The profile of inpatient hospital care for children and youth has changed dramatically during the past two decades. With the implementation of prospective hospital payment plans initiated by diagnosis-related groups, the growth of managed health care systems, the explosive expansion of medical knowledge, and the increased emphasis on outpatient management of major as well as minor illnesses, several trends in pediatric inpatient care at community hospitals have emerged:

- a decrease in the rate of hospitalization and number of total inpatient days for children;
- an increasing severity and complexity of illnesses for hospitalized children;
- an increasing proportion of hospital beds occupied by children with chronic illnesses;
- a stabilization or shortening of lengths of stay for most pediatric admissions; and
- a growing utilization of advanced medical technology in noncritical care settings.

In contrast to community hospitals, admission rates for children's hospitals, both freestanding and non-freestanding, have actually increased by 15% in the past decade.

Overall, however, fewer children are now hospitalized; they have shorter stays but require more intense and sophisticated care for their chronic and/or complicated illnesses.

In addition to these trends, there has been the long overdue recognition of the special needs of children and youth in hospitals:

- age- and size-appropriate furniture, toilet facilities, recreational areas, and diversional activities;
- unit design to allow for constant supervision and observation of patients, particularly those younger than 10 years of age;
- developmentally appropriate safety programs both in facilities and procedures;
- separate areas for parents/family to gather for rest;
- specially trained staff familiar with the unique and constantly evolving physiology, development, and psychology of infants, children, and youth; and
- increased numbers of staff to provide care for patients who are not independent or self-sufficient.

Staffing requirements for an inpatient pediatric unit will vary greatly, depending on the unit's size and mission. This statement is not intended to address the needs of pediatric intensive care, neonatal, psychiatric, or other special care units. Rather, it will focus on the general inpatient pediatric facility in which youngsters with common medical or surgical conditions requiring no more than level II care would be hospitalized. Patients needing ventilatory support, those requiring intravenous medications to sustain cardiovascular function, or those with illnesses that demand one-on-one nursing care would not be cared for in this unit.

UNIT PERSONNEL

Although design and physical characteristics have a significant impact on the comfort and functionality of a pediatric inpatient unit, the unit personnel's knowledge, skills, judgment, and commitment ultimately determine the efficacy and quality of patient care. The number, types, levels of training and experience, and work schedules of the personnel assigned to a pediatric unit will vary according to the size and geography of the facility, the number of rooms and beds, the demographics of the patients, and the severity of the patients' illnesses. In general, the following disciplines and support personnel will be required to provide complete care for children in a hospital: medicine and nursing; physical, occupational, and respiratory therapies; audiology and speech pathology; nutrition; clinical social work and psychology; therapeutic recreation/child life; pastoral care; laboratory and x-ray technologists; unit secretaries; and environmental services personnel. Requirements for each of these are addressed in the following section and in the Table.

PHYSICIANS

Medical Director

To ensure continuous and accountable leadership for the pediatric unit, a qualified member of the active medical staff with recognized expertise in the care of children and documented administrative skills should be appointed or elected to serve as the unit's medical director. In collaboration with the unit's nursing leadership, the medical director should be responsible for the implementation and monitoring of operational policies established by the institution and for ensuring that the medical care is appropriate through an active program of quality improvement.
TABLE. Staffing for a General Pediatric Inpatient Unit

