



CLINICAL REPORT

Pediatric Observation Units

abstract

FREE

Pediatric observation units (OUs) are hospital areas used to provide medical evaluation and/or management for health-related conditions in children, typically for a well-defined, brief period. Pediatric OUs represent an emerging alternative site of care for selected groups of children who historically may have received their treatment in an ambulatory setting, emergency department, or hospital-based inpatient unit. This clinical report provides an overview of pediatric OUs, including the definitions and operating characteristics of different types of OUs, quality considerations and coding for observation services, and the effect of OUs on inpatient hospital utilization. *Pediatrics* 2012;130:172–179

BACKGROUND INFORMATION

Across the United States, hospitals providing care for children are facing the challenges of limited inpatient and emergency department (ED) bed capacity and pressures to decrease health care costs and improve efficiencies, quality, and patient safety. One approach has been the establishment of pediatric observation units (OUs). OUs have become widely used in adult medicine to provide hospital-level patient care on a short-term basis, providing efficient care of adults with chest pain, asthma, congestive heart failure, overdose, and many other diagnoses.^{1–4} Although the numbers of pediatric OUs and of children treated in them are not tracked or reported on a national basis, a growing body of literature and interest in these units accompanying health care reform support the notion that the number of OUs may increase in the near future. In this context, it is important that pediatricians be familiar with the clinical and operating characteristics of OUs.

DEFINITIONS

Efforts to categorize different OU models are hampered by a lack of universally accepted terminology and definitions. Nonetheless, OUs may be described on the basis of location, scope of clinical activity, or intended function. A recent Institute of Medicine report⁵ described OUs as “separate areas that allow for observation of patients to determine whether admission is necessary”; this is a common perspective. OUs may also serve as an alternate site for treatment of selected conditions. And in some hospitals, the OU may serve both functions. In a recent study from a children’s hospital with extensive OU experience,

Gregory P. Conners, MD, MPH, MBA, Sanford M. Melzer, MD, MBA, COMMITTEE ON HOSPITAL CARE, and COMMITTEE ON PEDIATRIC EMERGENCY MEDICINE

KEY WORDS

pediatric, observation unit, observation status, emergency department, inpatient

ABBREVIATIONS

CPT—*Current Procedural Terminology*

ED—emergency department

OU—observation unit

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The guidance in this report does not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

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the OU was described both as “dedicated areas where patients may be treated or observed for a defined time period to determine the need for inpatient admission” and as a “disposition option for children who are judged to be too ill for home management.”⁶ This range of descriptions demonstrates that there may be considerable overlap between different types and functions of OUs, even within a single institution.

The following are definitions related to OUs and observation care from recent literature, acknowledging that terminology varies widely. As the pediatric OU management and research literature evolves, it will be important to have standardized terminology for accurate comparison and referencing purposes.

- Traditional inpatient care: Admission of a patient to a hospital inpatient setting for management or diagnosis of a health-related condition, typically for more than 24 hours.
- Observation unit (OU): A hospital area used to manage and/or diagnose a health-related condition, typically for a well-defined, brief period (typically under 24 or 48 hours). Use of the word “observation” suggests that patients will be frequently reassessed to monitor progression of illness or response to therapy.
- Observation services: Services furnished by a hospital on its premises, including the use of a bed, periodic monitoring by nursing and other staff, and other reasonable and necessary services to evaluate a patient’s condition or determine the need for a possible (inpatient) admission to the hospital.
- Observation status: Observation status is a level of care determination that is often assigned to patients who present to an ED (or a private office or clinic) and require a period of monitoring before a decision is made concerning admission or discharge. Observation status generally results in a decision to continue observation care (*Current Procedural Terminology* [CPT] codes 99224–99226 for subsequent observation care [Table 1]), admit the patient (ie, change them to inpatient status with the reporting of CPT codes 99221–99223 for initial hospital care), or discharge the patient (CPT code 99217 for observation care discharge). A patient need not be in a designated OU to be considered in observation status, and likewise, placing a patient in an OU does not constitute initiation of observation-status care.
- Clinical decision unit: Often used synonymously with OU, this is a more descriptive term for an area designated for assessment of patients for whom more time is needed to make a decision whether to admit for traditional inpatient care.⁵
- Rapid (or extended) treatment unit, short-stay unit, 23-hour unit: These and similar terms are sometimes used synonymously with OU. Their time-specific nature suggests a special emphasis on expeditious patient disposition as a key element of their operation, although observation stays can be longer than 24 hours.
- Hybrid OU: Hybrid OUs provide both the short-term diagnostic and management work performed in the typical OU and hospital-level care for scheduled, brief, elective admissions, typically for diagnostic or therapeutic procedures. The most common of these pediatric procedures is provision of sedation for a painful diagnostic procedure such as lumbar puncture or bone marrow aspirate,⁶ admissions for infusions, pH probe studies, or recovery from anesthesia.^{6,7} Hybrid units may enhance operating efficiencies in that they use a unit’s resources for different activities at different times, leading to smoother bed and staffing demands.^{6,8–10} The term “hybrid unit,” as described here, is not consistently applied. The author of a 2001 review defined the dual mission of a “hybrid or combined unit” differently, calling it “an OU where both pediatric and adult patients can be treated or observed.”¹¹
- Holding unit, overflow unit, delayed admission unit: Because hospital overcrowding has led to significant numbers of admitted patients being kept in EDs and other areas of hospitals that have not previously provided traditional inpatient care, some hospitals have designated 1 or more specific areas to provide

