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Research Article

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## Standardizing Handoff Communication: Evaluation of a Standardized Communication Tool to Improve Handoff among the Pediatric Infectious Disease Team

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### Abstract

**Introduction:** A standardized communication tool was developed to improve weekly handoff among the Pediatric Infectious Disease team at an acute care clinical setting for children. The tool, developed by members of the infectious disease team, encompassed pertinent patient information and a "Power Phrase" designed to standardize communication among team members during weekly handoff, reduce reiteration of information, and improve patient safety.

**Methods:** Evaluation design included a pre-post participant survey and rapid-cycle quality improvement efforts to assess participant (provider) satisfaction, replication or omission of critical patient data and patient safety.

**Results:** Participant satisfaction increased, 100% of the participants used the tool effectively. The omission of patient data decreased and out of date patient information was eliminated. Participants valued the power sentence to gain a shared mental model of patient status and treatment plan.

**Conclusion:** Handoff is an imperative part of safe patient care, ensuring smooth transition from one provider to another. Effective communication via a standardized handoff tool ensures continuity of care and optimizes patient safety. The use of a power sentence during the handoff process is a beneficial strategy to establish a clear clinical picture and plan of care. Specialty healthcare teams are encouraged to develop standardized handoff tools to ensure effective communication and meet the needs of their patient population.

**Keywords:** Handoff; Interprofessional teams; Patient safety; Standardized communication tool

### Main Body

Provider communication, termed "Handoff", is a pertinent part of patients' transition of care from one medical provider to the next. Through handoff, a new provider assumes responsibility of patient management, relying on the previous provider to provide vital information regarding the patient history and clinical status. Optimal provider handoff is well organized and efficient but if suboptimal, patient safety is jeopardized due to gaps or missing data, lag in the transition of care, or misinformation. The Joint Commission attributes failures in communication as the origin for most sentinel events [1]. Therefore, improvement in communication, especially during transfer of patient care, is imperative to patient safety, decreasing the risk of sentinel events related to miscommunication among providers and ensuring smooth transition of care.

Various standardized communication tools have been developed, adapted, utilized and evaluated for improved provider handoff. While communication tools aim to ensure organized and comprehensive handoff between providers, there is no "One size fits all" tool [2]. In particular, there is no standardized handoff tool for providers serving on an inpatient Pediatric Infectious Disease (ID) team. This project was designed to improve communication among a pediatric ID team at a major pediatric research center in the United States that provides care to a special population of pediatric patients with oncological, hematological, immunological, and other rare diseases. The team routinely completes a weekly transition handoff every Monday through a team meeting that includes both written and verbal sign-out on the patient panel. Historically each provider used individual handoff information that was perceived as vital information for the oncoming team.

Unfortunately, miscommunication, omission of pertinent data, and lack of clarity created risky situations for patient care and the need for reiteration or clarification among team members, resulting in prolonged hand offs or time-demanding communication among the team that risked delaying appropriate clinical care. In effort to streamline team communication and enhance patient safety, the pediatric ID team, led by the nurse practitioner who consistently attended the handoffs, developed and evaluated a standardized handoff tool to meet the unique needs of the pediatric specialty team [3].

## Methods

The overall goal of improving provider satisfaction and reducing misinformation during weekly handoff through a 12-week pilot project featuring the use of a standardized handoff. The handoff tool was developed from standardized inpatient handoff tools noted in the literature and adapted to the needs of the pediatric ID team. The pre-post study design replicated strategy commonly utilized in quality improvement studies involving patient handoff, including hospital settings within Intensive Care Units (ICU), Emergency Department (ED), and general patient care teams [4-6]. The sample for this study included members of the general pediatric ID team. The interprofessional team encompasses eight attending physicians who rotate service on a weekly basis and advanced practice providers that consistently cover the service. Medical fellows, residents, and students routinely rotate through the service and participate in clinical care. For the purpose of this project, residents and medical students were excluded from the data collection due to their inconsistent participation in handoff and sporadic schedules.

Prior to implementation of the standardized handoff tool, education was provided regarding goals and purpose of the QI pilot study. Following initial educational session ID team members had the opportunity to provide feedback regarding the initial handoff tool developed in effort to illicit feedback assisting in buy-in from the team. Part of the handoff tool agreed upon by the ID team was the utilization of a “Power Sentence” that aimed at constructing a concise and shared mental model of patient problems and plan of care. This “Power Sentence” served as a unique intervention within the handoff tool. Next, participants were invited to complete an electronic survey to assess satisfaction, perceived communication needs, and concerns associated with weekly handoff process. The pre-survey questions used a 7-point Likert scale and a 7-point frequency scale. The survey remained open for responses for one week prior to implementation; reminders were sent mid-week to encourage survey participation. Following completion of the pre-survey phase, the team began using the standardized handoff tool for weekly sign-out process throughout a 12 week pilot period. Participants of handout were invited to complete an electronic four-question survey following each sign-out. The four-question survey asked participants of handoff to evaluate their satisfaction with the tool and offer any suggestions for tool improvement. This process allowed for continual re-evaluation of the handoff tool through utilizing a Rapid-Cycle Quality Improvement (RCQI) approach. An educational session reflecting improvements on the handoff tool was provided by the lead APP for all participants after eight weeks to clarify updates to the standardized tool. The participants continued to complete weekly RCQI surveys for an additional 4 weeks of the pilot period.

