Continuous Reflective Assessment for Training (CRAFT)

A national programmatic assessment model for family medicine
CONTINUOUS REFLECTIVE ASSESSMENT FOR TRAINING (CRAFT)
Executive Summary

Setting the standards for the training and certification of family physicians in Canada is a pivotal role of the College of Family Physicians of Canada (CFPC), and provides reassurance to Canadians that their family physician is competent to practise. The CFPC does this through accreditation, examinations, and direction on in-training assessment. Assuring the progression to competence of family physicians in training and making supportable decisions on advancement is the role of the 17 postgraduate residency programs in family medicine. In-training assessment is complex, given the diversity of settings, the generalist nature of family practice, and the practicalities and limitations of the workplace in which this assessment occurs.

The two major components of in-training assessment—the evaluation objectives that describe skills and observable competencies at the end of training, and the In-training Assessment (ITA) template that provides the organizing framework for programs—are well known to the residency programs across Canada. Continuous Reflective Assessment for Training (CRAFT) provides high-level direction and explanation of the “what,” “how,” and “why” of in-training assessment for family medicine residency training. It provides a deeper description of the integration of the evaluation objectives and ITA template with postgraduate education. It is a model that predates and is congruent with programmatic assessment.

This description of CRAFT integrates non-standardized methods of workplace-based assessment with constructivist thinking and adult learning principles along with guided self-reflection as a critical component of the skills of the developing professional. It puts all the pieces together and supplies both rich descriptions and references for the theoretical underpinnings to this system.

Elements discussed include the utility of field notes for observation, feedback, documentation, and the use of aggregates of field notes, along with a suite of other assessment information for guided periodic review, and the role of the resident in the guided periodic review process. The use of deliberate points of reflective activity throughout the assessment process is highlighted along with discussion of this model in making advancement decisions.

Validity and how the development of a good validity argument for an advancement decision might be achieved is approached using the example of an adaptation of Kane’s model. Quality factors and how a CRAFT system might be tested for quality are also discussed. Finally, hazards, challenges, and areas for future research are brought forward to encourage ongoing dialogue with the residency programs that have been implementing working models of CRAFT.
Continuous Reflective Assessment for Training: A national programmatic assessment model for family medicine

Introduction
To facilitate developing competence, postgraduate medical education requires continuous and comprehensive assessment and feedback conducted where residents train and subsequently practice.¹ This leads to providing authentic and meaningful assessment in the real world of busy clinical practice. Solutions addressing this challenge suggest the importance of using the judgements of multiple skilled observers² and narrative,³ as well as using a planned suite of assessment processes that together form a valid program of assessment.⁴ It is critical to avoid burdening trainees or clinical preceptors with assessment programs that are overly bureaucratic and complex or too subjective.¹ Furthermore, potential measurement issues have been identified and careful attention is required to address these challenges.¹ However, there is a model for organizing an assessment system within the context of these needs and challenges.⁵

Assessment in Canadian family medicine programs
The College of Family Physicians of Canada (CFPC) has developed a system of Continuous Reflective Assessment for Training (CRAFT) to provide a cohesive approach to programmatic competency-based assessment for residents in training. It is designed to meet the expectations of the specialty-specific CanMEDS Roles⁶ and the CFPC’s Four Principles of Family Medicine⁷ in the context of the College’s competency-based residency training guidelines.⁸,⁹,¹⁰ The model involves a system of regular, if not daily, formative assessments of the learner in the workplace, accompanied by regular performance reviews with a consistent faculty advisor to reflect on progress and modify training as necessary. It has two components: a robust description of assessable outcome competencies (evaluation objectives¹¹), and an in-training assessment (ITA) template.⁹ The ITA template provides a high-level description of the processes and participants’ roles in the system. The core components are embedded in the specialty-specific standards for accreditation.¹² They require that programs monitor a resident’s progress throughout training and can affirm their competence to begin unsupervised practice at the end of training. An attestation to this from the program and successful completion of a terminal examination developed by the CFPC are the elements required for a resident to achieve Certification in the College of Family Physicians of Canada.

