

# The “Active” Gatekeeper in Collaborative Information Seeking Activities

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## ABSTRACT

Multidisciplinary team members often must work together to find needed information. To identify when team members collaborate, why they collaborate, and how they collaborate during information seeking activities, we conducted a field study of a multidisciplinary patient care team. We found that the unit secretary, a non-clinical team member, had characteristics of various types of gatekeepers identified in previous studies. However, unlike those gatekeepers, the unit secretary also played a particularly active role during information seeking activities. Most medical information systems design focus on supporting collaboration amongst clinical staff. Our study highlights the importance of also supporting non-clinical team members.

## Categories and Subject Descriptors

H.3.3 [Information Storage and Retrieval]: Information Search and Retrieval – search process.

## General Terms

Human Factors

## Keywords

Collaborative Information Seeking, Group Work, Gatekeeper, Healthcare.

## 1. INTRODUCTION

In medical environments, multidisciplinary patient care teams are essential for patient care. These teams work in complex information-intensive environments where collaboration is necessary to provide appropriate patient care [1]. Although patient care teams play an essential role [2], they face challenges in addressing their information needs in these clinical environments. These challenges include determining what information is needed, identifying where it can be found, accurately identifying the information itself, and rapidly accessing this information.

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In information-rich environments such as healthcare, information is available from a variety of different resources. The goal of providing all these resources is to allow team members to easily find needed information. However, locating the right information is often difficult. Therefore, in order to successfully treat patients, team members must often collaborate when seeking information.

Although collaboration allows team members to “combine” their particular expertise and knowledge during information seeking activities, finding accurate information can still be a particularly difficult task. In order to understand the collaborative information seeking behavior of patient care teams, we conducted a qualitative study of a multidisciplinary patient care team consisting of both clinical and non-clinical team members. We conducted this study in the information-rich and collaborative environment of an emergency department. Although most studies of patient care teams focus on the role of clinical members, we identified an important role that a non-clinical team member, the unit secretary, plays in the multidisciplinary team. The unit secretary plays a pivotal role as an “active” gatekeeper in the team. Gatekeepers are sources of information or experts connecting information seekers with information sources [3-9]. For instance, Allen’s “technological gatekeeper” [3-5] describes the highly technical member of an organization who connects the organization and its researchers with the outside world of research and its sources of technology. In our study, we found that the unit secretary played a somewhat unique gatekeeping role. She not only connected people to sources, but also was an active participant in collaborative information seeking activities. In particular, the unit secretary actively participated in quickly locating and retrieving information from sources outside the unit.

Through this study, we highlight the role of a gatekeeper in clinical patient care teams. We discuss the role of a gatekeeper within the context of collaborative information seeking, and the important but understated role that a non-clinical team member plays in the clinical team setting. Most current medical systems are designed to primarily support clinical members; however, as our study shows, designers must also understand the important role of non-clinical members of patient care teams.

## 2. BACKGROUND

Allen [3] was the first to introduce the concept of the technological gatekeeper as a highly technical individual that connects the organization and its people with the outside world of research and sources. Since that time, his concept of gatekeeper has influenced the way researchers look at information sources, information flow, and workflow. Many researchers have extended

the concept of the information gatekeeper and the context in which it has been studied.

Studying the gatekeeper in the context of a software company, McDonald and Ackerman extended the concept of gatekeepers to individuals who refer people with questions to the people with answers [6]. They labeled these individuals as “expertise concierges.” Their gatekeeper studies investigated the role of a particular individual in the information seeking process and described how this individual served as an information resource for other people. Their studies demonstrated that collaborative information seeking is not only a response to a breakdown in information, but also about the uninterrupted flow of information in the workplace – the information seeker collaborated with the gatekeeper to find information within the normal flow of work practices.

Tushman, focusing on the innovation process, extended Allen’s gatekeeper concept by emphasizing that there are key individuals who span boundaries within an organization [7]. The individuals filling these special boundary roles perform the essential role of mediating communication to differentiated functional or departmental units. Tushman named these individuals “internal boundary spanners.”

Continuing with the work introduced by Tushman, Nochur and Allen examined whether people in such formally designated boundary spanning roles fulfill their charter as internal technological gatekeepers [8]. They studied a major company in the mineral exploration business. The technologies of interest within the mineral exploration business were new methods for gathering, processing, displaying, and interpreting seismic and other geophysical data to identify potential sites for prospecting. Certain employees were assigned as gatekeepers of this new technological information, and were expected to share this information with their regional colleagues. Nochur and Allen found that because these assigned gatekeepers did not already possess the needed technical skills and network, they failed to disseminate these technologies among their regional colleagues; therefore, the individual internal boundary spanners did not emerge as effective technological gatekeepers.

