



# Introduction of Competence by Design to Canadian Nephrology Postgraduate Training

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## Abstract

**Purpose of the review:** The Royal College of Physicians and Surgeons of Canada, with its Competence by Design initiative, is adopting the principles of competency-based medical education for residency training and continuing professional development. This initiative is being undertaken to meet the new standards of medical education in Canada, which include social accountability to meet performance-based outcomes of training. Nephrology is poised to implement Competence by Design into residency training in July 2018 and initiate a continuous quality improvement cycle to periodically renew and update the training requirements to be socially accountable and relevant in the modern age of medicine. The purpose of this review is to describe the process of entrustable professional activity and required training experience development and how they will affect subspecialty training in Canada.

**Sources of information:** The construct of competency-based medical education was derived from existing literature searches of the medical education literature, including documentation provided by the Royal College of Physicians and Surgeons of Canada. The content for each entrustable professional activity and milestone was derived by consensus from the community expertise of the working group, existing speciality training requirements, and elements of training requirements that the Royal College has been mandated to superimpose on all training requirements to meet societal expectations.

**Methods:** The Royal College Specialty Committee in Nephrology participated in 2 years of preparation for this implementation, which has included the creation of a new educational design for the discipline and the elucidation of entrustable professional activities to describe the scope of nephrology practice and to guide teaching, learning, and assessment in residency, and ultimately maintenance of competence in practice.

**Key findings:** This article introduces the set of entrustable professional activities for adult and pediatric nephrology and describes the national consultation as part of an ongoing quality improvement of this work.

**Limitations:** The implementation of Competence by Design will be tested by whether trainees embrace competency-based education by training to just entrustable professional activities, rather than the holistic model idealized in physician training. This is mitigated by the entrustable professional activity development incorporating multiple layers of competencies beyond a procedural skill. Time commitment for faculty will pose additional challenges in increasing the time for assessment of trainees, but is supported by electronic platforms at the Royal College to assist in data gathering and analysis.

**Implications:** Competence by Design in nephrology is an outcomes-based curriculum and assessment platform that aims to train nephrologists to meet societal expectations in an ever-changing and complicated health care system. The goals are to increase safety and professional accountability to society and improve upon the already high standards of training within Canada.

## Abrégé

**Contexte motivant la revue:** Le Collège royal des médecins et des chirurgiens du Canada, avec son initiative intitulée « La compétence par conception » (CPC), adopte les principes de l'approche par compétences en formation médicale pour la formation des résidents et le perfectionnement professionnel continu. Cette initiative est entreprise pour répondre aux nouvelles normes en matière de formation médicale au Canada, qui comprennent notamment la responsabilité envers la société, pour atteindre des résultats de formation axés sur le rendement. La néphrologie fait partie des spécialités médicales qui adopteront dès juillet 2018 la CPC pour la formation de leurs résidents. La discipline amorçe ainsi un cycle d'amélioration continue de la qualité qui participera à mettre à jour et à renouveler sur une base régulière les exigences de formation, de



façon à demeurer pertinente et socialement responsable à l'ère de la médecine moderne. L'objectif de la présente revue est de présenter le processus régissant les activités professionnelles confiées (APC) et l'acquisition des expériences de formation exigées, et de décrire la manière dont il influencera la formation dans les sous-spécialités au Canada.

**Sources:** L'élaboration de l'approche par compétences en formation médicale dérive de recherches dans la littérature existante au sujet de la formation médicale, notamment de documents fournis par le Collège royal des médecins et des chirurgiens du Canada. Le contenu de chacun des jalons et des APC a été établi par consensus à partir : i) de l'expérience communautaire des membres du groupe de travail; ii) des exigences actuelles en matière de formation spécialisée, et; iii) d'éléments d'exigences de formation que l'on a demandé au Collège royal de superposer aux précédentes, afin de répondre aux attentes de la société envers la profession.

