Parent Presence During Complex Invasive Procedures and Cardiopulmonary Resuscitation: A Systematic Review of the Literature

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ABSTRACT

We conducted a systematic review of the literature on parent presence during complex invasive pediatric procedures and/or resuscitation. We identified 15 studies that met our inclusion criteria. All studies were summarized chronologically according to level of evidence. The studies all demonstrated that parents prefer to have the choice about whether they remain at their child’s side during complex invasive procedures and resuscitation, but they also revealed that apprehensions and controversy abound among clinicians regarding this practice. Despite the endorsements of the American Academy of Pediatrics and the Society of Critical Care Medicine and the recommendations of the American Heart Association, few pediatric institutions have drafted guidelines, conducted clinical education, or committed sufficient staff resources to fully support this practice. We present this review not only to illustrate the various perspectives of parents/guardians, clinicians, and pediatric patients themselves that have been reported to date but also to encourage more research so that the practice can be performed safely and benefit parents, their children, and clinicians alike.
The phenomenon of family-centered care within pediatric hospitals has evolved over the past several decades. It is now well accepted that pediatric care should be provided within the context of families, with parents considered essential participants in their child’s care. In fact, PICUs are now designed to include space that is devoted exclusively to accommodating the needs of parents. PICU clinicians extend their compassionate care to include parents of critically ill children with the goals of helping them to successfully cope with the stress of parenting their children and making decisions on behalf of their child. In many outpatient and hospital settings, parents and guardians are commonly present during some of their child’s invasive procedures such as the insertion of a peripheral intravenous or Foley catheter or a lumbar puncture. At some institutions, parents are present during the induction of elective anesthesia for invasive procedures or surgery. One of the last bastions of this evolving phenomenon is rethinking the practice of routinely asking parents to leave the bedside during more-invasive procedures in acute care settings, such as central venous cannulation, chest tube insertion, endotracheal intubation, and/or cardiopulmonary resuscitation (CPR).

Offering parents the option to remain at the bedside during their child’s invasive procedure and/or resuscitation is a controversial practice. Much of the controversy arises because clinicians differ in their opinion as to what might be best for the child and for the parent. Given the lack of clinician consensus, there is wide unit-to-unit and clinician-to-clinician variation regarding parent presence. In 2000, the American Heart Association was the first national organization to endorse a guideline that recommended that parents be given the option to be present during their child’s invasive procedure and/or resuscitation.1-8 Since that time, several other national organizations, including the American Academy of Pediatrics (AAP), the American College of Emergency Physicians (ACEP), and the Society of Critical Care Medicine, have followed suit to lend their endorsement to the practice of parent presence. These recommendations, in concert with growing public awareness,9-11 are compelling and have prompted many pediatric facilities to re-examine their practices and develop formal institutional guidelines for parent presence during invasive procedures and resuscitations.

To inform our practice, we conducted a systematic review of the literature on parent presence during complex invasive procedures and resuscitation. Our primary objective was to provide a synopsis of the relevant background information to help institutions develop evidence-based practice guidelines for parent presence during invasive procedures and resuscitations. We organized the systematic review according to the following questions:

- What is the current practice of parent presence during invasive pediatric procedures and resuscitation?
- What behaviors do parents demonstrate at the bedside during their child’s invasive procedure and resuscitation?
- What are the benefits and risks to children, parents, and clinicians of parent presence during invasive pediatric procedures and resuscitation?
- Is there evidence to support interventions to facilitate parent presence during invasive pediatric procedures and resuscitation?

**METHODS**

We conducted a systematic review of the literature on parent presence during invasive pediatric procedures and/or resuscitation. We defined pediatric patients as patients ≤18 years of age; parents as either the biological parent and/or legal guardian; and clinicians as nurses, nurse practitioners, physicians, and/or clinicians-in-training. We included all articles with original data that involved at least 1 aspect of a complex invasive procedure or CPR (specifically, central venous cannulation, arterial line insertion, arterial blood sampling, chest tube thoracotomy placement, airway management [including endotracheal intubation], open thoracotomy, extracorporeal membrane oxygenation cannulation, and CPR). We excluded studies that investigated the phenomena in the operating or obstetrical delivery suites because of the many unique features of those perioperative environments, which are beyond the depth of this review. Primary sources were included in the review if they provided level I through level III evidence (level I evidence is derived from randomized, controlled trials [RCTs]; level II evidence is derived from prospective cohort studies, and level III evidence is derived from survey evaluation).12

The National Institutes of Health/National Library of Medicine Medline and Ovid/EBSCO databases were searched for articles published from January 1980 to July 2006 using the key words listed in Table 1. The search was limited to original data articles that were published in the English language. Two of the authors (Dr Dingeman and Ms Mitchell) conducted separate re-
views and compared the results until 100% agreement was achieved. The reference lists of relevant articles were also subsequently reviewed to identify additional articles that met the inclusion criteria.

