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Coping with Unexpected Pediatric Death in the Emergency Department

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At 4:45 p.m., a 911 call is received from a frantic babysitter. The woman tells the dispatcher that one of the infants she is watching is not breathing and is blue. Four minutes later, an ambulance arrives on the scene. The crew finds a 7-month-old male infant in full cardiopulmonary arrest. The babysitter tells the crew that she put the baby down for a nap at about 2 p.m. and checked on him just before she called.

The paramedics begin cardiopulmonary resuscitation. A quick look with the defibrillator paddles shows asystole, which is then confirmed in two limb leads. The child is centrally cyanotic but not stiff, so the crew decides to attempt resuscitation. The infant is intubated, an intraosseous line is placed, and appropriate doses of epinephrine are given. The paramedics begin transport to the hospital at 4:53 p.m. The infant shows no change in rhythm during transport from the suburb and arrives in the nearest emergency department (ED) at 5:07 p.m. The physician leader of the resuscitation team confirms asystole, confirms endotracheal intubation via direct laryngoscopy, and continues cardiopulmonary resuscitation (CPR). Despite a comprehensive, exhaustive effort, the baby is pronounced dead at 5:25 p.m.

Emergency physicians will encounter sudden, unexpected pediatric death more than once in a career. These cases represent significant patient experiences for both young and seasoned ED physicians. They remind physicians of the reality of emergency medicine and the limits of training and knowledge.

Experience grants the tools to review such cases clinically and academically. In the busy ED of a tertiary care center, many pediatric resuscitations occur. Nonetheless, physicians often are left with feelings of defeat and failure at the end of such cases, and generally are left facing parents who never considered the possibility of their child's death.

The purpose of this article is to review the subject of the death of a child in the ED in an attempt to give practitioners a basis for a rational approach to the child and family. Issues of resuscitation of a child in cardiopulmonary arrest and termination of care will be reviewed first, followed by a discussion of the approach to the family in crisis. Although no emergency physician may ever view an unsuccessful pediatric resuscitation in a positive light, the ability to approach the situation with compassion, confidence, and an understanding of the overwhelming response felt by the family and staff may facilitate a healthy survival for all.

— The Editor

Emergency Physicians' Attitudes, Experience, and Training

The death of an infant or child in the ED is an uncommon and uncomfortable event for the average emergency physician. Only one in 10 resuscitations encountered in an ED is likely to involve a child.[1] The death of a child has been rated as the single most stressful event that an emergency physician may face.[2] Many physicians report feelings of guilt or inadequacy after unsuccessful pediatric resuscitations. One-half of emergency physicians feel impaired for the remainder of their shifts following an unsuccessful pediatric resuscitation; sometimes the failed attempt can affect the physician's family life. Communicating with the family of a child who has died is rated as much more difficult than communication with the family of an adult who has died. A high percentage of physicians surveyed (39%) admit that they have prolonged a pediatric resuscitation beyond any reasonable hope of recovery because of these feelings. Most emergency physicians surveyed are unaware of guidelines regarding managing pediatric death in the ED, and have no specific training in notification of the family.[2]

An emergency physician's discomfort with handling pediatric death may negatively influence the survivor's perception of the experience, and make the transition through bereavement more difficult. Unlike other medical specialists who deal with death frequently, the emotional difficulty of death in the emergency setting does not appear to lessen with experience.[3] The reasons likely mirror the reasons that these deaths are so difficult for families. A child's death generally is felt to be unnatural and untimely, and it is unexpected. The physicians and staff in the ED do not have an established rapport or professional relationship with the family, so interaction can be difficult and strained.[4] ED staff are emotionally affected by the death of a child, but are expected to continue functioning at a high level. A pediatric code is disruptive to the flow of an ED and creates multiple problems for staff. If the staff's mode of coping is avoidance and neglect of the grieving family, dissatisfaction and impaired functioning will result for both the family and the health care team.

Education regarding realistic expectations for survival following pediatric cardiac arrest may help physicians become more comfortable with making these critical decisions. Physicians who choose shorter durations of resuscitation are more likely to have pediatric specialty training and to be certified in Pediatric Advanced Life Support (PALS) than those who choose longer durations.[5] However, advanced training in pediatric resuscitation may not be sufficient to ready health care personnel for the task. Participants in such courses still feel unready to accept death as an outcome despite proper application of resuscitation principles. In resuscitation scenarios utilized by current training courses, a student's correct application of course material leads to a successful outcome as a way of reinforcing knowledge. Failure to successfully resuscitate the child implies improper management. It has been suggested that incorporation of a "Coping with the Death of a Child" module into these courses would reduce discomfort with situations involving pediatric death, and assist in coping with personal emotions surrounding an unsuccessful resuscitation.[6]

Finally, mechanisms for dealing with the stresses associated with pediatric death in the ED need to be implemented.[7-9] One of the areas in which hospital-based emergency medicine can learn from prehospital practice is in the administration of staff support.[10] The EMS Critical Incident Stress Debriefing process has met with overwhelming success, and many lessons may be learned from such efforts. While a busy ED may be a challenging environment in which to provide staff "decompression time," this activity cannot be undervalued in an area of hospital care known so well for high turnover and burnout. While immediate post-resuscitation review must address any gross practice problems encountered during the resuscitation, these informal meetings may be better used to allow staff to come to terms with the emotional burden associated with the death of a child. Given the stress and anxiety these events elicit, access to grief counsel-

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Table 1. Most Common Diagnoses of Pediatric Arrest Presenting to the ED[1]

DIAGNOSIS	% CASES
SIDS	26%
Blunt trauma	11%
Pulmonary	9%
Submersion	8%
Cardiac	8%
Undetermined	10%

(These six diagnoses accounted for 72% of cases.)

ing services for staff would be beneficial, but only one-half of physicians surveyed report that such services are available in their institution.[2] After all, while the emergency physician may never again meet the parents of the dead child, other parents will certainly be relying on the health and humanity of the team during the next resuscitation attempt.

