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Special Communication

# What's Ideal? A case study exploring handoff routines in practice

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ABSTRACT

*Background:* Handoffs of care in the healthcare system between responsible providers have traditionally been conceptualized and studied at the point of patient transfer. Thus, clinical practice and associated information systems are designed with the concept of the handoff as a solitary event. This viewpoint does not consider the routine activities necessary for a successful handoff. We propose expanding the analysis of the handoff beyond the single point of transfer to include a routine of interrelated activities leading up to the transfer of responsibility. We used this expanded definition of handoffs to identify exceptions from standard practice as identified by ideal-type handoff routines.
*Method:* We used an ethnographic case method to study handoffs in an interventional cardiology unit in a Midwestern community hospital. This involved examining handoffs and their supporting routines. We conducted thematic analysis of the handoffs using NVivo, a qualitative software analysis program. These analyses include categorization of the types and causes of differences in practice and exceptions from ideal-type handoffs.
*Results:* Observed handoffs that took place within the clinical unit did not consistently align with the ideal-type routine, yet this variation did not necessarily lead to exceptions. However, for handoffs between clinical units, although more likely to follow the ideal-type routine, differences from the standardized routine more often led to exceptions. We found that problems with performing the routine activities leading up to the handoff and the context in which the handoff occurred affected whether the handoff was successful.
*Conclusions:* Considering the handoff as a routine rather than simply the point of transition gives broader insight about how care transitions function. Such consideration helps clinicians better understand how variations occur and how differences from ideal-type handoffs can lead to potential exceptions such as missing information. This analysis can be used to develop information systems that better support handoffs.



## 1. Introduction

Patient handoffs or handovers are well recognized as a point in busy healthcare settings where patient safety can be compromised. Previous studies of the handoff have considered it as a single point of contact, the point at which responsibility of a patient is transferred from one caregiver to another [1–5]. With this perspective, activities leading up to the handoff are not well studied. Handoffs are most commonly studied during shift changes. Moving toward a standard handoff is operationalized through checklists [1,6], ideal practices [7–10], and guided communications [6,11–13]. The notion of standardizing handoffs is further explored through references to other industries that use standardized checklists, such as the airline industry [14,15].

We believe the importance of work performed to get ready for the patient handover is lost when only studying the point when responsibility for the patient is transferred. These activities include gathering information about the patient, clarifying physician orders, and completing charting. They are generally not documented in a formalized way in policies and procedures or in information systems [16]. Rather, these activities are considered "invisible work," or work behind the work [17,18]. This work is often considered the glue that keeps organizational processes together. Thus, considering this preparation work as part of a handoff routine in addition to the actual transition of care offers

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a broader picture of the handoff and whether or not it goes smoothly [19].

Definition of Terms

- **Handoff routine** – set of interrelated activities up to and including the handover of the patient between providers
- **Ideal-type handoff routine** – activities of the handoff as they should occur as denoted by process maps and associated descriptions
- **Routine in practice** – activities of the handoff routines as they occur in specific performances of the routine
- **Differences** – where the ideal-type routine and routine in practice diverge
- **Exceptions** – anomalies in the handoff routine

In this study, the handoff is considered as a routine, a pattern of interrelated activities and interactions that lead up to and include the transition [20–23]. To add insight to the well-studied shift change handoff, we look at handoff routines as the patient traverses through the overall care trajectory, which includes transfers between different clinical settings.

When individuals are spatially, temporally, and organizationally separated, routines are used to manage expectations. In this way, workers know which activities have been completed and by whom and can manage their work accordingly. However, individual performances of handoff routines may differ from the ideal-type handoff routine. Other times, this variability is a result of workarounds due to systems that do not support handoff routines [24–26]. Variability in routines may result in invisible work that is required to get the handoff routine back on track so that the process can continue. As well, these differences from the ideal-type may or may not lead to exceptions in the handoff itself.

To more fully understand the handoff as a routine, versus the single point of contact, we looked at the following research questions:

- What are differences between ideal and actual handoff routines?
- What are the types of exceptions that can occur in handoff routines?

By understanding the routines leading up to the handoff, how they vary, and the impact they can have on handoffs, we can better understand handoffs and the relationship between differences and exceptions. Healthcare organizations can use this information about the handoff routine to guide process and system changes associated with the handoff. IT developers can use the results of this study to make systems that better support handoff routines, such as an alert mechanism that is targeted to a particular type of routine in anticipation of possible exceptions.

## 2. Method

We conducted a prospective observational study in an interventional cardiology unit in a Midwestern community hospital. This multimethod ethnographic case study was part of a larger project exploring care coordination. We collected data, developed process flows and descriptions of ideal-type routines, and analyzed data.

### 2.1. Data collection

Sources of data were interviews, document reviews, and in-depth nonparticipant observations. Using a semistructured interview guide, the first author conducted interviews with individuals involved in the care of interventional cardiology patients or the administration of the unit and included administrators, physicians, nurses, and scrub techs. Topics in the guide included the patient care trajectory, handoffs, teamwork, and coordination. Each interview lasted approximately 60 min and was recorded with permission. Table 1 outlines the number of interviews conducted for each role.

Documents reviewed included forms that were filled out to support handoffs, printouts from the Electronic Health Record, policies and procedures, and reports. We reviewed approximately 30 documents. To our knowledge, the documents were up-to-date.

#### 2.1.1. Development of the ideal-type handoff routine

Interviews and document reviews were the data sources used to develop the ideal-type handoff routine. The staff identified two handoffs internal to the unit and two external to the unit. We developed process flows and descriptions of the ideal-type for each of these handoffs. Items in the descriptions and process flows included activities, information documented, the actors in the routine, systems used, and information shared. We validated the accuracy of these process flows and descriptions with participants in an interdisciplinary unit meeting. We made modifications to the documents after receiving their feedback.

#### 2.1.2. Observations of the handoff routine in practice

Observations took place in the interventional cardiology suite and in the ambulatory care unit and inpatient units to which those patients were discharged. We spent 646.25 h in the field over an 18-month period. Of those hours, 562.75 were patient care observations and 83.5 were administrative observations. Patient care observations included handoff routines and general patient care. The observer was situated in the interventional cardiology unit, listened in on phone conversations, and traveled with the patient to outside units to observe the handoff in person. Administrative observations focused on items outside of the clinical workflow such as unit meetings, interdisciplinary staff meetings, daily huddles, and staffing-assignment activities. Observations were documented on a laptop computer using a semistructured field guide with special attention paid to handoffs. For handoffs that occurred outside of the unit, documentation consisted of notes written on paper and transcribed daily into the laptop. When not actively observing handoffs, the observer spent time seated in the nurse's station transcribing handoffs. Patients were selected for observation using a convenience sample, and were observed from admission to the unit through discharge to a different unit. Observations were conducted until similar patterns repeatedly emerged and saturation was achieved. The first author, who was a trained researcher with experience in health IT implementation and hospital administration but not a clinician, conducted the observations. Chart review was not permitted by the organization, so detailed clinical information about patients was not available and the clinical impact of differences and exceptions could not be assessed.

**Table 1**
Interviews conducted by role.

| Role | Number of interviews |
|---|---|
| Administrator | 2 |
| Physician | 3 |
| Nurse | 7 |
| Scrub tech | 3 |
| Total | 15 |