

# Pediatric Hospital Medicine Core Competencies: Development and Methodology

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**Background:** Pediatric hospital medicine is the most rapidly growing site-based pediatric specialty. There are over 2500 unique members in the three core societies in which pediatric hospitalists are members: the American Academy of Pediatrics (AAP), the Academic Pediatric Association (APA) and the Society of Hospital Medicine (SHM). Pediatric hospitalists are fulfilling both clinical and system improvement roles within varied hospital systems. Defined expectations and competencies for pediatric hospitalists are needed.

**Methods:** In 2005, SHM's Pediatric Core Curriculum Task Force initiated the project and formed the editorial board. Over the subsequent four years, multiple pediatric hospitalists belonging to the AAP, APA, or SHM contributed to the content of and guided the development of the project. Editors and collaborators created a framework for identifying appropriate competency content areas. Content experts from both within and outside of pediatric hospital medicine participated as contributors. A number of selected national organizations and societies provided valuable feedback on chapters. The final product was validated by formal review from the AAP, APA, and SHM.

**Results:** The *Pediatric Hospital Medicine Core Competencies* were created. They include 54 chapters divided into four sections: Common Clinical Diagnoses and Conditions, Core Skills, Specialized Clinical Services, and Healthcare Systems: Supporting and Advancing Child Health. Each chapter can be used independently of the others. Chapters follow the knowledge, skills, and attitudes educational curriculum format, and have an additional section on systems organization and improvement to reflect the pediatric hospitalist's responsibility to advance systems of care.

**Conclusion:** These competencies provide a foundation for the creation of pediatric hospital medicine curricula and serve to standardize and improve inpatient training practices. *Journal of Hospital Medicine* 2010;5:339–343. © 2010 Society of Hospital Medicine.

**KEYWORDS:** hospitalist, hospital medicine, pediatric, child, competency, curriculum, methodology.

## Introduction

The Society of Hospital Medicine (SHM) defines hospitalists as physicians whose primary professional focus is the comprehensive general medical care of hospitalized patients. Their activities include patient care, teaching, research, and leadership related to Hospital Medicine.<sup>1</sup> It is estimated that there are up to 2500 pediatric hospitalists in the United States, with continued growth due to the converging needs for a dedicated focus on patient safety, quality improvement, hospital throughput, and inpatient teaching.<sup>2–9</sup> (Pediatric Hospital Medicine (PHM), as defined today, has been practiced in the United States for at least 30 years<sup>10</sup> and continues to evolve as an area of specialization, with the refinement of a distinct knowledgebase and skill set focused on the provision of high quality general pediatric care in the inpatient setting. PHM is the latest site-specific specialty to emerge from the field of general pediatrics – its development analogous to the evolution of critical care or emer-

gency medicine during previous decades.<sup>11</sup> Adult hospital medicine has defined itself within the field of general internal medicine<sup>12</sup> and has recently received approval to provide a recognized focus of practice exam in 2010 for those re-certifying with the American Board of Internal Medicine,<sup>13</sup> PHM is creating an identity as a subspecialty practice with distinct focus on inpatient care for children within the larger context of general pediatric care.<sup>8,14</sup>

The *Pediatric Hospital Medicine Core Competencies* were created to help define the roles and expectations for pediatric hospitalists, regardless of practice setting. The intent is to provide a unified approach toward identifying the specific body of knowledge and measurable skills needed to assure delivery of the highest quality of care for all hospitalized pediatric patients. Most children requiring hospitalization in the United States are hospitalized in community settings where subspecialty support is more limited and many pediatric services may be unavailable. Children with complex,

chronic medical problems, however, are more likely to be hospitalized at a tertiary care or academic institutions. In order to unify pediatric hospitalists who work in different practice environments, the *PHM Core Competencies* were constructed to represent the knowledge, skills, attitudes, and systems improvements that all pediatric hospitalists can be expected to acquire and maintain.

Furthermore, the content of the *PHM Core Competencies* reflect the fact that children are a vulnerable population. Their care requires attention to many elements which distinguishes it from that given to the majority of the adult population: dependency, differences in developmental physiology and behavior, occurrence of congenital genetic disorders and age-based clinical conditions, impact of chronic disease states on whole child development, and weight-based medication dosing often with limited guidance from pediatric studies, to name a few. Awareness of these needs must be heightened when a child enters the hospital where diagnoses, procedures, and treatments often include use of high-risk modalities and require coordination of care across multiple providers.

