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**SPECIAL ISSUE:**

## **PEDIATRICS AND AIRWAY MANAGEMENT**

The 'Pit Crew' Approach to  
Pediatric Resuscitation

Modern Technology for  
Neonatal Transport

**PLUS**

Major Insurer Now Paying for  
Treatment Without Transport

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Levels of Consciousness

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# The Evolution of Excellence in Pediatric Emergency Care

## PART 1: FROM NOTES TO WHEELS TO TAPES

Calm down—it's gotten easier to treat seriously sick kids

By Scott DeBoer, RN, MSN, CPEN, CEN, CCRN, CFRN, EMT-P; Emily Dawson, MD; Lisa DeBoer; Julie Bacon, MSN-HCSM, RNC-LRN, NE-BC, CPN, CPEN, C-NPT; and Michael Seaver, RN, BA

*This is the first in a three-part series.*

**T**he smaller the child, the higher the stress. The sicker the child, the higher the stress. The greater the need for precision, the higher the stress. The less common the situation, the higher the stress.

It should be no surprise that for most prehospital and ER professionals, caring for little kids who are crashing or coding is about as stressful as it comes. What could be worse? Try dealing with all that stress and critical work and add math calculations and complex memorization at the same time!

Why are pediatric emergencies stressful? Most of us work with big people every day, but we're not asked to care for sick kids very often, and really, really sick kids even less. Kids are special. Every one of us either has a kid, knows someone who has a kid, or was a kid at some point. There's so much stress involved because kids should be cute and cuddly, not critical or crashing.

So what's a person to do? Stress can bring out the "fight or flight" response—not a good reaction in our business. To avoid it, start with practice and preparation. Add a little planning and a few products, and you'll be

amazed at the reduction in stress and the increase in confidence you'll have in these very difficult situations.

### Tried and True

Some of our more experienced colleagues in healthcare remember the (not so) good old days, before so many of the advances we might take for granted. In those days, if you wanted to remember something, it generally involved paper in a pocket rather than icons on an iPhone.

There are still several great nonelectronic pediatric "cheat sheets" out there, and we highly recommend you find one that works for you. Put it in your pocket, hang it from a monitor or IV pole, or even chain it to your crash cart—keep it wherever it can be easily retrieved and referenced. And since our work environments are subject to the occasional liquid exposures, including blood and bodily fluids, protecting these handy helpers from



**A Broselow color-coded crash cart**  
(Photo: Armstrong Medical)

**Broselow®-Luten Zones**

It is *always preferable* to measure the patient using a Broselow® Pediatric Emergency Reference Tape to determine the color zone.  
For situations in which the child cannot be measured, patient age may be used to select the zone.

Zone	Patient weight	Age
3 kg, 4 kg, and 5 kg zones	3 kg, 4 kg, and 5 kg	< 3 mos
Pink	6–7 kg	3–5 mos
Red	8–9 kg	6–11 mos
Purple	10–11 kg	12–24 mos
Yellow	12–14 kg	2 yrs
White	15–18 kg	3–4 yrs
Blue	19–23 kg	5–6 yrs
Orange	24–29 kg	7–9 yrs
Green	30–36 kg	10–11 yrs

**PURPLE**

SEIZURE	ICP
Lorazepam (2 mg/mL) 1 mg (0.5 mL) (4 mg/mL) 1 mg (0.25 mL)	3% Saline 21–53 mL Mannitol (20% 0.2 g/mL) 10 g (50 mL) (25% 0.25 g/mL) 10 g (40 mL)
Diazepam IV (5 mg/mL) 2 mg (0.4 mL)	Furosemide (10 mg/mL) 10 mg (1 mL)
Phenobarbital (65 mg/mL) 210 mg (3.2 mL) (139 mg/mL) 210 mg (1.9 mL)	FLUIDS
Phenylephrine (50 mg/mL) 210 mg (4.2 mL)	Volume Expansion Crystalloid (NS or LR) 210 mL
Fosphenytoin (50 mg PE/mL) 210 mg (4.2 mL)	Colloid/blood 105 mL
Levetiracetam (100 mg/mL) 210 mg (2.1 mL)	MAINTENANCE
OVERDOSE/ANTIDOTE	05 1/2 NS + 20 meq KCL/L 43 mL/Hr
D25W (0.25 mg/mL) 6.25 g (21 mL)	PAIN
D50W (0.5 mg/mL) 3.25 g (10.3 mL)	Fentanyl (50 mcg/mL) 10 mcg (0.2 mL)
Naloxone (1 mg/mL) 1 mg (1 mL)	Morphine (2 mg/mL) 1 mg (0.5 mL)
Flumazenil (0.1 mg/mL) 1 mg (1 mL)	Rocephin (4 mg/mL) 1 mg (0.25 mL)
Flumazenil (0.1 mg/mL) 10 g (50 mL)	
Charcoal (25 g/120 mL) 10 g (50 mL)	
* Dilute D25W 1:1 with preservative free sterile water	