In their literature review of the problem of information overload, Edmunds and Morris discussed the role of the “information specialist” [9]. They highlighted the employment of information specialists within organizational teams, breaking down barriers as this “information specialist would have a greater knowledge of the team’s information needs.” Edmunds and Morris went on to compare the information specialist with the technological gatekeeper and found that both use sources of information outside of their organization, informally keep colleagues in touch with current developments, and are sought out by colleagues for information. They differ in that the information specialist directs colleagues to information sources, while technological gatekeepers have a depth of knowledge in a certain content area and are able to translate this information for their colleagues.

All these studies describe the different types and roles of gatekeepers. However, few studies have examined the notion of a gatekeeper as an active participant in the information seeking and retrieval process.

### **3. METHODS**

This study examines the information seeking activities of patient care team members in the emergency department (ED) of Regional Hospital - a 200-bed regional hospital in a rural Midwestern town.

#### **3.1 Procedures**

Our approach to studying information seeking activities in the ED relies heavily on qualitative research methods. Our primary methods were observations and interviews. The first author spent over 100 hours observing the work of the emergency department patient care team and conducted over 25 formal and informal interviews with team members. Various patient care team members were “shadowed” during their shifts to get an in-depth understanding of their information needs. In particular, we observed the activities of four different unit secretaries during the course of this study. The recorded notes and interviews were transcribed for analysis.

In particular, we used the critical incidents method [10] to understand team members’ information needs and how they tried to address them. We followed critical incidents, as they unfolded in real-time, from the start of the incident to its resolution. Critical incidents ranged from unexpected problems that suddenly occurred to critical, but less urgent, treatment decisions that the team had to make for a patient.

#### **3.2 Research Site & Subjects**

The ED at Regional Hospital is a 25-bed unit that treats people who are suffering from a wide range of illnesses. The emergency department manages everything from children with fevers to severe motor vehicle accident victims. The emergency department is split into two areas: Convenient Care Unit (CCU) and Urgent Care Unit (UCU). The CCU offers non-emergency, walk-in care for minor illnesses and injuries. It is staffed by a family nurse practitioner and a registered nurse. The much larger UCU handles more serious problems such as car accidents, sudden traumatic illnesses, and any other conditions that need immediate attention. The UCU is staffed by a multi-disciplinary patient care team consisting of physicians, nurses, and ancillary support staff. The focus of this study is the UCU.

The emergency department is an information-intensive environment with a variety of electronic, paper, and human resources. The emergency department team members utilize all these resources while seeking answers to their information needs. The emergency department multidisciplinary team consists of clinical members including physicians, registered nurses, family nurse practitioners, paramedics, and a non-clinical team member, the unit secretary. In this team, non-clinical members such as the unit secretary, because of their job duties, had access to all patient data in the system.

The primary goals of the patient care team are problem identification and patient stabilization. Because patients often come to the ED with vague complaints, the team has to first identify the patient’s problem. Because EDs are often filled to capacity and extremely busy, once the problem is identified, team members have to quickly stabilize the patient and take care of the next patient. In a Regional Hospital’s ED, they can see 90 to 100

patients per day. Therefore, team members have to be able to quickly and accurately find needed information.

#### 4. FINDINGS

Seeking information in the information-intensive environment of the emergency department required extensive collaboration amongst patient care team members. One particular non-clinical team member, the unit secretary, played a pivotal role as an “active” gatekeeper during these activities.

The unit secretary emerged as a combination of McDonald and Ackerman’s expertise concierge [6], Tushman’s internal boundary spanner [7], and Edmunds and Morris’ information specialist [9]. She was a “jack of all trades.” As needed, the unit secretary referred team members with questions to people with answers. At other times, the unit secretary mediated communication between units and/or organizations. In addition, the unit secretary directed people to information sources. While serving in these different roles, the unit secretary also *actively* participated in collaborative information seeking activities by not only directing team members to information sources, but also identifying and gathering needed information.

In the following example, a paramedic needs to know what room to place a patient, and the unit secretary not only knew who had the expertise that the paramedic needed, but she went a step further and contacted the expert herself to get the needed information.

*An ambulance arrives to the emergency department with an emergent patient. The paramedic walks directly to the unit secretary’s desk to find out where to place the patient. The unit secretary does not make this decision, yet knows that the charge nurse does; therefore, instead of referring the paramedic to the charge nurse, the unit secretary uses the two-way radio to call the charge nurse to ask advice as to where to put the new ambulance patient. The current bed situation is discussed (which rooms are occupied, which are not, and which may be soon), and then the charge nurse makes the decision to put the patient in room 13.*

The unit secretary, fulfilling the role of the “active” expertise concierge, aided in identifying the proper information resource (another team member) and securing the needed information so that the work process could continue unhindered.

In the next example, an emergency department physician finds it difficult to access needed information. The unit secretary helps him find the needed information that was located in another unit.

