



Resources Recommended for the Care of Pediatric Patients in Hospitals

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It is crucial that all children are provided with high-quality and safe health care. Pediatric inpatient needs are unique in regard to policies, equipment, facilities, and personnel. The intent of this clinical report is to provide recommendations for the resources necessary to provide high-quality and safe pediatric inpatient medical care.

In 2016, there were 5.5 million hospitalizations of children 17 years and younger, with a mean length of stay of 4.0 days.¹ The primary indication for inpatient pediatric hospitalizations is respiratory illness, including pneumonia, acute bronchiolitis, and asthma.² Other common reasons for pediatric hospital admissions include appendicitis, seizures, infections, and dehydration.² Although many of these patients can be appropriately cared for in community settings, there must be a balance between family convenience, safe health care, and resource use. It is widely accepted that a minimum case volume is necessary to maintain competence and is associated with better outcomes; therefore, health care administrators and professionals need to evaluate their ability to care for the unique needs of the pediatric population and determine if they have the diagnostic and treatment capabilities, as well as the equipment and staffing, to provide high-quality and safe health care for these patients. Hospitals need to carefully evaluate their resources and may decide to be proactive in stabilizing and then transferring pediatric patients to facilities with higher pediatric inpatient volumes and more resources.

The intent of this clinical report is to provide recommendations for the resources (policies, equipment, facilities, and personnel) necessary to provide high-quality and safe pediatric inpatient medical care. Although all hospitals are obligated to provide emergency stabilization for children of all ages, including newly born infants,³ this document's intent is specific to inpatient care after hospital admission, especially those hospitals with lower pediatric volumes that may need additional guidance. For pediatric emergency care, the American Academy of Pediatrics (AAP) provides detailed information in "Joint Policy Statement--Guidelines for Care of Children in the Emergency Department,"⁴ and newborn care guidelines can be found in *Guidelines for Perinatal Care*.⁵ For pediatric intensive care,

abstract

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the AAP and Society of Critical Care Medicine provide resources in “Criteria for Critical Care Infants and Children: PICU Admission, Discharge, and Triage Practice Statement and Levels of Care Guidance.”⁶

POLICIES, PROCEDURES, AND PROTOCOLS

The care of the pediatric inpatient population is sufficiently different from that of the adult inpatient population, and these differences need to be taken into account when caring for this vulnerable population. Hospitals should electively admit only patients for whom they have appropriate resources, such as physical space, size-appropriate equipment, and qualified staff necessary for the unique needs of pediatric patients. In cases in which these resources are not available, policies to assist health care professionals with determining appropriate triage, consultation, and referral decisions are necessary. Hospitals that provide pediatric inpatient or outpatient services need both a plan in place (whether internally or through transport agreements) and resources available to provide urgent and emergent transfer to a facility with a higher level of care to best meet a patient’s needs. These policies should address compliance with the Emergency Medical Treatment and Labor Act requirements.³ A board-certified general pediatrician or pediatric medical subspecialist is strongly recommended to provide a leadership role to ensure all hospital policies, procedures, and protocols sufficiently address care for pediatric patients of all ages. If a pediatrician is not available, then a physician board certified in family or emergency medicine with current pediatric expertise could fulfill that role. Ideally, this physician would also be active in the evaluation of

hospital-wide pediatric care and quality improvement efforts.

Regionalization and Interfacility Transfer

Hospitals and/or physicians providing care for children need well-established networks for timely consultation by subspecialists with pediatric expertise and, when necessary, for transfer of a patient to a facility that offers more advanced levels of care. Guidance for regionalization of care, the care of pediatric trauma patients, the care of pediatric critical care patients, and patient transfer has been published by the AAP, the American College of Surgeons, the Society of Critical Care Medicine, and the Emergency Medical Services for Children (EMSC) program.^{6–10} Formal written interfacility transfer agreements should be in place for consultation and transport of a pediatric patient to a facility with a higher level of care.¹⁰ These include access to air and ground transportation systems that are responsive and appropriately equipped and staffed on the basis of medical illness severity to care for children of all ages.¹¹ It is important for these referral relationships to be developed proactively and for protocols to be standardized to facilitate safe and efficient transports.