The approach involves non-standardized methods of assessment. It aligns with the constructivist approach that considers the context in which assessment occurs, that expert observers are by nature subjective, and that observations by multiple observers represent many correct viewpoints.¹³ Assessment for learning is a defining principle of the competency-based educational model¹⁴ and is one of the two basic underpinnings of CRAFT. Guided self-assessment, with its basis in adult learning principles, is the second principle. Active learner involvement is a prerequisite to the system. The learner is engaged at multiple points, from selecting a moment for assessment, to reviewing their collection of assessment materials, to participating in guided review.

As noted by others,⁴,¹⁵ there are important parallels between assessment in competency-based education and paradigms of interpretive qualitative and participatory action research methodology.¹⁶ These include that participants are affected by the outcome and that there is co-construction, alignment of purpose and goals, relevancy, and the need for and importance of continuity of relationship. The primary CRAFT participants are the individual residents, their clinical preceptors, and their faculty advisors. The relationship between the faculty advisor and resident should be continuous. Residents are affected by the outcomes of assessment—they will be influenced by participating in reflective activity in anticipation of lifelong learning. The purpose is to foster not just competence in the moment, but the skills required to maintain competence throughout practice. Residents must fully participate in seeking data, identifying their own learning gaps, and developing learning plans. The program goals are to ensure that the competent resident graduates, to identify and remediate residents who are not yet competent, and to not graduate residents who are neither competent nor remediable. The balance of power and control are clearly in favour of the program, not the resident.
Programmatic assessment elements of CRAFT

As the elements of CRAFT are laid out in the following sections, they are considered in the model for programmatic assessment. In this publication, there are five dimensions for designing a system of programmatic assessment: learning activities, assessment activities, supporting activities, intermediate assessment, and final assessment.

Learning activities

Family medicine residency organizes training based on the expectations described in the CFPC’s guiding documents for residency training (see Appendix 1), which provide a description of the learning activities for family medicine.

Assessment activities

The tasks, specific descriptions, and roles of the individuals involved in CRAFT are documented in the ITA template (see Table 1).

Table 1: In-training assessment (ITA) template

<table>
<thead>
<tr>
<th>ITA TASKS/STEPS</th>
<th>DESCRIPTIONS</th>
<th>LEARNER ROLES</th>
<th>FACULTY/STAFF ROLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observe, document, and provide feedback during daily clinical activities</td>
<td>Field notes</td>
<td>Seeks opportunities to be observed, seeks feedback, participates in documentation process</td>
<td>Program-specific</td>
</tr>
<tr>
<td>Collect and organize documentation within a framework</td>
<td>Resident Portfolio (File) - a collection of evidence about performance, including field notes and other performance assessments</td>
<td>Organizes documented observations according to own needs and program requirements</td>
<td>Program-specific</td>
</tr>
<tr>
<td>Periodically review and reflect on progress based on all documents available</td>
<td>Guided review and assessment</td>
<td>Provides self-assessment, participates in a process of guided self-assessment</td>
<td>Program-specific</td>
</tr>
<tr>
<td>Adjust and adapt learning activities</td>
<td>Identify resources, modify curriculum/training plan, identify target goals</td>
<td>Program-specific</td>
<td>Program-specific</td>
</tr>
<tr>
<td>Modify/customize assessment (formative and summative as needed)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Determine frequency and/or type of guided review given modifications to training</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Update learning plans</td>
<td>Plan who takes action and what is required for the next phase of training</td>
<td>Actively participates in developing the learning plan</td>
<td>Program-specific</td>
</tr>
<tr>
<td>Discussion with the resident to clarify plan for daily activity and roles of clinical supervisors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Report</td>
<td>Progress report to appropriate program administrators (e.g., program director, postgraduate dean)</td>
<td>Program-specific</td>
<td>Program-specific</td>
</tr>
<tr>
<td>Documentation for accreditation or certification requirements</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Formative assessment occurs by sampling observable behaviours in all domains of care. Assessment focuses on clinical encounters and workplace activities, and is based primarily on the clinical preceptor-resident relationship. Brief coaching narratives are created in a collaborative process between the resident and preceptor. Early literature about the principles of competency-based assessment supports using multiple objective measures conducted “in the trenches.” This is challenging, as workplace-based assessment is subjective and carried out by experts. Assessment guided by the evaluation objectives and CanMEDS-FM Roles, emphasizing formative assessment across the domains of care for family medicine, helps provide a consistent set of expectations for the end of training across all programs.

