



**The Kidney Research Scientist Core
Education and National Training Program**

Core Curriculum Document

Revised July 2019

1. INTRODUCTION

Since its inception, the mission of the Kidney Research Scientist Core Education and National Training Program (The KRESCENT program) has been to recognize, cultivate and support outstanding kidney researchers across Canada at the postdoctoral and new investigator levels. Central to the KRESCENT Program mandate has been the establishment of a mandatory, bi-annual Core Curriculum workshop. The Core Curriculum emphasizes development of research excellence, transdisciplinarity and collaboration in a small group setting.

The Core Curriculum of the KRESCENT program has been in constant evolution since program inception in 2005, based on stakeholder feedback and in order to address the needs of the patients whose health we seek to advance. Currently, the program consists of multiple interdisciplinary educational activities and exercises specifically designed to accomplish two distinct but interconnected ends: first, the development of essential professional skills crucial for successful academic careers in kidney research; and secondly, the establishment of a collaborative national research network among burgeoning kidney scientists in Canada to foster meaningful knowledge translation for the improvement of patient care and outcomes in priority areas of kidney research in the future. As such, the Core Curriculum affords a unique interactive learning opportunity unparalleled in any other forum at present.

The Core Curriculum is designed to complement core course work / degree programs in research design, methodology, and other core content areas which trainees are engaged in. It is also complementary to the trainee-specific research project(s), which will continue to be developed locally, either independently (in the case of New Investigator Awardees), or in conjunction with the local research supervisor (in the case of Fellowship or Doctoral trainees).

The Core Curriculum includes:

- 1) Knowledge Acquisition: Bi-annual Core Lecture Series held at workshops
- 2) Knowledge Application and Integration Exercises:
 - 2.1 Critical appraisal of journal articles (basic, clinical, allied health science):
 - a) as part of workshop exercises and
 - b) as formal members of the CJKHD (Canadian Journal of Kidney Health and Disease) editorial board.
 - 2.2 Journal article writing on a review topic describing translational research in a prescribed area. This exercise for first year KRESCENT participants develops manuscript writing skills and collaboration on translational themes amongst a group of trainees with varied backgrounds.
- 3) Grant-writing and peer review exercises, directed at trainees beyond year one:
 - 3.1 Participation in mock grant peer review panels, which use the same peer review processes as KFOC or CIHR;
 - 3.2 Roles as either first or second reviewers; or Chair/Scientific Officer for the Grant review committee.
 - 3.3 Participation as a reader or third reviewer in the KFOC Kidney Health Research Competition Scientific Peer Review Committee (previously called Biomedical Research Operating Grant peer review panel.) (New Investigators only).
- 4) Presentation skills:
 - 4.1 Slide presentations
 - 4.2 Speaking skills

4.3 Presentation of data for oral vs. written venues

4.4 Presentations to lay people and/or the public

- 5) Chairing of workshop sessions (introductory comments, ensuring time constraints upheld, fielding questions)
- 6) Career Development Sessions: These sessions typically occur at the start of every workshop, and a variety of topics is covered during the 3-year cycle of training (e.g. time management, gender issues in research, career promotion, how to secure an academic position, challenges facing new investigators, practical advice on setting up your lab, cultivating work-life integration/balance). Content experts from the Canadian Nephrology community are typically invited to chair these sessions, and trainees are active participants in discussion/questions.
- 7) Patient-Oriented Research: These sessions develop skills in communicating in plain language, knowledge translation, and learning how patients can participate in all stages of research from priority setting through to communicating the outcomes of a project.
- 8) Mentorship: Program mentors are assigned to all New Investigators in KRESCENT (see description below).
- 9) OCAP or San'yas training: It is recommended that all New Investigators and Post-Doctoral Fellows take either the *Fundamentals of OCAP* (Ownership, Control, Access and Possession, and how it pertains to principled research, data sovereignty, and information governance with respect to First Nations) or *San'yas training* (Indigenous Cultural Safety Training). The KRESCENT program will facilitate and pay for the cost of these programs for all trainees.

Participation in the Core Curriculum:

The Core Curriculum is tailored to the special talents and needs of those outstanding candidates accepted into the KRESCENT program. All KRESCENT program awardees must participate and successfully complete the Core Curriculum as a requirement for their continued KRESCENT program support.

Thus, attendance at all workshops (twice yearly) is mandatory (barring extenuating circumstances).

For the KRESCENT program awardees, expenses related to the Core Curriculum will be covered (e.g. flights, accommodation, according to The Kidney Foundation of Canada reimbursement guidelines).

KRESCENT Program Workshop Agenda

The dates for the workshops and other assigned activities will be set at least one year in advance of the meeting; with 'save the date reminders sent to the participants at the beginning of each 'academic' year. Note that it is the responsibility of the KRESCENT participant to inform their supervisors/ colleagues of the need to attend.

