Reimagining Interprofessional Communication in a Pediatric Hospital: Understanding the Impact of Having Many Communication Technologies

Keri K. Stephens, Ph.D., Associate Professor & Associate Director, UT Center for Health Communication, keristephens@austin.utexas.edu | 512-471-0554

Meena Iyer, M.D., Hospitalist Medical Director Dell Children’s Medical Center, Asst. Professor Pediatrics

Terrie Hairston, MS, RN-BC, FACHE, Manager Pediatric Education/NNEC, Dell Children’s Medical Center

John Luk, M.D., Asst. Dean of Medical Integration, UT Dell Medical School, Hospitalist, Dell Children’s Medical Center

Millie Harrison, MA, Doctoral Student, Moody College of Communication

Yaguang Zhu, MA, Doctoral Student, Moody College of Communication

Josh Barbour, Ph.D., Assistant Professor, Moody College of Communication

Purpose: The expansion of information and communication technologies used to coordinate care in hospitals represents one of the biggest changes healthcare organizations face today. In this presentation our team will share our latest research on how healthcare workers from four different professional groups—nurses, pharmacists, hospitalists, and medical residents—use communication technology to coordinate care. Because we have an academic/hospital research partnership that is ongoing, we will present this research using a case study problem/solution approach. We will also share the impact that this research has had on interprofessional communication at Dell Children’s Medical Center. Our guiding research question is:

RQ: How do communication media repertoires enable and constrain interprofessional communication in a pediatric hospital?

Background and Rationale

Interprofessional communication in hospital settings has undergone serious changes with the proliferation of communication technologies (Lo et al., 2012). In their review of studies examining pagers and smartphones in medicine, Ozdalga and colleagues (2012) argued that although early research is promising, scholars have only scratched the surface of what really happens when healthcare professionals communicate using technology. This existing body of research has shown that media such as text messaging, smartphones, advanced pager systems, and automated electronic media records, can improve interprofessional communication efficiency. These tools do this by meeting the needs of mobile healthcare professionals (Progomet, Georgiou, & Westbrook, 2009), providing them access to information and resources (Baldwin, Low, Picton, & Young, 2006), and reaching the right person directly on the first try (McElroy, Ladner, & Holl, 2013; Nguyen et al., 2015). Wu and colleagues (2011) found, for example, that clinicians’ routine adoption of smartphones can improve the communication efficiency of physicians, nurses, and allied healthcare professionals.

Alongside the positive effects of communication technologies in hospital settings, research has also found that these tools can increase interruptions (Quan et al., 2013; Solvoll,
Scholl, & Hartvigsen, 2013; Whitlow et al., 2014), decrease performance (McBride, LeVasseur, & Li, 2015; Katz-Sidlow, Ludwig, Miller, & Sidlow, 2012) and harm interpersonal relationships (Wu et al., 2011; Wu et al., 2014). In their review of eighteen studies that evaluated mobile communication tools (e.g., pagers and mobile phones), Wu and colleagues (2012) concluded that we still understand very little about how to improve the communication effectiveness of healthcare professionals.

With the increasing focus on changing the culture of healthcare organizations to be more patient-centered (Aiken et al., 2012; Roter & Hall, 2011), it is important to understand how communication media impact teamwork and patient care. Given the importance of collaborative, team-based patient-centered caregiving, our research considers (a) how healthcare providers use multiple technologies when communicating, and (b) how members of different healthcare professions use technology to communicate.

**Theoretical Guidance:** To accomplish our study, our research relies on the theoretical framework of communication media repertoires (CMRs; Watson-Manheim & Belanger, 2007). We define communication media repertoires as “the collection of communication channels and identifiable routines of use for specific communication purposes within a defined community” (Watson-Manheim & Belanger, 2007, p. 268). Watson-Manheim and Belanger (2007) adapted this concept from the genre repertoire (Orlikowski & Yates, 1994) because it involves more than just media use. A CMR includes distinctive routines that can be linked to a specified community.

**Method and Analysis**

The site chosen for this study was a teaching hospital in a large metropolitan city in the southwestern US. To address our research question, we used a combination of data-gathering approaches that produced 350 pages of double-spaced transcripts and fieldnotes comprised of text and drawings. Specifically, we attended two interprofessional team workshops, joined the interprofessional communication improvement team, and conducted nine focus groups, clustered according to professional group: nursing (4), hospitalists (2), residents (2), and pharmacy (1). We also conducted 25 hours of observations of the workflows of these healthcare professionals.

The data were analyzed by three team members, each immersed in a single healthcare professional group to not only code, but to create organizing structures representative of each professional group. An open-coding phase generated 180 codes that represented phrases and concepts in the data pertaining to our research question. The researchers synthesized these codes through focused coding (Charmaz, 2006) and presented preliminary findings to the interprofessional taskforce to serve an early member check (Tracy, 2013). The team’s synthesis approach emphasized constant comparison (Glaser & Strauss, 1967), wherein each category was organized based on its theoretical and practical similarity to the other categories.

**Results and Discussion of Findings**

Communication media repertoires (CMRs) reflected inter and intra professional differences in media use. When the repertoires of different professionals overlapped, such as during the coordination of patient care, we found that interprofessional roles were reified through workflow patterns, anonymity, perceptions of communication media use acceptability, and reliance on others.