Issues in Resuscitation and Termination of Efforts

Epidemiology/Etiology. Infants and children who die suddenly in the ED do so from a variety of etiologies that are different than those seen in the adult population. While the differential diagnosis of cardiopulmonary arrest that leads to sudden death in pediatrics is broad, respiratory diseases predominate.[11,12] Arrest most often is the end result of a deterioration in respiratory function. Respiratory arrest results from a physiologic progression from hypoxia and hypercarbia, which in turn lead to bradycardia and full cardiac arrest. For this reason, cardiopulmonary arrest is usually accompanied by significant acidosis and hypoxemia, which complicate resuscitative efforts and worsens prognosis.[12] The epidemiology and patient characteristics of pediatric death presenting to the ED parallel the causes of pediatric out-of-hospital cardiac arrest. A recent population-based, prospective study of out-of-hospital pediatric arrests showed that the majority of patients were younger than age 1 (54%), with 76% younger than age 4. The most common etiology for arrest was nontraumatic (80%), with Sudden Infant Death Syndrome (SIDS) being the most common diagnosis.[1] In children older than 1 year, preventable causes of death — including motor vehicle accidents, falls, burns, and drowning — become more prominent.[13] The most common mechanism of traumatic arrest was blunt trauma.[1] A review of other literature lends support to the generalizability of these findings.[11,14-16] Table 1 lists the most common underlying diagnoses of children in arrest presenting to the ED.

Prognosis. The first challenge faced by medical personnel in the ED often concerns the resuscitation of a child who arrives in cardiac arrest. The difficulty of the situation often is compounded by uncertain or insufficient information available at the time of the child's arrival.[17] Children who present to the ED in full cardiopulmonary arrest have a poor prognosis.[1,14,18-23] The only intervention that has been shown to improve survival from cardiopulmonary arrest is immediate institution of CPR, with an early return of spontaneous circulation.[18] In making the decision on how long to attempt resuscitation in the ED, the physician must balance the possibility of restoring life to the patient with the possible negative consequences of prolonging resuscitation.[17]

A review of the current literature provides some guidance on some of the factors that should influence the decision on length of resuscitation. In one of the largest collective studies to date, Young and Seidel examined 44 articles on CPR in pediatric patients, both inpatient and outpatient.[14] The majority were younger than age 1 (56%), and bystander CPR was given in only 30% of cases. For out-of-hospital pediatric arrests, CPR from a bystander significantly improved survival (26% vs 8.4%). Seventy-three percent of cases presented with bradyasystole or pulseless electrical activity, and 10% were in ventricular fibrillation or ventricular tachycardia. A review of eight reports covering children demonstrated that continuing CPR for "longer than 20 to 30 minutes in normothermic patients" did not produce additional survivors.

Studies of resuscitation pharmacology have demonstrated no cardiac arrest survivors when more than two doses of standard-dose epinephrine were given.[9,20,24] Recent reports of the use of high-dose epinephrine in children have not demonstrated a higher rate of return of spontaneous circulation (ROSC) or improved long-term outcome over that seen with standard dose epinephrine.[25,26] In a recent prospective study, a small percentage of children in cardiac arrest showed ROSC in the field (11%). An even smaller percentage (2% of the total) survive to discharge from the hospital, many with significant neurologic sequela. All of the survivors had ROSC in the field, and no child who arrived to the ED in cardiac arrest survived to discharge.[1]

The decision to terminate resuscitative efforts on a child is extremely difficult for emergency physicians. When faced with this event, they profess a high degree of anxiety and discomfort. [2] In a profession in which preservation of life is the primary goal, the decision to cease resuscitation efforts on a child is devastating. But as the studies reviewed above indicate, children who have a return of vital signs after 20-30 minutes of pulseless arrest have a uniformly poor outcome. Prolonged resuscitation of children in pulseless arrest does not produce survivors with a chance of meaningful neurologic recovery.[14,18] While in-hospital arrest is associated with a more favorable outcome overall, prognosis remains grim when resuscitation attempts include more than two doses of epinephrine.[19] Recently, the American Heart Association published the conclusions of the International Guidelines 2000 Conference on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care (ECC).[18] These guidelines represent a consensus of experts in the field of resuscitation, and form the basis for the core curriculum taught in the PALS course and the Neonatal Resuscitation Program (NRP). Citing the research studies described above, the futility of prolonged resuscitative efforts in both the in-hospital and out-of-hospital settings is recognized. They recommend that, in the absence of recurring or refractory ventricular fibrillation or tachycardia, history of toxic drug exposure or electrolyte imbalance, or a primary hypothermic injury, termination of resuscitation should be considered after 30 minutes of cumulative, effective, advanced life support.