RESULTS

Of the identified studies, 15 met the inclusion criteria. These 15 articles are summarized chronologically according to level of evidence in Table 2. Most of the studies (9 of 15) were level III survey research that described staff perspectives of family involvement,9,13–20 Of the 15 studies, 10 (67%) were conducted in the emergency department (ED),9,13,14,19–25 2 were conducted in the PICU,16,26 and 1 enrolled members of the AAP and the ACEP and represented both EDs and PICUs.15 The remaining 2 studies were conducted during annual conferences of the American College of Chest Physicians17 and the AAP Annual Uniformed Services Pediatric Seminar.18

Two studies assessed clinician perspectives on parent presence during invasive procedures,21,23 5 during resuscitations,13,15–18 and 8 during both invasive procedures and resuscitations.9,14,19,20,22–24,26 Parent perspectives were assessed in 2 studies,9,23 and 3 studies described observational studies of parental activity.22,24,25 Clinician perspectives were assessed in 10 studies,13,19,20,22–24,26 and 3 studies described both clinician and parent opinions in the same setting.21,22,26

What Is the Current Practice of Parent Presence During Invasive Pediatric Procedures and Resuscitation?

The literature suggests a growing trend that, when given the option, more parents are choosing to stay with their child during an invasive procedure and/or resuscitation. In 1991, Bauchner et al21 reported that less than half of the parents surveyed would want to be present if their child was undergoing an invasive procedure in the ED. Almost a decade later, Boie et al9 reported that 87% of the parents they surveyed would want to be present if their child was undergoing an invasive procedure. In 2005, the majority of parents surveyed in the ED said that they wanted to be present, and 86% believed it was their right to be present.25 The conclusions by Boie et al9 were consistent with these findings and suggest that parents wish to have a choice about being present; they do not want clinicians to decide on their behalf whether they should stay or leave their child’s bedside.9

In retrospect, after experiencing their child’s invasive procedure or resuscitation, most parents do not regret their decision to be present. For a PICU in the United States, Powers and Rubenstein26 reported that 94% of the parents who were given the option to be present would repeat their decision to stay. Similarly, from an ED setting, Mangurten et al22 reported that all parents agreed or strongly agreed that they would repeat their decision to remain at their child’s bedside.

The literature suggests that parental decision-making to remain present was not related to parent age, gender, race, marital status, level of education,9,21 or income.9 In an ED study, Bauchner et al23 found that a parent’s previous experience with a procedure and/or resuscitation increased the likelihood that the parent would choose to stay again. Severity of the child’s condition influenced the parents’ desire to be present, with 71% wanting to be present if their child was unconscious and 83% wanting to be present if death was likely.9 In addition, 81% of the parents said that they would want to be present when their child was conscious.

Clinician support for parent presence during invasive procedures and resuscitation seems to vary by discipline, geographical region, and hospital department. Nurses were more likely to consent to parent presence during invasive procedures22,24 and pediatric codes16,17,22 than attending physicians16,17 or physicians-in-training.18,22,24 Fein et al14 found that attending physicians and nurses were significantly more likely than physicians-in-training to approve or consider family-member presence during both invasive procedures and resuscitation efforts.

Clinicians from inpatient settings were more willing to permit parent presence during pediatric codes compared with those from outpatient settings (P < .001).16 In contrast, the most recent report by Gold et al15 which examined physicians from different geographic, institutional, and specialty areas, reported that a favorable opinion of family presence did not differ according to provider gender, age, parental status (ie, being a parent or not), being a pediatric provider, or having a personal history of witnessing CPR on a family member.

Clinicians were more likely to support parent presence during less-invasive procedures4,20–22 and when patients did not have life-threatening conditions.14,20 Several of the studies corroborated findings that the more invasive the procedure, the less likely clinicians were to offer parents the option to remain.14,20–22 Findings from studies that asked clinicians whether they would honor a parent’s request to remain during their child’s resuscitation varied widely, from 22% to 93%.3,13,15,16,18,22 Thirty-nine percent to 90% of clinicians agreed that they would either continue the practice of allowing parents to be present or continue to give parents the option to be present during future procedures and/or resuscitations.16,18,20,22,24

