Multi-Stakeholder Informed Guidelines for Direct Admission of Children to Hospital

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Objectives To develop pediatric direct admission guidelines and prioritize outcomes to evaluate the safety and effectiveness of hospital admission processes.

Study design We conducted deliberative discussions at 1 children's hospital and 2 community hospitals, engaging parents of hospitalized children and inpatient, outpatient, and emergency department physicians and nurses to identify shared and dissenting perspectives regarding direct admission processes and outcomes. Discussions were audio-recorded, professionally transcribed, and analyzed using a general inductive approach. We then convened a national panel to prioritize guideline components and outcome measures using a RAND/UCLA Modified Delphi approach.

Results Forty-eight stakeholders participated in 6 deliberative discussions. Emergent themes related to effective multistakeholder communication, resources needed for high quality direct admissions, written direct admission guidelines, including criteria to identify children appropriate for and inappropriate for direct admission, and families' needs. Building on these themes, Delphi panelists endorsed 71 guideline components as both appropriate and necessary at children's hospitals and community hospitals and 13 outcomes to evaluate hospital admission systems. Guideline components include (1) pre-admission communication, (2) written guidelines, (3) hospital resources to optimize direct admission processes, (4) special considerations for pediatric populations that may be at particular risk of nosocomial infection and/or stress in emergency departments, (5) communication with families referred for direct admission, and (6) quality reviews to evaluate admission systems.

Conclusions These direct admission guidelines can be adapted by hospitals and health systems to inform hospital admission policies and protocols. Multistakeholder engagement in evaluation of hospital admission processes may improve transitions of care and health system integration. *(J Pediatr 2018;198:273-8).*

One-quarter of unplanned pediatric hospitalizations in the US begin as direct admissions, defined as admission to hospital without first receiving care in the hospital's emergency department (ED).[1] Compared with hospital admission originating in the ED, pediatric direct admission has been associated with less diagnostic testing and lower hospitalization costs, with no significant differences in rates of adverse outcomes including readmission and transfer for intensive care.[1-3] Additional potential benefits of direct admission include decreased ED crowding, decreased risk of nosocomial infection, and greater care coordination between referring and accepting healthcare providers.[4,5] A national survey of inpatient pediatric medical directors found that 50% believed more children should be admitted directly, yet less than one-third of hospitals had direct admission policies or guidelines.[5]

Although increasing rates of direct admission may have benefits for children, healthcare providers, and healthcare systems, research conducted in adult populations raises concerns about the safety and quality of this hospital admission approach. Among adults admitted with time-sensitive conditions including acute myocardial infarction and sepsis, direct admission has been associated with higher mortality than admission through EDs (differences not observed in adults with pneumonia, asthma, or cellulitis).[6,7] Although similar findings have not emerged in the small number of pediatric studies performed to date, pediatricians have also raised concerns about potential delays in management and treatment associated with direct admission.[2,3,5] The development and application of direct admission guidelines, coupled with institutional evaluations of direct admission processes, may improve the quality and safety of this admission approach.

Our objectives were to engage the multiple stakeholders involved in direct admission processes to develop pediatric direct admission guidelines for unscheduled

ED	Emergency department
PCP	Primary care provider
RAM	RAND/UCLA appropriateness methods

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Supported by the National Center for Advancing Translational Sciences, National Institutes of Health (UL1 TR001064). J.L. was supported by the Agency for Healthcare Research and Quality (K08HS024133). P.L. was supported by the National Heart, Lung, and Blood Institute (K24HL132008). The content is solely the responsibility of the authors and does not necessarily represent the official views of AHRQ or the NIH. The authors declare no conflicts of interest.

https://doi.org10.1016/j.jpeds.2018.03.007

hospital admissions, and to define and prioritize outcomes that could be used to evaluate the safety and effectiveness of hospital admission processes.

Methods

Our guideline development and outcome prioritization process involved application of deliberative methods to identify direct admission processes and outcomes most valued by diverse stakeholders, and a RAND/UCLA Modified Delphi process to prioritize direct admission guideline components and outcome measures. We applied these methods sequentially, using deliberative methods to generate rich data regarding stakeholders shared and dissenting perspectives, and Delphi methods to engage a national panel of experts to prioritize guideline components. Dartmouth College, Tufts Medical Center, Lawrence General Hospital, and Lowell General Hospital Institutional Review Boards provided study approval.

