MD Program
UNIVERSITY OF TORONTO

Office of Faculty Development

Introduction to Health Science Research (HSR) for New Tutors

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Disclosures

We have nothing to disclose

… except that we are continually learning, and we look forward to learning together with you.
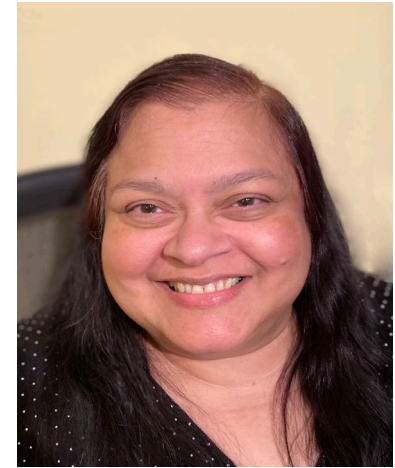
Learning outcomes

By the end of this webinar, the HSR tutor should be able to:

1. Describe the HSR component objectives, structure, content and expectations.

2. Explain the tutor's role and responsibilities during the second year of HSR

3. Use the available tutor resources to prepare for the second year of HSR

4. Complete the student evaluations that occur in the second year of HSR

5. Describe how HSR tutorials will occur

Who are we?

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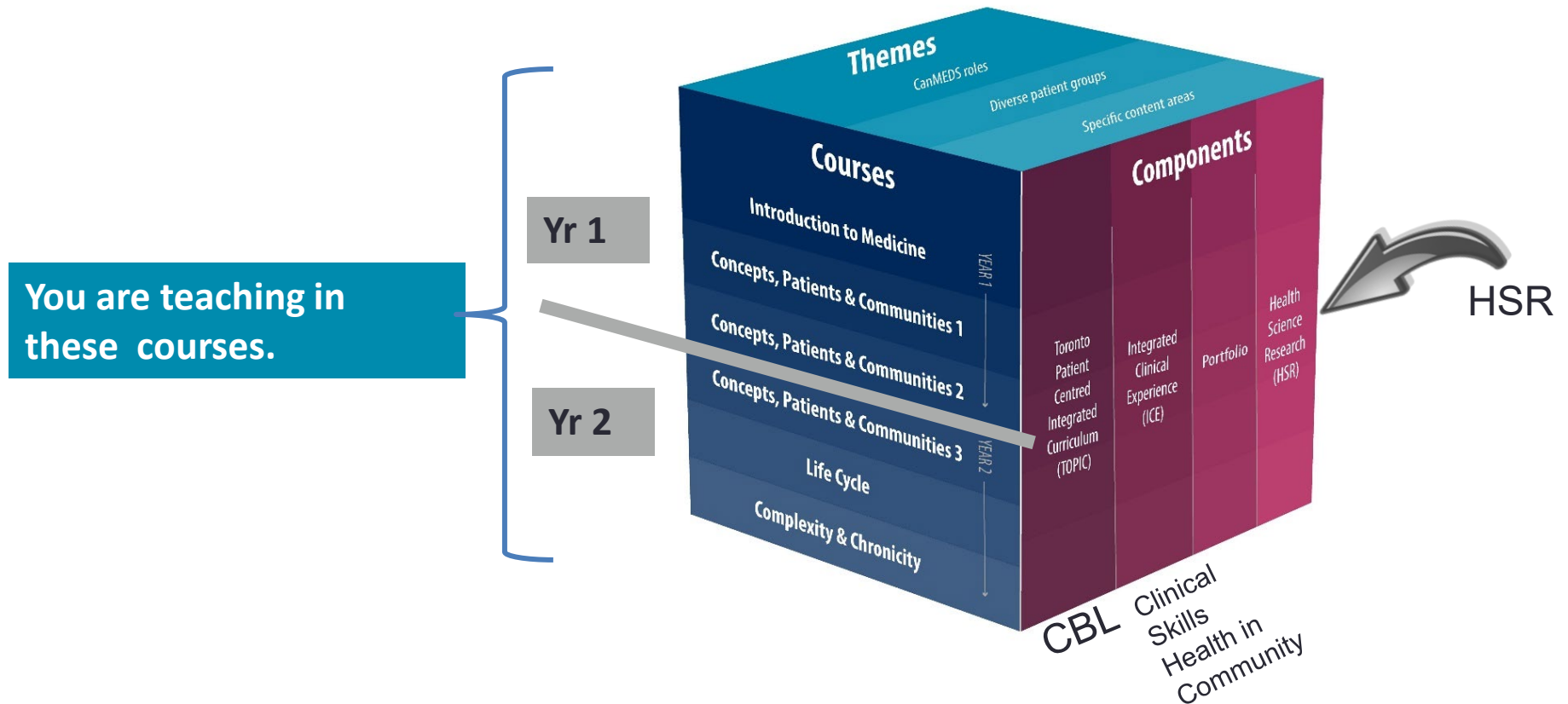
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Learning Outcome

Describe the HSR component objectives, structure, content and expectations

The Structure

Foundations Curriculum

Yr 1

You are teaching in these courses.