**Field Notes—Observation, feedback, and documentation**

Field notes are the core assessment activity as described for programmatic assessment and are a collaboration between the observer and resident. A typical field note asks for a short narrative statement, allowing the preceptor and resident to select the context and the lens. Field notes can be created for any patient encounter or other resident activities (e.g., telephone call, referral letter, charting review, procedure, academic presentation), and can be tailored to the learner's needs. In addition, field notes can be written by any trained observer, offering the flexibility to include interdisciplinary assessment. Any single patient encounter could be used to review a variety of skills. For example, when a resident performs a Pap test they could be observed for their clinical examination or communication skills—the ability to put the patient at ease or use appropriate language for the specific patient. The preceptor and resident would choose a single skill and only a small segment of the encounter for any single field note. Ideally, field notes are created at the same time as the event, to avoid the vagaries of recall. Completing a field note typically takes a few minutes and allows for the assessment to fit in a busy clinical day.

Some researchers have commented that the validity of non-standardized assessment resides in the users rather than the instruments, and that expert judgement is imperative in competency-based assessment. Many workplace-based assessment tools are highly structured with scales that may not align with the cognitive constructs of the observer, ask the observer to do the difficult and inconsistent task of translating performance into a number, or ask for statements of competence that are insufficiently supported by the activity observed.

Others argue that this detracts from the reliability and validity of workplace-based assessment from a psychometric point of view. In contrast, the form used for assessment in CRAFT is the narrative field note, and the tool is the clinical preceptor as the expert observer. Regardless of the structure imposed on the field note, learning activities are non-standardized, so the validity lies more with the users and not the instrument. A generic field note does away with any scale or anchors and relies on the expert observer's judgment in the moment, and focuses on providing feedback to enhance performance.

A good quality workplace-based assessment has the following attributes:

- A response scale aligned to the reality map of the judges
- A judgment rather than objective observation
- A focus on competencies central to the activity observed
- An assessor who is best placed to judge

When creating a field note, the preceptor is asked to provide judgement with coaching for the immediate context only, not a sweeping statement of competence for which they may not have good evidence. In addition, a field note is intended to document coaching for improvement. The language used should capture what is important to that assessor and resident in that particular clinical context. Field notes may include a global scale, such as preceptor judgement on the degree of supervision required, and there may be a mechanism
Supportive activities and intermediate assessment

Guided periodic review

The guided periodic review enables episodic summation and review of resident progress as described in the ITA template. Individual programs determine many aspects of their assessment systems and there is no recommendation for a specific organizing structure for the periodic review. Some programs will use skill dimensions, others will use sentinel habits, entrustable professional activities, or other organizing frameworks. Collated field notes, along with other assessment information—such as scholarly activity reports, academic presentations, modules as evidence of learning, or clinical care reports—populate a portfolio or file that is the basis for the guided review of progress. In preparation for, or incorporated with, the review, a skilled faculty member meets with the resident at a time that is outside of clinical activity. The review is designed so that the resident and advisor can consider progress across all dimensions of the program’s assessment framework. Each meeting is a reflective review of all assessment information and serves as a supporting activity as well as an opportunity for intermediate assessment of readiness to progress for advancement.

