Objectives of Training in Nephrology

(Please see also the “Policies and Procedures.”)

DEFINITION

Nephrology is that branch of medicine concerned with the care of patients with kidney disease and disorders of fluid and electrolyte metabolism.

GENERAL OBJECTIVES

Upon completion of training, a resident is expected to be a competent specialist capable of assuming a consultant’s role in Nephrology. The resident must acquire a working knowledge of the theoretical basis of the specialty, including its foundations in the basic medical sciences and research.

Only candidates certificated by the Royal College of Physicians and Surgeons of Canada in Internal Medicine or Pediatrics may be eligible for the Certificate of Special Competence in Nephrology.

On completion of the program, the resident who is competent in Nephrology will be able to demonstrate the knowledge, attitudes and skills needed to independently care for patients with kidney disease (including the management of dialysis and renal transplantation) and with disturbances of acid-base, fluid and electrolyte metabolism.

The resident will have a working knowledge of the basic sciences (physiology, pathophysiology and immunology) and applied sciences (pharmacology, pathology) as they apply to renal disease and their treatments. The resident who is competent in Nephrology will be able to conduct himself/herself as an attending physician and a consultant, work effectively in a variety of health care settings (acute and chronic care hospitals, dialysis units (hemodialysis and peritoneal dialysis), ambulatory care clinics (general nephrology, pre-dialysis, renal transplantation)) and function as a member of a multi-disciplinary team effectively collaborating with other health professionals. S/he will demonstrate an awareness of the need for ongoing personal education and will be able to access and critically appraise required information. S/he will be punctual, dependable and conscientious in the care of patients and will exhibit appropriate personal and interprofessional behaviours. The resident will incorporate gender, cultural and ethnic perspectives in the practice of Nephrology as a clinician and/or researcher (methodology, data presentation and analysis).
SPECIFIC OBJECTIVES

At the completion of training, the resident will have acquired the following competencies and will function effectively as a:

Medical Expert/Clinical Decision-Maker

Specialists possess a defined body of knowledge and procedural skills that are used to collect and interpret data, make appropriate clinical decisions, and carry out diagnostic and therapeutic procedures within the boundaries of their discipline and expertise. Their care is characterized by up-to-date, ethical, and cost-effective clinical practice and effective communication in partnership with patients, other health care providers, and the community. The role of medical expert/clinical decision-maker is central to the function of specialist physicians, and draws on the competencies included in the roles of scholar, communicator, health advocate, manager, collaborator, and professional.

General Requirements:
- Demonstrate diagnostic and therapeutic skills for ethical and effective patient care.
- Access and apply relevant information to clinical practice.
- Demonstrate effective consultation services with respect to patient care, education and legal opinions.

Specific Requirements:
1. Demonstrate knowledge of the etiology, pathophysiology, differential diagnosis, investigation, treatment (including preventive measures and complications of treatment) and prognosis of the following conditions:
   - acute renal failure;
   - chronic kidney disease
   - end-stage renal disease;
   - proteinuria;
   - hematuria;
   - nephrolithiasis
   - secondary hypertension;
   - inherited renal disorders (cystic, metabolic, tubular);
   - dysuria/pyuria;
   - disorders of electrolyte balance (sodium, potassium, calcium, magnesium and phosphate) and acid-base disturbances.

2. Perform a complete assessment of a patient presenting with a suspected nephrological problem (i.e. one of the above mentioned complaints), with known renal disease, with end-stage renal disease or with a renal transplant, including the ability to:
   - elicit a history that is relevant, concise, accurate and appropriate to the problem;
   - perform a physical examination that is appropriate, relevant and sufficiently elaborate;
   - select appropriate investigative tools;
   - demonstrate knowledge of the role of renal biopsy including its indications and risks in both native and transplanted kidneys.
   - integrate the clinical and laboratory findings (including the urinalysis);
   - generate a therapeutic plan;
   - recognize and respond to the extremely ill patient prioritizing correctly and providing prompt and appropriate treatment.
3. Demonstrate knowledge of dialysis therapies including:
   - the mechanisms of fluid delivery, machine mechanics and membrane physiology as they relate to hemodialysis and peritoneal dialysis therapies;
   - the indications and risks of access for dialysis (central venous access, arterial venous fistula, grafts and peritoneal catheters);
   - the components of a dialysis prescription;
   - the complications of hemodialysis and peritoneal dialysis therapies;
   - the role of dialysis in the treatment of poisonings and/or metabolic disorders.