EQUIPMENT	EQUIPMENT
*E.T. Tube 4.0 Uncuffed/0.5 Cuffed	Oxygen Mask Pediatric NRB
E.T. Insertion Length 11–12 cm	*ETCO <sub>2</sub> Pediatric
Stylet 10 French	*Urinary Catheter 8–10 French
Suction Catheter 10 French	*Chest Tube 16–20 French
Laryngoscope 1–1.5 Straight	NG Tube 8–10 French
BVM Child	Vascular Access 20–24 Ga
Oral Airway 60 mm	Intraosseous 15 Ga
*Nasopharyngeal Airway 18 French	BP Cuff Child
*LMA 2	
	*May not be included in Organizer System(s).

- Approximate weight listed on the bottom of each color zone as determined by length;
- Color zones have weight ranges listed from 3–36 kg. The name of the color is printed on the top for color-blind professionals;
- Measure from the head to the heels, not to the toes. When we measure height, we do it from a standing position, not a “tippy-toe” one. If the foot is abnormally flexed or extended, the inaccurate measurement could move the child to a different color zone;
- And speaking of the head: At one end of the tape is a big red arrow. Red goes toward the head, meaning this is where to start measuring from to determine the child’s color and approximate ideal body weight.



Top left: Broselow-Luten color zones and age-weight chart. Top right: the purple color zone for the 2017 Broselow tape. Above: a Broselow color-coded jump bag. (Photos: Armstrong Medical)

the elements is an important consideration. These old-school memory minders provide the most commonly needed critical calculations at your fingertips. And they’ll never be rendered inoperable due to a drained battery.

**The Broselow Tape**

The original Broselow tape was introduced in 1986 by Drs. Jim Broselow and Robert Luten. If you’ve been in healthcare for fewer than 30 years, you probably have not known pediatric emergency care without the Broselow tape and corresponding Broselow-Luten color zones.

Utilized around the world and updated regularly (as recently as June 2017 to include

the release of new ILCOR/AHA PALS guidelines), this system uses an easily recognizable measurement format for “color-coding” kids and guiding us through some of the most stressful calculations and “which one?” questions encountered in pediatric emergencies.

Key points to remember when utilizing both sides of the Broselow tape:

- Always remeasure and confirm the correct color when the child arrives at the ER, just to be safe;
- “R&R”: resuscitation and rapid sequence intubation (RSI) on one side, everything else on the other;
- “E&E”: epinephrine dose on one side, endotracheal tube size on the other;

What about kids who are not at their “ideal” weight?” With the epidemic of obesity in children, this is an important consideration. But here’s the good news: Most of the emergency drugs we give to kids are based on ideal body weight, not actual weight.

There are a couple of notable, though now rarely given, exceptions (specifically amiodarone and succinylcholine) that are dosed based on actual weight. So with that in mind, the ideal body weight based on the length (height) of the child is what we are looking for when determining medication amounts. Drugs such as epinephrine, dopamine, morphine, fentanyl, and ketamine are dosed based on what the kid should ideally weigh.

And the ideal weight rule extends to other administrations as well. The Parkland formula for calculating how much fluid a child should receive after a major burn is based on ideal weight, as opposed to actual or estimated weight.

But if the kid is obviously huge, the tape has a reminder indicating there may be situations in which you might bump them up a color for medications (*but not equipment*) if you feel it’s appropriate and your protocols or orders allow.

What do we mean, not equipment? This is important! Whether they’re skinny or fat, the child’s airway should be the same size. That’s why the child’s length is the best predictor of recommended emergency equipment (tubes, etc.) size. Just remember, inside

stuff doesn't expand like outside stuff does.

