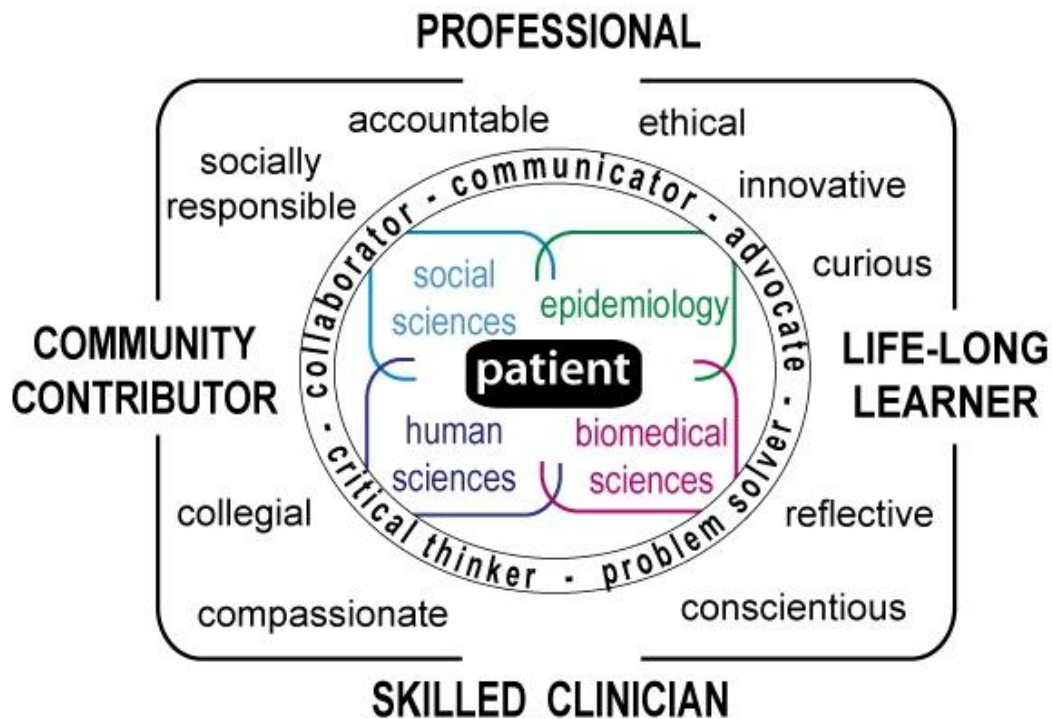


# Dalhousie Faculty of Medicine Undergraduate Medical Education Program Blueprint and Curriculum Overview



*Navigating the curriculum*

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The distributed Undergraduate Medical Education Program of the Dalhousie Faculty of Medicine is an integrated four year program that is delivered at sites in Halifax, Saint John, New Brunswick and throughout the Maritimes. All students in the distributed program are required to meet the same objectives.

**Mission:**

Serving Maritime Canada, the Faculty of Medicine enables excellence in health care through our medical education and research programs in partnership with government, health authorities and health care providers. Develop physicians who provide outstanding patient-centred care.

**Vision:**

To be widely recognized as a national and international leader in medical education and research.

**Values:**

Integrity, accountability, social responsibility, evidence-based practices, collegiality, ethics, professionalism.

**Curriculum Philosophy**

The four year undergraduate curriculum in the Faculty of Medicine at Dalhousie University offers a challenging and exciting program supported by a superb faculty. The curriculum is undergoing a renewal to reflect the most modern approaches to medical education, using technology to connect students at two campuses in Halifax and Saint John and in the clerkship years throughout the Maritimes. The curriculum is patient-centered and supports life-long learning and integrated learning experiences.

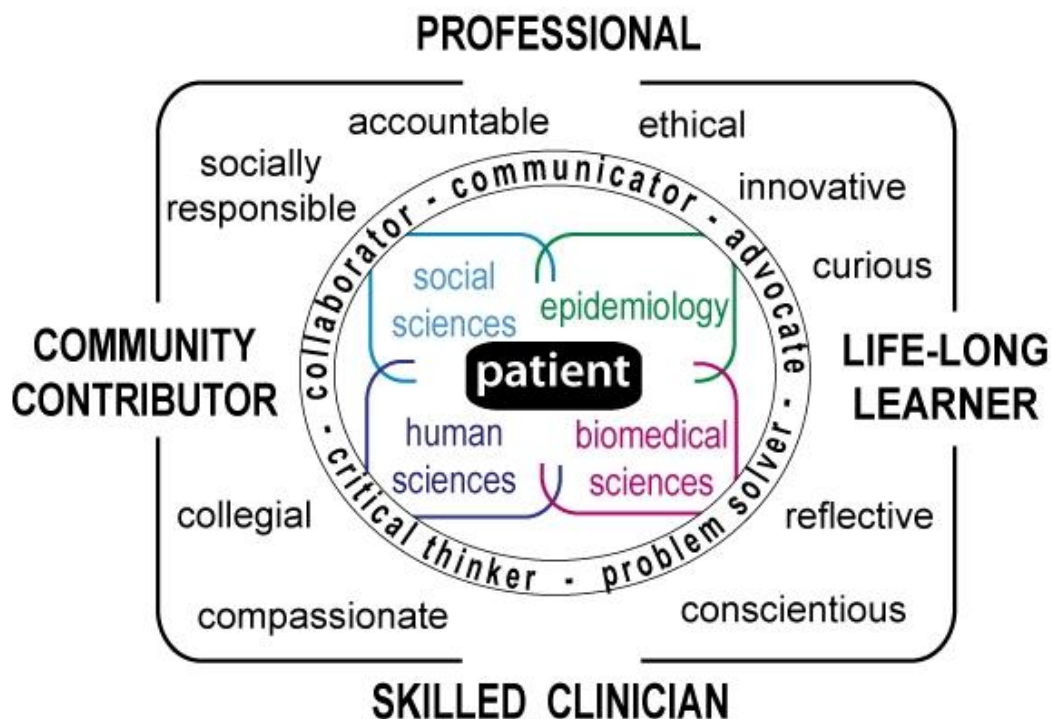
The first two preclinical years support the development of foundational knowledge, skills and professional behaviours with a mixture of classroom work, clinical skills and electives. The core clerkship is a 12 month experience in settings ranging from tertiary care to ambulatory and urban to rural. The final year supports student electives and preparation for career decisions. We are known for our Humanities program that not only leads to well-rounded clinicians but also provides a fulfilling experience as members of the Dalhousie community. Faculty are approachable, provide excellent role models and opportunities for clinical and research experiences early in the program. The success of the program lies with an enthusiastic student body who contribute to the development, administration and governance of the program.

Graduates of our program consistently perform in the top quartile of the Medical Council of Canada exams and lead the country in obtaining the residency program of their choice. They are well respected as committed and skilled clinicians contributing to the profession and their communities.

### Undergraduate Medical Educational Outcomes

**Goal Statement:** Graduates of Dalhousie Medical School are caring, resourceful physicians, able to work with patients, families, and colleagues to provide excellent care in many different contexts and in complex and uncertain situations. They are able to work as agents of creative change in healthcare institutions and communities.

The following diagram outlines the outcome objectives for the program. These are detailed below.



Our graduates will integrate their knowledge, skills and attitudes for competence in four principal and interdependent areas of achievement: as professionals, as community contributors, as life-long learners, and as skilled clinicians.

## **I. Professional**

As professionals, our graduates are able to join and enhance the medical profession, through their commitment to excellence in patient care, high ethical standards, and accountability to society for the responsibilities entrusted to them.

Our graduates can successfully be entrusted to perform the following professional activities (entrustable professional activities):

- A. Demonstrate appropriate professional attitudes and ethical commitments.
- B. Demonstrate commitment to the well-being of the patient.
- C. Promote health and provide healthcare equitably.

Educational Outcomes: Upon completion of the MD degree, our graduates will be able to:

1. Demonstrate personal integrity, honesty, reliability, respect, compassion and commitment towards others. (A)
2. Practice medicine in a manner consistent with the fundamental rights of patients to self-determination, and responsibilities of physicians and healthcare institutions in Canada. (A, C)
3. Recognize ethical dilemmas and dimensions of professional practice, and critically analyze situations in order to propose well-reasoned courses of action. (A)
4. Take into account the uniqueness of each person and the diversity in populations in communicating respectfully and in providing supportive and culturally appropriate care. (C)
5. Take responsibility for situations that place patients at risk. (B)
6. Offer and accept constructive feedback. (A, B)
7. Manage personal well-being in order to meet professional responsibilities, appropriately recognizing limitations and seeking help or consultation. (A, B)

## **II. Community Contributor**

As community contributors, our graduates understand a community's health needs and respond to promote health. They contribute constructively to communities of practice and the institutions and healthcare systems to which they belong.

Our graduates can successfully be entrusted to perform the following professional activities (entrustable professional activities):

- A. Contribute to the improvement of healthcare institutions and systems.
- B. Use their professional role to promote the public good.
- C. Pay particular attention to identifying inequities and the needs of the most vulnerable.

Educational Outcomes: Upon completion of the MD degree, our graduates will be able to:

1. Identify the determinants of health and community needs, including barriers to access to care and the situation of marginalized and vulnerable populations. (B, C)

2. Participate in public health initiatives, such as screening, vaccination, and surveillance, fulfilling professional and legal reporting responsibilities. (B)
3. Identify, consider and contribute to opportunities for improved health in the communities to which they belong, locally and globally. (B)
4. Work effectively and collaboratively in a range of practice contexts to provide patient care and improve healthcare systems. (A)
5. Responsibly steward healthcare resources. (A, B)

### **III. Lifelong Learner**

As lifelong learners, our graduates engage in self-assessment and reflective practice to integrate clinical experience, and scientific evidence for the improvement of patient care, safety, and outcomes.

Our graduates can successfully be entrusted to perform the following professional activities (entrustable professional activities):

- A. Be effective life-long learners.
- B. Participate in the creation, dissemination, application and translation of new knowledge.
- C. Participate in the systematic improvement of clinical practice.
- D. Raise questions and bring fresh perspectives to existing practice.

Educational Outcomes: Upon completion of the MD degree, our graduates will be able to:

1. Formulate clinical questions, search the evidence, and evaluate the results to inform diagnosis, prevention, treatment and supportive care for patients. (A, D)
2. Know the appropriate use and limitations of scientific and statistical methods to address questions in basic, clinical, population, health services, and translational research. (B)
3. Reflect critically upon and monitor one's own performance using appropriate sources of data and practice standards. (A, B, C)
4. Assess learning needs and develop and implement personal learning plans. (A, C)
5. Identify and weigh opportunities for practice improvement in one's own clinical practice and in healthcare systems and institutions. (C)
6. Teach and learn from others. (A, D)

### **IV. Skilled Clinician**

As skilled clinicians, our graduates are able to apply scientific understanding, clinical skills, professional attitudes, and reflective practice in their provision of safe, patient-centered care, in collaboration with patients, families, colleagues, and communities.

Our graduates can successfully be entrusted to perform the following professional activities (entrustable professional activities):

- A. Perform an accurate history and physical in diverse populations of patients.

- B. Develop and propose a differential diagnosis and appropriate plans for investigation and management.
- C. Provide safe, supportive and evidence-based care for patients, within scope of training.
- D. Communicate and collaborate effectively and respectfully with patients, families, and colleagues in the team environment and across the continuum of care.
- E. Help patients navigate the illness and healing experience.

Educational outcomes: Upon completion of the MD degree, our graduates will be able to:

1. Under supervision, manage and provide care across the lifespan of patients with acute, chronic or undifferentiated illness.
  - a) Establish therapeutic relationships in which patients are active partners. (D, E)
  - b) Assist patients in evaluating and interpreting sources of knowledge. (D, E)
  - c) Demonstrate skilled listening and responding in communicating with diverse patients, their families or other caregivers, and colleagues. (D)
  - d) Understand and respect the roles, expertise, and perspectives of health care professionals when learning, consulting, and collaborating. (C, D)
  - e) Understand the psychosocial implications of health and illness across the life cycle for patients and families. (E)
  - f) Take account of patient context in their clinical approach. (D, E)
2. Diagnosis:
  - a) Perform a comprehensive or focused patient-centred history and physical for diverse patient populations across the lifespan, as determined by patient presentation. (A)
  - b) Select and interpret appropriate laboratory and diagnostic studies. (B)
  - c) Perform selected therapeutic and diagnostic procedures. (B)
  - d) Develop well-reasoned diagnostic hypotheses and differential diagnoses. (B)
3. Treatment and Management:
  - a) Under supervision, formulate and propose treatment plans, weighing pharmaceutical, surgical, behavioral, and supportive options as appropriate, for therapy and for symptom management. (B, C)
  - b) Identify and use opportunities for prevention and health promotion in the clinical encounter. (B, C)
  - c) Know the risks and benefits of common therapeutic interventions and know when these are indicated. (C)
  - d) Support patients and families in the appropriate use of self-care strategies. (B, C, E)
  - e) Counsel and support patients as appropriate in the presence or absence of established diagnosis or treatment. (D, E)
  - f) Demonstrate knowledge, skills and attitudes that support end of life care. (E)

g) Connect patients and families to appropriate community resources for support and care. (E)

4. Information management:

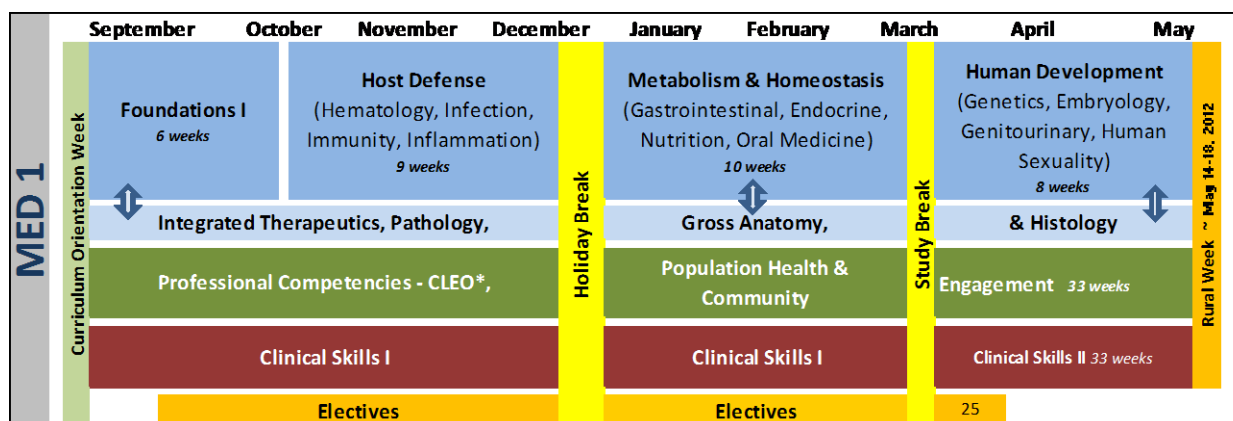
- a) Communicate effectively by spoken, written and electronic methods, respecting patient confidentiality. (D)
- b) Maintain accurate, effective, and comprehensive records of patient care. (D)
- c) Make judicious use of informatics tools and information sources to provide evidence-informed patient care, monitor patient outcomes, and maintain medical records. (C)

## Med 1 (2010-2011)

Key features of a typical week in the first year include:

- tutorial groups meeting for 2 hours, 3 times a week;
- 5 hours of lectures;
- a patient contact experience for 3-4 hours emphasizing patient doctor relationships;
- an elective opportunity for 1/2 day;
- a 3-hour laboratory experience related to the cases under study.

Learning activities in first year emphasize building a knowledge base through conceptual lectures, case based learning in tutorial, self-directed learning and elective experiences integrated with building clinical skills. Case based learning is a vehicle for students to take a patient centered approach to learn in a clinical context and to apply the first steps of a clinical reasoning process which will be defined and further developed over the four years of undergraduate medical education. In later years, a shift in emphasis for the unit objectives will occur, which will center around "solving the mystery" and deciding upon a management plan. The first two years of the course are systems based integrating basic, human and clinical sciences with ethical, legal, population health and evidence based practice aspects of medicine.