Family and Staff Support

Introduction. The support of the family during the crisis of the death of a child requires a multi-disciplinary approach utilizing multiple resources and personnel to be effective.[3,4] The ED staff's initial response and support has been shown to be crucial to a family's ultimate recovery.[27] When surveyed, the most-remembered event by survivors of the hospital experience was the reaction of the staff.[28] When they are dissatisfied with how ED staff handled their crisis, families may be more prone to maladjustment and displaced blame. A prime cause of dissatisfaction that often is cited is the lack of information and involvement during the resuscitation. Families resent the feeling of helplessness and desire timely and explicit information regarding the care the child has received. Many don't recall meeting with a caring, knowledgeable physician. Lack of communication may be misconstrued as a lack of caring or indifference on the part of the health care personnel. This can lead to future criticism of the appropriateness of care given.

Approaching and counseling a family whose child is being resuscitated or has died is one of the hardest tasks for which to prepare. No single approach can be relied upon in every situation. Medical personnel should guard against preconceived ideas regarding a family's reaction, which can be quite varied. With no prior knowledge of family dynamics or established contact, it is hard to know the correct words to say. Involvement of the resuscitation team, including nursing staff, hospital clergy, and possibly the family's private physician, minister, and extended family members all may become part of this process. However, it is best if a limited number of people interact with the family to establish some degree of consistency and trust. Several measures have been reported to be beneficial by families. These include familial presence during resuscitation efforts, staff interaction and advice about normal grief responses following death notification, viewing the child's body, and post-resuscitation guidance and counseling.[3,4,9,28]

Family Presence During Resuscitation. Early and effective interaction with the family is both the most difficult and most important aspect of managing a case of pediatric death. Many authors have studied this dynamic process, and offer many suggestions on how to proceed.[29-32] It is certain that no textbook or paper can prepare the physician for every case, but some general principles may apply.

Involve the family before efforts have ended. The utility of family presence during resuscitation has been studied, and those EDs that have created policies that allow parental presence in the resuscitation room have seen encouraging results.[29-32] ED staff may be hesitant about family involvement in the resuscitation room. They may feel that families will interfere, that their viewing of the resuscitation may leave the team open to increased liability for an adverse outcome, or that the reality of a modern major resuscitation is too shocking for someone who is not part of the medical community. There are no data that generally support these concerns. While some family members who initially wish to view the resuscitation may have emotional reactions so strong that their continued presence may indeed affect ongoing patient care, the presence of a dedicated support person for the family can ensure that such occurrences are handled in a compassionate, effective manner. Despite preconceived notions to the contrary, the physical interference of a family member in resuscitation is a rare event, and should not preclude consideration of participation for all families. And, while a to-the-letter textbook resuscitation may not be accomplished in every case, there is no evidence that family participation results in legal concern. In fact, the family that sees a group of health care professionals doing their utmost to save a loved one, witnesses ongoing effort, and yet in the end hears the physician call the code and recite the time of death is more likely to remember the heroic effort of the ED team. A family that is isolated and uninvolved is more likely to view the ED staff as unconcerned about their child.

The scope of emotional benefit that families may receive from being present in the code room is impressive. Seventy-six percent of families reported easier adjustment to the death and grieving, and 64% believed that their presence was beneficial to the dying family member.[31] Although not every family will desire to be present, the majority do express such wishes.[29] The percentage increases (from 71.4% to 83.4%) if their child is likely to die. Family presence can solidify the reality of the situation, decreasing denial, and may improve the transition through grief that the family will undergo. Even among parents who do not wish to enter an ongoing resuscitation, nearly all want to be given the choice. Fewer than 10% want the physician to determine whether parental presence is allowed. Two written comments by parents illustrate the above sentiments: "Because I am the mother, I have the right to decide to leave or go. If I wouldn't be in the way, I'd want to stay," and "If ever the time would come, I would want to be the last [to see my child] as I was the first to see my child."[29]

Some emergency physicians may argue that family presence is not required or even appropriate for every resuscitation scenario. Parental presence without a designated chaperone or support person can interfere with the focus of the team members directly involved in the resuscitation effort. Even if parents are not a direct interference, their observation of events may change the course of a resuscitation by making the attending physician feel that the effort should be prolonged despite impending futility of the code. Further, parental presence in teaching hospitals may impede the essential learning process of resident staff. Housestaff may be uncertain of how to perform a procedure or need assistance, neither of which are impressions the attending physician wants to give to grieving parents. Finally, one can imagine scenarios that not even a medically trained parent would wish to witness. Seeing a trauma surgeon perform an unsuccessful emergent thoracotomy after a child is shot in the chest hardly seems a comforting step toward a parent's grieving process.

Therefore, we as clinicians must come to some personal balance between the growing literature and public consensus on the rights and benefits of having parents present during resuscitation, contrasted with situation and location-specific factors that may indeed make parental presence undesirable. Whatever the individual practitioner's decision is, he or she will inevitably be faced with the moment in which he must tell the family that their child has died. This is perhaps the most difficult step in managing the death of a child.

Table 2. Acute Grief Reactions Observed Following Notification of Death

PHYSIOLOGIC RESPONSE	Adrenergic reaction to stress. Characterized by hyperventilation, tachycardia, muscle tension, tremulousness, muscle tension headache, nausea, abdominal pain.
IMMEDIATE EMOTIONAL RESPONSE	Reflexive emotional reaction as psyche tries to assimilate information. Characterized by shock, numbness, disbelief, crying, and anxiety.
INTERIM EMOTIONAL RESPONSE	Individual coping/defense reactions. May be adaptive or maladaptive depending on degree and persistence of symptoms. Characterized by denial, anger, guilt, blame, or withdrawal.

