

HANDOVER TOOLKIT

A resource to help teach, assess and implement
a handover improvement program

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Introduction to the Handover Toolkit

Handover is an important form of communication between physicians and an integral component of medical practice. It is increasingly a topic of interest for both medical educators and patient safety experts. Handover often occurs under less than ideal circumstances, between the most junior of trainees, with a haphazard approach. Critical communication failures ensue, as vital information is omitted and erroneous information is transmitted. Communication failures are the most prevalent cause of preventable medical errors and adverse events.

The important role of handover has been highlighted in recent discussions about resident duty hours. The impact of fatigue on an individual's cognitive abilities and decision-making is well described, but improving duty hours has not had the profound effect on patient safety that was hoped for. Although the increased frequency of handover with shorter duty hours is probably not the only reason for these mixed results, it is thought to be a factor.

The Royal College of Physicians and Surgeons of Canada has stressed the importance of handover and has incorporated the skill into the CanMEDS 2015 Framework. Residents themselves have also recognized handover as a priority; Resident Doctors of Canada (RDoC) recommends that residents be formally trained in handover skills and suggests that a formal handover curriculum should be an accreditation standard for medical education. However, few formal handover curricula exist, and it is therefore difficult to teach the competency to others. Most trainees have traditionally learned their handover skills informally from senior residents or attending physicians who themselves have never had training in the skill. Faculty are stressed by the ever-increasing demands on their time, and they are looking for a practical resource that they can use with minimal preparatory work to teach handover to trainees.

What is the purpose of the Handover Toolkit?

The Handover Toolkit is the latest resource from the Royal College to help programs support their trainees in achieving the competencies of CanMEDS 2015 and the goals of Competence by Design (CBD). The toolkit supports the teaching and assessment of the CanMEDS handover competencies, bringing important information together in an easy-to-use guide.

We recognize the many differences between specialties and subspecialties in handover form and content; nonetheless, we have sought to bring together the commonalities that underscore a high-quality handover and help to foster patient safety behaviours across specialties. We recognize that you will need to adapt the material provided to suit your specialty's needs, and we hope that you will do just this.

The scope of this toolkit is limited to within-team handover, with a particular focus on inpatient within team handover. Other types of handover, however, are equally important, for instance ambulatory handover, inter-facility handover and handover to and from primary care providers. Addressing these other important contexts will be the next steps in this evolving work.

Toolkit objectives

1. Explain why handover education is important
2. Describe the key components of high-quality written and verbal handover, including both global and specialty-specific aspects
3. Provide resources for Canadian postgraduate educators to develop and implement handover training for their residents, including faculty development and assessment tools

What is the structure of the toolkit?

The toolkit has six sections. Section 1 focuses on why handover is important and the consequences of poor handover. Section 2 stresses the importance of good teamwork and communication and offers strategies to promote these. Section 3 outlines the gold standards in both written and verbal handover across specialties. Sections 4 and 5 provide practical tips for those aiming to teach handover to residents and improve handover in their programs and institutions. Finally, Section 6 provides case examples that may be of interest to particular specialties. Each section shares a common structure, starting with objectives and background material outlining key points, followed by core content, and ending with helpful references and resources. You do not need to use the sections in order, and you can skip certain sections entirely if the particular topic is not necessary for your goals. Material from one section links with material in other sections where relevant, and you can go back and forth between sections or review a section at a later time if the need arises. We have aimed not to recreate existing resources; instead, we have provided references and links where these resources can easily be found. We hope to provide this toolkit primarily online to facilitate access to links to external material, accommodate changing information and incorporate new resources as they become available. You will be able to download the toolkit sections to work with the material and individualize it to your program's specific needs.

Who is the toolkit for?

The primary audience for this toolkit is educators and teachers. The resource was envisioned to enable educators to create a curriculum or look for ideas on how to incorporate handover improvement initiatives into their programs. Teachers will find practical examples of ways to teach handover to their trainees and assess their competence in the CBD framework. The secondary audience includes trainees, who will find straightforward strategies to improve their daily handover, and existing clinicians who want to improve their own handover skill and improve patient safety.

Who created the toolkit?

The CanMEDS Handover Toolkit has been created by practising physicians and residents from across Canada and across medical specialties. The authors are subject-matter experts and educators who are passionate about improving patient safety and care through improved handover. We would like to thank Denyse Richardson and Janet Nuth for their extensive consultation on this work; Wendy Jemmett, Cynthia Abbott and the CanMEDS team for their unwavering support and guidance throughout the project; and the participants of the workshop at the 2017 International Conference on Residency Education entitled "Handing over the Handover Toolkit" for their invaluable ideas and input.

With thanks,

Zia Bismilla and the Handover Toolkit team

Section 1: HANDOVER: WHAT'S THE BIG DEAL?

Authors: Joshua Gleicher MD, MSc, FRCSC, and Thomas McLaughlin MD, FRCPC

Section objectives

After reading this section, you should be able to:

1. Understand the definition of handover
2. Describe how poor handover can lead to medical errors and adverse events
3. Explain the rationale for including handover as a competency in the CanMEDS 2015 Framework

Contents at a glance

- Definition of handover
- Handover and patient safety
- The complexity of handover
- The addition of handover to the CanMEDS 2015 Framework

Definition of handover

The CanMEDS 2015 Framework defines handover as the “temporary or permanent transfer of responsibility and accountability for some or all aspects of care for a patient or group of patients ... using both verbal and written communication.” Similarly, the Canadian Medical Protective Association emphasizes that handovers are a transfer of both information and responsibility of patient care.¹ Both definitions highlight that patient handovers are a multifactorial process and not simply a transfer of information.

There are many kinds of handover. A patient might be transferred from an emergency department to an admitting team, requiring handover between different teams. Alternatively, a patient might be staying in the same location under the care of the same team, but that patient’s care might need to be handed over as one team member’s shift ends and another’s begins (e.g., at the end of a day, when a daytime physician hands over to an overnight one). Still another type of handover may occur when a patient is ready for discharge and care is transferred to another hospital or community provider. Every clinical team has unique needs and distinct pieces of key information that need to be transferred during handover.

Although there are many types of patient handovers, the barriers to effective handover remain the same. Poor handover structure and documentation, interruptions, patient complexity and lack of contingency planning can all contribute to the omission of crucial information during handover and in turn to patient harm.

Handover and patient safety

Medical errors and adverse events are a common cause of potentially avoidable patient harm. In 2004, the Canadian Adverse Events Study reported a 7.5% incidence rate of adverse events among admissions to Canadian hospitals. The authors of the study deemed 36.9% of these adverse events to be preventable.² The US Institute of Medicine (IOM) reported similar rates in 2000 and noted that many preventable adverse events contribute to patient death.³

Improving caregiver communication has been emphasized within the patient safety movement as an important way to reduce the number of adverse events. There is good reason for this emphasis: the Joint Commission on Accreditation of Healthcare uses root cause analysis to examine the sentinel events that were voluntarily reported to the commission, and communication is one of the most common contributing factors. Data on the root causes of sentinel events reported in 2015 are shown in Fig. 1.1.⁴

Handover requires caregivers to integrate complex clinical and communication skills and to apply an understanding of systems of care, all within the context of a single, time-limited, highly constrained activity. Because of the complexity of the task, handover is a particularly vulnerable form of caregiver communication and it carries a high risk of medical error. Up to 75% of patients for whom there are handover failures sustain preventable adverse events and patient harm.^{5,6} In several studies, most residents indicated that one or more patients in their care had been harmed because of poor handover.⁷⁻⁹

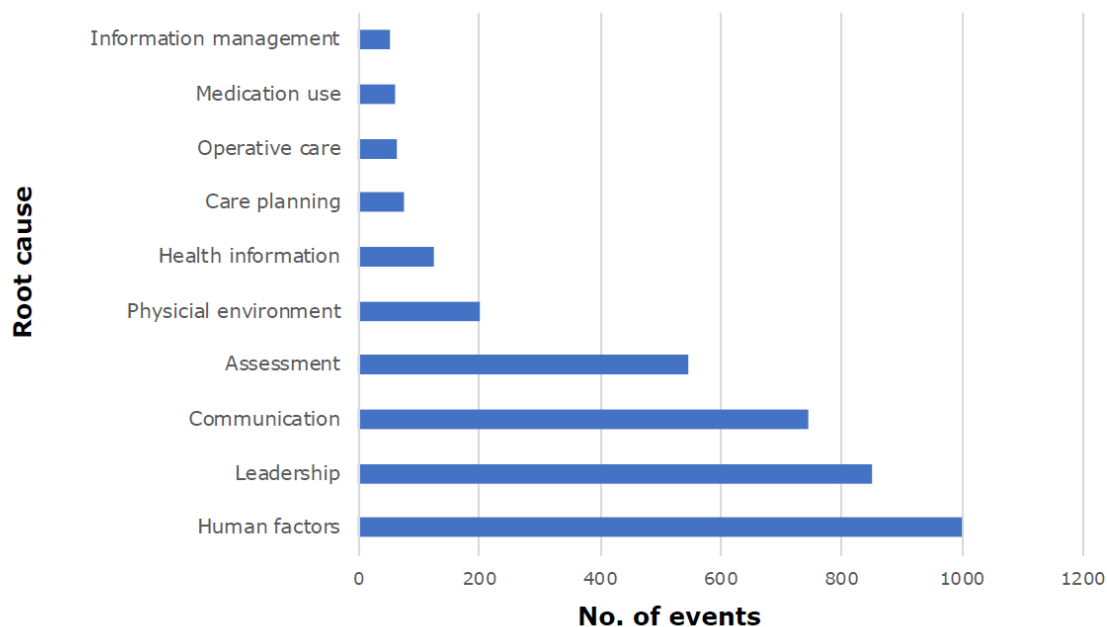


Fig. 1.1. Root causes of sentinel events reported to the Joint Commission in 2015.⁴ Reprinted with permission from the Joint Commission.

The complexity of handover

Figure 1.2 illustrates the many moving parts of patient handover and the confounding factors. This conceptual model highlights the ways in which the individual care provider, patient and contextual factors affect effective patient handover. For example, if an inexperienced provider with minimal

handover training is attempting to hand off a complex patient in an acute and busy environment there will potentially be a loss of critical information and an increased risk of medical error.¹⁰

In addition to these complexities, institutional barriers and training demands may provide additional threats to smooth handover. In our teaching hospitals, handover is even more vulnerable than in other settings because it occurs with greater frequency and involves additional stressors, such as junior learners, condensed work, high acuity, and increased patient complexity.

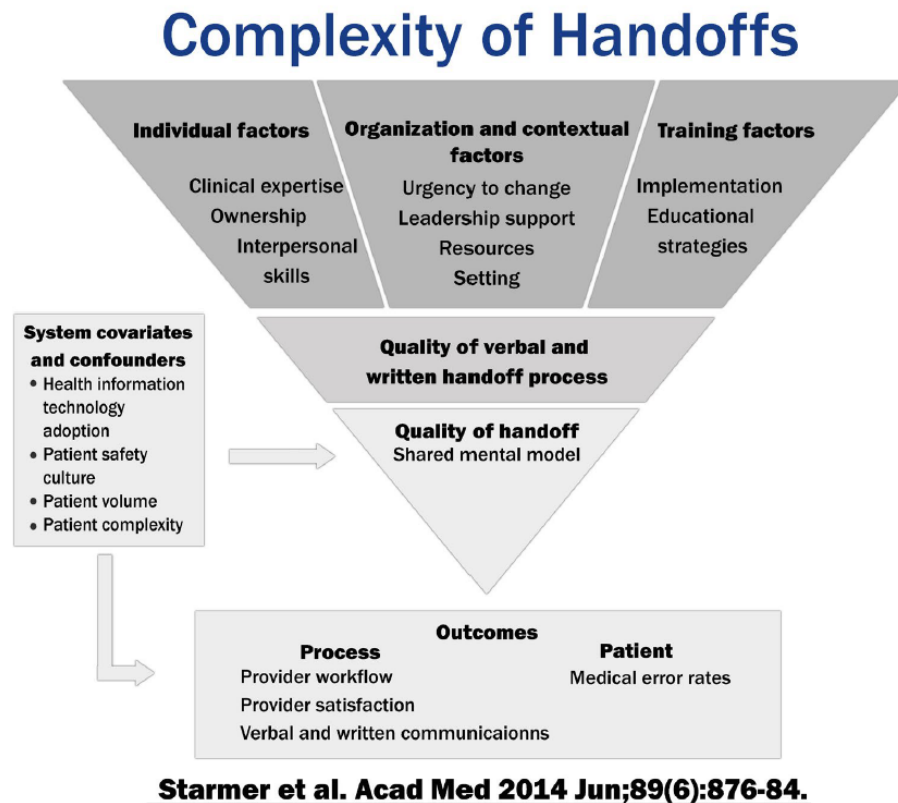


Fig. 1.2. Conceptual model showing the complexity of patient handover, summarizing the relationships between factors affecting handover, covariates and outcomes. Reprinted with permission from the I-PASS Study Group.

Leading health care bodies such as the World Health Organization and the US Institute of Medicine have recognized the ongoing gaps in patient handovers. Their reports and guidelines emphasize the importance of communicating patient information effectively and note that failure to do this can result in patient harm.^{3,11} In 2017 the Joint Commission sent out a special Sentinel Event Alert highlighting the severe patient harm that can result from poor handovers and the potential for handover improvement initiatives to improve patient safety.¹² Much attention has been paid to changing duty hours to improve patient safety and reduce medical errors related to fatigue. However, shorter shifts lead to more frequent handoffs, which may in fact increase the risk of medical error. In a 2013 study comparing 30-hour duty shifts with 16-hour duty shifts for Internal Medicine house staff at The Johns Hopkins Hospital, the minimal number of handoffs per patient increased by as much as 200% for the 16-hour group. The authors emphasized the added risk handoffs present to patient care and recommend teaching and standardizing patient handoffs to mitigate this risk.¹³

The addition of handover to the CanMEDS 2015 Framework

Ongoing gaps in patient handover across all disciplines point to a need for physicians to receive training in the skills and strategies they need for effective patient handover. At present, handover teaching for trainees is often inadequate, if it is done at all. Even when handover is included in postgraduate curricula, it is often taught in silos, with no standardization of content and few educational tools at the disposal of the teacher. Consequently, experts involved in the CanMEDS 2015 project decided to include handover as a competency in the CanMEDS 2015 Framework and to develop resources such as this toolkit to help educators develop curriculum on this topic, teach it and then assess their trainees' handover skills. Because of the ubiquity of patient handover across all health care professions and its role in the provision of safe, high-quality, patient-centred care, the CanMEDS 2015 Framework (Fig. 1.3) includes handover as a core competency for the Collaborator Role.¹⁴ The key and enabling competencies related to handover are listed in Table 1.1.



Fig. 1.3. CanMEDS 2015 Physician Competency Framework.

The key and enabling competencies for handover in the Collaborator Role in the CanMEDS 2015 Framework¹⁴

KEY COMPETENCY

Physicians are able to:

- Hand over the care of a patient to another health care professional to facilitate continuity of safe patient care
- **Enabling competencies:**
 - 3.1 Determine when care should be transferred to another physician or health care professional

- 3.2 Demonstrate safe handover of care, using both verbal and written communication, during a patient transition to a different health care professional, setting, or stage of care

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Section 2: COMMUNICATION AND TEAMWORK: THE FOUNDATIONS OF EFFECTIVE HANDOVER

Authors: Kathleen Huth, MD, MMSc, FRCPC and Heather Ward, MD, MSC, FRCPC

Section objectives

After reading this section, you should be able to:

1. Describe the evidence-based communication techniques used by high-performing health care teams
2. Understand the barriers to communicating effectively in a health care team and the implications for patient care
3. Implement tips for engaging in effective team communication during handovers

Contents at a glance

- Background
- Four areas of teamwork competency
- Features of effective communication during handover
- Barriers to effective communication during handover
- Top 5 tips

Background

Handovers are a point of vulnerability in patient safety: 80% of serious or preventable adverse events are related to communication during transfers of care.^{1,2} Miscommunication occurs when information is incompletely transferred or inaccurately received, hindering the participants' ability to co-construct clinical understanding in the handover of responsibility.¹⁻³ The subsequent misunderstandings, uncertainty in clinical decision-making and incomplete tasks result in care discontinuity, prolonged length of stay, increased health care costs and patient harm.⁴⁻⁶ As mentioned in Section 1, recent changes in duty hours have increased handover frequency,⁷ resulting in more opportunity for care fragmentation and patient safety incidents.⁴ Application of the principles of effective communication and teamwork will reduce communication errors and patient harm.⁸

The central importance of good communication to patient safety has been recognized by many organizations. The Institute of Medicine has emphasized the need for formal training programs in clinical

reasoning, teamwork and communication to mitigate patient safety concerns stemming from miscommunications.⁹ [TeamSTEPPS](#) is one example of a dedicated team training program that has been successfully implemented in health care settings.¹⁰

Researchers in human factors engineering have studied handover communication in other contexts, and many of the recommendations arising from their work are applicable to medicine, such as the recommendations that information transfer be standardized and that the receiver of the information “check back.”^{2,11} When the structure of both verbal and written handover is [standardized](#), communication is enhanced. Engaging in quality handover (in terms of process, format and content) requires taking the context of the handover into account, including the characteristics of the sender and receiver of the information (e.g., clinical experience, fatigue), the workplace culture and patient complexity.^{2,12,13}

To ensure that handover is successful in complex circumstances, the sender and receiver need to have an interactive dialogue within a standardized format to develop a shared understanding of all of the clinical issues.^{2,4,13} Both the person giving handoff and the one receiving it should ensure that all members of the [health care team](#) have a [shared mental model](#), including the patient and their family.⁵ In a recent prospective study of 257 pairs of residents and the parents of pediatric patients, almost half lacked a shared understanding of care plans overnight.¹⁴ Developing best practices that include patients and families/caregivers in handover is an area of active research.^{1,2}

Four areas of teamwork competency

In its TeamSTEPPS program, the Agency for Healthcare Research and Quality describes four main areas of teamwork competency to optimize safety, based on the study of high-reliability organizations in the military, aviation and nuclear power industries. Here we describe each competency and how it manifests in the activity of handover:

LEADERSHIP

What it looks like:

Teams with effective leadership establish clear roles and expectations for all members. Tasks are delegated appropriately to ensure optimal resource management, and the team engages in briefing/debriefing to coordinate efforts.