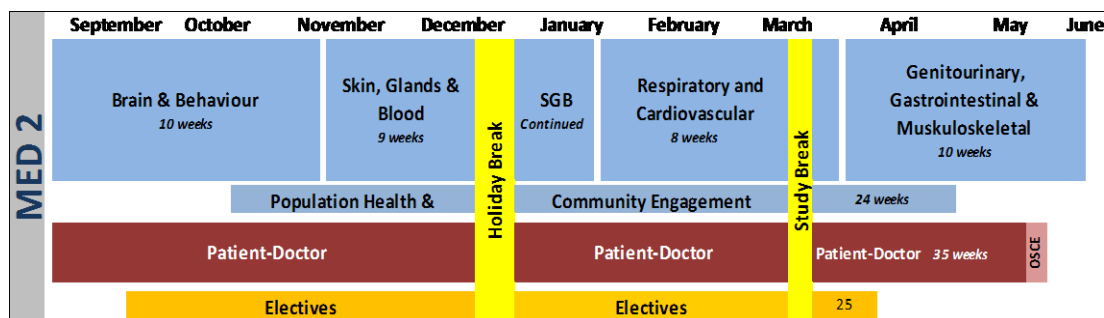


## Med 2 (2010/2011)

Key features of a typical week in the second year include:

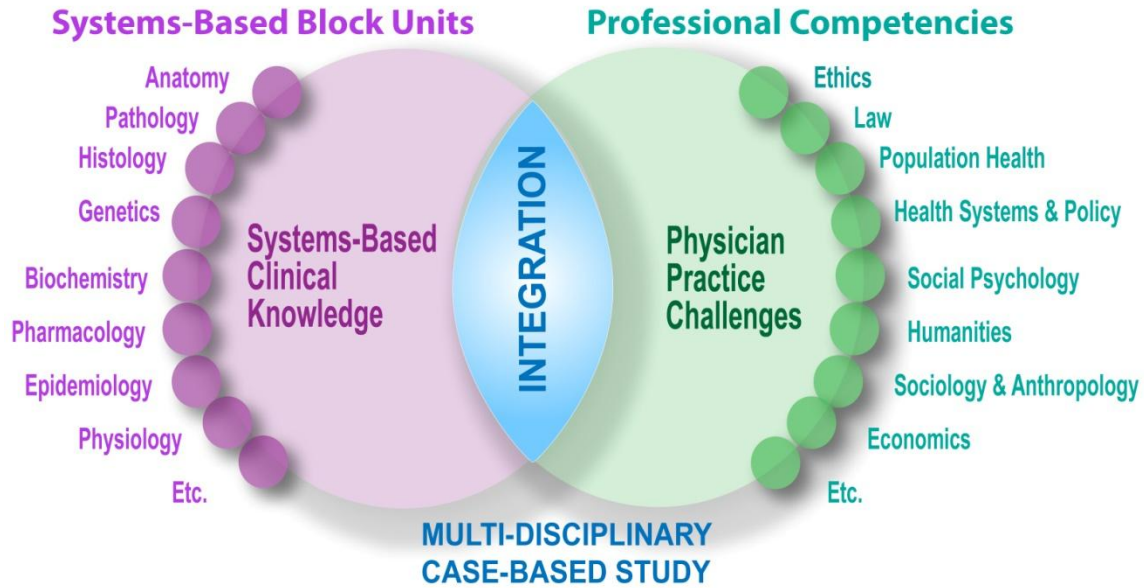
- tutorial groups meeting for 2-3 hours, 3 times a week;
- 5 hours of lectures;
- a patient contact experience for 3-4 hours emphasizing patient doctor relationships;
- an elective opportunity for 1/2 day;
- 2 hours concentrating on critical appraisal or population health; and
- a 3-hour laboratory experience related to the cases under study.

The second year of the curriculum in 2010/2011 emphasizes the clinical sciences following on the basic sciences of Med 1. As the new curriculum integrates these aspects, the structure of Med 2 for this year did not change from the former curriculum so that content would not be overlooked or repeated. All relevant changes of curriculum renewal are implemented such as outcomes based objectives and a more robust examination creation and review process. The COPS tutorial groups generally complete one case per week. The unit objectives place an emphasis on uncovering issues in a particular case, and understanding "why" and "how" they occur. Cases are used as a vehicle for students to learn in a clinical context and to apply the first steps of a clinical reasoning process which will be defined and further developed over the four years of undergraduate medical education. In later years, a shift in emphasis for the unit objectives will occur, which will center around "solving the mystery" and deciding upon a management plan.



## Med 2 Renewed Curriculum (beginning September 2011)

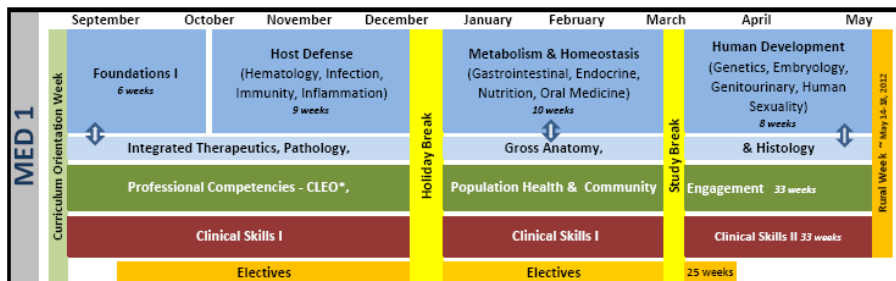
The renewed curriculum will extend the systems based approach integrated with Professional Competencies in the current Med 1 year to address the systems not encountered in Med 1. The structure of the week is similar to Med 1. Clinical Skills II will take place in clinical settings and is integrated with the systems units. The following schematic illustrates the integration of the curriculum.



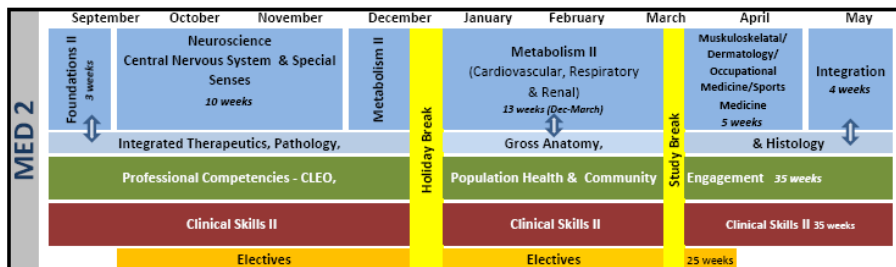
The renewed curriculum schematic and schedule for the Med 1 and 2 years is:

**DALHOUSIE UNIVERSITY FACULTY OF MEDICINE**

**2011-2012 Med 1 Curriculum**



**2011-2012 Med 2 Curriculum**



\*CLEO: Considerations of the Cultural-Communication, Legal, Ethical and Organizational Aspects of the Practice of Medicine

Med I: O-Week, + Sept-Holiday Break = 15 weeks; Jan-March Break = 10 weeks; post March Break to May 13 = 8 weeks = 34 weeks PLUS rural week = 35 weeks

Med II: September-Holiday Break = 16 weeks; January-March Break = 10 weeks; post March Break to May 13 = 9 weeks = 35 weeks

Approved by Curriculum Committee April 12, 2010

## **Clerkship Med 3,4**

The clerkship consists of two phases completed over two academic years. In Phase 1 clerks participate in a 2-week Introduction to the Clerkship Unit, followed by rotations in Internal Medicine (12 weeks), Family Medicine (6 weeks) Psychiatry (6 weeks), Surgery (9 weeks), Pediatrics (6 weeks), Obstetrics and Gynecology (6 weeks), Emergency Medicine (3 weeks) and 2 weeks of elective time. There is a total of three weeks of vacation during Phase 1, two weeks at the end of Block 1 and 1 week at the end of Block 2. In Phase 2, there is a scheduled block that is designed for clerks to participate in 18-weeks of elective time. In addition, clerks will complete a 3-week rotation in Care of the Elderly (CoE). Vacation time and CaRMS interviewing time can be scheduled around the clinical rotations.

Objectives for the Dalhousie Medical School Clerkship (Years 3 and 4)

All objectives were reviewed and approved by the curriculum committee in May and October 2010.

### *Goal Statement:*

By the end of the clerkship, a Dalhousie medical student will have the knowledge, skills and attitudes needed to successfully enter any residency program.

### *Key Objectives for the Clerkship:*

By the end of the clerkship the student will be able to competently:

1. Conduct a clinical interview that includes effective verbal and nonverbal communication and results in the obtaining of complete, accurate data appropriate to any clinical situation. (SC1a, SC1c, SC2a, SC4a)
2. Conduct a clinical examination of patients of all ages and interpret the findings. (SC1a, SC2a)
3. Demonstrate clinical problem solving skills, including the ability to diagnose and initially manage with supervision, common acute and chronic illnesses. (SC2b, SC2d, SC3a-g; LLL1, LLL5; P3, P5; CC4)
4. Communicate effectively, orally and in writing, including recording in the patient chart, writing orders, presenting cases, prescribing, sending referrals, and summarizing patient care and recommendations. (SC1b-d, SC4a-b; P1-2)
5. Describe the indications for and methods used in common diagnostic investigations and interventional procedures and interpret the results. (SC2c-d; SC3c, SC4a-b; P2, P5)
6. Demonstrate competence in patient education regarding strategies for health promotion and disease and injury prevention. (SC1a-c, SC1f, SC3b, SC3d, SC3g, SC4a; CC1-3; P2, P4)



**Clerkship Med 4 Schedule Sept 2010-September 2011**

Track	October 14 & 15, 2010	October 28 & 29, 2010	December 2010 (pending)	Sept 20 – Nov 26, 10	Nov 29 - Dec 17, 10	Dec 20, 10 – Jan 3, 11	January 4 - 21, 2011	Jan 22 - Feb 13, 11	Feb 14 -18, 11	Feb21 - Mar11, 11	Mar 14 - Apr 1, 11	Apr 4 - 22, 2011																	
				10 weeks	3 weeks	2 weeks	3 weeks	3 weeks	1 week	3 weeks	3 weeks	3 weeks																	
1	<b>MCQ Exam Deferral</b>  <b>MCQ Supplemental</b>  <b>OSCE Supplemental</b>	<b>Elective, Community/ Non-Tertiary, or Interdisciplinary and Vacation</b>	<b>Care of the Elderly</b>	<b>Elective, Community/ Non-Tertiary, or Interdisciplinary and Vacation</b>	<b>Care of the Elderly</b>	<b>Elective, Community/ Non-Tertiary, or Interdisciplinary and Vacation</b>	<b>Care of the Elderly</b>	<b>Elective, Community/ Non-Tertiary, or Interdisciplinary and Vacation</b>	<b>Elective, Community/ Non-Tertiary, or Interdisciplinary and Vacation</b>	<b>Elective, Community/ Non-Tertiary, or Interdisciplinary and Vacation</b>	<b>Elective, Community/ Non-Tertiary, or Interdisciplinary and Vacation</b>	<b>Elective, Community/ Non-Tertiary, or Interdisciplinary and Vacation</b>																	
2													<b>Elective, Community/ Non-Tertiary, or Interdisciplinary and Vacation</b>	<b>Care of the Elderly</b>	<b>Elective, Community/ Non-Tertiary, or Interdisciplinary and Vacation</b>	<b>Care of the Elderly</b>	<b>Elective, Community/ Non-Tertiary, or Interdisciplinary and Vacation</b>	<b>Elective, Community/ Non-Tertiary, or Interdisciplinary and Vacation</b>	<b>Elective, Community/ Non-Tertiary, or Interdisciplinary and Vacation</b>	<b>Elective, Community/ Non-Tertiary, or Interdisciplinary and Vacation</b>	<b>Elective, Community/ Non-Tertiary, or Interdisciplinary and Vacation</b>								
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4																													

CARMs Interviews  
 (Electives can be scheduled during this time, if your interview schedule permits it)

ACLS (1 week) and CRAM (2 weeks)

**Electives (12 weeks)** - must complete electives in three (3) different disciplines; may be completed at any time between September 20, 2010 and April 1, 2011.

**Care of the Elderly (3 consecutive weeks)** - students complete this rotation during their scheduled block (aligns with your Med 3 track).

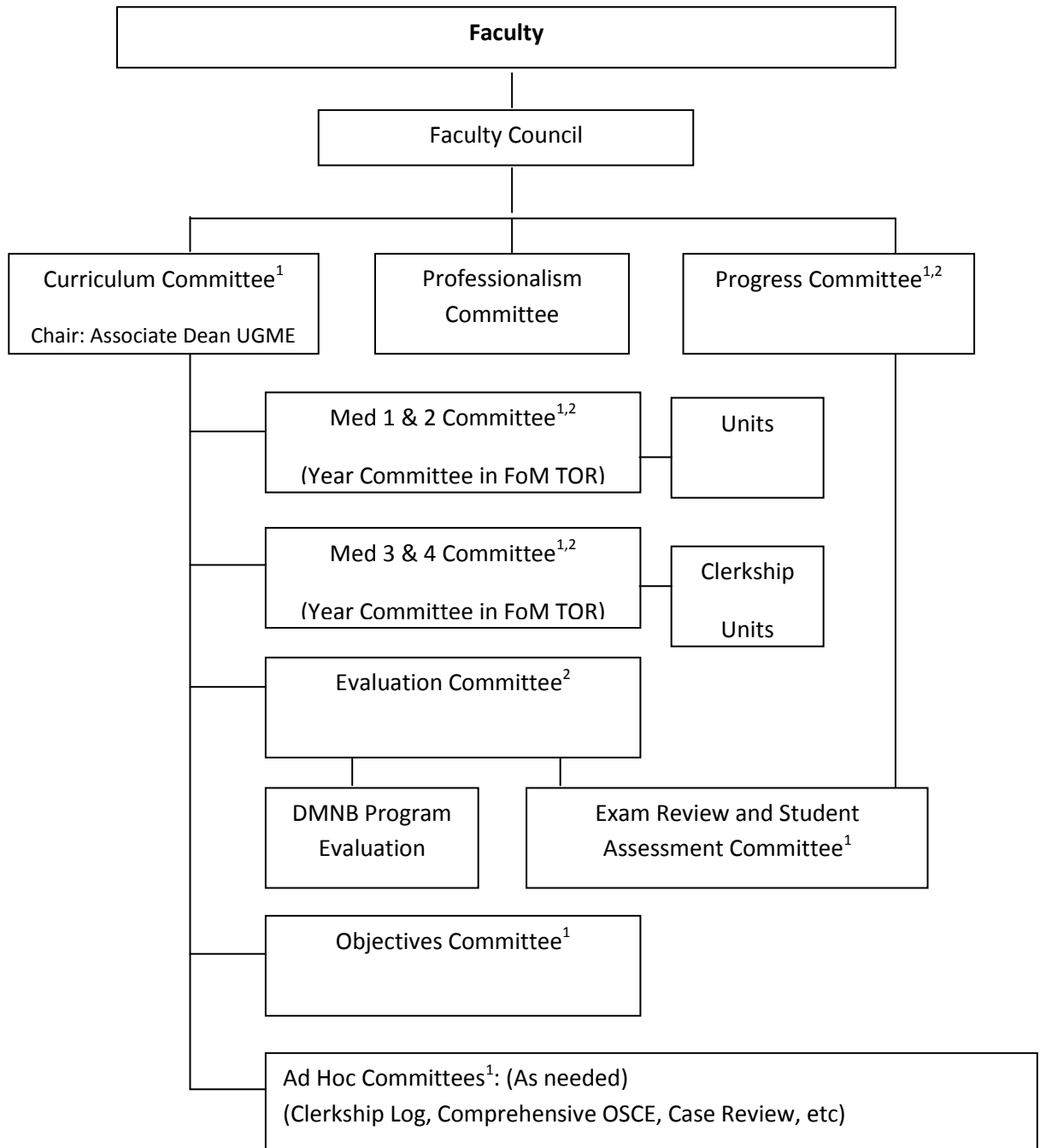
**Interdisciplinary/Multidisciplinary (3 consecutive weeks)** - students may complete this rotation at any time between September 20, 2010 and April 1, 2011.

**Community/Non-Tertiary (3 consecutive weeks)** - students may complete this rotation at any time between September 20, 2010 and April 1, 2011.

**ACLS (1 week) and CRAM (2 weeks)** - a back-to-basics review for LMCC study purposes; mandatory for all students.

## Curriculum Management

Faculty of Medicine Committees Organizational Chart



1. The Undergraduate Medical Education (UGME) office functions as support to committee.
2. The Chair of this committee sits on the Curriculum Committee

## **Management and Operation of the Curriculum**

The curriculum committee is responsible for the oversight and approval of all elements of the curriculum including objectives, course content and student assessment. This committee reviews all units on a scheduled basis and undertakes a comprehensive review of the curriculum at the completion of each year. The comparability statement defines that all students will have the same learning objectives, assessments and comparable learning experiences in any site in the program. All committees include faculty members and students from the Halifax and Saint John campuses, apart from the Exam Review and Student Assessment committee which does not include student members. UGME support staff participate in committees relevant to their supporting roles.

Each unit has a unit head or clerkship director with roles and responsibilities for the design, coordination, delivery, student assessment and evaluation of the unit (see terms of reference). All units receive program evaluations of the units by students at the completion of the unit. These are reported at the Med 1,2 or Med 3,4 committees and provided to unit heads. Reports are collected and used by the curriculum committee in unit reviews.

## **Instructional Methodologies**

### **Video-conferencing**

Lectures and whole group sessions are delivered via video-conferencing to students in the Halifax and Saint John sites. There are between 5-6 hours of whole group sessions per week. These sessions are designed to frame the material to be learned in the unit and to provide broad overviews of concepts.

All whole group sessions are recorded and up-loaded to a streaming server to provide access to the sessions for students who may be absent or in the case of disruption of the delivery to one site by weather or technology.

### **Case-based tutorials**

Two approaches are used for case-based learning. In each systems based unit there are two 2 hour sessions per week for students to discuss cases in groups of 7-9 students with one tutor. Typically there will be 2-4 cases a week available on OWL for the students to review and come prepared to the tutorial session to discuss. The cases reflect the learning objectives of the week.

The Professional Competencies unit tutorials are co-tutored by a clinical and non-clinical faculty member. The student groups and tutor(s) meet weekly throughout the year and do not change. This provides an opportunity for mentoring and coaching throughout the course.

### **Laboratory Learning**

Labs are used to support all units in one half day per week. These include anatomy, histology, pathology, microbiology and clinical-pathological correlation labs. Students in both sites have comparable opportunities for laboratory learning.