Regular multidisciplinary review of children transferred out of the facility as well as cases of deterioration can be conducted to reevaluate the hospital’s admission, discharge, and transfer criteria. Ideally, this review would occur in collaboration with the regional referral facility. Such review may reveal minor modifications in equipment or training that would allow the facility to safely care for the higher-acuity patients it has previously transferred out, or alternatively, it may identify high-risk diagnoses that warrant immediate transfer on presentation. The goal is to ensure that all children in the facility receive the optimal care most

appropriate for their medical and psychosocial needs.

Telehealth care may provide additional opportunities for collaboration between hospitals. In addition to direct patient interactions with pediatric medical subspecialists, tertiary centers may have outreach programs that can provide ongoing educational support for those practicing in the community.^{12,13} One example of this model is Project ECHO (Extension for Community Healthcare Outcomes), a telementoring program designed to leverage widely available videoconferencing technology, clinical management tools, and case-based learning to increase workforce capacity by improving quality, reducing variety, and standardizing best practices within a multidisciplinary, team-based approach.¹⁴ Establishing formalized relationships in advance can benefit both the referring hospital and the receiving tertiary care center by creating joint quality improvement teams to optimize patient care. Comprehensive information regarding the use of telehealth care can be found in “American Telemedicine Association Operating Procedures for Pediatric Telehealth.”¹⁵

Patient Safety

The provision of care for hospitalized children should reflect an awareness of the unique patient safety concerns in the pediatric population:

- patient identification strategies that meet Joint Commission standards¹⁶;
- the child’s current weight in kilograms documented at admission and at regular intervals;
- a full set of vital signs documented in the medical record with a process for reporting abnormal age-specific vital sign values to the child’s medical provider;

- all medication doses prescribed and dispensed by using weight-based dosing in kilograms with checks to ensure doses do not exceed the expected maximum dosages¹⁷;
- precalculated medication dosages based on the child's weight in kilograms for common emergency medications¹⁸;
- radiation safety procedures for imaging by using as low as reasonably achievable ionizing and shielding techniques¹⁹; and
- a rapid response team with at least 1 person having expertise in pediatric airway management as well as pediatric-specific criteria leading to activation of the team.²⁰

The security of pediatric patients should be addressed within individual facilities. The Joint Commission standards require that the facility identifies and implements security procedures to address handling an infant or child abduction.²¹ For younger children, the use of security bracelets or umbilical cord tags provide one layer of security, and locked units may provide security for older children. A risk assessment should be multidisciplinary, with each staff member providing input in his or her area of expertise to address actual and potential risks.²¹ Not all pediatric patients will have family supervision, and the facility will be responsible for ensuring that children and adolescents do not leave the facility unattended or with a noncustodial parent or guardian. The physical layout, the number and arrangement of exits, the vulnerability of the patient population, intended level of guardian and/or visitor access, and community risk need to be addressed. Abduction and missing patient exercises are effective means to validate pediatric security effectiveness.²¹ Facilities will need to address whole-hospital security measures to provide safety to

patients, families, and staff in cases of active-shooter or other violent scenarios.²¹

Policies, procedures, and protocols should also be developed and implemented for all-hazards disaster preparedness.^{4,22} Because of the complexities and need for advance planning, disaster preparedness is mentioned in this report to remind all facilities to address the issue. Hospital disaster plans are unique to each facility and community depending on the patient populations served as well as local, state, and regional resources and partners. The AAP has published additional information in "Ensuring the Health of Children in Disasters,"²² and links to additional resources can be found on the AAP Disaster Preparedness Advisory Council and EMSC Web sites.^{23,24} The EMSC program has prepared a checklist to assist facilities in incorporating pediatric preparedness into existing disaster policies.²⁵ Information for special populations, such as infants in the NICU and children with special health care needs, can be found in separate resources.^{26,27}

Family-Centered Care

Facilities striving to provide patient- and family-centered care will include active family involvement in decision-making, medication safety processes, patient and family education, and discharge instruction.²⁸ It is important to address situations such as families with limited English proficiency and/or low general literacy, especially with regard to informed consent and family involvement and education.²⁹ Tailoring discussions with families by using the principles of health literacy universal precautions is critical for good communication.³⁰ Religious and cultural considerations may require adjustments to the child's care plan. Hospital policies allowing at least 1 caregiver to remain with the child at all times should be standard practice,

especially with younger children. Ethical and legal guidelines for the care of adolescents need to be considered with regard to privacy and medical decision-making. Not only does consent need to be addressed but also assent on the basis of the child's age and developmental understanding.^{29,31}

Policies should be developed that specify where children will be placed in the hospital once admitted. Single rooms provide better isolation for the common infectious diseases for which children are hospitalized and should also provide a space for caregivers to sleep and monitor care. If single rooms are not available, guidelines for appropriate age and sex cohorting should be established, taking into account adults who may be accompanying minors. Inviting families in the community to participate in policy making or design of a facility remodel can be a valuable resource for hospital leadership.