Grief Reactions and Facilitating Bereavement. The announcement that a child has died is met with a storm of emotions and pain from the family. It is the commencement of a long and arduous bereavement process of confronting and working through the pain of loss. Grief and sorrow are a natural part of the loss of a loved one, and compose a critical stage in bereavement. The natural process of bereavement will take years, but the ultimate goal is for the family to be able to remember their child and to be able to re-engage in relationships without major emotional pain. While it is not possible to achieve this goal immediately following the death of a child, the duty in the ED is to handle the acute situation in such a way as to facilitate the natural progression through bereavement. An understanding of acute grief and bereavement forms the basis to a general approach to the family.[3,6,7,28,33,34]

Because it plays a vital role in an individual's ability to cope with loss and begin healing, grieving should be facilitated. The process that the family goes through during the initial time period following realization of their child's death can be best defined as an acute grief reaction.[28] This response is characterized by both psychological and physical symptomatology, and generally occurs immediately following the unexpected death of a person with whom there has been a deep emotional relationship. *(See Table 2.)* It has been described as a state of emotional stress. Emotional stress is heightened when there is no control or ability to alleviate the situation eliciting the response. The unexpected nature and lack of preparation for the death of a child tend to heighten the shock and intensity.[35] Outward manifestation of the response varies based upon social and cultural norms, but many tend to follow certain patterns and have similar characteristics.

The physiologic response to extreme stress accounts for many of the characteristics observed during the acute grief reaction. The body's sympathetic nervous system responds as it would to any perceived threat, with intense adrenergic discharge. Hyperventilation, tachycardia, muscle tension, tremulousness, headache, nausea, and abdominal pain are all attributable to this response. A person's perception of time is altered and he or she may have difficulty with memory or communication. Emotionally, these feelings threaten to overwhelm the individual. Common observed behaviors during this initial phase include shock, numbness, and disbelief. Many families will show no initial response or may appear pale, frozen, or withdrawn. This initial phase may vary in length from seconds to minutes.

Following the initial shock, a variety of feelings commonly manifest that are characterized by a combination of crying, anger, or anxiety. These reactions may be manifestations of a subconscious attempt to re-establish the lost bond. As infants, such reactions alleviated stress by restoring a parental bond or changing the activity that induced the distressing situation. Allowing this reflexive response seems to be integral to the ability of an individual to ultimately accept the finality of the situation. As the initial shock wanes, several psychological responses that help the psyche cope with the sudden unexpected news may develop. These responses are individualized and may be either adaptive or maladaptive depending on their intensity and persistence. Common responses include feelings of denial, anger, or guilt.

Denial is an early emergency defense mechanism that appears to be an emotionally protective reaction. It serves as a barrier to the onslaught of overwhelming emotion and pain. It allows time for the psyche to begin to assimilate the overwhelming input. It often takes the form of such statements as "It cannot be true" or "I don't believe you." Staff may seek to speed the resolution of this phase out of concern for emotional stability, but denial is usually transient. Since it is an important coping mechanism, it should be recognized and tolerated, unless it threatens to persist beyond the time of viewing the child's body and the family's departure from the hospital.

Anger is an emotional response that may be directed inwardly or toward staff or others. Anger should be understood as a method by which strong emotions are initially vented or displaced. It may be unfocused or directed. It is an aggressive response to emotional stress that seeks to extinguish the responsible threat. It may take the form of accusations or questioning the care the staff rendered. Typically, the reaction is brief and resolves as calmer, rational thought prevails. If prolonged, unresolved conflict may be present and need to be addressed.

Feelings of guilt or blame are common emotional responses to the unexpected tragic death of a child that need to be recognized and addressed. In an internal attempt to find a reason behind the tragedy, a search for preventable causes is sought. The initial assumption is that something could or should have been done. Another way to view guilt as an internalization of anger. Survivors incorrectly may assign blame or responsibility to themselves or others. Commonly, these feelings will be unvoiced, but not necessarily unfelt. These self-imposed feelings of blame may include misconceptions regarding actions or inactions, which might have prevented the death. It is not uncommon to hear parents say, "We should have known something was wrong," or "If only I had been there to stop it." Also present may be accusations of guilt or blame from family members, who also are seeking a reason for the tragedy. Foreknowledge of this possibility may allow time to better address these fears before the feelings fester into unresolved conflict.

An individual's grief reaction may vary from the above description, depending upon his or her underlying personality.

Some individuals respond to the sudden loss of a child with avoidance behaviors. Some people cope by preoccupying themselves with tasks or duties. Others may appear inordinately calm or withdrawn. These behaviors do not necessarily imply maladaptive coping mechanisms, but may only be a way to modulate the degree and timing of the grief response.[3] Intervention must be designed to support the family's behavioral patterns in such a way as to encourage protective emotional responses that facilitate ultimate resolution of loss. Any action that inhibits a person's natural emotional reaction may endanger his or her ability to cope. Reactions that may be emotionally destructive to themselves or others (i.e., anger, accusation, or guilt) may be modified with timely intervention to facilitate the healthy progression of grief. While early acceptance of the emotions of grief and loss should be encouraged, people must be allowed to pace themselves. The following sections detail some interventions that may be utilized to aid a family that is coping with the death of a child.

Staff Intervention Following Death Notification. While each family is different, general guidelines can be utilized to avoid potential pitfalls.[3,8,17,33,34] Table 3 offers an overview of some of the key points to remember when interacting with the family. When contacting family members who are not immediately present during the treatment of a critically ill child or a child whose prognosis is grim, it is best to communicate in person. The family can be told that their child is seriously ill or injured and that they should come to the hospital immediately. Arrangements should be made to have a relative or friend transport the family in a safe manner.

