Patient Handoffs: A Review of Current Status in the USA

Farzad Rafi Razi

Kalamazoo College, farzad.razi15@kzoo.edu

Follow this and additional works at: https://scholarworks.wmich.edu/ichita_transactions

Part of the Health Information Technology Commons

WMU ScholarWorks Citation

This Article is brought to you for free and open access by the Center for Health Information Technology Advancement at ScholarWorks at WMU. It has been accepted for inclusion in Transactions of the International Conference on Health Information Technology Advancement by an authorized administrator of ScholarWorks at WMU. For more information, please contact wmu-scholarworks@wmich.edu.
Patient Handoffs: A Review of Current Status in the USA

Farzad Rafi Razi
Kalamazoo College
Farzad.Razi15@kzoo.edu

Abstract: The goal of this paper is to highlight the status of patient handoffs in the United States. A summary of what patient handoffs are, and the current processes through which handoffs are carried out will be described, as well as the benefits and limitations of each approach. In addition, this project will describe some major flaws in the handoff system, and suggestions to how they may be remedied. This paper will conclude by mentioning a new system which has reduced handoff errors, and propose an extension to this research in order to instigate further developments.

INTRODUCTION

The world of healthcare is a highly complex and constantly evolving field. In conjunction with technological advances that society has made, the state of medicine around the world has reached immense heights. This expanding domain forces physicians and individuals working with them to adapt in order to make patient care safer and more comprehensive than ever before. For example, hospitals and private practices throughout the nation have started to convert PMR (Paper Medical Records) into EMR (Electronic Medical Records) in order to increase the efficiency with which different centers can transfer patient information. In regards to technology and surgery, there are cases nowadays where a surgeon does not need to be in the operating room with his patient. Instead, he is able to manipulate a robot to help him carry out the procedure.

In accordance with the examples above, it is easy to perceive how technology has touched many parts of medicine for the better. However, one aspect of healthcare in which technology has not readily been implemented is during the patient handoff process. Patient handoffs, which encompass the transfer of a patient from one facility, or one person to another, are a critical part of treatment. The slightest error during this proceeding could mean serious injury or even death for a patient.

Although research has not conclusively proven whether technological improvements or a restructured oral/written procedure will lead to safer patient handoffs, it is safe to assume that the current state of handoffs has gaping holes. An investigation by the Minnesota Medical Association states, “We found errors were common in resident handoff sheets. Only 83 (19%) of 428 handoff sheets contained no errors” (Aylward 2011). As surprising as it is, such staggering figures are actually common in hospitals throughout the nation, and the handoff process needs to be revamped to ensure patient safety.

This paper will focus on an overview of the current state of patient handoffs. The roles of both paper-based handoffs and electronic handoffs will be evaluated, as well as a few incoming/outgoing correspondence procedures that clinical professionals use to transfer patient information. A summary of HIT’s potential in improving the handoff process in order to reduce medical errors will also be provided. This review will conclude by addressing a few key issues that will make IT-based handoffs effective in improving healthcare services.

Current Status of Patient Handoffs in the USA

An essential part of healthcare, the patient handoff system is commonly used when caring for patients. Due to its large role in establishing a set of rules for care providers to follow when transferring patient information, even minor errors committed while using these guidelines could result in major consequences. Given the importance of patient handoffs, it would seem as though medical schools would strive hard to make sure its students could navigate this mechanism with ease. However, an article by the American Congress of Obstetricians and Gynecologists states, “Accurate communication of information about a patient from one member of the health care team to another is a critical element of patient care and safety; it is also one of the least studied and taught elements of daily patient care”
This, of course, poses a huge problem because a majority of the habits that physicians pick up come from the schools at which they studied. Improving technological or oral aspects of the handoff system without taking care of the heart of the issue will not better it by much. Medical schools around the world need to focus more energy on teaching their students the ins and outs of patient handoffs so that other advancements in this area may have more of a positive impact.

There are two types of patient handoffs that exist in healthcare today, specifically written/oral, and computer-based handoffs. Written handoffs are commonly used in hospitals today (ACOG 2012), and employ the use of paper when transferring patient information from one care provider to the next. The transmission of information orally is used in conjunction with written handoffs, because the two must be used concurrently in order to reduce handoff errors and also serve two very different purposes. While written handoffs provide detailed information that serve as a reference for the receiving provider, oral handoffs supplement that allowing for discussion and cross-checking to make sure the receiving provider understood the information sent to them. A computer-based handoff requires the use of two or more computers, so that patient information may be relayed over a hospital network. Although this method eliminates the need for paper and allows for increased efficiency, a network that regulates patient handoffs between two hospitals with different EMR systems is incredibly difficult to implement because it requires individuals with unique skillsets to maintain.

