Mini Me — Pediatric Patient Assessment

By Christopher Suprun

In 1989, Robin Williams' movie Dead Poets Society talked to students about the importance of perspective in looking at the world. This movie, which took high school aged young men in a prep school into a wider view of the world, was hailed at the time with multiple Oscar nominations. The movie itself had a scene where the boys' teacher, John Keating had them stand on their desks to change their perspective on how they see things.

Similarly, when it comes to pediatrics it might be useful to change our perspective to something that builds on where we are as clinical providers and step up to the next level. Usually when the topic of pediatric EMS calls come up, you quickly find that most responders are "allergic to children." There are a number of reasons for why many of us feel uncomfortable with treating children: we don't work with children often; we don't have children of our own; we are confused by pediatric equipment and drug dosing. However, ultimately we are responsible for responding and being as best prepared for the call as we can be.

I should note from a personal perspective that I believe there is no truth — none whatsoever — to the statement "I do this everyday." However, it is true that you may be responsible for it on the next call. We have no idea when we will have a pediatric event, and therefore we have to prepare for that call before we hear the tones. To begin we need to alter our assessment and start by using what we know.

While we are all familiar with the generic ABCs, I would like to suggest a second ABCDE to consider for your next pediatric assessment.

The "A" in this case is to assess the child and scene on arrival from across the room. A child who is alert and active should be seen from across the room, observing his or her surroundings for living conditions.

The American Academy of Pediatrics Pediatric Assessment Triangle utilizes three areas:

- Appearance
- Breathing
- Circulatory Status/Skin Tone

By using these three categories the suggestion is that EMS responders can make a determination of sick or not sick, injured or not injured based on abnormalities in these areas within 30 seconds of entering a situation. An important note on this is that we need to "pull the proverbial trigger" as soon as possible.

While it sounds elementary, the basic function of saying a child is sick or not sick based on a child who has an abnormal appearance, increased work of breathing, or inappropriate skin condition can tell volumes about a patient without ever getting a set of vital signs or otherwise touching the patient.

Another important issue associated with assessing the scene from across the room is the ability to see the child in his or her environment. Is the home clean or dirty, is this a possible abuse case, and are there other indicators that would be a concern to your patient care? All of these can be considered when we slow down to examine our scene.

The "B" in my assessment is what should be the typical breathing assessment.

Children on average have 24 million alveoli versus adults who have 300 million. This is not just a numeric difference, but also an example of the significant advantage that adults have over children in terms of a child's limited oxygen reserve. Additionally, children have less efficient diaphragms, making respiratory conditions that much harder to work against.

These issues force EMS responders to evaluate not only a child's respiratory rate, but also their work of breathing. A child breathing 20 times a minute may have a normal rate, but may be a tired breather if he is an asthmatic. Because of this, it is critical that a child's minute volume be considered to determine whether or not the child has an appropriate tidal volume with each breath.

Additionally, I encourage EMS responders to utilize their stethoscopes as part of their assessment every time and use the information garnered. While we carry our stethoscopes on every call, in many cases they seem to be a part of going through the motions routine that we do, but that doesn't bear any weight in our assessment. Children are heavily respiratory dependent, so accurate lung sounds are essential in the assessment of the pediatric patient.

First, stethoscopes often have two sides. The first wider diaphragm is used for listening to the lung fields. If you tap on the stethoscope and do not hear the tapping, you may need to turn the stethoscope around as the bell is "listening" to sounds. The second stethoscope side is the bell and is made for a different auditory range at a lower

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frequency to capture the lub-dub of heart tones.

Second, stethoscopes are primarily used for listening to lung sounds and should be used against bare skin. In so many cases, we have become used to our other toys and under utilize the stethoscope to accurately consider the patient's lung fields. We need to re-make respiratory sounds a priority.

Third and finally, a great debate in the area of pediatrics surrounding stethoscopes is the question of adult versus pediatric stethoscopes with children. While I carry a pediatric stethoscope and think they have value, it is rare that I am trying to discriminate between lung fields in children. As often as not, I simply want to get an idea of how easily air is flowing in and out of the lungs. Are there sounds of wheezing or congestion or more rarely, rales?

For me, I typically use my adult stethoscope on children because it has a wider diaphragm, which allows me to hear more of the child's lung fields than you would in an adult. While this makes it more difficult to differentiate between lung fields, the sounds are clearer.

For the child who is alert and acting age appropriately, I will also utilize play to help me obtain lung sounds. Another important piece of equipment in the assessment of a toddler or older lung sounds is my penlight. With children, I will illuminate the light and have them blow out the "candle." When the child blows over the light of your penlight you can deactivate the light once you hear enough of the lung sound to assess it. From there, the "candle" can be turned back on for the auscultation of the opposite lung field and the child can be an active participant in his or her own care with this simple game.

"C" is Contact. For years we have moved away from touching pediatric patients and have been taking a hands off approach that does not allow us to palpate the patient. We are often told that the sick or injured child will not mind being assessed by the competent, confident responder, but the awake, non-sick child will. However, walking in and assessing the situation and then engaging the child in the "candle game" above will allow the child to be assessed fully.

Using a systematic approach of toe to head, the potential non-emergent child can be adequately and appropriately assessed as well in an organized and thorough way. Few things are as unfortunate as thinking a patient is stable and then finding out otherwise.

The "D" in my assessment algorithm is for Destination Determination.

In every area of medicine, specialization is the basis of medicine. When we have chest pain patients we perform pre-hospital 12 leads and transport the patient to chest pain centers. Those with new onset stroke symptoms are brought to stroke centers and for years multi-system trauma patients are moved rapidly to Level I Trauma Centers where surgeons can provide surgical answers to various traumas.

As this relates to children, EMS responders have the best opportunity to help guide patient transport decisions and we should take our sick children to pediatric facilities. First, these facilities are not "allergic to children" and are comfortable dealing with children. Second, particularly in the case of pediatric trauma it is important to have surgical teams comfortable "cutting and sewing" small.

Currently, the Emergency Medical Services for Children National Resource Center, in cooperation with The American Academy of Pediatrics (AAP), the American College of Emergency Physicians (ACEP), the Emergency Nurses Association (ENA), is conducting a national survey to measure Emergency Room readiness for pediatric patients. The assessment will allow the partners to identify where gaps exist and work to align resources and efforts to build the competency and capacity. The Pediatric Readiness Project will help us identify local emergency departments that are capable of best treating our sick patients.

The final letter in the acronym is "E."

Like with adults, this means to expose the patient. While this may be uncomfortable for some of us, it is critical that we consider whether or not we can adequately identify a patient's illness or injury patterns through clothing. Bruising, bruise patterns, crepitus, and other injuries are identified when we remove clothing and visualize them.

The other half of that coin is that children can become hypothermic more quickly than adults, so after exposing our pediatric patients we must then work to protect their body heat by keeping them covered up and maintaining the patient's body warmth.

Beyond this basic algorithm, for me an essential tool for the assessment of the pediatric patient is the Broselow tape. This length-based tape provides a weight estimation for emergency responders and has been validated as reliable by numerous peer reviewed studies. The tape provides both a weight estimation for the patient as well as dosing information for the patient's weight based drugs and equipment sized for our child. The tape itself can be used easily by anyone.

Using these steps, we can make assessing our pediatric patients easier and more comfortable. While statistics will vary from squad house to squad house and state-to-state, invariably between five and 15 percent of our patient population is under age 18. We need to prepare for these patients as we do for adults. With this change in perspective, we can seize the day that Mr. Keating spoke to his students about in Dead Poet's Society.

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