When the family arrives, they should be promptly greeted and taken to a private consultation room or to the child's bedside. Discussion should not be undertaken in public areas such as the waiting room or hall. They should occur in a private, controlled environment, where family members may feel secure while trying to comprehend such news. If the family is to be present during the resuscitation, it may be necessary to have a brief preliminary discussion regarding the child's status. Prior to speaking to the family, familiarize yourself with known information such as the child's name, age, the family's relationship to the child, and the known preceding historical events. Enlist the help and support of appropriate ancillary personnel such as clergy or social workers. During active resuscitation, take the time to send a knowledgeable person to update the family on the child's condition and prognosis. This should be done at frequent intervals. Every effort should be made to allow the parents to be present during the resuscitation if it is their wish (see section on Family Presence during Resuscitation).

When notifying the family that the child has died, the physician should take the time to sit with the family, and clearly identify himself or herself and role in the resuscitation effort. Families prefer to speak to the senior physician who was in charge of the resuscitation, with the majority feeling that it is the physician's responsibility to inform the family of the death.[8,36] While ancillary staff may be capable or willing to serve in this regard, it remains the duty of the physician in charge. A brief description of the chronological events leading to the child's death is appropriate, but this is not the time for prolonged history taking. The family's primary concern is the status of their child, and this should be addressed expeditiously. Do not use medical jargon or descriptions. State in a clear, unambiguous manner that the child is dead and avoid euphemisms such as "passed away" or "he has gone to a better place." This only leads to confusion and is prone to misinterpretation.[7,9] It is important to reassure the family that everything possible was done for their child, and that he or she did not suffer. Express sincere sympathy for their loss, but avoid statements that may be misconstrued as implying guilt or wrongdoing on the part of the family or health care personnel.

Involving the child's primary care provider during the process of notification and acute grief counseling may be beneficial. Inquire whether the family would like to have their fami-

Table 3. Initial Staff Interventions

ARRIVAL OF THE FAMILY

- Greet the family in person. If they initially are at home, secure safe transportion to bring them to the hospital.
- Take them to a private family room or to the child's bedside.
- Interact with the family early and often. Keep them informed at regular intervals.
- If bad news must be given, give it incrementally.
- If possible, allow the family to be present in the resuscitation room.

NOTIFICATION

- The physician in charge should handle notification.
- Identify yourself. Give a brief chronological description of the resuscitative efforts.
- Be concrete. Use words such as "died" rather than euphemisms like "passed away."
- Use simple terminology, not medical jargon.
- Expect and be prepared for varied initial responses.
- Express sympathy, but do not apologize.

FACILITATE HEALTHY GRIEVING

- Allow a complete, uninhibited initial grief reaction.
- Spend adequate time with the family.
- Determine individual needs and support adaptive coping responses.
- Be alert for persistent feelings of denial, guilt, blame, or anger. Modify these potentially maladaptive responses when feasible.
- Do not challenge initial emotional responses such as anger or denial.
- Dispel unwarranted guilt feelings.
- Utilize clergy or other support staff as the situation allows.

VIEWING THE BODY

- Prepare the family for viewing the body.
- Prepare the body.
- Encourage family time with the child. Respect a family member's deferral to view the body.
- Accompany family to the private viewing area.
- Allow adequate time for them to view the body.
- Offer the family a memento of their child.

ly physician present. The family physician's pre-established rapport with the family may be a valuable asset in helping the family through the initial phases of grief and acceptance. The family physician also will provide valuable follow-up assessment of the family's grieving patterns. Do not automatically assume, however, that every family will desire involvement of their primary physician, as there may be unvoiced feelings of resentment or blame surrounding the circumstances of the child's death. In every case, notify the primary care physician of the child's death, giving all information available at the time.[37] It is an unfortunate (and avoidable) circumstance to have the primary care physician learn of a child's death at the next office visit.

Be aware of cultural and social differences in a family's reaction to death. Normal grief responses are varied and can be striking or unexpected. As outlined above, families given such news in the ED display a wide range of behavior. As much as possible, allow a complete and uninhibited initial grief response. Some may be demonstrative and verbal, others quiet and withdrawn. The response of the ED staff will be remembered and have long-term impact.[8,9,28,34] Accept any initial response by the family as reflective of their own coping mechanisms. Not every family needs or wants the same support or services. Determine their needs and facilitate with the appropriate services and information. In the acute phase following announcement of death, the family needs time to adjust. Emotionally, the family is overwhelmed and in a state of emotional stress. Speak slowly and clearly. Do not assume they are grasping all the facts as they are being presented. Many families need time to assimilate the information. Multiple repetitions may be necessary, but a continual verbal barrage may only serve to overwhelm. Be there to provide information and support when they need it. In some circumstances, your presence is all that is required.

Be alert for the potential of unexpressed survivor guilt and, when appropriate, alleviate such concerns. A key step in facilitating the process of healthy bereavement is to openly acknowledge and, when possible, reassure survivors that they did not contribute to the child's death. Do not underestimate the power of a physician's statement of exoneration. It is best to open the discussion with a question that implies no accusation. "Many parents who have suffered the unexpected loss of their child blame themselves. Do you feel that way?" It often is enlightening to ask the parents their beliefs regarding what could have caused or contributed to the situation as a way of gauging their feelings. This may provide an opportunity to intervene early and correct misconceptions regarding responsibility. It is not humanly possible to effectively safeguard every child from every risk. While it may seem apparent to medical professionals that a certain situation was unavoidable, from the perspective of the family, it is hard to comprehend.