Taking a look at the kinds of handoff errors that occur in hospitals, one will quickly come to realize that there is no shortage of these mistakes. In order to get an idea of how frequently healthcare workers omit crucial information when transferring patients and how big of an impact could occur, an analogy may be drawn to the children’s game “Telephone” (Lane-Fall 2014). The objective of the game is to verbally pass a message around in a circle. Of course, as this speech travels from person to person, it changes a little bit each time. At the end however, the final result in most cases is nowhere near the initial phrase. Similarly, as a patient goes from one care provider to the next, there may be minor omissions of his information. If the patient’s handoff chain is not very long, then the chances are that no injury will come to him. On the other hand, if multiple physicians must see the same patient, then the risk of harm or even death is much greater.

**Challenging Issues in the Handoff Process**

One of the main issues that the handoff process faces resides in physician-to-physician communication. Key information may be misinterpreted or entirely absent if there is a language barrier between two patients. “International medical graduates constitute 25.3% of all physicians in the US” (Datta and Miller 2012), and although doctors speak a universal medical language, a difference in native language can be detrimental to the patient handoff process. However, the use of translators could remedy this issue.

The medium of communication and time consumption are also two important barriers in the handoff process. Oral handoffs may be beneficial, in the sense that physicians may associate facial features and tone of voice with how a patient should be dealt with. Errors may easily be reduced when a doctor’s intentions are made clear to his colleague. However, the use of e-mail or telephone eliminates facial features and voice altogether. Nonetheless, electronic handoffs are preferred when time is a limited resource. In order to dissolve this barrier, it is important that researchers find common ground between handoff efficiency, and a safe method of communication between physicians.

Another issue with the handoff process is discontinuity; the fact that different providers care for a patient around the clock, because of how impossible it would be for one individual to work twenty four hours a day. The Patient Safety Network states that “Nurses change shift every 8 to 12 hours…” (PSNet 2014), so it’s commonplace for one patient to see two to three different nurses every day. This of course, causes the “telephone effect”, where information may be lost during an oral transfer. The likelihood of miscommunication increases as the length of a “telephone line” increases.

Individuals may offer a quick fix for this problem: simply increase the number of hours a provider has to work and adjust their pay to reflect this increase. The length of the “telephone line” should substantially decrease, resulting in fewer handoff errors. Since many physicians work “…28 hours in one shift…” (Schultz 2012), it would not be
unreasonable to ask others in the healthcare system to put in some extra effort. A response to this argument may be supplied in the graphic shown below.

![Bar graph showing relationship between shift length and error rate](image)

Figure 1. A bar graph that shows the relationship between the length of a nurse’s shift, and the number of errors that either occurred, or almost occurred. Taken from PSNet, 2014. Web.

This graph shows that merely increasing the amount of hours a nurse works will not solve the problem, because the number of errors that are made increase with an increasing shift length. In order to combat this problem, experts in this field must find a reasonable balance in shift length and cut down “telephone line” range at the same time.

Given the problems above, let’s calculate about how many patients are affected by poor patient handoffs every year as a result of these barriers. An article by Kim K. Wheeler states that, “In a typical teaching hospital, there are an estimated 4,000 patient handoffs every day…” (Wheeler 2015). The research conducted by Dr. Aylward, referenced in the introduction, found that 81% of 428 handoff sheets compiled in a Minneapolis internal residency program contained errors in them. Since this is quite a large sample size, we can expand this data and assume that an error rate close to 81% is common in hospitals around the country for our purposes. If this is true, then a staggering 3,240 patients are endangered in an American hospital every day because their health records are error-laden. Every year, each hospital in the United States has 1,180,170 individuals walk through its doors that face this same risk. Fortunately, for many, these faults will never come to light, but the lives of the unlucky few could change drastically. Unsurprisingly, the Boston Children’s Hospital reports that, “Medical errors are a leading cause of injury and death in America, and an estimated 80 percent of serious medical errors involve some sort of miscommunication, particularly during the transfer of care from one provider to the next” (Underwood 2013).
To get an idea of how unhappy the global population is with the medical system, which is directly influenced by patient handoffs, it’s essential that we analyze a graphic published by the Commonwealth Fund.

