



## Describing pediatric hospital discharge planning care processes using the Omaha System



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### ABSTRACT

**Purpose:** Although discharge planning (DP) is recognized as a critical component of hospital care, national initiatives have focused on older adults, with limited focus on pediatric patients. We aimed to describe patient problems and targeted interventions as documented by social workers or DP nurses providing specialized DP services in a children's hospital.

**Methods:** Text from 67 clinical notes for 28 patients was mapped to a standardized terminology (Omaha System). Data were deductively analyzed.

**Results:** A total of 517 phrases were mapped. Eleven of the 42 Omaha System problems were identified. The most frequent problem was health care supervision (297/517; 57.4%). Three Omaha System intervention categories were used (teaching, guidance, and counseling; case management; and surveillance). Intervention targets are varied by role.

**Conclusion:** The findings provide a rich description of the nature of DP for complex pediatric patients and increase our understanding of the work of DP staff and the influence of the DP practice model.

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The discharge planning (DP) process is a critical component of inter-professional hospital care because it serves as the foundation for care transitions across health care settings and providers. When the term *discharge planning* appears in the literature, the process is generally understood to involve actions and activities of hospital clinicians which are designed to facilitate smooth and safe patient transitions from acute care to subsequent care or home settings. Although DP is a required activity in the United States by hospitals participating in the Centers for Medicare & Medicaid Services payment programs, there is no universal or widely accepted operational model for the DP process. A wide variation in models of DP care delivery was noted in a recent Cochrane Review (Shepperd et al., 2013), with differing configurations of roles and activities assigned to steps in the process.

National initiatives related to DP have focused on adults (Mitchell et al., 2015), particularly older adults (Gardner et al., 2014; Hansen et al., 2013; Naylor, 2014), with limited focus on pediatric patients. None of the studies reviewed for the Cochrane Library (Shepperd et al., 2013) included DP for pediatric patients. Recognition is emerging

of the need to develop a DP model to address the transitional care needs of families of children with medical complexities (Berry, Agrawal, Cohen, & Kuo, 2013). These families may have difficulties with access to care and limited resources that place them at risk for adverse outcomes such as readmissions (Berry, Toomey, et al., 2013; Srivastava & Keren, 2013). To advance the development and testing of DP interventions for pediatric patients, a clear delineation of the actions and activities within a pediatric DP model of care is needed. Without a standardized mechanism for describing the actions and activities involved in providing DP care, it is difficult to demonstrate the unique contributions of the hospital DP process to care transitions from acute care settings, develop frameworks to guide care processes, evaluate outcomes, and establish evidence-based practices.

Standardized terminologies in health information systems provide a mechanism for explicating terms and concepts within clinician documentation to describe not only the primary needs of patient populations, but also which interventions were used to address patient problems. Using a standardized terminology increases the comparability of clinical data across settings and models of care. The Omaha System is one such interprofessional standardized terminology used successfully for more than four decades in diverse settings (Martin, 2005). The Omaha System consists of three components: Problem Classification Scheme, Intervention Scheme, and Problem Rating Scale for Outcomes. The Intervention Scheme consists of standardized terms that may be used for DP interventions addressing patient problems (Martin, 2005).

**Abbreviations:** DP, discharge planning; DPN, discharge planning nurse; SW, social worker.

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In the DP literature, three reports have used the Omaha System as a standardized tool to describe patient problems and nurse interventions related to hospital DP (Bowles, 2000b; Brooten, Youngblut, Deatrick, Naylor, & York, 2003; Naylor, Bowles, & Brooten, 2000). All three studies included DP interventions within the greater context of providing transitional care to adults. Use of the Omaha System enabled classification of the problems, interventions, and their targets across diverse patient populations.

Although the Omaha System was successfully used to categorize DP problems and interventions for hospitalized adults, no studies have used a standardized terminology to describe DP actions and activities in a children's hospital setting. The purpose of this study was to describe patient problems and DP interventions for hospitalized children, as documented by DP staff in electronic health records. The Omaha System served as the organizing framework for the study.

## 1. Methods

### 1.1. Design

This study was conducted as an exploratory aim within an ongoing study of the effects of early engagement of pediatric DP staff on length of hospital stay and hospital readmissions. Thematic analysis using the Omaha System as the organizing framework was performed on the clinical notes of social workers (SWs) and DP nurses (DPNs) documenting the DP care they provided to pediatric patients and their families. Quantitative analysis comparing problems and interventions between SWs and DPNs augmented the qualitative analysis in the larger study.