Few hospitals have polices or practice guidelines specifically regarding parent presence, but those that do are more likely to permit parents to remain at the bedside.16,18,20,22,24 Previous experience with parent presence
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<td>Level I evidence</td>
<td>Robinson et al (1998)</td>
<td>CPR, ECG, central venous cannulation, tube thoracotomies, pericardiacocentesis</td>
<td>RCT: questionnaires were filled out via mail or an in-person interview at 1 and 6 mo after unsuccessful resuscitation. 1-mo questionnaires were returned on average at 3 mo and 6-mo questionnaires were returned on average at 9 mo.</td>
<td>Parent perspective: 0 of 8 relatives in the witnessed resuscitation group had to leave the room because of distress, and none reported being frightened by the process. 7 of 8 felt their grief had been eased by presence. 8 of 8 were content with decision to stay present; no statistical difference was noted between the study and control groups on all 5 questionnaires at both 1 and 6 mo.</td>
<td>CPR, EI, central venous cannulation, tube thoracotomies, pericardiacocentesis</td>
<td>Several relatives in both groups were lost during follow-up; differences in answers between in-person vs mail-back questionnaire completion were not analyzed and/or reported.</td>
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<td>Level II evidence</td>
<td>Bauchner et al (1991)</td>
<td>Venipuncture, intravenous cannulation, laceration repair, arterial blood sampling, LP, suprapubic catheterization</td>
<td>Prospective cohort and observational study of 2 closed-ended forced-choice questionnaires for clinicians and parents; a research assistant observed and recorded interactions between the clinicians and parents.</td>
<td>Parent perspective: 62% remained during procedures (43% were asked to remain by a resident or nurse); of those not present, 42% would have preferred to remain, 32% did not know they could, and 26% would have preferred not to remain.</td>
<td>Parent perspective: 62% remained during procedures (43% were asked to remain by a resident or nurse); of those not present, 42% would have preferred to remain, 32% did not know they could, and 26% would have preferred not to remain.</td>
<td>The decision to stay was not related to parental age, gender, race, marital status or level of education or to the residents' age, gender, or level of training. Parents were significantly more likely to stay if they had previously stayed with current or another child (P = .05).</td>
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<td>Saccehetti et al (1996)</td>
<td>Vascular access, LP, urethral catheter, nasogastric tube placement, intubation, fluid resuscitation, foreign-body removal</td>
<td>Prospective cohort study: survey completed by family members with companion survey of ED staff performing procedures with FMP.</td>
<td>Parent activity during procedure: 50% helped restrain child, 31% stood at bedside, 19% soothed child, and 0% interfered. Parent/family-member perspective: 91% felt that remaining helped the patient, 87% felt that remaining helped the family member, and 95% felt that remaining was a bad idea. Clinician perspective: 94% felt that having a family member remain was a good idea, 4% noted that FMP made them nervous, and 26% of resident physicians felt that FMP was a bad idea.</td>
<td>Parent activity during procedure: 50% helped restrain child, 31% stood at bedside, 19% soothed child, and 0% interfered. Parent/family-member perspective: 91% felt that remaining helped the patient, 87% felt that remaining helped the family member, and 95% felt that remaining was a bad idea. Clinician perspective: 94% felt that having a family member remain was a good idea, 4% noted that FMP made them nervous, and 26% of resident physicians felt that FMP was a bad idea.</td>
<td>Most clinicians said they would continue the practice the next time they needed to perform a procedure of the 6 parents who felt that FMP was a bad idea, 4 felt their presence helped their child and would remain again; parent activity was self-initiated and not a result of previous instruction; FMP did not interfere with medical student or resident training.</td>
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<td>Powers and Rubenstein&lt;sup&gt;26&lt;/sup&gt; (1999)</td>
<td>PICU in university-affiliated GH in the US: study group (16 parents accompanying children 3 mo to 18 y old) and 16 nurses involved with same procedure) and control group (7 parents accompanying 7 children 20 mo to 12 y old)</td>
<td>EI, central line, and chest tube placement</td>
<td>Prospective cohort study: 3 separate surveys, all completed within 24 h; the study group included parents given option to be present for procedures performed by the study physicians (authors), and the control group included parents excluded from procedures performed by physicians not involved with study</td>
<td>Parent perspective when present: 94% would repeat their choice to be present, 88% said it was helpful to child, and 81% said it was helpful to the medical staff and to themselves. Nurse perspective when parent present: 94% thought it was helpful to child and parent, and 72% indicated that a policy that allowed parents to observe procedures was appropriate. Parent anxiety when present vs not present: parental presence significantly reduced the parental anxiety related to the procedure.</td>
<td>No significant difference in nurse responses based on years of nursing experience; study physicians reported that no parent interfered or was in the way during any of the procedures, no parent opted to leave the room during the procedure(s).</td>
<td>Small sample size, questionnaire did not generate reasons why parent presence reduced anxiety, unequal group sizes with dissimilar child demographics and number of previous hospital/ICU experiences.</td>
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<td>Sacehetti et al&lt;sup&gt;25&lt;/sup&gt; (2005)</td>
<td>ED of university-affiliated teaching community hospital in the US: 54 family members (accompanying 57 patients; median age: 3 mo), 1–3 observing physicians</td>
<td>LP, EI, fracture reduction, tube thoracostomy, shoulder reduction</td>
<td>Prospective observational study of family members witnessing invasive procedures on pediatric patients over a 12-mo period</td>
<td>Family-member activity/behavior: 30% soothed child, 16% asked questions, 7% helped restrain, 3% interfered with care, and 15% other (including cried, watched from a distance, and not described). Two observed events were labeled as “parent interfered with care,” but both events were “minor” and did not alter patient care: 1 mother experienced near-syncpe event standing during LP, and 1 mother stopped shoulder distraction because she felt the pain control was inadequate even though the child was deeply sedated with propofol.</td>
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<td>Mangurten et al&lt;sup&gt;22&lt;/sup&gt; (2005)</td>
<td>Urban pediatric ED in the US with an established FMP protocol/policy: 100 clinicians returned surveys (18 physicians, 36 residents/fellows, 38 nurses, 63 facilitators; 17 nurses, 31 social workers, and 15 child life specialists), 22 parents were interviewed (6 present for a resuscitation and 16 present during an invasive procedure)</td>
<td>Laceration repair, incision/abscess drainage, LP, esophageal foreign-body removal, central line insertion, endoscopic exploration ear graft, emergency intubation, CPR</td>