Questions to ask:

- Who is responsible for updating and ensuring the accuracy of the written handover document, and by what time?
- Who is responsible for delivering verbal handover to the overnight team? Is there an agreed upon location and time? Who will lead the verbal handover?
- Who on the overnight team will perform each requested action? Whom can the team contact overnight with questions or concerns?

SITUATION MONITORING

What it looks like:

Situation monitoring is the act of assessing a clinical situation by actively scanning behaviours and actions. An individual develops situation awareness when they engage in situation monitoring, but they will only develop a shared mental model with other team members if they share this awareness through communication (Fig. 2.1).¹⁰ Team effectiveness will improve if all members have a shared understanding of the situation. Members monitor each other's actions to build awareness of the function and emerging needs of fellow team members.

Questions to ask:

- Has the team discussed patient stability, the status of medical issues and required actions? Does the team have a shared mental model or agreed-upon plan for potential events, such as events that might occur overnight?
- Has there been opportunity for other members of the team to have their performance of patient handover (both as giver and receiver) directly observed, and have they received feedback?

Building A Shared Mental Model

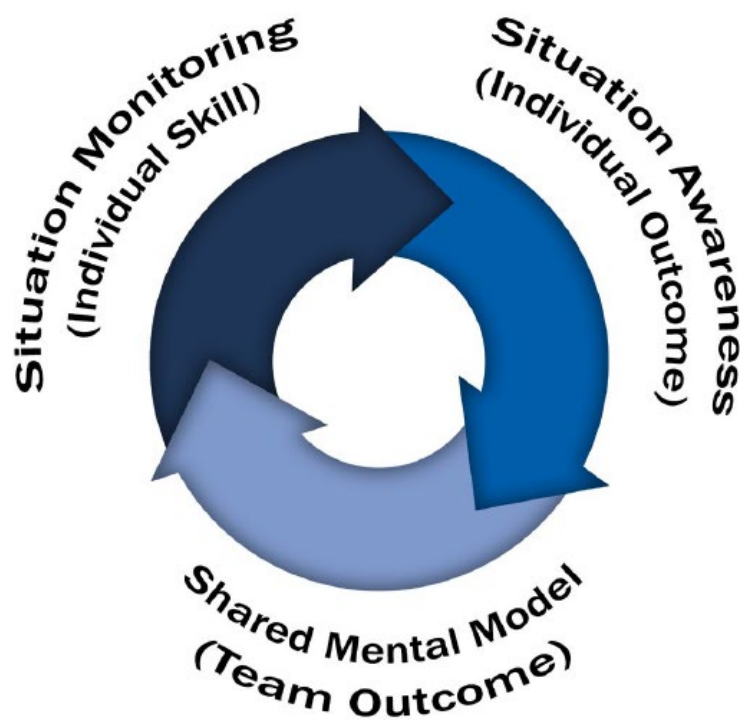


Fig. 2.1. Situation monitoring fosters a shared mental model. Reprinted with permission from [AHRQ](#).

MUTUAL SUPPORT

What it looks like:

Team members are comfortable asserting their needs and highlighting the needs of other team members, to garner additional support if required. They collaborate to troubleshoot performance issues and to ensure all tasks are completed.

Questions to ask:

- Do team members agree that the action items and contingency plans are appropriate and feasible?
- Have all team members had a chance to ask questions and express concerns?
- Have senior team members ensured junior team members are comfortable with the information and plans?

COMMUNICATION

What it looks like:

Teams share information accurately and efficiently among all members. Standardized communication tools are used to ensure reliable transfer of key information. Members engage in [closed-loop communication](#) to confirm understanding. A closed-loop communication strategy involves the sender initiating a message, the receiver accepting the message and confirming what was communicated, and finally the sender verifying that the message was received accurately (Fig. 2.2).¹⁰

Questions to ask:

- Has verbal and written transfer of information occurred in a standard format?
- Has the handover receiver explicitly synthesized the information they've been given, to check their understanding?

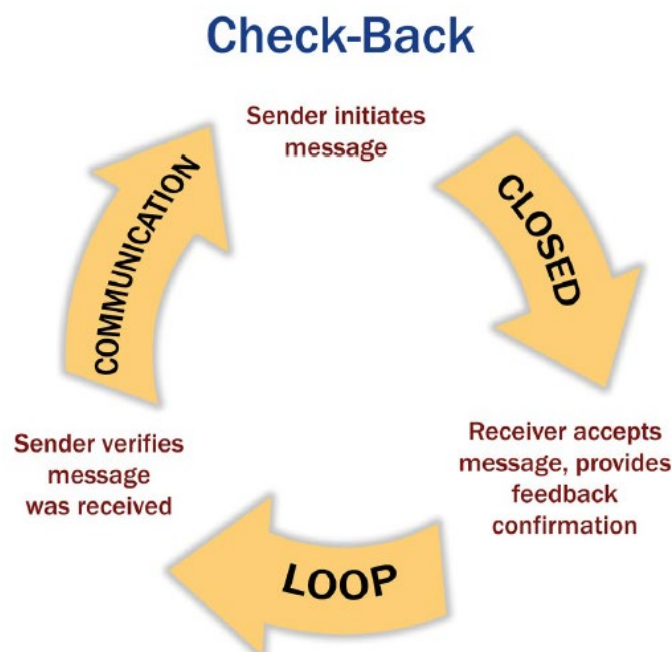


Fig. 2.2. Reprinted with permission from [AHRQ](#).

Since the TeamSTEPPS program has been made available to health care professionals, it has been implemented in inpatient units, emergency departments, operating rooms, labour and delivery units and intensive care units, with improvements noted in a variety of quality measures.¹⁵ Information on some of the approaches used to implement TeamSTEPPS in specific settings of care and on the evaluation efforts to quantify or qualify the impact of using TeamSTEPPS can be found on the [TeamSTEPPS website](#).

Features of effective communication during handover

Handover is a complex activity. To handover effectively, participants need specific communication skills, including synthesizing information, clarifying understanding and seeking feedback.^{8,16} The giving and receiving teams need to be adequately prepared, and they must be able to prioritize messages.^{8,17}

When it is done well, handover has the following features:

- There is a **culture of open communication** where everyone's input is valued, and all team members, regardless of their role or rank, feel comfortable asking questions, voicing concerns or making suggestions.
- Communication occurs using a **standardized process**. A structured approach for handovers, including an opportunity for the receiver to ask for clarification, helps to verify the information being transferred.¹⁸
- The handover giver clearly communicates active issues and **contingency plans**. Prospective information for the shift ahead is provided, not simply retrospective information on what occurred during the preceding shift.⁵
- The giver and receiver have a **shared mental model** or agreement on what they value in the process and outcome of handover, facilitated through dialogue.¹ The members of the health care team share a common understanding of prioritized clinical issues.¹⁷ In addition to having a shared mental model of patients, team members communicate about their own mental model of the patient census and team as a whole, for example, overall acuity, patient turnover and the adequacy of resources to care for the patients.¹
- The handover receiver assumes equal responsibility for synthesizing information, clarifying their understanding of expectations and ensuring their mental model "matches" that of the giver.² [Readback](#) and clarifying questions are used to ensure that a message is correctly received and to provide an opportunity to correct misinformation.¹⁸ [Closed-loop communication](#) is used not only during handover but also afterwards, providing an opportunity for feedback on any inaccuracies or important omissions.
- A shared mental model is achieved with **patients and families**. This not only reinforces a teambased approach to care, it also facilitates effective coordination and continuity of care and may protect against errors.¹⁹
- **Clear documentation** is provided, with sufficient information for all team members to understand the assessments and plans.¹⁸

Barriers to effective communication during handover

Handover often takes place in challenging environments where there are frequent interruptions and distractions. Ambiguous or vague statements impede the transfer of accurate information, requiring the receiver to take an active role to ensure that they absorb what they need to absorb. Fatigue and multi-

tasking may contribute to [cognitive overload](#). Some common contributors to miscommunication are discussed in detail below (see also Table 2.1). Many of these risk factors are also addressed in case format in Section 6; the cases provide learning objectives that you can adapt for your program.

Interruptions and distractions are common when handover is performed on a hospital ward, where care activities are continuing to take place. For example, consultants may round at the end of the day and interrupt handover with important questions or information for the daytime team, or nurses may have questions or urgent requests regarding their patients. Other distractions may include loud noises (nearby conversations, beeping monitors) or visual distractions (people moving around the desks; charts and papers being passed around). These can all detract from handover communication, potentially causing the giver and receiver to lose their train of thought or to miss critical information. More details about the optimal handover environment can be found in Section 3.

Multi-tasking may also affect handover communication. It is a common misconception that most people can effectively perform several tasks at the same time. It may be tempting at the end of a busy afternoon for a resident to attempt to complete other tasks while handing off to the cross-covering resident, such as co-signing orders, filling out requisitions or keeping an eye on a patient monitor. However, when tasks are not entirely automatic, the process of rapidly switching between tasks can disrupt performance and increase the risk of miscommunication and error.²⁰

Hierarchical differences between physician trainees, interprofessional team members and patients/families can compromise effective information transfer. Fear of appearing incompetent may prevent participants from speaking up and asking questions for effective check-back (a [closed-loop communication](#) strategy).^{21,22} Team members must feel empowered to clarify and question assessments and plans. Hierarchy and speaking up are discussed further in section.

Fatigue may lead to lapses in attention or memory, confusion, slowed information processing and impaired communication.²³ At the end of the day, when the daytime team is finishing a busy shift and the cross-covering resident may be working extended or overnight shifts, both the giver and receiver of handover are probably going to be fatigued, and there will be a higher risk of miscommunication.

Ambiguous team membership or roles may also contribute to miscommunication. Particularly at the start of a new rotation, it is often assumed that medical students and residents know who else is on the team and each person's roles and responsibilities, but this may not be true, even for attending staff on the wards. Lack of dedicated training or orientation to the team may result in poor preparation for handover or unclear expectations about how one should communicate information to the cross-covering team.

Passive listening results in ineffective information transfer. Even under ideal conditions, with none of the risk factors described above, it was found that the most important piece of information was not relayed 60% of the time despite the senders having thought this information was conveyed.¹ It is essential that the listener play an active role, asking questions and confirming information in a focused conversation to construct a shared mental model with the sender, especially when the care of unstable patients is being handed over.^{2,13} Active listening strategies include diminishing cognitive load by minimizing distractions, encouraging questions, and engaging in anticipatory communication, such as the listener asking about patients of concern.²

Risk factors for miscommunication and strategies for reducing them (adapted from the Canadian Medical Protective Association)

Risk Factor: Frequent interruptions and distractions in the handover environment

- Strategy: Perform handover in a quiet, dedicated space
- Cases (see Section 6): 2, 4, and 6

Risk Factor: Multi-tasking

- Strategy: Focus attention on handover: delegate or postpone other care activities
- Cases (see Section 6): 2 and 4

Risk Factor: Hierarchies that prevent open communication

- Strategy: Use standardized communication tools and foster a psychologically safe environment for interactive questioning
- Cases (see Section 6): 3 and 4

Risk Factor: Fatigue

- Strategy: Pay special attention to at-risk times, such as the end of the shift, when fatigue may affect performance
- Cases (see Section 6): 2 and 6

Risk Factor: Ambiguous team membership or roles

- Ensure that all team members receive dedicated orientation to the team that includes an explicit discussion of roles, responsibilities and the expectations for communication (e.g., preparation for handover at a designated time and place, use of a standardized tool)
- Cases (see Section 6): 3 and 4

Risk Factor: Passive listening

- Ask clarifying questions to address any cognitive load issues the receiver may be experiencing with respect to patient complexity and the processing of information
- Cases (see Section 6): All

Top 5 tips

1. Promote a safe environment for open communication among all team members, regardless of their role or rank.
2. Implement dedicated team communication training for physician trainees using evidence-based resources like TeamSTEPPS, with ongoing observation and feedback.
3. Use a standardized approach for handover communication to ensure reliable information transfer.
4. Engage in active dialogue during handover. The handover receiver should synthesize the information they have received to ensure understanding.

5. Articulate anticipated issues and contingency plans and engage in active dialogue between the receiver and sender, ensuring that both parties share their reasoning and mental model with each other.

Resources

Canadian Medical Protective Association. Good practices guides. Available from: <https://www.cmpa-acpm.ca/serve/docs/ela/goodpracticesguide/pages/teams/teams-e.html> The Canadian Medical Protective Association offers a series of online educational resources to enable the provision of safe patient care. Their guides include key concepts and case studies for teams (linked here) and communication.

TeamSTEPPs. Available from: <https://www.ahrq.gov/teamstepps/instructor/index.html> This is an evidence-based framework for high-performing health care teams developed by the US Department of Defense Patient Safety Program and the Agency for Healthcare Research and Quality. Curricular materials are available online.

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Section 3: HANDOVER BEST PRACTICES

Authors: Kathleen Huth MD, MMSc, FRCPC Thomas McLaughlin MD, FRCPC and Amy Nakajima MD, FRCSC

Section objectives

After reading this section, you should be able to:

1. Discuss key global aspects of high-quality handover, including training, environment and standardization
2. Describe key features of effective verbal and written handover including the use of a structured communication framework
3. Recognize the opportunities and challenges of delivering in-person verbal handover in conjunction with standardized handover documentation

Contents at a glance

- Participants in handover should receive training
- Efforts should be made to optimize the environment in which handover occurs.
- Handover should involve both the verbal and written transfer of information.
- Handover should be structured using a standardized format.
- Information technology should be leveraged to optimize handover.
- Patient privacy must be protected.
- Top 5 tips

It's not enough to simply participate in [handover](#). To ensure that information and responsibility are effectively and safely passed between individuals and teams, handover must be done right. The specifics of handover may vary in different settings and circumstances, but there are certain global elements that characterize all high-quality handovers, no matter where or how they take place.

Participants in handover should receive training

Just like any other skill, handover can and should be trained. Training has been shown to increase handover effectiveness, even for experienced health care providers.¹ All team members participating in handover should also be committed to the process and to ensuring that it always happens in the same way, in the same place and at the same time.² Finally, handover needs to involve the unambiguous transfer of responsibility — it should be clear to everyone involved that responsibility is being transferred from the giver of handover to the receiver.

Efforts should be made to optimize the environment in which handover occurs

Handover should occur in a consistent location, which is quiet and free from interruptions, so that participants can focus on effective, high-quality handover.³ To facilitate this, it's important to have clear leadership during the handover process from someone with expertise in handover and clinical medicine. For example, medical students and junior residents frequently participate in handover; having a faculty member or senior trainee act as a leader in the handover process will help these junior trainees to hand over most effectively.

The exact environment in which a handover will occur — and the team members involved in the handover — will vary depending on the clinical context (e.g., handover between the daytime and nighttime teams for a given clinical service, between an emergency department team and a receiving general medicine ward team, or between a perioperative team of surgeons and anesthesiologists and a receiving team in the intensive care unit). Handover may occur at the bedside or in a quiet room on a ward. It might involve a single profession (e.g., physicians) or multiple professions (e.g., physicians, nurses, respiratory therapists, pharmacists). Context is important, and each clinical team should structure handover in the way that best suits their needs, while adhering to the core principles outlined here.

Handover should involve both the verbal and written transfer of information

Both verbal and written information transfer should occur in patient handover; either format on its own is insufficient. Providing both verbal and written handover ensures redundancy of information transfer, reducing the likelihood of errors of omission and providing an opportunity to verify accuracy.

Verbal handover enables bidirectional conversation and active dialogue as opposed to uni-directional transmission of information from giver to receiver through a document or recorded message. It is highly recommended that handovers be conducted face to face when possible. Effective verbal handover allows the giver of handover to highlight key tasks to be performed by the receiver and includes the opportunity for dialogue so that the receiver can check their understanding, discuss recommended plans and read back key information, including tasks to be completed.⁴ Handovers without the opportunity for interactive questioning between participants increase the risk that unclear assessments and plans might be passed on to the next physician.⁵ In-person handover also gives the giver and receiver the opportunity to learn from each other's non-verbal communication, such as nodding or signs of confusion.

A written or electronic document should supplement verbal handover. The participants can highlight key points in the written document during their verbal handover, and additional notes can be taken as expectations are clarified through dialogue.

The format of the written handover should align with what is communicated verbally while providing relevant supplemental information. The quality of the written document — its completeness, accuracy, clarity and timeliness — is critical.

The practice of transferring patient information both verbally and with accompanying written documentation will accommodate the differing learning styles of individuals. Individuals may have distinct preferences or aptitudes in terms of how they perceive and process information. For example, some people may prefer visual versus auditory presentation of data, whereas others prefer the reverse. A structured approach to handover that employs both verbal and written handover is therefore recommended. Though there is insufficient evidence to support matching the presentation of information to an individual's specific learning style, in general it's a good idea to employ multiple modalities to support the successful transfer of information when creating learning curricula for trainees.^{6,7}

Handover should be structured using a standardized format

The best evidence for improving clinical outcomes related to patient handover is for the use of a “bundled” intervention, which involves using a structured format for both verbal and written handovers. The multi-centre I-PASS study identified a significant reduction in preventable adverse events and medical errors associated with using the I-PASS mnemonic for both verbal and written handover as part of a bundled handover intervention.^{8,9}

Verbal handover should follow a standardized system that is tailored to the unique needs of the particular team handing over. Commonly used standardized systems for handover, such as I-PASS,¹⁰ provide cues for key pieces of information to be handed over about each patient.