In some situations, there may indeed be an aspect of shared responsibility or culpability on the part of the caretaker, and there often are harbored feelings of anger, blame, or resentment among family members. If not addressed, the feelings of self-condemnation can lead to unresolved, pathological grief and familial dysfunction. In these situations, it is not appropriate to offer a blanket resolution of guilt, but it is equally important to begin the process of dealing with these feelings. It may be helpful to outwardly acknowledge that while the event may have been preventable, the caretaker intended no harm or injury. Focusing all caretakers on the pain of the loss and encouraging ventilation of emotions may allow the process of acceptance to begin.

If a family's initial reaction includes anger, it is important not to reciprocate the emotion. Find common ground and refocus the anger on the senselessness of death, so that it is directed at the situation, not a person. Allow the family to vent without accepting or assigning blame. Indicate that while anger is understandable, medical personnel and family did everything possible to save the child. Physical violence is rare, but taking certain precautions is advisable. When approaching a family with whom there is no pre-existing rapport, medical personnel should take reasonable safety precautions. Do not enter the family waiting room alone, and have an unimpeded means of exit. While such incidents are quite rare, they may serve to emphasize both the incredible emotional pressure of the situation and the ever-present need to be prepared for the unexpected in the ED. Families who exhibit feelings of anger, guilt, withdrawal, or blame that persist beyond viewing the child and their departure from the ED are at risk for pathological grief and should have follow-up counseling.

Viewing the Body. Many families wish to have time alone with their child in a private, quiet area. Viewing the child is an integral part of the grieving and acceptance process.[3,28,33,36] It brings a sense of reality and finality to those who are still in a state of denial and often precipitates an outward expression of grief. It allows the family the opportunity to touch and hold their child one last time. A family who outwardly expresses sorrow and emotionally supports one another at this time is likely to have a healthy progression through bereavement. Observation of familial response and interaction may serve to focus further counseling and intervention. Most will want to see their child immediately after notification, but some may be reluctant. Initial reluctance may indicate that they need more time. Having other family members view the child first often helps. Encourage family to view the child, but accept an individual's decision to defer.

Prior to their viewing, prepare them for what they will see, and make sure the child has been properly arranged. The child is best positioned on his or her back with the head slightly elevated, to keep secretions from pooling in the mouth and nose. The child should not appear to have been abandoned. This can be communicated by having the initial viewing in the room where the child was treated, and having staff with the child when family arrives. The child should be cleaned and soiled linen changed, but all evidence of the resuscitation and death need not be removed. Many families see it as evidence that the staff did everything possible to save their child. They are shocked by the death, not the blood or medical equipment. Escort the family to the room and stay with them. Parents will sometimes need emotional or physical support upon first seeing their child. Give them permission to touch and hold their child. Allow them to spend as much time as necessary with the deceased. Parents with strong denial or guilt reactions may need extended time with the child to help work through this stage. Moving the body after the initial viewing to a private viewing

room within the ED allows staff to "turn over" and utilize the resuscitation room again quickly while giving the family privacy and time with their child.

The majority of parents like a physical memento of their child. Suggestions include a lock of hair, ink prints of hands and feet, and molds that give parents some solid memory of their lost child. Parents are divided on whether they would prefer to receive such a memento after spending time with their child's body, or after a 2-3 week delay period.[28]

Medical Examiner's Cases, Autopsy, and Certification of Death. Integral to supporting the family is a practical understanding of the requirements of the medical examiner's office and local funeral/burial policies.[3,4,33,37] In most pediatric deaths presenting to the ED, the emergency physician is not in a position to ascertain and certify the exact cause and manner of death. When a medical cause of death is not clear, state laws generally mandate a medical autopsy to determine the cause of death. Most accident victims and unexpected childhood deaths fall under state statutes mandating autopsy. Since specifics vary from state to state, it is important to be aware of regional differences. Generally, unexpected or unforeseen deaths in young children that occur outside of medical supervision or who expire shortly after arrival to the ED must be reported to the medical examiner's office. An exception is those children certified by their primary care physician as chronically ill and expected to die. In these cases, it is advisable to contact the primary physician, who may be willing to sign the death certificate, testifying to the cause of death and averting a mandated autopsy. In some cases of trauma, it may be reasonable for the emergency physician to fill out the death certificate after consultation with the local medical examiner.

Older childhood deaths may be considered on a case-by-case basis, with the clinical history and emergency physician's input considered. The medical examiner's office is notified of each death, and a decision is made regarding investigation vs. release of the body to the family. For state-mandated autopsies, the medical examiner may ask that clothing be delivered with the body rather than being released to the family, and request that all tubes and lines used during resuscitation be left in place. Compassionate staff may understandably desire to make the body "more presentable" for the family. However, medical examiners emphasize that they report the conditions they find, so if cutting the tube accidentally displaces the endotracheal tube downward, the report will show the final bronchial position of the endotracheal tube. Since tubes and lines may displace as a normal result of moving the body, the best practice is to carefully document the appropriate positioning of these devices in the resuscitation note, and to comply with the medical examiner's requests regarding their handling. In some regions, it is acceptable to the medical examiner for the ED to remove endotracheal tubes, intraosseous lines, and other procedural devices provided the sites are clearly labeled. The medical examiner may give permission to remove medical equipment and devices prior to autopsy if he or she is consulted by phone.