<td>Prospective study of clinicians’ perspectives and retrospective study of parent perspectives; clinicians and facilitators were surveyed within 1 d of the event, parents were interviewed within 3 mo using a 20-item Pediatric Family Presence survey and an 11-item Pediatric Family Presence Attitude scale to assess parent opinions about FMP and the impact of remaining at the bedside</td>
<td>Parent perspective: 100% agreed that they would repeat the decision to be present, 100% felt their presence was helpful to their child, 88% said being there helped them personally, 86% believed they had a right to be present, and 82% did not think their presence made a difference in how the clinicians cared for their child. Clinician perspective: 97% of nurses felt parents had the right to witness resuscitations vs 67% of the physicians and 68% of the residents (P &lt; .05), 92% of the nurses and 78% of the physicians supported FMP for invasive procedures vs 35% of the residents (P &lt; .05), 50%–66% felt treatments given and time spent were the same; 89% said their performance was not affected, 88% said resident training was the same, and 8% thought the outcome might have been different without FMP.</td>
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<td>Jarvis * (1998)</td>
<td>PICU in university-affiliated hospital in the United Kingdom: 56 clinicians (19 physicians and 37 nurses)</td>
<td>Resuscitation for respiratory and/or cardiac arrest in children</td>
<td>Retrospective study, 2-part questionnaire (close-ended quantitative questions and open-ended qualitative questions requiring clinician comments)</td>
<td>Clinician perspective: 68% of the MDs and 100% of the RNs thought parents should have option to be present during resuscitation, 68% of the MDs and 94% of the RNs believed a support member should accompany parents, 89% of the MDs and 94% of the RNs would allow FMP if requested, 53% of the MDs and 63% of the RNs who experienced FMP would give option to be present in the future, 37% of the MDs and 76% of the RNs believed if a child were to die, FMP would help parent grieving, MDs more than RNs felt they have a right to not allow FMP, and RNs were concerned that asking parents may pressure them to stay even if they do not want to stay. Advantages of FMP: reduces suspicions, thus risk of litigation, helps with parents’ grieving process, and helps parent gain realistic view of attempted resuscitation and death. Disadvantages of FMP: increases risk of parent being emotionally traumatized, increases stress for staff, inhibits treatment by junior staff, and risk of distraction from interference/interference by FMP.</td>
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<td>No qualitative statistics were used to evaluate clinician comments; small sample size</td>
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<td>Boie et al* (1999)</td>
<td>ED in urban teaching hospital in the US: 400 parents/grandparents in ED waiting area were asked to imagine their child undergoing 5 different pediatric scenarios: Venipuncture, laceration repair, LP, EI, resuscitation</td>
<td>Scenario-based study: survey with 5 pediatric procedures (with description, diagram of procedure, and explanation of a child’s likely reaction); scenarios were presented from least to greatest level of invasiveness</td>
<td>Parents would want to be present: 98% for venipuncture, 94% for laceration repair, 87% for LP, 81% for EI, and 65% for all scenarios, and 7% would want physician to determine their presence in all scenarios. Parent presence during resuscitation: 63% would want to be present if death were likely, 81% would want to be present if child was conscious, and 71% would want to be present if child was unconscious. With increasing procedural invasiveness, parents’ desire to be present decreased; a notable increase in desire to be present if the child was likely to die during resuscitation; results suggested that parents do not want physicians to determine if they stay or leave the bedside during procedures and for resuscitations; no SD in response on the basis of gender, education, income, or previous experience with procedure(s).</td>
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<td>Parents/guardians were not required to have experienced scenario with their child, order of scenarios may have caused answers to be biased by fatigue</td>
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<td>Saccohetti et al. (2000)</td>
<td>3 hospitals in the US: urban teaching ED with a routine FMP practice (“R-ED,” n = 32), suburban ED with an occasional FMP practice (“O-ED,” n = 36), and an urban teaching pediatric ED with a rare FMP practice (“N-ED,” n = 17)</td>
<td>Venipuncture, LP, E, CPR, CR</td>
<td>Mail-back cross-sectional written survey on FMP for 5 different clinical scenarios</td>
<td>Acceptance of FMP on the basis of ED scenarios: CR, R-ED 63% vs N-ED 12%, CPR, R-ED 72% vs O-ED 44% vs N-ED 12%, EI, R-ED 33% vs O-ED 33% vs N-ED 12%</td>
<td>Opinions of FMP on the basis of exposure: CR ~61% with experience vs ~9% with none said it was a “good idea”; CPR ~59% with experience vs ~18% with none said it was a “good idea”; EI ~44% with experience vs ~4% with none said it was a “good idea;” and LP ~42% with experience vs ~29% with none said it was a “good idea”</td>
<td>The percentage of clinicians who favored FMP for LP, EI, CPR, and CR was significantly correlated to the type of FMP practice to which they were accustomed (P &lt; 0.001); personal experience with FMP was the most significant predictor of a positive opinion on FMP for most scenarios; for FMP during CPR, both the personal experience and the hospital of practice were significant predictors of a favorable opinion; no correlation between years of medical emergency experience and having negative opinions on FMP</td>
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<td>McClanathan et al. (2002)</td>
<td>Attendees of International Meeting of American College of Chest Physicians in October 2000: 543 physicians, 28 nurses, and 21 allied health care professionals</td>
<td>Survey covering previous experience and clinicians’ opinions on FMP was handed out at a conference</td>
<td>Clinician perspective: 39% of the physicians who had previous experience with FMP would allow it in the future, 80% of clinicians opposed FMP for pediatric patients, and 78% of clinicians opposed FMP for adult patients</td>
<td>Significant regional variations only 5% of clinicians in Northeast vs 21% in Midwest, South, and West favor FMP for pediatric patients</td>
<td>Overall, clinicians oppose family presence during resuscitations, especially during pediatric resuscitations; physicians more than nurses were afraid of psychological trauma to those witnessing CPR; first study to report significant differences in opinions on FMP on the basis of regional location within the US</td>
<td>Reasons cited for why clinicians oppose FMP: psychological trauma to family, performance anxiety affecting the CPR team, and medical-legal concerns</td>
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<td>O’Brien et al. (2002)</td>
<td>Attendees of the AAP Annual Uniformed Services Pediatric Seminar: 245 clinicians (221 physicians, 17 nurses, and 5 others)</td>
<td>Resuscitation for respiratory and/or cardiac arrest in children</td>
<td>Survey distributed with on-site course materials</td>
<td>Would allow FMP during a pediatric code: 35% of total respondents, 50% of pediatric residents, 38% of inpatient-oriented specialists, and 20% of outpatient-oriented specialists</td>
