

Strategies to Reduce Hospitalizations of Children With Medical Complexity Through Complex Care: Expert Perspectives



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ABSTRACT

OBJECTIVE: Interventions to reduce disproportionate hospital use among children with medical complexity (CMC) are needed. We conducted a rigorous, structured process to develop intervention strategies aiming to reduce hospitalizations within a complex care program population.

METHODS: A complex care medical home program used 1) semistructured interviews of caregivers of CMC experiencing acute, unscheduled hospitalizations and 2) literature review on preventing hospitalizations among CMC to develop key drivers for lowering hospital utilization and link them with intervention strategies. Using an adapted version of the RAND/UCLA Appropriateness Method, an expert panel rated each model for effectiveness at impacting each key driver and ultimately reducing hospitalizations. The complex care program applied these findings to select a final set of feasible intervention strategies for implementation.

RESULTS: Intervention strategies focused on expanding access to familiar providers, enhancing general or technical caregiver

knowledge and skill, creating specific and proactive crisis or contingency plans, and improving transitions between hospital and home. Activities aimed to facilitate family-centered, flexible implementation and consideration of all of the child's environments, including school and while traveling. Tailored activities and special attention to the highest utilizing subset of CMC were also critical for these interventions.

CONCLUSIONS: A set of intervention strategies to reduce hospitalizations among CMC, informed by key drivers, can be created through a structured, reproducible process. Both this process and the results may be relevant to clinical programs and researchers aiming to reduce hospital utilization through the medical home for CMC.

KEYWORDS: chronic illness/conditions; hospitalization; medical complexity

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WHAT'S NEW

Interventions to enhance access, increase caregiver knowledge and technical skill, promote contingency planning, and improve hospital transitions were ranked by a diverse panel of experts as most promising to reduce hospitalizations among children with medical complexity.

CHILDREN WITH MEDICAL complexity (CMC) comprise only around 1% of children¹ but account for one-third of child health spending,^{1,2} of which 50% to 80% is for inpatient care.^{3,4} Recent work highlights substantial variation in hospital utilization patterns for

CMC,⁵ suggesting that reductions may be possible. Care coordination programs have broadly been associated with reductions in hospital use.^{6–8} However, specific care processes (and the mechanisms) that lead to less hospital utilization are poorly understood.⁹

Simultaneously, CMC and their families experience unmet medical needs and face substantial burdens coordinating care and accessing services,¹⁰ all of which potentially drive hospitalizations. Research among CMC suggests that primary care based on principles of the American Academy of Pediatrics medical home model^{8,11–13} and enhanced care coordination activities^{6,14,15} are frameworks through which hospital use may be lowered. Although care organized around the medical home principles is not definitively

proven to lower health services use,¹⁶ its focus on accessibility, family-centeredness, and care coordination position it to improve such outcomes for CMC.¹⁷

The RAND/UCLA Appropriateness Method (RAM),¹⁸ an adaptation of the modified Delphi method, is an explicit process that might be used to identify innovative care activities to lower hospital use for CMC that are feasible and customizable. We integrated our previous systematic literature review⁹ and qualitative research findings¹⁹ with the RAM to systematically evaluate intervention strategies targeting key drivers for reducing CMC hospitalizations. This study offers more pragmatic direction to CMC-focused comprehensive programs and researchers interested in lowering hospital use. The purpose of this study was therefore to apply a rigorous, structured, and reproducible method to create and evaluate intervention strategies aiming to reduce hospital use for CMC receiving care within a complex care program rooted in the medical home principles, and to select an intervention for implementation in a subsequent randomized controlled trial.

METHODS

APPROACH

To develop complex care program interventions, we first identified key drivers for lowering CMC hospital utilization. Second, we linked them with intervention strategies. Third, we evaluated these strategies using RAM. Finally, we completed a local feasibility assessment to select an intervention model to implement. This study was approved by institutional review boards at UCLA and University of Wisconsin.

SETTING

The UCLA Medical Home Program, established in 2003 based on American Academy of Pediatrics (AAP) medical home principles, is a complex care program that provides primary care, urgent care, and care coordination services to CMC.¹¹ The clinical team is composed of general pediatricians, a pediatric nurse practitioner, and 3 bilingual care coordinators. The research team includes child health services researchers within the division of general pediatrics and experienced bilingual research staff who do not deliver clinical care. The program provides subspecialty comanagement, comprehensive care planning, extended visits, care coordination, case management, and communication with community services (eg, schools). Additional components include ongoing quality improvement and a parent advisory group. Enrollment criteria include living in Los Angeles County and qualifying for at least 2 distinct subspecialty care centers through California Children's Services, California's Title V program for low-income children with special health care needs. As a result, all patients are publicly insured.

At the time of the study, the medical home program had 180 patients with an average age of 7.4 years; 47% were female, and 63% were Spanish speaking. With respect to medical complexity, the cohort had a wide array of primary diagnoses, the most common being seizure disorder (42%).

In addition, the patients have high medical technology utilization, including gastrostomy (53%), tracheostomy (17%), and ventriculoperitoneal shunt (12%).

KEY DRIVER DEVELOPMENT

QUALITATIVE INTERVIEWS

Caregiver perspectives on strategies to reduce hospitalizations were explored through in-depth interviews with primary caregivers of CMC in the UCLA Medical Home Program during an acute unscheduled hospitalization.¹⁹ Using a semistructured guide, interviews elicited themes on modifiable factors preceding hospitalizations and activities that might be incorporated into a medical home to reduce future hospitalizations. Interviews were recorded, transcribed verbatim, and analyzed using standard qualitative research methods.²⁰ Caregivers described decisions to seek emergent care being influenced by perceptions of the child's illness severity, access to reliable health care providers, and the family's capacity to handle the situation. The complete methods and results are available elsewhere.¹⁹

LITERATURE REVIEW

We conducted a systematic literature review to summarize evidence from studies characterizing potentially preventable hospitalizations in CMC and from interventions aiming to reduce such hospitalizations. Using previously described conceptual frameworks for CMC,¹⁴ we searched Medline, Cochrane Central Register, Web of Science, and Cumulative Index to Nursing and Allied Health Literature (origination through June 2014), resulting in 484 articles screened, with 17 meeting the inclusion criteria. Thirteen articles characterized preventable hospitalizations, and 4 tested interventions to reduce them. A set of modifiable drivers of hospital use among CMC was distilled from these studies. The complete review is available elsewhere.⁹

KEY DRIVERS AND INTERVENTION STRATEGY DEVELOPMENT

Driver diagrams illustrate the theory for achieving an improved outcome.^{21,22} Starting with the desired outcome, investigators work backward to identify the essential key drivers and corresponding activities necessary to achieve the outcome.

In this study, a new set of key drivers was developed through a series of joint discussions by the UCLA Medical Home Program clinical and research teams by synthesizing themes from the in-depth interviews, systematic literature review, and the team's experience. Next, intervention strategies were developed through iterative discussions until agreement was achieved. These 7 strategies represented broad domains of intervention approaches expected to support the drivers and would be evaluated by the expert panel.

RAND/UCLA APPROPRIATENESS METHOD

EXPERT PANEL PROCESS

The RAM was developed as a systematic approach to integrating scientific literature review with expert opinion

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