Written handover should also be standardized to include key clinical information such as code status, recent events and anticipated problems (and contingency plans for those problems). Written handover can be integrated into the electronic medical record, which in some cases can allow handover lists to be automatically populated with some information (such as patient name, medical record number, age, medications and allergies) and can include templates to act as cues so pertinent information is not missed. It's vitally important that teams keep written handover documents updated with current information, as out-of-date information (e.g., code status, contingency plans) can have negative consequences for patients.

Mnemonics for standardizing the presentation of the key elements of handover

According to a review of the literature and expert consensus,^{4,5,10,11} the key data elements in patient handover include but are not limited to:

- demographic information;
- illness severity;

- admission diagnosis;
- relevant medical history, including code status;
- active issues;
- a specific to-do list with timeline and ownership (including follow-up of any pending investigations);
- anticipated issues and contingency plans; and
- readback of key information.

A number of mnemonics have been developed as memory tools for presenting key data elements in a predictable and organized structure.⁵ A systematic review of the handoff literature identified 24 unique mnemonics, including ANTICipate, SIGNOUT and I-PASS (Table 3.1).¹² The most well-studied of these handover mnemonics is I-PASS (Table 3.2): use of this mnemonic, in combination with team communication training, standardization of handover documentation, and direct observation with formative feedback, was shown to be associated with a significant reduction in medical errors in a multicentre North American study.⁹ Trainees must learn to systematically structure handovers, for example, using a mnemonic and the electronic medical record as a dynamic tool.¹¹

Table 3.1. Examples of handover mnemonics with common key elements highlighted

ANTICipate ¹³	SIGNOUT ¹⁴	I-PASS ¹⁰
Administrative data	Sick or DNR	Illness severity
New information (clinical update)	Identifying data	Patient summary
Tasks (what needs to be done)	General hospital course	Action list
Illness (is the patient sick?)	New events of day	Situation awareness and contingency planning
Contingency planning/code status	Overall health status/clinical condition	Synthesis
	Upcoming possibilities with plan	
	Tasks to complete overnight with plan, rationale	
	?Any questions?	

Table 3.2. Components of the I-PASS handover mnemonic

I	Illness severity	Identification of patient stability/acuity (i.e., stable, “watcher,” unstable)
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P	Patient summary	Summary statement; events leading up to admission/transfer; hospital course; assessment; plan
A	Action list	To-do list; timeline 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

Another commonly used mnemonic is SBAR (Situation including patient stability, **B**ackground information, **A**ssessment including anticipated events and **R**ecommendations with action plan).¹⁵ The SBAR format is a model for situational briefing to ensure focused transfer of information across differences in hierarchy and communication styles, which was originally developed for use on US naval submarines and then adapted for use in health care. Though it has been used as a handover mnemonic at shift changes, when it was introduced to the health care setting it was originally intended to frame conversations about changes in a patient's clinical status requiring urgent attention. For example, a chest pain: in this situation, the junior learner is not transferring care but rather wants to convey their concern about an acute change in the patient's condition. SBAR would be the ideal mnemonic to use in this situation. The SBAR format may be less well suited for the more complex and detailed information-sharing that occurs with the transfer of patient care.

Residency programs may wish to adopt one of the mnemonics that incorporate the key data elements described above, to ensure that handover participants use a common language and have a shared expectation for verbal and written handover communication.

Information technology should be leveraged to optimize handover

Leveraging information technology can improve the efficiency and quality of information transfer during handover.^{8,16,17} Many electronic medical records include handover templates with automatically populated fields for demographic information, medication lists, allergies and other easily retrievable data elements. When they use an electronic handover tool with automatic updates of basic content, physicians can focus on conveying details of the anticipated issues and contingency plans.⁵

Patient privacy must be protected

Whether written handover documents are generated manually with a word processor or with an electronic template, ensuring the privacy of sensitive patient information is paramount. Breaches of confidentiality are often unintentional, such as those that result when a trainee misplaces a handover document containing personal health information after an overnight shift.¹⁸ Trainees should be familiar with the policies of their institution and privacy legislation specific to their province and territory (e.g., the Personal Health Information Protection Act in Ontario). We recommend that residency programs reinforce to their learners that handover communication should be limited to providers in the circle of

patient care, and all providers are responsible for ensuring handover documentation is disposed of in confidential waste after use. The main features of high-quality handover are summarized in Table 3.3.

Table 3.3. Features of verbal and written handovers (adapted from Spector et al. 2012)¹⁹

Verbal handover	Written handover
Is conducted face to face	Includes succinct and relevant information
Follows a standardized format, including an overview of the team (e.g., information about the patients for which the incoming team will be responsible; information about staff absences and other details that may affect workload)	Follows the same structure/format as verbal handover
Occurs at an appropriate pace	Includes supplemental information to increase the efficiency of verbal handover
Involves closed-loop communication , including the opportunity for questioning and readback	Is updated regularly to ensure accuracy

Top 5 tips

1. Handover training for health care workers is essential and can reduce medical errors.
2. Handover should occur in person, in an optimal environment, and with a designated leader.
3. A standardized handover tool should be used to ensure predictable structure and reliable inclusion of key data elements.
4. Verbal and written handover complement each other, should be used together, and should be in the same format.
5. A system should be in place for ensuring accurate and up-to-date written handover, whether manually created or auto-populated documents are used.

Resources

Canadian Medical Protective Association. Good practices guide: handovers. Available from: <https://www.cmpa-acpm.ca/serve/docs/ela/goodpracticesguide/pages/communication/Handovers/handovers-e.html> The Canadian Medical Protective Association offers a series of online educational resources to enable the provision of safe patient care. Good practices guides include key concepts and case studies for communication (linked here) including handovers.

Starmer AJ, Landrigan CP, Srivastava R, et al. I-PASS handoff curriculum: faculty observation tools. MedEdPORTAL. Available from: www.mededportal.org/publication/9570 I-PASS core curricular materials are available through MedEdPortal, including handover simulation exercises, mnemonic pocket cards and faculty observation tools (linked here).

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Section 4: PROGRAM IMPLEMENTATION

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Section objectives

After reading this section, you should be able to:

1. Outline the steps necessary to successfully implement a handover improvement program
2. Provide suggestions for designing and delivering a faculty development initiative
3. Explore the process of culture change as it relates to handover

Contents at a glance

- Seven steps for planning, designing and implementing a handover curriculum:
- Top 5 tips

Introduction

In previous sections, we discussed the components of effective handover. Each specialty will have its own unique handover needs and circumstances, as will the individual residency programs within a specialty. Even within a given residency program, faculty members and residents may have a preferred

communication style and handover approach. To ensure the success of your [handover curriculum](#), you will need to tailor the design and implementation of the curriculum to the local context, educational needs and organizational culture of your program. This will require careful consideration of a number of factors, including the goals of your handover curriculum, the learning styles of your audience and the available resources for implementing and sustaining the program.¹

In this section we focus on the steps you need to take to plan, design and implement a handover curriculum. A detailed discussion of how to implement an educational curriculum is beyond the scope of this toolkit. For further information on this subject, you can refer to the chapter on how to develop an educational curriculum in the Royal College's *Educational Design: A CanMEDS Guide for the Health Professions*.²

1. Take stock of the current situation in your program, including the available expertise and resources

When planning a handover curriculum, it is important to understand the current handover culture of your institution. Some residents and faculty members may not acknowledge the link between poor [handover practices and patient safety](#)³ and may be skeptical about the importance of handover education. It is important to determine what handover practices already exist in your setting; existing handover practices may be inconsistent, and there may be a lack of agreement among residents and faculty as to what constitutes high-quality patient handover.

You will likewise need to assess the readiness of the people associated with your residency program to change their current practices. The presence of certain elements, such as strong leadership and information technology to support the development of electronic handover tools, can help ensure that any changes that are implemented will be successful and sustained. Furthermore, it is essential that there is buy-in and engagement of key stakeholders at all levels of the institution (see Step 4) to support planning and implementation activities.⁴

A detailed understanding of the local handover practices and culture can help you to take stock of available expertise and resources. Ask yourself the following questions:

Who are the handover experts and potential champions within my program? These may include clinician-teachers who are already involved in educating trainees on the Collaborator Role, or patient safety experts interested in advancing teamwork and communication practices. You might also be able to engage interested senior or chief residents in helping to develop your handover curriculum.

What resources are available for handover teaching? Consider the physical teaching space that will be needed, the administrative support that will be required, and what electronic tools can be used to create written handover lists.

2. Conduct a needs assessment

Continuing on from the work you did in Step 1, consider both the existing handover practices of residents and faculty and the current teaching provided to residents on topics such as handover, teamwork and communication. Consider consulting your program director first, as they are probably aware of these and

can provide valuable insights. Alternatively, you can assess what is currently being taught regarding teamwork and communication by reviewing teaching schedules and/or contacting curriculum leads.

Other approaches that you can use to carry out a needs assessment include:

- directly observing an actual patient handover;
- having focused discussions with residents and faculty; or
- conducting a simple survey.

A needs assessment can characterize educational gaps among trainees relating to patient handover as well as [faculty development](#) needs. It can also identify potential opportunities to formally incorporate handover into your residency program (including opportunities to integrate the teaching and assessment of handover practices into daily clinical work). Finally, it can guide your decisions on the design and implementation of your handover curriculum, including what content to include, how in depth your handling of the content should be, and what teaching and assessment approaches to choose.

3. Identify barriers and pre-emptively address them

There will probably be some barriers in your program to implementing and delivering handover education (Table 4.1). Try to identify these potential barriers early on in the planning stages so that you can consider the impact they may have on your proposed program and how you can pre-emptively address them.

POTENTIAL BARRIERS TO IMPLEMENTING AND DELIVERING A HANDOVER CURRICULUM

1. **Potential barrier:** Lack of organizational resources (i.e., dedicated location for handover, technology to create handover tool)
 - a. **Possible solution:** Engage hospital leadership to help secure the necessary resources. See if it's possible to repurpose existing resources to create alternative solutions. For example, you might be able to use a break room on the ward for a set period of time to avoid interruptions during handover.
2. **Potential barrier:** Misalignment with existing clinical workflow
 - a. **Possible solution:** Establishing set times for handover can ensure that residents can plan their clinical responsibilities appropriately and allows other members of the medical team to know when residents have limited availability.
3. **Potential barrier:** Lack of availability of expert faculty to teach and assess patient handover
 - a. **Possible solution:** You can access available resources/expertise in your program, within your institution or from other organizations or use established educational programs, such as [I-PASS](#), to guide your curriculum development. For faculty who themselves may lack the requisite knowledge and skills in patient handover, dedicated faculty development may be needed.
4. **Potential barrier:** Differing learning needs and/or expertise in patient handover of trainees
 - a. **Possible solution:** The more experienced trainees can help to provide guidance to more junior learners; this can include both formal training and (more importantly) informal training and feedback in the clinical training environment.

5. **Potential barrier:** Lack of resident and faculty buy-in
 - a. **Possible solution:** Making clear the link between [handover and patient safety](#) can help with faculty and resident engagement. At a higher level, linking to CanMEDS training requirements can be an important motivator for program directors. It is often helpful to identify resident and faculty champions. Provide clear information about the expected commitment (i.e., time, teaching) required by faculty members and handover champions.
6. **Potential barrier:** Unsupportive leadership and lack of organizational commitment
 - a. **Possible solution:** Present the leadership of your program/institution with information about how handover affects patient care and the current state of handover in your program. Examples of local patient safety incidents resulting from poor patient handover can be compelling. Information gathered in your needs assessment can help with this.

4. Engage stakeholders

For your new curriculum or program to be successful, it will need to be supported by individuals at various levels of your institution. Educational stakeholders may include program directors, teaching faculty and residents; clinical stakeholders may include other health care professionals with whom your residents work (nurses, anesthesia assistants, etc.) and hospital leaders. Stakeholder engagement is essential during all stages of planning, design and implementation as it will enable you to develop a curriculum that meets the objectives and goals of all groups that will be affected by its implementation. Such engagement can help you garner the funding, infrastructure and human resources necessary for the development, rollout, reinforcement and evaluation of your handover curriculum.

5. Provide faculty development

[Faculty development](#) refers to activities that have been designed to assist faculty to fulfill their multiple academic roles, including teaching, research and administrative responsibilities.⁵ At an institutional level, “faculty development can help to build consensus, generate support and enthusiasm, and implement a change initiative.”⁶ Within handover education, faculty handover practices and attitudes probably influence the type of education residents receive in this area. It is therefore important to ensure that your faculty members have a shared understanding of handover best practices. Moreover, faculty will need to assess their trainees’ skills and provide them with feedback, direction and mentorship⁷; they will need to be provided with the tools and strategies they need to fulfill these functions. To achieve these multiple goals, faculty should be able to describe the link between [handover and patient safety](#) and incorporate [both verbal and written handover techniques](#) into their own clinical practices. This will enable residents to model their own handover practices after those of their faculty.

Bandiera and colleagues (2011) outline a five-step process for developing faculty development initiatives, discussed below as they relate to handover.⁸

ONE: ESTABLISH A NEED FOR FACULTY DEVELOPMENT

The impetus for many faculty development initiatives is the identification of a need, which may be local, specialty-based or more universal. A needs assessment can help guide faculty development activities. O’Toole and colleagues (2014) conducted a needs assessment of multiple training sites to better

understand their respective institutional cultures and to generate insight into designing and developing faculty development as part of the I-PASS project.⁷ They found that:

- most faculty had never received formal training either generally in team communication or more specifically in handoff techniques that form the basis of safe and effective handovers;
- faculty development activities needed to be time efficient; and
- training methods needed to be experiential and clinically relevant to faculty.

TWO: GET HELP TO ORGANIZE YOUR FACULTY DEVELOPMENT ACTIVITIES

The planning process for your handover-related faculty development will benefit from contributions from individuals with faculty development experience and/or expertise in handover. These individuals may be found within your department or they may be external faculty members who can offer consultation. In the latter case, you may need to adapt specialty-specific content. For example, a surgery department undertaking faculty development for intraoperative handover may benefit from consulting a pediatrics colleague with handover expertise, but any generic handover considerations raised by that colleague will need to be supplemented with content that addresses the surgical environment and training concerns.

THREE: SET CLEAR OBJECTIVES FOR FACULTY DEVELOPMENT

To effectively design and deliver a faculty development initiative, you should articulate clear objectives. These questions can help you to define your objectives:

- What is the goal of this faculty development initiative? Is it to develop faculty handover skills? To help faculty to provide better feedback on handover practices in the clinical setting?
- What does success look like? That is, what outcomes are hoped for? What should faculty participants be able to do after taking part in this initiative?
- Who is the target audience? Faculty members? Senior residents?

For example, a faculty development session may focus on how to assess trainees' handover skills in the workplace, and the target audience might be all of the clinician-teachers in a given clinical department.⁸

FOUR: TAILOR THE DESIGN OF YOUR FACULTY DEVELOPMENT ACTIVITIES TO YOUR LOCAL CIRCUMSTANCES

The design and delivery of faculty development activities will probably vary depending on the practices, work environmental and organizational culture of your program.⁹ To some degree, they will also be determined by practical considerations, including the proposed number of participants, scheduling to match clinical schedules and geographic considerations, such as the need to travel. Faculty development activities may be targeted at faculty alone or may employ a strategy of co-learning with residents through small group learning.¹⁰

As mentioned earlier, the faculty needs assessment for the I-PASS project indicated a preference for training that was time efficient, hands on and relevant to faculty participants.⁷ Effective faculty development incorporates the principles of adult learning theory¹¹ and interactivity and includes small-group discussions, workshops, interactive exercises, role plays and simulations, films and videotape reviews of performance, online and self-directed learning, peer coaching and mentorship. Most faculty

development activities are episodic; however, more longitudinal programs enable participants to acquire deeper knowledge and skills, which can be assessed over time. Examples of potential faculty development activities are educational sessions during faculty retreats or continuing educational sessions run by an institution/university.

FIVE: EVALUATE THE IMPACT OF YOUR FACULTY DEVELOPMENT PROGRAM

Evaluating the impact of your faculty development program is challenging and will take time. Ideally, the evaluation should start with determining faculty satisfaction but then progress toward determining whether faculty have acquired the requisite knowledge and skills to teach and assess handover. Ultimately, faculty development initiatives should include consideration of the impacts on trainee performance (and potentially patient care, although this link is often very difficult to demonstrate).^{8,12}

6. Deliver your handover curriculum

Once you have developed your handover educational program, you will need to determine the best venue for delivering this training. For instance, you might consider incorporating it into residency orientation (or boot camp), academic half-day curricula or multi-program educational sessions. See Section 5 for further details about teaching and assessment methods and curriculum design considerations.

To support what your participants learn about patient handover, you will also need to attend to the existing workflow of, and resources within, your clinical learning environment. Some of these considerations may be related to physical resources, such as securing dedicated handover space. These tasks probably do not have to be the sole responsibility of clinician educators; other individuals in your institution may be better equipped to help. For example, a local Information Technology (IT) undergraduate program could assist in the development of an electronic handover tool, or ward managers may be able to secure physical space for handover to occur.

7. Create conditions that will sustain your handover curriculum

The final step in program implementation is sustaining the newly learned skills and behaviours. Sustaining educational initiatives is often the most difficult aspect of any program. Even successfully implemented programs require ongoing and periodic educational efforts and resources to ensure adherence to the practice changes. Incoming residents will need to be trained each year, and new faculty will need to be brought up to speed. Build ongoing surveillance of handover practices, reinforcement of behaviours and refresher education sessions for both trainees and faculty into your handover curriculum. Engage program champions and medical leaders to help with this process and ensure that improving handover practices remains an educational and organizational priority. Reinforcing the handover skills learned by faculty and residents will result in sustained culture change and improved handover in the long term.