TABLE 1 Observation-Related CPT Codes

Code	Description
99217	Hospital observation discharge
99218	Initial observation care, low complexity/severity
99219	Initial observation care, moderate complexity/severity
99220	Initial observation care, high complexity/severity
99224	Subsequent observation care, low complexity
99225	Subsequent observation care, moderate complexity
99226	Subsequent observation care, high complexity
99234	Hospital observation and discharge, same day, low complexity/severity
99235	Hospital observation and discharge, same day, moderate complexity/severity
99236	Hospital observation and discharge, same day, high complexity/severity

short-term care of these “overflow” inpatients. These may or may not overlap with the mission of an OU, depending on individual hospital requirements.¹² It is important to be aware that, just as is the case with EDs, holding inpatients in OUs that are designed for rapid patient turnover will impinge on their ability to perform their primary missions.

OPERATING CHARACTERISTICS OF PEDIATRIC OUs

Clinical Staffing

Optimal management of an OU requires a team approach, with all involved being focused on the goal of efficient yet safe patient management. Although management of OUs is typically led by physicians, including emergency physicians, hospitalists,^{13,14} or a small-but growing group of dedicated “observationalists,” nurse practitioners and/or physician assistants often play integral roles as well.^{15,16} Using a hospital-based provider staff allows for the frequent rounding and decision-making usually associated with observation status. However, treatment of children in an OU or coding for such services is not limited to hospital-based physicians. The quality of pediatric OU care can be enhanced with dedicated, experienced nursing staff with specific pediatric experience. To enhance efficiency and decrease OU length of stay and waiting time, a well-organized system to schedule and interpret laboratory, imaging, and other test results is also important.

The role of residents and other trainees in the operation of OUs located in academic training centers is variable, and the literature on this topic is scant. A survey of interns during a rotation on a short-stay unit indicated that their educational experience was favorable.¹⁷ The authors suggested that the unit’s clustering of

patients with symptoms suggestive of straightforward diagnoses enhanced the intern’s educational experience. Exposing residents to patients in the OU also provides them with experience with lower-acuity patients than they would obtain in caring for those on hospital wards alone.

Clinical Care Provided in OUs

Studies describing the diagnoses of children cared for in OUs have revealed that these units may provide effective care for a wide range of common pediatric illnesses and conditions.¹⁸ The most frequent pediatric observation diagnoses include the following: respiratory conditions, such as asthma, bronchiolitis, and croup; gastroenteritis/dehydration and abdominal pain; and prolonged observation of patients with head or other injuries, potential appendicitis, or toxic ingestions. OUs can also be used by day surgery or ambulatory procedure patients who have a delayed recovery time from sedation or anesthesia or whose postoperative/procedure pain is not well controlled. These conditions lend themselves to specific guidelines of care, and for this reason, diagnostic dilemmas are typically not well suited for the OU. Admission criteria to the OU are typically based on age, degree of illness, diagnosis, and the patient’s then-current location (ED, clinic, primary care, etc). Although specific guidelines governing patient admission to OUs are universally recognized as critical to OU operations, it is also important to maintain flexibility in patient selection. Reconciling the intensity of expected OU care with available unit staffing is also important, because physician and nursing availability may vary with time of day or at time of peak volumes.

Location of Observation Care

Although traditional pediatric inpatient care is predominantly provided on

a hospital floor setting, pediatric observation services may be provided in a variety of settings. This may include a geographic location (or locations) specifically designated as a pediatric OU or a mixed adult-pediatric OU. These units are most commonly found adjacent to or contiguous with an ED; however, others are distinct units in a hospital setting.^{6,12,19,20} In either case, a patient is physically transferred to an OU, often after an initial period as an ED patient. Alternatively, observation services may be provided to patients who physically remain in an ED or who are on a hospital floor or other setting, such as a postanesthesia care unit. Observation services may be provided to patients who do not meet the specific admission criteria of a defined OU, who are at hospitals that have chosen not to dedicate space to a discrete OU,²¹ or who may simply not fit in an already-full OU.