### **Clinical Skills**

In Med 1 the students are supervised in groups of 4 by a clinician at the LRC. They meet in their groups to review the session activities and interact with 2 patient volunteers per group to practice their skills. In March of the first year the students begin Clinical Skills II which includes specific skills related to the system-based units. In Med 2 most of the learning takes place in the hospital or outpatient settings. Procedural skills are taught in simulated learning environments in the LRC.

### **On Line Course Resources**

All curriculum content and resources reside on OWL. Students and faculty have access to all material in all years. This allows faculty to review what students have learned and allows students to review and prepare for learning activities. Increasingly, on-line modules are being used to prepare students for learning occasions (e.g.: Venipuncture on line module prior to simulation exercise).

### **Self-Directed Learning**

Two half days in each week in Med 1 and Med 2 are reserved for SDL. This includes electives that are chosen from a broad menu by the students. Students develop their own learning objectives that are approved by the unit head. In addition, this time is reserved for students to prepare for all other learning activities.

### **Student Assessment**

A variety of methods are used to determine if students have achieved the learning objectives. These include knowledge based exams, assessment of critical appraisal skills through assignments and papers, self-reflective exercises and portfolios, tutorial evaluations, observed clinical skills, OSCE's and workplace evaluations using In Training Evaluation Reports (ITER). All assessments have formative and summative components. There is an integrated OSCE at the end of Med 3 that must be passed to enter Med 4.

### **Formative Assessment**

Formative feedback is integral to all components of the curriculum. Formative feedback as supported by the published literature on formative assessment can take many forms, not limited to practice exams. (Nichol 2006).<sup>1</sup>

Case-based learning is designed to allow students to explore their knowledge and identify gaps and misconceptions. Tutors are provided with tutor guides combined with weekly tutor meetings to ensure they are able to identify gaps in student understanding and to challenge students to fill them. In this process, faculty members provide 6 hours per week of formative assessment in small-group settings. For all courses in Med 1 and Med 2, students receive formative feedback on their performance, both informally in the context of tutorial sessions, and formally through individual mid-unit and end of unit feedback from the tutor. The feedback is provided via the tutorial evaluation form, and the student is expected to contribute his/her own self evaluation.

All longitudinal clinical skills units have weekly feedback and a formal mid-unit, formative assessment that is modeled on the Clerkship ITER. These formative assessments provide feedback aligned with the end-of-unit summative – Med 1 Integrated History/Physical Case Presentation and the Med 2 – OSCE.

All units with an end of unit exam provide formative quizzes. Units without an end of unit exam have a variety of formative assessment methods within that unit. These include mastery approaches in which paper assignments or knowledge or clinical skills are assessed until competence is achieved. Two units have formative assessment only – Foundations I (rationale: first unit in MD program) and Foundations 2 (rationale: very short unit).

All units in clerkship have formative ITERs at the end of each rotation with a summative ITER at the end of the unit. If no concerns are identified in any formative ITERs, the summative ITER is deemed an automatic pass. If any of the formative ITERs indicated 'remediation required', students must successfully complete the remediation as outlined in a learning contract to meet the requirements of that unit. At the core clerkship mid-point, there is a formative OSCE to prepare for the end of clerkship comprehensive OSCE. During the formative OSCE, all students receive 2-minutes of formative feedback at each station. Any student with significant difficulties in the formative OSCE meets with the Associate Dean, UGME, to review the problems to determine if there are consistent issues across stations and is offered remediation as appropriate.

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<sup>1</sup> Nicol, D.J. & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in Higher Education*, Vol 31(2), pp.199-218.

All units provide an assessment plan that is reviewed by the evaluation committee to ensure that the overall assessment blueprint for the undergraduate curriculum is achieved. Unit assessment plans are approved by the Curriculum Committee.

### **Summative Exam preparation:**

The Exam Review and Student Assessment committees are composed of the Student Academic Administrator, the DME Assessment Specialist and the relevant unit and component heads for the unit. As integration of assessment is achieved, the relevant unit and component heads for all curriculum units are part of the committee. This committee prepares the assessments, reviews the validity and reliability of the assessments and reports to the Progress and Promotion Committee for determining student progress and to the Evaluation committee for oversight of the evaluation processes in UGME.

The Exam Review and Assessment Committee follows the Exam Creation Policy in developing the examinations.

### **Summative Assessment**

The Progress and Promotion Regulations are reviewed annually and published on the UGME website. Students must pass all summative assessments. If students have difficulty with one component of an exam but have an overall passing grade, they are given a marginal pass to allow for review and remediation of the deficiencies. Remediation plans are provided for any student who fails an assessment. Students who demonstrate unprofessional behaviours are required to meet with the Associate Dean UGME for guidance and may appear before the Progress and Promotion committee if the behavior persists.

### **Grading & Approval Process**

Grades are recorded in DalMedix. Students' Final Grade is recorded on their transcript as Pass/Fail

- Pass: 60 % or above
- Fail: 59% or below

Grades are used to adjudicate students for awards and the UGME Office will forward grades to the Student Awards committee at the appropriate time. The Progress and Promotion Committee reviews and approves all final grades

### **Summative Assessment Feedback to Students and Faculty**

Feedback is provided to students during the exam review sessions. Students are able to review their assessments on an individual basis through the UGME office. Students in difficulty are required to meet with the appropriate unit head as outlined in the Progress and Promotion regulations. Pass/Fail marks will be reported to students through the UGME Office. It is the

responsibility of the UGME Office to notify students if they have failed an exam, a course, or are required to withdraw. The UGME Office will forward final grades to the Registrar's Office for Transcripts at the end of the Academic Year.

## **Program Evaluation**

The Evaluation Committee has overall responsibility for undergraduate medical education program evaluation. Distributed curriculum delivery will be evaluated by the DMNB Program Evaluation subcommittee and sites will be compared. The Evaluation Committee will provide a report to each unit, and reports results to Curriculum Committee. The Curriculum Committee, Year Committees and Unit Committees will ensure that the results of evaluation are taken into account in program, course and session planning.

## **Curricular Mapping**

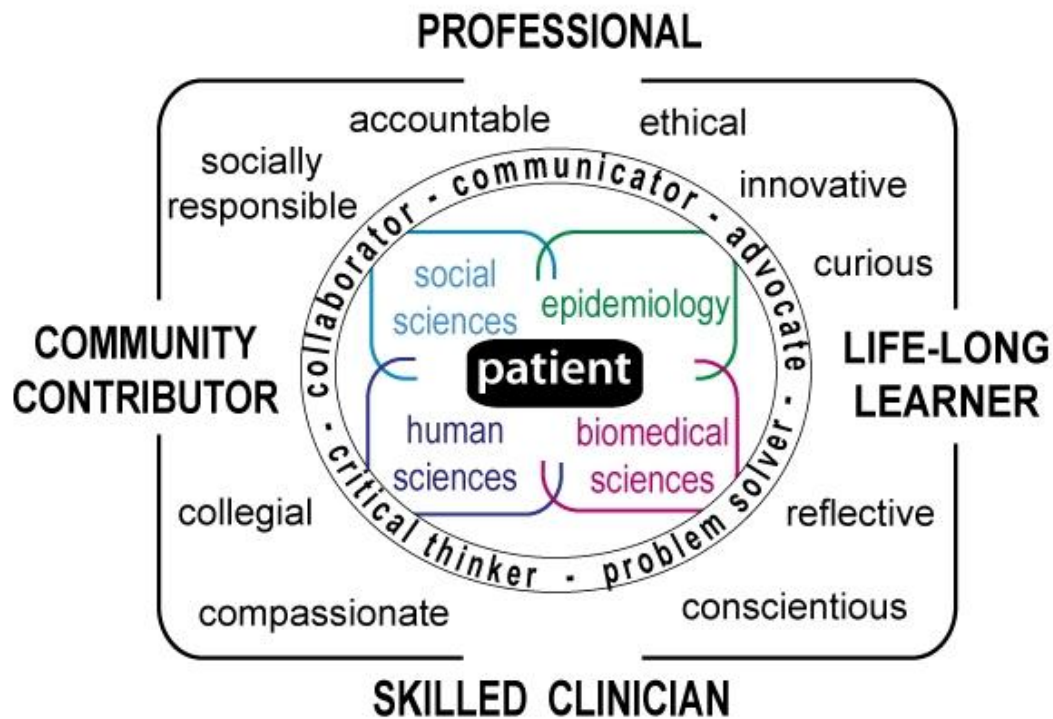
All objectives are entered into One45. Annually each unit will evaluate and revise their objectives with the assistance of the Curriculum Specialist. The Curriculum Specialist will assist in mapping to the UGME Educational Outcomes. Revised objectives will be entered into the curriculum mapping tool (One45) annually. In addition the Objectives Ad Hoc Committee will systematically review all objectives for outcomes, gaps and redundancies.

**Appendix 1: Dalhousie Faculty of Medicine  
Undergraduate Medical Education Program  
Unit Descriptions and Objectives 2010/2011**

**Undergraduate Medical Educational Outcomes**

**Goal Statement:** Graduates of Dalhousie Medical School are caring, resourceful physicians, able to work with patients, families, and colleagues to provide excellent care in many different contexts and in complex and uncertain situations. They are able to work as agents of creative change in healthcare institutions and communities.

The following diagram outlines the outcome objectives for the program. These are detailed below.



Our graduates will integrate their knowledge, skills and attitudes for competence in four principal and interdependent areas of achievement: as professionals, as community contributors, as life-long learners, and as skilled clinicians.

## **I. Professional**

As professionals, our graduates are able to join and enhance the medical profession, through their commitment to excellence in patient care, high ethical standards, and accountability to society for the responsibilities entrusted to them.

Our graduates can successfully be entrusted to perform the following professional activities (entrustable professional activities):

- A. Demonstrate appropriate professional attitudes and ethical commitments.
- B. Demonstrate commitment to the well-being of the patient.
- C. Promote health and provide healthcare equitably.

Educational Outcomes: Upon completion of the MD degree, our graduates will be able to:

1. Demonstrate personal integrity, honesty, reliability, respect, compassion and commitment towards others. (A)
2. Practice medicine in a manner consistent with the fundamental rights of patients to self-determination, and responsibilities of physicians and healthcare institutions in Canada. (A, C)
3. Recognize ethical dilemmas and dimensions of professional practice, and critically analyze situations in order to propose well-reasoned courses of action. (A)
4. Take into account the uniqueness of each person and the diversity in populations in communicating respectfully and in providing supportive and culturally appropriate care. (C)
5. Take responsibility for situations that place patients at risk. (B)
6. Offer and accept constructive feedback. (A, B)
7. Manage personal well-being in order to meet professional responsibilities, appropriately recognizing limitations and seeking help or consultation. (A, B)

## **II. Community Contributor**

As community contributors, our graduates understand a community's health needs and respond to promote health. They contribute constructively to communities of practice and the institutions and healthcare systems to which they belong.

Our graduates can successfully be entrusted to perform the following professional activities (entrustable professional activities):

- A. Contribute to the improvement of healthcare institutions and systems.
- B. Use their professional role to promote the public good.
- C. Pay particular attention to identifying inequities and the needs of the most vulnerable.

Educational Outcomes: Upon completion of the MD degree, our graduates will be able to:

1. Identify the determinants of health and community needs, including barriers to access to care and the situation of marginalized and vulnerable populations. (B, C)
2. Participate in public health initiatives, such as screening, vaccination, and surveillance, fulfilling professional and legal reporting responsibilities. (B)
3. Identify, consider and contribute to opportunities for improved health in the communities to which they belong, locally and globally. (B)
4. Work effectively and collaboratively in a range of practice contexts to provide patient care and improve healthcare systems. (A)
5. Responsibly steward healthcare resources. (A, B)

### **III. Lifelong Learner**

As lifelong learners, our graduates engage in self-assessment and reflective practice to integrate clinical experience, and scientific evidence for the improvement of patient care, safety, and outcomes.

Our graduates can successfully be entrusted to perform the following professional activities (entrustable professional activities):

- A. Be effective life-long learners.
- B. Participate in the creation, dissemination, application and translation of new knowledge.
- C. Participate in the systematic improvement of clinical practice.
- D. Raise questions and bring fresh perspectives to existing practice.

Educational Outcomes: Upon completion of the MD degree, our graduates will be able to:

1. Formulate clinical questions, search the evidence, and evaluate the results to inform diagnosis, prevention, treatment and supportive care for patients. (A, D)
2. Know the appropriate use and limitations of scientific and statistical methods to address questions in basic, clinical, population, health services, and translational research. (B)
3. Reflect critically upon and monitor one's own performance using appropriate sources of data and practice standards. (A, B, C)
4. Assess learning needs and develop and implement personal learning plans. (A, C)
5. Identify and weigh opportunities for practice improvement in one's own clinical practice and in healthcare systems and institutions. (C)
6. Teach and learn from others. (A, D)

### **IV. Skilled Clinician**

As skilled clinicians, our graduates are able to apply scientific understanding, clinical skills, professional attitudes, and reflective practice in their provision of safe, patient-centered care, in collaboration with patients, families, colleagues, and communities.

Our graduates can successfully be entrusted to perform the following professional activities (entrustable professional activities):

- A. Perform an accurate history and physical in diverse populations of patients.
- B. Develop and propose a differential diagnosis and appropriate plans for investigation and management.
- C. Provide safe, supportive and evidence-based care for patients, within scope of training.
- D. Communicate and collaborate effectively and respectfully with patients, families, and colleagues in the team environment and across the continuum of care.
- E. Help patients navigate the illness and healing experience.

Educational outcomes: Upon completion of the MD degree, our graduates will be able to:

1. Under supervision, manage and provide care across the lifespan of patients with acute, chronic or undifferentiated illness.
  - a) Establish therapeutic relationships in which patients are active partners. (D, E)
  - b) Assist patients in evaluating and interpreting sources of knowledge. (D, E)
  - c) Demonstrate skilled listening and responding in communicating with diverse patients, their families or other caregivers, and colleagues. (D)
  - d) Understand and respect the roles, expertise, and perspectives of health care professionals when learning, consulting, and collaborating. (C, D)

- e) Understand the psychosocial implications of health and illness across the life cycle for patients and families. (E)
  - f) Take account of patient context in their clinical approach. (D, E)
2. Diagnosis:
- a) Perform a comprehensive or focused patient-centred history and physical for diverse patient populations across the lifespan, as determined by patient presentation. (A)
  - b) Select and interpret appropriate laboratory and diagnostic studies. (B)
  - c) Perform selected therapeutic and diagnostic procedures. (B)
  - d) Develop well-reasoned diagnostic hypotheses and differential diagnoses. (B)
1. Treatment and Management:
- a. Under supervision, formulate and propose treatment plans, weighing pharmaceutical, surgical, behavioral, and supportive options as appropriate, for therapy and for symptom management. (B, C)
  - b. Identify and use opportunities for prevention and health promotion in the clinical encounter. (B, C)
  - c. Know the risks and benefits of common therapeutic interventions and know when these are indicated. (C)
  - d. Support patients and families in the appropriate use of self-care strategies. (B, C, E)
  - e. Counsel and support patients as appropriate in the presence or absence of established diagnosis or treatment. (D, E)
  - f. Demonstrate knowledge, skills and attitudes that support end of life care. (E)
  - g. Connect patients and families to appropriate community resources for support and care. (E)
2. Information management:
- a. Communicate effectively by spoken, written and electronic methods, respecting patient confidentiality. (D)
  - b. Maintain accurate, effective, and comprehensive records of patient care. (D)
  - c. Make judicious use of informatics tools and information sources to provide evidence-informed patient care, monitor patient outcomes, and maintain medical records. (C)

## **Unit Descriptions and Objectives 2010/2011**

(Mapping links to the overarching objectives are in brackets)

### **Foundations of Medicine**

The principal goal of the Foundations unit is to prepare students for successful completion of the systems based units of the curriculum, including foundations in biomedical, epidemiological, social and human sciences. The two major components consist of a review of cell and molecular biology (weeks 1-3) and an introduction to evidence based practice (weeks 4-6). The cell and molecular biology component will highlight medically-important concepts in genomes and gene expression, proteins and enzymes, cell structure and dynamics, and concepts in signal transduction. Cancer will be introduced in this context as a longitudinal disease theme. The evidence based practice component will focus on finding, appraising and using evidence from the medical literature. The unit will also include an introduction to the basic biomedical science disciplines (e.g. anatomy, histology, pathology and pharmacology), a full day experience of shadowing a physician in his/her practice, and presentations by clinical and biomedical researchers.

Foundations 1 Unit Objectives:

At the completion of this unit, students should be able to:

1. Describe basic scientific principles at the molecular and cellular levels as a framework for understanding biomedical concepts. (SC2b, SC2c, SC2d, SC3a, SC3c; LLL2)
2. Demonstrate the retrieval, appraisal and application of the best available evidence to address a clinical problem e.g., interpretation of a diagnostic test. (SC1b, SC2b, SC2d, SC3c, SC4c; LLL1, LLL2)
3. Construct a foundational framework for integration of human anatomical, histological, pathological and pharmacological concepts across the curriculum. (SC2a, SC2c, SC2d, SC3a, SC3c)
4. Appreciate the contributions of biomedical, clinical and other types of research to improved health and the prevention and treatment of disease. (SC1b, SC3b, SC4c; LLL2; P2; CC1, CCC2, CCC3)

### **Host Defence**

The Host Defence Unit (Hematology, Immunology, Infection and Inflammation) is designed to engender an appreciation in the minds of medical students of the components of blood that are involved in fighting pathogens, the types of pathogens that affect the population locally and globally, the basics of infection and infectious disease, the structure function and development of the immune system, immune deviation and immunopathology, development and function of blood cells, normal hemostasis, and diseases of the blood systems including anemias and haemoglobinopathies, bleeding and clotting disorders and hematological neoplasms.