Top 5 tips

1. Take stock of the local handover practices of residents and faculty, and the current organizational culture as it relates to the training on handover, teamwork and communication provided to the residents.

2. Identify the specific needs of the residents and faculty in your program and tailor your handover program accordingly.
3. Engage key stakeholders to ensure buy-in and access to necessary resources to support handover education efforts.
4. Invest in faculty development programs to create a cadre of faculty and senior residents who can teach patient handover both formally and informally.
5. Attend to the clinical learning environment and ensure that it can support optimal patient handover practices.

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Section 5: LEARNING RESOURCES FOR HANDOVER: HANDOVER CURRICULUM DEVELOPMENT

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Section objectives

After reading this section, you should be able to:

1. Describe curriculum mapping and its application in developing an approach to teaching and assessing the Collaborator handover competencies as defined in the CanMEDS 2015 Framework
2. Provide a collection of teaching and assessment resources to develop a program specific curriculum for handover
3. Provide resources for independent study to address individual learner goals
4. Discuss challenges in and strategies for implementing a curriculum for handover

Contents at a glance

- Background
- Using the CanMEDS 2015 Framework to structure your handover curriculum

- Designing a handover curriculum tailored to your residency program
- Selecting teaching and assessment tools
- Creating a curriculum map
- Top 5 tips

Background

In the earlier sections of this handbook, the importance of [handover to patient safety](#) was discussed. Strategies to address challenges to communication in handover were outlined in [Section 2](#), and recommendations on how to handover effectively were provided in [Section 3](#). [Section 4](#) provided an overview of how to create the conditions to successfully implement a handover improvement program in your setting. This section provides information for the design of a handover curriculum that aligns with the CanMEDS 2015 handover milestones. Potential teaching and assessment tools are recommended for each stage of residency training in the [CBD Competence Continuum \(entry to residency, foundations of discipline, transition to discipline, core of discipline, transition to practice and advanced expertise\)](#), and an example of a [curriculum map](#) for handover based on CBD is also included.

Using the CanMEDS 2015 Framework to structure your handover curriculum

As discussed in Section 1 the CanMEDS 2015 Framework addresses handover as part of the Collaborator competency and includes a sequence of defined handover skills, represented by milestones, intended to be taught and assessed over the stages of residency (Table 5.1). Although handover has some unique characteristics in each specialty, the fundamental skills, and therefore the milestones that define the global competency of handover, are essentially the same across all disciplines.

Teachers can use the Royal College's [CanMEDS Interactive](#) to generate custom lists of competencies and milestones on the basis of their specific needs. The tool includes a [Milestones Guide](#), which outlines milestones for enabling competencies, including the demonstration of safe handover communication, along the stages of training. The Milestones Guide can be filtered using the term "handover" to identify additional competencies and milestones that are broadly related to patient handover. The milestones for enabling competency^{3.2} of the Collaborator Role for all stages of residency training in the CBD Competence Continuum, from entry to residency to advanced expertise, are outlined in Table 5.1. This toolkit has been designed to help postgraduate programs move their trainees through these milestones to meet the handover competencies outlined in the CanMEDS 2015 Framework. The handover milestones are further described in Section 5 as a framework for developing a handover curriculum.

MILESTONES FOR ENABLING COMPETENCY 3.2 OF THE COLLABORATOR ROLE ("DEMONSTRATE SAFE HANDOVER OF CARE, USING BOTH VERBAL AND WRITTEN COMMUNICATION, DURING A PATIENT TRANSITION TO A DIFFERENT HEALTH CARE PROFESSIONAL, SETTING OR STAGE OF CARE") IN THE CANMEDS 2015 FRAMEWORK².

1. **Stage of training:** Entry to residency
Milestone:
 - Describe a structured framework for transfer of care that ensures the patient, physicians, and other health care professionals understand and agree with all aspects of the care
2. **Stage of training:** Transition to discipline

Milestone:

- Describe specific information required for safe handover during transitions in care

3. Stage of residency: Foundations of discipline

Milestones:

- Communicate with the receiving physicians or health care professionals during transitions in care, clarifying issues after transfer as needed
- Communicate with the patient's primary health care professional about the patient's care
- Summarize the patient's issues in the transfer summary, including plans to deal with the ongoing issues

4. Stage of training: Core discipline

Milestones:

- Organize the handover of care to the most appropriate physician or health care professional
- Analyze gaps in communication between health care professionals during transitions in care
- Recognize and act on patient safety issues in the transfer of care

5. Stage of training: Transition to practice

Milestone:

- Demonstrate safe handover of care, both verbal and written, during patient transitions to a different health care professional, setting, or stage of care

6. Stage of training: Advanced expertise

Milestones:

- Teach effective handover, including structured frameworks for safe and effective transfer of care
- Analyze local handover practices and contribute to process improvements to enhance the safety and effectiveness of transfer of care

The handover milestones provide a structure for defining progressive resident learning of handover as a global skill. They provide the framework for handover curriculum development for all speciality programs, both those that have transitioned to [CBD](#) and those continuing to apply specialty-specific objectives of training. Although your curriculum should be guided by the milestones, you will need to address the unique aspects and clinical context in which your residency program operates; for instance, your residents may need to learn how to do shift-to-shift, transfer-of-care or postoperative handovers. Deciding which skills are most important to your program will help you design a tailored curriculum.

Learning goals and teaching and assessment strategies can be mapped out for each stage of training.

ENTRY TO RESIDENCY

Milestone: *Describe a structured framework for transfer of care that ensures the patient, physicians, and other health care professionals understand and agree with all aspects of the care.*

Teaching: Education strategies at this stage of learning should focus on introducing trainees to standardized verbal and written handover approaches and the rationale for standardization. You can introduce your learners to your program's preferred standardized handover approach and have them practise it in the classroom, in a small-group teaching session and/or in a simulation. Resources include the Canadian Medical Protection Association (CMPA) Best Practices Guide and the I-PASS resources (Table 5.2). You can introduce [situational awareness](#), environmental challenges to effective handover such as distractions (pages or other interruptions) and the effects of fatigue and [cognitive load](#) as key concepts in the early stages of residency. Refer to [Section 2](#) for a discussion of the risk factors for miscommunication

and some ways to address them. Resources include the CMPA Best Practices Guide and the I-PASS materials (Table 5.2).

Assessment: At this stage of residency, you will be assessing whether your learners “know how” to structure handover.³ Assessment and feedback should focus on the learner’s use of a standardized handover tool, their ability to organize information according to the selected tool and their awareness of the environmental challenges to effective handover.

TRANSITION TO DISCIPLINE

Milestone: *Describe specific information required for safe handover during transitions in care.*

Teaching: During this stage residents are beginning to assemble skills in the component parts of handover. This includes consistently using a structured format for verbal and written handover and providing complete handover content for all components of the structured handover tool(s), including tasks and contingency planning. Learning objectives should relate to handing over structured and complete information and using active listening with closed-loop communication to ensure effective transfer of information.

Clinical work provides ample opportunity for teaching and practising handover skills. To complement the opportunities in daily clinical work for learning handover skills, consider using interactive teaching modalities, such as the following:

- role play/simulation: I-PASS handoff simulation exercises; handover session for senior medical students (Table 5.2)
- case-based learning with narratives or video cases: I-PASS core resident workshop, M-OSHE online training; CMPA Good Practices Guide (Table 5.2)

Assessment: Focus at this stage should be on assessing handover structure and completeness. Similar to teaching opportunities, assessment modalities can take advantage of the daily clinical work and context. Some options include the checklist for evaluating written sign-out and workplace-based direct observation tools such as the PACT tool, the handoff CEX and the I-PASS faculty observation tools (Table 5.3).

FOUNDATIONS OF DISCIPLINE

Milestones: *Communicate with the receiving physicians or health care professionals during transitions in care, clarifying issues after transfer as needed. Communicate with the patient’s primary health care professional about the patient’s care. Summarize the patient’s issues in the transfer summary, including plans to deal with the ongoing issues.*

Teaching: At this stage of residency, focus should be on the specific content of handover. Learner’s will need feedback on their clinical reasoning and decision-making skills as a foundation for developing handover skills.⁴ Learning to synthesize complex clinical information into defined problems and plans is critical to providing clear and concise handover. Further skills to develop include anticipating the next stages of care and providing contingency plans.

Resources such as the CMPA Best Practices Guide and the I-PASS resources (Table 5.2) can be applied in self-reflection exercises, small-group discussions or simulations. Consider adapting the I-PASS core

resident workshop or the OSHE (observed structured handoff exam) workshop, which includes both teaching and assessment resources (Table 5.2).

Assessment: Focus at this stage should be on assessing your learners' skills with respect to handover content, including their clinical reasoning, their ability to synthesize information and their ability to conduct contingency planning. Assessment tools could include the I-PASS faculty observation tools or the handoff CEX and (Table 5.3). Feedback at this stage should focus on handover content as well as structure.

CORE OF DISCIPLINE

Milestones: *Organize the handover of care to the most appropriate physician or health care professional. Analyze gaps in communication between health care professionals during transitions in care. Recognize and act on patient safety issues in the transfer of care.*

Teaching: Teaching at this stage should focus on communication and collaborative practice. Teaching resources on teamwork and strategies or tools for addressing communication barriers are provided in the CMPA Best Practices Guide (Table 5.2) for use in small-group discussions or for individual reflective learning. At this stage, the best way to help your learners improve their skills is to have them practice handover and get “on the spot” coaching or feedback. This feedback can be provided by faculty, as the literature indicates that trainees feel that the presence of a faculty member at handover is essential for it to be an effective learning encounter.⁵ Additional feedback from residents or colleagues who receive and apply handover information is beneficial. Don't “protect” learners from the messiness when handover does not go well.⁶ They will benefit from seeing colleagues follow up to ensure that the needed patient care is provided. Learners should be coached to take progressive responsibility for being active participants in appropriate follow-up activities, including identifying patterns of errors or omissions in handover that would be improved with systems solutions.⁷

Assessment: At this stage, the learner must progress from “knowing how” to handover to “showing how” or “doing” handover.⁸ Focus your assessment efforts on determining how well your learners are applying their knowledge of structure (process), content (clinical reasoning) and situational awareness. Evaluate or analyze individual learning needs or gaps in handover, specifically with respect to communication that could affect patient safety. Workplace-based assessment can significantly improve a learner's competency, especially when there is an opportunity to incorporate the suggested improvements into action in subsequent encounters. Useful assessment tools include reflection pieces on handover experiences (see CMPA Good Practices Guide; Table 5.2) and global assessment tools for handover, for example the handoff CEX, the HEAR checklist or the I-PASS handoff assessment faculty observation and feedback tools (Table 5.3). Continuous feedback on performance is critical to improving skill throughout this stage.

TRANSITION TO PRACTICE

Milestone: *Demonstrate safe handover of care, both verbal and written, during patient transitions to a different health care professional, setting, or stage of care.*

Teaching: In this phase of residency training, the resident demonstrates the ability to consistently perform effective handover in a variety of settings. Trainees should be taught to be flexible, learning to adapt handover content to the clinical context and experience of the handover receiver.

Assessment: At this stage, apply global assessment strategies, such as the handoff CEX, the I-PASS handoff assessment faculty observation and feedback tools and the Transfer of Care Global Evaluation Scale (Table 5.3), through direct observation and feedback to help residents achieve entrustment. Entrustment is defined here as the ability to safely and effectively perform handover without direct supervision.

ADVANCED EXPERTISE

Milestones: *Teach effective handover, including structured frameworks for safe and effective transfer of care. Analyze local handover practices and contribute to process improvements to enhance the safety and effectiveness of transfer of care.*

Teaching: Senior trainees or faculty, for their continuing professional learning, may continue to enhance their own handover skills by teaching and participating in continuous quality improvement. Senior residents and faculty can use a handover curriculum map (see below) and learning resources for their own benefit as well as in their teaching of junior learners. Leading a local quality improvement project within a defined clinical context or participating in an existing initiative in the local practice context provides individuals with the opportunity to develop advanced expertise in handover. Clark et al. (2011) describe an example of an advanced expertise curriculum, with a template that can be modified to create a quality improvement project relevant to your local environment or individual learning needs.⁹

Assessment: At this stage, assessment and feedback will pertain both to the individual's personal expertise in handover and to their competency in teaching handover skills to others. You could use local resources to provide teaching feedback, such as clinician-teachers involved in educating trainees on the Collaborator Role or patient safety experts interested in advancing teamwork and communication practices (see Section 4).

Designing a handover curriculum tailored to your residency program

Curriculum is “a sophisticated blend of educational strategies, course content, learning outcomes, educational experiences, assessment, the educational environment, individual learning style, and programme of work” (Harden 2001.).¹⁰ Kern et al. (1998) recommend the following steps to develop a program-specific curriculum¹¹:

1. Identify the problem that needs to be addressed by the curriculum and conduct a general needs assessment.
2. Assess the needs of the targeted learners at each phase of training.
3. Define program-specific goals and objectives or learning outcomes.
4. Develop educational strategies.
5. Implement the curriculum.
6. Evaluate the curriculum.

Strategies for taking stock of your program's resources and conducting a needs assessment were discussed in Section 4. After you have assessed the available resources and the needs of your program's residents, you will be able to develop objectives or learning outcomes for each phase of handover training. The Royal College has provided helpful tips on creating learning objectives as part of the CPD Activity Toolkit.¹²

Learning objectives should:

- clearly state what a participant will know or be able to do as a result of attending an event or session;
- use an action verb describing what the participant will be able to do or the action they will be able to undertake; and
- include specific details of what the participant will be doing when they are demonstrating the action.

For further details please refer to the section of the CPD Activity Toolkit on creating learning objectives.¹³

Once you have written your learning objectives, you will need to determine which teaching methods you will use and which ones are best suited to each objective. Consider the strengths and limitations of each of these methods and determine which ones will allow you to best meet the needs you have identified. The available resources you identified in your program may play a role in determining which teaching methods you have at your disposal. Particular methodologies (e.g., simulation) may or may not be available to you depending on local expertise. In addition, there may be existing clinical resources pertaining to handover available to you that you could use as additional learning resources in your curriculum. For example, your institution's electronic medical record might include written handover tools that you could use to enhance your learners' written handover skills. You might be able to align your curriculum with local practice improvement initiatives to promote learning and continuous quality improvement with respect to handover among residents, faculty and other members of the practice environment.¹⁴

A detailed discussion of all of the details of curriculum design is beyond the scope of this toolkit, but you can refer to the Royal College's handbook on designing clinical education, *Educational Design: A CanMEDS Guide for the Health Professions*, for step-by-step guidance. Here we will focus on selecting teaching and assessment tools, using the CanMEDS 2015 Framework to structure a handover curriculum, and creating a curriculum map.

Selecting teaching and assessment tools

TEACHING TOOLS

A variety of tools can be used to teach residents how to handover effectively.

- **Interactive didactic lectures:** Lectures are a good way to convey the importance of patient handover, raise your learners' awareness of the role of communication failures and patient safety incidents, and provide a framework for structured verbal and written communication at handover.
- **Case-based learning:** Case-based approaches can be used to teach patient handover just as for other clinical and patient safety topics. Alternatively, real cases that involve communication breakdowns can be the focus of case-based learning at morbidity and mortality rounds. For example, a case provided by the Association for Healthcare Research and Quality illustrates the "perils of cross coverage."¹⁵
- **Video debrief:** Many videos have been created in which a patient handover is re-enacted. Trainees can be asked to discuss which aspects of the handover in the video were done well and which aspects could have been done better. Similarly, excellence in patient handovers can be

demonstrated using video re-enactments. These can also be used for faculty development purposes.¹⁶

- **Simulated role plays:** Learners can practise and demonstrate communication skills with hands-on simulations. This is often best done through role playing a handover with faculty, peers or standardized patients, followed by specific feedback. Learners may be given the opportunity to practise both giving and receiving handover to gain experience with and insight into both roles. Several role-play scenarios were developed as part of the I-PASS project and are available online.¹⁷ These can be tailored to your needs and specialty. Some specialty-specific case examples are available in Section 6.
- **Direct observation and feedback:** Workplace-based reinforcement of concepts learned through formal education helps to sustain learning. Faculty (or senior trainees) can observe junior trainees hand over patients and provide them with feedback. There are some feedback rubrics available that can support these activities (see the assessment tools section). Timely and specific feedback is essential for learning through direct observation.
- **Audit and feedback of written handover document:** Faculty can review the written handoff document and provide their trainees with feedback regarding the timeliness of updating information, the accuracy of the information and the degree to which the written content follows a structured format. Some tools are available to support the assessment of both written and verbal handover.
- **Handover quality improvement project:** Leading a local quality improvement project within a defined clinical context or participating in an existing initiative in the local practice context provides individuals with the opportunity to develop advanced expertise in handover.

Many resources that can be used to teach handover skills are available online. A few that we recommend are listed in Table 5.2.

TEACHING RESOURCES FOR A HANDOVER CURRICULUM

- **Resource: I-PASS curriculum¹⁸**
 - Notes: The I-PASS curriculum has several components. The medical student workshop is a companion to the I-PASS core resident workshop with modified curricular materials for novice learners with limited clinical experience. It includes team training, structured communication training, a standardized approach to handover and simulation exercises. Workshop material is available on MedEdPORTAL at www.mededportal.org/publication/9854
Stage of residency: Entry to residency
 - Notes: The core resident workshop is a 2-hour interactive didactic session that teaches I-PASS techniques and concepts using lectures, videos, group and individual exercises and a workbook.¹⁹ It includes team training, structured communication training, a standardized approach to verbal and written handover and simulation exercises. Workshop material is available on MedEdPORTAL at www.mededportal.org/publication/9311
Stages of residency: Transition to discipline; Foundations of discipline, Core of discipline; Transition to practice.