<td>When opinions were compared among specialty groups, inpatient-oriented specialists and residents were significantly more willing to allow parent presence during a pediatric code compared with outpatient-oriented specialists (P &lt; 0.01); no significant difference in willingness to allow FMP during CPR on the basis of gender, military affiliation, or years of practice</td>
<td>Format did not explore reasons behind opposition of FMP</td>
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<td>Waseem and Ryan (2003)</td>
<td>80 directors of EDs in the US with pediatric and EM residencies or pediatric EM fellowship programs; 58 physicians responded</td>
<td>Venipuncture, intravenous injection, urinary catheter, laceration repair, fracture reduction, LP, ET, major resuscitation</td>
<td>Mail-back, 3-part cross-sectional questionnaire</td>
<td>Allow FMP on the basis of procedural invasiveness: 91% for venipuncture, 83% for bladder catheter, 86% for intravenous injection, 86% for laceration repair, 36% for LP, 55% for fracture reduction, 24% for ETI, and 20% for major resuscitation</td>
<td>More than 87% of physicians stated that they allow parents to remain with their children during simple and frequently performed procedures; physicians less likely to allow parent presence for complex procedures that are performed less commonly and in sicker children; physicians with additional training in EM and pediatric EM had a higher level of comfort and were much more likely to encourage parents to stay during procedures than were general pediatricians</td>
<td>Responses received may reflect the respondents’ institution and not their personal practice; did not separately evaluate the responses of physicians-in-training in comparison with those no longer in training</td>
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<td>Fein et al. (2004)</td>
<td>ED in tertiary care children’s hospital in the United States; 71% of clinicians completed survey: 19 attending physicians, 56 residents, and 29 registered nurses</td>
<td>Intravenous injection placement, urinary catheter, suturing, fracture, fracture reduction, LP, chest tube placement, major resuscitation, trauma resuscitation</td>
<td>Internal mail-back, 3-part cross-sectional questionnaire distributed to all ED faculty, ED nursing staff, and pediatric residents</td>
<td>Approve of or consider FMP during procedures: 64% during LP: attendings (84%), nurses (93%), residents (43%), 43% for chest tube placement: attendings (79%), nurses (76%), residents (14%), 28% for endotracheal intubation: attendings (58%), nurses (55%), residents (5%); 32% for medical resuscitation: attendings (63%), nurses (60%), residents (4%), 31% for trauma resuscitation: attendings (63%), nurses (62%), residents (4%); Services that would help encourage FMP: having family support staff always present, bereavement staff available, ability of the family members to decline to be present, ability of physician to request the family not be present and/or escorted out, helping families during tragic experiences</td>
<td>Advantages of FMP: calms the patient; adds to parent’s knowledge that everything was done; decreases parent’s feelings of helplessness; facilitates parent education and forges rapport; additional help from parents during procedure; Disadvantages of FMP: patient adversely affected by parent anxiety; parent perceived as complicit in painful procedures; may lead to stressful and/or distressing memories; obstruction of procedure by parent; increased anxiety or distraction of staff; difficulty teaching; need for extra staff or time; medical or legal concerns</td>
<td>Little information available in regards to medical-legal issues, families’ confidence in the health care providers, or difficulty teaching in the FMP setting</td>
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<td>Booth et al. (2004)</td>
<td>162 United Kingdom EDs from the 2002 Critical Care Directory (excluding those identified as minor injury units); clinician was defined as most senior doctor or nurse available for telephone interview</td>
<td>Resuscitation</td>
<td>Volunteer telephone survey performed over a 3-wk period of senior doctor or nurse of selected EDs</td>
<td>Permission of FMP in ED during resuscitation: 21% of EDs reported that they do not permit FMP, and 11% of EDs overall reported having a written protocol for FMP; EDs that allow FMP during resuscitation: 93% allow FMP during pediatric CPR, and 79% allow FMP during adult CPR; Clinician’s beliefs about FMP: 48% feel it helps the relative accept that everything was done, 48% feel it helps the relative accept</td>
<td>FMP during resuscitations is more common when children are being resuscitated than adults; for departments that permitted FMP during resuscitation, all reported that efforts are made to provide relative with a chaperone; only 1 ED mentioned medical-legal issues arising from allowing FMP; no ED that permitted FMP during resuscitations had any plans to stop on the basis of adverse events</td>
<td>Only 1 clinician from each site was interviewed, so they may not accurately reflect that particular institution’s practice guidelines</td>
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<td>Gold et al (2006)</td>
<td>Members of the AAP and ACEP (144 pediatric/NICU, 190 pediatric ED, 147 general ED, 40 other); 521 (479 attending physicians (34 residents/fellows, 3 nurses, and 5 unidentified)</td>
<td>Pediatric CPR</td>
<td>Optional, mail-back, 40-question survey with multiple-choice and short-answer questions</td>
<td>Allowing FMP 93% would allow a family member to be present if they desired; 71% of the physicians wanted the option to be present for their own child, 68% reported that most parents want the option to be present, and 19% would allow minor siblings to be present. Clinicians experienced with FMP during pediatric resuscitations: 38% feel it helps the relative with grieving, 2% feel it does not benefit the relative, 65% vs 53% felt FMP was more helpful to families when the child died vs survived, 61% vs 51% felt FMP was more helpful to families when the child had a chronic medical condition than when the child was previously well, 52% felt it had been good for the family, 33% felt it had been sometimes good and sometimes bad, 8% were not sure about how they felt, and 7% felt it had been a bad experience. Resident training and FMP: 79% felt pediatric residents should receive FMP training during CPR, 71% would allow FMP if residents were participating in CPR, 75% thought that FMP during resuscitation would intimidate a resident, and 25% said they personally would be intimidated by FMP during CPR</td>
<td>Level of physician's support for FMP is markedly higher than previously reported; for those who oppose FMP, the majority wrote comments that being present during CPR would be haunting and traumatic for families, physicians who support FMP suggest that support staff for the family had to be present, that staff should be comfortable with families in the room, or that they were committed to the concept of FMP, opinion that FMP was a good experience did not differ by provider gender, age, being a parent, being a pediatric provider, or having a personal history of witnessing CPR on a family member</td>
<td>Low response rate; thus the population captured may have only been those with strong feelings for or against FMP</td>
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EI indicates endotracheal intubation; GH, general hospital; LP, lumbar puncture; EM, emergency medicine; CR, critical resuscitation; FMP, family-member presence; MD, physician; RN, nurse.
has been reported to be associated with a more favorable clinician attitude toward the practice.16,18–20