OUs, uniquely positioned at the interface of inpatient and outpatient care, present certain unique compliance, regulatory, and risk-management issues. In some states, OU beds may not count against a hospital’s quota of licensed, inpatient beds and/or be subject to certificate of need determinations. An area of regulatory uncertainty relates to obligations created under the Emergency Medical Treatment and Labor Act for patients in observation status. In addition, OU care, with its unique billing codes and hospital requirements, requires careful attention to clinical protocols as well as documentation and management of medical records.

MEASURING AND ENSURING QUALITY OF CARE IN OUs

A well-functioning OU staff may commonly admit, manage, and discharge its entire census of patients in the course of a day. Safe and efficient operation of these high-volume, high-turnover units requires particular

attention to developing policies and procedures addressing administration, staffing, quality assurance, patient safety, equipment, clinical protocols for treatment, and quality measures. Macy et al¹⁸ have suggested components of a performance metrics “dashboard” for pediatric OUs. Although some of the most commonly cited OU-specific quality measures include return visit rates, length of stay, and financial performance, consistent and comparative measures of operational and clinical performance have been hampered by a lack of standard definitions.¹⁸

As an example, return visit rates will vary depending on the follow-up time period, the type of return visits being tracked, and how closely the initial and subsequent medical conditions are related. Similarly, OU length of stay determination will vary depending on the definition of the starting and ending points of care. In addition, variability in accounting methods to report and allocate OU revenue and costs creates challenges in describing the economic outcomes of OU care.

The rate of admission for traditional inpatient care after observation services is also frequently tracked as a quality marker. Although sometimes characterized as “failed observation,”¹⁸ progress to traditional hospital admission should be expected of a substantial portion of patients receiving observation services, especially those being observed to determine whether hospital admission will be required. The frequency of inpatient admission among children initially treated in OUs varies widely and may be impacted by medical condition or admission and discharge criteria for individual units. Reported admission rates range from 4% for diagnoses such as croup and seizures to, in some cases, more than 50% for respiratory conditions such as bronchiolitis.^{6,16,18,20,22,23} An overall

rate of 15% to 25% conversion from observation to full inpatient status is commonly reported.¹⁸ Rates higher or lower than these suggest a need for reevaluation of admission criteria.

Attempts to identify the clinical features that differentiate which specific patients will go on to require an inpatient admission from those who will be discharged have had only marginal success. The clinical characteristics of patients more likely to require admission from an OU vary widely by diagnosis and care provided. Studies of children with asthma treated in an OU did not find meaningful differences in clinical characteristics of patients who were successfully discharged from the OU and those who required hospital admission, except for a persistent need for oxygen supplementation.^{24,25} Hypoxia also predicts hospital admission for children with bronchiolitis.²³ Among children with dehydration caused by gastroenteritis and treated in an OU, unplanned admission was required in 19%, although there were no significant associations between specific historical, physical examination, or laboratory characteristics and the need for admission.²⁶ Young age (<30 days) has been shown to be associated with a risk of inpatient admission, along with diagnoses of hematochezia, viral pneumonia, and bronchiolitis.¹⁸ Among patients with closed head injuries treated in an OU in a pediatric level 1 trauma center, patients with basilar skull fracture, head laceration, or the need for intravenous fluids were more likely to need inpatient admission after OU management.²⁷ A recent study at a major children’s hospital revealed use of certain resources, including intravenous fluids and medications, cardiorespiratory monitoring, respiratory therapy, subspecialty consultation, and oxygen, were associated with hospitalization.²⁸

The diagnoses most commonly leading to hospitalization included asthma, adenitis, cellulitis, bronchiolitis, and the presence of esophageal foreign bodies.²⁸

In addition to return visit and hospital admission rates, best practices in OUs generally include tracking other clinical quality metrics. Examples include the following: adverse events, patient outcomes, satisfaction (of patients, parents,²⁹ staff, and referring or primary care physicians³⁰), and compliance with clinical protocols.¹⁸

The clinical characteristics of patients who are receiving observation services support the use of standardized clinical pathways for common diagnoses such as croup³¹ and dehydration.¹⁵ Although the quality effect of these pathways can be difficult to measure, standardized care has been shown to reduce the length of stay for patients in an OU compared with patients with equivalent conditions in an inpatient unit³² by reducing unnecessary variations in care. The nature of OU care also requires clear indications as to when patients are moved out of observation status, either to inpatient hospital admission or discharge, providing additional opportunities to standardize care.