In the Broselow-Luten system, many EMS agencies and EDs use patient age or weight to estimate the color zone for medication preparation and equipment selection in advance. The estimation should be confirmed on arrival by a measurement with the Broselow tape.

### Translating the Tape

Don't be caught off guard by the terminology on the tape. Information without understanding is meaningless. If you see the term *ET insertion length* or *lip to tip*, you need to know this tells you where to tape the ET tube.

Remember that *Foley* is a trade name, and the generic term is *urinary catheter*. If you see the reference to *volume expansion crystalloid: NS or LR*, you should equate that to what we might call a fluid bolus. Bottom line: You have to know what it's called in order to find it.

In stressful pediatric emergencies, professionals can simply start with "red to the head" and then measure head to heels; by doing so they'll quickly determine the color that reveals the ideal body weight and find crucial pieces of information.

In some parts of the country, medics are taking that concept one step further and now include the Broselow-Luten color as part of their radio report to the ER. That way the ER staff can be better prepared for the patient's arrival. Once the color is determined by EMS, they can grab the color-coded pediatric crash cart, open the appropriate drawer, and have anticipated equipment and medication calculations (in mg and mL) ready and waiting when the child hits the door.

In the second part of this series, we'll take a look at another system for dealing with the stress and potential confusion related to pediatric emergency care: the Handtevy system. ☉

### ABOUT THE AUTHORS



**Scott DeBoer, RN, MSN, CPEN, CEN, CCRN, CFRN, EMT-P**, is an international pediatric seminar leader and nurse consultant with more than 25 years of nursing experience. He retired from flight nursing in 2015 following more than 20 years with the University of Chicago Hospitals' UCAN flight team. He is the founder and primary seminar leader for Pedi-Ed-Trics Emergency Medical Solutions.



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**Michael Seaver, RN, BA**, is a healthcare informatics consultant based in Chicago.



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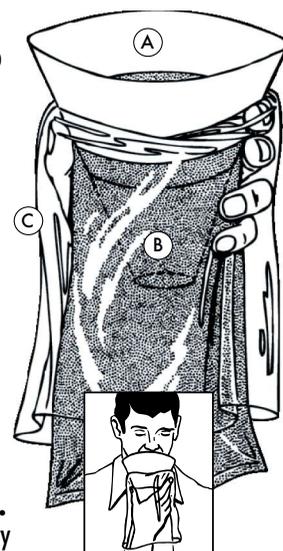
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# The Evolution of Excellence in Pediatric Emergency Care

## PART 2: THE HANDTEVY SYSTEM—THE NEXT GENERATION

A newer tool for sick kids allows providers to start prepping while en route



By Scott DeBoer, RN, MSN, CPEN, CEN, CCRN, CFRN, EMT-P; Emily Dawson, MD; Lisa DeBoer; Julie Bacon, MSN-HCSM, RNC-LRN, NE-BC, CPN, CPEN, C-NPT; and Michael Seaver, RN, BA

*This is the second in a three-part series.*

Caring for sick kids—especially really, really sick kids—is stressful, and as our stress levels increase, so does our likelihood of error. Lack of regular practice with these types of emergencies can make matters worse, and if we add mathematical calculations to the equation, the challenge is compounded.

In the first part of this three-part article series, we looked at the development and use of the Broselow tape, as well as a couple

of pocket-size memory aids that can help us sort out the complexity of pediatric emergencies. In this installment we'll explore a newer alternative: the Handtevy pediatric resuscitation system.

The EMS world was introduced to the Handtevy system in 2010. Peter Antevy, MD, is a practicing pediatric emergency medicine physician and EMS medical director in Florida. He created a hybrid system that utilizes both age and length. Since the age of the