What Behaviors Do Parents Demonstrate at the Bedside During Their Child’s Invasive Procedure or Resuscitation?
Parents have become increasingly more active participants in their child’s health care. Sacchetti et al24,25 conducted 2 studies in a university-affiliated ED and noted that parent activity during invasive procedures was self-initiated, with parents typically standing at the bedside. Less-invasive procedures were observed in the earlier 1996 study, and it was found that 50% of the parents helped in restraining the child and other activities such as providing soothing attention.24 In 2005, Mangurten et al22 reported that all parents emotionally supported their child, most (91%) talked to and/or soothed their child, and 73% touched and/or kissed their child. Half the parents functioned as an additional and/or familiar set of hands to help settle and restrain the patients when necessary during invasive procedures.

The pediatric literature provides evidence that parents did not generally interfere with their child’s care during invasive procedures or resuscitation, and serious parental interference was not reported during any of the studies. In 1 of 6 surveys that examined parental interference with patient care,13,22–26 Sacchetti et al23 reported some minor interference that did not alter patient care. In the only RCT, parents did not interrupt the resuscitation or delay the decision to discontinue resuscitation efforts.21 No parent was asked to leave nor did parents report being frightened by the process. Mangurten et al21 reported that >90% of clinicians felt that the family’s behavior had not been disruptive to patient care and that the treatments given were the same, with procedures requiring approximately the same length of time. Almost 90% of the clinicians said that their procedural performance was not affected by parental presence. Similarly, family presence did not interfere with medical student or resident training in 2 ED studies.22,24 In 2004, 71% of clinicians (mostly physicians) from institutions with membership in the AAP and the ACEP reported that family-member presence was allowed in their institution if residents were participating in CPR, although three fourths of them felt that it could intimidate residents. Concordantly, 79% felt that pediatric residents should receive training in family presence during CPR.15