As the number of children with chronic illnesses increases, hospitals may care for more pediatric patients with life-limiting illnesses, even if only in an emergency situation. Processes should be in place for dealing with "do not resuscitate" or "allow natural death" orders with the understanding that individual situations require flexibility depending on the family and child's needs. The assessment and management of pain may be challenging because of the developmental and individual differences in experiencing and expressing pain. Several tools exist to provide improved pain control assessment and management.³² The AAP statement "Patient- and Family-Centered Care and the Pediatrician's Role" can also act as a resource for facilities as they design their policies and processes.²⁸

Policies regarding personnel and training will be addressed later in this report under Personnel and Training.

EQUIPMENT

Emergency Resuscitation Equipment

Essential equipment for care of the pediatric patient in hospitals includes resuscitation equipment for patients whose status has deteriorated since admission. All hospitals should be prepared for the emergency occurring in a pediatric patient, whether they routinely admit pediatric patients or not. A child who requires transfer to a facility with a higher level of pediatric care should be stabilized while transport is being arranged. The AAP policy statement “Joint Policy Statement--Guidelines for Care of Children in the Emergency Department” provides specific information for these situations.³³

Separate pediatric emergency resuscitation carts are preferably located in or near areas such as the emergency department, pediatric inpatient unit, labor and delivery area, imaging area, and operating room. Supplies recommended for these carts include the following:

- inventory checklist;
- standardized code sheets with the medication dosages and Joules precalculated on the basis of weight in kilograms;
- pediatric backboard;
- personal protective equipment (gloves, gowns, masks);
- sharps container;
- cardiorespiratory and pulse oximetry monitors with appropriate alarm limits for pediatric patients;
- automated external defibrillators capable of treating pediatric patients with cardiac defibrillator paddles sized for infants and children;
- airway management equipment that fits children of all sizes (newborn to adolescents):
 - oxygen tanks;
 - pediatric oxygen masks;

- bag-valve masks and manometers;
- suctioning equipment;
- laryngoscope blades;
- oropharyngeal and nasoharyngeal airways;
- endotracheal tubes (laryngeal masks are beneficial for health care professionals who rarely have the opportunity to intubate or rarely intubate children);
- feeding tubes to provide gastric decompression during ventilation; and
- chest tubes and large needles to evacuate pneumothoraces;
- vascular access devices and supplies:
 - skin preparation supplies and bandages;
 - small needle sizes, including butterfly needles;
 - various sizes of syringes;
 - umbilical line kits; and
 - intraosseous needles and drill;
- pediatric emergency medications, including fluids appropriate for pediatric patients (10% dextrose vials, 5% dextrose, and normal saline [NS] bags); and
- chemical mattress pads to provide warmth for infants.

Maintaining a code sheet with the medication dosages and Joules precalculated on the basis of the child's actual weight in kilograms is desirable in the patient's room (and, ideally, kept at all times with the patient during transport between departments or facilities). An extensive checklist of more specific supply items can be found in the resources and toolkit section on the EMSC Web site.¹⁸

Routine Hospital Equipment

Essential equipment is necessary to provide for the most common diagnoses seen in hospitals such as respiratory illness, appendicitis, seizure disorders, infections, and dehydration.

This equipment should account for the wide differences observed in the pediatric population ranging from newborn infants to adolescents. The following list supplements standard adult equipment:

- infant, standing, and bed scales to measure patients in kilograms;
- appropriately sized respiratory equipment such as oxygen masks, nasal cannulas, bag-valve masks, artificial airways, and suctioning supplies;
- supplemental oxygen delivery systems, including low-flow meters;
- oximeter monitoring supplies that fit infants and small children;
- nebulizers and metered-dose inhalers with masks and spacers;
- “smart” infusion pumps designed for pediatric use with precise administration of low infusion rates with built-in libraries of the standard pediatric concentrations of medications;
- heel warmers to improve peripheral blood flow for sampling in infants;
- topical anesthetics for blood and spinal fluid sampling³⁴;
- pediatric lumbar puncture trays;
- sterile urine collection supplies in pediatric sizes;
- mercury-free thermometers with measurements in Celsius;
- pediatric-sized blood pressure cuffs;
- common pediatric fluids such as 10% dextrose vials, NS bags, 5% dextrose with 1/2 normal saline (D5-1/2NS), and 5% dextrose with normal saline (D5 NS);
- orogastric and nasogastric feeding tubes in sizes to fit children from newborn infants to adolescents;
- common infant formula types and bottles with nipples;
- pacifiers to provide newborn pain analgesia or soothing for neonatal abstinence;