**Méthodologie:** Le comité de spécialité en néphrologie du Collège royal a participé à deux années de préparation pour la mise en œuvre du programme. Le comité devait dans un premier temps créer un nouveau modèle de formation pour la discipline. Ensuite, le comité était chargé de clarifier les APC couvrant tous les champs d'application de la pratique en néphrologie, et qui guideront l'enseignement fait aux résidents, leur apprentissage, leur évaluation et le maintien de la compétence dans la pratique.

**Principaux résultats:** Cet article fait la description de l'ensemble des APC propres à la néphrologie adulte et pédiatrique, et présente la consultation nationale dans le cadre d'un processus d'amélioration continue de la qualité pour la discipline.

**Limites:** Le succès de la mise en œuvre de la CPC sera mesuré selon que les stagiaires adopteront l'approche par compétences pour leur formation, soit en se concentrant uniquement sur la maîtrise des APC, plutôt que le modèle holistique idéalisé dans la formation des médecins. Cette situation est atténuée par l'élaboration d'APC intégrant de multiples niveaux de compétences qui vont au-delà des habiletés techniques. Le temps supplémentaire requis pour l'évaluation des stagiaires posera un défi au corps professoral. Les enseignants cliniques pourront toutefois compter sur les plateformes électroniques du Collège royal pour faciliter la collecte et l'analyse des données.

**Conclusion:** La CPC en néphrologie consiste en un parcours axé sur les résultats et une plateforme d'évaluation des compétences. Elle aspire à former des néphrologues aptes à répondre aux attentes de la société envers la discipline, et ce, dans un système de santé complexe et en constante évolution. Ses objectifs visent à accroître la sécurité et la responsabilité professionnelle envers la société, et à renforcer les normes déjà très élevées en matière de formation médicale au Canada.

## Keywords

Competence by Design, competency-based medical education, CBME, nephrology training

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## What was known before

Post graduate training in Canada for Nephrology and Pediatric Nephrology has maintained a high standard of education. Despite these high standards, the process is uniformly time-based training and did not explicitly address the changing complexity or societal needs in adult and pediatric renal care.

## What this adds

Competence by Design incorporates the core competencies required to train renal specialists based on needs identified of the Canadian health care system. This article reviews the process of consultation used to develop new standards of training and describes the standards that will be employed

starting July 2018 in Canadian Nephrology and Pediatric Nephrology post graduate training programs.

## Current Training Practices in Canada

In Canada, completion of undergraduate medical school education confers a medical degree and leads to graduate training in family medicine (2 years) or one of 65 medical, surgical, or diagnostic specialties or subspecialties (4-6 years depending on the discipline). This residency training occurs under the governance of the College of Family Physician of Canada (for family medicine) or the Royal College of Physicians and Surgeons of Canada (for specialty and subspecialty training) in partnership with Canada's 17 Faculties of Medicine. As an example, certification in the subspecialty of nephrology requires completion of medical school, 3 years of the