Host Defence Unit Objectives:

At the completion of this unit, students should be able to:

1. Describe how the physical and cellular elements of the immune system are integrated and how the immune system operates to protect the body from infections. (SC2b, SC2c, SC2d, SC3a)

2. Describe the nature and impact of immune deficiency and autoimmunity on the health of the population. (SC3b)
3. Explain the cellular basis of the most common immunological deviations and immunopathologies and the impact these have on the community. (SC2a, SC3b; CC2)
4. Construct an integrated model that reflects the process of normal haematopoiesis, the structure and function of bone marrow, the development of the cells which make up the blood and the immune systems, and how these change with age and normal development . (SC2b, SC2c, SC2d)
5. Describe the normal function of blood cells and blood coagulation as well as deviations in blood development and function such as anaemia, congenital and acquired bleeding and clotting disorders, leukaemia's, lymphomas and monoclonal gammopathy, together with a recognition of the global impact and importance of haematological diseases. (SC2b, SC2c, SC2d; CC3)
6. Describe the basic structure and growth characteristics of bacteria, parasites, viruses and fungi. (SC2b, SC2d, SC3a)
7. Explain how infections are acquired and how they spread within populations. (SC3a, SC3b; CC1, CC2)
8. Explain the strategies to prevent the spread of infections between individuals and within larger populations. (SC3a, SC3b; CC1, CC2)
9. Describe how specific aspects of individual pathogens determine the site of infection as well as influence disease expression, pathology, treatment and outcomes of common infections. (SC2c, SC2d)
10. Recognize the need for interprofessional and multidisciplinary teamwork in the diagnosis and management of haematological, immunological and infectious disease. (SC1d; CC4)
11. Understand the basis of laboratory medicine which supports all other disciplines in medicine. (SC2B)
12. Recognize the various therapeutic tools for the management of haematological, immunological and infectious disease. (SC3a, SC3c)

### **Metabolism & Homeostasis**

The Metabolism & Homeostasis unit will introduce two new modules to the undergraduate curriculum – oral medicine (approximately 1 week) and nutrition (which will run longitudinally through the 10 weeks). There is a close integration of basic and clinical science built around cases, with supporting labs and lectures. There will also be lots of clinical backup so basic scientists, and clinicians who may not be expert in these areas, should be able to function very comfortably in tutorials.

Metabolism I Unit Objectives:

At the completion of this unit, students should be able to:

1. Describe the mechanisms underlying biochemical and physiologic processes related to oral medicine, gastrointestinal issues, nutrition and endocrinology. (SC2b, SC2c, SC2d; SC3a, SC3c)
2. Recognize normal and abnormal anatomic and histological structures of the gastrointestinal and endocrine systems. (SC2b, SC2c, SC2d)
3. Use the acquired knowledge to build a foundation for future learning. (LLL3, LLL4, LLL5)
4. Apply the clinical and basic science knowledge acquired to the understanding of pathophysiologic mechanisms relevant to oral medicine, gastrointestinal issues, nutrition and endocrinology. (SC2a, SC2b, SC2c, SC2d)

5. Recognize the pathophysiological signs that underlie the diagnosis of common clinical problems representative of oral medicine, gastrointestinal issues, nutrition and endocrinology. (SC2a, SC2b, SC2c, SC2d, SC3a, SC3b, SC3c, SC3d, SC3e, SC3f, SC3g)
6. Relate how societal factors influence health and disease relevant to oral medicine, gastrointestinal issues, nutrition and endocrinology. (SC1e, SC1f; P4)
7. Consider how physicians can influence community determinants of health (CC1, CC3; LLL5)

### **Human Development**

The Human Development Unit is an integrated review of all aspects of human reproduction, encompassing sexuality, the genitourinary system, embryology, genetics, labor and birth. Clinical cases will be used to illuminate and reinforce the acquisition of basic concepts of anatomy, physiology and pathology and demonstrate their linkage to high level themes of professionalism, patient centredness and community responsibility. The course will aim to provide a solid foundation for further development of these content areas in Med II, Clerkship and Residency.

Human Development Unit Objectives:

At the completion of this unit, students should be able to:

1. Relate the anatomy of the pelvis, and function of the male and female genital systems, bladder and urethra sufficient to competently make common differential diagnoses and to provide a foundation for further learning. (SC2a, SC2b, SC2c, SC2d)
2. Describe reproductive endocrinology, male and female gametogenesis, ovulation and menstrual physiology, pregnancy, and labour and delivery. (SC2a, SC2b, SC2c, SC2d)
3. Use understanding of embryology and cell differentiation to: explain the spatial relationship and shared developmental lineages of structures in the mature human body and to illustrate the normal process of human development, including the development of form and function. Be able to apply this knowledge to construct rationales to explain clinically significant perturbations in morphogenesis. (SC2a, SC2b, SC2c, SC2d, SC3a)
4. Use the principles of genetic transmission, molecular biology of the human genome, and population genetics to infer and calculate risk of disease, to institute an action plan to mitigate this risk, to obtain and interpret family history and ancestry data, to order genetic tests, to guide therapeutic decision making, and to assess patient risk. (SC1a, SC1b, SC2a, SC2b, SC2c, SC2d, SC3a, SC3c, SC3e)
5. Describe and interpret the broad range of human sexual behaviour, its change through life stages and its cultural contexts, in sufficient depth to appreciate common problems affecting patients in the communities we serve. (SC1a, SC1c, SC1e; CC2, CC3; P2, P4)

### **Professional Competencies**

The Professional Competencies Unit is a new two-year longitudinal Unit with a weekly two-hour tutorial followed by a one-hour large group session. This unit gives students the opportunity to integrate their biomedical and clinical learning with the context of patient care from professional, community, and life-long learner perspectives. Content includes public health and infectious disease management in the community, end of life decision-making and other ethical challenges, patient safety and other system and quality improvement approaches, social accountability and global health, physician wellness and

career paths, and the Health Mentors program. Key concepts come from population health, epidemiology, ethics, law, informatics, health policy and the humanities. The unit will be highly applied and case-based, and closely integrated with the block unit through shared cases and topics.

Professional Competencies Unit Objectives:

At the completion of this unit, students should be able to:

1. Contextualize medical care within healthcare systems and practice environments (CC4 CC5; LLL5)
2. Interpret the ethical implications of situations you encounter in medicine and be able to approach these situations in systematic yet flexible ways that focus on the good of the patient and of communities (P1, P3; SC1c, SC1d)
3. Describe ways that law shapes medical practice, and how physicians work within legal standards in clinical care (P2 )
4. Describe patient experiences and perspectives, and integrate awareness of these into your approach to advocacy and care (Pr4; SC1e, SC1f)
5. Identify the health needs of communities you serve, and select appropriate approaches to prevention, management, and advocacy to meet those needs (CC1, CC2, CC3; SC1f)
6. Consistently search out and evaluate the best evidence, and describe approaches to integrating evidence with patient values and goals of care (P2; LLL1)
7. Maintain healthy skepticism, reconcile disparate sources of knowledge/evidence, and assist patients and families to do the same (LLL2; SC1b)
8. Reflect on your own learning processes and behaviours, and develop and implement your own learning plans (P6; LLL3 LLL4 LLL6)
9. Identify healthy boundaries in interactions with patients and colleagues, and maintain your own work-life balance (P7)
10. Contribute productively to learning communities through helping others learn and contributing to the knowledge base (LLL6)
11. Maintain good stewardship of patient data: from gathering; to securing; to employing for improvement of practice and care, and the empowerment of patients (SC4c)

### **Health Mentors**

This innovative interprofessional program provides learning opportunities about chronic conditions and disabilities and about team collaboration for students in an array of health professional programs. Learning experiences take place through interactions with a Health Mentor, an individual with a chronic condition and/or disability, who is considered to be an expert about her/his health and its management. Interprofessional teams of students meet with the Health Mentor and learn about their life story, their health condition and how these interact. Students will have 3 assignments to post to their supervisors on OWL.

Health Mentors Unit Objectives:

At the completion of this unit, students should be able to:

1. To develop an understanding and appreciation of the impact of the condition/disability on the Health Mentor's life and the lives of family members and the experiences of Health mentors in navigating the healthcare system.
2. To reflect on and relate the learning from interactions with Health Mentors to curriculum in the student's home program.

Patient/client-centred focus:

1. To interact respectfully with the Health Mentor by developing effective interviewing skills and using active listening skills that acknowledge the Health Mentor as an expert about her/his health and condition.
2. To demonstrate professional behaviours that recognize and safeguard the Health Mentor's rights to privacy and confidentiality.

Team functioning:

1. To learn about, from and with each other in a team climate of mutual respect and sharing of awareness from each student's perspective as an individual and as a student in a particular profession
2. To develop effective communication and collaboration skills with others as part of a team
3. To reflect on the learning from interactions with team members whose backgrounds and health career paths are different from mine

**Clinical Skills I**

Med 1 – Clinical Skills I (Med 2 – Clinical Skills II beginning September 2011)

The Clinical Skills Unit gives students the tools they will require in clinical electives and, later, in Clinical Clerkship. In this unit, students learn Communication skills to perform a basic history and examination of a patient. A major goal of this unit is to ensure that the material being taught in the Clinical Skills Unit is closely linked to what the students are learning in their other units at the time. This integration may facilitate not only skills training, but also a greater understanding of the didactic content which students are being taught.

At the completion of this unit, students should be able to:

1. Communicate effectively with patients (simulated and volunteer) with a diversity of ages, genders, cultures, abilities and diagnoses.
2. Perform a complete patient-centred medical history
3. Demonstrate an organized approach to a general physical examination within the psychosocial and cultural context of each patient. This basic examination may include examination of the cardiorespiratory system, abdomen, mental state (including memory), neurological system, and musculoskeletal system.
4. Present the history and physical examination in an organized, concise fashion
5. Document the history and physical examination in an organized legible fashion

6. Demonstrate recognition of their emotional reactions to situations they have encountered in clinical settings. (Note: This objective may be achieved in collaboration with the Self-Care/Self-Reflection teaching that takes place in Professional Competencies).
7. Demonstrate professional attitudes and behaviours appropriate for clinical practice.

Students all work one half day per week in groups of 4 with a preceptor. Each group has 2 volunteer patients to work with (making pairs possible) following the weeks' objectives. The unit guide is broken down into weekly objectives with supporting videos and preparatory material and is housed in Blackboard with students and faculty all having access. The sessions are structured as follows:

- 1-hour: students/preceptor prep time
- 2-hours: time with volunteer patient(s)
- 1-hour: student/preceptor wrap-up and review

Although the structure for the session is set, there is flexibility for the students and preceptors to work fairly independently through the material. For example, some groups have students perform histories and exams on each other for practice before the 'patient' arrives. Wrap up and review sessions will also vary depending on the day and issues that may have arisen.

Faculty training is given at the beginning of the year by the Unit Head and UGME Coordinator to ensure all faculty are performing examinations and history taking in a similar manner according to the unit guide. These sessions are organized at our two campus sites to ensure similar 'hands-on' training opportunities with a variety of subject experts participating in a teach-the-teacher format.

All students are assessed using the same assessment tools: mid-unit formative ITER and end-unit summative ITER as well as performing and presenting two integrated history/physicals at the end of Clinical Skills I.

### **Clinical Skills 1 Objectives: Communication Skills, Medical History-Taking and Basic Physical Examination**

1. Demonstrate with diverse patient populations, communication process skills of the Medical Interview (Calgary-Cambridge Guide) specifically related to: Initiating a medical interview; Gathering information; Building the relationship; Structuring the interview; and, Closing the interview.
2. Integrate communication process skills of the Medical Interview (Calgary Cambridge Guide) with basic content of the medical history.
3. Describe the components of a complete Medical History.
4. Demonstrate a patient-centered approach to the medical history that elicits the unique illness narrative and psychosocial and cultural context of each patient.
5. Communicate empathetically with patients who experience emotions such as sadness, fear, frustration and anger.
6. Analyze their own and their peers' communication skills and skill development needs and give and receive constructive feedback based on this analysis.
7. Conduct a physical examination in a manner that is informative and respectful of patient dignity and culture.
8. Correctly drape and position patients during physical examination.

9. Demonstrate correct physical examination techniques for each system as outlined in the reference material for this Unit.
10. Verbally present a history and physical examination in an organized and concise fashion.
11. Record a history and physical examination in an organized, concise and legible format.

### **Electives**

The Elective, which comprises 10% of the year's curriculum, provides an opportunity for students to pursue topics related to medicine which are of specific interest to them, and which are not considered part of the core curriculum. It is designed to complement the program, and allows the student to plan, develop, and execute a personal project. This is expected to involve the cultivation of a Socratic type of relationship between the student and a member of the faculty (the individual acting as preceptor) over a longer time period than other contacts during the year, and may extend over several years. Such projects may take many different forms, though in first year the emphasis will be laying a firm foundation for later work by acquiring fundamental skills in concisely defining a problem, searching the literature effectively to assess current knowledge, collecting reliable data where applicable, and reporting the whole process, with an analysis of results, and presentation of conclusions and speculations where appropriate, in a clear and lucid paper. At the end of the Elective, students will submit a written report for evaluation. Unique and out-of-the-ordinary projects are encouraged! While the Elective may turn out to be a demanding task, it is often an enjoyable and gratifying experience.

### **Med 1 & 2 Longitudinal Elective Unit Objectives:**

At the completion of this unit, students should be able to:

1. Describe and relate the varieties of contributions to the provision of health care, the practice of medicine and the associated lifestyle/career culture by participating in mentored and/or collaborative relationships with Elective preceptors.
  - a) The pursuit of areas of personal interest, including the opportunity to work in a clinical or laboratory setting.
  - b) The evaluation of possible career choices.
  - c) The benefit derived from an established working relationship with a medical/ health professional, educator, and/or researcher (faculty, staff or community).
2. Define and apply specific outcomes-oriented learning objectives based on appropriate educational theory as they relate to the discipline in which the Elective is being done.
  - a) The development of their own objectives specific to the discipline of their Elective.
3. Appraise individual areas of academic and or clinical interest which supplement their Med 1&2 curriculum and contribute to self-directed development of medical knowledge, skills and attitudes.
  - a) The acquisition of skills of information retrieval as the basic prerequisite for independent study.
  - b) The acquisition of habits of independent /self directed study.
  - c) The acquisition of extra skills and experience in basic or clinical science fields.
4. Apply the lifelong learning skills of self-reflection and self-assessment to determine learning needs, define educational goals, and implement appropriate learning strategies to guide their experiences.
  - a) The opportunity to develop a unique approach to the solution of unfamiliar problems.
5. Demonstrate the skills of scholarly research, analysis, professional behaviour, collaboration and effective communication (interpersonal, oral and written) as they apply to the Elective.

- a) The ability to describe new information, concepts, and conclusions in an effective written form or oral presentation.
- b) The opportunity to participate in collaborative health care teams.

Individual Objectives (Learning Occasion Objectives):

Students will be expected to define and write their own learning objectives for each individual Elective (learning occasion). Both the student and the preceptor are responsible for ensuring a clear, mutual understanding of the learning activities and evaluation designed to meet the objectives of the Elective.

### **Rural Week**

The last week of Med 1 will have students spending one week observing a rural physician in practice. During this week, the students will reflect on the unique characteristics of a rural lifestyle and clinical practice. The purpose of this unit is to identify characteristics of clinical practice in a rural setting as well as health care delivery and resource access/utilization in a rural setting and determinants of health unique to the community in which the student is located and reflect how health care delivery addresses or does not address these needs. Students will also focus on physician wellness and lifestyle in a rural setting and identify the physicians' role in a rural setting including leadership responsibilities.

Rural Week Unit Objectives:

At the completion of this unit, students should be able to:

1. Describe clinical practice in a rural setting, including the unique characteristics of health care delivery and the issues related to resources ( SC1d, SC1f; CC5)
2. Apply a determinants of health lens both in relation to rural practice decisions and in considering the needs and context of the community (CC1,CC3)
3. Relate rural lifestyle issues to personal interests and future career goals (P7)
4. Demonstrate and apply the basic clinical skills (communication, history-taking and physical exam skills) learned in Med I (SC1c, SC2a)
5. Demonstrate personal integrity, honesty, reliability, respect, compassion and commitment towards others (P1)

## **Med 2 Objectives 2010/2011**

### **Brain and Behaviour Unit Objectives**

At the completion of this unit, students should be able to:

1. Identify and describe the gross and microscopic anatomical features of all areas of the central and peripheral nervous system.
2. Understand the physiology of the various components of the nervous system.
3. Apply the anatomic and physiologic concepts to normal function and recognize how their disruption leads to loss and/or alteration of function.
4. Understand the disease entities discussed during the unit to illustrate dysfunction of the nervous system.
5. Understand the pathophysiology, manifestations and management of psychiatric disease.