15 kg	20 kg	25 kg
Epi 1:1,000 IM 0.15 mL	Epi 1:1,000 IM 0.2 mL	Epi 1:1,000 IM 0.25 mL
Epi 1:10,000 IV 1.5 mL	Amiodarone 2 mL	Epi 1:10,000 IV 2.5 mL
Amiodarone 1.5 mL	Bicarb 8.4% 20 mL	Amiodarone 2.5 mL
Bicarb 8.4% 15 mL	D <sub>5</sub> W 40 mL	Bicarb 8.4% 25 mL
D <sub>5</sub> W 30 mL	Normal Saline 400 mL	D <sub>5</sub> W 50 mL
Normal Saline 300 mL	Lorazepam 1 mL	Normal Saline 500 mL
Lorazepam 0.75 mL	Diazepam IM/IN 0.8 mL	Lorazepam 1.25 mL
Diazepam IM/IN 0.6 mL	ETT King LMA 5.0/2 / 2.2	Diazepam IM/IN 1 mL
ETT King LMA 4.0 / 2.2		ETT King LMA 6.0 / 3 / 2.8

10 kg	30 kg
Epi 1:1,000 IM 0.1 mL	Epi 1:1,000 IM 0.3 mL
Epi 1:10,000 IV 1 mL	Epi 1:10,000 IV 3 mL
Amiodarone 1 mL	Amiodarone 3 mL
Bicarb 8.4% 10 mL	Bicarb 8.4% 30 mL
D <sub>5</sub> W 20 mL	D <sub>5</sub> W 30 mL
Normal Saline 200 mL	Normal Saline 600 mL
Lorazepam 0.5 mL	Lorazepam 1.5 mL
Diazepam IM/IN 0.4 mL	Diazepam IM/IN 1.2 mL
ETT King LMA 4.0 / 2.2	ETT King LMA 6.0 / 3 / 2.8

**NOTE:** The Diazepam IV dose is 0.1 mg/kg (10) the volume of the best Diazepam IM dose.  
PEP/2014 10/19

**Handtevy Pediatric Code Legend:**

- Epi 1:1,000 IM 1 mg/kg
- Epi 1:10,000 IV 0.1 mg/kg
- Bicarb 8.4% 50 ml/200 ml
- Normal Saline 500 ml
- Lorazepam 0.1 mg/kg
- Diazepam 0.1 mg/kg
- ETT King LMA 6.0/3/2.8

The Handtevy Badge Buddy

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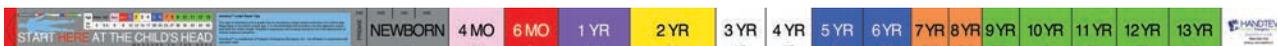


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**The Handtevy system is effective in pediatric emergencies, even if the child's age is not known or they appear smaller or larger than their stated age.** (Photos: courtesy Dr. Peter Antevy)

child is often known, Antevy recommends using this information first. To simplify matters and make some first-line pediatric code information immediately available, he developed the Handtevy Badge Buddy, which can be clipped onto an ID badge, and corresponding wall-mountable posters. These items use age categories of 1, 3, 5, 7, and 9 and are color-coded to coordinate with other Handtevy system products.

Even if the age is not known or the child appears smaller or larger than their stated age, the Handtevy tape is a great tool for pediatric emergencies. Providers can begin to plan their treatment algorithm prior to arrival on scene, as they do for adults. Whether the provider uses age or length, customized medication dosing is easily found on printed guides or electronically with a mobile or desktop application. There is a customization feature on the electronic version that allows all dosing information to match the agency or hospital formulary, reducing the chance for error.

Key points to remember when utilizing the Handtevy tape:

- Always remeasure and confirm the correct color and/or age when the child arrives at the ER, just to be safe;
- The Handtevy system uses the same color scheme and lengths as the Broselow system. That's important and will lead to fewer mistakes when EMS and the hospital ED are using different systems;

- Color zones range from 2–60 kg. The name of the color is printed on the bottom for color-blind professionals. The Handtevy tape is slightly longer to account for taller children with weights up to 60 kg;
- The Handtevy system allows the use of age or length. When using the Handtevy tape, the child's heels will land on a color and age category, which corresponds to weights, medications, and equipment;
- Just like the Broselow-Luten system, measure head to heels, not to toes. As a reminder of where to measure from, there's a big red arrow at one end and, in very large letters, instructions stating: *Start here at the top of the child's head; measure to the heel;*
- By the "red to the head" arrow, there is a chart showing age, color, and ideal body weight.

Unlike the Broselow tape, the Handtevy tape has no medical information listed on it. Antevy recommends the only time the tape should be used is if the age is not known or the child appears smaller or larger than their stated age. Otherwise he recommends using the customized guidebooks or mobile app to find the age-appropriate medical information.