**Nurses**, the primary patient contact, operated under conditions of sequential interdependence, asking questions and waiting for decisions. The nurses’ technology use and
media repertoires illustrated their workflows of coordinating care and collaborating with a wide array of healthcare professionals. To better perform their job responsibilities, nurses explained how they integrated both synchronous (e.g., the BRICK phone) and asynchronous communication media (e.g., HIPAA-Text) for patient-care tasks. They also leveraged their personal mobile phones (e.g., checking group texts or scheduling updates on social media pages) to stay up-to-date on intraprofessional activities.

**Pharmacists** processed their work in an assembly-line fashion with the goal of maintaining medication safety. The pharmacists’ technology use and media repertoires reflected an understanding of their work as analyzing, checking, and processing medication orders. They explained that this work should proceed in an orderly cue except during urgent circumstances. They wanted to avoid interruptions and instead route requests through the asynchronous processes they controlled. They felt time pressure to clear their rolling medication orders, and using asynchronous tools like IMNow helped them manage time. Pharmacists claimed other professions did not always share their view of what constitutes an urgent situation, and they often interrupted the pharmacists’ workflow.

The results also highlighted how physicians—**hospitalists and residents**—used technology differently. Although the CMRs of hospitalists and residents differed, their communication objectives converged in that their repertoires function to get information and make decisions. **Hospitalists** voiced a strong preference for using their own mobile phone, primarily due to their high degree of mobility and frequent consultations with residents, other hospitalists, specialists, pharmacists, and nurses. They utilized multiple functions of their personal mobile phones, including phone calls, HIPAA-Text, non-HIPAA-compliant texts, email, web searching, and other mobile communication apps. In addition to the versatility of hospitalists’ personal mobile use, their individual preferences also set up barriers for efficient interprofessional and intraprofessional communication across the board due to a lack of communication standards. Email was also an important communication tool for this professional group, so they engaged synchronously and asynchronously throughout their day. One of the key differences in hospitalists’ workflow was that they had an office with a desktop or laptop computer, and they often typed their patient notes in the privacy of their office.

**Residents** were highly mobile, view almost all of their communication as urgent, and were the only group issued personal pagers. They used the pagers frequently, but they also used their personal mobile phones for responding to email, medical-related social media, HIPAA-Text, non-HIPAA compliant texts, and pages forward to their personal mobiles. Residents explained how they regularly had more than one device on their body that beeps or buzzes almost constantly. In addition to a pager and personal mobile, residents took turns carrying an additional mobile phone—the admit-phone. This device was called every time a patient was admitted into the hospital. That phone had highest priority, which could be problematic if the resident was also seeing patients. Residents consistently voiced a tension between responding to one of their devices and spending valuable face-time with the patients. One senior resident explained the challenges of managing all these different devices:

“It stinks when you’re getting pages and texts and HIPAA-Texts, because you’re in the middle of doing something and everything on your body is buzzing at once. You’re trying to talk with a family that you just admitted because their child is sick and they want to know what’s going on, but your cell phone is buzzing. Then your HIPAA-Text beeps, and then your pager goes off, and then it goes off again. And it’s so hard to focus.
But other people need you. So you’re torn. That’s the hardest thing to learn as an intern. ‘What do I do? How do I deal with all of these things happening at once?’ I don’t know.”

Residents explained that since they were often running between patient visits, the convenience and accessibility of their mobile phone helped them avoid multiple, lengthy log-ins for apps like HIPAA-Text that works on several devices. See Figure 1 for a representation of all the different technologies these professions use and how their media repertoires interact.

-------------------------------------------Insert Figure 1 here---------------------------------------------

Practical Results of this Collaborative Research

Our findings set the groundwork for Dell Children’s Medical Center to understand these communication challenges and begin to address them. These are the practical outcomes that have resulted from this research thus far:

1. Residents have all received mobile phones and pagers will be going away. This solves the challenge that residents have in managing so many different communication devices.
2. Allowing and encouraging all the different professions to use HIPPA-compliant text messaging is being implemented. The vendor is conducting additional training that is focused primarily on nurses. Mobile device policies are being examined and implementing organization-wide policies will help all professions know what is expected when they use mobile devices at work.
3. The Interprofessional Communication Task Force at Dell Children’s has hosted a series of workshops; the latest one included patient families and ask them about their perceptions of mobile device use in patient rooms. This is an important area for future research since there is little published research on this growing trend in coordinating patient care through mobile devices.

Conclusion: This study offers several contributions relevant to interprofessional communication. We extend Watson-Manheim and Belanger’s (2007) CMR research on individuals by explicating how CMRs from four different professions are constituted and how CMRs enable and constrain communication. Additionally, our communicative focus on interprofessional communication has implications for organizations like hospitals that are now measured on their patient satisfaction scores (e.g., Lo et al., 2012) and their reduction of medical errors. Both of these outcome measurements depend on the quality of institutional structures like interdisciplinary teams. Our findings suggest that each profession uses different primary communication media to support their workflows, and their CMRs reflect as much their relationships with other professions and patients, as their own choices. Our findings illustrate the entwined nature of media use and routines and how these CMRs function to reinforce and sustain traditional interdisciplinary roles.

Note: This presentation is based on a paper currently under review. One part of this research will be presented at the Kentucky Conference on Healthcare Communication in late April, 2016.
References


Figure 1

Interdependencies of Media Repertoires (Routines and Media Use) and Role Functions
Macro-level model showing how the professions interact and how their media repertoires reify their interprofessional roles.