Yr 2

Themes
CanMEDS roles
Diverse patient groups
Specific content areas

Courses
Introduction to Medicine
Concepts, Patients & Communities 1
Concepts, Patients & Communities 2
Concepts, Patients & Communities 3
Life Cycle
Complexity & Chronicity

YEAR 1
YEAR 2

Components
Toronto Patient Centred Integrated Curriculum (TOPIC)
Integrated Clinical Experience (ICE)
Portfolio
Health Science Research (HSR)

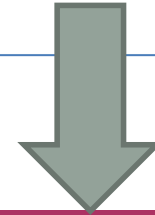CBL   Clinical Skills   Health in Community

HSR

Courses

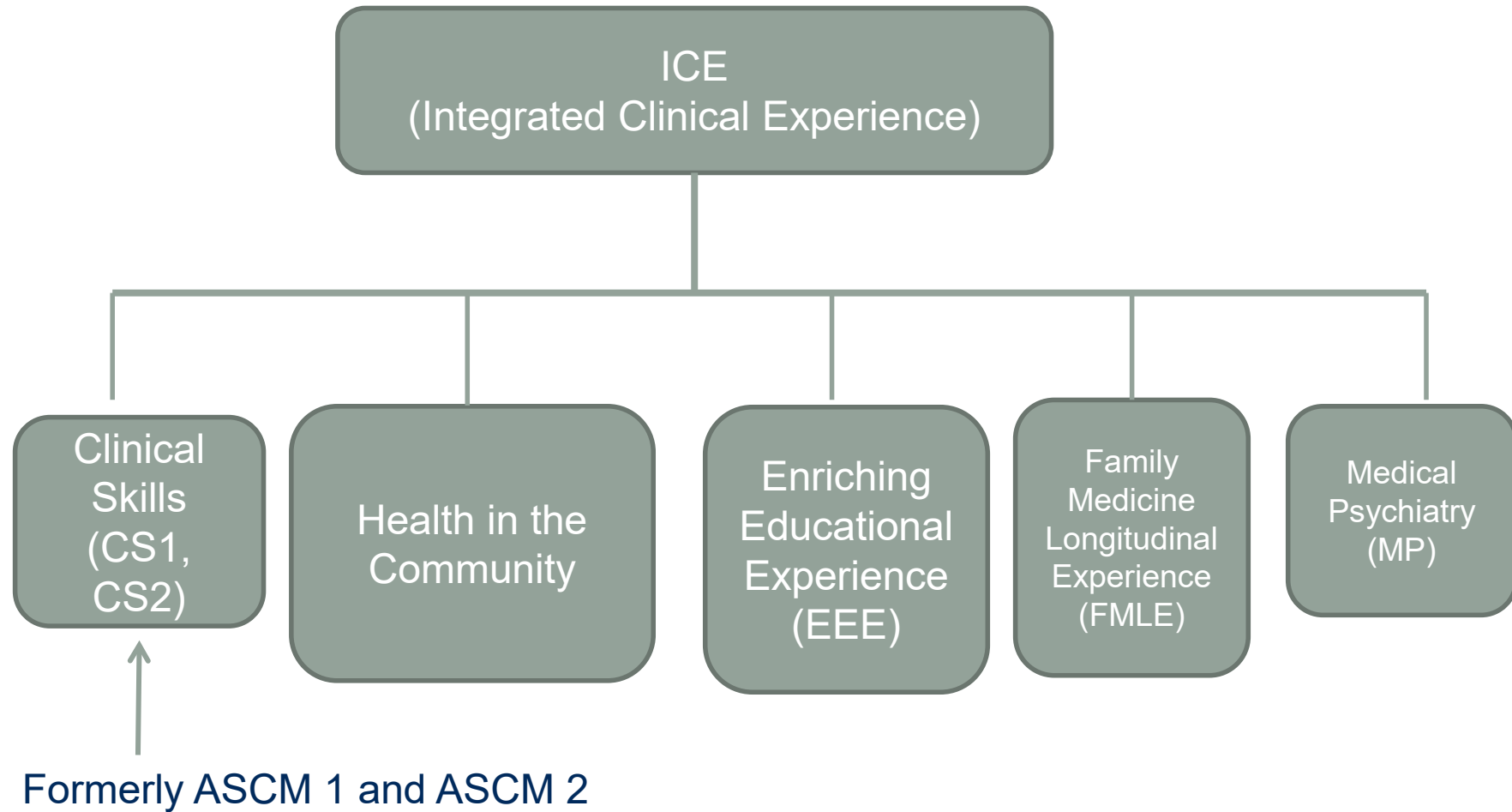| Introduction to Medicine (ITM) |
| :---: |
| Concepts, Patients and Communities (CPC 1) |
| Concepts, Patients and Communities (CPC 2) |
| Concepts, Patients and Communities (CPC 3) |
| Life Cycle (LC) |
| Complexity and Chronicity (CC) |

