5 – 14.9 kg: 5 mg/hour INH * 15 – 29.9 kg: 10 mg/hour INH * > 30 kg: 20 mg/hour INH
Epinephrine	0.01 mg/kg (0.01 mL/kg) 1:1,000 SQ/IM (max 0.5 mg)
Ipratroprium	0.25 – 0.5 mg/dose INH q 4-6 hours
Magnesium sulfate	75 mg/kg/dose IV x 1 over 15 – 20 minutes (max 2000 mg); monitor for ¯BP
Terbutaline	Load: 10 mcg/kg/dose IV x1 over 30min Infusion: 0.4 – 6 mcg/kg/min IV.

EMERGENCY FORMULARY

SEIZURE

Diazepam	0.2 mg/kg/dose IV/IO q15 – 30 min PRN < 5 yo: 0.5 mg/kg/dose PR q2hr PRN 6 – 11 yo: 0.3 mg/kg/dose PR q2hr PRN ≥ 12 yo: 0.2 mg/kg/dose PR q2hr PRN
Fosphenytoin	Load: 20 mg PE/kg/dose IV x 1 Maintenance: 2 mg PE/kg/dose IV q8hrs
Lorazepam	0.05 – 0.1 mg/kg/dose (usual max 4 mg) q 15 min PRN.
Phenobarbital	Load: 20 mg/kg/dose IV x 1 Maintenance: 2.5 mg/kg/dose IV/PO q12h

CEREBRAL EDEMA

Hypertonic saline (2 or 3% NaCl)	3 mL/kg IV over 30 minutes Note: 1 mL/kg of 3% NaCl will increase serum sodium ~ 1 mEq/L
Mannitol	0.25 grams/kg/dose IV over 20 – 30 minutes PRN x 1

Pediatric Parameters & Equipment											
Age	**Birth**	**3mo**	**6mo**	**1 yr**	**2 yr**	**3 yr**	**4 yr**	**6 yr**	**8 yr**	**12 yr**	**14 yr**
Wt (kg)	3.5	6	8	10	12	14	16	20	25	40	50
~BSA (m^2)	0.24	0.34	0.42	0.49	0.56	0.62	0.68	0.79	0.92	1.3	1.5
HR	80-190	80-160	80-160	80-160	80-130	80-130	80-120	75-115	70-110	65-110	60-105
RR	30-50	24-38	24-38	22-30	22-30	22-30	20-24	20-24	18-24	16-22	14-20
SBP*	60-90	70-110	70-110	70-110	74-110	76-110	78-115	82-115	86-120	94-125	98-130
DBP	35-60	40-60	40-60	40-60	45-60	50-65	50-70	55-75	60-80	60-80	65-85
BP Cuff	Neo	Infant	Small Child	Small Child	Child	Child	Child	S. Adult	S. Adult	Adult	Adult
BVM	Infant	Infant	Child	Child	Child	Child	Child	Child	Child/ Adult	Adult	Adult
Oral Airway	Infant 50mm	Small 60mm	Small 60mm	Small 60mm	Child 70mm	Child 70mm	Med 80mm	Med 90mm	Med 90mm	Large 100mm	Large 100mm
ETT Blade	#0-1	#1	#1	#1	#2	#2	#2	#2	#2-3	#3	#3
ETT Size**	2.5-3.5	3.5-4.0	3.5-4.0	4.0-4.5	4.0-4.5	4.5-5.0	4.5-5.0	5.0-5.5	5.5-6.5	6.0-7.0	7.0-8.0
Suction Cath	6 Fr	8-10 Fr	8-10 Fr	8-10 Fr	10 Fr	10 Fr	10 Fr	10 Fr	10 Fr	12 Fr	14 Fr
NGT	5-8 Fr	5-8 Fr	8-10 Fr	8-10 Fr	10 Fr	10 Fr	10-12 Fr	12-14 Fr	14 Fr	14-18 Fr	14-18 Fr
Foley	6 Fr	8 Fr	8 Fr	8 Fr	8 Fr	8 Fr	8 Fr	10 Fr	12 Fr	14 Fr	14 Fr
IV Access	22-24g	22-24g	20-24g	20-24g	18-22g	18-22g	18-22g	18-20g	18-20g	16-20g	16-20g
Central Line	4 Fr 8cm	4 Fr 9cm	4 Fr 12cm	5 Fr 8cm	5 Fr 8cm	5 Fr 12cm	5 Fr 12cm	5 Fr 15cm	5 Fr 15cm	7 Fr 15cm	7 Fr 15cm

*Hypotension = Systolic BP ≤ 70 + (2 x age in years over 1 year); < 1 mo SBP ≤ 60; 1 mo – 1yr SBP ≤ 70
**ETT Size = [Age (years) + 16]/ 4; Use cuffed tube for ≥ 6.0; ETT Depth = 3 x ETT I.D. or (age in years/2) + 12

PEDIATRIC RAPID RESPONSE TEAM

WHEN to call the Rapid Response Team:

AGE	Abnormal Heart Rate (Beats/Minute)	Abnormal Resp Rate (Breaths/min)	Abnormal Systolic BP (mm Hg)
Neonate (<28d.o.)	<80 or >200	<20 or >70	<60
Infant (1mo-12mo)	<80 or >190	<20 or >65	<65
Toddler (1-2 yrs)	<65 or >180	<16 or >60	<70
Pre-school (2-6 yrs)	<60 or >170	<10 or >50	<75
School age (7-11 yrs)	<50 or >160	<10 or >40	<80
Adolescent (>12yrs)	<40 or >140	<10 or >35	<85

- O2 sat < 90 despite supplemental O2, (unless well documented baseline saturation i.e. cyanotic heart disease)
- **Worrisome changes** in heart rate, blood pressure, respiratory rate or work of breathing.
- **Worrisome change** in mental status (ex. Unexplained agitation or Depressed LOC)
- Staff member or patient's family concerned about patient's deteriorating status.
- Patient being considered for CHARm status independent of vital sign changes or the above criteria.

HOW to call the Rapid Response Team:

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