One cause of pediatric death merits separate consideration because its recognition and management may be profoundly different than other causes. In the case of a suspected non-accidental (abuse/violence) death, the added burden of evidence collection and preservation must be considered. While this issue is important enough alone to be the topic of many research papers and textbook chapters, suffice it to say here that the role of the emergency physician is to resuscitate the child to the best of his or her ability, to attempt to preserve any evidence that does not interfere with patient care, and to maintain a level of professional neutrality. This is not to say that any physician will not experience overwhelming emotion when faced with a shaken baby or a badly burned toddler, for those emotions are a natural extension of the professional desire to help people. Simply put, there are social and legal systems in place to deal with the "who and why" of such cases. The emergency physician's job is to focus on the patient, and in the event of unsuccessful resuscitation, to use his or her medical skill and documentation to create evidence that can help others try to bring such cases to justice. Local police departments and coroners can assist with educating emergency physicians about how to best accomplish these goals.

In cases in which an autopsy is not legally mandated, it often is still advisable to recommend a medical autopsy.[3,33,37] This should be done with the full approval and consent of the family. Approaching a family for consent for autopsy must be done cautiously. The topic should only be raised after the family has been given sufficient time to absorb the news of their child's death, view the body, and begin the grieving process. Many families are hesitant to initially agree to an autopsy, citing fear of mutilation, delay in burial rites, or disrespect of their loved one. A sensitive and timely approach explaining the process and advantages for the family increases the likelihood that the next-of-kin will consent.

Advantages to ascertaining the exact cause of death via autopsy extend beyond the medical knowledge it gives the physician. The family can be told that the results of the autopsy may reveal facts important for their understanding of the cause of death, and perhaps exonerate feelings of responsibility, blame, or guilt. They can be told that an autopsy also may reveal undiagnosed congenital problems, with implications to the health of their other living or unborn children. Review of the final autopsy report is an opportunity for the emergency physician to establish follow-up contact with the family, providing answers to lingering questions or concerns and helping to give closure for the family.

Tissue and Organ Donation. Studies have examined parents' willingness to consider tissue and organ donation following the death of a child and have found high rates of procurement among this age group.[36,38,39] Walker's telephone survey utilizing hypothetical cases further delineated this prospect.[38] They found that certainty of death, altruism, empathy toward children in need of a donation, and knowledge of an adolescent's willingness to donate all were associated with higher likelihood of procurement. Expectedly, uncertainty regarding death, insufficient information from medical professionals, and fear of mutilation were all factors that decreased this possibility. The age of the child was not significantly correlated with intent to donate. Failure to address donation as an option has been cited by families as a missed opportunity they would have desired if approached.[33] Whole organ donation is generally not feasible following failed resuscitation of cardiopulmonary

Table 4. Guidance and Counseling Checklist

REGARDING THE CHILD
• Notify primary care physician.
• Notify medical examiner's office.
• Discuss organ and tissue donation.
• Discuss possibility of autopsy.
• Transfer body to appropriate site (morgue, funeral home).
• Debrief resuscitation team.
REGARDING THE FAMILY
• Inform family about human resources available (nursing, social service, pastoral care).
• Utilize private conference room.
• Notify family and facilitate grieving.
• Allow family to have time with the child's body.
• Provide information and assistance with practical issues.
• Contact additional family members or friends.
• Facilitate making arrangements with a funeral home.
• Provide printed materials covering bereavement and counseling services.
• Tell family when it is appropriate to leave the emergency department.
• Make follow-up contact after 2-3 weeks.

arrest, and medical ethics preclude prolongation of resuscitation of children in pulseless arrest as a rationale to increase eligible patients.[40] However, many types of tissue donation still are possible and should be considered. Eye and tissue donation can be accomplished from 6 to 12 hours after death, possibly up to 24 hours following asystolic arrest in some cases. Other tissues that can be obtained up to 12-24 hours following death include bone, cartilage, dura mater, ear ossicles, facia lata, heart valves, saphanous veins, and skin.[33]

A timely and sensitive discussion can alleviate parental concerns and improve the chance of acceptance. As in the approach to the family for consent for autopsy, the topic should be broached only after adequate time has been given for bereavement and after an initial viewing of the body. Reassuring the family that donation will not delay funeral preparations or the ability to have an open casket often answers unvoiced objections and fears. Setting up a hospital protocol designed to assess for eligibility, informed family consent, and early procurement team alert may increase donation rates from the ED and streamline the process. Regional organ and tissue donation agencies generally have 24-hour telephone access to aid the ED in screening and procuring consent for eligible cases.

Guidance and Counseling Following the Death of a Child. Parents often report poor recollection of the hospital experience, so providing guidance and counseling throughout their time in the ED and following their departure is essential. Table 4 provides a list of some key issues to address.[3,4,9,28,41] A pathway needs to be in place that guides the family through physical decisions without intruding on emotional needs. It is best to meet with the family a final time, after they have been given an opportunity to be with their child, to answer questions, provide written instructions, and give closure to their time in the ED. ED physicians should provide information regarding the process of disposition of the body, post-mortem examination. Explain to families the options and process for funeral arrangements, and secure transportation for the child to a morgue. Such support may be delegated to pastoral care, social work, or other designated ancillary staff, as long as they are readily available to provide this service at all times. Resources for bereavement counseling and support services, and information regarding follow-up of autopsy if performed should be provided prior to discharge. Appropriate support systems should be in place prior to the family's departure from the ED.