4. Demonstrate knowledge of the treatments for end stage renal disease including:
   - the indications for dialysis and transplantation;
   - the complications of end stage renal disease and their prevention and treatment;
   - the complications of transplantation and their prevention and treatment.

5. Demonstrate an appreciation of the psychosocial and ethical issues relating to patients with renal disease including withdrawal from dialysis, death from renal failure, the role of advanced directives and the principles guiding the donation of living and deceased donor organs.

6. Apply knowledge and demonstrate proficiency in:
   - the performance and interpretation of urinalysis;
   - the interpretation of the results of renal biopsy (both native and transplanted kidneys);
   - the prescription of dialysis (hemodialysis and peritoneal dialysis);
   - the prescription of immunosuppression and the management of the complications of immunosuppression in patients with renal disease including transplantation;
   - the placement and management of central venous access (it is permissible to routinely obtain assistance in the case of pediatric patients).

7. Access, retrieve and apply relevant information to clinical practice and incorporate validated research findings in a timely fashion.

8. Demonstrate medical expertise in situations other than those involving direct patient care (e.g. presentations, medico-legal cases, etc.).

Communicator

To provide humane, high-quality care, specialists establish effective relationships with patients, other physicians, and other health professionals. Communication skills are essential for the functioning of a specialist, and are necessary for obtaining information from, and conveying information to patients and their families. Furthermore, these abilities are critical in eliciting patients’ beliefs, concerns, and expectations about their illnesses, and for assessing key factors impacting on patients’ health.

General Requirements:
- Establish therapeutic relationships with patients/families.
- Obtain and synthesize relevant history from patients/families/communities.
- Listen effectively.
- Discuss appropriate information with patients/families and the health care team.
 Specific Requirements:
1. Recognize that being a good communicator is an essential function of a physician, and understand that effective patient-physician communication can foster patient satisfaction and compliance as well as influence the manifestations and outcome of a patient's illness.

2. Establish positive therapeutic relationships with the patient and their family that are characterized by understanding, trust, respect, empathy and confidentiality.

3. Gather information not only about the disease but also about the patient's beliefs, concerns and expectations regarding the illness.

4. Deliver information to the patient and family in a humane manner and in such a way that it is understandable, encourages discussion and promotes patient’s participation in decision-making to the degree that they wish. In particular the resident must demonstrate the ability to discuss problems related to the initiation and withdrawal of dialysis, the role of the advanced directive and the management of death from renal failure.

5. Demonstrate effective consultation skills, including the ability to establish good relationships with peers and other health professionals, effectively provide and receive information related to patient care and prepare documentation that is timely and accurate (written or verbal).

6. Understand and demonstrate the importance of communication among peers and other health professionals involved in the care of individual patients such that the roles of these professionals are delineated and consistent messages are delivered to patients and their families.

7. Demonstrate skills in working with others who present significant communication challenges such as anger or confusion, or an ethno-cultural background different from the physician's own.

Collaborator

Specialists work in partnership with others in the care of individuals or specific groups of patients. It is therefore essential for specialists to be able to collaborate effectively with patients and a multidisciplinary team of expert health professionals for provision of optimal patient care, education, and research.

General Requirements:
- Consult effectively with other physicians and health care professionals.
- Contribute effectively to other interdisciplinary team activities.
Specific Requirements:
1. Identify and describe the role, expertise, limitations and regulations governing the practice of members of the interprofessional team used to provide optimal care to patients with renal disease. Members of this team include nursing, clinical nutrition, social work, pharmacy, physiotherapy, hospital management, biomedical technicians, and other physicians as well as the Nephrologist.