- dedicated enteral pumps (these provide safety because they prevent inadvertent administration of enteral products via the intravenous route);
- electric breast pumps for mothers of young infants, including labels for storage and accessible storage facilities;
- incubators and/or warmers for infants and cribs with sleeping surfaces meeting safe-sleep guidelines³⁵;
- Various sizes of diapers;
- age-appropriate restraint devices, including soft wrist and leg restraints and arm and/or wrist immobilizers, to help preserve life-saving equipment such as endotracheal tubes, feeding tubes, and intravenous lines; and
- wheelchairs, crutches, slings, and splints in pediatric sizes.

Electronic Clinical Information Systems

Electronic clinical information systems play an important role in ensuring the safety and quality of pediatric care. A comprehensive AAP resource “Pediatric Aspects of Inpatient Health Information Technology Systems” provides guidance for facilities in understanding the unique aspects of safety, care, and documentation needs with regard to pediatric patients.³⁶ Although no dedicated pediatric inpatient clinical information system exists, some unique pediatric needs from this resource are highlighted below:

- anthropometric measurements (weight, length, head circumference) in metric units with automatic plotting on appropriate growth charts based on sex and age;
- storage of age-specific data, such as Apgar scores, pediatric pain scales, neonatal abstinence scores, pediatric mortality prediction scores, and ages in hours or days;

- ability to designate an indeterminate gender;
- configuration of access to adolescent patient data based on legal status and state confidentiality laws³⁷;
- ability to maintain continuity of access to health care information in cases in which children are mobile between various legal or physical custodians, for example, the foster care system;
- linking between infant and maternal medical charts and unlinking in cases of custodial loss or adoption;
- management of immunization data, including the ability to share administration data with the medical home and immunization registries;
- management of age-specific data for handoff reports including the transmission of the report to the medical home^{38,39};
- ability to manage newborn screening and hearing screening data;
- availability of age-appropriate normal values for laboratory test results;
- ability to document developmental milestones;
- automated nutritional calculations;
- ability to manage the storage, tracking, and administration of human milk;
- electronic ordering of medications and infusions with weight-based calculations and alerts specific to the pediatric population;
- ability to preadmit patients likely to be admitted (preterm infant going to the NICU) so medications are readily available;
- medication dosing and drug interactions relative to pediatric patients;
- barcode scanning capabilities for medications, blood, and human

milk as an additional layer of security for error prevention⁴⁰;

- discharge outpatient prescription prescribing with weight-based dosing, including total metric dose, as well as milliliters for liquid medications, name of medication, and reason for use; and
- ability to provide family education in their native language for medical issues as well as medications.

FACILITIES

Patient Care Area Facilities

The Joint Commission provides the *Comprehensive Accreditation Manual for Hospitals* that addresses the standards of hospital facilities to provide safe, quality health care.⁴¹ These standards generally address the physical space and the features that protect patients, visitors, and staff. Caring for children requires additional considerations:

- single- or double-occupancy rooms that comply with guidelines for prevention of hospital-acquired infections (grouping pediatric rooms allows for efficient use of resources);
- pediatric beds allowing for bed rails to be raised;
- rooms with enough space to accommodate caregivers who stay with their children, including a sleeping space for at least 1 caregiver;
- adjustable privacy screens that allow convenient observation and supervision of patients;
- space to accommodate an accompanying adult in elevators and procedural rooms;
- a negative-pressure room for children admitted with suspected infectious illness that require that type of isolation;
- age-appropriate furniture, including cribs equipped with overhead safety devices and beds