### Component Objectives: Neurons and Synapses

1. Understand, and be able to explain the morphological organization of the neuron, the cell body (soma) and the processes (dendrites and axons). This understanding should be related to each component of the neuron: synthesis and energy metabolism in the cell body; synaptic input resulting in information reception and integration in the dendritic tree; signal transmission along the axon via action potentials. Students should recall from last year the significance of the myelin sheath in facilitation transmission of action potentials and the physiologic consequences of demyelination.
2. Understanding what accounts for differences between fast and slow fibres.
3. Describe the structural components of the synapse and understand the events that occur during synaptic transmission, including neurotransmitter syntheses and storage, transmitter release, postsynaptic activation (receptors, channel openings and closings, second messenger effects), and transmitter breakdown and/or reuptake. They should be able to relate this information to possible sites of action of medication. They should understand the pathophysiology of presynaptic neuromuscular junction disease, as seen in Lambert Eaton Myasthenic Syndrome, and post-synaptic neuromuscular junction disease, as seen in Myasthenia Gravis.
4. Differentiate synapses in the central nervous system from those in the peripheral nervous system. This should include an understanding of the concepts of spatial and temporal summation, the effect of the location of a synapse on the dendritic tree and differences between excitatory and inhibitory synapses.
5. Describe the distribution of dopamine in the brain. They should understand the pharmacology of dopamine and the rationale, and mechanisms of action, of dopamine replacement therapy including L-Dopa containing drugs and dopamine agonists. Using dopamine as an example of a CNS neurotransmitter, understand the mechanisms of synaptic transmission, including transmitter syntheses, receptor function and transmitter inactivation. The students should identify steps that might possibly be modified by pharmacological means.

Component Objective: Peripheral Nervous System

1. Apply their knowledge of neuroanatomy and neurophysiology to understand the basis for symptoms and signs of diseases of the peripheral nervous system, including myopathy, neuromuscular junction disorders, polyneuropathy, and motor neuron disease.

Component Objective: Nerve Cord Organization

1. Understand the organization of spinal nerves, the spinal gray matter (ie. sensory and motor regions) and the major ascending and descending tract systems of the spinal cord. The students should recognize the different patterns of motor and sensory dysfunction associated with processes affecting different levels of the nervous system including the peripheral nerves, spinal cord, brainstem and cerebral hemispheres. The students should know examples of diseases that are characterized by the different patterns of sensory and motor dysfunction.

Component Objectives: Central and Peripheral Organization

1. Recognize the motor system involves communication between neurons beginning in the cerebrum and ending at the synaptic connections between the axon of the alpha motor neuron and the muscle fibre. They should understand that a patient with weakness has lost some integrity of this system. They should understand the difference between paralysis, paresis, rigidity, and spasticity.
2. Understand the concepts of upper and lower motor neurons: Why are they useful, what are the clinical features of each, what are the anatomical equivalents of these terms, what is the relationship between the Babinski sign and “upper motor neurons”.
3. Understand the physiologic basis of muscle tone: What is it, what accounts for increases/decreases in tone. It is important for the students to recognize the relationship between muscle tone and reflex arcs: What are the components of a reflex arc, what accounts for increases/decreases in reflex activity, what are the differences between muscle stretch reflexes and cutaneous reflexes.
4. Understand the concept of spasticity: What is it? What are the the clinical characteristics? What mechanisms might account for it? When does it develop and what sequence of physiologic events lead to spasticity?
5. Understand the role of central connections of the vestibular pathway in motor control, with respect to balance and eye movements.
6. Understand the mechanisms underlying control of eye movements. They should know the anatomy and function of the cranial nerves and muscles controlling eye and eyelid movement. They should understand; reciprocal inhibition of antagonist muscles; disjunctive and conjunctive eye movements; accommodation; saccades, smooth pursuit movements. The clinical features of horizontal jerk nystagmus and its significance should be known. They should understand the normal function of the vestibulo-ocular reflex and how abnormalities of VOR affect eye movements. They should understand the mechanisms leading to internuclear ophthalmoplegia.
7. Be able to define ataxia and know what central neural structures might be affected in a patient who displays ataxia.
8. Know how the cerebellum is organized to control and influence movement. They should understand the signs that arise from a unilateral lesion of cerebellum or cerebellar connections, bilateral lesion or a lesion of midline cerebellar structures.

9. Learn the structure and connections of the basal ganglia, including the inputs, outputs and internal "loops".
10. Learn the function of circuitry involving the basal ganglia. Principles such as inhibition and disinhibition should be clear in this context; also consider how one input, such as the dopaminergic pathway, can modulate the flow of information through the main circuit.
11. Understand how the motor dysfunction of basal ganglia disorders differs from dysfunction of the motor cortex and pyramidal tracts. The students should define the "extrapyramidal" motor system and consider the usefulness (or lack thereof) of this in terms of anatomy and physiology. The students should understand the distinction between hypokinetic and hyperkinetic symptoms and how alteration of basal ganglia output can produce alternation between these states even in the same patient. The students should know the distinguishing clinical features of abnormal movements produced by disorders of the basal ganglia, including tremor, dystonia, and choreoathetosis.
12. Understand how the function of the basal ganglia might relate to various neurological and psychiatric disorders, such as Parkinson's disease, Huntington's disease and schizophrenia.

Component Objectives: Sensory Function-Central and Peripheral Organization

1. Recognize the different types of sensory receptors and the sensory functions of each.
2. Understand the physiologic basis of pain. In addition to understanding how pain is perceived and processed in the nervous system, the students should recognize psychological factors that influence the reaction to pain.
3. Understand the meaning of neuropathic pain and hyperpathia and what properties of the pain system account for hyperpathia.
4. Understand how the ear converts sound (pressure transients) into patterns of electrical activity in the auditory nerve.
5. Know what symptoms develop from a lesion of cranial nerve VIII and its central connections. The students should understand the difference between conductive and sensorineural deafness.
6. Identify the peripheral and central parts of the cranial nerve VIII, and their important anatomical relationships with other structures.
7. Identify the central nuclei and the ascending pathways that link the auditory nerve to the auditory cortex. The students should be able to relate the auditory brainstem evoked response to the different parts of this pathway.
8. Understand how the components of the vestibular system convert position, linear acceleration and angular acceleration of the head into patterns of activity in the vestibular nerve.
9. Understand the mechanisms and clinical features of vertigo.
10. Understand the cellular composition of the retina, and how cells in this region are organized.
11. Understand from a physiological standpoint, how visual information is processed at the level of the retina.
12. Understand the course of the visual pathway after the axons of the retinal ganglion cells leave the eye.
13. Understand the organization and function of the visual cortex.
14. Understand in terms of visual loss, what are the effects of lesions occurring at various locations along the visual pathway.
15. Know the anatomical pathways for the pupillary light reflex and the accommodation reflex?  
What is an afferent pupillary defect?

**16.** Understand the mechanisms involved in higher level sensory processing in the context of the astereognosis, agraphesthesia and sensory neglect. What is the distinction between "primary sensory" and "association" cortex from the standpoint of the types of functions each controls?

Component Objectives: Autonomic Nervous System

1. Explain the organization and functional attributes of the autonomic nervous system and should appreciate the differences between autonomic and somatic activity.
2. Understand the central neural pathways which influence the somatomotor and autonomic activity in the periphery.

Component Objectives: General Organization

1. Know the gross anatomical features and internal organization of the brainstem. They should be able to identify the location of cranial nerve nuclei within the brainstem and their nerve roots at the brainstem surface. They should understand the major functions of cranial nerve nuclei. They should know the location of major ascending and descending fiber tracts as they traverse the brainstem. They should know the level of decussation of major ascending and descending fiber tracts within the brainstem. They should understand the sensory or motor function of major ascending and descending fiber tracts.
2. Recognize the clinical manifestations that arise with lesions of the brainstem.
3. Understand how the brainstem influences consciousness and what lesions of the CNS result in coma.

Component Objectives: Cranial Nerve Centers in the Lower Brainstem and Pons

1. Understand the role of the various cranial nerves in swallowing and speech.
2. Identify the structures that might be affected by a lesion in the cerebello-pontine angle.
3. Understand the difference between an upper motor neuron and lower motor neuron facial weakness.
4. Understand the pathways involved in the corneal reflex.

Component Objective: Neurodegeneration

1. Understand the mechanisms of neurodegeneration occurring in degenerative processes like Parkinson's disease and Alzheimer's disease, as well as other pathological processes, such as brain infarction.

Component Objective: Lymbic System

1. Describe the internal organization, the inputs and outputs of the hippocampus; describe the cognitive deficits that result from hippocampal damage. Describe the structures that make up the "limbic system" and the pathways that interconnect them. What output pathways from the limbic structures are involved in emotional behaviors?

Component Objectives: Headache

1. Understand the recognized mechanisms of headache. They should know the common indicators of a benign headache (migraine and muscle contraction headache) versus a more malignant headache, such as headache due to raised intracranial pressure or subarachnoid hemorrhage.

Component Objectives: Seizures and EEG

1. Understand the cellular mechanisms that underlie the summed electrical events that produce an electroencephalogram (EEG). Students should understand how an EEG is performed and what clinical situations it is useful to evaluate.
2. Know the significance of focal interictal spikes and focal slowing on the EEG.
3. Understand the physiologic events at the cellular level that are involved in the production of a seizure.
4. Understand the clinical classification of epilepsy and the differentiating features of different seizure types.

Component Objectives: Aphasias and Apraxias

1. Understand "aphasia" and how the various kinds of aphasias are classified and how the types of aphasia are useful for cerebral localization. The concept of cerebral dominance in relation to language function should be considered and the various regions of the cerebral cortex involved in language comprehension and production identified.
2. Understand "apraxia" and from what regions of the brain apraxia can arise.

Component Objectives: Dementias, including Alzheimer's

1. Understand the different types of memory.
2. Understand the DSM IV criteria for dementia.
3. Understand the psychosocial management of dementias.
4. Understand that loss of neurons and other neuropathological changes typical of Alzheimer's disease are the basis for loss of memory and other higher cognitive functions.
5. Know the areas of the brain and the neurotransmitter systems that are particularly vulnerable in Alzheimer's disease.
6. Know pharmacological treatment of cognitive impairment in patients with Alzheimer's disease.

Component Objectives: Blood Supply and CSF

1. Know the major blood vessels that supply the brain and the major vessels that subserve venous drainage. They should understand which functions would be affected by a lesion interrupting the circulation of the major blood vessels supplying the brain and brainstem.
2. Understand the production and circulation of cerebrospinal fluid. How can CSF production and/or circulation be altered to produce hydrocephalus? What are the signs and symptoms of increased intracranial pressure?

Component Objective: Clinical Patient Centered Method

1. Integrate the Clinical Patient Centered Method of Care with their understanding of a patient's symptoms.

**Skin, Glands and Blood**

At the completion of this unit, students should have an understanding of **HEMATOLOGY**:

- The normal morphologic and functional development of the components of the hematopoietic system and the changes in normal values with age.
- The components and physiology of hemostasis and thrombosis.
- The function and age related development of the spleen and lymph nodes.
- Common laboratory tests and results related to hematologic disorders, including normal values.
- Pre-screening, indications for and complications of the transfusion of blood and blood products.
- The challenge of Bloodless Medicine.
- The indications for and complications of splenectomy.
- The pathophysiology, differential diagnosis, investigations, treatment and expected response to treatment of the following:
  - a) Red cell disorders including:- anemia, polycythemia, hemoglobinopathies
  - b) White cell disorders including:- quantitative disorders, functional disorders,
  - c) Platelets disorders including:- thrombocytopenia, thrombocytosis, functional platelet disorders
  - d) Congenital Bleeding Disorders:- Hemophilia A & B, von Willebrand's Disease
  - e) Disseminated intra vascular coagulation
  - f) Thrombosis:- venous, arterial, Factors predisposing to thrombosis including congenital disorders.
- Hematopoiesis in leukemia.
- Acute leukemias including:
  - a).Classification utilizing morphology, histochemistry, immunophenotyping and cytogenetic/DNA analysis
  - b) Clinical features
  - c) Concept of multi-agent chemotherapy
  - d) Concept of differentiating agent chemotherapy and its side effects
  - e) Diagnosis and management of febrile neutropenia and an approach to infections in the immuno-compromised host
  - f) Treatment options including bone marrow transplant
  - g) The syndrome of tumor lysis and its prevention and treatment.
- Chronic leukemias including classification, clinical and laboratory findings, treatment options, complications and prognosis.
- Lymphomas and monoclonal gammopathies including classification, common presenting symptoms, physical findings, laboratory findings, staging, principles of treatment and prognosis.
- The general side effects of chemotherapy.

At the end of this unit, students should have an understanding of **ENDOCRINOLOGY**:

- The control of hormone secretion through stimulatory and inhibitory feed back loops.
- The principles of hormone action.
- The clinical presentation of abnormalities of hormone secretion, both deficits and excesses.
- The principles of investigation of disorders of hormone secretion.
- The principles of management of disorders of hormone secretion.
- The basic concepts of nutrition: macro vs micro nutrients over and under nutrition
- Topic specific- Diabetes Mellitus; Thyroid Disorders

At the end of this unit, students should have an understanding of **DERMATOLOGY:**

- To be able to describe the structure and function of the skin in detail sufficient to understand the underlying pathophysiology of common skin disease.
- To be able to take an appropriate dermatological history in a manner relevant to the setting, be it home, office or hospital.
- To be able to identify and describe in concise and conventional terms the primary and secondary physical signs of skin disease.
- To demonstrate knowledge of the range of disorders of the skin considered in three major groups:
  - a) Common and/or life-threatening disorders, etiology, pathogenesis and management.
  - b) Less common disorders, of which some knowledge should be available, and awareness of reference sources.
  - c) Rarer disorders, the existence of which should be known by all doctors, but whose diagnosis and management is normally the province of specialists.
- To be able to prescribe simple dermatological treatment, including baths, topical applications and dressings, and to be able to demonstrate elementary dressing techniques.

### **Respiratory, Cardiovascular Unit**

At the completion of this unit, students should be able to:

1. Describe the mechanisms underlying biochemical and physiologic processes.
2. Recognize normal and abnormal anatomic and histological structures.
3. Use the acquired knowledge to build a foundation for future learning.
4. Apply the clinical and basic science knowledge acquired to the understanding of pathophysiologic mechanisms.
5. Diagnose and manage common clinical problems representative of component unit conditions
6. Relate how societal factors influence health and disease relevant to the component units
7. Consider how physicians can influence community determinants of health

#### Component Objectives: Cardiology

1. Describe the anatomy and explain the basic physiology of cardiac function. The student should be able to relate the anatomy and physiology to the normal cardiac physical exam findings.
2. Discuss the pathophysiology of valvular heart disease and how it relates to the symptoms, physical exam findings and to the management of common valvulopathies.
3. Recognize the clinical presentation and describe appropriate management of pericardial diseases including pericarditis, pericardial effusion, cardiac tamponade, and constrictive pericarditis.
4. Describe the pathophysiology of congestive heart failure due to systolic and/or diastolic function, understand the relationship between the pathophysiology of heart failure, the presenting symptoms, physical exam findings and management.
5. Explain the ionic basis and temporal changes in cardiac excitability, the basis of automaticity and the spread of excitation through the heart.
6. Discuss common arrhythmias, their pathophysiologic mechanisms, and the appropriate investigation and management of cardiac arrhythmias.
7. Describe the correlation between the electrical activity of the heart and the ECG under normal and pathophysiological conditions, interpret normal and abnormal ECGs.
8. Describe the pathophysiology of atherosclerotic disease and relate the pathophysiology to the clinical presentation and treatment of acute coronary syndromes, chronic stable angina, and peripheral vascular disease.
9. Recognize the major risk factors for the development of cardiovascular disease and the management of these risk factors in the setting of both primary and secondary prevention
10. Describe the physiological and physical factors that determine blood pressure and discuss the interplay of central and peripheral factors in the control of blood pressure.
11. Explain the mechanism of action of the commonly prescribed pharmacologic therapies used in the treatment of cardiac diseases, describe common side effects of these therapies.