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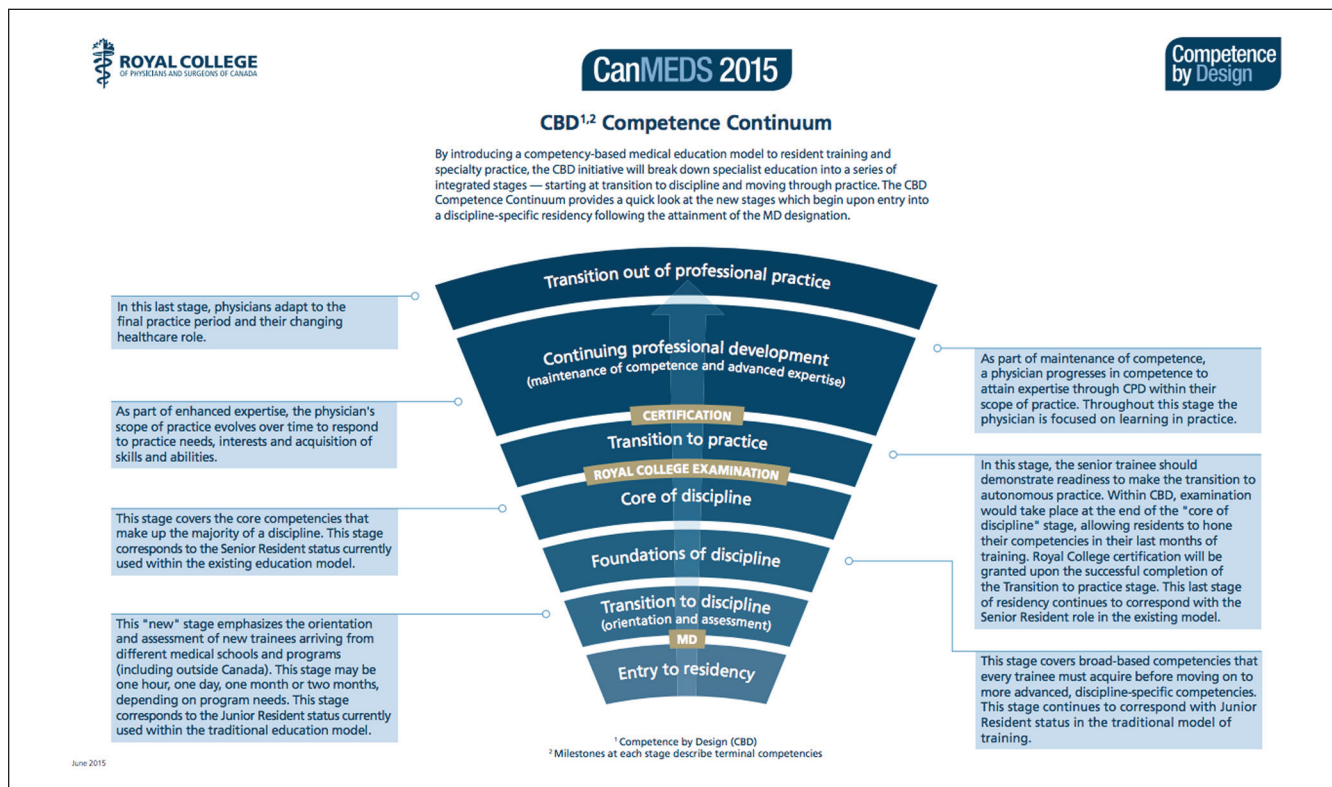
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**Table 1.** Core Components of Competency-Based Medical Education.

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Competencies are clearly articulated
Competencies are arranged progressively
Learning experiences facilitate the progressive development of competencies
Teaching practices promote the progressive development of competencies
Assessment practices support and document the progressive development of competencies

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**Figure 1.** The CBD competence continuum.  
 Note. CBD = Competence by Design.

internal medicine or pediatric specialty residency, and 2 years of adult or pediatric nephrology subspecialty residency, with success in the certification exam of each discipline. These governing bodies have established goals, objectives, and requirements for residency training, rigorous assessment processes with national standardized examinations, as well as robust accreditation standards and processes to ensure a high-quality educational standard and outcome.

**Overview of Competence by Design**

Competency-based medical education (CBME) is an outcome-based approach to physician development that has been proposed to address the need for better accountability and outcomes in medicine.<sup>1,2</sup>

The Competence by Design (CBD)<sup>3</sup> initiative adapts the principles and core components of CBME to our unique Canadian context (Table 1).<sup>4</sup> In CBD, the required competencies

are identified based on the needs of the Canadian health care system and articulated using the Canadian standards for medical training, the CanMEDS roles.<sup>5</sup> Stages of training (Figure 1)<sup>6</sup> explicitly describe the sequence of learning experiences and expectations, the transition from medical school to residency, and the progression of a resident’s abilities over time ultimately from residency into practice. Entrustable professional activities (EPAs)<sup>7</sup> are tasks of the discipline appropriate to the stage of training. Entrustable professional activities focus on the supervisor/resident interactions in the clinical environment and facilitate clinical teaching, observation, and coaching of resident performance. Diverse methods of assessment are selected, each purposefully chosen for their alignment with desired outcomes. These are implemented as a program of assessment, with individual data points providing feedback to the learner and aggregated data points used to make decisions about progress and promotion.<sup>8</sup>

This competency-based, outcome-oriented, learning and assessment strategy involves all specialties, subspecialties, and special programs recognized by the Royal College across the continuum of residency training and practice. The CBD begins with residency education, with a small number of disciplines implementing the change each year over the coming 6-8 years. Nephrology adult and pediatric programs are expected to implement CBD for the cohort beginning residency in July 2018. CBD will, in the future, be applied to the continuing medical education phase of physician development and maintenance of competence.