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Size of Unit, No. of Beds</th>
<th>Comments (80% occupancy assumed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Medical director</td>
<td>(1)*</td>
<td>(1)</td>
</tr>
<tr>
<td>Nursing director</td>
<td>(1)</td>
<td>(1)</td>
</tr>
<tr>
<td>Nursing staff, requirements per shift</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 AM to 3 PM</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3 PM to 11 PM</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>11 PM to 7 AM</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Total staff</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Total needed FTEs</td>
<td>6.5</td>
<td>11</td>
</tr>
<tr>
<td>Nurse specialists</td>
<td>(1)</td>
<td>(1)</td>
</tr>
<tr>
<td>Recreational therapy/child life</td>
<td>(1)</td>
<td>(1)</td>
</tr>
<tr>
<td>Occupational/physical therapies</td>
<td>(1)</td>
<td>(1)</td>
</tr>
<tr>
<td>Audiology/speech pathology</td>
<td>(1)</td>
<td>(1)</td>
</tr>
<tr>
<td>Dietetics/nutrition</td>
<td>(1)</td>
<td>(1)</td>
</tr>
<tr>
<td>Respiratory therapy</td>
<td>(1)</td>
<td>1</td>
</tr>
<tr>
<td>Clinical social work</td>
<td>(1)</td>
<td>(1)</td>
</tr>
<tr>
<td>Pastoral care</td>
<td>(1)</td>
<td>(1)</td>
</tr>
<tr>
<td>Unit secretary</td>
<td>(1)</td>
<td>1</td>
</tr>
<tr>
<td>Environmental services</td>
<td>(1)</td>
<td>2</td>
</tr>
</tbody>
</table>

* Numbers in parentheses = part-time position.
† Abbreviations: FTE, full-time employee; RN, registered nurse; LPN, licensed practical nurse.

and risk management that involves all unit personnel. Depending on the size and mission of the facility, the medical director may be required to devote a substantial portion of his or her work day to unit management and thus be contracted with or employed by the hospital on a part-time or full-time basis. In other settings, the director may delegate many of the responsibilities for unit operation to a qualified hospital administrator.

Attending Physicians

Guidelines for medical staff appointment and delineation of pediatric privileges in hospitals have been addressed in a separate statement by the Committee on Hospital Care. Those guidelines are in compliance with standards established by the Joint Commission on Accreditation of Healthcare Organizations and serve to ensure that physicians admitting patients to a pediatric unit have the qualifications to provide care for children. All attending physicians should participate actively in the unit’s program of quality improvement, regularly attend staff meetings at which unit issues and policies are reviewed, and demonstrate continued interest in the hospital’s pediatric programs.

Resident Physicians

On those pediatric units to which house staff are assigned, there should be clear delineation of their responsibilities and a detailed operating plan for their education and training. Resident physicians play an integral role on the health care team, but the attending physician is always ultimately responsible for all aspects of medical care. Continuous, open communication between attending physicians, house staff, nurses, patients, and their families is essential to maintain effectiveness, efficiency, and consistency of care.

NURSING STAFF

Pediatric Unit Nursing Director

In addition to possessing expertise in the nursing care of children, the pediatric nurse manager must have the professional credibility and management skills necessary to serve as a supervisor, consultant, and role model for the remainder of the nursing staff. In collaboration with the medical director, the nurse director also plans, implements, and monitors the unit budget; ensures adherence to policies and procedures for patient care and unit operations; and promotes optimal communication between nurses and physicians.

Through ongoing in-service training programs and, when possible, by encouraging attendance at educational conferences, the nurse director should strive continuously to advance the knowledge and skills of the nursing staff. In smaller hospitals without separate pediatric units, the nurse in charge has the added challenge of keeping nursing personnel proficient in their pediatric skills and current in their knowledge of nursing advances, even though they are not caring for children on a full-time basis.

Nurse Specialists

Pediatric Clinical Nurse Specialists are individuals with advanced academic degrees in nursing and allied disciplines, who often possess added expertise in the management of children with specific problems such as diabetes mellitus, chronic respiratory illness,
Nurse Staffing Patterns

Because of their dependency and the nature of their illnesses, hospitalized children and youth require significantly more nursing attention than older patients. Consequently, nurse staffing needs for a pediatric inpatient unit will always exceed those for an adult unit of comparable size.6 Reliable methods for determining those extra needs are discussed below.

For consistency and continuity of care, a registered nurse should be responsible and accountable for all aspects of the nursing management of each patient including the following: patient/family assessments; development, implementation, and monitoring of individualized care plans; and, where appropriate, delegation and coordination of nursing tasks. A nurse should be specifically identifiable by each patient and/or family as their nursing care provider. Лиabilities enhance inpatient nursing care, promote efficient transition from hospital to home, and under physician supervision may continue to provide home treatment of children when required.