- Notes: The handoff simulation exercises are conducted in a 1-hour interactive role-play session to allow for practicing of techniques learned in the resident or medical student workshop.¹⁷ These exercises are available on MedEdPORTAL at www.mededportal.org/publication/9402

Stages of residency: Transition to discipline; Foundations of discipline; Core of discipline; Transition to practice. The faculty development resources are designed to educate and train faculty or handoff champions for the implementation of the I-PASS handoff program.²⁰

Workshop material is available on MedEdPORTAL at <https://www.mededportal.org/publication/9540>

Stage of residency: Advanced expertise

- **OSHE workshop²¹**

- Notes: This 90-minute interactive workshop includes a discussion, case presentation, trigger video, debriefing and a roleplay exercise, followed by an observed simulated handoff experience (OSHE) based on the OSCE (see Table 5.3). OSHE material is available in the article appendix online.

Stages of residency: Entry to residency; Transition to discipline

- **M-OSHE²²**

- Notes: This is an online training module and a multi-patient observed simulated handoff experience (M-OSHE). Online training: 4-minute video; 15-minute didactic screencast; 7-question, multiple-choice assessment. M-OSHE: A single station in a larger OSCE. Participants verbally hand over 3 patients and are evaluated by a trained “receiver” using an expert-informed, 5-item checklist. M-OSHE training and assessment materials are available in the article’s supplementary material online.

Stage of residency: Transition to discipline

- **Sign-out curriculum²³**

- Notes: This brief handover curriculum involves a 30-minute lecture on handover content using the SIGNOUT mnemonic, a one page handout and weekly faculty member review and feedback using a structured feedback tool. It includes brief face-to-face feedback, where faculty members use a feedback tool to guide trainees in multiple domains of handover quality, structure and content. The one page curriculum is available in Figure 1 of the article. The feedback tool is available in Appendix 1 of the article.

Stages of residency: Transition to discipline; Foundations of discipline

- **Handoff QI project²⁴**

- Notes: This quality improvement project consists of a descriptive observational study aimed at standardizing pediatric hospitalist handoffs via implementation of a handoff checklist, with the goal of improving handoff quality and physician satisfaction. The checklist is available in a supplementary figure in the online article.

Stage of residency: Advanced expertise

- **General surgery standardized handover project²⁵**

- Notes: This resident-designed continuous quality improvement project evaluated the frequency of use of a standardized handover tool and face-to-face handovers.

Stages of residency: Foundations of discipline; Core of discipline; Transition to practice

- **CMPA Good Practices Guide²⁶**

Notes: This guide includes handover information addressing the importance of handover, communication techniques, barriers and strategies for effective handover. The material is available on the [CMPA website](#).

Stage of residency: All levels

- **Handover session for senior medical students²⁷**

- Notes: This is a 1-hour session on handover for senior medical students based on models of handover practice and education and broader patient safety education principles. It includes a tutor guide, a student handout covering the key elements of handover, role-play scenarios and a video. The materials are available by contacting the corresponding author.

Stage of residency: Entry to residency

Note: CMPA, Canadian Medical Protective Association.

ASSESSMENT TOOLS

Assessment is an important part of any educational curriculum, driving both teaching and learning.²⁸ Assessing a trainee's handover skill and providing feedback have been shown to increase preparedness for handover and improve the overall content and quality of handover.²⁹ The learner's achievement with respect to the individual handover milestones as well as their global competency in performing handover should be assessed. Repeated or serial assessments can document the learner's achievement of component skills and their global competency in performing handover, or entrustment, in preparation for independent practice. Because handover is context dependent as well as situation and case specific, multiple observations in a variety of clinical contexts may be helpful.¹

Assessments of handover may include the following:

- workplace-based assessments with verbal feedback
- assessment of a portfolio of completed individual learning activities
- assessment of reflective documents
- feedback to a senior resident on their teaching of handover to junior residents
- assessment of completed quality improvement initiatives such as a personal practice audit
- participation in morbidity and mortality rounds with handover as a focus

The ideal number of handover assessments to determine competency has not been established. According to ten Cate and Young (2012), Ten proficient global handovers “without errors [as assessed]

by at least two different evaluators [is a] a valid sample for competency judgement, however this standard can vary.¹¹ The authors of I-PASS focus observers on the “estimate [of] the frequency at which a learner correctly uses or achieves a target behaviour or skill, with the intent of defining their general impression of the resident’s competency”²⁰ but acknowledge that the ideal number of assessments definitively required is not known. Each program will need to define its own assessment strategy, including the number of assessments and the assessment methods. Progressive entrustment of a clinical trainee, in which the trainee receives serial assessments and requires decreasing levels of supervision, is one approach to defining competency.¹ Levels of entrustment include:¹

1. No task execution
2. Task execution under direct supervision on site
3. Task execution with supervision quickly available on call
4. Unsupervised practice (supervision at a distance)
5. Supervision of junior learners

In the phases of residency in CBD level 1 is expected in the transition to discipline phase; trainees reach level 5 at the transition to practice phase.

DIRECT OBSERVATION AND FEEDBACK

Feedback on a trainee’s handover performance is best provided within the clinical context or setting in which handover occurs, since different clinical contexts present different challenges to effective information transfer.³⁰ Trainees should be given feedback on their performance with respect to individual milestones as well as the global task of handover. More specific feedback may be required on a trainee’s medical knowledge, clinical decision making and professionalism in addition to their written and verbal communication and active listening skills.^{30,31} As proficiency progresses, trainees can be assessed on increasingly complex handovers, which may include handovers that involve unstable patients, diagnostic complexity and changes in health care provider.³¹ Feedback can be provided by faculty or peer residents who observe and/or participate in handover. As entrustment occurs, clinical supervision of handover may become more remote, but the need for ongoing observation and feedback continues. The workplace-based assessment tools described in this section (Table 5.3) can help teachers to focus their observations and direct their feedback to the trainee’s performance with respect to individual milestones as well as the global task of handover.

ASSESSMENT RESOURCES FOR A HANDOVER CURRICULUM

RESOURCE: OSHE²¹

- **Notes:** This is a 2-hour observed simulated handoff experience (OSHE) based on the OSCE, using standardized resident receivers to evaluate handoff skills of 4th-year medical students using the handoff CEX. Preceded by the OSHE workshop (see Table 5.2). OSHE material is available in the article appendix online.
- **Stage(s) of residency:** Entry to residency; Transition to discipline

RESOURCE: CHECKLIST FOR EVALUATING WRITTEN SIGNOUT²⁹

- **Notes:** This brief written handover checklist was developed on the basis of an internal needs assessment and published handover recommendations. The checklist guided the evaluation of written handover organization, content and face-to-face assessment and feedback. It required minimal faculty development. The checklist is available in Chart 1 of the article.
- **Stage(s) of residency:** Transition to discipline; Foundations of discipline

RESOURCE: TRANSFER OF CARE GLOBAL EVALUATION SCALE^{32,33}

- **Notes:** This global handoff rating scale is for both new patients and continuity of care patients. It was designed to be broad based to accommodate different specialties. It consists of six 5-point Likert global rating subscales that address these handover characteristics: organization, economy, confidence, order of presentation, seeking comprehension and professionalism. The assessment tool is available in Figure 1 of the article.
- **Stage(s) of residency:** Transition to discipline; Foundations of discipline

RESOURCE: PACT TOOL³⁴

- **Notes:** This direct observation handoff analysis tool was developed on the basis of focus groups with residents. It uses the PACT mnemonic (Priority, Admissions, Changes, Task). It studies time spent in handovers, content, quality, and number of interruptions. The tool is available in Figure 1 of the article.
- **Stage(s) of residency:** Transition to discipline; Foundations of discipline; Core of discipline; Transition to practice

RESOURCE: SURGICAL PATIENT HANDOFF EVALUATION³⁵

- **Notes:** These tools evaluate handover of surgical patients in the context of a communication framework. Handover delivery, reception processes, environment and the source–receiver relationship are evaluated (note that handover content and the quality of the message are not evaluated). Tools are to be completed by the source, receiver and observer of handover. The tools are available in Figure 1 of the article.
- **Stage(s) of residency:** Transition to discipline; Foundations of discipline; Core of discipline; Transition to practice

RESOURCE: HEAR CHECKLIST³⁶

- **Notes:** This tool was created on the basis of a review of effective listening behaviours, used to characterize active and passive listening behaviours and interruptions during hospitalist handovers. The checklist is available in the article's online supplementary appendix A.
- **Stage(s) of residency:** Advanced expertise

RESOURCE: HANDOFF CEX³⁷

- **Notes:** This real-time assessment tool was modelled after the validated Mini-CEX (clinical examination). Items were developed on the basis of the authors' expertise and ACGME core competencies. They rate overall handover performance and its components on a 9-point Likert-type scale. There are two parts to the tool: one for the handover provider and one for the recipient.

The original tool is available in Appendix A of the online article. A refined version of the tool is available in the appendix of Farnan et al.²¹ and Supplementary Appendix B of Greenstein et al.³⁶ The tool has

additional validity evidence for use by faculty using standardized video-based scenarios highlighting differing levels of performance, available in Arora et al.³⁸

- **Stage(s) of residency:** All levels

RESOURCE: I-PASS FACULTY OBSERVATION TOOLS^{18,20}

- **Notes:** This series of assessment tools was designed to support the assessment of verbal handover and written handover documents. The I-PASS Verbal Handoff Assessment: Faculty observation and feedback tool focuses on assessment of verbal handoff. There are two versions: one for the person giving handover and one for the person receiving handover. The I-PASS Printed Handoff Document Assessment: Faculty Observation and Feedback Tool focuses on assessment of the written handoff document. All material is available via MedEd PORTAL at www.mededportal.org/publication/9570/
- **Stage(s) of residency:** All levels

Note: ACGME, Accreditation Council for Graduate Medical Education

Creating a curriculum map

A [curriculum map](#) is a visual display of the curriculum and the relationships between its components. The map should be designed to be used by learners, faculty and administrators.¹⁰ It should set out the expected learning outcomes; the curriculum content, including learning activities and resources that will be used to achieve the learning outcomes; and the learning environment (classroom, simulation or clinical) where the various elements of the curriculum will be offered. It should also include resources such as faculty expertise and help users to identify gaps in local expertise and other barriers to implementation that can be addressed as part of curriculum planning. Finally, it should provide a systematic approach to assessment and program evaluation. Ongoing evaluation, including during the implementation phase of the curriculum, should be conducted to identify additional barriers that can be more easily addressed early in the implementation process than later.

A sample curriculum map, which could be used either in programs that have transitioned to CBD or in ones that are continuing to use the CanMEDS 2015 objectives of training, is provided in Table 5.4. An additional example of a curriculum map or blueprint for handover is provided by Wohlhauer et al.³¹

SAMPLE CURRICULUM MAP FOR A HANDOVER CURRICULUM

STAGE OF TRAINING: ENTRY TO RESIDENCY

Components (competencies): Process (structured framework)

Learning resources:

- I-PASS
- CMPA Good Practices Guide
- Direct supervision/feedback for entrustment

Assessment tools:

- I-PASS faculty observation tools

- Direct supervision/ feedback

STAGE OF TRAINING: TRANSITION TO DISCIPLINE

Components (competencies): Content (specific information)

Learning Resources:

- I-PASS (Team STEPPS)
- CMPA Good Practices Guide
- OSHE (90-minute workshop)
- Direct supervision for observation and feedback

Assessment tools: I-PASS faculty observation tools

STAGE OF TRAINING: FOUNDATIONS OF DISCIPLINE

Components (competencies): Communication, clinical reasoning

Learning Resources:

- OSHE
- Specialty-specific cases
- Direct supervision for observation and feedback

Assessment tools:

- OSHE (standardized handover)
- Handoff CEX
- Personalized feedback from staff/resident receiving handover
- I-PASS Printed Handoff
- Document Assessment
- Faculty Observation and Feedback Tool
- Transfer of Care Global
- Evaluation Tool
- HEAR checklist

STAGE OF TRAINING: CORE OF DISCIPLINE

Components (competencies):

- Ability to organize transfer, analyze
- Communication gaps and recognize/ address patient safety issues

Learning Resources:

- Specialty-specific cases cases
- Direct observation for entrustment
- CMPA Best Practices Guide: Communication Speaking Up

Assessment tools:

- Handoff CEX (with HEAR checklist)

- Personalized feedback
- from staff/resident receiving handover (e.g., overnight resident/postcall information transfer)
- Transfer of Care Global
- Evaluation Tool

STAGE OF TRAINING: TRANSITION TO PRACTICE

Components (competencies): Ability to demonstrate safe, effective global handover

Learning Resources: Direct observation for entrustment

Assessment tools:

- Handoff CEX
- Transfer of Care Global
- Evaluation Scale
- Reflective portfolio entry: “good” handover
- Participation in morbidity and mortality rounds with handover as focus

STAGE OF TRAINING: ADVANCED

Components (competencies): Ability to teach handover, analyze errors/ adverse events and contribute to process improvement

Learning Resources:

- I-PASS faculty development resources
- Handoff QI project

Assessment tools:

- Participant feedback from teaching of junior learners (students/junior residents)
- Quality audits of written handover notes with feedback to juniors
- Leading of morbidity and mortality rounds
- Participation in quality improvement handover initiative in the clinical practice environment

Note: CMPA, Canadian Medical Protective Association; OSHE, observed structured handoff examination.

Top 5 tips

1. Handover is a competency defined in the CanMEDs 2015 Framework with milestones across the competency continuum.
2. Defining program-specific curriculum provides a strategy for implementation of a handover curriculum.
3. The components of handover need to be taught sequentially.
4. Teaching and assessment modalities should be matched to the level of learner.
5. A number of teaching and assessment resources exist from which a program may build a curriculum map.

Resources

CanMEDS Collaborator Assessment tool A2 - Encounter Form, CanMEDS Teaching and Assessment Tools Guide. Ottawa: Royal College of Physicians and Surgeons of Canada; 2015. p. 148-9.

CanMEDS Collaborator Assessment tool A3 - Encounter Form - Team meeting encounter form - can be used by faculty to assess trainee performance, CanMEDS Teaching and Assessment Tools Guide. Ottawa: Royal College of Physicians and Surgeons of Canada; 2015. p. 150-1.

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Section 6: CASE-BASED LEARNING

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Section objectives

After reading this section, you should be able to:

1. Review the various types of patient handovers, their specific challenges and mitigating strategies
2. Provide a case-based review of speciality-specific handover issues and improvement strategies

Contents at a glance

- Background
- Key considerations for the different types of handover
- Ward-team-based handover
- Surgical-team-based weekend handover
- Poly-trauma patient handover
- Critical care to ward handover
- Pathology/lab medicine handover

- Emergency medicine handover
- Psychiatry handover
- Top 5 tips

Background

As mentioned in previous sections of this toolkit, various types of handovers exist across the spectrum of clinical inpatient care. While the general strategies that support effective verbal and written handover (outlined in Section 3) are largely relevant to all types of handover, handover will also have some unique characteristics in each specialty that may need to be addressed in the curriculum. Examples include the inability to perform handover face to face or at the patient's bedside, handing over large numbers of inpatients in a timely yet effective manner, and handing over a patient's care between different health care provider teams as the patient transitions from one institutional care setting to another.

In this section of the toolkit we discuss the ways that handover can differ depending on the clinical context, briefly summarize the key considerations for the different types of handover, and provide a series of case examples with role-play materials that you can customize for use in your program's handover curriculum.

Medical and surgical patients can present differing challenges for effective handover. Specific barriers for medical patient handover can include the need to hand over care for a large number of patients, incomplete information and patient heterogeneity.¹ For the surgical patient, handover failures can occur at many points along the surgical care pathway, from the stage of preoperative data collection, to intraoperative events, to postoperative handover, to daily ward care, amplifying the degradation of information over the course of the patient's stay.² As mentioned in Section 3, handover standardization can lead to improvements in all aspects of handover.^{3,4}

Key considerations for different types of handover

END-OF-SHIFT HANDOVERS

The most common type of patient handover is end-of-shift handover. This typically involves physicianto-physician handover of a cohort of ward or critical care patients. Handover content usually includes comorbidities, clinical condition and course, ongoing investigations, specific to-do lists and contingency plans should a problem arise. Inpatient services often have a high volume of patients, which means that effective end-of-shift handover will take a significant amount of time. Other common challenges include ensuring that the handover is concise yet informative, and minimizing interruptions. These challenges can lead to critical information being omitted, which can in turn contribute to adverse events.¹ Standardized handover processes such as the I-PASS Bundle have been implemented to address these challenges, and they have significantly reduced the number of medical errors and adverse events.⁵

PERIOPERATIVE HANDOVERS

Another frequent type of patient handover involves the postoperative transition of patients from the operating room to either post-anesthesia care or critical care units. Although these handovers involve a single patient, the patients often have complex care needs and have ongoing active medical and surgical issues. Furthermore, the multidisciplinary nature of perioperative patient care results in multiple

physicians and nurses looking after the patient, all of whom have to engage in effective communication and collaboration with each other to ensure a strong shared mental model and situational awareness. Lastly, postoperative care units are often busy and loud, with interruptions and distractions often proving to be a major barrier to safe, effective, efficient handover.⁶ Strategies for minimizing these barriers are therefore essential for safe handover.

INTRAOPERATIVE HANDOVERS

Intraoperative handovers warrant special attention. Given that surgery is a high-risk procedure, failure in these handovers can have serious implications.⁷ Both surgeons and anesthesiologists need to be able to hand over care effectively over the course of prolonged, complex operations. In a recent survey, 93% of anesthesiologists reported having experienced complications or mismanagement because of poor intraoperative handovers.⁸ In another study, intraoperative handovers increased the risk of any major in-hospital morbidity or mortality by 8%, even after adjusting for confounding variables.⁹ It is therefore important that the participants in intraoperative handovers make use of structured communication and provide contingency planning for potential complications and adverse events. The use of checklists can also support successful transfer of critical patient information.¹⁰

END-OF-ROTATION HANDOVERS

Residents perform handover for a large number of patients at the end of a rotation, which can be a particularly important and challenging type of handover. The large turnover in residents at the end of a rotation (and sometimes faculty at the same time) can increase the risk of omissions of critical information, medical errors and delayed diagnoses. A recent large multi-centre cohort study reported in JAMA found that patients who were in the hospital over the period of trainee end-of-rotation transitions in care experienced significantly higher in-hospital mortality than patients admitted at other times.¹¹ This finding highlights the importance of continuity of care and the need for effective trainee (and faculty) end-of-rotation handover.