#### Component Objectives: Respirology

1. Recognize the restrictive pattern of lung disease by applying knowledge of pulmonary anatomy and mechanics and relate this to the clinical and pathologic patterns of interstitial lung diseases. (links to 1-5)
2. Explain the pathophysiology of obstructive lung diseases (links to 1-3)

3. Differentiate the main clinical types of obstructive lung diseases (emphysema, chronic bronchitis, and asthma) by the clinical, and pulmonary function testing features. (links to 4-6)
4. Compare and contrast, clinically and pathologically, the 3 main types of lung cancer, understanding routes of spread and non-metastatic (paraneoplastic) syndromes. (links to 2-6)
5. Apply clinical, pathological and epidemiologic evidence in the diagnosis of infectious lung diseases which involve the bronchi, lung parenchyma or pleura. (links to 1-7)
6. Describe respiratory gas exchange and the processes involved in gas transport to the cell. (links to 1-3)
7. Explain the neural, chemical and mechanical mechanisms involved in the control of breathing and how dysfunction in these processes leads to respiratory failure and its consequences (links to 1,3,4)
8. Describe the blood supply of the lung and disease processes involved in pulmonary vascular disease and the consequent effects on the heart. (links to 1-5)
9. Recognize common respirable hazards and how these relate to occupational/environmental lung diseases (links to 3-7)

### **Genitourinary, Gastroenterology, Musculoskeletal Unit (tentative 2010-2011)**

At the completion of this unit, students should be able to meet the following component objectives:

#### Component Objectives: Genitourinary

The students will know the following:

- GI Bleeding
  - a) symptoms and signs of both upper and lower GI bleeding
  - b) the initial management of patients with upper and lower GI bleeds
  - c) the appropriate investigations for upper, lower and obscure GI bleeding
- Helicobacter pylori
  - a) understand the spectrum of diseases which H pylori can lead to
  - b) understand the diagnostic approach to a patient with suspected H. pylori
  - c) understand treatment of Helicobacter pylori and appropriate follow up
- Gastroesophageal Reflux Disease and Non-Ulcerative Dyspepsia
  - a) signs and symptoms related to Gastroesophageal Reflux disease as well as non-ulcer dyspepsia
  - b) understand red flag symptoms and signs in patients with Gastroesophageal
- Reflux disease
  - a) appropriate treatment for patients with non-ulcer dyspepsia as well as Gastroesophageal Reflux disease
  - b) be familiar with the medications which can suppress acid and pharmacological mechanisms by which they achieve this result
  - c) understand complications of long-standing Gastroesophageal Reflux disease
  - d) appropriate screening for Barrett's esophagus
  - e) long-term complications of Barrett's esophagus
  - f) understand red flag symptoms and signs in patients with Gastroesophageal Reflux disease
- Motility Disorders
  - a) understand the basic presentations for patients with motility disorders
  - b) diagnostic approach to a patient with dysphagia

- c) separating motility disorders from mechanical causes of dysphagia by history
- d) understand the presentation as well as treatment of the more common motility disorders such as achalasia and scleroderma
- Biliary Disease
  - a) understand the presentation of a patient with cholecystitis
  - b) understand the presentation of a patient with choledocholithiasis
  - c) understand the investigation and treatment of patients with cholecystitis as well as choledocholithiasis
- Pancreatitis
  - a) understand the presentation and management of acute pancreatitis
  - b) understand the presentation and management of chronic pancreatitis
- Inflammatory Bowel Disease
  - a) understand the presentation of patients with Inflammatory Bowel Disease
  - b) understand the factors which will help to differentiate between Crohn's disease and Ulcerative Colitis, including anatomical distribution of both diseases
  - c) understand the basic management of patients with Crohn's disease
  - d) understand the basic management of patients with Ulcerative Colitis
  - e) understand the management and diagnosis of basic complications which can occur in patients with Crohn's disease
  - f) understand the complications and management which can occur in patients with Ulcerative Colitis
- Irritable Bowel Syndrome
  - a) understand the criteria for diagnosing patients with Irritable Bowel Syndrome
  - b) understand the red flag symptoms which would go against a clinical diagnosis of Irritable Bowel Syndrome
  - c) understand the appropriate investigations for a patient with suspected Irritable Bowel Syndrome
  - d) understand the basic principles of management of patients with Irritable Bowel Syndrome
- Colon Cancer
  - a) understand how to risk stratify a patient for screening for colon cancer
  - b) understand the criteria for diagnosing a patient with hereditary non-polyposis colorectal cancer syndrome and familial adenomatous polyposis syndrome
  - c) understand the screening options available for colon average-risk patients, high-risk patients, hereditary non-polyposis colorectal cancer syndrome patients, familial adenomatous polyposis syndrome.
- Diarrhea
  - a) understand the features on history and physical which will help to determine a source of the patient's diarrhea, small bowel versus large bowel
  - b) understand the different mechanisms of diarrhea including osmotic, secretory, inflammatory, motility
  - c) understand the complications of long-term malabsorption including vitamin deficiencies
  - d) understand the basic conditions which can lead to malabsorption
- Pediatric Disease
  - a) understand the clinical diagnosis of functional recurrent abdominal pain syndrome
  - b) understand the investigation of a patient with recurrent abdominal pain syndrome

- Liver Disease
  - a) understand a basic approach to a patient with abnormal liver enzymes
  - b) understand differentiation between a cholestatic and hepatitic picture
  - c) understand the different liver enzyme patterns for specific diseases, including viral hepatitis, acute liver injuries, alcohol and non-alcohol-related fatty liver disease, hereditary liver diseases, such as hemochromatosis, Wilson's disease, etc.
  - d) understand what lab work will differentiate liver function
  - e) understand the complications which can arise in complicated liver disease including bacterial peritonitis, encephalopathy, variceal bleeding and hepatoma. \*\*\*For each of these conditions, you should understand the basic presentation, treatment, and prognosis.
  - f) understand the different serological markers for hepatitis B and C and how to use them appropriately.
  - g) understand the treatments of different conditions including hepatitis B and C as well as other chronic liver disease discussed in class and cases
  - h) understand the vaccination process for hepatitis B and issues regarding vaccinations for hepatitis C

Component Objectives: Gastroenterology

Specific objectives will be apparent for each of the renal cases. The following objectives reflect the content of lectures, tutorials and the laboratory exercise. There may be additional subject material which students will become acquainted with during this component.

Students will know the following:

- Symptoms and signs of renal and urologic disease as well as the significance of these.
- Calculation of creatinine clearance in adults and children as well as the interpretation of the serum creatinine and urea levels.
- Interpretation of the urinalysis and findings in the urine sediment.
- Diagnostic approach to the asymptomatic patient with proteinuria or hematuria.
- Concepts of acute versus chronic renal disease, acute on chronic renal disease, the progressive nature of renal disease.
- The pathophysiology of glomerular injury, the clinical syndromes of the nephritic and nephrotic syndromes, as well as the pulmonary-renal syndrome and rapidly progressive glomerulonephritis.
- The epidemiology, pathophysiology and differential diagnosis of hypertension, as well as the role of the kidney in hypertension.
- The causes, pathophysiology, clinical features and course of acute renal failure.
- The uremic syndrome, as well as the causes, pathophysiology, complications and treatment of chronic renal failure with diet, phosphate binders, antihypertensive agents, dialysis and renal transplantation.
- Adult polycystic kidney disease in terms of clinical features, pathology, pathophysiology and genetics.
- The clinicopathologic features of interstitial renal disease that distinguish it from glomerular disease.
- The principles of renal replacement therapy including renal transplantation and mechanisms for allograft rejection.

- An approach to hyponatremia, hypernatremia, hyperkalemia, metabolic acidosis, metabolic alkalosis and the serum anion gap.
- Basic renal imaging procedures, such as ultrasound, IVP, CT scan and cystogram, with correlation of imaging results with underlying renal and urologic structure, physiology and pathology.
- The pathophysiology, clinical features, pathology and management of urinary tract infections.
- The presentation, diagnosis and management of prostatic carcinoma; interpretation of the prostate specific antigen test.
- A brief approach to male infertility, including causes, physical findings, hormonal assessment and abnormalities of semen.
- The pathophysiology, clinical features and management of reflux nephropathy.
- The approach to the patient with a renal mass.
- The nature of the hemolytic uremic syndrome, as a cause of acute renal failure
- The pathophysiology, clinical features and management of urinary tract obstruction and specifically posterior urethral valves.
- The nature of some congenital abnormalities of the urinary tract.
- Nephrolithiasis

#### Component Objectives: Muscular-Skeletal

This component will provide an overview of musculoskeletal disorders from both clinical and surgical perspectives with input from Physical Medicine and Rehabilitation specialists, Rheumatologists, Pathologists and Orthopedic Surgeons. There are specific objectives outlined for each of the musculoskeletal component cases. The following objectives are meant to reflect content of lectures, tutorials and laboratory exercises.

Students will know the following:

- The epidemiological aspects and social impact of musculoskeletal disease.
- The usual clinical manifestations of aging and degeneration of the musculoskeletal system, situations that are likely to precipitate these symptoms and risk factors for future degenerative change.
- An approach to differential diagnosis of joint pain – specifically determining degenerative versus inflammatory arthritis based on history, physical examination and laboratory investigations.
- Therapies for osteoarthritis, including: rehabilitation, pharmacologic therapies and surgical interventions.
- An approach to differential diagnosis of inflammatory arthropathies, including typical clinical and laboratory features.
- An approach to differential diagnosis of connective tissue diseases, including typical clinical and laboratory features.
- An approach to laboratory investigations for inflammatory arthropathies: specifically to be familiar with the utility and role of rheumatoid factor (RF), anti-nuclear antibodies (ANA); extractable nuclear antigens (ENA); complement proteins; and markers of inflammation including erythrocyte sedimentation rate (ESR) and c-reactive protein (CRP).
- An approach to synovial fluid analysis.

- The pharmacologic therapies available for inflammatory arthritis and their main side effects, including: non-steroidal anti-inflammatory drugs (NSAIDs); disease-modifying anti-rheumatic drugs (DMARDs); biologic therapies and immunosuppressive therapies.
- The immune basis of musculoskeletal diseases including: aberrant immune response in autoimmune systemic disease such as rheumatoid arthritis (RA) and systemic lupus erythematosus (SLE); mechanisms of tissue inflammation and damage in these diseases and therapeutic strategies based on these mechanisms.
- The common soft tissue diagnoses for each major joint, as well key elements on history and a brief outline of management for these diagnoses.
- Basic knowledge of bone and soft tissue neoplasms including incidence, clinical presentation, approach to diagnosis and tumor names.
- Basic knowledge about the most common malignant bone and soft tissue tumors.
- Basic knowledge of the common benign bone neoplasms – osteochondroma, enchondroma and osteoid osteoma.
- Clinical presentation of the typical lipoma and how it differs from the typical presentation of liposarcoma.
- The usual pathway of spread of sarcomas and contrast with the spread of the common carcinomas.
- The concept of tumor-like conditions of bone and soft tissue.
- Basic radiologic interpretation of fractures.
- Treatment for both open and closed fractures including non-operative and operative options.
- Early and late complications of fracture care.
- A basic approach to treatment of acute and chronic back pain.
- The “red flags” on history and physical that indicate more serious pathology in the patient presenting with back pain.
- The basics of bone formation and the growth plate.
- Specific pediatric orthopedic surgery considerations, including: growth plate injury, congenital dislocation of the hip, club feet, septic arthritis, cerebral palsy and spina bifida.
- An approach to arthritis in the pediatric population.
- The clinical features of juvenile idiopathic arthritis (JIA), including both musculoskeletal and extra-articular features.
- The laboratory features of juvenile idiopathic arthritis (JIA) and their clinical implications.

### **Population Health, Community Service, and Critical Thinking Unit**

At the completion of this unit, students should be able to:

1. To understand how determinants of health such as culture, socioeconomic conditions, age, gender, work environments and the physical environment affect the health of populations and individuals, and mediate the effectiveness of clinical interventions.
2. To understand the rationale for population approaches to improving and maintaining health, and be able to explain how physicians are incorporated into these approaches.
3. To be able to describe community and population approaches being used in the region to address population health issues, and how they can complement physician practice.
4. To improve critical appraisal skills, and be able to apply them to evaluate studies examining population-based approaches to health.

Unit Activities: PHCSCT combines several activities to meet its objectives. Students will:

1. Participate in 2-hour tutorials every other week.
2. Alternate weeks will be spent doing a community resources project
3. Write a critical appraisal paper.

### **Patient Doctor Unit – Med 2**

In the Patient-Doctor Unit in Med 1, students were introduced to medical history taking and physical examination with respect to the cardiac, respiratory, gastro-intestinal and musculoskeletal systems. They completed three of these four blocks, and this year will complete the fourth. The overall goals are thus for students to continue to develop your interviewing and physical examination skills, and to acquire the clinical skills fundamental to the practice of Pediatrics, Psychiatry and (Adult) Medicine. This year students will also learn:

- Detailed assessment of the neurological system.
- Perform complete histories and physical examinations on a regular basis under the supervision of your preceptor from the Department of Medicine.
- Exposure to simulated patients and a variety of situations that are related to the various units of the COPS curriculum at the Learning Resource Centre.
- Experiences will be further expanded this year psychiatric interview, and in the Life Cycle component, to Pediatrics with a seven-week exposure where you will interview and examine patients under the supervision of your preceptors.
- Further specialized skills you will need next year in the Clerkship including ophthalmologic and otolaryngologic assessment, examination of the breast, the pelvis and male and female genitalia.
- Bedside clinical teaching sessions with supervision by a general surgeon and an orthopaedic surgeon.

#### Components of the Patient Doctor Unit:

- **1 in 8: A Breast Workshop** – (1 session)
- **Case Practice:**
  - a) Brain and Behaviour – (3 sessions per student)
  - b) Skin, Glands & Blood – (3 sessions per student)
  - c) Respiratory and Cardiovascular – (3 sessions per student)
  - d) Genitourinary, Gastrointestinal & Musculoskeletal – (3 sessions per student)
- **Clinical Methods** – (6 sessions per student)
- **General Medicine** – (15 sessions per student)
- **General Surgery** – (1 session per student)
- **Gynecology Workshop** – (1 session per student)
- **Human Sexuality** – (4 sessions per student)
- **Life Cycles**
  - a) Child and Family Project
  - b) Geriatrics
  - c) Adolescent Separation
- **Neurology** – (7 sessions per student)
- **Obstetrics Workshop** – (1 session per student)

- **Ophthalmology** – (1 session per student)
- **Orthopedics** – (1 session per student)
- **Otolaryngology** – (1 session per student)
- **Pediatrics** – (7 sessions per student)
- **Psychiatry** – (7 sessions per student)
- **Skills and Procedures**
  - a) Cardiac Arrhythmia – (1 session per student)
  - b) Splinting – (1 session per student)
- **OSCE**

### **Electives**

At the end of the Med 1 & 2 Longitudinal Elective Units, the learner will be able to:

1. Describe and relate the varieties of contributions to the provision of health care, the practice of medicine and the associated lifestyle/career culture by participating in mentored and/or collaborative relationships with Elective preceptors.
  - a) The pursuit of areas of personal interest, including the opportunity to work in a clinical or laboratory setting.
  - b) The evaluation of possible career choices.
  - c) The benefit derived from an established working relationship with a medical/ health professional, educator, and/or researcher (faculty, staff or community).
2. Define and apply specific outcomes-oriented learning objectives based on appropriate educational theory as they relate to the discipline in which the Elective is being done.
  - a) The development of their own objectives specific to the discipline of their Elective.
3. Appraise individual areas of academic and or clinical interest which supplement their Med 1&2 curriculum and contribute to self-directed development of medical knowledge, skills and attitudes.
  - a) The acquisition of skills of information retrieval as the basic prerequisite for independent study.
  - b) The acquisition of habits of independent /self directed study.
  - c) The acquisition of extra skills and experience in basic or clinical science fields.
4. Apply the lifelong learning skills of self-reflection and self-assessment to determine learning needs, define educational goals, and implement appropriate learning strategies to guide their experiences.
  - a) The opportunity to develop a unique approach to the solution of unfamiliar problems.
5. Demonstrate the skills of scholarly research, analysis, professional behaviour, collaboration and effective communication (interpersonal, oral and written) as they apply to the Elective.
  - a) The ability to describe new information, concepts, and conclusions in an effective written form or oral presentation.
  - b) The opportunity to participate in collaborative health care teams.

## Med 2 2011/2012 Objectives

### Foundations II

At the completion of this unit, students should be able to:

1. Describe the anatomy of the head and neck as a foundation to Neuroanatomy (SC2c, SC2d, SC3a)
2. Recognize the pathophysiology of atherosclerosis (SC2a, SC2b, SC2c, SC2d, SC3a)
3. Recognize the clinical manifestations of atherosclerosis throughout the body (SC1f, SC2a, SC2d)
4. Describe the burden, manifestations, physical effects, detection methods and ways to address emotional dysregulation (SC2a, SC2c, SC3a, SC3c)

### Neurosciences

At the completion of this unit, students should be able to:

1. Describe the mechanisms underlying the normal function of neurons, axons and synapses in the central and peripheral nervous system. (SC2a, SC2b, SC2c, SC2d, SC3a)
2. Recognize normal and abnormal anatomic structures of the nervous system. (SC2a, SC2b, SC2c, SC2d)
3. Apply the clinical and basic science knowledge acquired to the understanding of pathophysiologic mechanisms and localization. (SC2a, SC2b, SC2c, SC2d, SC3a)
4. Diagnose and manage common neurologic and psychiatric problems. (SC2a, SC2b, SC2c, SC2d, SC3a, SC3b, SC3c, SC3d, SC3e, SC3f, SC3g)
5. Relate the influence of societal factors to mental and neurological health and disease. (SC1e, SC1f; P4)
6. Consider how physicians can influence community determinants of health. (CC1, CC3)
7. Explain how the biopsychosocial model of mental health and illness contributes to an understanding of common psychiatric conditions. (SC1e)

### Metabolism 2

At the completion of this unit, students should be able to:

1. Describe the mechanisms underlying biochemical and physiological processes of oxygen exchange, acid-base balance, blood pressure and renal function.
2. Recognize normal and abnormal anatomic and histological structures of the cardiovascular, renal and respiratory systems.
3. Apply the clinical, pharmacological and basic science knowledge acquired to the understanding of pathophysiological mechanisms that underlie diseases of the cardiovascular, renal and respiratory systems.
4. Diagnose and manage common clinical problems of the cardiovascular, renal and respiratory systems across the life span.

5. Relate the influence of societal factors to cardiovascular, renal and respiratory system health and disease.
6. Consider the role of physicians in influencing community determinants of health, in particular related to smoking, exercise and nutrition.