- having covered mechanical or electrical controls;
- high chairs for infant and toddler mealtimes;
- bookshelves or other large or bulky furniture anchored to the wall and that meet Consumer Product Safety Commission standards with a process in place to monitor for product recalls⁴²;
- specific safety products, such as electrical outlet covers, window locks, cabinet door safety latches, padding for sharp corners and edges, and toilet latches, for spaces in children's areas;
- cordless window coverings;
- cordless phones;
- magnet-free status communication boards;
- trash cans and sharps containers out of reach of toddlers and small children;
- alcohol-containing hand sanitizer dispensers not accessible to small children;
- age-appropriate spaces where children can feel safe from painful or scary medical procedures⁴³;
- a separate treatment room for procedures⁴³;
- entertainment consoles, computers, as well as educational and other age-appropriate activities help to keep children distracted; all toys, equipment, and play surfaces should be regularly cleaned with appropriate germicidal solutions;
- an indoor and/or secure outdoor playground area with equipment that has accommodations for those with impaired mobility;
- Internet access, with appropriate safeguards, available to all patients and families for entertainment, work, and education;
- facilities for families to safely store food and human milk and for personal hygiene (laundry,

- showers, etc) while they are staying with their children in the facility; and
- affordable or free parking for families with hospitalized children to encourage family involvement.

Although interior design and decor is beyond the scope of this document, additional information about child-friendly, developmentally appropriate environments may be obtained from the Institute for Patient- and Family-Centered Care Web site.⁴⁴

Therapeutic and Diagnostic Facilities

The following therapeutic and diagnostic facilities are necessary, and 24-hour availability is strongly recommended:

- routine radiographic imaging, using techniques to reduce radiation exposure in children,¹⁹ with a radiologist skilled in pediatric assessment available either on-site or by teleradiology for interpreting images;
- clinical laboratory with services appropriate for infant and pediatric needs, including hematologic profiles, blood chemistries (including serum bilirubin levels), blood gas studies, microbiology studies, common locally used antibiotic levels, and standard urine studies:
 - equipment to process all commonly ordered tests, such as complete blood cell counts and blood chemistry levels, by using samples of less than 1 mL ("micro" samples);
 - serum drug concentrations for aminoglycoside antibiotics, for example, known to cause ototoxicity and nephrotoxicity, with results available in a timely manner; send-out testing may not allow appropriate adjustments in dosing; and

- standard laboratory regulations require appropriate critical reference values based on patient age⁴⁵;
- pharmacy services to provide age- and size-appropriate drug administration and dosing that includes both a weight-based dose and a final calculated amount⁴⁶:
 - commonly used oral suspensions, including oral sucrose solutions to use for analgesia with painful procedures in young infants, quickly available³⁴;
 - supplies and expertise to safely create pediatric liquid formulations at nationally accepted standard concentrations¹⁴;
 - orally administered liquid medications dispensed with metric dosing (milligrams, micrograms) on the label in small-volume milliliter-based dosing devices, such as syringes⁴⁷;
 - doses of medications calculated by using computer programs or calculations based on appropriate neonatal or pediatric pharmacokinetic models; and
 - medications for pediatrics stored in a separate location from adult formulations both within and outside of the pharmacy; and
- nutritional services to provide child-friendly meals:
 - common infant and toddler formulas, pediatric nutritional supplements, and rehydration formulas stocked in pediatric areas and readily retrieved for those in the emergency department or other areas where children are treated;
 - in cases in which the hospital cafeteria does not remain open 24 hours, prepackaged meals and patient nutritional supplies

stocked in the pediatric areas before the cafeteria closes for the night;

- nutritious meals and drinking water readily available for breastfeeding mothers; and
- donor human milk, which is becoming more widely available and is a consideration for hospitals treating infants who may benefit from this resource.

PERSONNEL AND TRAINING

Because respiratory illnesses are the most common pediatric diagnoses requiring inpatient admission, the need for health care facilities to have ready access to personnel skilled in airway management as well as specialized equipment in sizes appropriate for children from newborn infants to adolescents is imperative. Respiratory therapists with pediatric expertise are especially important for providing safe pediatric care because pediatric patients tend to experience respiratory arrest rather than the cardiac arrest seen in adults. Health care professionals with expertise in pediatric life support techniques should know the location of carts and equipment for cardiopulmonary resuscitation. Mock codes conducted on a regular basis with debriefings either by pediatric-trained internal staff or by using personnel from tertiary centers are strongly recommended. It is helpful if the multidisciplinary medical team trains together during life support courses so that the team functions optimally in times of emergency. This training complements, but does not replace, real-life experience in caring for hospitalized children. Education sessions, clinical training opportunities, and mock codes should be documented for review by hospital quality assurance committees and The Joint Commission.