### Justification for Moving to CBD

The impetus for the change to a CBD model is born out of three issues that shape medical education. First, medical practice in Canada is changing, and so the training necessary to work in Canada must change as well. Although medicine has become increasingly complex in terms of the procedures that are performed, the diagnostic technologies that are employed, and the therapies that are available, has allowed the teaching of medicine to lag behind. Our trainees need to be equipped with the abilities to evaluate new treatment options, both current and in development, incorporate new diagnostic methods that refine our understanding of disease, and manage resources including the availability of therapeutics that financially weigh heavily on the health care system.<sup>9</sup> Second, we are seeing more graduates enter a community-based practice where the skills required may differ from those of teaching centers which are supported by multiple consultative and diagnostic departments not as readily available in community-based practices. The training we currently offer leaves gaps for those entering nonacademic practice and how we train physicians' needs to address the gaps, ensuring autonomy and providing flexibility for each trainee's career prospects.<sup>10</sup> Finally, society is expecting greater accountability for our actions as health care providers and to train physicians to avoid unsafe practices and meet a minimum standard of competence.<sup>2,11</sup> We have a responsibility to ensure that graduates of our training programs are prepared to meet the standards set out by societal norms, including cultural competence, safety, leadership, and professional development.

CBD addresses these needs through 3 components. First, in moving to CBD, medicine is establishing clear outcomes that include the required skill sets, attitudes, and knowledge a physician must possess. Second, these outcomes are based on societal needs and expectations of physician behaviors and skills, and specifically, the expectations of available care a nephrologist should provide. And finally, these societal expectations are met by demonstrating that physician training incorporates specific outcomes into the design of teaching, learning, and assessment and that these outcomes are used to assist physicians to maintain the standards of care throughout a medical career.

### Overview of the Education Design Process in Nephrology

The Royal College of Physicians and Surgeons of Canada is the regulatory body credentialing specialty and subspecialty training in Canada. The mandate of the Royal College is to ensure that training in specialties and subspecialties follows the common language of the CanMEDS framework and holds all training programs to common guidelines for accreditation. The Subspecialty Committee in Nephrology is the designated committee that oversees the standards of training and assessment in nephrology (adult and pediatric). It comprises training program directors from each accredited Canadian program and nephrology examination board chairs, in addition to regional representatives and members of the national specialty society (The Canadian Society of Nephrology) who are all practicing nephrologists in Canada. The committee, and invited guests (including Chairs of Specialty Committees in Pediatrics and Internal Medicine, and current postgraduate trainees in nephrology), began work on the CBD initiative in 2016. Supported by a Royal College clinician educator, a writer, and an administrative assistant, the group worked together over the course of 3 multiday workshops and numerous tele- and web-conferences to develop a new subspecialty education design consistent with the principles of CBD. The group achieved consensus in describing the scope of nephrology practice in Canada and the stages of residency training in the subspecialty. Careful consideration was given to "what do we want trainees to know" coming into nephrology training, which formed the basis for the Transition to Discipline phase. Similarly, items that were essential for trainees to understand as they left training and begin practice formed the basis for the Transition to Practice phase. Foundations and Core phases were developed from the essential competencies delineated in the discussion. Through an iterative process, smaller groups of participants were tasked with the initial draft of EPAs and required training experiences, which were then subjected to a review by other small groups who further refined the concepts and training requirements. Finally, the EPAs and training experiences were brought back to the larger group for discussion and further refinement. Assessment strategies were selected to provide opportunities for observation and coaching in the performance of these EPAs, as well as opportunities to document the resident's acquisition of competence. The placement of the overall EPAs within the training sequence was examined and further modifications were made. Gaps that were identified or errors of omission were brought back to the group at subsequent workshops, until the list of contentious EPAs and training experiences were discussed and consensus achieved on the goals of training. Finally, all these components were recorded as the new standards of training in nephrology, approved by the Royal College Specialty Standards Review Committee, and prepared for dissemination and implementation.