Components

| Toronto Patient-Centered Integrated Curriculum (TOPIC) | Integrated Clinical Experience (ICE) | Portfolio | Health Science Research (HSR) |

LECTURES & CBL

ICE
(Integrated Clinical Experience)

Clinical Skills (CS1, CS2)

Health in the Community

Enriching Educational Experience (EEE)

Family Medicine Longitudinal Experience (FMLE)

Medical Psychiatry (MP)

Formerly ASCM 1 and ASCM 2

Themes

CanMEDS roles
Professional, Health Advocate, Collaborator, Manager/Leader

Diverse population groups
indigenous health, health for those identifying as LGBTQ, geriatrics, and global health

Specific content areas
medical imaging, pharmacology, pathology, nutrition, basic & social sciences and humanities

Undergraduate Medical Education
UNIVERSITY OF TORONTO

Overall Goal of HSR Component

- Health Science Research (HSR) is an introduction to the principles of research, directed at helping students understand and use research to contribute to improving the health of people and populations, including First Nations, Inuit and Metis peoples, in Canada and globally.

- The HSR component is a two-year component of the Foundations Curriculum

What is the HSR Component?

- Introduction to the principles of research
- Help students to
  - *understand* core research knowledge and develop fundamental research skills
  - *develop* new ways to address clinical issues
  - *use* research to contribute to improving the health of patients and populations
  - *become critical consumers of research*

Being a Consumer of Research

- Students *will* be involved in
  - research or quality improvement activities to some degree at various times in your career.

- Students *may* be involved in research
  - through a project during medical school or residency.
  - as a collaborator on projects with others who are the principal investigator
  - as a principal career activity.

- Whatever ***the students'*** involvement….

Being a Consumer of Research

All students will be involved as consumers of research!

What is a Consumer of Research?

A consumer of research is someone who has learned to

- Manage the deluge of information available
- Recognize the variety of sources of information/research
- Critically appraise the research
- Identify research that will help you in caring for patients
- Enhance professional development and life-long learning

Focus of HSR Year 2

Second year of HSR provides the student with the opportunity to

1. Become a consumer of research
2. Apply core research knowledge and skills
3. Learn how to use research to contribute to the care of your patients and population!