CRAFT offers flexibility to residency programs to have the reflective review and evaluative work distributed in a way that fits with the program context. The CFPC’s accreditation standards require that each resident have a faculty advisor who is available to orient the resident to the discipline, discuss the program’s and resident’s objectives, and develop educational plans to meet these objectives. The advisors are also expected to review and adapt the educational plan and help the resident find resources to meet their needs. Programs must ensure that there is continuity of this important relationship over the period of residency. In practical terms, each program solves the tension between the role of advisor and assessor in a way that works for them while respecting the resident’s needs. Some have a greater degree of separation between these two roles while others have the various aspects merged.

Based on previous theoretical work, researchers suggest that any single assessment data point is limited. Assessments should be seen as a continuum with a proportional relationship between increases in stakes and the number of data points involved. The system relies significantly on aggregates of field notes created by multiple observers, as well as other information sources for a trustworthy representation of performance.
A good quality collection of field notes should:

- Show evidence of observation in various clinical contexts (sampling of contexts)
- Sample across skills and roles
- Include feedback from multiple observers
- Provide a rich coaching narrative that speaks to performance
- Be dated to allow for positioning on a developmental or learning trajectory

These dimensions are critical for both reliability and validity. Aggregation avoids the subtle changes in meaning and selection bias that can result from synthesizing and summarizing. The aggregate provides the opportunity to review relevant individual field notes and inquire more deeply if there is a concern about any particular skill or behaviour.

The resident role includes self-assessment and guided assessment with a faculty advisor. Self-assessment alone is not reliable for the level of decision making at the guided review. The resident’s level of engagement, organization, response to significant course correction, their ability to become competent, and to manage and respond with professional and appropriate behaviour may all be part of the decision making in the moment. Formal assessment of reflective capacity is not required for the guided review process. However, skilled assessors report that much informal assessment of reflective capacity and professional behaviour is gleaned during a guided review. Other aspects of the resident’s training may be included in the process, such as eventual career decisions, specific interests, leadership, attendance, well-being, and resilience. How this knowledge influences or informs a decision to advance or remediate is yet to be fully explained. The reflective work throughout CRAFT represents a critical skill for developing the competent practitioner as a lifelong learner. The deliberate practices and reflection-in-action embodied in CRAFT ITA systems are fundamental skills of lifelong learning and professionalism.

**Final assessment**

Repeated review throughout the training program focuses on long-term development, and each periodic review serves as an intermediate evaluation point. Decisions to promote or remediate residents are based on aggregated information and recommendations from the guided review process. These final decisions are made by the program director and residency program committee or assessment sub-committee. The process is structured to ensure that programs can confidently state that a resident is ready for unsupervised practice at the end of training, as set out in the specialty-specific accreditation standards.
Other considerations

Validity
Using the current concept of validity as an argument for fitness for purpose, CRAFT—when used for Canadian family medicine postgraduates to determine readiness for unsupervised practice—is a valid system of assessment and sets the stage, when implemented appropriately, for valid individual progress decisions. Researchers have taken Kane’s framework of four inferences (scoring, generalization, extrapolation, implication) and argued for its application to a system of assessment such as CRAFT.\(^2\)

The approach to building an argument for validity consists of four elements:

- **Consider the decision to be made**
- **Make a proposed interpretation**
- **Examine the key claims, assumptions, and inferences**
- **Identify the weakest assumption and plan a test and/or find empirical evidence to evaluate or support this assumption**

In CRAFT, the inferences that are potentially the weakest, and therefore most worthy of testing, are scoring and implication. As the system is built on workplace-based assessment, extrapolation is less likely to be a problem, because performance is observed in the real world. Likewise, aspects of CRAFT (sampling strategy, interpretive process, interpreter credibility, and response to conflicting data) support generalization.

