Optimizing handover for family medicine outpatients using an electronic medical record–integrated tool

Zainab Najarali MD CCFP Heidi Mah MD CCFP Diana Toubassi MD CCFP FCFP

In many family medicine teaching units (FMTUs), patients are regularly transferred between resident providers. Often, incoming first-year residents inherit patients from outgoing second-year residents, with no formal handover process in place. This is deeply concerning, as transition of care from one provider to another is recognized as a high-risk time for patient care in both inpatient and outpatient settings. Unfortunately, communication errors between providers are common, including the omission of critical information and the transfer of incorrect information.[1] Of additional concern, such errors are associated with two-thirds of the most serious adverse safety events among patients.[2]

Best practices

To mitigate these risks, various handover tools have been developed and, when implemented, have successfully decreased medical errors and preventable adverse events.[3-5] Unfortunately, most of these tools have been developed for inpatient settings, with a paucity of tools specifically designed to tackle challenges unique to ambulatory settings, especially academic ones. In FMTUs, for example, the transfer of clinic patients from graduating to incoming residents occurs annually, increasing the likelihood that miscommunications compound over time.[6,7] Of importance, residents themselves acknowledge the need for some form of handover and believe the relevant documentation should be retained in the medical record.[8]

Our experience

At our FMTU, incoming residents take over the care of patients from outgoing residents at the beginning of their training. They are then responsible for their unique panel of patients for the duration of their residency, until the transfer process occurs again. Occasionally, graduating residents enter a "handover note" into the electronic record of patients they deem to be particularly complex or who would otherwise specifically benefit from a special communication. However, we have never had an official process or policy to support the transition of patient care between residents.

In an effort to address this so-called "revolving door of resident continuity practice,"[7] we sought to develop an electronic medical record (EMR)–integrated handover tool to improve communication at the critical point of transition of care. Our goal was to improve patient safety by decreasing the number of missed results, investigations, consultations, and follow-ups, and to increase resident comfort, efficacy, and communication.

Tool development

To assess the perceived need for a handover tool in our teaching unit and to gain input from key stakeholders on its format, we distributed an anonymous qualitative needs assessment by e-mail to all family medicine residents and all faculty physicians and nurses at our site. In total, 20 residents and 18 faculty physicians and nurses responded to the survey. An exhaustive literature search on existing handover tools was also performed to guide the development of our own tool.

After we had synthesized data from the needs assessment and literature review, the following items were deemed necessary to include: action items, including investigations requiring follow-up, investigations to order, pending consultations, and patient complexity and the need for longer appointment times; and acknowledgment of handover—a feature to signify that a faculty physician at the FMTU had been notified that the handover tool was completed. The draft was reviewed and iteratively improved based on resident and faculty physician feedback, and then uploaded into the clinic EMR. The tool and instruction sheets for residents and preceptors are available from **CFPlus**.*

Tool evaluation

Four charts belonging to patients from resident practices were selected based on their representativeness of resident practice patients. Handover tools were completed by the investigators for each of these patients. Twelve resident volunteers were then given 3 minutes to review each patient's chart and list as many items as they could that required follow-up. Each resident was shown 2 charts with the embedded tool and 2 without. Residents were then asked to complete an anonymous postintervention survey, created by adapting domains from the Handoff CEX (clinical evaluation exercise), a validated handover assessment tool.[9]

A *t* test procedure was used to assess the difference between the number of items identified with and without the tool for each of the 4 patient charts and to assess the difference overall when combining all patient charts.

*The **resident handover tool** and **instruction sheets for residents and preceptors** are available at **www.cfp.ca**. Go to the full text of the article online and click on the **CFPlus** tab.

Using a *P* value of .05, we found a significant difference between the number of items identified for follow-up with and without the handover tool. This difference was observed overall, as well as for each patient chart individually (mean [SD] 11.54 [3.63] vs 4.96 [1.81]; t_{24}=5.61; *P*<.05).

Qualitative data from the postintervention survey included Likert-type response scales. All 12 resident volunteers reported improved comfort when using the handover tool. All agreed that the handover tool contained essential content and would improve communication between residents, enhance organization and efficacy, and lead to improved patient safety and care.

Conclusion

Our EMR-integrated handover tool for outpatients in an FMTU appeared to increase the number of follow-up items identified by resident providers. On this basis, we recently introduced the tool at our unit, making it a standard part of the "sign-out process" of graduating residents. Our expectation is that this will decrease the number of important patient care items being missed, forgotten, or delayed at points of transition in care.

Of note, we have since learned that a prioritization protocol of some sort is necessary. On average, resident practices have approximately 150 to 200 patients, making the completion of the handover tool for their entire practices impractical. It is also likely that many patients are of relatively low complexity and would therefore not benefit from the handover tool beyond the information already contained in their cumulative practice profiles. In future, we plan to provide graduating residents with lists of their patients and ask them to identify, based on their experience and knowledge of these patients, which ones have the most active or imminent care needs. The residents can then focus their efforts on completing the handover tool for these patients.

Finally, it is important to note that there are limitations inherent to any handover process. It would thus be prudent to include a reminder to incoming residents that the tool is not an exhaustive list of patient issues and that charts should still be reviewed by incoming providers.

Dr Najarali is an emergency medicine resident at McMaster University in Hamilton, Ont. **Dr Mah** is a community family physician practising in Toronto, Ont. **Dr Toubassi** is Assistant Professor in the Department of Family and Community Medicine at the University of Toronto.

Competing interests
None declared

Correspondence
Dr Diana Toubassi; e-mail **diana.toubassi@uhn.ca**

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Teaching tips

- Frequently assess patient safety in ambulatory family medicine settings, drawing attention to the particularly high-risk nature of transitions in care.
- Implement a rigorous handover process to formalize the transfer of information between graduating and incoming residents to improve patient care and clinician comfort.
- Consider the implementation of a specific handover tool to optimize and standardize the handover process. This tool should ideally be incorporated into patients' electronic medical records.
- Prioritize the patients with the most complex or active issues for completion of the handover tool.
- Engage clinical preceptors to confirm that the tools have been adequately populated (especially for more complex patients) and to provide redundancy for important issues.
- Remind preceptors that the tool will only be reviewed by assigned resident providers when patients attend for appointments; preceptors are responsible for triggering follow-up otherwise.

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