OTHER TYPES OF HANDOVER

Many other types of handovers exist in the clinical environment, including in other hospital-based settings (e.g., the handover that occurs in emergency departments between shifts, in psychiatry wards or in obstetrics wards). There are also numerous handovers that occur between care settings within a single organization - for example, patients who were admitted to an intensive care unit may be transitioned to a medical ward. Handover is also increasingly relevant in outpatient and ambulatory settings. For example, handover may need to occur in an outpatient practice before scheduled absences (evenings, weekends or vacations) if outpatient investigations are pending or if patients with ongoing medical problems are likely to re-present for care.

Case examples

To help learners explore the challenges to effective handover in particular settings, we have created a series of seven interactive cases that can be used for problem-based learning or role play. The cases emphasize key elements of high-quality handover in different clinical settings (e.g., the ward, the PACU, the ICU) both within and between specialties.

The cases provide the opportunity for learners to:

- discuss the challenges and barriers to effective handover and identify mitigating strategies;
- review the different settings in which handover occurs, both within and between specialties, and describe how handover approaches differ in these settings; and
- use structured handover tools to support the various types of patient handover that can occur in different settings.

HOW TO USE THE CASES

These cases are intended to form the basis of a case-based interactive learning opportunity/simulation exercise for residents. They are best used as part of a broader handover curriculum as an interactive component of a longer teaching session or as a stand-alone activity.

- The cases are intended to be used as a guide, rather than as a finished product. Feel free to tailor the cases to the specific requirements of your residency program. You can modify any case to demonstrate any handover issue; a single case could potentially be used to demonstrate a few or all of the issues, depending on the goals and objectives of your educational intervention. You may wish to take one of the elements of one case (e.g., an element emphasizing the importance of good inter-professional communication with nursing colleagues) and incorporate it into another case. The debrief instructions and discussion points at the end of each case are interchangeable and can be used for any case. See Table 6.1 for suggestions on how to pull out material from various cases to illustrate the issues you want to address in your learning sessions.
- If possible, involve resident representatives in modifying these cases and/or creating new ones to address the needs of your learners, to maximize the effectiveness of your educational session on handover. This will require you to plan in advance of the session.
- The handover sheets accompanying the cases contain errors and ambiguities and are purposefully imperfect to mimic reality. Feel free to augment or correct errors as you see fit. Pay particular attention to the use of acronyms and abbreviations, and how these may or may not be common knowledge to various learners.
- Examine the handover practices and tools currently being used in your setting and compare these with the practices and tools used in the cases.
- In your sessions, emphasize the following overarching aspects of patient handover and then highlight the challenges specific to your specialty:
 - ❖ providing structured handover;
 - ❖ managing interruptions effectively;
 - ❖ handing over complex patients in a multidisciplinary setting; and
 - ❖ managing situations where appropriate handover is lacking.
- Your sessions using these cases should be highly interactive. Make use of role play to allow residents to practise handover skills, and allow time for appropriate feedback and discussion. To support role-playing exercises, we have included information on fictional patients with each case. Each case will require 2–6 residents for the role play. If your small group includes more than the number of residents required for the role play, the other residents can observe, provide feedback and contribute to the discussion. Key discussion points for the session facilitator are outlined at the end of each case. A

discussion on how to best organize a role play, brief and debrief and how to engage your trainees is beyond the scope of this section, but we hope that the instructions will give you a sufficient framework to proceed with a meaningful teaching interaction.

HOW TO USE THE CASES TO DEVELOP ROLE PLAYS FOR YOUR PROGRAM'S HANDOVER CURRICULUM

1. **Issue:** The importance of structured communication and a standardized handover format

Case(s) to adapt: Look at cases 1, 4, 5, 6 and 7 for ideas on how to set up role plays demonstrating the impacts of unstructured versus structured handover information. Examine the different structured handover tools in Case 1, 2, and 4 (I-PASS, SBAR, SINGOUT)

Discussion questions:

- How can we prevent poorly updated written handover documents?
- How can we avoid poorly formatted written handover documents?
- What handover tools have you seen used at your hospital? What makes for a good handover tool?
- What are the advantages and disadvantages of the various handover tools and acronyms?
- How does the SBAR acronym compare to an acronym designed specifically for handover (e.g., I-PASS, SIGNOUT)?

2. **Issue:** How to structure handover (participants and environment)

Case(s) to adapt: Case 1 highlights handover in a busy/noisy environment. Case 2 includes a single outgoing resident handing over to two incoming residents in a busy environment. This could be restructured as a junior-to-junior handover or a team-to-team handover.

Discussion questions:

- How does your program structure handover? Do juniors hand over together with seniors as a team, or individually in parallel handovers?
- How might handing over as a team be preferred to handing over in parallel?
- What is the ideal location for handover?
- Do you have a private, quiet space for handover?
- How much time is typically required for adequate handover?

3. **Issue:** How to handle frequent interruptions

Case(s) to adapt: Case 2 includes several suggestions for role-play interruptions that could be adapted for use in other scenarios. Case 6 may be modified to include unnecessary interruptions.

Discussion questions:

- How often do you get interrupted during handover?
- What kind of interruptions do you experience?
- What can you do proactively to prevent interruptions from happening?

- What if handover absolutely does need to get interrupted? When might this be the case? What is a reasonable course of action for the outgoing and incoming teams?
- In this role play we used only one example of a handover tool. What other handover tools have you seen used at your local hospital? What makes for a good handover tool?

4. **Issue:** How to hand over patients with complex care needs/multiple active issues

Case(s) to adapt: Cases 1, 3 and 4 involve patients with complex care needs/ multiple active issues.

Discussion questions:

- How might a more complicated handover lead to more errors?
- How do you choose what to hand over for complex patients with multiple issues or those who have been hospitalized for long time periods?

5. **Issue:** How to hand over when multidisciplinary teams are involved

Case(s) to adapt: See cases 3 and 4 for examples of how to set up a role play involving residents from several disciplines.

Discussion questions:

- Why is multidisciplinary handover more complicated?
- When should you consider involving other members of the interprofessional team (e.g., charge nurse) in the handover conversation?

6. **Issue:** How to hand over incomplete to-do lists

Case(s) to adapt: Cases 5, 6 and 7 involve handing over incomplete to-do lists.

Discussion questions:

- What contributes to incomplete handover lists?
- How can out-of date information be problematic?
- How can we make time to complete the handover list?

7. **Issue:** Special considerations for weekend handover

Case(s) to adapt: Case 2 involves handover at the end of a call shift (Friday night to Saturday morning).

Discussion questions:

- How might a weekend handover be different from a weekday handover? What issues need to be highlighted preferentially in each one?

8. **Issue:** Special considerations for end-of-rotation handover (or other prolonged absence e.g., vacation)

Case(s) to adapt: Case 1 (alternate) compares end of-rotation handover with end of- shift handover

Discussion questions:

- How does end-of-rotation handover differ from the end-of-shift handover?
- What are some barriers to effective end of rotation handover and how do these differ from the barriers to end-of-shift handover?

- What do you expect out of an end-of rotation handover? Do you arrive a day early or a weekend in advance and start rounding on the patients and seeing them with the previous team? (Do you even have the opportunity to do so?) Do you read about these patients in advance?
- What is the optimal setting in which to perform this type of handover?
- What role can faculty play to ensure better end-of-rotation handover?

Case 1 – Ward-team-based handover

Specialty:	General Internal Medicine, Pediatrics (or other specialty with inpatient clinical teaching units)
Environment:	Inpatient ward
Issues:	Unstructured handover, multiple active issues

Purpose:

- This case simulates end-of-shift handover between two residents covering a group of patients admitted to the hospital.

Resources:

- Handover sheet 6.1 - unstructured handover sheet
- Handover sheet 6.2 - handover sheet structured using the I-PASS framework

Role-play instructions:

- Ask two residents to role play this scenario, providing handover first with the unstructured written handover sheet (Sheet 6.1) and then a second time using the handover sheet structured with the I-PASS framework (Sheet 6.2). The same pair of residents can do both role plays, or a different pair can do the second one.
- Please provide ONLY Sheet 6.1 to the entire group so that they can follow the role play.

Roles:

- Resident 1 - delivering handover; Resident 2 - receiving handover
- You may choose to add information such as the training level of the two residents to illustrate how the level of expertise might influence how much detail to provide during a handover.

Debrief instructions and discussion points:

After the first role play using the unstructured written handover sheet (Sheet 6.1), use the following prompts to engage residents in a small-group discussion:

- What was good about the written handover sheet and what could have been improved?
- What impeded a more thorough handover?
- How can we prevent poorly updated written handover documents?
- How can we avoid poorly formatted written handover documents?

Once the learners have discussed these points, repeat the role play, but use the **structured** written handover sheet (Sheet 6.2). Sheet 6.2 can be provided to the entire group at this point. After this second role play, ask the residents to discuss the following:

- What was better about this handover?
- What was better about this written handover sheet?

Handover sheet 6.1

1. Patient Name: Zhang, Emily

Details: 88F admitted with functional and cognitive decline. Awaiting placement.

2. Patient Name: Wilson, Larry

Details: 64M presented with shortness of breath and cough x 5 days. History of heavy smoking. In ED patient had increased work of breathing. CXR revealed hyperinflated lungs. Prolonged auscultatory wheeze on auscultation. Diagnosed with acute exacerbation of COPD. Started on prednisone + antibiotics. Workup including sputum cultures is pending. PMHx: peripheral vascular disease, smoker, diabetes, HTN, COPD, obesity. This patient will need outpatient follow-up at some point.

3. Patient Name: Ahmed, Ali

Details: 68M with significant cardiac disease, Hx of STEMI, recent CABG (Nov 2017), on Plavix, admitted with hematemesis. K+ 5.5 in ED. Upper GI scope pending. Patient also had prolonged QTc. Plavix held.

4. Patient Name: Williams, Susan

Details:

78F admitted with pneumonia.

January 21st – admitted with pneumonia. Later transferred to ICU for septic shock and vasopressors. Severe AKI.

January 22nd – patient severely hypoxic and intubated.

January 24th – weaning ventilation and vasopressors. Patient developed pneumothorax and chest tube inserted.

January 25th – AKI worsening. Nephrology consulted for dialysis. Dialysis catheter inserted.

January 26th – dialysis initiated, continued weaning off vent.

January 28th – failed extubation requiring reintubation.

January 30th – family meeting to discuss goals of care.

February 3rd – patient successfully extubated. Ongoing dialysis.

February 4th – patient transfer from ICU to team A medicine.

February 6th – new onset rapid afib., self terminated, cardiology consulted. Trops mildly elevated. Started on metoprolol.

February 10th – family meeting to discuss disposition and goals of care.

February 14th – patient febrile ?UTI, cultures sent, started ceftriaxone.

February 16th – awaiting placement in long-term rehab.

5. **Patient Name:** Greenberg, Michael

Details: Admitted for NSTEMI. Stable. Cardiology and cardiac surgery following. Angiography done. Maybe OR next week? Patient had chest pain again last night.

Handover sheet 6.2

1. **Patient Name:** Zhang, Emily

Admission date: 21/01/2018

Code of status: no CPR or medical vent

Details:

I – Stable

P – 88F admitted with functional and cognitive decline.

PMHx: HTN, GERD, stroke (2013), OA.

Presentation: Sustained fall at home. No evidence of fracture. No evidence of cardio/neurological cause for fall. Unable to cope with ADLs at home.

Assessment/Plan:

(1) Falls – followed by OT/PT, fall prevention protocol in place.

(2) LTC application – MD section completed, awaiting LTC reply.

A – Family meeting scheduled for 18/02/2018 at 14:00. Await LTC placement.

S – N/A

S – *Synthesis/Questions*

2. **Patient Name:** Wilson, Larry

Admission date: 15/02/2018

Code of status: full measures

Details:

I – Stable

P – 64M acute exacerbation of COPD. Now stable.

PMHx: Moderate COPD, DMII, PVD, HTN, dyslipid., obesity.

Presentation: Presented with x 5 days SOB and productive cough. In

ED increase work of breathing, SpO2 84% room air, non-febrile. CXR revealed hyperinflation. Sputum cultures sent.

Assessment/Plan:

(1) exacerbation of COPD – Hypoxemia resolving, patient weaned to 2LNP O2, responding well to treatment. Prednisone x 5 days, azithromycin full course, supplemental O2 as needed. Chest physiotherapy.

A – (1) Follow up on sputum culture.

(2) Repeat CXR on post-admission day 2.

(3) Arrange for respirology outpatient follow-up.

S – If patient worsens consider BiPAP and involving ICU. Patient is full code.

S – *Synthesis/Questions*

3. **Patient Name:** Ahmed, Ali

Admission date: 16/02/2018

Code of status: full measures

Details:

I – Stable

P – 68M with UGIB in context of anti-platelet therapy.

PMHx: STEMI, recent CABG (lima to LAD and angioplasty + stent Nov 2017), on ASA + Plavix.

Presentation: Acute onset of hematemesis and pre-syncope. Initial Hgb 95.

Assessment/Plan:

(1) GI bleed – stable – Hgb stable at 90. Plavix held on admission. IV pantoprazole started. Seen by GI. Awaiting upper endoscopy tomorrow.

A – (1) Endoscopy – liaise with GI team regarding endoscopy results. Ensure patient NPO for endoscopy.

(2) Anemia – repeat CBC in AM.

(3) Plavix – request GI and cardiology opinions re safety of restarting Plavix.

(4) Prolonged QT – order ECG in AM, check medication list to ensure all QT-prolonging medications are held.

S – If recurrent of bleeding, repeat CBC and inform GI team. Transfuse PRBC if Hgb < 80 due to CAD.

S – Synthesis/Questions

4. **Patient Name:** William, Susan

Admission date: 21/01/2018

Code of status: full measures

Details:

I – Stable

P – 78F initially admitted with pneumonia and septic shock. Now stable awaiting rehab placement.

PMHx: HTN, DM II, osteoporosis.

In-hospital course: Prolonged ICU stay complicated by AKI requiring dialysis, severe shock which is now resolved, PTX and slow wean off mechanical ventilation. Patient now extubated successfully and transferred to ward. Kidney function has recovered. PTX has resolved and chest tube removed. Patient remains weak, deconditioned and delirious.

Assessment/Plan:

(1) Delirium – 24/7 sitter, fall prevention protocol, Haldol PRN

(2) Weakness – daily PT and OT.

(3) Disposition – awaiting LTC vs rehab placement. Family meeting scheduled 18/02 to discuss goals of care.

(4) WBC – elevated yesterday to 13,000. No fever. Urine/blood cultures pending.

A – (1) Family meeting – discuss placement.

(2) Follow for infectious signs/symptoms.

S – If patient becomes septic again, consider repeat culture and CXR and start empiric treatment with antibiotics.

S – *Synthesis/Questions*

5. **Patient Name:** Greenberg, Michael

Admission date: 14/01/2018

Code of status: full measures

Details:

I – Stable

P – 65M

PMHX: Recent MI.

Presentation: Presented with chest pain and troponin elevated.

Received ASA + Plavix. Extensive CAD found on angiography, not amendable to PCI.

Assessment/Plan:

CAD: Stable, awaiting cardiac surgery opinion regarding CABG. Started on beta blockers, statins and ASA.

A – (1) Hold Plavix for potential surgery.

(2) Follow-up on 2D echo.

S – If recurrence of chest pain, consider NTG infusion or patch.

S – *Synthesis/Questions*

Case 1 (alternate) - End-of-rotation handover

- Specialties:** General Internal Medicine, Pediatrics (or other specialty with inpatient clinical teaching units)
- Environment:** In-patient ward, clinical teaching unit
- Issues:** Unstructured handover, multiple active issues, end-of-rotation handover

Purpose:

- This variation on case 1 highlights how the same written handover sheets can be used in **end-of-rotation handover**.
- It highlights the key differences between an end-of-shift handover and an end-of-rotation handover, namely, the importance of a more thorough written handover sheet for end-of-rotation handover and the increased time required to deliver handover, particularly the patient summary portion.

Resource:

- Handover sheets 6.1 and 6.2 from Case 1.

Role-play instructions:

- Have the two residents role play the same handover using the same structured and unstructured written handover sheets as for Case 1, but set up the scenario such that the outgoing resident is handing over the list of patients to an incoming resident at the point of rotation change.
- Because it typically takes longer to hand over patients at the end of a rotation, the facilitator can interrupt the residents after 2–3 patients and move to a small-group discussion.

Roles:

- Resident 1 - delivering handover; Resident 2 - receiving handover

Debrief instructions and discussion points:

- How did this end-of-rotation handover differ from the end-of-shift handover?
- What are some barriers to effective end-of-rotation handover and how do these differ from the barriers to end-of-shift handover?
- What do you expect out of an end-of-rotation handover? Do you arrive a day early or a weekend in advance and start rounding on the patients and seeing them with the previous team? (Do you even have the opportunity to do so?) Do you read about these patients in advance?
- What is the optimal setting in which to perform this type of handover?
- What role can faculty play to ensure better end-of-rotation handover?