**Table 2.** Adult Nephrology EPAs.*Transition to Discipline*

1. Assessing patients with known kidney disease, identifying the unique concerns seen in nephrology patients
2. Recognizing nephrology-specific emergencies/urgencies, demonstrating insight as to own limits and knowing when to seek appropriate help

*Foundations*

1. Assessing and providing an initial management plan for patients with AKI
2. Assessing and providing an initial plan for investigation and management of patients with CKD
3. Assessing and providing an initial plan for investigation and management of patients with hematuria and/or proteinuria
4. Ordering and adjusting dialysis prescriptions for uncomplicated patients with ESRD
5. Providing consultative care for patients with known renal disease admitted with other medical or surgical problems
6. Assessing and providing initial management for patients with common complications of PD
7. Assessing and providing initial management for patients with common complications of HD
8. Admitting patients to undergo renal transplantation
9. Providing postoperative care for renal transplant recipients with an uncomplicated course
10. Assessing and providing initial management for patients with common complications of renal transplantation
11. Obtaining central venous access for dialysis

*Core*

1. Establishing a comprehensive treatment plan for patients with AKI
2. Ordering and adjusting prescriptions for patients with AKI and other acute/urgent indications for renal replacement therapy
3. Assessing and treating patients with difficult-to-control or suspected secondary hypertension
4. Assessing and providing an initial investigation and management plan for patients with complex fluid and electrolyte abnormalities
5. Assessing the suitability of potential living donors for kidney transplantation
6. Assessing the suitability of deceased donors for kidney transplantation
7. Assessing the eligibility of patients with renal disease for kidney transplantation
8. Managing new renal transplant recipients with a complex postoperative course
9. Monitoring patients receiving immune-modulating therapy and managing complications
10. Monitoring and providing medical management for patients with stable renal disease
11. Providing comprehensive care for patients with progressive kidney dysfunction
12. Facilitating patients' transition to an ESRD treatment modality or to end-of-life care
13. Providing longitudinal management for patients receiving chronic dialysis
14. Assessing and managing the care of patients with complex complications of dialysis access
15. Assessing and managing patients with acute complications of the dialysis procedure
16. Supporting vulnerable patients to improve their health literacy and engage them to become partners in their care
17. Integrating knowledge of the effects of pregnancy, pregnancy outcomes, renal disease, and its treatments in the care of women with renal disease
18. Managing longitudinal aspects of care in a clinic
19. Working with the interprofessional team to coordinate the care of patients with renal disease
20. Advancing the discipline through scholarly activities
21. Delivering scholarly teaching to a variety of audiences, including peers, junior trainees, and/or other health professionals
22. Identifying and analyzing patient- and/or system-level health care delivery for the purposes of quality assurance or improvement

*Transition to Practice*

1. Managing the multidimensional aspects of nephrology practice

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Note. EPAs = Entrustable Professional Activities; AKI = acute kidney injury; CKD = chronic kidney disease; ESRD = end-stage renal disease; PD = peritoneal dialysis; HD = hemodialysis.

## Nephrology's EPAs<sup>12</sup>

In writing EPAs, professional activities of the discipline are identified through an analysis of the daily work of the physician. The concept of entrustment, a judgment made by supervisors when deciding whether a trainee may assume the responsibility to perform that professional activity, is used to identify the stage of training in which the EPA would be achieved. The sum total of the EPAs should represent the sentinel professional work of the discipline—the scope of practice of nephrology.