As Antevy is an EMS medical director, one of his goals is for the paramedics in his system to prepare before arrival on scene. Facing a child in full arrest is not the time

to try to figure out calculations. So if medics are dispatched for a 3-year-old, even before their arrival they can simply use their Handtevy guide or electronic app to access the needed information. In just a moment, and before arrival on the scene, they can find that a 3-year-old should need a 4.0–5.0 ETT, that the child should ideally weigh approximately 15 kg, and that the first dose of epinephrine IV is 1.5 mL.

And if the local emergency department also uses the Handtevy system, getting the age of an incoming pediatric patient can allow the ED staff time to grab their pediatric crash cart, open the correspondingly labeled drawer, and have appropriate medication doses calculated and tubes waiting when the child hits the door.

In the final portion of this series covering tips and tools for dealing with pediatric emergencies, we'll look at what the future holds and how we already have incredible new resources at our fingertips. 🌐

## ABOUT THE AUTHORS

**Scott DeBoer, RN, MSN, CPEN, CEN, CCRN, CFRN, EMT-P**, is an international pediatric seminar leader and nurse consultant with more than 25 years of nursing experience. He retired from flight nursing in 2015 following more than 20 years with the University of Chicago Hospital UCAN flight team. He is the founder and primary seminar leader for Pedi-Ed-Trics Emergency Medical Solutions.

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**Michael Seaver, RN, BA**, is a healthcare informatics consultant based in Chicago.

## MORE ONLINE!

For the first part of this three-part article series, "From Notes to Wheels to Tapes," which describes the Broselow tape system, visit [www.emsworld.com/article/219580](http://www.emsworld.com/article/219580).

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# The Evolution of Excellence in Pediatric Emergency Care

## PART 3: WHAT THE FUTURE HOLDS

Apps and other aids can simplify and streamline the emergency care of kids

By Scott DeBoer, RN, MSN, CPEN, CEN, CCRN, CFRN, EMT-P; Emily Dawson, MD; Lisa DeBoer; Julie Bacon, MSN-HCSM, RNC-LRN, NE-BC, CPN, CPEN, C-NPT; and Michael Seaver, RN, BA

*This is the last in a three-part series.*

In the first parts of this series, we examined the Broselow-Luten and Handtevy systems for pediatric patient care. Both systems utilize a variety of approaches to providing crucial information in critical situations. Both aim to increase patient safety, enhance treatment speed and effectiveness, and heighten provider confidence by reducing stress, confusion, and uncertainty.

Pocket reminders, wall posters, and tapes for carts are great and have undoubtedly made a huge difference in the care we provide. But, as they say, what have you done for us lately? How do we keep up with the present, let alone prepare for the future?

You don't need a crystal ball to see the future of prehospital and hospital-based pediatric emergency care—just point and click. The availability of electronic devices might seem overwhelming, but we need to recognize this simple fact: The answers are all there. And you don't need much information (data) to start with—an age, a color code, a vial of medication. Whatever you have, just enter and click.

Fear not, the future is here.

### There's an App for That

Both the Broselow-Luten and Handtevy systems are actively addressing the move to a

more digital world. Whether on a desktop or laptop computer, a smartphone or tablet device, an incredible amount of information is now available at your fingertips. And it's available as quickly as you can enter some very basic data. (Making these applications even better is that they are being integrated into electronic medical record systems!)

As an added benefit, the electronic versions of the measuring tapes are customizable to a specific EMS system's or hospital's formulary. Most of the time you're only working with a single concentration or preparation of a medication. If the electronic system already knows this, cumbersome

10-11kg

**fentaNYL - Nasal Initial Dose**

**1.5 mcg/kg/dose ONCE**

Ordered Dose:  mcg ✓

Strength	eBroselow Dose
	15.8 mcg
50 mcg/mL	0.32 mL

Intranasally over 15 seconds, once

**Dosing Remarks**

- fentaNYL: Nasal Initial Dose (1.5 mcg/kg/dose) may be given once, followed by the supplemental dose (See [fentaNYL: Nasal Supplemental Dose](#)).
- The total dose (Initial dose and Supplemental dose/doses) administered should not exceed 3 mcg/kg.