Scoring relates to observation, quality, authenticity, richness, fairness of the narrative and the credibility of the observer.\(^2\) In CRAFT, observing resident performance is central, and because it happens predominantly in the workplace it has authenticity. Key assumptions centre around richness and fairness of narrative, and the credibility of the preceptor. In CRAFT, the preceptor is the assessment tool, and the fundamental unit is the preceptor-resident relationship. Triple C supports continuity of teaching for residents that potentially fosters a useful educational alliance.\(^2\) During training, most residents will have a variety of observers. However, the family practice preceptor is most likely to have continuity of relationship with a resident, which may help the perception of credibility. The weakest assumption is that observers will have the courage and skills to give both corrective and supportive feedback.\(^2\)

Implication\(^2\) refers to planned actions based on assessment results. CRAFT outlines three specific actions based on the guided review process: reporting, creating and implementing a learning plan, and making an advancement decision (promote or remediate). Reporting in CRAFT has three components: discussion with the resident, reporting to the administrative structure of a program, and documenting for certification and accreditation requirements. Resident engagement in creating and implementing the learning plan presumably will improve its effectiveness. The periodic review fosters lifelong learning skills and provides opportunity for some global assessment of reflective capacity as an important component of the process. Medical practice involves respectful engagement with many institutions of authority and the fundamental professional skill of being a reflective, lifelong learner. Being engaged in learning and consolidating these skills as part of an assessment system in residency training should be beneficial. The weakest assumption is that the outcome of a remediation plan is enduring to the threshold of practice and beyond.

Quality
Assuming the quality of a theoretical model is one thing, evaluating the quality of a working system quite another. The CFPC accredits family medicine residency programs across Canada and, in doing so, provides an external audit for individual programs of their resident assessment system and processes. Feedback from residents, clinical preceptors, and other faculty members is accounted for as part of accreditation process and ensures that appropriate programs of assessment are being carried out within residency programs.

Another purpose of programmatic assessment\(^5\) is providing information to improve instruction and curriculum. Information from aggregates of field notes, guided periodic review reports, and learning plans can inform the clinical preceptors about their skills, and the program about curriculum and assessment respectively. Individual programs work on evaluation and quality improvement for various aspects of their CRAFT systems. Rubrics are developed and disseminated to assess the quality of narrative coaching in field notes and to use for individual faculty development.\(^2\) A review of field note content—how good are their brief coaching narratives? do they meet common criteria for good quality feedback?—can be sent back to preceptors.\(^2\) Programs using electronic field notes can use this information for quality improvement of assessment processes for a residency program and potentially to identify curricular challenges. For example, a resident can add a thumbs-up icon on an electronic field note to indicate to
the preceptor that their feedback was valued. Programs can review how broadly and effectively clinical preceptors have sampled the learning activities in their assessment points, or field notes. For example, have they coached the resident in a variety of situations: an office, a care facility, a hospital, a street clinic, or a family meeting? Do they only give feedback on one or two roles or skills, mostly clinical reasoning, and never professionalism or selectivity? Did sites find appropriate learning events to enable implementing resident learning plans?

As the understanding of CRAFT grows, methods of effective quality appraisal and improvement will emerge. Using the analogy of the resident as a qualitative research project and the tests from the validity argument also provide potential frameworks to assess elements of CRAFT.

Potential hazards and challenges
Integral to good quality workplace-based assessment is ensuring that qualified assessors are available. In order to produce meaningful assessment narrative, a program needs skilled clinicians who are good observers, are committed to direct observation of resident performance with patients, use a common language to describe what is being observed, and provide relevant and meaningful brief coaching narratives and documentation. The evaluation objectives provide an accessible language for preceptors to use in assessment and a consistent standard for what is expected at the entry to practice from residency. Even with this resource, it is important for programs to engage competent clinicians working in environments that support practitioners’ development and maintenance of competence.

Residency programs need to ensure preceptors have good observational and feedback skills. Faculty advisors should have the necessary skills including: reviewing and synthesizing narrative; guiding self-reflection in the adult learner; looking for nuanced progress in engagement, professional identity development, and reflective capacity; fostering the receipt and incorporation of feedback by the resident; and creating learning plans, to name a few. Without this, it is difficult to engage residents, as there is little meaning and more risk of trivializing assessment processes. As most preceptors and faculty advisors are also busy clinicians, who were unlikely to have experienced a competency-based program in their own residency, it takes time and coordinated change management to cultivate these particular skills. To help with this, the CFPC developed a competency-based faculty development framework—Fundamental Teaching Activities (FTA) in Family Medicine: A Framework for Faculty Development—and is building a repository of resources to help training programs support their teachers and educators. These materials are a collection of recommended learning activities for faculty advisors and preceptors. The specific competencies identified in this framework map to the faculty roles within the ITA template with a consistent set of skills that facilitate CRAFT.