The 2019-2020 schedule for trainees beginning in July 2019 is:

	Place	Date
KRESCENT Workshop – Winter	Montreal, Quebec	December 5 & 6, 2019
KRESCENT Workshop – Spring	Halifax, Nova Scotia	May 4 & 5, 2020

2. OVERVIEW OF THE KRESCENT CORE CURRICULUM

A) Workshop Key Content: Knowledge Acquisition, Knowledge Application and Integration Exercises

Knowledge Acquisition Objective: Core lecture series to ensure that all participants acquire knowledge specific to kidney research, encompassing the four research themes of the CIHR (Biomedical, Clinical Sciences, Health Systems, and Population Health). Workshops will serve to complement existing lecture series that may be available at each institution.

Knowledge Application and Integration Exercises Objective: To promote independent learning and acquisition of core skills related to the conduct of kidney research, irrespective of content area or perspective (MD, allied health, basic or clinical researcher). To promote transdisciplinary exchanges within a structured framework, facilitating communication and collaboration across themes.

- Initial workshops will be held in the fall/winter of each year and will serve as an intensive introduction to the objectives and mission of the KRESCENT program, as well as offering the first series of Core Lectures (Knowledge Acquisition) (trainees technically begin the program on July 1 of each year, when funding starts).
- A second face-to-face workshop will be held at the Canadian Society of Nephrology (CSN) Annual Meeting, held in April or May of each year. This will serve as a venue for a second set of Core Lectures. The Core Lecture Series will encompass a three-year cycle; and will be focused around a specific kidney research theme (e.g. acute kidney injury, transplantation, end-stage renal disease care) per year. The fall workshop addresses the theme from more of a 'bench to bedside' approach, while the spring workshop focuses on population health implications and health policies.
- After the first year, the annual fall meeting will also serve as an evaluative session.
- At the workshops, in addition to Core Lectures, trainees will receive orientation to the program (structure, governance, expectations, evaluation), and meet the mentors and other trainees.
- Irrespective of research theme (i.e. clinical, basic, or other research theme), these Core Lectures will be relevant to all disciplines in kidney research and will be delivered by content experts.
- At each workshop, the Core Lectures will be accompanied by introduction to the relevant assignments:
 - First Year participants: Collaborate on a research problem / review area relevant to the lecture / theme material. This will result in a publication worthy manuscript which will be submitted to the CJKHD.
 - Other participants: Critical review of journal articles submitted by presenters, and lead or engage in critical appraisal discussion; preparation of presentation for the group to synthesize the discussion / key points.
- Workshops will generally feature Career Development Sessions, focusing on selected topics such as Grant-Writing Skills, Time Management, Career Planning, Work-Life Integration/Balance and others.
- Selected workshops will feature sessions on Research Methods (biomedical, clinical, health services or qualitative research), and presentations by industry sponsors that will focus on topics meant to support collaborative and/or translational research.

- Workshops will also feature selected research-in-progress presentations from the trainees, as well as presentations on overall research directions and strategies (from senior trainees).
- The fall workshop will incorporate an introduction to the first collaborative integrating exercise (previously called the Transdisciplinary Research Challenge (TDR), but now organized as a collaborative review paper focused on the area of interest.

B) Knowledge integration and Application: Journal article reviews.

- 1) Critical appraisal of journal articles in workshops
- 2) Review of journal articles in timely manner for CJKHD (requires written feedback to authors and integration of # of different skills, including critical appraisal)

The purpose of these complementary exercises regarding journal articles (those already in print and those submitted by trainees), is to cultivate integration of scientific knowledge, methodology knowledge, and critical appraisal skills in trainees. Within the workshop venue, small group discussion of journal articles will be held amongst trainees within a related field of interest, facilitated by a senior research scientist and content expert (typically the workshop invited speaker). Examples of topics for discussion include: quality of figures or tables in conveying knowledge, clarity of writing, key messages, methodologic approaches, etc.

The formal review of journal articles submitted to CJKHD will similarly serve to provide exposure to scientific articles in trainees' field of interest or related field of interest. Furthermore, feedback from KRESCENT leadership on reviews will help trainees further cultivate courteous, constructive peer review skills. Of added benefit, trainees can acknowledge these peer review activities as professional CV line items (E.g. Editorial Board member of CJKHD), thus further promoting their academic career advancement.

C) Review Article demonstrating synthesis of current state of nephrology research within specific theme:

This unique aspect of the Core Curriculum offers an opportunity for first-year trainees to address a broad-based issue in kidney research, which encompasses at least three CIHR themes.

The goal of this exercise is to develop not only content knowledge, but also experience developing a multi-author paper, addressing the issue of authorship contributions, and demonstrating an understanding of the topic area. The work will be submitted to CJKHD (or another journal of the authors' determination as appropriate) and thus should be of high quality. The exercise will be mentored by KRESCENT faculty and possibly other participants but will culminate in a publication. The manuscript will be reviewed by other KRESCENT members for feedback at the April/May Workshop.