HSR and
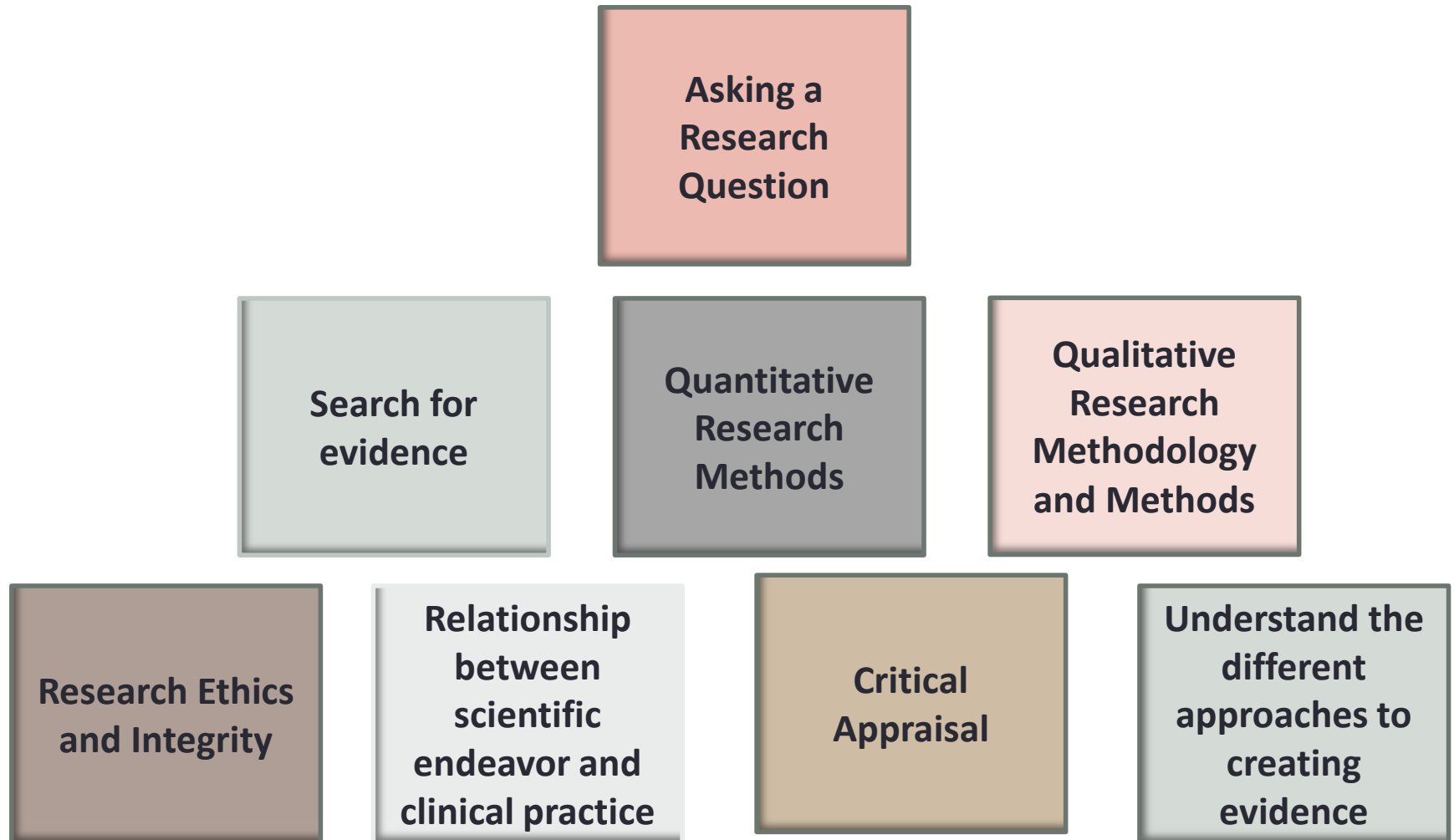# Research Knowledge and Skills

BUILDING BLOCKS 🞍

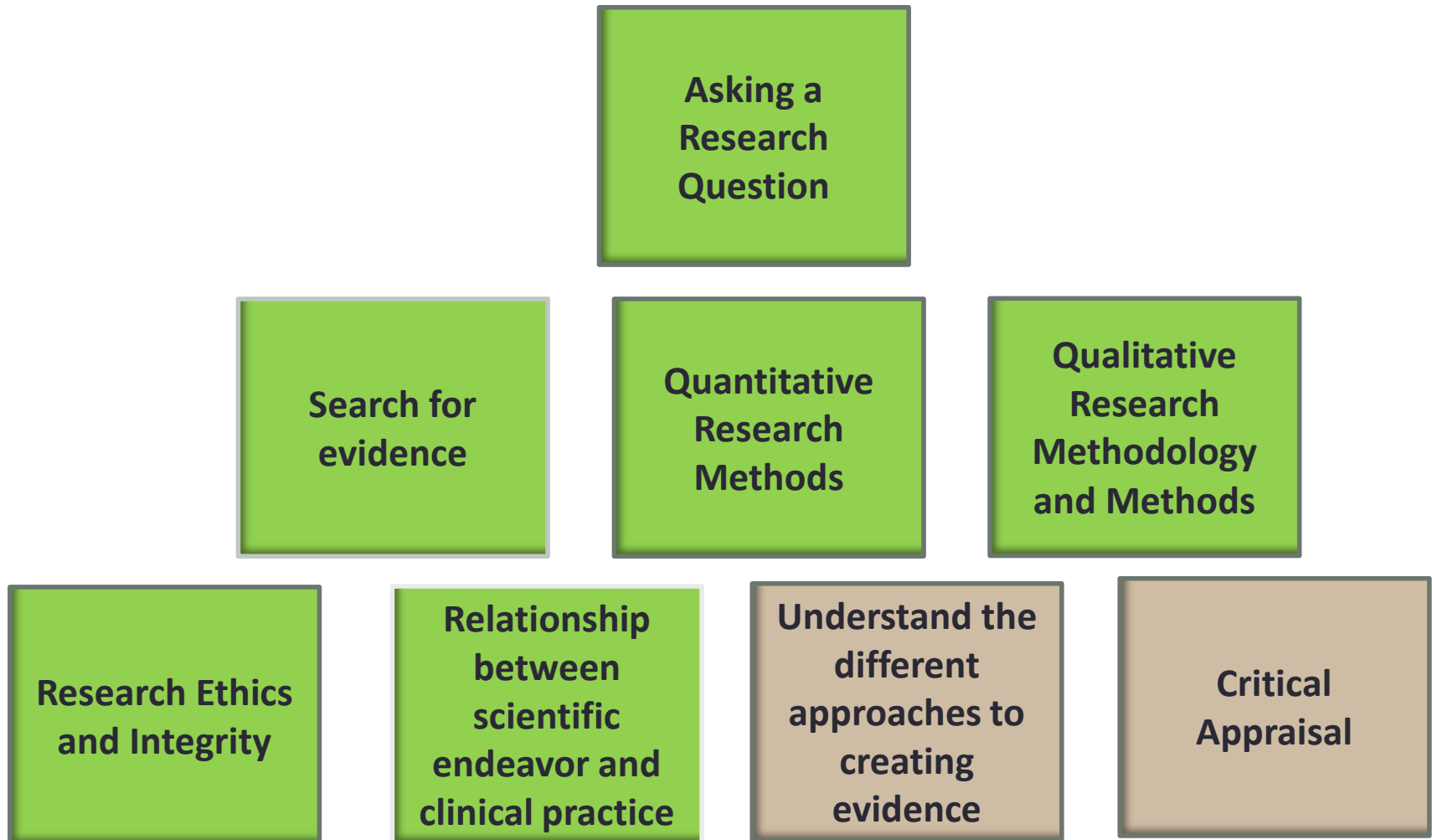But, in order to be successful with this process students need the HSR building blocks