**Administration**

- Intravenous medication solution is administered intranasally with 1/2 of the total volume in each nare using a 1 mL needleless syringe.
- Total administration time is 15 seconds.
- A nasal atomizer device is recommended if available to quicken the administration process and increase patient comfort.

10-11kg

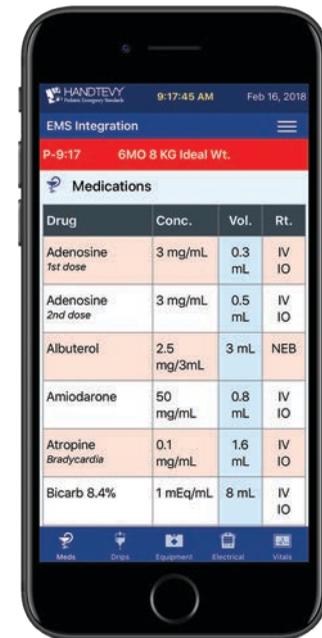
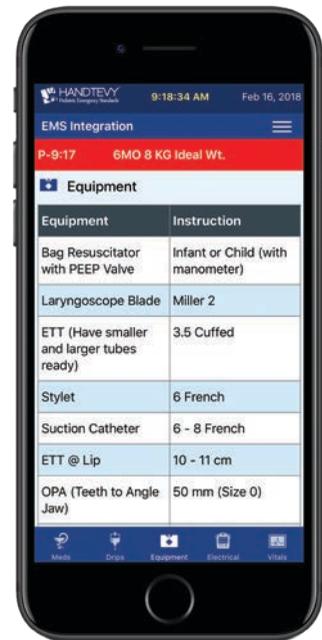
**Equipment Chart**

*ET Tube (mm)	4.0 uncuffed
*ET Tube (mm)	3.5 cuffed
Lip-Tip (cm)	11-12
Suction Catheter	8 F
L-Scope Blade	1 straight
Stylet	6 F
Oral Airway	60 mm
NP Airway	18 F
BVM min vol	450 mL
ETCO2 Detector	Peds
LMA	2
Chest Tube	16-20 F
Foley	8-10 F
NG Tube	8 F
Central Line	3-4 F

**Remarks**

\*Cuffed tubes sizes are approximately 0.5 mm smaller than the correctly sized uncuffed tubes. Both types are acceptable for use in smaller children. Cuffed tubes, however, should only be used if the cuff pressures are measured and monitored as pressure may vary with temperature, gas exchange, and cuff movement.

(Bhardwai N. Pediatric cuffed endotracheal tubes. J



**Top: eBroselow guides seen in app view** (Photos courtesy Dr. Robert Luten). **Right: Handtevy system guides seen in app view.** (Photos courtesy Dr. Peter Antevy).

calculations are made much easier. Instead of having to calculate the proper dilution or concentration, all you'll need is the age or color range of your pediatric patient and their specific medication, and the system does all the math!

Imagine this: Your ambulance service only stocks one concentration of Narcan (naloxone)—1 mg/mL. When you click on the app, that's all you'll see. The dose is calculated to that concentration and shows you not only the mg, but also the mL to push. This is a huge help, since mental math under stress is not your friend. And since change is inevitable, these electronic systems can be updated quickly and easily, with no need to print and replace guidebooks or handouts.

Medication safety is also improved because if a drug gets a new "black box" warning or the recommended dosing changes, adjustments can be distributed to all consumers immediately. If one concentration or medication becomes unavailable, alternatives can be chosen and programming adjusted as needed.

And there's even more: eBroselow and its SafeDose mobile app (a specific EMS version is coming soon) have recently introduced barcode scanning of all medications. Using the camera on your mobile device, you

can scan the label on the vial of medication, and the system will provide you with all the needed dosing and administration information, even if the medication is new in your formulary or supply system. And both pediatric systems are either currently integrated with or actively working on integration into common industry EMR systems.

## Benefits

Consider the following situations:

**Intubation**—A 1-year-old needs to be intubated. We must figure out what size endotracheal tube to use. Now, what was that formula? Age plus something divided by something? Or was it age divided by something plus something? Even if you remember the formula, you still have to do the math.