Case 2 – Surgical-team-based weekend handover

Specialty:	General Surgery, Orthopedic Surgery
Environment:	Ward, emergency department, operating room
Issues:	Handover structure/environment, frequent interruptions, weekend handover

Purpose:

- This case involves a handover at the end of a call shift between residents on a weekend (Friday night to Saturday morning).
- This exercise highlights the challenges of a weekend handover, which takes more time because the day-to-day care of patients must be handed over as well as the on-call issues that the receiving resident must be aware of.
- It also demonstrates a common handover issue, frequent interruptions and distractions, using the example of handover among surgical residents who frequently are pulled in multiple directions by competing interests including pages from the operating room, emergency department and ward.
- It also demonstrates the importance of an updated and thorough handover sheet to support verbal handover. In particular, an organized checklist on the handover sheet can ensure that daily assessments are complete (for surgical residents, this might include assessing hemodynamic stability and stoma, drain and wound-care concerns).

Resource:

- Handover sheet 6.3 - handover sheet structured using the SBAR

Role-play instructions:

- The scenario is the post-call morning. A junior resident was on call overnight and is handing over to the incoming junior and senior residents at the nursing station on the ward.
- Other residents will interrupt the handover at various times using the roles listed below.
- The residents will use handover sheet 6.3 to hand over 5 surgical patients.

Roles:

- Outgoing resident - was on call the night before and will deliver the handover. Is distracted by a number of different interruptions.
- Incoming residents - the incoming junior and senior residents who are receiving handover
- Interruption roles - depending on the number of additional residents available, other characters interject throughout the role play to interrupt the handover. For example:
 - ❖ A nurse walks up to the residents to ask a question about a patient waiting for a prescription before discharge.
 - ❖ A nurse approaches to say that a patient has a slight change in vital signs but does not require urgent attention (e.g., oxygen saturation has dropped from 94% to 91% and the patient needs 2 L of oxygen via nasal prongs to maintain oxygen saturation greater than 92%).
 - ❖ An ER doctor pages to ask for a new emergency department consult. Have one of the residents answer the page and spend a long time explaining the consult and then allow them to get back into the handover.
 - ❖ Someone from the operating room calls to ask for another resident to become available to help close the abdomen quickly.

Debrief instructions and discussion points:

- How often do you get interrupted during handover?
- What kind of interruptions do you experience?
- How much time is typically required for adequate handover?
- What can you do proactively to prevent interruptions from happening?
 - ❖ Put a sign on the door.
 - ❖ Call locating and tell them to only transfer urgent pages for x amount of time (only available at certain hospitals).
 - ❖ Ask the charge nurse on the ward to hold all non-urgent calls for handover and give them a timeframe for when you are handing over.
 - ❖ Create a to-do list for non-urgent ward issues.
 - ❖ At the beginning of an interruption, ask whether it is urgent or not; if it isn't, ask the person to wait until the end of handover to discuss.

- ❖ In certain cases, it may be possible to have a resident available to address interruptions during handover (ward resident with pager).
- ❖ What if handover absolutely does need to get interrupted? When might this be the case? What is a reasonable course of action for the outgoing and incoming teams?
- ❖ Do you ever have two parallel handovers (one between junior residents and a separate one between senior residents)? How might this be problematic?
- ❖ How might a weekend handover be different from a weekday handover? What issues need to be highlighted preferentially in each one?
- ❖ Is the SBAR acronym used on the handover sheet adequate for handover? How does it compare to an acronym designed specifically for handover (e.g. I-PASS)?

Handover sheet 6.3

1. **Situation:** David Cunningham, 76M, POD#3, laparotomy, bowel resection and enterostoma, **Full code**
Background: Presented with small bowel obstruction and perforation. **PMHx:** DM, HTN, CAD, MI x 2 (CABG 3 years ago), CHF
Assessment: Stable JP drain output – minimal. Today started clear fluid diet
Recommendation: Encourage ambulation and po intake. If increasing abdominal pain, examine patient and consider re-imaging.
2. **Situation:** April Young, 23F, POD#0, laparoscopic appendectomy, **Full code**
Background: Presented with nonperforated appendicitis. **Allergies:** NKDA **PMHx:** None
Assessment: Stable
Recommendation: Reassess temperature and hemodynamic status. If fever, consider incentive spirometry. Continue antibiotics.
3. **Situation:** Curtis Mega, 62M, POD10 from elective head and neck cancer surgery (laryngectomy and neck dissections), **Full code**
Background: Initial surgery uneventful. Developed C. diff colitis and toxic megacolon. Patient is now POD#2 for total colectomy with diverting small bowel enterostoma. **PMHx:** Head and neck cancer, COPD, smoker, alcoholism, chronic liver disease, CAD, CHF
Assessment: **Unstable.** Foley/Drains: Failed void x 2, Foley in situ, 1 neck drain (managed by head and neck surgery team), 1 enterostoma, tracheostoma (can't intubate from above). **Fluids:** Positive 5L, still requiring intermittent fluid boluses to maintain BP. Continues to spike fever post-colectomy.
Recommendation: If BP continues to be soft, consider ICU consult and transfer to prevent fluid overload as he may require pressors.
4. **Situation:** Amy Loweb, 84F, POD#2 laparotomy and right hemicolectomy with primary anastomosis, **DNR**
Background: Presented with peritonitis, perforated viscus secondary to ischemic bowel. **PMHx:** COPD, HTN, dyslipidemia, T2DM, CAD, MI x 3 (last stents inserted 2 years ago), CHF, renal insufficiency

Assessment: No fever but continues to have abdominal pain slightly out of keeping with physical exam (no evidence of peritonitis). Foley/Drains: no Foley, no drains, 1 enterostoma, 1 abdominal drain.

Recommendation: Consider anastomotic leak if increase in WBC, fever or change in symptoms. Reimage and discuss with staff in that setting.

5. **Situation:** Fatima Hassan, 48F POD1 from total thyroidectomy with central neck dissection, **Full code**

Background: Papillary thyroid ca. **Allergies:** NKDA **PMHx:** None

Assessment: Post op PTH 1.8. Ionized pH corrected calcium trend 1.38/1.33/1.25. Vitals: AVSS.

Foley/Drains: no Foley, 1 neck drain

Recommendation: If complains of peri-oral/ fingertips numbness or tingling consider diagnosis of hypocalcemia and load with oral or IV calcium.

Case 3 – Poly-trauma patient handover

Specialty:	Trauma, Vascular Surgery, Orthopedics, Anesthesia, Critical Care
Environment:	Post-anesthesia care unit, step-down unit
Issues:	Multiple active issues, multi-disciplinary teams

Purpose:

- This case highlights the challenges of handing over complex patients with a dynamic, evolving clinical condition as the patient transitions between hospital settings (e.g., trauma bay in the emergency department, operating room, critical care unit).
- Specifically, it centres on the handover that occurs from the operating room to the critical care unit, which often involves multiple health professionals, adding to the complexity of the handover.

Resources:

- Role-play vignettes

- Operating room to critical care unit handover tool (Table 6.2)

Role-play instructions:

- The scenario is that after a long (5- to 10-hour) trauma surgery, the patient is being wheeled out of the operating room into the critical care unit. Multiple surgical services (e.g., trauma, vascular, orthopedics) have been involved.
- Provide all trainees in this learning session with the operating room to critical care unit handover tool (Table 6.2), and ask them to refer to the postoperative steps.
- Ask 6 trainees to role play the scenario, as follows:
 - ❖ Each trainee chooses one role – trauma resident, vascular surgery resident, orthopedic resident, anesthesia resident, critical care fellow, nurse
 - ❖ **Three surgical residents** (trauma, vascular and orthopedics) will present the patient to the **critical care fellow** and **nurse** with the relevant preoperative, intraoperative and postoperative details (see role-play vignettes below) while giving them a chance to ask questions and examine the patient. Ideally, the surgical residents should communicate the importance of examining the surgical site in the postoperative setting and let other team members know what to expect, what is normal and what is abnormal, and when contacting the surgical team would be necessary (contingency planning).
 - ❖ A similar handover interaction will occur between the **anesthesia resident** and the **critical care fellow** and **nurse**. Ideally, the anesthesia resident should mention the lines, fluid balance, medication administration and dosing. They should follow an organized (checklist) approach to ensure that they do not leave out key information. Specific emphasis should be placed on providing parameter-based orders that request that the MD be notified in certain circumstances (e.g., if SBP < 90, please call ICU MD).

Operating room to ICU handover tool

PREOPERATIVE

- Team introduction
- Patient ID
- PMHx
- Initial presentation

INTRAOPERATIVE

- Procedures (by each surgeon)
- Airway/lines (by anesthesiologist)
- Events/complications (by surgeons and anesthesiologist)
- Resuscitation (by anesthesiologist)

POSTOPERATIVE

- Active issues

- Surgical instructions
- Analgesia
- Contingency planning

Roles:

- Trauma resident - delivering handover
- Vascular resident - delivering handover
- Orthopedic resident - delivering handover
- Anesthesia resident - delivering handover
- Critical care fellow - receiving handover
- Critical care nurse - receiving handover

Debrief instructions and discussion points:

- Why is multidisciplinary handover more complicated?
- How might a more complicated handover lead to more errors?
- How is handover in the ICU different at different hospitals?
- Who is the appropriate handover receiver?
- Why is it important to examine the patient one last time in the ICU?
- What contingency plans should your specialty tell the ICU during handover? (e.g., surgery: incisions and drains)
- This is only one example of a handover tool. What other handover tools have you seen used at your local hospital? What makes for a good handover tool?
- You can also discuss the importance of a thorough post-operative note and orders from the surgical team. These notes/orders should highlight/reflect the key information provided to the accepting team during handover. Residents can practise writing such notes and provide feedback to each other.

Role-play vignettes:

Provide this page to all of the residents in the role play, but not to the rest of the group.

Vignette for trauma resident: 21M pedestrian, previously healthy, struck by pickup truck. Arrived hypotensive at the emergency department. Intubated and resuscitated in the emergency department. CT revealed pelvic injury and extravasation, traumatic aortic tear, liver and spleen lacerations and left radius fracture. No evidence of head or other thoracoabdominal injuries. The patient underwent pelvic embolization for ongoing bleeding and was then transferred to the operating room for repair. A massive transfusion protocol was activated for ongoing bleeding and resuscitation.

Vignette for vascular surgery resident: The patient had a grade 3 pseudoaneurysm aortic injury. Thoracic endovascular aortic repair (TEVAR) was performed via the right femoral artery. The surgical site has good hemostasis. There were no complications.

Vignette for general surgery resident: Because of ongoing bleeding and evidence of liver/spleen lacerations, an emergency laparotomy was performed following the TEVAR.

Vignette for orthopedic surgery resident: the radius fracture has been placed in a splint. The patient will require open reduction and internal fixation at a later date once they are more stable.

Vignette for anesthesiology resident: The patient was intubated without any challenge. Mechanical ventilation became more difficult over the course of the surgery. IV access was secured with a subclavian central line. Arterial line monitoring was secured via the right radial artery. The patient required a massive transfusion. There is ongoing lactic acidosis and coagulopathy. The patient is still hypothermic.

Case 4 – Critical care to ward handover

Specialty:	Critical Care, General Internal Medicine, Pediatrics and Surgery
Environment:	Transfer from unit to ward
Issues:	Unstructured handover, complex care needs/multiple active issues, multidisciplinary teams

Purpose:

- This case simulates an ICU-to-ward handover of complex patients.
- The goal is to have the learners appreciate the challenge of handing over patients with high complexity, high acuity and ongoing active medical issues. It is intended to highlight the importance of verbal handover from the CICU team to the ward team.

Resources:

- Role-play vignettes
- Handover sheet 6.4 - Handover sheet with minimal information
- Handover sheet 6.5 - Handover sheet structured using SIGNOUT

Role-play instructions:

- The scenario is that two patients (one surgical and one medical) are being transferred from the ICU to the ward.
- The same scenario should be role played twice. The first time (Part A), the accepting team's resident receives minimal handover about the patients that have been transferred out of the ICU.
- The second time (Part B), the accepting team's resident receives structured handover from the ICU team.
- Ask two residents to role play the handover in Part A and two other residents to role play the handover in Part B.
- An additional resident will be needed to play the role of the nurse in both Part A and Part B.
- **Part A:**
 - ❖ Ask the two residents who will role play Part B to leave the room so that they are not exposed to Part A.
 - ❖ The accepting team (ward) resident does not know the patients well and needs a thorough handover. However, the ICU resident is busy dealing with codes and is unable to provide face-to-face handover. After the patients are transferred, the ICU resident phones the ward team's resident and provides superficial handover.
 - ❖ During this role play, the nurse calls the accepting team's resident about the two patients, and the resident is expected to make decisions regarding patient care without having proper handover.
- **Part B:**
 - ❖ Ask the two residents who were not in the room to come in and deal with the next scenario.
 - ❖ The ICU resident is to provide more thorough handover to the accepting team (ward) resident using the structured written handover sheet (Sheet 6.5).
 - ❖ Here again, the accepting team resident does not know the patients well and needs a thorough handover. This time, however, the ICU resident provides complete and structured handover before transferring the patients out of the ICU, and the accepting team's resident writes the admission note and transfer orders.
 - ❖ When the nurse calls the accepting team's resident regarding the two patients, the resident is expected to make decisions regarding patient care after having received complete and structured handover.

Roles:

- ICU resident delivering handover in Part A
- Accepting team resident receiving handover in Part A
- Ward nurse seeking help from the accepting team resident (the same person can play this role in Parts A and B)
- ICU resident delivering handover in Part B (the same person can play this role in Parts A and B)
- Accepting team resident receiving handover in Part B

Role-play vignettes:

Residents should be provided only with the vignette for the role they are playing. Vignettes may be printed on separate sheets to facilitate distribution to individual participants.

Vignette for ICU resident (Part A): You are the ICU resident on call and have just transferred two patients out of the ICU. Provide very superficial handover using the information from handover sheet 6.4.

Vignette for ICU resident (Part B): You are the ICU resident on call and have just transferred two patients out of the ICU. Provide a structured and complete handover using the information listed in handover sheet 6.5.

Vignette for the accepting team resident (Part A): You are the resident on call for the ward team that has just received two new patients in transfer. You have received minimal handover from the ICU resident. The nurse pages you and asks you how to manage issues that have come up for these 2 patients. You only have the information provided to you during handover, but you can ask the nurse clarifying questions if you wish.

Vignette for the accepting team resident (Part B): You are the resident on call for the ward team that has just received two new patients in transfer. You have received complete and structured handover from the ICU resident. The nurse pages you and asks you how to manage issues that have come up for these two patients. You only have the information provided to you during handover, but you can ask the nurse clarifying questions if you wish.

Vignette for the ward nurse: You are the ward nurse looking after the patients recently transferred from the ICU to the ward. Both have had acute issues come up, and you need input from the resident on call. You page the resident and report to him/her the issues outlined below and ask for his/her input as to how to manage each situation. Even if the resident says he/she don't have enough information about the patient, press him/her to make a decision.

1. You are concerned that Patient 1's blood pressure is too high: 183/97. The patient is asymptomatic (supply this information only if the resident asks about it). You would like to restart the patient's metoprolol, which is currently being held (50 mg po BID). Press the resident to provide an answer and push for the drug to be given even though the resident simply does not have enough information to make a decision.
2. Patient 2 is now complaining of abdominal pain and the drain output is now sanguinous. You would like the resident to order a CT scan for the patient. You are also asking for a one-time dose of labetalol and morphine to help with the patient's tachycardia and pain. When asked, you cannot provide answers to questions about the patient's full past medical history and you start reading some parts of previous notes (past history of CAD, HTN, dyslipidemia and atrial fibrillation). The comments from previous notes should serve to further confuse the resident about what the appropriate management might be.

Debrief instructions and discussion points:

After Part A:

- Before proceeding to Part B, lead a brief discussion about how the role play went and the barriers that the accepting team's resident faced in trying to appropriately answer the nurse's questions.

- Engage residents in a discussion of what could have been done to prevent the difficulties that the accepting team's resident experienced (e.g., a handover discussion could have been held the day before, given the fact that the patients were probably going to be transferred in the AM; a bedside review of the patient's condition could have been done; the patient transfers could have been delayed until both teams had assessed and examined the patients).

After Part B:

- What was the major difference between the two scenarios?
- How might you answer pages about a patient without appropriate handover?
- Can you appropriately answer calls like this if you haven't seen the patient, even with the best handover?
- What are the limits of handover?
- What is the best/ideal type of ICU-to-ward handover? How can this be achieved?

Handover sheet 6.4

Patient 1: 63F admitted for two days now and just transferred from the ICU to the ward. She was admitted for a COPD exacerbation. PMHx: COPD, smoker, CAD, HTN

Patient 2: 73M admitted four days ago for a Whipple complicated by anastamotic leak requiring reoperation; just transferred from the ICU to the ward. PMHx: pancreatic cancer, HTN, dyslipidemia, carpal tunnel syndrome.

Handover sheet 6.5

PATIENT NAME: SHARON HENDERSON

Details:

- S: Sick
 - Sick, full code
- I: Identifying data
 - 63F with acute exacerbation of COPD
- G: General hospital course
 - Admitted two days ago with worsening cough and hypoxemia. On admission was treated with antibiotics, bronchodilators and BiPAP. Responded well and has been afebrile for 24 hours and off of BiPAP. PMHx: COPD, HTN, dyslipidemia, CAD.
- N: New events of day
 - Successfully weaned off CPAP and transferred to the ward.
- O: Overall current status
 - 50% FiO2 via non-rebreather face mask to maintain oxygen saturation greater than 88%.

- U: Upcoming possibilities with plans
 - If blood pressure elevated consider restarting metoprolol, which has been held due to reasonable blood pressure during ICU stay. Consider readmission to ICU if increasing oxygen requirements.
- T: Tasks to complete overnight
 - Follow up on sputum culture sensitivities to narrow antibiotics. Currently on broad spectrum coverage.