Physicians and other health care professionals responsible for the care of inpatient pediatric patients should

be licensed and have training in the care of hospitalized children either through a formal training program and/or through supervised experience consistent with the individual facility's bylaws for credentialing. Health care professionals need to maintain professional expertise through continuing education as well as maintenance of active life support credentials, including neonatal and pediatric advanced life support or equivalent training.⁴⁸ Those who are in charge of a pediatric patient's care may be either on-site or on-call, depending on the severity of a child's illness, and policies may address an acceptable response time for on-call professionals. Children who require intermediate- or higher-level care need a high-level health care professional who is in-house and readily available to respond to the patient immediately should the child's condition deteriorate.⁴⁹ The AAP and Society of Critical Care Medicine publication "Criteria for Critical Care Infants and Children: PICU Admission, Discharge, and Triage Practice Statement and Levels of Care Guidance" helps identify resource needs in those settings.⁶ Facilities must have policies in place so that the responsible health care professional is known to all personnel caring for the child, whether it be the primary physician, on-call physician, or an in-house emergency department physician with abilities to care for pediatric patients. Procedures should be in place so that both families and the medical team are able to easily identify this person.

Because a child's age, as well as cognitive level, influences his or her ability to cooperate, sedation in children is often administered to relieve pain and anxiety as well as to provide immobility to allow the safe completion of a procedure. Health care professionals should have an in-depth knowledge of the agents they intend to use and their potential

complications. It is important to be able to recognize the various levels of sedation in addition to possessing the skills and age- and size-appropriate equipment necessary to provide appropriate monitoring as well as cardiopulmonary support if needed.⁵⁰ Because normal vital sign values differ in younger age groups, instruction on the use of cardiorespiratory monitors and their alarms is necessary for all staff. Competencies and case volumes in pediatric sedation should be reviewed annually.⁵⁰ Children younger than 1 year are at a fourfold higher risk of anesthesia-related cardiac arrest than those between 1 and 18 years of age.⁵¹ For this reason, for children younger than 2 years or older children with complex medical diseases, it is preferred that board-certified pediatric surgeons and anesthesiologists supervise all elective surgical procedures.⁵¹ The AAP statement "Critical Elements for the Pediatric Perioperative Anesthesia Environment" has detailed information.⁵⁰

Pediatric nursing experience and training is crucial in determining a facility's ability to provide high-quality and safe pediatric medical care. Because nurses spend more face-to-face time with the patient than any other member of the health care team, it is important that they are able to identify signs of decompensation and are able to intervene in an emergency. They should understand that normal laboratory values may differ in pediatric patients. Nurses must understand the behavioral differences that occur in children to modify their care on the basis of the child's understanding of the situation (eg, the use of age-appropriate pediatric pain scales)³⁴ or developmental differences in their ability to respond to a neurologic examination. Adolescents require a fine balance between guidance and autonomy, and pediatric nurses need skill in

recognizing signs of abuse or self-harm. In cases in which nurses have relatively low skill in obtaining intravenous access, it is preferable that the most experienced staff member attempt to obtain access to decrease the child's emotional and physical trauma. Although having a pediatric nursing educator is ideal, facilities lacking a pediatric educator should ensure they dedicate time to pediatric competencies. It is important for hospitals to anticipate pediatric personnel shortages or times of higher pediatric census by crosstraining nonpediatric staff, who should only be used after successfully demonstrating the essential duties of nurses caring for pediatric inpatients. If skilled pediatric staff are not available, consideration should be given to transfer of children to a facility that can meet the patients' needs. Baseline and annual evaluations that include age-specific and psychosocial competencies as well as the performance of essential pediatric skills should be verified by qualified personnel.

Similar to medical and nursing staff, pharmacists caring for pediatric patients need experience and specific training in their roles. Pediatric patients are at higher risk for medication error and may experience a more serious consequence should an error occur.¹⁷ It is helpful for pharmacists with pediatric experience to participate in prospective order review, safety and technology committees, protocol development, staff education, quality improvement, and other high-impact patient care duties.⁵² Pharmacy technicians who prepare pediatric medications, including parenteral solutions, need to maintain documented pediatric pharmacy competencies. Not all facilities will have a pediatric pharmacist on staff, and a liaison pediatric pharmacist from a children's hospital may be a beneficial resource to assist in minimizing the possibility of adverse consequences.