In addition to standard care protocols, safety and family-centered care may be enhanced through effective communication in the OU. Medical control responsibilities should be clearly delineated for all patients to ensure smooth transitions from the ED, operating room, or procedure area to inpatient or off-unit testing areas to reduce the risks associated with “handovers” or transfers of care from 1 site to another. After an episode of OU care, a discharge summary and follow-up plan provided to the family and primary provider is important to support the child’s family and medical home.³³

EFFECT OF OUs ON INPATIENT HOSPITAL UTILIZATION

A benefit of OUs is that they may reduce the rate of admissions to inpatient units. Although there are limited data to support this claim, OUs may have an especially important effect on pediatric inpatient admissions, in part because a significant number of inpatient admissions among children are of relatively short duration. An analysis of the Nationwide Inpatient Sample database, an all-payer nationally representative data set of hospital discharges compiled by the Agency for Healthcare Research and Quality, revealed that since 1999, nearly one-third of children hospitalized in the United States have stayed fewer than 2 nights.³⁴ Furthermore, the proportion of short-stay patients (0 or 1 night) increased from 25% to 30% between 1993 and 2003. Many of these patients are likely eligible for care in OUs.

Several studies support the notion that observation services can substitute for traditional inpatient admission. In a study of inpatient pediatric admissions for asthma in Rochester, NY, more than 70% of admissions could either have been avoided entirely or patients could have been treated in an observation setting.³⁵ In another study of emergency asthma care in a pediatric ED before and after implementation of an OU, the admission rate for asthma decreased 23%, although there was a modest increase in asthma-related return visits to the ED.³⁶ In a retrospective review of admissions for croup to a children's hospital after introduction of an OU, the rate of hospitalization among "nondischargeable" children with croup decreased from 9.5% to 4.2%, and median charges and length of stay were also decreased in the OU group.³⁷ A study of an ED-based OU in France revealed that among 509

admissions to an OU, the decision in the absence of the OU would have been hospital admission in nearly 80%.¹⁵ The authors concluded that having an OU reduced patient hospitalizations while generating few inappropriate short-stay hospitalizations. A recent study of a British pediatric OU had similar findings.¹²

In published studies comparing observation care to inpatient care for selected diagnoses and cases, OU length of stay has been described as shorter than the inpatient alternative.^{32,37-40} Because the care model in the OU may involve fewer handovers, more protocol-driven care, and more frequent patient assessment when compared with traditional inpatient care, reduction in length of stay in these units may be achieved by reducing the time from when the patient is clinically ready for discharge until actual departure from the unit. A chart review of 220 patients admitted to an Australian teaching hospital revealed that 65% of patients were medically ready for discharge within 12 hours.⁴¹ The authors also found that the actual length of stay was closer to 17 hours, and they postulated that unnecessary delays caused by administrative aspects of hospital admission and the relatively infrequent evaluation of patients in inpatient settings may lengthen the period of admission. They suggested that many short-stay patients who are admitted to hospitals may be eligible for care in OUs. McConnochie et al⁴² have shown similar results in a US study of pediatric patients admitted for gastroenteritis. Despite a growing body of evidence supporting the concept that observation services can substitute for inpatient admissions, however, there are insufficient data to assess the overall effect of OUs on pediatric inpatient use rates across the United States.¹⁸

Another potential effect of OUs is on the problem of ED overcrowding and patient flow. Patients in EDs may experience long delays when ED rooms are being used by patients needing ongoing treatment or awaiting an inpatient bed. A computer simulation study at the Children's Hospital in Vancouver British Columbia⁴³ revealed that an OU would reduce wait times in the pediatric ED by creating additional capacity and improving patient flow. Although it is plausible that establishing an OU could lead to increased hospitalization, because some patients who would previously have been discharged after ED evaluation might instead be admitted to the OU, this was not found in a recent, large, prospective pediatric study.²⁸

CODING FOR OBSERVATION CARE

Historically, observation care has been clinically defined as care provided in less than 48 hours. However, for the purposes of coding and reporting of clinical services provided to observation patients, many payers, including Medicaid, have defined observation status by using clinical criteria that do not depend on time. Rather, observation status is more typically characterized as a set of clinically appropriate specific services that include ongoing short-term treatment, assessment, and reassessment before deciding whether a patient requires further treatment as a hospital inpatient or discharge from the outpatient hospital, independent of the time required for treatment.