The issues of where clinical nurse specialists are assigned in the hospital organization and to whom they are accountable for their professional activities could become subject for debate. Because they often work very closely with physicians outside of the hospital, nurse specialists are sometimes regarded as more appropriately aligned with the medical rather than the nursing communities. Nonetheless, all clinical nurse specialists must be credentialed and receive more appropriately aligned with the medical rather than the nursing communities. Consequently, nurse staffing needs for a pediatric inpatient unit will always exceed those for an adult unit of comparable size.56 Reliable methods for determining those extra needs are discussed below.

For consistency and continuity of care, a registered nurse should be responsible and accountable for all aspects of the nursing management of each patient including the following: patient/family assessments; development, implementation, and monitoring of individualized care plans; and, where appropriate, delegation and coordination of nursing tasks. A nurse should be specifically identifiable by each patient and/or family as their nursing care provider. Licensed practical nurses, experienced in pediatrics, may provide care to those children with less complex conditions. Nursing assistants are best employed when assigned specific tasks in the care of selected patients. Although many hospitals have moved to primary care nursing programs with all registered nurses,7 this may not be achievable because of fiscal constraints within the institution8 or limitations in available nursing personnel in the community.

On large units (24 beds or more), the nursing staff may be divided into smaller groups or teams, with each team having 10 to 15 patients, usually based on room or bed locations. For continuity of care and also to allow for the development of positive group dynamics, nurses should be assigned to the same team for periods of at least 6 to 8 weeks. The team leaders should be assigned for much longer periods to ensure long-term continuity as well as accountability.

There are two models of inpatient nursing that are recognized generally. “Team nursing” occurs when the care to an individual patient is divided among several members of the nursing staff. Alternatively, in the “primary nursing” model, there is a case-manager nurse (the primary nurse) who provides all nursing services each shift to an individual patient.9,10 Usually the primary nurse has more opportunity to develop a therapeutic and trusting relationship with the child and his or her parents than nurses working in the team system.

Ideally, nursing staff requirements should be determined using a scientifically validated system that accurately profiles the type and severity of illness along with the specific needs of each patient and, based on those data, projects the number and mix of nursing personnel necessary to provide efficient, quality care. Indeed, most hospitals now utilize patient classification systems that index illness acuities and, in some cases, predict staffing needs for the next 8 to 24 hours.11-17 However, confirmation of the applicability and accuracy of these systems is still pending.16-22 Thus nursing departments still employ other methods to determine staff needs and assignments.

One method for determining nursing needs on a pediatric unit is to develop nurse-to-patient ratios based on ages and diseases of children. No national standards have been established or published; however, most hospitals have developed their own guidelines. In general, for infants and preschool children, more nursing time per patient will be required, thus allowing each nurse to care for no more than three to four patients at a time. As the ages of the children increase, assuming the same intensity of care level, the nurse-to-patient ratio may also increase to 1:5 or 1:6. On units where the design allows excellent observation and where floor space is compact, fewer nurses may be required.

The distribution of nursing staff between day, evening, and night hours will vary according to the age of the patients as well as the nature and severity of their illnesses. Because hospitalized children now tend to require more intense and sophisticated care for fewer days, it has become less feasible to reduce nursing staff during evening, night, and weekend hours. On units in which most children are 3 years of age or less, equal distribution of nursing personnel over 24 hours will be required. Where there are predominantly older patients, nursing strength may be reduced by 15% or 20% during evening and night hours (see Table). When 24 hours of nursing are divided differently (eg, 10- and 12-hour shifts), assignments usually will be equal for each shift.23,24

OTHER DIRECT PATIENT CARE PERSONNEL

For pediatric units with less than 20 beds, full-time personnel in physical therapy, occupational therapy, respiratory therapy, nutrition, audiology and speech pathology, therapeutic recreation, and clinical social work are usually not feasible. Patient care needs, however, rather than unit size must ultimately drive the number of personnel assigned. Once a unit census exceeds 30 children, full-time employees are more easily justifiable. In most community hospitals with small pediatric programs, contractual arrangements are made with outside agencies to provide specialty therapists as they are needed. These agreements must be flexible and allow for seasonal variations in the unit's requirements for the services and for changes in its size and mission. Because many of these therapists may not have extensive training or experience in...
the care of children, close monitoring of their professional activities with quality improvement indicators will be required.