Let's Review the
Course Outline and Expectations
for the first-and second-year of HSR

Health Science Research

Overview of the Health Science Research (HSR) component:

1. Course Objectives

2. Course Structure

3. Learning and Teaching Activities

4. Assessment

…all available on-line in Elentra – HSR Year 2 Handbook!

Overall HSR Component Objectives

At the completion of HSR, the student will be able to:

1. Describe the relationship between scientific endeavor and clinical practice

2. Describe the concepts and application of translational research

3. Contribute to the work of a (potential) research project

4. Identify and apply research evidence to the care of patients, populations, health systems and policy

5. Describe the model for improvement

HSR Component Structure

- Integrated two-year component of the Foundations Curriculum
- **First year of HSR**
  - Interactive large group sessions
  - 7 themes
  - Each theme is covered over a period of ~ 3-6 weeks
  - Each theme concludes with large group session 1-2 hours
- **Second year of HSR**
  - Small group tutorials
  - Critical Appraisal that is integrated into the CBLs
  - Practicum exercise

What are they coming with into Year 2 ?

- Learners are coming into medical school with different research backgrounds and experiences
- Year 1 introduces all learners to get on the same page and get all the building blocks under their belt

HSR Component Structure

- Integrated two-year component of the Foundations Curriculum

- **First year of HSR**

  - Large group sessions

  - 7 themes

  - Each theme is covered over a period of ~ 3-6 weeks

- **Second year of HSR**

  - Small group tutorials

  - Critical Appraisal that is integrated into the CBLs

  - Practicum exercise

HSR Themes – Year 1 (modules, large group learning, panels)

Theme 1: Introduction to Research

Theme 2: Translational Research

Theme 3: Searching for Evidence

Theme 4: Quantitative Research

Topic 1: Describing & Summarizing Data
Topic 2: Hypothesis Testing and Statistical Inference

Theme 4: Quantitative Research

Topic 3: Basic Statistic Tests
Topic 4: Bias, Confounding and Effect Modification

Theme 4: Quantitative Research

Topic 5: Cohort Studies
Topic 6: Case Control Studies

Theme 4: Quantitative Research

Topic 7: Randomized Controlled Trials

Theme 5: Qualitative Research

Theme 6: Research Ethics and Integrity

Theme 7: Uncertainty in Research & Knowledge Translation

HSR Component Structure – Year 2

- Integrated two-year component of the Foundations Curriculum
- First year of HSR
  - Large group sessions
  - 7 themes
  - Each theme is covered over a period of ~ 3-6 weeks
  - Each theme concludes with large group session 1-2 hours
- **Second year of HSR**
  - Small group tutorials
  - **Critical appraisal** that is integrated into the Foundation CBLs
  - **Practicum exercise**