The EPAs of nephrology (Table 2)<sup>12</sup> and pediatric nephrology (Table 3)<sup>12</sup> reinforce the shared basis of the adult and pediatric streams; the majority of the EPAs are the same, albeit with some important differences (see Adult Foundations 11, or Core 6). The EPAs demonstrate the progression of responsibility throughout residency: Foundations focuses on common and/or urgent presentations; Core adds complexity and the full range of patient care, as well as activities beyond the individual patient/physician interaction; and Transition to Practice integrates all these activities into a holistic practice. The set of EPAs is meant to describe the work of a physician

**Table 3.** Pediatric Nephrology EPAs.*Transition to Discipline*

1. Assessing patients with known kidney disease, identifying the unique concerns seen in nephrology patients
2. Recognizing nephrology-specific emergencies/urgencies, demonstrating insight as to own limitations and knowing when to seek appropriate help

*Foundations*

1. Assessing and providing an initial management plan for patients with AKI
2. Assessing and providing an initial plan for investigation and management of patients with CKD
3. Assessing and providing an initial plan for investigation and management of patients with hematuria and/or proteinuria
4. Ordering and adjusting dialysis prescriptions for uncomplicated patients with ESRD
5. Providing consultative care for patients with known renal disease admitted with other medical or surgical problems
6. Assessing and providing initial management for patients with common complications of PD
7. Assessing and providing initial management for patients with common complications of HD
8. Assessing and providing initial management for patients with common complications of renal transplantation

*Core*

1. Establishing a comprehensive treatment plan for patients with AKI
2. Ordering and adjusting prescriptions for patients with AKI and other acute/urgent indications for renal replacement therapy
3. Assessing and treating patients with difficult-to-control or suspected secondary hypertension
4. Assessing and providing initial management for patients with hypertensive urgencies/emergencies
5. Assessing and providing an initial investigation and management plan for patients with complex fluid and electrolyte abnormalities
6. Managing patients with prenatally diagnosed complex renal anomalies
7. Assessing the suitability of deceased donors for kidney transplantation
8. Assessing the eligibility of patients with renal disease for kidney transplantation
9. Admitting patients to undergo renal transplantation
10. Providing postoperative care for renal transplant recipients with an uncomplicated course
11. Managing new renal transplant recipients with a complex postoperative course
12. Monitoring patients receiving immune-modulating therapy and managing complications
13. Monitoring and providing medical management for patients with stable renal disease
14. Providing comprehensive care for patients with progressive kidney dysfunction
15. Facilitating patients' transition to an ESRD treatment modality or to end-of-life care
16. Providing longitudinal management for patients receiving chronic dialysis
17. Assessing and managing the care of patients with complex complications of dialysis access
18. Assessing and managing patients with acute complications of the dialysis procedure
19. Supporting young adults with renal disease in the transition from the pediatric to adult care setting
20. Managing longitudinal aspects of care in a clinic
21. Working with the interprofessional team to coordinate the care of patients with renal disease
22. Advancing the discipline through scholarly activities
23. Delivering scholarly teaching to a variety of audiences, including peers, junior trainees, and/or other health professionals
24. Identifying and analyzing patient- and/or system-level health care delivery for the purposes of quality assurance or improvement

*Transition to Practice*

1. Managing the multidimensional aspects of nephrology practice

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Note. EPAs = Entrustable Professional Activities; AKI = acute kidney injury; CKD = chronic kidney disease; ESRD = end-stage renal disease; PD = peritoneal dialysis; HD = hemodialysis.

practicing in the full breadth of nephrology, recognizing that many of us further refine some areas of practice and may narrow our scope based on individual preference and/or local circumstances and resources.