Programs must attend to administrative support for each step from direct observation to periodic review. Likewise, effective information management and overall financial and infrastructure support is crucial.

Areas for future research
There are many things about CRAFT that we know occur, and the sense of those now using CRAFT is that it has a good fit for purpose and it produces defensible decisions. In particular, there is more literature about how assessors reach a decision and what factors influence a decision. CRAFT offers an excellent opportunity for this research, and there is much to be explored; for example, the intricacies of decision making within the guided periodic review, or how assessment narrative might be interpreted by different assessors. There is also considerable opportunity to explore the various assumptions within the validity of the system in greater depth. Other topics of importance for future research include potential correlation between the ITA process and both patient and physician outcomes, such as patient safety, practice health outcomes, practice efficiency, and individual physician reflective capacity, professionalism skills, engagement in teaching, and many others.
Appendix 1 | Summary of Canadian family medicine residency learning activities

The CFPC sets standards for both curriculum and assessment, and is responsible for accrediting postgraduate family medicine training programs in Canada. The scope of learning activities in Canadian family medicine residency training, emphasizing clinical experience, is defined by the following.

Four Principles of Family Medicine
The four principles describe the foundation of family medicine in Canada and the nature of the discipline, which are:
- The family physician is a skilled clinician
- Family medicine is a community-based discipline
- The family physician is a resource to a defined practice population
- The patient-physician relationship is central to the role of the family physician

Family Medicine Professional Profile
The Family Medicine Professional Profile is the College's position statement for the discipline of family medicine. It communicates the collective contributions, capabilities, and commitments of family physicians to the people of Canada.

Triple C Curriculum
The College's Triple C Competency-based Curriculum is an organizational framework for training residents in family medicine. It is based on the principles that the training program is comprehensive, focused on educational and patient continuity, and centred in family medicine. Triple C incorporates the CanMEDS-FM framework for curriculum, the domains of care for scope of practice, and the evaluation objectives (outcome competencies), and ITA process for assessment.

CanMEDS-FM 2017
As part of the broader work for curriculum reform for family medicine training, the CFPC adapted the Royal College of Physicians and Surgeons CanMEDS 2005 framework for family medicine training in Canada. It developed specialty-specific key and enabling competencies for the seven roles (CanMEDS-FM 2009). This work was subsequently revised when CanMEDS 2015 was released.

Scope of training—Domains of Care
The Domains of Care describe the work of family medicine in broad terms. As generalists, family physicians provide care across multiple domains—the patient's life (e.g., cradle to grave), various acuities (e.g., acute, chronic, rehabilitative, palliative), multiple locations (e.g., office, hospital, long-term care homes), and various populations (e.g., underserved, rural, urban).
The Evaluation Objectives

The Evaluation Objectives describe the domain of competence for family medicine for the purposes of assessment. There are four major components in this definition:

1. Skill dimensions of competence: Patient-centred approach, communication skills, clinical reasoning, selectivity, professionalism and procedure skills

2. Phase of the clinical encounter: This component plays an essential role in directing assessment toward the cognitive processes most critical to the competent resolution of a specific problem or situation. It covers the steps or phases from the beginning to end of a clinical encounter.

3. Priority topics, core procedures, and themes: A list of the problems or situations that the competent family physician should be able to deal with at the start of unsupervised practice. The scope reassures that overall competence can be reasonably inferred if assessment has been based on an adequate sampling of this content.

4. Key features and observable behaviours: These are the operational evaluation objectives describing competence in relatively objective and observable terms. This component is most useful for assessing competence during daily clinical supervision.

References