The post-pilot evaluation included the invitation for participants to voluntarily complete the post satisfaction survey (Microsoft Forms) which included an opportunity for participants to write in recommendations for changes or adaptations to the handoff tool. Similar to the pre-survey, participants were allotted one week to complete the post-survey and sent a reminder to complete the survey at the mid-point.

The data was de-identified, saved on an electronic data collection tool and analyzed. Statistical analysis included utilization of PRISM software to descriptively analyze the data due to the limitations in samples size of this pilot study. An IRB was not required due to the nature of the quality improvement project, no patient data was collected or stored and the electronic survey was kept on a work-designated desktop with results password protected.

## Results

100 % of the provider team (N = 8) who were on clinical service during the pilot study participated in the pilot project. 88% were MD and 12% were APPs. 75% of the MD participants work exclusively on the general ID team, with 25% serving both the general ID population and the transplant ID service.

While only 60% of the participants reported satisfaction prior to standardized handoff tool, 100% of participants reported improved satisfaction with the utilization of the standardized handoff tool (11% somewhat agree; 22% agree; 64% strongly agree).

Omission of data rates diminished following implementation of the standardized handoff tool. 80% (N = 6) Participants reported omission of data occurring “Occasionally or less” and one individual reporting “sometimes or more” vs. post-evaluation, when all individuals reported omission of data occurring “Occasionally or less”.

Misinformation and out-of-date data diminished with the use of handoff tool. Pre-evaluation results noted 50% (4) participants reported out-of-date (expired or changed) patient data occurring “occasionally or more” and 3 individuals reporting occurrence of “Rarely or less”. 100% of the participants reported occurrence of inclusion of patient data that is not up-to-date, occurring “rarely or less” in the post-evaluation.

Participants valued the use of a “Power Sentence” during handoff. 100% (N = 8) noted in either the weekly RCQI survey or post-evaluation that the short description of each patient provided a mental model of the patient, key historical information and goals of care.

## Discussion

A standardized handoff tool developed to meet the needs of a pediatric infectious disease team, improved provider communication satisfaction and efficiency and enhanced patient safety in many aspects. In realm of satisfaction, all participants reported improvement in satisfaction of weekly handoff when utilizing the developed handoff tool. Much of the qualitative results regarding areas of improved satisfaction involved removal of redundant or outdated patient information, and patient data that was readily available on the Electronic Medical Record (EMR). The handoff process was streamlined through consistent use of communication tool that focused on the specific goals of a pediatric ID team and through rapid cycle improvements and revisions, allowed for the formation of a handoff tool that ultimately increased the ID team members satisfaction, efficiency, trust and confidence in communication. The need clarification, double-checking or discovering omitted patient data was gradually reduced throughout the pilot process.

The power sentence served as a vital component and innovative aspect of handoff offering a clear picture. The power sentence was especially useful for learners and rotating members of the team that were not evaluated in this pilot but were engaged in patient care and therefore benefitted from concise and clear goals for each patient. Use of the innovative power sentence ultimately benefits both the rotating providers and the consistent members of the healthcare delivery team-allowing for consistent communication to the family/patient and one another and reducing the risk of communication errors.

Limitations of the pilot project include a sample size, limiting the ability to statistically analyze data. We did not complete a cost-benefit analysis or official time utilization which likely would have demonstrated additional benefits as the standardized handoff process became increasingly streamlined. Ongoing study will include all members of the team and evaluation of a similar project among other specialty teams within the pediatric research center. In effort to obtain enough data to statistically analyze and determine significance even with a small sample size, it would be recommended to conduct a QI study over a longer period of time.

## Concluding Summary

Provider handoff is directly related to patient safety. When handoff communication is suboptimal patient safety is jeopardized, healthcare delivery is inefficient and costly. Standardized handoff tools designed specifically for care teams with unique patient-care goals, especially among patients with complex conditions are important tools for teams to utilize. While handoff tools are available in the literature, adaption or translation of the tools to meet the needs of the specialty care teams population is an important step in communication affecting patient safety and quality of care. This quality improvement project demonstrated provider satisfaction, reduced omission of patient data, and inclusion of up-to-date patient data. The rapid-cycle re-evaluation of the tool with provider feedback was an imperative aspect of the development of the final handoff tool and the power sentence helped shape the shared mental model of patient goals.

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None.

## Conflicts of Interest

None.

## Presentation

None.

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