Physical Therapy/Occupational Therapy

Although national guidelines do not exist, therapists in these disciplines generally measure their productivity in terms of units of time. Fifteen-minute work units are usual. An hour of therapy includes 45 minutes of hands-on patient care and 15 minutes for record keeping and other administrative chores. Unlike the adult patient care setting, in which one physical or occupational therapist may effectively provide care to several patients at the same time, treatment of children usually demands one-on-one interaction between therapist and child. On a general pediatric unit, physical therapists and occupational therapists typically participate in the management of patients with orthopedic, neurologic, developmental, and feeding problems.

Audiology/Speech Pathology

For most small pediatric units a part-time audiologist or speech pathologist will suffice. In those institutions with an active otolaryngology service, a full-time therapist performing services for both adult and pediatric patients may be required. Because hospital stays for children are so brief, there is usually sufficient time only for initiation of speech and hearing services, which must then be continued in an outpatient setting.

Recreational Therapy/Child Life

The services of a child life coordinator/recreational therapist are essential for the establishment and perpetuation of a child friendly environment in a pediatric inpatient unit. A child life worker should be involved with the preoperative preparation of youngsters and their families, the planning and supervision of age-appropriate diversional activities, and the training and organization of volunteers who provide these activities to the children. Guidelines developed by the Association for the Care of Children's Health suggest that one full-time therapist be assigned for every 20 beds on a pediatric unit.

Clinical Social Work

Units that care for children who are victims of abuse and neglect, those who are physically challenged and/or intellectually impaired, or those with chronic illnesses, and families in crisis will frequently need the services of a clinical social worker. The social worker should be knowledgeable in the normal development of children, their age-appropriate rearing needs, normal and abnormal family dynamics, and the resources in the community available to help children and their families. Generally, units with more than 25 patients will require a full-time social worker.

Dietitian/Nutritionist

To remain in compliance with standards set by governmental agencies and/or Joint Commission on Accreditation of Healthcare Organizations, every hospital must provide supervision of its dietary programs by a qualified nutritionist. For the pediatric unit, the dietitian must also ensure that the nutritional requirements for children at various ages are met each day in both regular and therapeutic diets. Although no national standards for staffing are published, it is suggested that for every 60 to 100 patients, a full-time, hospital-based nutritionist be employed.

Respiratory Therapy

Respiratory therapists involved in the care of children must have demonstrated knowledge of the evolving respiratory physiology of pediatric patients and the variations in their management that are dictated by their age and development. Pediatric units with more than 20 beds may require a full-time respiratory therapist, particularly during the fall and winter seasons. In many institutions, routine respiratory therapy treatments (ie, every 3 to 4 hours) are administered by the nursing staff, allowing respiratory therapists to direct their attention to those patients with complex respiratory problems requiring treatments continuously or every 1 to 2 hours.

OTHER SUPPORT PERSONNEL

Unit Secretary

Each inpatient unit should have assigned to its staff an individual to complete clerical and telephone receptionist tasks during the day and evening shifts. As a member of the unit team, the secretary must have sufficient understanding of physicians' and nurses' orders to respond with the appropriate level of urgency and accuracy to promote efficient, cost-effective patient care.

Environmental Services

The number of housekeeping personnel assigned to a pediatric unit will depend on the size of the facility (number of rooms, number of beds, square footage), the average length of stay for the patients, and the nature of their illnesses. In general, environmental services personnel are assigned according to the square footage of space for which they are responsible or according to "work units" that take into consideration the difficulty of the tasks and time required for their completion. Both systems are effective for projecting personnel needs, but it is the commitment and industry of the people that ensure thorough cleansing of both the common and the patient care areas. For a unit of less than 20 beds, a single full-time environmental services individual will be required for day and evening hours. For nights, responsibilities for several areas may be shared. With more than 20 beds, two or more individuals will be required.