Pediatric hospitalists commonly work to improve the systems of care in which they operate and therefore both clinical and non-clinical topics are included. The 54 chapters address the fundamental and most common components of inpatient care but are not an extensive review of all aspects of inpatient medicine encountered by those caring for hospitalized children. Finally, the *PHM Core Competencies* are not intended for use in assessing proficiency immediately post-residency, but do provide a framework for the education and evaluation of both physicians-in-training and practicing hospitalists. Meeting these competencies is anticipated to take from one to three years of active practice in pediatric hospital medicine, and may be reached through a combination of practice experience, course work, self-directed work, and/or formalized training.

## Methods

### Timeline

In 2002, SHM convened an educational summit from which there was a resolution to create core competencies. Following the summit, the SHM Pediatric Core Curriculum Task Force (CCTF) was created, which included 12 pediatric hospitalists practicing in academic and community facilities, as well as teaching and non-teaching settings, and occupying leadership positions within institutions of varied size and geographic location. Shortly thereafter, in November 2003, approximately 130 pediatric hospitalists attended the first PHM meeting in San Antonio, Texas.<sup>11</sup> At this meeting, with support from leaders in pediatric emergency medicine, first discussions regarding PHM scope of practice were held.

Formal development of the competencies began in 2005 in parallel to but distinct from SHM's adult work, which culminated in *The Core Competencies in Hospital Medicine: A Framework for Curriculum Development* published in 2006.

**TABLE 1. Timeline: Creation of the PHM Core Competencies**

Date	Event
Feb 2002	SHM Educational Summit held and CCTF created
Oct 2003	1 <sup>st</sup> PHM meeting held in San Antonio
2003-2007	Chapter focus determined; contributors engaged
2007-2008	APA PHM Special Interest Group (SIG) review; creation of separate PHM Fellowship Competencies (not in this document)
Aug 2008-Oct 2008	SHM Pediatric Committee and CCTF members resume work; editorial review
Oct 2008-Mar 2009	<i>Internal review:</i> PHM Fellowship Director, AAP, APA, and SHM section/committee leader, and key national PHM leader reviews solicited and returned
Mar 2009	PHM Fellowship Director comments addressed; editorial review
Mar-Apr 2009	<i>External reviewers</i> solicited from national agencies and societies relevant to PHM
Apr-July 2009	External reviewer comments returned
July-Oct 2009	Contributor review of all comments; editorial review, sections revised
Oct 2009	<i>Final review:</i> Chapters to SHM subcommittees and Board

The CCTF divided into three groups, focused on clinical, procedural, and systems-based topics. Face-to-face meetings were held at the SHM annual meetings, with most work being completed by phone and electronically in the interim periods. In 2007, due to the overlapping interests of the three core pediatric societies, the work was transferred to leaders within the APA. In 2008 the work was transferred back to the leadership within SHM. Since that time, external reviewers were solicited, new chapters created, sections realigned, internal and external reviewer comments incorporated, and final edits for taxonomy, content, and formatting were completed (Table 1).

### Areas of Focused Practice

The *PHM Core Competencies* were conceptualized similarly to the SHM adult core competencies. Initial sections were divided into clinical conditions, procedures, and systems. However as content developed and reviewer comments were addressed, the four final sections were modified to those noted in Table 2. For the *Common Clinical Diagnoses and Conditions*, the goal was to select conditions most commonly encountered by pediatric hospitalists. Non-surgical diagnosis-related group (DRG) conditions were selected from the following sources: The Joint Commission's (TJC) Oryx Performance Measures Report<sup>15-16</sup> (asthma, abdominal pain, acute gastroenteritis, simple pneumonia); Child Health Corporation of America's Pediatric Health Information System Dataset (CHCA PHIS, Shawnee Mission, KS), and relevant publications on common pediatric hospitalizations.<sup>17</sup> These data were compared to billing data from randomly-selected practicing hospitalists representing free-standing children's and community hospitals, teaching and non-

**TABLE 2. PHM Core Competency Chapters and Sections**

Common Clinical Diagnoses and Conditions		Specialized Clinical Services	Core Skills	Healthcare Systems: Supporting and Advancing Child Health
Acute abdominal pain and the acute abdomen	Neonatal fever	Child abuse and neglect	Bladder catheterization/ suprapubic bladder tap	Advocacy
Apparent life-threatening event	Neonatal jaundice	Hospice and palliative care	Electrocardiogram interpretation	Business practices
Asthma	Pneumonia	Leading a healthcare team	Feeding tubes	Communication
Bone and joint infections	Respiratory failure	Newborn care and delivery room management	Fluids and electrolyte management	Continuous quality improvement
Bronchiolitis	Seizures	Technology-dependent children	Intravenous access and phlebotomy	Cost-effective care
Central nervous system infections	Shock	Transport of the critically ill child	Lumbar puncture	Education
Diabetes mellitus	Sickle cell disease		Non-invasive monitoring	Ethics
Failure to thrive	Skin and soft tissue infection		Nutrition	Evidence-based medicine
Fever of unknown origin	Toxic ingestion		Oxygen delivery and airway management	Health information systems
Gastroenteritis	Upper airway infections		Pain management	Legal issues/risk management
Kawasaki disease	Urinary tract infections		Pediatric advanced life support	Patient safety