### Bringing EPAs Into the Teaching Environment

The EPA design was an exercise for the subspecialty committee defining what it means to practice nephrology and pediatric nephrology in Canada. Entrustable professional activities represent specific, real-world tasks or skill sets that define the specialty; each EPA comprises milestones, which are more discrete aspects of the skill set. For example, the

EPA “Establishing a comprehensive treatment plan for patients with AKI” includes the milestone of being able to “assess the indications for renal replacement therapy and modality” (Table 4).<sup>12</sup> As such, they help focus the evaluator on a specific scope of work at each encounter, targeting feedback to a specific skill acquisition and simplifying the evaluation to whether the learner still is working on developing the skill, whether they are developing the skill but still require some refinement, or whether the learner could be completely entrusted to perform that skill independently. The latter assessment is an indication of mastery of the milestone and an indication that the learner can be promoted through the phases of training. However, the decision to promote a learner is no longer triggered by the lone assessor. A key

**Table 4.** Nephrology: Foundations EPA I (Adult and Pediatric): Assessing and Providing an Initial Management Plan for Patients With AKI.*Key features*

This EPA focuses on the initial diagnostic approach to patients with AKI as well as initial orders for treatment of complications, fluid, electrolyte and nutritional management, and adjustment of medications.

This EPA includes recognizing those patients who require renal replacement therapy and selection of appropriate modality, but does not include the prescription or monitoring of renal replacement therapy.

This EPA may be observed in patients with any etiology of AKI, in any clinical setting.

*Relevant milestones*

ME 2.2 Perform focused clinical assessments

ME 2.2 Ascertain volume status

ME 2.2 Ascertain indications for urgent dialysis

ME 2.2 Interpret the results of investigations in the context of the patient's presentation

ME 2.2 Select additional investigations, as appropriate

ME 2.2 Identify patients who require renal biopsy

ME 2.3 Establish goals of care

ME 1.3 Apply knowledge of clinical pharmacology as it pertains to drug prescribing in renal disease

ME 2.4 Order fluids to optimize volume status and/or renal recovery

ME 4.1 Prevent and/or manage complications of kidney disease

ME 3.1 Identify indications, timing, and suitable modality for initiation of renal replacement therapy

COM 4.3 Answer questions from the patient and family about next steps

COL 1.3 Integrate the patient's perspective into the care plan

*Guidelines for observation and achievement*

Case review ± verification of clinical findings by nephrologist

Achievement of this EPA requires at least 3 observations that document competent performance

These must include

At least 1 native kidney and 1 transplant patient

A variety of causes of AKI: prerenal, postrenal, ATN, nephrotoxicity, GN, and other

For Peds: at least 1 newborn/infant

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Note. EPAs = Entrustable Professional Activities; AKI = acute kidney injury; ATN = acute tubular necrosis; GN = glomerulonephritis. CanMEDS Categories for Milestones: ME = medical expert; COM = communicator role; COL = collaborator role.

component of CBD is the use of a competence committee, a group that synthesizes and integrates all of the data sources to assess whether skills around a specific milestone or EPA have been sufficiently demonstrated for promotion or whether further training around that skill is warranted. While there is no question there is more assessment occurring in CBD, the type of assessment is efficient, intuitive to the practice of medicine, and tailored specifically to the assessment of each EPA.<sup>13</sup>

## Continuous Quality Improvement of the Nephrology Training Requirements

Completion of the EPA and milestone documents is a redesign of training requirements for adult and pediatric streams of nephrology. These documents are now approved by the Royal College of Physicians and Surgeons of Canada for implementation in the July 2018 roll-out of CBD in nephrology subspecialties. As such, any program undergoing an accreditation review after July 2018 will be held to the new documents and standards.

In the process of modernizing the training requirements, including accounting for trends in practice changes across the country, the CBD working group felt that the

now-approved documents require a periodic secondary review by the nephrology community, particularly the community-based physicians. This is to ensure that academic institutions are implementing training standards that meet the needs of the broader clinical community.

The document suite was therefore circulated to the national specialty societies for pediatric and adult nephrology for broader consultation. The specialty societies were asked to consider specific questions:

1. Do the current *EPAs and milestones* describe the practice of nephrology and define training that creates an employable nephrologist in Canada? If not, what tasks or skills have been overlooked or minimized, and what tasks or skills have been embedded in the documents that do not reflect current clinical and academic practice?
2. Do the current *required training experiences* provide adequate exposure to a comprehensive training in nephrology? If not, what is missing and/or what is overemphasized?
3. Is the number of EPAs, milestones, and training experiences feasible in the context of providing sufficient clinical structures and assessment of

nephrology trainees? If not, what training experiences or assessments will be untenable to require?