![Overall Views of Health Care System, 2013](image)

**Figure 2.** A graph showing how individuals in different countries view the health care system in their respective nations. Overall Views of the Health Care System, 2013, from Commonwealth Fund, 2013. Web.

This graph shows that many citizens of those respective nations feel that there should be some degree of change in their country’s health care system, possible due to a high incidence of medical errors in each nation. As a result of these unacceptable errors, researchers are working meticulously to bring the rates of patient handoff errors down. We will take a look an outcome of their research in the next section and discuss how it has improved the patient handoff process.

**HIT-enabled Patient Handoff System**

A team of researchers from the Boston Children’s Hospital, clearly unimpressed with the handoff system set their sights on reducing errors that came through this process and came up with the mnemonic I-PASS to help care providers remember the kind of information they must pass on when handing off a patient.
I-PASS

<table>
<thead>
<tr>
<th>I</th>
<th>Illness Severity</th>
<th>• Stable, “watcher,” unstable</th>
</tr>
</thead>
</table>
| P  | Patient Summary | • Summary statement
• Events leading up to admission
• Hospital course
• Ongoing assessment
• Plan |
| A  | Action List     | • To do list
• Time line and ownership |
| S  | Situation Awareness and Contingency Planning | • Know what’s going on
• Plan for what might happen |
| S  | Synthesis by Receiver | • Receiver summarizes what was heard
• Asks questions
• Restates key action/to do items |


According to their results, I-PASS was a tremendous success. The Children’s Hospital states that there was a “40 percent reduction in medical errors after implementation, doctors spent more time with patients, and handoffs were twice as likely to occur in a private or quiet location” (Boston Children’s Hospital 2012). I-PASS has now been implemented in ten different pediatric training programs across North America for further testing. An HIT-based tool such as I-PASS comes with its own set of pros and cons, however. Hospitals may not want to revamp their entire system, as they may state that their current policy is “good enough”. In order to implement an entirely new process, every physician in the institution must be willing to learn it, and quite frankly, many of them just don’t have the time to do so. However, research shows that the patient handoff system has major flaws, and a pro of implementation is that errors will most likely be reduced, resulting in fewer patient deaths. When taking this into account, the pros far outweigh the cons.

Although significant improvements had already been made to the written handoff process, the use of computers to aid handoffs hadn’t been explored in depth until recently. A team of physicians led by Dr. David K. Vawdrey implemented an electronic patient handoff application in two academic medical centers in order to assess the future of technology in the handoff process. Dr. Vawdrey’s team didn’t compare the number of handoff errors that occurred before and after the implementation of the electronic handoff application, but they did perceive a rise in the number of nurses that were willing to use this method instead of the written approach. According to his results, electronic handoffs were adopted because of the “time savings experienced by users…” (Vawdrey 2013).

CONCLUSION

The patient handoff system is widely used and a critical aspect of the medical field. However, there are major flaws in this system that can have a detrimental effect on the health of a patient, even leading up to medical malpractice. This problem has developed roots in the very manner in which medical students are taught. Studies show that patient handoffs are the least studied and taught subjects in medical school. In order for change to occur in this field, physicians must learn the ins and outs of this process.

Physician-to-physician communication also contains problems that must be addressed. Barriers such as that of native language play a big role in missing information during a handoff. Since one-fourth of all U.S. medical students are
international, this issue may need to be addressed by hiring translators. In addition, the modes with which physicians hand off patients also need to be scrutinized. Transferring patients to another doctor in person may take more time, but also minimizes the chance of errors that could occur over the phone or via e-mail.

Healthcare providers must be taken care of themselves if they are expected to administer quality service to their patients. This means that the length of each shift cannot be extensive, because research shows that an increased shift length is proportional to the number of errors ensue. However, shorter shifts lead to more nurses that take care of one patient, which could develop in the “telephone effect”. To remedy this problem, researchers must be able to find a suitable compromise.

Since studies have determined that a modified written handoff approach, such as I-PASS can be implemented to reduce the amount of handoff errors in hospitals, we must take it upon ourselves to develop similar systems in hospitals around the country for further testing. As an extension to this paper, it would be interesting to perform a case study at a local hospital, such as Borgess or Bronson, on the handoff procedures implemented there. First, data would be gathered on the number of handoff errors, and what aspects of the current system are causing these mistakes. The researchers would then develop a new strategy with the aim of reducing blunders.

REFERENCES