teaching settings, and urban and rural locations. The 22 clinical conditions chosen by the CCTF were those most relevant to the practice of pediatric hospital medicine.

The *Specialized Clinical Services* section addresses important components of care that are not DRG-based and reflect the unique needs of hospitalized children, as assessed by the CCTF, editors, and contributors. *Core Skills* were chosen based on the HCUP Factbook 2 – Procedures,<sup>18</sup> billing data from randomly-selected practicing hospitalists representing the same settings listed above, and critical input from reviewers. Depending on the individual setting, pediatric hospitalists may require skills in areas not found in these 11 chapters, such as chest tube placement or ventilator management. The list is therefore not exhaustive, but rather representative of skills most pediatric hospitalists should maintain.

The *Healthcare Systems: Supporting and Advancing Child Health* chapters are likely the most dissimilar to any core content taught in traditional residency programs. While residency graduates are versed in some components listed in these chapters, comprehensive education in most of these competencies is currently lacking. Improvement of healthcare systems is an essential element of pediatric hospital medicine, and unifies all pediatric hospitalists regardless of practice environment or patient population. Therefore, this section includes chapters that not only focus on systems of care, but also on advancing child health through advocacy, research, education, evidence-based medicine, and ethical practice. These chapters were drawn from a combination of several sources: expectations of external agencies (TJC, Center for Medicaid and Medicare) related to the specific non-clinical work in which pediatric hospitalists are integrally involved; expectations for advocacy as best defined by the AAP and the National Association of Children's Hospitals and Related Institutions (NACHRI); the six core competency domains mandated by the Accrediting Council on Graduate

Medical Education (ACGME), the American Board of Pediatrics (ABP), and hospital medical staff offices as part of Focused Professional Practice Evaluation (FPPE) and Ongoing Professional Practice Evaluation (OPPE)<sup>16</sup>; and assessment of responsibilities and leadership roles fulfilled by pediatric hospitalists in all venues. In keeping with the intent of the competencies to be “timeless”, the competency elements call out the need to attend to the changing goals of these groups as well as those of the Institute of Healthcare Improvement (IHI), the Alliance for Pediatric Quality (which consists of ABP, AAP, TJC, CHCA, NACHRI), and local hospital systems leaders.

### Contributors and Review

The CCTF selected section (associate) editors from SHM based on established expertise in each area, with input from the SHM Pediatric and Education Committees and the SHM Board. As a collaborative effort, authors for various chapters were solicited in consultation with experts from the AAP, APA, and SHM, and included non-hospitalists with reputations as experts in various fields. Numerous SHM Pediatric Committee and CCTF conference calls were held to review hospital and academic appointments, presentations given, and affiliations relevant to the practice of pediatric hospital medicine. This vetting process resulted in a robust author list representing diverse geographic and practice settings. Contributors were provided with structure (Knowledge, Skills, Attitudes, and Systems subsections) and content (timeless, competency based) guidelines.

The review process was rigorous, and included both internal and external reviewers. The APA review in 2007 included the PHM Special Interest Group as well as the PHM Fellowship Directors (Table 1). After return to SHM and further editing, the internal review commenced which focused on content and scope. The editors addressed the resulting suggestions and worked to standardize formatting

and use of Bloom's taxonomy.<sup>19</sup> A list of common terms and phrases were created to add consistency between chapters. External reviewers were first mailed a letter requesting interest, which was followed up by emails, letters, and phone calls to encourage feedback. External review included 29 solicited agencies and societies (Table 3), with overall response rate of 66% (41% for Groups I and II). Individual contributors then reviewed comments specific to their chapters, with associate editor overview of their respective sections. The editors reviewed each chapter individually multiple times throughout the 2007-2009 years, contacting individual contributors and reviewers by email and phone. Editors concluded a final comprehensive review of all chapters in late 2009.