### **Musculoskeletal/Dermatology Unit**

***(Objectives approved by Curriculum Committee November 9, 2010)***

At the completion of this unit, students should be able to:

1. Describe the pathogenesis and clinical expression of common dermatological and musculoskeletal diseases and injuries (SC2a, SC2b, SC2d, SC3a)
2. Describe characteristic dermatological and musculoskeletal injuries and conditions related to participation in work and athletic activity (SC2a, SC2b, SC2d, SC3a)
3. Formulate an approach to investigate, diagnose and manage common dermatological and musculoskeletal diseases and injuries (SC3a, SC3c, SC3d)
4. Describe the principles involved in determining fitness for return to activities of daily living, occupation and recreation (SC1a, SC1c, SC1d, SC1f; P 1, P2, P3; CC4)
5. Recognize the roles of allied Health care professionals in optimizing the return to activities of daily living, occupation and recreation following musculoskeletal disease or injury (SCSC1d; P1; CC3, CC4)

### **Integration**

At the completion of this unit, students should be able to:

1. Use a patient-centred approach to take into account the whole person (culture and context, illness experience, feelings and expectations) with respect to diagnosis and management while synthesizing relevant information from history, physical examination and investigations to develop an appropriate care plan. (SC1a, SC1b, SC1e, SC1f, SC2, SC3a, SC3f, P4, CC1, CC5)
2. Identify the benefits and challenges of providing patient care in an interdisciplinary collaborative care model. (CC4, SC1d, SC3g)
3. Describe the unique role and perspective of the family physician in providing comprehensive, continuing care across the lifespan of patients and their families. (SC1d)
4. Recognize ethical dilemmas, critically analyze situations and recognize the importance of patient and family input to arrive at a course of action that is congruent with the beliefs, values and rights of the patient and their families. (P2, P3 P5, CC5)
5. Incorporate evidence-based practice and clinical practice guidelines into the assessment, education and care of patients using a patient centered approach, and recognize the limitations of clinical evidence. (CC5, LL1, LL2, SC2b, SC3a, SC3c, SC4c)
6. Identify resources to support family and other caregivers in providing patient care. (SC1c, SC1e, SC3d, SC3g)
7. Describe the spectrum of community-based care resources and recognize when referral to these resources is appropriate. (SC1d, SC3g)

8. Identify the impact of health care policy, programs and services and how gaps affect patient outcomes. (CC1, CC3, CC4, CC5)
9. Compare the benefits and challenges of providing patient care in a range of practice contexts. (CC4)
10. Describe the causes of and approach to common clinical problems of frail older patients, patients with cancer and patients approaching end of life. (SC2a, SC2b, SC2d, SC3a, SC3b, SC3c, SC3f)

### **Professional Competencies**

1. Identify ways in which medical care is influenced by the context of the healthcare system and practice environment, and assess evidence for sustainability and reform (CC4 CC5; LLL5)
2. Analyze ethical implications of situations encountered in medicine and reason through common scenarios in systematic yet flexible ways that focus on the good of the patient and of communities (P1, P3; SC1c, SC1d)
3. Describe ways that law shapes medical practice, and how physicians work within legal standards in clinical care (P2)
4. Integrate patient experiences and perspectives into appropriate approaches to advocacy and care (Pr4; SC1e, SC1f)
5. Identify the health needs of communities, and select appropriate approaches to prevention, management, and advocacy to meet those needs (CC1, CC2, CC3; SC1f)
6. Find and evaluate the best available evidence, and describe approaches to integrating evidence with patient values and goals of care (P2; LLL1)
7. Critically appraise and integrate disparate sources of knowledge/evidence, and describe techniques for assisting patients and families to do the same (LLL2; SC1b)
8. Reflect on one's own learning processes and behaviours, and develop and implement personal learning plans (P6; LLL3 LLL4 LLL6)
9. Identify appropriate professional boundaries in interactions with patients and colleagues, and describe strategies to maintain a healthy work-life balance (P7)
10. Contribute productively to learning communities through helping others learn and contributing to the knowledge base (LLL6)
11. Apply critical thinking in clinical decision-making, describing common traps and biases in clinical reasoning (LLL1; SC1f SC2d SC3a)
12. Identify opportunities in practice environments to improve patient safety and quality of care, and describe effective and evidence-informed approaches to change (CC4; LLL5)
13. Describe the strategies to maintain good stewardship of patient data, from gathering to securing to employing for improvement of practice and care, and for the empowerment of patients (SC4c)

## **Clinical Skills II**

Clinical skills II integrated into the appropriate units to reinforce learning. Case practice and skills are part of the Med 2 clinical teaching and there is a summative OSCE at the end of Med 2.

### Integration with *Human Development Component*

1. Demonstrate respect and sensitivity that acknowledges the plurality of gender and sexuality and the sensitive nature of sexuality-related questions and examinations.
2. Demonstrate the ability to perform a complete physical examination of the breast, sensitive to patient comfort.
3. Demonstrate the ability to elicit a complete gynecological history (including menstrual history, obstetrical history and sexual history).
4. Demonstrate the ability to perform a complete pelvic examination, sensitive to patient comfort, including the external examination, speculum exam, bimanual exam and recto-vaginal bimanual examination
5. Demonstrate the ability to elicit a complete genitourinary history from a male
6. Demonstrate the ability to perform a complete examination of the penis, scrotum and inguinal areas, sensitive to patient comfort.
7. Demonstrate the ability to elicit a complete first prenatal visit history.
8. Demonstrate the ability to perform a physical examination of a prenatal abdomen including the measurement of fundal height, Leopold maneuvers and fetal heart auscultation.

### Integration with *Neurology Component*

1. Describe the importance of taking an accurate history in order to begin to localize a potential neurological lesion in space and time.
2. Obtain a basic history from a patient presenting with symptoms of neurological disease, and be able to modify the interview as necessary to obtain this information.
3. Describe and perform the basic components of a neurological examination, including; mental status, cranial nerves, motor and sensory systems, cerebellum, reflexes, and station and gait.
4. Recognize the history and physical examination features of the common neurological diseases.
5. Differentiate between an upper motor neuron and a lower motor neuron lesion in theory and in practice.
6. Present verbally and write up a case summary of a patient presenting with a neurological complaint.
7. Demonstrate appropriate communication skills and professional attributes when interacting with patients, families, other health professionals and student colleagues.

### Integration with *Psychiatry Component*

1. Recognize and reflect on their own responses to interviewing patients who present with psychiatric symptoms.
2. Obtain a basic history from a patient presenting with symptoms of a psychiatric condition, and be able to modify the interview as necessary to obtain this information.

3. Ask questions empathetically and compassionately about sensitive areas, especially suicidal thoughts.
4. Summarize the mental status of the patient using basic terms that describe the patient's appearance, behavior, patterns of thinking and speaking, psychotic symptoms (if present) and general cognitive status.
5. Identify mood, anxiety, and psychotic illnesses in theory and in practice.
6. Present verbally and write up a case summary of a patient presenting with a psychiatric complaint.
7. Demonstrate appropriate communication skills and professional attributes when interacting with patients, families, other health professionals and student colleagues.

#### Integration with *Respirology Component*

1. Take a full history from a patient when the presenting concern is a symptom that suggests a respiratory problem including shortness of breath, cough, sputum, hemoptysis, wheeze or chest pain
2. List the respiratory features that should be included in each of the components of a full history when the presenting problem suggests a respiratory disorder.
3. Conduct a detailed physical examination of the respiratory system and will be able to appreciate the normal examination and abnormal findings in patients with respiratory disease.
4. Demonstrate knowledge of (for the main symptoms and signs of respiratory disease):
  - the pathophysiological mechanisms responsible for the symptom or sign.
  - the common causes and identify associated risk factors of respiratory disease.
5. Recognize the common historical features and physical examination findings for the following conditions:
  - Asthma
  - Chronic obstructive pulmonary disease
  - Interstitial lung disease
  - Obstructive sleep apnea
  - Pleural effusion
  - Pneumothorax
  - Pneumonia
  - Pulmonary embolism
6. Present orally and prepare a written report of a complete history and physical examination of a patient presenting with a respiratory symptom or disease.
7. Demonstrate appropriate communication skills and professional attributes when interacting with the volunteer patients, tutors and student colleagues.

#### Integration with *Cardiology Component*

1. Obtain a full history from a patient when the presenting concern is a symptom that suggests a cardiac problem including chest pain, shortness of breath, fatigue, leg swelling, syncope or palpitations.

2. Examine systematically the cardiovascular system and be able to appreciate the normal and abnormal findings in patients with cardiovascular disease.
3. Recognize and evaluate, for the main symptoms and signs of cardiovascular disease:
  - the pathophysiological mechanisms responsible for the symptoms or signs
  - the common causes and identify associated risk factors of cardiovascular disease
  - the functional status of the cardiac patient.
4. Recognize the common historical features and physical examination findings for the following conditions:
  - IHD, including stable angina and acute coronary syndromes
  - Congestive heart failure
  - Hypertension and hypertensive heart disease
  - Alular heart disease including mitral and aortic valve disease
  - Cardiomyopathy including dilated and hypertrophic cardiomyopathy
  - Pulmonary hypertension
  - Tachyarrhythmia and Brady arrhythmia, syncope and sudden death
  - Selected cases of adult congenital heart disease
  - Patients with prosthetic valves and implantable devices
5. Present orally and prepare a written report of a complete history and physical examination of a patient presenting with cardiovascular complaints or disease.
6. Demonstrate appropriate communications skills and professional attributes when interacting with patients, tutors and student colleagues.

#### Integration with *Pediatric Component*

1. Conduct a comprehensive clinical interview with a child or youth and/or accompanying adult that includes the content that is unique to the pediatric history.
2. Demonstrate communication skills that facilitate clinical interaction with children, adolescents and their families.
3. Conduct an age appropriate physical examination of infants, children, and adolescents.
4. Demonstrate the attitudes and professional behaviours appropriate for clinical practice with infants, children, adolescents and their families.

#### Integration with *Musculoskeletal Component*

1. Perform a systematic assessment of patients with MSK problems through a focused history and physical examination.
2. Elicit the key symptoms that distinguish inflammatory from non-inflammatory MSK conditions
3. Demonstrate proficiency in the approach to the examination of muscles, tendons and joints
4. Incorporate the following components into the systematic approach to all MSK regional examinations:
  - Inspection
  - Palpation
  - Range of motion (active and passive)
  - Special tests to confirm specific hypotheses

Integration with *Dermatology Component*

1. Practice verbal description of findings in skin, hair and nails
2. Demonstrate effective history-taking skills for a patient presenting with a skin complaint.
3. Apply clinical knowledge of skin to distinguish diseases presenting with similar morphologic findings.
4. Discuss risk factors and disease prevention for a patient presenting with a skin malignancy
5. Categorize an unknown skin disease based on morphologic appearance

Integration with *Integration Unit*

1. Elicit a complete medical history and demonstrate an organized approach to general physical examination
2. Perform the above while maintaining respect, courtesy and compassion for the patient.
3. Present the history and physical examination in an organized, concise fashion
4. Document the history and physical examination in an organized, legible fashion.

## **Med 3, 4 Clerkship**

### **Overall Objectives for the Clerkship:**

By the end of the clerkship the student will be able to competently:

1. Conduct a clinical interview that includes effective verbal and nonverbal communication and results in the obtaining of complete, accurate data appropriate to any clinical situation. (SC1a, SC1c, SC2a, SC4a)
2. Conduct a clinical examination of patients of all ages and interpret the findings. (SC1a, SC2a)
3. Demonstrate clinical problem solving skills, including the ability to diagnose and initially manage with supervision, common acute and chronic illnesses. (SC2b, SC2d, SC3a-g; LLL1, LLL5; P3, P5; CC4)
4. Communicate effectively, orally and in writing, including recording in the patient chart, writing orders, presenting cases, prescribing, sending referrals, and summarizing patient care and recommendations. (SC1b-d, SC4a-b; P1-2)
5. Describe the indications for and methods used in common diagnostic investigations and interventional procedures and interpret the results. (SC2c-d; SC3c, SC4a-b; P2, P5)
6. Demonstrate competence in patient education regarding strategies for health promotion and disease and injury prevention. (SC1a-c, SC1f, SC3b, SC3d, SC3g, SC4a; CC1-3; P2, P4)
7. Demonstrate the attitudes and professional behaviors appropriate for clinical practice. (SC4a; P1-7)
8. Identify and use appropriate sources of information to support the delivery of patient care. (SC4c; LLL1, LLL3, LLL6)
9. Communicate and collaborate effectively as a member of an interprofessional team. (SC1c-d)

### **Introduction to Clerkship Unit Objectives**

*Goal Statement:*

The ITC course is designed to prepare the student to transition from the pre-clinical years to the clinical rotations. The goal is to improve the students comfort at the start of the rotations and to lessen the anxiety associated with their new roles.

*Key Objectives for the Unit:*

1. Describe the roles, responsibilities and expectations of 3rd year clerks. (2.7)
2. Demonstrate the ability to operate within the routines and logistics of inpatient wards and the functioning of ward teams. (2.4, 2.7)
3. Demonstrate proficiency in history taking, writing notes in SOAP format, writing progress reports, presentation, writing orders and dictating discharge summaries. (2.1)
4. Demonstrate beginning competence in basic procedural skills. (2.2, 2.3)
5. Demonstrate professional behaviours in relation to patients, peers, health professionals and colleagues. (2.7)
6. Demonstrate effective communication skills. (2.4)
7. Demonstrate the competencies required to provide care of the elderly. (2.2, 2.3, 2.6)

**Internal Medicine Clerkship Unit Objectives**

*Goal Statement:*

By the end of the Internal Medicine, a Dalhousie medical student will have the knowledge, skills and attitudes needed to successfully diagnose and manage (under supervision) adults patients with complex medical problems.

*Key Objectives for the Unit:*

1. Conduct a clinical interview in adults with complex medical problems that results in the obtaining of complete and relevant patient history. (2.1)
2. Conduct a complete and relevant physical examination for adults with complex medical problems and be able to evaluate the results of this examination in the context of the patient history. (2.2)
3. Demonstrate clinical problem solving skills, including the ability to diagnose and initially manage with supervision, common acute and chronic medical conditions. (2.3)
4. Demonstrate an approach to the diagnosis and management of relatively uncommon medical conditions and appreciate how they might present in the clinical setting. (2.3)
5. Communicate effectively, orally and in writing, including recording in the patient chart, writing orders, presenting cases, prescribing, sending referrals, dictating letters and summarizing patient care and recommendations. (2.4)
6. Describe the indications for and methods used in common diagnostic and interventional tests including laboratory tests, x rays and electrocardiograms. Interpret the results of these tests within the context of the patient encounter, and their impact on diagnostic and therapeutic decision making. (2.5)
7. Demonstrate competence regarding strategies for health promotion and disease prevention in patients with complex medical conditions, including secondary prevention (i.e. delaying or preventing the progression of co-morbid disease). (2.6)

8. Demonstrate the attitudes and professional behaviors appropriate for clinical practice. (2.7)
9. Identify and use appropriate sources of information to support the delivery of patient care, including critical appraisal of the medical literature. (2.8)

## **Family Medicine Clerkship Unit Objectives**

### *Goal Statement:*

By the end of the Family Medicine rotation, a Dalhousie medical student will have the knowledge, skills and attitudes relevant to the care of patients in a community-based family medicine setting, providing acute and chronic care for patients of all ages and incorporating preventive health care and risk reduction.

### *Key Objectives:*

1. Recognize that the patient-physician relationship and continuity of care are central to the practice of Family Medicine. (2.4, 2.9)
2. Describe how illnesses present at an early undifferentiated stage in the Family Medicine environment when compared to the other clinical settings. (2.1, 2.2, 2.3)
3. Demonstrate effective communication skills in carrying out a patient-centered interview, exploring the patient's illness experience, personal history and social context. (2.1)
4. Perform a physical examination, which is accurate and appropriate to the presenting problem and sensitive to patient comfort and interpret the findings. (2.2)
5. Describe the indications for, risks of and methods used in the common investigations, diagnostic and interventional procedures used for the common problems and presentations in a Family Medicine setting and interpret the results. (2.5)
6. Demonstrate clinical problem-solving skills, including the ability to diagnose and to initiate management (both non-pharmacological and pharmacological) with supervision, of the common problems and presentations in a Family Medicine setting. (2.3)
7. Communicate effectively, both orally and in writing, including documenting in patient records, making case presentations, writing prescriptions, writing referrals and in negotiating and summarizing the management plan with patients in a patient-centered manner. (2.4)
8. Demonstrate an understanding of common ethical issues in practice such as confidentiality, consent and patient autonomy. (2.7)
9. Recognize the importance of personal health on one's ability to care for others. (2.7)
10. Introduce health promotion and disease prevention principles and activities appropriate to particular patient populations into the clinical encounter using evidence-based guidelines. (2.6, 2.8)  
Objectives for the Dalhousie Medical School Clerkship (Years 3 and 4) Level 2 Approved by Curriculum Committee May 27, 2010 Level 3 Approved by Curriculum Committee Oct 28, 2010
11. Demonstrate self-directed life-long learning and will use evidence-based resources to provide patient care. (2.8)
12. Identify and use or liaise with appropriate resources to support the delivery of patient care including inter-professional teams and community resources.

## Psychiatry Clerkship Unit Objectives

### *Goal Statement:*

By the end of the Psychiatry clerkship, a Dalhousie medical student will have the knowledge, skills and attitudes needed to successfully (under supervision) assess and care for patients, in a variety of settings and across the lifespan, presenting with acute or longstanding psychiatric illness. They will be able to differentiate normal from pathological emotional states.