2. Develop a care plan (including investigation, treatment and continuing care) for a patient with kidney disease (in particular patients with progressive renal insufficiency, end-stage renal failure and renal transplants), in collaboration with the members of the interdisciplinary team.

3. Participate in interprofessional team meetings, contributing expertise while demonstrating the ability to accept, consider and respect the opinions of other team members.

4. Effectively communicate with the members of an interdisciplinary team in the resolution of conflicts, provision of feedback, and where appropriate, be able to assume a leadership role.

Manager

Specialists function as managers when they make everyday practice decisions involving resources, co-workers, tasks, policies, and their personal lives. They do this in the settings of individual patient care, practice organizations, and in the broader context of the health care system. Thus, specialists require the abilities to prioritize and effectively execute tasks through teamwork with colleagues, and make systematic decisions when allocating finite health care resources. As managers, specialists take on positions of leadership within the context of professional organizations and the dynamic Canadian health care system.

General Requirements:
- Utilize resources effectively to balance patient care, learning needs, and outside activities.
- Allocate finite health care resources wisely.
- Work effectively and efficiently in a health care organization.
- Utilize information technology to optimize patient care, life-long learning and other activities.

Specific Requirements:
1. Understand how to function effectively in health care organizations, ranging from an individual clinical practice to organizations at the local, regional and national level.

2. Understand the structure, financing, and operation of the Canadian health system and its facilities, function effectively within it and be capable of playing an active role in its change.

3. Demonstrate the ability to use time effectively to balance the requirements for patient care, ongoing learning and outside activities.

4. Demonstrate the ability to access and apply a broad base of information to the care of
renal patients in ambulatory care, hospital and other health care settings.

5. Make clinical decisions and judgments based on sound evidence for the benefit of individual patients and the population with renal disease, balancing his/her advocacy role for the individual with societal needs in the monitoring and allocating of finite resources (including renal transplant organs and dialysis).

6. Understand population-based approaches to kidney disease and hypertension health care services and their implication for medical practice.

7. Understand the role of the Nephrologist as a manager within the health care system; directing the clinical aspects of predialysis, dialysis and transplant programs including the planning, budgeting and, evaluation of these patient care programs.

Health Advocate

Specialists recognize the importance of advocacy activities in responding to the challenges represented by those social, environmental, and biological factors that determine the health of patients and society. They recognize advocacy as an essential and fundamental component of health promotion that occurs at the level of the individual patient, the practice population, and the broader community. Health advocacy is appropriately expressed both by the individual and collective responses of specialist physicians in influencing public health and policy.

General Requirements:
- Identify the important determinants of health affecting patients.
- Contribute effectively to improved health of patients and communities.
- Recognize and respond to those issues where advocacy is appropriate.

Specific Requirements:
1. Identify the most important determinants of health (i.e. poverty, unemployment, social support systems) being familiar with the underlying research evidence and applying the understanding to common problems and conditions in Nephrology.

2. Describe how public policy is developed; identifying current policies that affect health, either positively or negatively (i.e. tobacco, substance abuse, access to dialysis) and citing examples of how policy was changed as a result of actions by physicians.

3. Identify individual patients’ status with respect to the determinants of health (i.e. the patient’s educational level, tobacco use, social circumstances), adapt their assessment and management accordingly and include an assessment of the patient’s ability to access services in the health and social system.

4. Identify current “at risk” groups within their practice population, apply available knowledge about prevention to these groups (i.e. dye nephrotoxicity in high-risk groups, diabetics with microalbuminuria) and contribute “group data” for better understanding of health problems within the population (i.e. Canadian Organ Replacement Registry [CORR] reports).

5. Describe the key issues under debate regarding changes in the Canadian health care
system indicating how these changes might affect societal health outcomes pertinent to Nephrology (i.e. organ transplantation, access to dialysis).