And on top of that, what's the deal with an uncuffed tube versus a cuffed tube? And if we figure out the tube size, where do we tape it? And then what size suction catheter, what size NG/OG tube, what size urinary catheter? Oh, and did we mention it's 4 a.m. and toward the end of a hectic shift? Feeling the stress?

Or would you rather use a measuring device or select a color-coded age-specific card? Or maybe just open an app and enter the age (or color code) of the patient? In a

second or two, you have everything you need right in front of you: ET tube sizes, taping points, and sizes for suction and urinary catheters as well as NG tubes, without having to make a single calculation.

**Medications**—A 1-year-old child has a femur fracture after falling down stairs. Pain relief is certainly appropriate, but what is the dose of fentanyl? It's something per kg, because it almost always is something per kg. But how much, and is the nasal dosing

# EXCELLENCE IN PEDIATRIC CARE

more or less than the IV dosing? And what's the weight of the child in kilograms when mom only knows the pounds and ounces? And you need to figure out how to dilute the drug based on the concentration. And don't forget to convert the dose in milligrams to the proper volume in milliliters. And yes, it's still 0400. Feeling the stress?

But wait—you have a smartphone or tablet! With a few simple clicks on the screen,

you have all your answers. You can take care of your patient instead of stressing about the math.

And what about the dreaded drips? You have the same choice: lots of math and stress, or a few clicks and the information is at your fingertips. Dosing, mixing, pump rate—it's all right there.

*Real-life experiences*—All too often we find that even though we think we know how

to use the tools and toys, we really don't. Even when we know what information is on the tapes or cards or computer screen, getting to that information isn't as quick as it should be. We stumble with the equipment or technology.

The bottom line, now and in the future: The resources are out there, and most are incredibly easy to use as long as you take a few minutes to prepare and practice first. Take whatever cheat sheets, books, cards, tapes, or apps you have and regularly take a few minutes to actually play with them. Try to find the most common things you need (ETT size, epi dose, etc.) and then try to find those many other things you don't need as often. That way you know where stuff is, what it's called, and how to find it quickly and easily.

Preparation plus practice produces proficiency. Your patients deserve nothing less! 🌟

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## ABOUT THE AUTHORS

**Scott DeBoer, RN, MSN, CPEN, CEN, CCRN, CFRN, EMT-P**, is an international pediatric seminar leader and nurse consultant with more than 25 years of nursing experience. He retired from flight nursing in 2015 following more than 20 years with the University of Chicago Hospital UCAN flight team. He is the founder and primary seminar leader for Pedi-Ed-Trics Emergency Medical Solutions.

**Emily Dawson, MD**, is a pediatric emergency medicine and critical care attending physician at Advocate Children's Hospital, Oak Lawn, Ill.

**Lisa DeBoer** is president and cofounder of Pedi-Ed-Trics Emergency Medical Solutions.

**Julie Bacon, MSN-HCSM, RNC-LRN, NE-BC, CPN, CPEN, C-NPT**, has more than 25 years of experience in emergency transport medicine, with expertise in pediatric and neonatal transport and critical care. She is program manager and chief flight nurse for Johns Hopkins All Children's Life Line, St. Petersburg, Fla.

**Michael Seaver, RN, BA**, is a healthcare informatics consultant based in Chicago.

## MORE ONLINE!

For the first part of this three-part article series, "From Notes to Wheels to Tapes," visit [www.emsworld.com/article/219580](http://www.emsworld.com/article/219580). For Part 2, "The Handtevy System—The Next Generation," visit [www.emsworld.com/article/219788](http://www.emsworld.com/article/219788).

# Safe Transport of Children by EMS

## INTERIM GUIDANCE

RECOMMENDATIONS BY  
THE NATIONAL ASSOCIATION OF STATE EMS OFFICIALS (NASEMSO)

b. EMS agencies should have appropriately-sized child restraint system(s) readily available on all ambulances that may transport children.

Additionally, personnel should be initially and recurrently evaluated and trained on the correct use of those restraint systems:

i. The device(s) should cover, at minimum, a weight range of between five (5) and 99 pounds (2.3 - 45 kg), ideally supporting the safest transport possible for all persons of any age or size.

## THE QUANTUM ACR-4 EXCEEDS THE ABOVE CRITERIA

The Ambulance Child Restraint provides the safe and effective transport of infants and children in an ambulance, covering weight ranges from 4lbs to 99lbs.