PATIENT NAME: CLARENCE YU

Details:

- S: Sick
 - Sick, full code
- I: Identifying data
 - 73M post-op day 4 for Whipple
- G: General hospital course

Admitted 4 days ago for a Whipple. Complicated POD#2 by anastomotic leak requiring reoperation. Weaned off vasopressors POD#3. Just transferred from the ICU to the ward. PMHx: COPD, HTN, dyslipidemia, CAD. Foley/Drains: Foley, 2 intra-abdominal drains near site of anastomotic leak have been largely serosanguinous. NG tube to straight drainage.
- N: New events of day
 - Weaned off nasal prongs. Foley catheter replaced. NG position confirmed with X-ray.
- O: Overall current status
 - NPO, currently not requiring vasopressors or supplemental O2.
- U: Upcoming possibilities with plans
 - If fever, consider anastomotic leak vs. other sources of infection (pan-culture after history and physical examination).
- T: Tasks to complete overnight
 - Closely monitor drain output for evidence of recurring leak.

Case 5 – Pathology/lab medicine handover

Specialty:	Pathology, Laboratory Medicine
Environment:	Hospital laboratory setting
Issues:	Unstructured handover, incomplete to-do lists, handover prior to vacation

Purpose:

- In Pathology/Laboratory Medicine, it is rare that a thorough handover is required because cases are typically assigned to individuals who do not transfer responsibility for the case to another individual. Nonetheless, situations exist where a pathologist or laboratory medicine physician may not be able to complete a case, and some handover may be required so that the accepting pathologist does not have to start from scratch.

Resource:

- Handover sheet 6.6 - unstructured handover sheet with Information on three cases

Role-play instructions:

- Ask two residents to role play the handover of the three cases on Handover sheet 6.6 before one of the residents leaves for a vacation.

Roles:

- Resident 1 - delivering handover
- Resident 2 - receiving handover

You may choose to add information such as the training level of the two residents to illustrate how the level of expertise might influence how much detail to provide during a handover.

Debrief instructions and discussion points

- As a resident, have you had to give handover on cases to other residents?
- Do you think you will have to do this once you are a staff physician?
- Less is known about effective pathology/lab medicine handover than about other types of handover. What do you consider to be the important features of an effective pathology/lab medicine handover? Would one of the existing mnemonics (I-PASS, SIGNOUT, SBAR) work for pathology/lab medicine handover? How might it need to be adapted?
- Is the particular ordering/submitting physician for the specimen important?
- Is there a way to include urgency for triage in your handover?

Handover Sheet 6.6

PATIENT 1:

Patient 1, Mr. Smith, is a 50-year old-male who recently had a rectal biopsy (case #123987). I received three slides and reviewed them but they are too shallow. I asked our pathology technicians for deeper sections/levels and they told me these would be ready in 1-2 days. I haven't started the report.

PATIENT 2:

Patient 2, Mrs. Tremblay, is a 64-year-old female with multiple liver lesions, the dominant of which was recently biopsied (case #345876). They provided us with three levels and it is clear from the slides that it is an adenocarcinoma, the origin of which I can't tell on the basis of these slides. I have ordered an immunohistochemical panel (CK-7, CK-20, TTF-1, Napsin and ER) and this is pending. It should be completed in the next 3-5 days. I have not written the report on this case because it is a short one-liner. Can you complete the case once the immunohistochemical pattern comes back so that we can provide the oncologists with more information about the potential source? They have already called the office twice but they are proceeding with a full work-up regardless.

PATIENT 3:

This is a large 38-slide case on Mr. Singh, a 59-year-old gentleman who recently underwent a colorectal resection. I have completed the entire report except for the pT stage. I just couldn't tell the tumor depth

of invasion on the basis of the current slides. I have asked both for deeper levels of the current slides and for additional sections from the original specimen. These should be arriving in next 2-3 days. Can you please review these and complete the rest of the report?

Case 6 – Emergency medicine handover

Specialty:	Emergency Medicine
Environment:	Emergency department end-of-shift handover
Issues:	Unstructured handover, frequent interruptions, incomplete to-do lists

Purpose:

- This case highlights the challenge of handing over emergency medicine patients with pending investigations, consults and tasks.
- The use of a structured handover tool will show learners the benefits of a standardized handover process.

Resources:

- Handover sheet 6.7 - unstructured handover sheet with minimal information
- Handover sheet 6.8 - handover sheet with more complete and structured information

Role-play instructions:

- This is intended to be handover between two residents at the end of their shift in the emergency department.
- The case can be modified to reflect the practice variation at your site.
- First have the residents role play handing over minimal information during the handover (Sheet 6.6). Have observers jot down notes about each patient.
- Then have the residents role play handing over more complete and structured information (Sheet 6.7).

Roles:

- Resident 1 - delivering handover; Resident 2 - receiving handover.
- You can add information such as training level to illustrate how the level of expertise might influence how much detail to provide during a handover.
- You may add characters who interrupt handover with various questions that do not require immediate attention.

Debrief instructions and discussion points:

- What further information did you learn about the patient when sheet 6.7 was used?
- How often are you missing important clinical information about a patient after receiving handover from a colleague? How do you prevent this from happening when you are giving handover?
- How do you prioritize your patients during handover?
- Have you ever dealt with an emergency in the ED for an unknown patient who was referred to another service? How could you have been better prepared?
- What are the risks when a patient is handed over between multiple shifts? What strategies could you use to mitigate these risks?
- Patients and families often do not know that care has been handed over to another physician. How can you handle situations like this when they arise?
- How do you ensure the colleague to whom you are handing over is aware of pending investigations and contingency plans?
- Less is known about the ideal format for emergency medicine handover. What do you consider to be the important features of an effective emergency medicine handover? Would one of the existing mnemonics (I-PASS, SIGNOUT, SBAR) work for emergency medicine handover? How might it need to be adapted?
- When should you consider handover at the bedside? When should you consider involving other members of the interprofessional team (e.g., charge nurse) in the handover conversation?
- How do you handle interruptions during handover?

Handover Sheet 6.7

Ravi Patel: 63 M with chest pain awaiting cardiac enzymes, likely be discharged.

Stephan Dodd: 22 M drinking tonight with friends, tripped outside of bar, head laceration sutured, discharge when sober.

Margaret Tran: 54 F neurosurgery consult. Discharged 3 days ago post-surgery for astrocytoma. Came in G-M seizure x 10 min. Has seized x 2 in the ED. Neurosurgery will see but in OR. Dilantin started.

Gladis Molnar: 85 F c/o 2-day diffuse abd pain, low grade temp, vomit x 1. Max tender RLQ. Blood work done. CT booked.

Handover Sheet 6.8

RAVI PATEL:

63yo M, 1 hour right-sided CP 4 hrs ago while watching TV. Non exertional. Non pleuritic. Pain free on arrival.

- Cardiac risks: no cardiac history, has hypertension, no diabetes, no cholesterol, nonsmoker, family history -- dad MI age 72.
- Wells negative. Cardiac, respiratory exam normal. Initial EKG, troponin normal.
- DDx: likely non-cardiac CP but has several cardiac risk factors.
- Having repeat EKG, troponin in 4 hrs, follow-up.
- If troponin, EKG negative, discharge with outpatient cardiology clinic follow-up. If positive troponin/EKG or further CP in ED, will need cardiology consult.

STEPHAN DODD:

22 yo drinking at bar, denies drugs, tripped on sidewalk, head laceration on his right forehead.

- GCS 14, slurred speech, responds to commands, no focal neuro findings, unable to ambulate.
- Laceration sutured. No other injuries except bruising Lt knee.
- Past medical history negative. In C-collar. Blood work, ETOH level drawn.
- Dx: ETOH intoxication, head laceration, contusion Lt knee.
- Follow-up pending blood work, reassess neuro status. Clear C-spine.
- Reexamine knee, ambulate when sobers.

MARGARET TRAN:

54 yo F, post-op astrocytoma with G-M seizure.

- Admitted 7 days ago under Dr. Shaw neurosurgery. Had OR for astrocytoma.
- Discharged 2 days ago on po Dilantin but didn't fill script.
- Today had G-M seizure x 10 min. Brought in post-ictal by EMS.
- Had another 2 G-M seizure in ED one lasting 2 min and one lasting 30 sec.
- Given Lorazepam 4 mg IV. Gradually became more alert, now GCS 15.

- Neurovitals intact except 4/5 weakness Lt grips unchanged since discharge.
- Labs, BS all normal. Dilantin level 0.
- Consulted neurosurgery. Suggest IV Dilantin and repeat CT scan.
- Main issues to follow – follow up CT head and reassess following Dilantin 15mg/kg just started.
- Neurosurgery will be another 4 hrs in the OR. May seize again while in ED. Repeat IVmLorazepam if needed.
- Consider neurology consult if not responding to meds and neurosx unavailable.
- Watch for <BP and <RR. Review CT if bleed or significant change and advise neurosurgery in the OR.

GLADIS MOLNAR:

85 yo F, 2 d diffuse abdominal pain, vomited x 1, fever today.

- BP 112/70, T 38.2, P 96. Tender and voluntary guarding, worst in the RLQ.
- WBC 15.2 Lytes, creatinine normal. Urine dip negative.
- Diagnosis is abdominal pain NYD – differential diagnosis = appendicitis/diverticulitis.
- Awaiting abdominal CT.
- Patient does not want pain medications.
- Follow-up on lactate pending – If lactate >4 or low BP start sepsis protocol.
- Review CT abdomen.
- May need surgical consult depending on CT results.
- Re-examine/reassess pain post CT.

Case 7 – Psychiatry handover

Specialty:	Psychiatry
Environment:	Psychiatry ward handover
Issues:	Unstructured handover, incomplete to-do lists

Purpose:

- This case simulates psychiatry ward handover.
- A significant emphasis is placed on safety, psychopharmacology, substance abuse and form status.

Resources:

- Handover sheet 6.9 - unstructured handover sheet
- Handover sheet 6.10 - structured handover sheet with more complete information

Role-play instructions:

- Ask two residents to role play handover, first with the unstructured handover sheet (handover sheet 6.8) and then a second time using the I-PASS framework (handover sheet 6.9).
- Please provide ONLY the first handover sheet to the entire group so they can follow the role play.
- Provide the second I-PASS formatted handover sheet only to the resident delivering the second handover once the first role play is complete.

Roles:

- Resident 1 - delivering handover; Resident 2 - receiving handover.
- You may choose to add information such as the training level of the two residents to illustrate how the level of expertise might influence how much detail to provide during a handover.

Debrief instructions and discussion points:

- How often are you missing important clinical information about a patient after receiving handover from a colleague? How do you prevent this from happening when you are giving handover?
- How do you prioritize your patients during handover?
- What are some barriers to effective handover on the psychiatry ward?
- What specific handover content is important to include when handing over psychiatric patients?

Handover sheet 6.9

PATIENT NAME: SMITH, MELISSA

Details: 16 year-old female from remote community, presented to community hospital with intentional overdose of fluoxetine. Medically cleared, and accepted by the on-call psychiatry at the nearest schedule 1 facility. There are no beds available and patient remains at community hospital until there is a bed available and transfer can be arranged.

PATIENT NAME: MCMILLIAN, JEROME

Details: 46M with schizophrenia, non-adherent to medications, presents disorganized and non-sensical. Placed on Form 1. PPHx: Diagnosed w schizophrenia in 1985. Numerous oral and depot antipsychotic trials.

PATIENT NAME: CHANG, LUCY

Details: 31F, on Form 1, with schizophrenia, experiencing auditory and visual hallucinations becoming verbally and physically aggressive w staff and co-patients. Not redirectable. Code white was called. Patient received haloperidol 5 mg and 2 mg lorazepam IM.

Handover sheet 6.10

1. Patient Name: Smith, Melissa

Details:

I – Watcher

P – **Substance Hx:** Cannabis daily x 1 year. ETOH occasionally.

PPHx: MDD. Previous suicide attempt 1 year ago, found hanging and resuscitated. Counselling x 1 month.

PMHx: None.

Medications: Fluoxetine 10 mg

Presentation: Presented to community hospital w intention overdose on fluoxetine. This was part of a suicide pact. She was medically cleared and awaiting transfer to schedule 1 hospital.

Assessment: n/a

Plan: Awaiting transfer. Support team in community.

A – Once arrives will need form 1 activated and the form 42 given to patient.

S – Consider sitter if suicidal ideations persist.

S – *Synthesis/Questions*

2. **Patient Name:** McMillian, Jerome

Details:

I – Stable

P – 46M admitted w schizophrenia, placed on Form 1. Nonadherent to medications.

Substance Hx: History of heavy alcohol use.

PMHx: HTN, DM2.

PPHx: Diagnosed w schizophrenia in 2001. Numerous oral and long-acting injectable antipsychotic trials.

Presentation: Brought by police found on the street speaking non-sensically. Disorganized. CBC, BUN, Lytes, UA, unprescribed drug screening - WNL. CT pending. Substitute decision maker is partner.

Assessment: Cooperative. Withdrawn and isolated. Affect labile. Experiencing auditory and visual hallucinations. Denied suicidal or homicidal thoughts or ideations.

Plan: Organize family meeting regarding potential clozapine. Initiate preliminary clozapine work-up.

A –

1. Follow-up on CT head.

2. Follow-up on clozapine work-up.
3. Submit application for clozapine once substitute decision maker gives consent and labs result.
4. Arrange for outpatient follow-up.

S – Haldol PRN if needed but unlikely given cooperative/withdrawn state.

S – Synthesis/Questions

3. **Patient Name:** Chang, Lucy

Details:

I – Watcher

P – 31F with schizophrenia, with auditory and visual hallucinations. Form 1. Verbally and physically aggressive.

PHx: 3 admissions in past 4 years. Most recently for acute psychosis, restarted on depot paliperidone and discharged with acute care team follow-up. Previously on community treatment order, but did not agree to renew it. No history of violence.

Presentation: Brought in by police. Placed on Form 1, endorsing auditory and visual hallucinations. Non-adherent to medications.

Assessment: Labile, pacing and with fixed eye contact. Difficult to redirect. Endorsing auditory and visual hallucinations with active commands.

Plan: Ensure safety of staff and co-patients. Transfer patient to PICU. Determine capacity to consent for treatment.

A – If treatment incapable, will need to find substitute decisionmaker or consider public guardian and trustee. Consider long-acting injectable anti-psychotic.

S – Consider Form 3 and financial capacity.

S – Synthesis/Questions

Top 5 tips

1. Role play is an effective tool for teaching and learning handover skills.
2. Different specialties employ different types of handovers and require situation-specific strategies for effective handover.
3. Understanding the barriers to effective handover in a particular specialty or situation is an essential first step.
4. The overarching principles discussed in the previous sections apply to specialty-specific handovers (the importance of using a structured format, documentation, conducting handovers face to face, including contingency planning, etc.).

5. Structured handover tools specifically adapted for the specialty can help (see Section 3 for more information on the SBAR, SIGNOUT and I-PASS tools).

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Glossary

Assessment

The appraisal of a learner’s progress toward the attainment of a goal or objective of an educational program.

Closed-loop communication

A communication technique used to avoid misunderstandings. The sender gives some information, the receiver repeats it back and the sender acknowledges that the information has been correctly understood.

Cognitive load

Factors affecting working memory, including patient complexity, disruptions and work of information processing. Working memory is affected by fatigue, burnout and level of clinical experience ([Young et al. 2016](#)).

Communication

The gathering and sharing of essential information for effective health care ([CanMEDS 2015 Framework](#)). It requires participation of both the sender and receiver of information ([Johnson and Arora 2016](#)).

Competence by Design (CBD)

[Competence by Design](#) (CBD) is the Royal College's version of Competency Based Medical Education (CBME). CBD divides the trajectory of a physician into 7 developmental stages called the CBD Competence Continuum. Residency training comprises four of these stages and CBD clearly lays out markers for teaching and learning at each stage.

Curriculum

An organized program of learning. The term is derived from the Latin word for track or racecourse. A curriculum contains four essential components: content, teaching and learning strategies, assessment processes and evaluation processes.

Curriculum map

A comprehensive educational "map" that links each learning objective to (an instructional method(s) and assessment tool(s)). The purpose of the curriculum map is to ensure that all key steps in educational design are completed.

Faculty development

Activities undertaken by faculty members to enable and enhance their performance in areas important to their academic mission.

Handover

The temporary or permanent transfer of responsibility and accountability for some or all aspects of care for a patient or group of patients using both verbal and written communication" ([CanMEDS 2015 Framework](#)).

Health care team

"Two or more health care providers working together to advance the care of their patient, each member having specific roles and responsibilities, performing interdependent tasks and adapting to the patient's needs" ([Canadian Medical Protective Association](#)).

Human factors engineering

A discipline that applies information on physical and psychological characteristics to the design of devices and systems for human use to ensure safety, effectiveness and ease of use.

I-PASS

[I-PASS](#) refers to a study group involving multiple institutions in the US and Canada whose mission is to improve patient safety by standardizing provider communication, with a specific focus on improving transitions of care. The study group found that implementation of a bundle of interventions to improve resident physician communication during handoffs of patient care (called the I-PASS Handoff Bundle) was associated with a 30% reduction in preventable adverse events. Part of the I-PASS Handoff Bundle was the I-PASS mnemonic: Illness severity, Patient summary, Action list, Situation awareness and contingency planning, Synthesis.

Readback

The act of repeating information one has received. In health care settings, readbacks can be used to confirm information such as medication orders, critical test results and action items ([Canadian Medical Protective Association 2016](#)).

SBAR

The [SBAR](#) (Situation, Background, Assessment, Recommendation) tool provides an easy-to-remember framework for communication between members of the health care team about a patient's condition that requires immediate attention and action.

Shared mental model

A shared understanding of the task, the team structure and team members' roles within it ([Westli et al. 2010](#)).

Situational awareness

"A cognitive skill that includes being conscious of what is happening around you, continuously checking your perceptions with reality and the related flow of information. This skill includes predicting the immediate and future impact of your own or the team's actions, including anticipating complications" ([Canadian Medical Protective Association 2016](#)).