What Are the Benefits and Risks to Children, Parents, and Clinicians of Parent Presence During Invasive Pediatric Procedures and Resuscitation?

Patient Perspectives
The value of parent presence on pediatric patients has not been well studied or addressed with direct measurement of child discomfort, ease, personal preference, or sense of humanity. Although comparable data do not exist in children, Robinson et al23 reported that adult resuscitation survivors did not believe their confidentiality or dignity was compromised by family-member presence. These adult patients also expressed that their family members’ presence made them feel less alone and that they were content that the family member was present.23 The clinicians in the initial study conducted by Sacchetti et al24 speculated that when a parent is not present a child may be more likely to internalize his or her feelings; however, they did not study or comment on whether they thought this would be beneficial or harmful.

Parent Perspectives
Most parents believed that their presence during invasive procedures and resuscitations helped their child22,24,26 or helped them.21,22,24,26 Parents agreed or strongly agreed that being able to be present provided them peace of mind, allowed them to let their child know they loved him or her, and helped them know that everything possible had been done to treat their child.22 On standardized questionnaires, Robinson et al23 found positive trends in the psychological health of family members, such that family members who remained present during resuscitations had lower anxiety and depression scores, fewer disturbing memories, and lower degrees of intrusive imagery and posttraumatic avoidance behavior 3 months after the event. This particular study was terminated early because clinicians became convinced that family presence was beneficial for relatives. Similarly, Mangurten et al22 have reported that most parents felt that being present helped ease their grief. From a PICU setting, Powers and Rubenstein26 reported that their study-group parents were given the option to accompany their child at the bedside and had significantly less anxiety related to the procedure than those in the control group, who were not allowed to be present (P = .005).

Clinician Perspectives
Several studies have suggested that parental presence might be beneficial to clinicians during invasive procedures and resuscitations.14,20,22 Specifically, clinicians in the Fein et al study14 felt that parent presence facilitated parent education, forged rapport, and enabled parents to help the medical team during the procedure. Jarvis16 found that 62% of PICU physicians believed that if a child were to die, family-member bereavement would be helped if they had witnessed CPR. Of clinicians who had experience with family presence during pediatric resuscitations, 65% vs 53% felt that it was more helpful to families when the child died versus survived, and 61% vs 51% felt that it was more helpful to families with a child who had a chronic medical condition versus a previously well child.15

Four studies have reported that parent presence...
might be detrimental to clinicians and their performance during resuscitation, with 22% to 85% not in favor of the practice,14,17,18,20 and 3 studies that also included invasive procedures reported clinicians to have unfavorable attitudes toward the practice.14,19,20 Physicians said that they opposed family presence during resuscitation because it engendered performance anxiety and medical-legal concerns.13,14,17,22 Other clinicians, however, believed that parent presence might actually reduce suspicions and the risk of litigation, because it might help parents to gain a realistic view of the attempted resuscitation.16 One quarter of the clinicians in the Mangurten et al22 study were concerned that a parent might misinterpret treatment activities. Other disadvantages that were mentioned included a change in interpersonal dynamics,22 the need for additional staff resources or time,14 and increased nervousness/stress of staff.13,16,20,21 Jarvis16 reported that clinicians in the United Kingdom felt that family presence during resuscitations might inhibit treatments by junior staff, and clinicians at a children’s hospital reported that it might compromise teaching opportunities.14 Clinician fear of distraction resulting from interference or violence and/or obstruction of procedures was raised in 4 studies.14,16,20,21

**DISCUSSION**

Pediatric patients are unique, because parents and guardians who often accompany them not only make medical decisions on their behalf but also serve as their primary source of support, attending to their daily emotional, social, and physical needs. Consistent with family-centered care, the AAP and several other prominent pediatric and critical care organizations have endorsed the practice of offering parents a choice about being present during invasive procedures and resuscitations. Yet, apprehensions and controversy abound, opinions vary widely regarding the appropriateness and logistic feasibility of parent presence, and there is a dearth of educational opportunities to learn about the practice. There is relatively scant evidence to support the practice, and more evidence is needed to describe and support it, particularly in the pediatric intensive care setting.

Few institutions around the country routinely offer parents the option to remain with their child during complex invasive procedures and/or resuscitations, and even fewer have guidelines or policies to help facilitate this process. In the most recent study by Gold et al,13 the decision to allow family presence involved a hospital or departmental policy only 9% of the time. Even so, the study did show that 93% of clinicians would allow a parent to be present if they so wished, but the authors did not detail which situations these clinicians were referencing. It seems that clinicians’ opinions toward parent presence may be shifting more favorably, and more organizations are now recommending that clinicians offer parents the option to stay. However, very few hospitals or departments have instituted practice guidelines or policies to safely and effectively assist clinical practice during parent presence. More than 79% of clinicians have reported that they would support parent presence during complex invasive procedures and resuscitations more if their institution developed a policy for this practice;13,26 if they retained the authority to request the parents’ absence at any time,14,16 if there was adequate staff to accompany the parent,13,14,16 and if there was training for clinicians to help parents cope during these events.14 Indeed, institutional policy statements, consensus-building strategies, dedicated staff resources, and education are all needed to move clinical practice forward in the area of parent presence.
Clinicians are most concerned about the possibility that parents who remain present during complex invasive procedures and/or CPR will interfere with or obstruct patient care. These concerns and fears on the part of clinicians are largely unfounded in the literature. However, these underlying worries serve to fuel ambivalence, reluctance, and lack of support for parent presence. Our review revealed that as time has progressed, more and more parents want the choice to remain with their child during invasive procedures and resuscitations, and those who have done so would repeat their choice in the future. Despite the expressed wishes of parents to have a choice, our review found that parents are not routinely being offered the option to stay.