XS	S	M	L
4-11lbs	11-26lbs	22-55lbs	44-99lbs

In addition to the Small (11-26lbs), Medium (22-55lbs) and Large (44-99lbs) sizes, the ACR-4 now comes in an Extra Small (4-11lbs) and are all colour coded for easy selection.

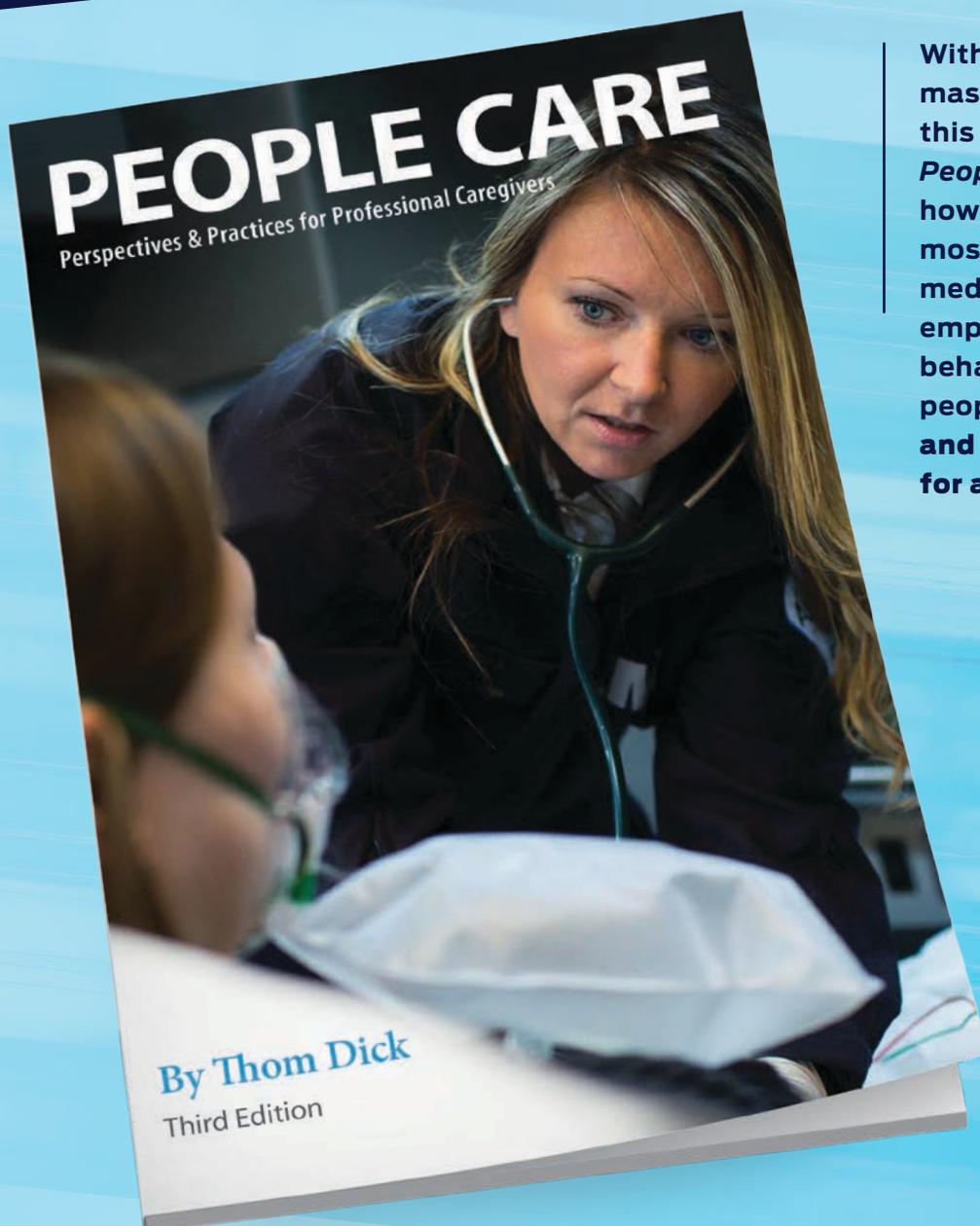
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