Many institutions have found that providing a "bereavement packet" containing contact information, resources for counseling, articles on coping with loss and grief, and other necessary forms to be valuable and appreciated by families. Parents appreciate and desire follow-up contact with the physician leader of a resuscitation team within a week so that unanswered questions can be addressed.[36] This provides the opportunity to re-evaluate the families experience in the ED, and can assess for signs of poor progression through bereavement, giving an additional chance to intervene.

Conclusion

Coping with the death of an infant or child represents perhaps the most difficult situation encountered in pediatric emergency medicine, and represents a source of anxiety and discomfort for many emergency physicians. An effective response requires a multi-disciplinary approach utilizing multiple resources and personnel.

The ED staff's initial intervention with the family has been shown to be crucial to their ultimate recovery. Measures reported to be beneficial by families include parental presence during resuscitation efforts, staff interaction and advice about normal grief responses following death notification, viewing the child's body, and post-resuscitation guidance and counseling. There is clearly a need for education of medical personnel regarding both realistic expectations for survival following pediatric cardiac arrest and how to help the family of a deceased child begin to deal with the crisis of the unexpected death.

Mechanisms for helping staff deal with the stresses associated with pediatric death, including formal debriefing, decompression time, and grief counseling, should be implemented. In many circumstances, knowledge and acceptance of the limitations of medical science makes the time-sensitive termination of resuscitation efforts the best choice for the family and child. Issues of autopsy and organ and tissue donation should be sensitively discussed, as the family may desire such measures if they are adequately informed.

Guidance following the death of a child should include information regarding funeral arrangements and bereavement counseling. Follow-up contact with the family in 1-2 weeks is both appreciated by the family and provides additional opportunity for assessment and intervention. By effectively guiding a family through the initial stages of crisis and grief, we may lay the foundation for healthy bereavement and resolution.

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Physician CME Questions

21. Which of the following is true regarding pediatric cardiopulmonary arrest?
    A. The use of high-dose epinephrine has definitively been shown to be associated with improved outcome in out-of-hospital cardio-pulmonary arrest.
    B. Continuing CPR for more than 20-30 minutes or more than two doses of epinephrine is unlikely to produce additional neurologically intact survivors.
    C. The majority of out-of-hospital pediatric cardiopulmonary arrest cases that present to the ED are secondary to trauma-related causes.
    D. Most children who arrest receive some form of bystander CPR.
    E. Children younger than 1 year of age make up a minority of patients with cardiopulmonary arrest.

22. Pediatric cardiac arrest most often is an end result of:
    A. primary ventricular fibrillation.
    B. severe traumatic brain injury.
    C. deterioration in respiratory function.
    D. decompensated congenital cardiac disease.

23. Which of the following is a normal initial grief reaction?
    A. Anger
    B. Denial
    C. Anxiety
    D. All of the above

24. After introducing oneself, which of the following might be the most appropriate statement when informing a family of a child's death?
    A. I'm sorry to tell you that your child has died.
    B. I need to inform you that your daughter has gone to a better place.
    C. How long has your son been abusing drugs?
    D. We've tried bilateral thoracostomy, pericardiocentesis, and autotransfusion, but your daughter is in irreversible asystole.

25. Which health care professional should inform the family of a child's death?
    A. Charge nurse
    B. Medical examiner
    C. Hospital chaplain
    D. Physician

26. Which of the following factors *increases* a family's likelihood of organ donation?
    A. Fear of mutilation
    B. Empathy toward others
    C. Insufficient information from medical personnel
    D. Being uncertain about child's death

27. Which of the following statements is true regarding interaction with the family of a child who has unexpectedly died in the emergency department?
    A. While the majority of parents would like to be present during the resuscitation of their child, they want the physician running the code to decide if it would be best for them to be present.
    B. Families have a poor recollection of the hospital experience, and so are not generally affected by the emergency department's initial intervention.
    C. Families displaying anger, denial, or guilt are displaying maladaptive coping mechanisms and require prolonged out-patient counseling.
    D. Families cite lack of communication, feelings of helplessness, and apparent indifference on the part of staff as reasons for dissatisfaction.
    E. Organ donation and autopsy should be addressed by the physician shortly after death notification because it has been shown that parents are more likely to consent prior to viewing the body.

28. Removal of medical equipment such as endotracheal tubes and intraosseous lines prior to autopsy or the family's viewing of the body:
    A. is best because it lessens the shock the family feels when seeing the child.
    B. is acceptable to medical examiners as long as the sites are clearly labeled and there is careful documentation of appropriate positioning.
    C. may be interpreted by the family that a full and complete resuscitation was not performed.
    D. should be done because displacement of the equipment by family may be misinterpreted in the medical examiner's report.

29. Which of the following statements regarding family presence in the resuscitation room is correct?
    A. Every family should be present during the resuscitation.
    B. The family should be allowed to decide whether they want to be present during the resuscitation effort.
    C. No one should accompany the parent into the resusitation room.
    D. Ninety percent of families want the physicians to decide if the family is allowed in the resuscitation room.

30. Termination of resuscitation should be considered in which of the following scenarios?
    A. Refractory ventricular fibrillation
    B. History of toxic drug exposure
    C. History of electrolyte imbalance
    D. Following 30 minutes of cumulative, effective, advanced life support

In Future Issues: Toxic Inhalations