HSR Small Group Tutorials

Year 2

- 1 : 1 meetings
- If public health guidelines change
- Or if there are exceptional circumstances – HRS tutor can request and negotiate with Academy Admin and learners

HSR Component Structure– Second Year of HSR

- Each tutorial consists of
  - Learning objectives (required)
  - Some tutorials have E-modules (content is required, review is optional)
  - All have required reading/articles for critical appraisal (required)
  - Other resources (optional)
- Integrated into Foundations Curriculum = CPC 3, Life Cycle and Complexity and Chronicity syllabus (2nd year courses)
- Assessment – includes Critical Appraisal, Practicum Exercise (written and oral), Mastery Exercises. (required)

Core teaching and learning

1. Small group tutorials
2. Practicum Exercise
   - One on one coaching meetings with HSR tutors
   - Develop literature search strategy with librarians
   - Discussions during tutorials
   - Written Submission and Oral Presentation
3. Critical Appraisal activities

1. HSR Small Group Tutorials

Small group tutorials

- Total of 8 tutorials (one facilitated by Librarians)
- 2 hours each, specific Wednesdays from 1:00 to 3:00
- **Tutorial focuses on**
  - (i) **Critical appraisal skills** and integration into the CBL
  - ~60+ minutes – using CASP checklist
  - (ii) Supporting the development of the **Practicum Exercise**
  - ~60- minutes

Foundations Curriculum
Sample timetable – year two

	Monday	Tuesday	Wednesday	Thursday	Friday
AM	Anatomy / Longitudinal Theme Lecture	Self-Learning Day	Case-Based Learning (faculty led)	ICE: Clinical Skills	Lecture
PM	Workshops / FMLE		Integrated Summary & Application Lecture / Portfolio/ HSR	ICE: HC/ ICE: FMLE	Case-Based Learning (student led)

Please note: Timetables will vary from week to week. This timetable is an illustrative example of a typical week in year two.

2. Practicum Exercise

- **What is the Practicum Exercise?**
  - Key assignment
  - Longitudinal exercise involving the development of a research proposal from September - April
  - Independent and personalized exercise to broaden the student's research skills
  - Apply core research knowledge

Goals of Practicum Exercise

1. Gain supervised experience in preparing a research protocol

2. Apply core research knowledge to the development of the research protocol

3. Explore areas that are of interest

4. Independent and personalized research experience intended to build upon, enhance and broaden their research skills.

Practicum Exercise

- **What is the Practicum Exercise?**
  - Introduced at the end of first year of HSR
  - Think about it over the summer
  - Fundamental activity of second year of HSR

1:1 Student and Tutor Meetings

- Each student will need to meet with their tutorial leader no later than end of October preferably earlier.

- One-on-one meetings (Zoom or socially distanced)

- Purpose of meeting is to discuss the focus of the practicum, learning plan, deliverables and evaluations.

- Students should provide their tutor with their curriculum vitae prior to meeting with them to help tutor meet the student's learning objectives and support the student's choice of an interesting and personally relevant research question

To do: Review Practicum Exercise e-module:
http://emodules.med.utoronto.ca/DCemodules/HSRPracticumExercise/story.html

Develop Search Strategy

- Need to first develop their tentative research questions before they have the session with the librarian after which they need to develop their literature search strategy

- Note: some may decide to change their research questions after they conducted their literature search - this is OK

Practicum Exercise

- Consists of 2 parts
  - Written Practicum Exercise
  - Oral Practicum Exercise

What is the Written Submission for the Practicum Exercise?

Develop a "research protocol"

- Title
- Research Question
- Background and Significance
- Design and Methods
- Data Analysis
- Research Ethics Considerations
- Knowledge Translation Issues
- Implications

Written format~ 2,500-3,000 words (5 -6 pages).

What is the Oral Presentation of the Practicum Exercise?

- New for this year – 3MT -"3 Minute Thesis" format

- 3 minute talk: 1 slide

- Originated University of Queensland 2008

- Aimed at a more general audience (similar to a summary presentation to a funding agency)

- Evaluation based on communication, comprehension, and engagement

Students with previous research experience!

Expected to engage in practicum exercise that is:

- (preferably) new & different CIHR pillar

- build upon, enhance and broaden their research skills.

- But can continue in on-going research topic but protocol must be new

- Not previous research

Practicum Exercise – Second year of HSR

Students are **NOT** expected to conduct and complete a research project.