Pediatricians who provide observation services for children need to be aware that there are specific, nuanced rules that govern the reporting and payment for professional services associated with observation care. The American Medical Association's CPT manual, the standard reference for coding medical encounters with patients, categorizes hospital observation services

under “evaluation and management” services.⁴⁴ The observation codes represent an unusual set of CPT codes. They represent physician services that lie between ambulatory and outpatient care and inpatient admission services. These codes may be reported by physicians practicing any specialty, including emergency physicians, hospitalists, and office, clinic, or hospital-based general pediatricians or pediatric medical subspecialists. The coding rules governing the reporting of professional fee codes for observation services are not the same as the reporting rules that health plans or state Medicaid agencies use to determine observation or inpatient status, which in turn determines facility payments. In general, the attending physician makes the determination as to whether the care provided is at the level of observation or inpatient. However, hospitals or payers including Medicaid frequently define observation care by using clinical characteristics developed by companies such as InterQual,⁴⁵ and these characteristics may vary depending on payer and geographic area.

The use of observation codes is based on the level, rather than the location, of care provided and, like all evaluation and management coding, requires careful documentation of the history, examination, and medical decision-making. Observation services may be reported by physicians for patients treated in an ED, OU, or an inpatient or other hospital unit. These codes are divided into those used when the child is both placed on observation status and discharged on the same date of service versus those used when the child is placed on observation status 1 day and sent home on another. When the child’s observation services are begun and completed on the same date of service, the code set 99234–99236 is used. One or more physicians practicing the same specialty may not bill the same patient for the same

complaint or illness on the same day. Thus, for example, an emergency physician or 2 emergency physicians may not submit professional bills for both emergency care and observation care on the same day. If the child is seen for the same complaint or illness in a number of different sites of service by a single physician (eg, office, ED, observation, and inpatient admission), only 1 code representing the final disposition of the patient is reported for that date. However, practitioners of different specialties, such as an emergency physician who first evaluates a patient and another physician practicing pediatrics in an OU, may submit separate professional bills on the first calendar day of admission, even if they are evaluating the same complaint or illness. When the child is placed on observation care on 1 date and discharged from the hospital on another calendar day, the 99218–99220 code set is used for the initial date of service, the code set 99226–99226 is used for subsequent days, and 99217 is used on the discharge day.⁴⁶ Children meeting clinical criteria may be transferred to inpatient status with the use of initial and subsequent inpatient care codes as determined by history, physical examination, and medical decision-making. An order reflecting the status change should be written. Code 99217 should not be used when a patient is transferred from observation to inpatient status.

CONCLUSIONS

With continued financial pressures to reduce costs of care as well as greater emphasis on efficiency and patient-centered care, it is likely that many hospitals providing care for children will offer observation services to children and that pediatricians will be increasingly likely to work in an OU or refer patients for OU care. Many

children previously cared for in a traditional inpatient hospital setting may be safely and efficiently cared for in an OU. However, the operation of pediatric OUs presents distinct challenges, including a lack of uniform definitions for the types of OU care, the selection of patients for OU services, and the unique requirements to deliver care that may end with either admission or discharge. Pediatricians, managers, and other care providers should be aware of the unique coding and reporting requirements for observation services and ensure that the documentation provided supports the selection of specific observation care codes. Quality of care in OUs may be enhanced with defined criteria for admission and discharge, use of standardized clinical protocols, and clearly defined policies and procedures defining responsibility for the patient’s care while in observation status. A growing research base, largely descriptive to date, suggests that OUs enhance the care of children; further research is necessary to better describe the contributions of OUs to overall pediatric health.

LEAD AUTHORS

Gregory P. Connors, MD, MPH, MBA
Sanford M. Melzer, MD, MBA

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Matthew Scanlon, MD – *Hospital Accreditation Professional and Technical Advisory Committee, The Joint Commission*

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Susan M. Fuchs, MD
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Steven M. Selbst, MD
Joseph L. Wright, MD, MPH

LIAISONS

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Kim Bullock, MD – *American Academy of Family Physicians*
Toni K. Gross, MD, MPH – *National Association of EMS Physicians*
Elizabeth Edgerton, MD, MPH – *Maternal and Child Health Bureau*

Tamar Magarik Haro – *AAP Department of Federal Affairs*
Jaclynn S. Haymon, MPA, RN – *EMSC National Resource Center*
Cynthia Wright Johnson, MSN, RNC – *National Association of State EMS Officials*
Lou E. Romig, MD – *National Association of Emergency Medical Technicians*
Sally K. Snow, RN, BSN – *Emergency Nurses Association*
David W. Tuggle, MD – *American College of Surgeons*

STAFF

Sue Tellez

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