We conducted deliberative discussions at 1 children's hospital and 2 general community hospitals in June 2016, applying methods rooted in deliberative democratic theory, to learn about stakeholders' respective experiences with direct admissions and discuss how to optimize this admission approach, taking into consideration others' perspectives and values.[8,9] Our discussions were structured similarly to focus groups, but, consistent with deliberative methods, began with an educational component summarizing current direct admission processes and existing literature about the strengths and limitations of this admission approach. This educational component was followed by facilitated discussions in mixed stakeholder groups to encourage debate and identify shared and dissenting perspectives.[9-11] Our discussions focused on 4 areas: (1) diagnoses and pediatric populations that may benefit or be at risk from direct admissions; (2) hospital and clinic settings and infrastructure that may impact direct admissions; (3) logistical challenges, safety concerns, and methods to address these; and (4) quality and safety outcomes. Stakeholders included (1) parents of hospitalized children, (2) inpatient nurses, (3) hospitalists, (4) pediatric primary care providers (PCPs), (5) pediatric specialists, (6) ED physicians, (7) outpatient nurses, (8) resident physicians, and (9) an insurance company representative. Stakeholders were purposefully sampled to reflect diverse pediatric health conditions, practice types, and hospital environments.

Six mixed stakeholder groups were convened at 3 hospitals, with each discussion facilitated by 2 trained facilitators. Approximately 2 weeks prior to discussions, all stakeholders were provided with a summary of published studies regarding direct admission quality and safety. A semistructured discussion guide was developed by the research team and pilot tested with parents and healthcare providers, not included in the final sample, to ensure that questions were clear and prompted discussion. Verbal consent was received from all stakeholders before initiation. Following each facilitated discussion, consistent with established deliberative methods, stakeholders were asked to suggest outcomes that should be used to evaluate hospital admission processes, and then to vote for 3 outcomes they considered most relevant. These outcomes were selected from the full list of potential outcomes generated by participants during each deliberative discussion, and therefore, varied somewhat across discussion groups.

All discussions were audio-recorded with permission and professionally transcribed with identifiers removed. Following verification of transcript accuracy, transcripts were uploaded to Dedoose, a mixed-methods data analysis program, and analyzed to identify emergent themes regarding direct admission processes and outcomes using a general inductive approach.[12] Transcripts were coded by 2 members of the research team with areas of disagreement resolved via discussion. Edits to the coding framework and codebook definitions were made as needed to support consistency with code application. Following coding, similar codes were grouped as themes, and similar themes were grouped as domains.

Delphi Methods

Panelists. We applied the RAND/UCLA modified Delphi approach to prioritize direct admission processes and outcomes for inclusion in a direct admission guideline.[13] Consistent with RAND/UCLA appropriateness methods (RAM), we convened a panel of 9 panelists, nominated via national organizations including Family Voices, the Healthcare Delivery Committee of the Academic Pediatric Association, the Society of Pediatric Nurses, the American Academy of Pediatrics Section on Hospital Medicine, Council on Pediatric Subspecialties, and Committee on Child Health Financing.[13] Panelists included a parent of a child with several past hospitalizations, an inpatient pediatric nurse, a PCP working in a community practice, a PCP working in a children's hospital-affiliated practice, an ED physician, a community pediatric hospitalist, a tertiary care pediatric hospitalist, a pediatric pulmonologist, and a pediatric surgeon, representing 8 health systems nationally. These 9 panelists completed 2 electronic surveys and participated in 2 conference calls as described below.

Survey Development. First-round Delphi survey items were developed based on review of the literature and the above-described deliberative methods. Specifically, transcripts from the deliberative discussions were reviewed by 2 analysts to identify all excerpts that could be operationalized as guideline components or outcomes. The survey was then pilot tested with healthcare providers and parents, not included in the final sample, to ensure that the items were clear and comprehensive. Prior to data collection, Delphi panelists were also asked to review the survey for clarity and comprehensiveness. The first-round survey included 103 items related to (1) pre-admission communication, (2) written guideline components, (3) hospital resources, (4) populations best-suited to and inappropriate for direct admission, (5) communication with families, and (6) direct admission outcomes. Panelists were asked to focus on unplanned direct admissions that involved a referral of a patient from an outpatient healthcare provider to an inpatient healthcare provider, excluding intensive care.

Panelists were asked to rate the appropriateness and necessity of each item on a 9-point Likert scale, considering each