The feedback from this consultation process was collated for review at the May subspecialty Committee meeting, and modifying the current document suite will be reviewed with potential implementation of changes in 2020. This process of quality improvement and the consultation process with the broader nephrology community are expected to be ongoing.

## Potential Limitations of CBD in Nephrology

The medical education community is aware of 3 areas of concern with CBD that are observed in jurisdictions with competency-based training requirements.

First, reductionism, or the training to a specific list of competencies or EPAs, is felt to be an inevitable consequence of CBD. Schuwirth et al<sup>14</sup> describe how failing to establish adequate curricular and assessment methods can lead to reductionism and a failure to meet the goals of social accountability and professionalism along the way. In developing the EPAs for nephrology, careful consideration has been given to establishing holistic assessment methods that specifically require that EPAs are not overly simplified. For example, EPAs that involve completing a procedure successfully are not limited to just assessing the completed procedure, but instead designed to teach and evaluate a cluster of skills required to complete a procedure successfully, manage the patient safely, and manage the resources of the larger health care system responsibly.

Second, some note that residents view the acquisition of successful EPA completion as a game; residents may seek out the missing EPAs as a focus of advancement while discounting the larger goals of training to be a holistic medical practitioner. This has been described mostly in procedure-based disciplines, but is theoretically possible in any training environment.<sup>15</sup> Again, if an EPA is fundamentally lacking in the complexities that incorporate a safety curriculum, professionalism, and the expectations of society on the delivery of care, then it will be easier to “game the system.” The CBD development process in nephrology has given careful consideration around EPA and milestone development, and an attempt has been made to minimize “gaming the system” by creating a robust list of competencies that go beyond a single skill and include multiple facets of physician attributes that map to existing CanMEDS goals.

The last notable limitation is the perception that CBD is more time-intensive than the current system because of the demands of rigorous assessment and data generation on progress and entrustment. This is likely true, but it is felt that the current degree of supervision has not been to

the standard needed to satisfy societal expectations. When individuals are hired into academic centers, there is an expectation that teaching occurs as part of the academic portfolio. CBD merely defines the roles with clear outcomes and expectations of how trainees can be effectively and consistently observed. There is no question that CBD will generate more data from multiple sources on each trainee. The Royal College of Physicians of Canada has created an electronic platform that houses the EPAs for each specialty and can be utilized for tracking assessment and completion of EPAs (ePortfolio). The cost of this system is borne by the Royal College and is available to each academic center to use, if they choose, as the primary competency tracking platform. The data housed in this system will facilitate the work of the competence committees and provide a defensible and data-driven process on which trainees can be promoted through to graduation.

## CBD Document Suite Will Be a Set of Standards

In parallel to the CBD roll-out, accreditation of postgraduate training programs is also changing. The new accreditation process is the result of a broad consultative process and is outlined in the 2017 accreditation standards by the Canadian Residency Accreditation Consortium (CanRAC).<sup>16</sup> The main difference in the new workflow is a move to a continuous quality improvement model that draws on day-to-day functioning of education programs. The accreditation focus moves away from a problem-based focus of determining largely what, if anything, needs correction and moving to a more balanced assessment both of deficiencies and of excellence or innovation than is seen in the current system. This will enable the specialty committee to incorporate these data into an ongoing assessment of subspecialty standards and the CBD document suite and share innovations across programs and weight-specific standards differently as is determined to better meet the societal expectations for nephrology training.

## Conclusion

In July 2018, adult and pediatric nephrology training programs will begin rolling out a CBD model of postgraduate education. The process of developing the EPAs, milestones, and required clinical experiences has resulted in a modernization of the training requirements for nephrology subspecialties. A parallel shift in the accreditation workflow will streamline the work of the programs and the subspecialty committee, allowing an ongoing quality improvement process to maintain the relevancy of the training standards over time.



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