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## Interdisciplinary medication decision making by pharmacists in pediatric hospital settings: An ethnographic study

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## ABSTRACT

**Objective:** Children are particularly vulnerable to experiencing medication incidents in hospitals. Making sound medication decisions is therefore of paramount importance. Prior research has principally described pharmacists' role in reducing medication errors. There is a dearth of information about pharmacists' interactions with pediatric hospital staff across disciplines in resolving medication issues. The aim of this study was to examine interdisciplinary medication decision making by pharmacists in pediatric hospital settings.

**Design:** An ethnographic design was undertaken comprising observations, semi-structured interviews and focus groups. Audio-recorded data were analyzed thematically.

**Setting:** The study was conducted in three wards of an Australian pediatric tertiary teaching hospital, comprising general surgical, gastroenterology, endocrinology, neurology, adolescent and rehabilitation settings.

**Participants:** Pharmacists, registered nurses and doctors were recruited from diverse clinical wards following information sessions.

**Results:** Pharmacists were central to complex pediatric medication decision making, intervening about dosage, administration, drug interactions and authorities. Pharmacists proactively contacted doctors and nurses about prescribing issues; conversely, staff routinely approached pharmacists for medication advice. Pharmacists were perceived as medication experts, their extensive knowledge valued in resolving complex issues: when off-label medications were prescribed, when protocols were absent or ambiguous, where tension existed between protocol adherence and patient safety, and where patients on multiple medications were at risk of medication error. Pharmacists had strong relationships with doctors and nurses, which had a bearing on pharmacists' input in interventions. Furthermore, pharmacists identified prescribing errors through strategies, such as case note review and medication reconciliation, although the lack of emergency department pharmacists and limited after-hours staffing posed challenges to both strategies.

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*Conclusions:* Pharmacists made a substantial and highly valued contribution to pediatric inter-professional medication decision making. These results provide new knowledge that informs theoretical developments of pharmacists' role in decision making.

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## 1. Introduction

Children are more vulnerable than adults to experiencing medication errors for a range of reasons: Their body organs are not as mature as those of adults, and therefore pharmacodynamics and pharmacokinetics of medications are different. Problems can occur with having to prescribe on a kilogram weight basis. Off-label use can cause concerns as many medications are not tested in pediatric populations.<sup>1</sup> Children are not as verbally confident as adults, and are therefore less able to describe symptoms that may be medication-related. However, this verbal confidence depends on the children's age, as well as their past experiences with medications and illness, self-esteem, and resilience.<sup>2</sup>

Medication safety is predicated on clear and precise communication between health professionals. Communication problems between clinicians about children's medications are very concerning.<sup>3</sup> An audit comprising 2753 medication incidents in an Australian pediatric hospital, for example, found inadequate verbal communication between staff occurred in 34% of cases. In incidents that happened when children were transferred between clinical areas, a further 29% of incidents were documentation errors through misreading or not reading medication orders, and 22% involved not following policies and procedures.<sup>4</sup>

Previous research has shown the important role played by pharmacists in managing children's medications. Studies of pharmacists working in pediatric intensive care units (PICUs) demonstrate substantial reductions in prescribing errors.<sup>5</sup> In a retrospective review of pharmacy interventions resulting in medication changes in a PICU over an 11-year period, 27,773 interventions were initiated by pharmacists for 10,963 admissions, most frequently dosing changes (52.3%) and appropriate choice of medication (21.4%).<sup>5</sup> In a prospective study contrasting medication error (ME) rates before and after appointing a clinical pharmacist in a PICU, serious medication errors decreased from 29 per 1000 patient days before the intervention to 6 per 1000 patient days after the intervention ( $p < 0.01$ ).<sup>6</sup>

Importantly, the pharmacists' role has developed over time from a focus on correcting medication orders to increased participation in medication decision making,<sup>7</sup> including complex decision making in treating hospitalized children.<sup>5</sup> Prior research has also identified pharmacists' expanding role in medication information provision and education.<sup>8,9</sup> Pharmacists have been described as "hubs of advice" (p. 1) and their contribution to complex medication decision making noted.<sup>10</sup>

Interdisciplinary collaboration in medication decisions has been advocated as fundamental to pediatric patient-centered care. Research has focused on communication between hospital doctors and pharmacists rather than pharmacists' interactions with health professionals of different disciplines.<sup>10</sup> In an Australian prospective study of an evidence-based model to reduce medication errors in hospitalized children, multidisciplinary communication was considered an intrinsic component of a safe prescribing guideline.<sup>11,12</sup> There is a lack of information however about *how* pharmacists participate in inter-professional medication decisions, in particular, their input into complex and unusual medication issues.<sup>8</sup> Such complex decisions include: off-label prescribing, which

involves medications prescribed outside the scope of usual therapeutic practice, in the absence of protocols or when guidelines are ambiguous, when strict adherence to administrative protocols may compromise patient safety, or when patients on a plethora of medications require review. These scenarios may involve protracted deliberation for the interdisciplinary team before gaining collaborative consensus.

In this study, interdisciplinary medication decision making was defined as interactions of pharmacists with clinicians of other disciplines with the outcome of changes in medication treatment. The aim of this paper is to describe the role of pediatric clinical pharmacists in interdisciplinary medication decisions.

## 2. Methods

### 2.1. Overview

The study used an ethnographic design<sup>13</sup> to explore communication between pharmacists, nurses and doctors about medication decisions in a major Australian pediatric teaching hospital. There are a number of defining characteristics relating to ethnography. Research involving an ethnographic approach is undertaken in a natural setting, and it requires close, face-to-face interactions with participants.<sup>14</sup> This approach provides an accurate understanding of participant perspectives, behaviors and activities. Data collection is of an inductive, interactive, and recursive manner, using diverse methods. Data are framed within a socio-political and cultural milieu using the local, specific context through which to interpret findings. In this study, we sought to understand the complexities of how interdisciplinary medication decision making occurred. Since a central tenet of ethnography is mapping out how individuals interact with each other, this approach is appropriate for this study.

### 2.2. Sample

Inclusion criteria for the sample involved pharmacists, nurses and doctors who were recruited from diverse wards including: general surgical, orthopedic, maxillofacial, and urology; neurology, metabolic, endocrinology and complex gastroenterology; cardiac and renal; and adolescent and rehabilitation settings. Children cared for by these health professionals therefore had a diverse range of conditions in relation to these various ward settings. In addition, the sample included specialist nurses in pain management, burns and diabetes education in how they interacted with other health professionals.

Exclusion criteria included nurses who had only completed a one-year course and therefore had no medication responsibilities, and health professionals who were not employees of the hospital.

### 2.3. Context of pharmacy care in clinical ward settings

Selection of clinical settings as study sites occurred following consultations with research team members who worked in the organization. Wards selected for observation enabled researchers to observe pharmacists working with staff, children and families across a continuum of acute to chronic health care needs.

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