It is highly recommended that the following health care professionals be available on a routine basis to provide services to the inpatient pediatric patients: radiology technologists, nutritionists, lactation specialists, rehabilitation therapists, child life specialists, mental health specialists, social workers, and medical interpreters. Professionals providing these services should have adequate training and continuing education in the pediatric applications of their respective fields. Baseline and periodic competency evaluations should include competencies specific to the pediatric populations cared for in the individual facility. In many facilities, nurses often fill the role of providing lactation support to mother-infant dyads with common lactation issues. Staff who are asked to fill the gaps when other personnel are not available routinely should be provided continuing education opportunities to ensure competence in the roles they are performing. It is not acceptable to use family members as interpreters of health care information, and hospital staff should practice health literacy universal precautions. Only 12% of US adults are fluent in the language of health care, and the ability to absorb and use health information can be compromised by stress.³⁰ The Agency for Healthcare Research and Quality's *AHRQ Health Literacy Universal Precautions Toolkit, Second Edition*, can help facilities increase patient and family understanding of health information and enhance support for people of all health literacy levels.³⁰ Foreign and sign language assistance may be provided by a telephone or telehealth interpretive service, and educational materials may be translated by an off-site service if an interpreter is not available in-house. When it is not feasible to employ full-time personnel or crosstrain staff because of financial or staffing issues, facilities should maintain appropriate consultative relationships with

tertiary hospital staff members. These points of contact may provide regular educational sessions, consultations for specific patients, and assistance with policy development.^{8,9}

SPECIAL CONSIDERATIONS

Although all health care professionals who provide care to pediatric patients should be familiar with the unique and changing physical and psychosocial needs of children and the core concepts of patient- and family-centered care, having a child life specialist on staff is recommended.²⁸ If it is not feasible to maintain a dedicated child life specialist, facilities should consult one at a tertiary center to assist with ongoing education of the local hospital staff in the provision of psychosocial care and family- and child-friendly services.⁴³ The assessment of pain can be difficult in nonverbal children, and health care professionals need training in how to use age-appropriate pediatric pain scales appropriately. Staff may also need training on how to support children with intellectual disabilities or autism spectrum disorder, for example, who present with a medical illness needing treatment. Training in the physical as well as the emotional components of end-of-life situations and palliative care may be helpful for staff because many find it difficult to deal with a child's impending or actual death.

Hospitalized children, especially those with hospital stays anticipated to last more than a week, need a designated hospital liaison (nurse, social worker, discharge planner, child life specialist) to partner with the child's school to ensure the hospitalization does not cause interruption in the child's education endeavors. In some cases, having access to videoconferencing or online attendance at a child's school can keep the child from getting behind in his or her studies.

Children may be seen in the emergency department for medical disorders that can either present as or coexist with psychiatric or behavioral disorders needing appropriate triage. It is important to be sensitive to the needs of adolescent patients by asking nonprejudiced questions in private about sexual partners and substance use. Although toxic ingestions in toddlers may be accidental, those in adolescents may be a sign of suicidal intentions.⁵³ Sixteen percent of adolescents have seriously considered, and 8% have attempted, suicide in the past year.⁵⁴ Certain ethnic groups, those with a family or personal history of suicide attempts or behavioral disorders, and those who identify as a sexual minority are at higher risk.⁵⁵ Personnel should be able to recognize these issues and be familiar with the hospital's mental health resources and policies for appropriate triage.

Health care professionals responsible for the care of children should be trained in the recognition and initial management of child abuse, maltreatment, and neglect whether physical, sexual, emotional, or medical. They should be aware of the types of injuries that can occur at various ages and which ones are unlikely to have occurred in the manner in which they are described by the child or accompanying adult.^{56,57} Children who have experienced physical or sexual abuse, children who have experienced violence in the home, or children who are diagnosed with a psychological disorder should have timely intervention with a child maltreatment team and/or mental health specialist. There should be policies in place to ensure proper reporting of allegations to authorities for further investigation as well as appropriate transfer to a facility with mental health services with expertise in pediatric care if not available locally. Guidance in the area of child maltreatment can be found on the AAP Council on Child Abuse and Neglect Web site.⁵⁸

CONCLUSIONS

Inpatient facilities caring for the unique pediatric population should be well resourced to provide high-quality and safe health care by providing the appropriate policies, equipment, facilities, and personnel as outlined in this clinical report.

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ABBREVIATIONS

AAP: American Academy of Pediatrics
 EMSC: Emergency Medical Services for Children
 NS: normal saline

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