If parents do not interfere with the care of their children, as several studies have concluded, then what exactly are parents doing at the bedside while complex invasive procedures and resuscitations are being performed on their child? Our review revealed that most parents observe quietly from a distance and/or emotionally support their child through verbal assurance or physical contact. Our review demonstrated that parents typically do not interfere with the medical care rendered to their children; in fact, their presence may actually improve the care provided. An important contribution that parents can make when present is to provide instant and important health care information to the clinicians during these procedures.

Those who are ambivalent about or opposed to parent presence posit that parents may become nervous or upset during these events, which consequently may make the child and/or clinician more anxious. These clinicians may worry that parents may inadvertently degrade the clinical care-giving environment by redirecting attention of the clinicians away from the child by physically or verbally interfering. Parents may not comprehend what is happening to their child during these situations and, in some cases, may ask too many questions or demand attention. Last, some researchers believe that parent presence may trigger new medical-legal issues if the outcome of the child is unavoidably unfavorable or if the parents misinterpret treatment activities. Our review, on the other hand, has found no studies to support these concerns.

With concerns about parent presence duly acknowledged, parent presence during complex invasive procedures and resuscitations has been shown to have several favorable benefits to both the child and the parent or guardian. Potential benefits to the child include the availability of the parent or guardian to calm an anxious or uncooperative child and directly participate and assist in the care of their child. Potential benefits to parents themselves include decreased parental anxiety and feelings of helplessness, increased parental knowledge of their child’s illness and treatments, acceptance by parents that everything was done for their child, and facilitation of the grieving process for the bereaved parent. Under the best of circumstances, parent presence offers an opportunity to build rapport with the clinicians caring for their child during these significant events. Some clinicians suggest that parent presence may actually reduce suspicions by the parents and, therefore, decrease the risk of litigation. There seems to be no consensus in the literature among clinicians, though, as to the potential benefits that parents may have on the health care team during these situations.

There have been no studies reporting the pediatric patient’s perspective on parent presence, but reported some of the benefits described by several adolescent and adult patients who underwent invasive procedures and surviving patient who underwent resuscitation. These patients described the presence of their family member or spouse as comforting to them and beneficial in providing help and reminding providers of their personhood. In addition, these patients believed that the benefits to their family members outweighed the potential problems, and none of these patients reported feeling embarrassed or undignified because of the presence of a family member or spouse. Given the nature of the parent-child relationship, the influence of parent presence on infants and younger children is an area that is ripe for additional study.

We reviewed a total of 15 studies that examined parent presence during complex invasive procedures and resuscitations. As a collective body, the studies answer several questions, but several questions remain that need additional investigation. Although not unusual, the studies used a variety of surveys, questionnaires, and observational scales. A shortcoming of the existing literature is that only 5 of the 15 studies examined parent presence outside of the ED, and there have been limited data from pediatric intensive care settings, in which many complex invasive procedures and resuscitations occur. Many of the studies that we reviewed did not differentiate between chronically and acutely ill children, and it may be that the acuity of the child’s illness and a parent’s previous experience may influence the process. In addition, although the studies reviewed here highlight the diverse opinions among various medical specialties, occupations, and levels of training among clinicians, no study has examined the impact that education, debriefing, and professional guidelines may have on clinicians’ opinion and practice. A final limitation of the studies was that they only captured the perspectives of parents and clinicians. Unfortunately, the literature to date does not shed light on the subjective experience or feelings of children who must undergo these complex invasive procedures and resuscitations.
CONCLUSIONS
Our review reveals that apprehensions and controversy abound among clinicians regarding parent presence at the bedside during complex invasive procedures and resuscitations, and opinions vary widely regarding the appropriateness and logistic feasibility of the practice. Parents, on the other hand, clearly prefer to have the choice about whether they remain at their child’s bedside during these events. Despite the endorsement of the AAP and the recommendations of the American Heart Association, few pediatric institutions have drafted guidelines, conducted clinical education, or committed sufficient staff resources to fully support the practice. Additional research into the need for the practice is needed to determine the best methods of educating and debriefing clinicians so that the practice of parent presence can benefit both the clinicians and the parents. Further study of the use, role, and cost of additional staff to support the parents would provide clinicians with a better understanding of how we can best assist parents who remain present. Last, a more thorough investigation into the perspective of children who undergo complex invasive procedures and resuscitations would help both parents and clinicians gain more insight and skill when they provide emotional and psychological support.

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Parent Presence During Complex Invasive Procedures and Cardiopulmonary Resuscitation: A Systematic Review of the Literature
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