### *Key Objectives for the Unit:*

1. Conduct a comprehensive psychiatric evaluation that includes relevant collateral history, while demonstrating the capacity to build a therapeutic relationship with the patient and obtain complete and relevant information. (2.1, 2.2, 2.6)
2. Conduct and interpret a complete mental status examination, including the assessment of risk to self or others and cognition, as appropriate to the presentation of the patient. (2.1, 2.2)
3. Discuss the importance of co-morbidity of psychiatric and medical illness and evaluate and manage this with appropriate use of targeted physical examination, investigation and consultation. (2.3, 2.4, 2.9)
4. Integrate information obtained in the assessment to develop a working and differential diagnosis, using the DSM-IV, 5 axis model and terminology. Students should begin to describe the etiology of the diagnosis within a bio-psycho-social framework relevant to the patient. (2.3, 2.6)
5. Develop and carry out (under supervision) a bio-psycho-social management plan that considers immediate, short term and long term treatment goals. (2.1, 2.2, 2.3, 2.6)
6. Discuss pharmacologic and non-pharmacologic strategies as potential treatment options for patients presenting with psychiatric illness including consideration of risk / benefit, indications, contraindications, common and serious side effects and interactions. (2.3, 2.6, 2.5, 2.8)
7. Communicate effectively, both orally and in writing, including documentation in patient charts, case presentations, writing orders and prescriptions, sending referrals and in providing education and negotiating a management plan with patients and their families. (2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8)
8. Work collaboratively within a multidisciplinary team, including accessing community resources and agencies to optimize the care of patients presenting with psychiatric illness and their families. (2.3, 2.4, 2.6, 2.8, 2.9)
9. Discuss the common clinical, ethical and legal issues in practice with specific emphasis on patient autonomy, confidentiality, involuntary admission and competency. (2.1, 2.2, 2.3, 2.5, 2.6, 2.7)  
Objectives for the Dalhousie Medical School Clerkship (Years 3 and 4) Level 2 Approved by Curriculum Committee May 27, 2010 Level 3 Approved by Curriculum Committee Oct 28, 2010
10. Demonstrate the attitudes and behaviors necessary to optimize the care of the patient presenting with psychiatric symptoms. Emphasis should be placed on recognition of the components of a therapeutic relationship and professional boundaries and on skills used by physicians to cope with stress and balancing personal and professional lives. (2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7)
11. Discuss the role of the social stigma of mental illness as a potential barrier to access to care and explore and manage their own preconceptions or reactions to patients with psychiatric symptoms. (2.4, 2.5, 2.6, 2.7, 2.8)

12. Demonstrate competence and commitment to lifelong learning that would include development of self-assessment skills and the use of evidence based resources to direct patient care. (2.3, 2.7, 2.8)

### **Surgery Clerkship Unit Objectives**

#### *Goal Statement:*

By the end of the Surgery unit, a Dalhousie Medical Student will have the knowledge, skills and attitudes to care for the surgical patient through investigation, diagnosis, treatment, and convalescence.

#### *Key Objectives for the Unit:*

1. Describe the relevant anatomy and pathophysiology of common surgical problems including disorders involving the: (2.3)
  - a) Inner and outer ear, nasal passages, and oropharynx
  - b) Thyroid and parathyroid
  - c) Gastrointestinal tract (esophagus, stomach, small and large intestine)
  - d) Hepatobiliary system (liver and biliary tract)
  - e) Pancreas
  - f) Breast
  - g) Hernias
  - h) Cardiovascular system (heart and blood vessels)
  - i) Pulmonary system (lung and major airways)
  - j) Integumentary system
  - k) Neurologic system (brain, spinal cord, and peripheral nerves)
  - l) Musculoskeletal system (muscles, bones, joints)
  - m) Urogenital system (kidney, bladder and prostate)
2. Obtain an accurate, focused history from, and perform an appropriate physical examination of, patients presenting with surgical disorders of the aforementioned systems. (2.1, 2.2)
3. Request and interpret the results of appropriate laboratory and imaging investigations for these surgical conditions, while making efficient use of limited resources. (2.5)
4. Describe the management options and appropriate strategies for treatment of these surgical conditions. (2.3)
5. Manage, under supervision, peri-operative fluid administration and correct electrolyte imbalances. (2.3)
6. Describe the prevention and management of common post-operative complications including: wound infection or dehiscence, atelectasis, pneumonia, ileus, sepsis, organ failure, urinary retention, delirium and venous thromboembolism. (2.3)
7. Participate in the initial assessment and management of a polytraumatized patient, and describe the priorities of resuscitation, investigation and treatment. (2.3) Objectives for the Dalhousie Medical School Clerkship (Years 3 and 4) Level 2 Approved by Curriculum Committee May 27, 2010 Level 3 Approved by Curriculum Committee Oct 28, 2010
8. Describe requirements and procedures for obtaining informed consent for surgical procedures. (2.1, 2.4)

9. Collaborate and communicate effectively with other members of the Healthcare team to deliver optimal care to the surgical patient, while demonstrating professionalism and respect for others. (2.9)
10. Demonstrate competence in performing common procedures including venipuncture, intravenous access, nasogastric intubation, urinary catheterization, skin suturing, and knot tying. (2.3) Objectives for the Dalhousie Medical School Clerkship (Years 3 and 4) Level 2 Approved by Curriculum Committee May 27, 2010 Level 3 Approved by Curriculum Committee Oct 28, 2010

### **Emergency Medicine Clerkship Unit Objectives**

#### *Goal Statement:*

By the end of the Emergency Medicine Clerkship Unit, a Dalhousie medical student will have the knowledge, skills and attitudes needed to successfully perform an organized targeted history and physical exam on patients presenting to the ED with undifferentiated complaints in order to formulate differential diagnoses, including an initial investigation plan subsequent to accurately and succinctly presenting and documenting the history, physical exam, investigations, management plan and discharge instructions.

#### *Key Objectives for the Unit:*

1. Apply clinical knowledge to recognize and prioritize life- and limb-threatening illnesses and perform preliminary assessment (“sick” vs. “not sick”) of undifferentiated emergency patients. (2.1, 2.2, 2.3)
2. Formulate a differential diagnosis for the presenting condition, listing the four most likely diagnoses and four “can’t miss” diagnoses. (2.1, 2.3)
3. Formulate an initial investigation plan based on a tentative differential diagnosis. (2.3)
4. Describe and safely perform (independently) the following **procedures**, while minimizing patient risks and discomforts: (2.3)
  - a) Phlebotomy
  - b) Arterial blood gas
  - c) Placement of an intravenous catheter
  - d) Insertion of a Foley catheter
  - e) Lead placement for ECG
  - f) Open a minor procedure tray and don gloves using sterile technique
  - g) Infiltrate a simple laceration with local anesthetic
  - h) Repair of minor laceration with simple interrupted sutures
5. Use effective, non-judgmental and empathetic communication to establish a positive therapeutic relationship with patients and their families and effectively communicate discharge instructions to patients in an understandable fashion. (2.4)
6. Identify how risk factors in patients based on the broader determinants of health impact and contribute to the presentation of patients to the ED. (2.6)
7. Discuss how preventative care and health promotion is integrated into emergency care and practice these concepts in the care of patients (e.g. injury prevention). (2.6)
8. Relate the role of the ED in the health care system, the role of the EM Physicians within that system, the indications for consultation in the ED and the role of other health professionals in the ED. (2.8)

9. Develop and practice the professional behaviours and collaborative relationships required to work effectively in partnership with other professionals to provide patient care within the unique environment of a busy ED. (2.7, 2.9)
10. Describe and discuss the concept of triage. (2.1, 2.3, 2.8)
11. Describe the factors that determine if a patient can be safely discharged home including severity of acute medical illness, comorbidities, cognition and supports. (2.2, 2.3)

### **Pediatric Clerkship Unit Objectives**

#### *Goal Statement:*

By the end of the pediatric clerkship, a medical student will have the knowledge and clinical skills needed to provide care under supervision to infants, children and adolescents with common acute and chronic illnesses and to successfully enter any residency program that includes care for those populations.

#### *Key Objectives for the Unit:*

1. Conduct a clinical interview in an age appropriate manner with a child or youth and/or accompanying adult that reflects knowledge of growth and development (physical, physiologic and psychosocial) and the content that is unique to the pediatric history. (2.1)
2. Conduct an age appropriate physical examination of infants, children, and adolescents and interpret the findings. (2.2)
3. Demonstrate clinical problem solving skills including the ability to diagnose and initially manage with supervision common acute and chronic illnesses of infants, children, and adolescents. (2.3)
4. Communicate effectively with parents and other care givers as well as with the child and adolescent throughout the course of care, incorporating knowledge of family centered care principles. (2.4)
5. Describe the influence of growth and physiologic maturation on the pharmacokinetics of medications as well as the influence of child behavior and psychomotor development on decision making in pediatric therapeutics. (2.3)
6. Demonstrate competence in basic fluid, electrolyte, and nutritional management of infants and children. (2.3)
7. Demonstrate competence in patient and family education regarding strategies for health promotion and injury prevention. (2.6)
8. Identify and use appropriate sources of information to support the delivery of pediatric patient care and of tools to support developmental surveillance. (2.8)
9. Communicate effectively, orally and in writing, with others members of the health care team, including recording in the patient chart, writing orders under supervision, presenting cases, sending referrals, and summarizing patient care and recommendations. (2.4, 2.9)

## **Obstetrics/Gynecology Clerkship Unit Objectives**

### *Goal Statement:*

By the end of the Obstetrics and Gynecology unit, a Dalhousie medical student will have the knowledge, skills, and attitudes to care for obstetrical and gynecological patients through investigations, diagnosis, treatment, and convalescence.

### *Key Objectives for the Obstetrics and Gynecology Clerkship Unit:*

1. Describe the relevant normal anatomy and physiology, as well as the pathophysiology of the following: (2.2, 2.3)
  - a) uterus
  - b) ovaries
  - c) fallopian tube
  - d) cervix
  - e) vagina
  - f) vulva
  - g) menstrual cycle
  - h) labour
  - i) pregnancy
  - j) parturition
  - k) lactation
  - l) menopause
2. Conduct a thorough and accurate clinical interview appropriate to any obstetrical and gynecological clinical situation. (2.1)
3. Perform a complete physical examination of obstetrical and gynecological patients, and interpret the findings. (2.2)
4. Demonstrate clinical problem solving skills, including the ability to diagnose and initially manage with supervision, common obstetrical and gynecological conditions. (2.3)
5. Communicate effectively, orally and in writing, including recording in the patient chart, writing orders, presenting cases, prescribing, sending referrals, and summarizing patient care and recommendations in obstetrical and gynecological patients. (2.4)
6. Describe the indications for and interpretation of results of common diagnostic investigations and interventional procedures in obstetrics and gynecology. (2.5)
7. Demonstrate competence in patient education regarding strategies for health promotion and disease prevention in obstetrical and gynecological patients. (2.6)
8. Describe the requirements and procedure of obtaining informed consent for obstetrical and gynecologic surgical procedures. (2.4, 2.7)
9. Perform the following under supervision: vaginal delivery, placental delivery, pap smear and cervical swabs, urinary catheterization, intravenous access, skin suturing and knot tying, and examination of the newborn. (2.1, 2.2, 2.3)
10. Communicate and collaborate effectively with all members of the health care team in a professional and respectful manner, while caring for obstetrical and gynecological patients. (2.9)

### **Electives Clerkship Unit Objectives**

*Goal Statement:*

By the end of the Electives rotation, a Dalhousie Medical Student will have the knowledge, skills and attitudes needed to develop an understanding of various aspects of medicine not offered in the formal undergraduate medical education curriculum, study particular areas of the curriculum in greater depth; and explore career opportunities.

*Key Objectives for the Unit:*

1. Demonstrate the skills of self-assessment, independent and life-long learning (2.8)
2. Practice the interdisciplinary management of patient care (2.9)
3. Participate in decision-making and education of patients and their families in an interdisciplinary team (2.6, 2.9)
4. Distinguish the differences in healthcare delivery in a smaller community versus tertiary care setting. (2.7)
5. Demonstrate an understanding of various aspects of medicine not offered in the scheduled curriculum (2.7)
6. Propose and achieve self-directed objectives in particular areas of the curriculum in greater depth specifically related to interprofessional collaboration and non-tertiary health care (eg community settings) (2.8)
7. Describe various potential career opportunities (2.7)

### **Care of the Elderly Clerkship Unit Objectives**

*Goal Statement:*

By the end of the Care of the Elderly rotation, a Dalhousie Medical Student will have the knowledge, skills and attitudes needed to successfully diagnose and manage (under supervision) frail elderly patients with interacting medical, medication-related, cognitive, functional, and social problems.

*Key Objectives for this Unit:*

1. Interview collateral historians, such as family members, to obtain a history of any cognitive impairment, and to determine the patient's baseline and current level of function in activities of daily living. (2.1)
2. Obtain a detailed medication history that includes a list of all medications being taken, dosages, frequencies, indications, evidence of benefits, side effects, and assessment of adherence, and identify medications that are the most likely to cause adverse events in older individuals. (2.1, 2.3, 2.6, 2.8, 2.9)
3. Identify and document the components of a Comprehensive Geriatric Assessment. (2.1, 2.2, 2.4)
4. Construct a differential diagnosis and plan for investigation and management of a frail elderly patient who has fallen. (2.1, 2.2, 2.3, 2.5, 2.6, 2.9)

5. Diagnose dementia (perform a cognitive assessment, obtain a collateral history, and determine if the patient meets the criteria for dementia), describe the typical stages of Alzheimer's disease, and develop initial plans for management. (2.1, 2.2, 2.3, 2.9)
6. Describe the process by which competency for personal care decision-making is determined. (2.1, 2.9)
7. List the causes and outline a plan for diagnosis and management for a frail elderly person with urinary incontinence. (2.1, 2.2, 2.3, 2.5)
8. Recognize that frail, elderly persons are at a higher risk of iatrogenic illness, and identify function, frailty, and life expectancy as factors that should influence the management plan.(2.3, 2.5)
9. Describe the ways in which common diseases such as diabetes, Parkinson's disease, depression and heart disease differ in presentation and management for frail elderly persons. (2.3, 2.9)
10. Recognize the limitations of applying evidence obtained from clinical trials of younger, healthier persons to frail elderly persons. (2.3, 2.8)

### **CRAM Clerkship Unit Objectives**

#### *Goal Statement:*

By the end of the CRAM unit, a Dalhousie medical student will have the knowledge, skills and attitudes needed to successfully complete Medical Council of Canada examinations.

#### *Key Objectives for this Unit:*

1. Identify gaps in knowledge and develop learning plans to fill the gaps. (2.3, 2.7, 2.8)
2. Review and consolidate all aspects of MD curriculum in preparation for the MCC exam. (2.3, 2.8)
3. Demonstrate skill in efficient study, preparation and review (2.7, 2.8 )

Clerkship Log Document Follows:

## Clerkship Procedural Log

Procedure	Intro To Clerkship	Emergency	Family Medicine	Internal Medicine	Obstetrics and Gynecology	Pediatrics	Psychiatry	Surgery	Care of the Elderly	Electives
Bag-mask ventilation										
Use of a Glucometer										
Venipuncture										
I.V. line insertion										
Arterial blood gases										
Endotracheal intubation										
Pap Smear										
Wound closure										
Performance of EKG										
Urinary catheterization (female)										
Urinary catheterization (male)										
Abscess incision and drainage										
N/G tube										
Primary casting for fracture										
IM and/or subcutaneous injection										

## Clerkship Patient Encounters Log

Procedure	Intro To Clerkship	Emergency	Family Medicine	Internal Medicine	Obstetrics and Gynecology	Pediatrics	Psychiatry	Surgery	Care of the Elderly	Electives
Anemia										
Chronic Obstructive Lung Disease										
Cough/Dyspnea										
Asthma										
Diabetes										
Chest Pain										
Heart Failure										
Renal Failure										
Coronary Artery Disease										
Acid Base, Fluid and Electrolyte Disorders										
Stroke										
Abnormal Uterine Bleeding										
Contraception Counselling										
Uncomplicated Vaginal Delivery										
Antepartum assessment										
Postpartum assessment										
Sexual Transmitted Infection										
Newborn Exam										

## Clerkship Patient Encounters Log

Concern Regarding Growth						Yellow				
Concern Regarding Nutrition						Red				
Concern Regarding Development						Yellow				
Concern Regarding Behavior						Yellow				
Upper Respiratory Tract Infection			Red			Red				
Lower Respiratory Tract Infection		Red		Red		Red				
Acute Diarrhea						Red				
Abdominal Pain	Green	Red	Red			Yellow		Red		
Headache	Green	Yellow				Green				
Trauma		Red						Green		
Myocardial Infarction				Red						
Periodic Health Exam			Red							
Periodic Health Exam - Child			Red			Green				

## Clerkship Patient Encounters Log

Anxiety Disorder										
Mood Disorder										
Psychotic Disorder										
Suicidal patient										
Agitated Patient										
Substance Use Disorder										
Personality Disorder										
Bleeding from the Lower GI tract										
Bleeding from the Upper GI tract										
Breast mass										
Liver Disease										
Cancer										
Fever/Sepsis										
Thromboembolic Disease										
Hernia										
Intestinal Obstruction										
Acute Abdomen										
Back Pain										
Hypertension										
Risk Factor Counselling										
Comprehensive geriatric assessment										
Delirium										
Cognitive Impairment-dementia										
Polypharmacy										

## Clerkship Patient Encounters Log

Informed Consent Process										
Patient Care Plan Development Involving Cultural Factors or Values Conflict										
End-of-Life Decision Making										
Medical disorders in pregnancy										
Obesity										
Rash										