Laboratory and X-ray Technologists

To obtain blood from infants or complete radiographic studies on young children demands sensitivity for children's needs and their parents' concerns as well as technical skills. When a technologist is experienced or uncomfortable dealing with pediatric patients or a specific child, unit nursing staff should provide assistance. On each unit, there should be written protocols specifically addressing the perfor-
mance of invasive or uncomfortable procedures on-site and minimizing adverse effects on the patients. For children, particularly those for whom it is difficult to obtain intravenous access, the unit's most competent phlebotomist should be assigned the task of obtaining blood or placing a vascular line.

PASTORAL CARE

Spiritual support for each patient and his or her family must be available, particularly in times of critical illness and crisis. This specifically requires that the unit staff maintain a high level of sensitivity for the religious needs of their patients and that pastoral care be initiated with appropriate timeliness. The hospital chaplain should be assigned the task of obtaining invasive or uncomfortable procedures on-site. For children, particularly those for whom it is difficult to obtain intravenous access, the unit's most competent phlebotomist should be assigned the task of obtaining blood or placing a vascular line.

PASTORAL CARE

Spiritual support for each patient and his or her family must be available, particularly in times of critical illness and crisis. This specifically requires that the unit staff maintain a high level of sensitivity for the religious needs of their patients and that pastoral care be initiated with appropriate timeliness. The hospital chaplain should be assigned the task of obtaining invasive or uncomfortable procedures on-site. For children, particularly those for whom it is difficult to obtain intravenous access, the unit's most competent phlebotomist should be assigned the task of obtaining blood or placing a vascular line.

SUMMARY

The mission of a pediatric inpatient unit, no matter how large or small, whether in a private or public hospital, is to provide optimum, age-appropriate care for each patient and to lend sensitive and understanding support to his or her family. The key to success in achieving this mission is the quality and commitment of the personnel on the unit. If the skills and the dedication of nurses are present and there is flexibility in staffing assignments, the desired patient care outcomes will be inevitable.

COMMITTEE ON HOSPITAL CARE, 1993 to 1994
James E. Shira, MD, Chairperson
Jess Diamond, MD
Mary E. O'Connor, MD
Russell C. Raphaely, MD
Marleta Reynolds, MD
Henry A. Schaeffer, MD
Richard S. Wolf, MD

LIAISON REPRESENTATIVES
Ross R. Black, MD, American Academy of Family Physicians
Mary T. Perkins, RN, DNSC, Society of Pediatric Nurses
Barbara-Jeanne Seabury, Association for the Care of Children's Health
Russell K. Tolman, National Association of Children's Hospitals and Related Institutions
Paul R. VanOostenberg, DDS, MS, Joint Commission on Accreditation of Healthcare Organizations
Stuart W. Williams, American Hospital Association

REFERENCES

Staffing Patterns for Patient Care and Support Personnel in a General Pediatric Unit
Committee on Hospital Care

*Pediatrics* 1994;93;850

<table>
<thead>
<tr>
<th>Updated Information &amp; Services</th>
<th>including high resolution figures, can be found at: /content/93/5/850</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citations</td>
<td>This article has been cited by 4 HighWire-hosted articles: /content/93/5/850#related-urls</td>
</tr>
<tr>
<td>Permissions &amp; Licensing</td>
<td>Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: /site/misc/Permissions.xhtml</td>
</tr>
<tr>
<td>Reprints</td>
<td>Information about ordering reprints can be found online: /site/misc/reprints.xhtml</td>
</tr>
</tbody>
</table>
Staffing Patterns for Patient Care and Support Personnel in a General Pediatric Unit
Committee on Hospital Care
Pediatrics 1994;93:850

The online version of this article, along with updated information and services, is located on the World Wide Web at:
/content/93/5/850