6. Recognize the role of the Nephrologist in advocating to decrease the burden of illness (at a community or societal level) from renal disease through the Canadian Society of Nephrology, the Kidney Foundation of Canada and other advocacy groups, public education bodies or private organizations.

Scholar

Specialists engage in a lifelong pursuit of mastery of their domain of professional expertise. They recognize the need to be continually learning and model this for others. Through their scholarly activities, they contribute to the appraisal, collection, and understanding of health care knowledge, and facilitate the education of their students, patients, and others.

General Requirements:
• Develop, implement and monitor a personal continuing education strategy.
• Critically appraise sources of medical information.
• Facilitate learning of patients, house staff/students and other health professionals.
• Contribute to development of new knowledge.

Specific Requirements:

1. Demonstrate the skills required in the development of new knowledge by performing CQI (continuous quality initiatives) or original clinical or basic science research. These skills include the ability to:
   a. pose a question (clinical, basic or population health);
   b. perform a literature review around the question and critically appraise the literature;
   c. develop a proposal to solve the question using appropriate methodology;
   d. identify, consult and collaborate with content-experts and others to conduct the research;
   e. collect the needed data;
   f. analyze the collected data;
   g. synthesize the literature and new data to solve the question;
   h. i. for clinical or basic research, defend and disseminate the results of the research;
      ii. for CQI, implement the solution in practice, evaluate the outcome and reassess the solution;
      iii. from the results, identify areas for further investigation.

2. Demonstrate a commitment to life-long learning and the ability to develop, implement and monitor a personal strategy of continuing education using the skills of self-assessment (ability to identify gaps in knowledge and expertise) and self-directed learning (ability to formulate a plan to fill the gap).

3. Demonstrate the effective use of information technology in the provision of clinical care and continued learning.

4. Demonstrate an understanding of the principles of learning and apply that understanding
in his/her own learning as well as in his/her teaching of others (students, residents, colleagues, other professionals and patients).

Professional

Specialists have a unique societal role as professionals with a distinct body of knowledge, skills, and attitudes dedicated to improving the health and well-being of others. Specialists are committed to the highest standards of excellence in clinical care and ethical conduct, and to continually perfecting mastery of their discipline.

General Requirements:
- Deliver highest quality care with integrity, honesty and compassion.
- Exhibit appropriate personal and interpersonal professional behaviours.
- Practise medicine ethically consistent with obligations of a physician.

Specific Requirements:

1. Discipline - Based Objectives:
   a. display attitudes commonly accepted as essential to professionalism including the ability to deliver high quality care with integrity, honesty, compassion and sensitivity toward cultural and gender issues;
   b. use appropriate strategies to maintain and advance professional competence;
   c. continually evaluate one's abilities, knowledge and skills and know one's limitations of professional competence.

2. Personal/Professional Boundary Objectives:
   a. adopt specific strategies to heighten personal and professional awareness and explore and resolve interpersonal difficulties in professional relationships;
   b. consciously strive to balance personal and professional roles and responsibilities and to demonstrate ways of attempting to resolve conflicts and role strain.

3. Objectives Related to Ethics and Professional Bodies:
   a. know and understand the professional, legal and ethical codes to which physicians are bound;
   b. know, understand and be able to apply the bioethical principles involved with the donation and allocation of living as well as deceased donor organs;
   c. know, understand and be able to apply the bioethical principles involved in the genetic counselling of patients and families with hereditary renal disease;
   d. recognize, analyse and attempt to resolve in clinical practice ethical issues such as truth-telling, consent, advanced directives, confidentiality, end-of-life care, conflict of interest, resource allocation, and research ethics;
   e. understand and be able to apply relevant legislation that relates to the health care system in order to guide one's clinical practice (e.g. advance directives, power of attorney);
   f. recognize, analyse and know how to deal with unprofessional behaviours in clinical practice, taking into account local and provincial regulations.

Editorial Revision – November 2007