*The emergency room physician, Dr. Smith, is waiting for lab results for the patient in room 5. Normally, upon completion of the lab work, the results print directly to the unit secretary’s, Mary’s, printer and are placed on the patient chart or in the appropriate slot in the rack on her desk. However, the needed results are not in either location. Dr. Smith asks Mary about the labs, but Mary has not seen the results either. Therefore, Dr. Smith checks the status of the results in the patient record system, while Mary calls the lab directly to check the status of the results. The patient record system shows the lab results a status of ‘pending,’ while the lab tells Mary that it will be at least 15 minutes before the results are ready. Dr. Smith and Mary share the information that they each collected. Dr. Smith decides to*

*wait until the results are finalized in the system before implementing a plan of care.*

The information needed by Dr. Smith (the lab results) was not available when anticipated. The physician did not find the lab results on the chart or in the slot for room 5 in the rack at the unit secretary’s desk. At that point, the physician enlisted the help of the unit secretary. Because each of them knew of different ways to access the information, they divided the search, with the physician using the information system and the unit secretary calling the lab directly. Both determined that the labs were not yet available, but the unit secretary also discovered that the labs would take another 15 minutes to complete. The unit secretary dealt with the lab on a constant basis and was familiar with the personal in the lab. Therefore, she was able to contact them and quickly find out how long it would take for the results to be available. In this situation, the unit secretary was an “active” internal boundary spanner. She was helpful in identifying an information resource (another unit) and mediating the communication between the units while also securing the needed information in order to keep the work moving forward.

Finally, the unit secretary also acted as an “active” information specialist.

*A registered nurse has a patient experiencing seizures and asks the unit secretary if the unit has a seizure protocol. Although the unit secretary does not know of a seizure protocol specifically, the unit secretary does know the information can be found in the Meditech system. Therefore, the unit secretary searches for the needed protocol in the Meditech system and confirms that no seizure protocol exists.*

The unit secretary, as an “active” information specialist, directed the registered nurse to the correct information resource for her question (the electronic medical record). However, she went a step further than a traditional information specialist and also attempted to find the information herself.

#### 5. DISCUSSION

Certain situations have been found to trigger collaborative information seeking [11]. In this study, what triggered team members to collaborate most often was that the information needed was not easily accessible. At other times, patient care team members collaborated because they did not know where the information was located. In order to overcome these challenges, the information seeker collaborated with the unit secretary.

During the course of collaborative information seeking activities in the ED, the unit secretary played a critical role in ensuring that the other team members found the information that they needed to successfully accomplish their tasks. During these activities, she displayed characteristics of different types of gatekeepers (e.g., expertise concierge, boundary spanner, and information specialist). However, she not only performed gatekeeping functions, but she also actively participated in the information seeking activities.

Additionally, the unit secretary was the conduit between the healthcare team and other hospital units, physicians outside of the hospital, other hospitals, and medical partners such as home healthcare providers. Frequently, when a team member needed to speak with someone outside the unit, he asked the unit secretary

to make the first contact. Furthermore, when a team member needed information regarding orders or results, again the team member recruited the assistance of the unit secretary, not just as an internal boundary spanner, but as a gatherer of information from other units. When a patient care team member was in doubt of where to look for information or whom to call, she first turned to the unit secretary for guidance and assistance. The unit secretary continuously juggled all these roles during the course of her work.

The vignettes in the previous section highlight not only the role that the unit secretary plays as an “active” gatekeeper, but also the important function that a non-clinical team member plays in a multidisciplinary team. Through her role as a gatekeeper, the unit secretary is also central to the “invisible” work [12] in the ED. She plays not only an informational role, but also an important coordinating role in the ED to ensure that daily work activities are accomplished smoothly.

Most studies of clinical teams focus on the clinical team members (e.g., physicians, nurses, pharmacists) [11] but have not examined the roles of non-clinical members in these teams. However, these non-clinical team members play a vital but understated role in ensuring that the team can provide high quality patient care. The unit secretary is critical to ensuring that the information flows smoothly in the unit and that any breakdowns in the flow are quickly fixed. However, her activities, such as identifying information resources and securing needed information, are overlooked in an environment where the clinical team members are the focus of attention. The unit secretary’s work is the glue that supported the collaborative activities of the clinical team members in the ED.

## 6. CONCLUSIONS

Medical work, because of its team structure, is highly collaborative. In order to provide appropriate and high-quality medical care, team members constantly interact with each other. In many collaborative information seeking activities in the ED, team members turned to an important resource - the unit secretary. She was the conduit between the ED and other hospital units, physicians outside of the hospital, other hospitals, and medical partners such as home healthcare providers. When a team member had questions regarding orders or results, or did not know where to look for information or who to call, they typically turned to the unit secretary for guidance. Many of the questions involved the unit secretary in the team information seeking process. Her involvement highlights the important role that non-clinical members of the team can play in addressing team information needs, especially when there is a breakdown in the information flow.

Gatekeepers play a vital role in ensuring that a team or organization continues to function smoothly. They “know” where the information is or who has the information. In most cases, a gatekeeper’s activity starts and stops with directing information seekers to information sources. In our study, we also found an additional dimension of a gatekeeper’s role – as an active

participant in information seeking activities. This view of an “active” gatekeeper is one that we will examine in more detailed studies in other healthcare settings.

## 7. ACKNOWLEDGMENTS

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