Practicum Exercise

- Part of the tutorial will be devoted to updating the tutor and tutorial members on the individual student's practicum exercise.

- Each tutorial has a specific focus related to the practicum exercise i.e. research question or methodology or hypothetical analysis

- For example, during HSR Tutorial #2 the students will critically appraise articles on first episode psychosis. For the other half of the tutorial, each will update the tutorial group on their practicum exercise. Specifically, the student will inform the group about their **research topic and developing their research question and the relevance of this research question**.

3 .Critical Appraisals

- Each student will be expected to complete 2 critical appraisals of preselected research studies/manuscripts articles aligned with the CBL of the week.

- The students should use the appropriate CASP tool checklist (i.e., the CASP specific tool will depend on the type of study-RCT, cohort, qualitative etc.) to help guide the critical appraisal process.

- All critical appraisals will be done by groups of 2-3 students.

- The groups will be expected to present the critical appraisal during the tutorial to other members of the tutorial group - PowerPoint.

- This process will enable the students to assess the study's validity and relevance to the CBL patients.

- All critical appraisal presentations will be assessed by the HSR tutor.

Summary of Second Year 2 Schedule

DATE	Critical Appraisal Content	Practicum Exercise Content
Wednesday, September 14, 2022	**TUTORIAL 1: Introduction to Evidence-Based Practice, Critical Appraisal**	**Introduction to Practicum Exercise**
Wednesday, October 5, 2022	**Tutorial 2: Critical Appraisal – Psychiatry**	Research question, background
Monday, November 2, 2022	**TUTORIAL 3: Finding the Evidence** Librarians work with students on search strategy	
Wednesday, November 15, 2022	**Research Question Due**	
Monday, December 5, 2022	**Practicum Exercise Progress Report Due by 11:59pm on OASES**	
Wednesday, January 4, 2023	**TUTORIAL 4: Critical Appraisal – Obstetrics and Gynecology**	**Research design and analysis**
Wednesday, February 1, 2023	**TUTORIAL 5: Critical Appraisal – Pediatrics**	**Ethical Issues**
Wednesday, February 22, 2023	**TUTORIAL 6: Quality Improvement – Geriatrics**	**Knowledge Translation**
Monday, March 6, 2023	**Final Written Practicum Exercise Due by 11:59pm on OASES**	
Wednesday, April 19, 2023	**TUTORIAL 7: Critical Appraisal Guidelines**	**Preparation for Oral Presentation**
Wednesday, April 26, 2023	**TUTORIAL 8: Oral Presentations**	

Learning Outcome

Explain the tutor's role and responsibilities during the second year of HSR
&
Describe how HSR 2 tutorials will occur

The HSR Tutor

HSR Tutors

YOU have been asked to be an HSR Tutor because of your research experience and enthusiasm for teaching – So, you come to HSR with the all the right ingredients!

What is the role of the HSR Tutor?

- Facilitate a 2 hour discussion and tutorial activity that creates a safe and **productive small group learning environment**.

- Keep the **group on track** – ensure student discussion covers the pre-set learning objectives.

- Help students to **consolidate their learning** by guiding them to apply prior and newly acquired core research knowledge to learning of critical appraisal and the practicum exercise.

- Guide students to **develop and consolidate core research skills** including: critical appraisal, problem solving and critical thinking.

- Guide students to **develop life-long learning skills** including the use of external feedback to identify their own learning needs, selecting the most appropriate resource materials.

Teaching level expectations

1. Create an effective, safe, and inclusive teaching and learning environment

2. Come prepared to discuss the content to **guide** learners to develop core knowledge and skills needed to become effective consumers of research

3. Coach learners (individually and as a group) through their Practicum Exercise process

4. Observe learner performance (discussions, presentation, written report), assess, and provide feedback and submit your assessment.

5. Commit to developing your teaching skills
- small group facilitation
- coaching
- assessment
- providing feedback

HSR Co-Tutor Model

HSR Co-tutor model

- Co-tutor model- 2 tutors/group (wherever possible)

- Tutors from different research backgrounds

- Students with specific areas of expertise can help to facilitate tutorial content

- 10-12 students/groups ~ 10/group

HSR Co-tutor model: How does it work?

Possible structure of HSR co-tutor model

1. Both tutors attend all tutorials

2. Tutors can share some tutorials and divide up other tutorials – based on knowledge base & comfort or personal schedules

3. Divide tutorials - based on knowledge base & comfort or personal schedules

   Can you let us know what you decide? hsr.ume@utoronto.ca

HSR Co-tutor model

- Co-tutors will be notified of their pairings in before the end of August.