### 1.2. Sample and setting

Patient eligibility for the larger study included children ages 1 month to 18 years who were hospitalized for medical or surgical reasons at an 86-bed children's hospital in an academic medical center with Magnet designation. Of 103 patients in the convenience sample for the larger study, 28 patients had one or more DP documentation entries by one of eight SWs or six DPNs. The sample for this analysis consisted of the 67 clinical notes these SWs and DPNs authored when providing specialized DP services to the 28 patients and their families. DP care was provided only by an SW for eight of the patients/families, only by a DPN for 14 patients/families, and by both an SW and a DPN for six patients/families.

The DP model of care at the study site included an interprofessional approach. Initial assessment of the need for specialized DP services and discharge teaching for all patients was the responsibility of the direct care nursing staff. If the patient's discharge plan was complex and required additional expertise, information, and attention, referrals were made to involve SWs or DPNs who were consistently assigned to the children's hospital. Both roles involved coordination of complex care across settings (Holland & Hemann, 2011). Specifically, the DPNs were asked to become involved if DP needs were primarily medically based services such as formal home health care services or specialized home-going equipment, oxygen, continuous intravenous medications, or specialized transportation. The SWs were generally consulted if DP needs involved enrollment in waived programs to pay for services or early childhood intervention programs offered in the community.

### 1.3. Omaha system

The Omaha System is a multi-disciplinary ontology and taxonomy designed to facilitate healthcare practice, documentation, and information management (Martin, 2005). In this study the Problem Classification Scheme and Intervention Scheme were used to identify DP interventions. The Problem Classification Scheme identifies and organizes health care concepts (problems). Within the Omaha System, 42 problems are classified into four domains: environmental (four problems), psychosocial (12 problems), physiological (18 problems), and

health-related behaviors (eight problems). Each problem has a unique definition and set of signs/symptoms.

The Intervention Scheme describes healthcare activities used to address the problems. It consists of four defined categories (actions) and 75 associated targets (details of the intervention). One intervention is defined as three linked terms: problem + category + target. Category terms are defined as follows: 1) Surveillance: acquisition, interpretation, and synthesis of data for clinical decision making; 2) teaching, guidance, and counseling: giving information, anticipating problems, encouraging actions and responsibility for self-care and coping, and assisting with decision making and problem solving; 3) case management: care coordination, advocacy, and referrals that facilitate service delivery; and 4) treatments and procedures: technical activities directed toward identifying risk factors and early signs and symptoms, preventing signs and symptoms, and decreasing or alleviating signs and symptoms (Martin, 2005).

Target terms are 75 defined actions or activities that provide further description of the interventions (Martin, 2005). Linking the problem, category, and target terms describes the unique patient- and family-centered actions of the DP clinician in a standardized way. This study mapped text data to structured problem + category + target terms. For example, health care supervision + case management + other community resources describe one intervention. Thus, for a patient with a problem in health care supervision, a discharge planner may provide the patient, parent, or guardian with teaching, guidance, and counseling regarding other community resources.

### 1.4. Procedures

Our institutional review board approved this study. Within the electronic health record, DP staff document their activities using text with a specific note type, which facilitated the identification of their electronic DP documentation. Each clinical note was printed and placed in a binder for coding and review by the study team. Previous studies testing the Omaha System using DP notes demonstrated the feasibility of coding nearly 100% of text phrases to Omaha System problems and interventions (Bowles, 2000a; Naylor et al., 2000).

### 1.5. Data analysis

Thematic analysis (Vaismoradi, Turunen, & Bondas, 2013) of the text in each clinical note was conducted to map themes in the text to the Omaha System Categories (problem–intervention–target). The unit of analysis was the phrase that described a patient problem, intervention category, and target. Each note was thoroughly read to capture the context and content followed by extraction of phrases that were imported into an Excel spreadsheet, and mapped to the Omaha System categories (problem–intervention–target) by the study coordinator after extensive training by investigators who had prior research experience mapping text to the Omaha System using thematic analysis. A 10% random sample of the notes ( $n = 7$ ) was deidentified and sent to one investigator, who is experienced in the Omaha System and who provided guidance regarding the phrase extraction and mapping phrases to categories approach, interpretation of definitions, and development of decision rules. All authors then reviewed the mapping completed by the study coordinator. Disagreements were discussed by the authors until consensus was reached. Table 1 illustrates how phrases from the DP notes were mapped to the Omaha System.

Methodological rigor of the qualitative data coding and data analysis was maintained using an audit trail and periodic debriefing among the authors. Reliability was measured via consistency of interpretation and coding of the qualitative data (Graneheim & Lundman, 2004). An audit trail of process and analytic memos was maintained to support the credibility of the results. Counts and proportions of problems, intervention categories, and targets were calculated.

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