Working in teams, author trainees will collectively develop a research proposal that addresses the salient issues of the theme area; acknowledging 'state of current knowledge', what is not known and how best to address knowledge gaps. It is possible that more than one paper would be generated by the group, but each must demonstrate some trans-disciplinary / integration aspect.

One of the desired outputs from these papers could be a roadmap of a proposed research agenda in that area, or ultimately a grant proposal for review at subsequent meetings. It is

believed that these publications may provide good ‘groundwork’ for KRESCENT participant grant proposals, or others. Output from the exercise will also include a 15-minute presentation to the KRESCENT participants at the Spring workshop, and formulation of an abbreviated mock grant proposal.

General Objectives of Transdisciplinary Review Manuscript Exercise:

- To develop skills in communication and collaboration between disciplines involved in kidney-related research.
- To foster an appreciation of the importance of transdisciplinary input when addressing either biomedical, clinical, health services, or population health kidney research problems.
- To understand and share methodologies which traditionally have been ‘theme-specific’.
- To enhance skills that will facilitate the development of transdisciplinary grant initiatives in the future.
- To improve manuscript and potentially grant writing skills.
- To gain an understanding of complexity of multi-author publication logistics.

D) Grant-writing and Peer Review Exercises

Trainees beyond their first year in the KRESCENT Program will submit Research Grant applications or Manuscripts for review and will participate in written and oral critical peer review of draft grant applications and manuscripts, including Transdisciplinary Review Manuscripts submitted by first-year trainees. Manuscript discussions (held in Spring workshops) will be guided by senior research scientists serving as Associate Editors or Deputy Editors of CJKHD to help trainees cultivate courteous constructive peer review skills. Reviewers’ comments will be shared with trainees, providing valuable peer-review feedback.

E) Mentoring Program

An important aspect of the KRESCENT program is a built-in mentoring system that will facilitate career development. Trainees at the Fellowship level will meet with the Program Mentors at the twice-yearly workshops and interact in a Career Development Workshop setting. New Investigator Awardees, on the other hand, will be paired with a specific Program Mentor, expert in his/her field of research (i.e. biomedical, clinical, health services, population health).

Accordingly, the KRESCENT program provides level-specific mentorship, which does not conflict with the important mentorship role of the local research supervisor during the Fellowship period. The Program Mentors are complementary to the local Research supervisor. Program Mentors will receive progress reports on individual trainees, from their Research supervisors and the Program Steering Committee.

Thus, for Fellowship-level trainees, the roles of the KRESCENT program mentor and local Research supervisor are distinct and complementary:

The Local Research Supervisor directs all of the research work relevant to the trainee’s research program; and is responsible for guidance and project oversight, per university roles.

The KRESCENT Program Mentor:

- ensures that the goals of the KRESCENT program are met,
- facilitates changes, if needed, to optimize training,
- facilitates career transition counselling, negotiation of academic appointment, consideration of options for Faculty positions, etc.

During the first three years of a faculty position (New Investigator Awardees), it is expected that the candidate and designated Program Mentor will interact at least two times a year. The mentor will advise the candidate with regards to the provision of conditions/resources required to sustain an independent career in research. If required, the mentor will suggest changes to the candidate or will help the candidate interact with his institution in order to secure, on a long-term basis, the optimal research conditions. More specifically, the mentor will assist in:

1. Reviewing the percentage of protected time for research required and provided.
2. Reviewing the resources available to the candidate to assist in development of the research program.
3. Helping the candidate to evaluate the quality of the research environment, and suggesting changes that might be required, including development of collaborative relationships, which might foster knowledge translation.
4. Providing assistance and guidance with regards to grant writing, manuscript preparation, and research directions.

Appendix A

TABLE 1: Three-Year Core Curriculum Template, and Level-Specific Requirements

Program Component	Yr 1	Yr 2	Yr 3
Core Lectures/Presentation of work	M x 1		M x 1*
Critical Appraisal Journal articles in workshops	M x 2	M x 2	M x 2
Review of Journal articles for CJKHD	M x 1	M x 1	M x 1
Trans-disciplinary Review Exercise and manuscript	M x 1	O	O
Grant writing and/or peer review	-	M x 1	M x 1
Chairing of Session at Workshop	M x 1		
San'yas or OCAP training	M x 1		
Writing plain language summaries of journal or grant abstracts	M x 1	M x 1	M x 1

M = mandatory (for Core Lectures, M x 2 indicates requirement for attendance at 2 workshops per year)

O = optional (discretion of trainee)

* trainee must deliver core lecture, focused on overview of his/her research program and potential for knowledge translation.