- Groups will be sent to you by HSR Admin or the Academy shortly

- If you haven't heard back you can contact your own Academy Coordinator

Learning Outcome

Use the available tutor resources to prepare for the second year of HSR

Preparing for
Small Group Tutorials

Resources

1. Elentra – what is it?
   - An integrated online teaching and learning platform for MD program learners, instructors and curriculum administration
   - Please contact HSR Admin (hsr.ume@utoronto.ca) with your UTORid and we will get you connected.

2. HSR Student Handbooks on Elentra
   - First and second year handbook

3. One week prior to your tutorial you will receive a TUTOR GUIDE via email.

4. Educafes – just-in-time Faculty Development

HSR Educafes = Faculty Support

Key Features

       Occurs between noon-1 pm

       1 hour before each tutorial

       Non-mandatory but very, very useful

       Can be used for CME credit – we keep track of attendance and use this to submit your credits

Virtual HSR Educafes = Faculty Support

60 mins   –   Live Webinar everyone individually signs on from own location
Sent this request to each academy to try to get same tutorial rooms for each of the tutors at their academy (stay tuned)

FitzGerald Academy

WCH

Mississauga Academy

Wightman-Berris Academy

Peters-Boyd Academy

Learning Outcome

Complete the student evaluations that occur in the second year of HSR

HSR Assessments

HSR Assessment

To successfully complete a Foundation's course, and attain a standing of "satisfactory progress" the student must:

- Satisfactorily complete all marked assessments for each of the components as well as those for specific longitudinal component/themes that occur within the course, *and*

- Perform satisfactorily on any non-marked learning activities. Satisfactory professional behavior is a requirement to achieve credit in every course, and assessment of professionalism is included in every course and course component
-

HSR Evaluations – Second year 2

HSR Assessment/Assignment	Date(s)	Week	Requirement
Clinical Question PE Brainstorm Worksheet (1 pg)	October 6, 2022	41	Complete
Literature Search Tool Worksheet	November 1, 2022	44	Complete
Research Question Form (1 pg)	November 15, 2022	46	Complete
Student Professionalism Forms	November 24, 2022	48	Satisfactory
Mastery Exercise questions for Searching Theme	December3, 2022	49	Satisfactory
Practicum Exercise Progress Report	December 5, 2022	49	Satisfactory
Critical Appraisal Assignment (real time)	2 By end of Week 67		Satisfactory
Student Professionalism Forms	February 23, 2023	60	Satisfactory
Practicum Exercise Final Report	March 6, 2023	61	Satisfactory
Mastery Exercise questions for QI Theme	Geriatrics/Palliative Care March 3, 2023	61	Satisfactory
Oral Presentations (real time)	April 26, 2023	68	Satisfactory

HSR Assessments – 5 types of assessments

1. Research Question Form – Rubric
2. Real-time Critical Appraisals by Group – Rubric
3. Written Practicum Exercise – Rubric
4. Real-time Oral Practicum Exercise – Rubric
5. Professionalism assessments X 2 - Rubric

NEXT STEP

"HSR Facilitating Small Group

Active Learning Discussions"

All tutors (New and Returning)

==August 24,2022==

==5 to 6:30 pm==

Please register and keep date open.

Should receive email with invitation shortly.

Summary

By the end of this webinar, the HSR tutor should be able to:

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We welcome your input…

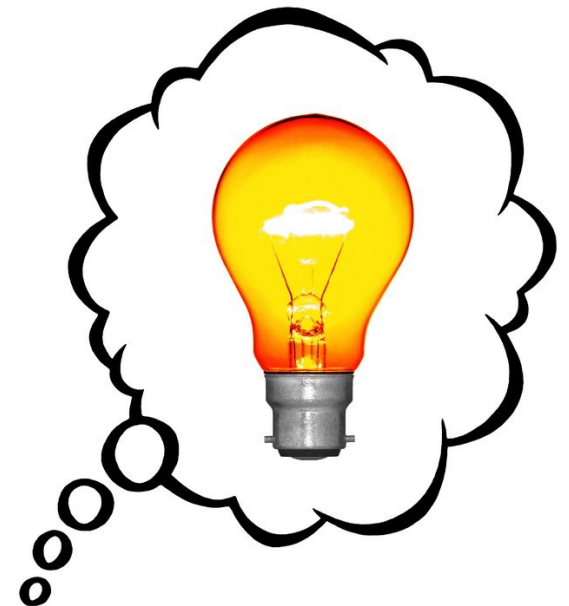**Other…suggestions are welcome**

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THANK YOU