### Chapter Content

Each of the 54 chapters within the four sections of these competencies is presented in the educational theory of learning domains: Knowledge, Skills, Attitudes, with a final Systems domain added to reflect the emphasis of hospitalist practice on improving healthcare systems. Each chapter is designed to stand alone, which may assist with development of curriculum at individual practice locations. Certain key phrases are apparent throughout, such as "lead, coordinate, or participate in..." and "work with hospital and community leaders to..." which were designed to note the varied roles in different practice settings. Some chapters specifically comment on the application of competency bullets given the unique and differing roles and expectations of pediatric hospitalists, such as research and education. Chapters state specific proficiencies expected wherever possible, with phrases and wording selected to help guide learning activities to achieve the competency.

### Application and Future Directions

Although pediatric hospitalists care for children in many settings, these core competencies address the common expectations for any venue. Pediatric hospital medicine requires skills in acute care clinical medicine that attend to the changing needs of hospitalized children. The core of pediatric hospital medicine is dedicated to the care of children in the geographic hospital environment between emergency medicine and tertiary pediatric and neonatal intensive care units. Pediatric hospitalists provide care in related clinical service programs that are linked to hospital systems. In performing these activities, pediatric hospitalists consistently partner with ambulatory providers and subspecialists to render coordinated care across the continuum for a given child. Pediatric hospital medicine is an interdisciplinary practice, with focus on processes of care and clinical quality outcomes based in evidence. Engagement in local, state, and national initiatives to improve child health outcomes is a cornerstone of pediatric hospitalists' practice. These competencies provide the framework for creation of curricula that can reflect local issues and react to changing evidence.

**TABLE 3. Solicited Internal and External Reviewers**

<b>I. Academic and certifying societies</b>	
Academic Pediatric Association	
Accreditation Council for Graduate Medical Education, Pediatric Residency Review Committee	
American Academy of Family Physicians	
American Academy of Pediatrics – Board	
American Academy of Pediatrics – National Committee on Hospital Care	
American Association of Critical Care Nursing	
American Board of Family Medicine	
American Board of Pediatrics	
American College of Emergency Physicians	
American Pediatric Society	
Association of American Medical Colleges	
Association of Medical School Pediatric Department Chairs (AMSPDC)	
Association of Pediatric Program Directors	
Council on Teaching Hospitals	
Society of Pediatric Research	
<b>II. Stakeholder agencies</b>	
Agency for Healthcare Research and Quality	
American Association of Critical Care Nursing	
American College of Emergency Physicians	
American Hospital Association (AHA)	
American Nurses Association	
American Society of Health-System Pharmacists	
Child Health Corporation of America (CHCA)	
Institute for Healthcare Improvement	
National Association for Children's Hospitals and Related Institutions (NACHRI)	
National Association of Pediatric Nurse Practitioners (NAPNAP)	
National Initiative for Children's Healthcare Quality (NICHQ)	
National Quality Forum	
Quality Resources International	
Robert Wood Johnson Foundation	
The Joint Commission for Accreditation of Hospitals and Organizations (TJC)	
<b>III. Pediatric hospital medicine fellowship directors</b>	
Boston Children's	
Children's Hospital Los Angeles	
Children's National D.C.	
Emory	
Hospital for Sick Kids Toronto	
Rady Children's San Diego – University of California San Diego	
Riley Children's Hospital Indiana	
University of South Florida, All Children's Hospital	
Texas Children's Hospital, Baylor College of Medicine	
<b>IV. SHM, APA, AAP Leadership and committee chairs</b>	
American Academy of Pediatrics – Section on Hospital Medicine	
Academic Pediatric Association – PHM Special Interest Group	
SHM Board	
SHM Education Committee	
SHM Family Practice Committee	
SHM Hospital Quality and Patient Safety Committee	
SHM IT Task Force	
SHM Journal Editorial Board	
SHM Palliative Care Task Force	
SHM Practice Analysis Committee	
SHM Public Policy Committee	
SHM Research Committee	

As providers of systems-based care, pediatric hospitalists are called upon more and more to render care and provide leadership in clinical arenas that are integral to healthcare organizations, such as home health care, sub-acute care

facilities, and hospice and palliative care programs. The practice of pediatric hospital medicine has evolved to its current state through efforts of many represented in the competencies as contributors, associate editors, editors, and reviewers. Pediatric hospitalists are committed to leading change in healthcare for hospitalized children, and are positioned well to address the interests and needs of community and urban, teaching and non-teaching facilities, and the children and families they serve. These competencies reflect the areas of focused practice which, similar to pediatric emergency medicine, will no doubt be refined but not fundamentally changed in future years. The intent, we hope, is clear: to provide excellence in clinical care, accountability for practice, and lead improvements in healthcare for hospitalized children.

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