Surgery
UNIVERSITY OF TORONTO

Spine Program

Spine Fellowship Orientation Package

Dear our new city-wide spine fellows,

Welcome to the University of Toronto Spine Program as a Clinical Fellow at one of the university-affilliated hospitals. We hope that your academic year will enhance your cognitive, research and clinical skill sets in the area of spine while also providing you with the opportunity to be consulting clinical fellows ready to commence your independent clinical practices upon completion of this year. We also welcome you to the academic calendar of events for our spine surgery city-wide fellows. Here are some of the events that will likely be occurring during the year:

Academic Calendar of Events:
- Spine Fellows Fundamentals of Spinal Surgery Course (August)
- Fellows Welcome Dinner (August)
- Fellows Journal Club (quarterly throughout the year)
- Research Update Meetings (Semi-annual)
- Quarterly Visiting Professors
- Year-end SpineFEST Meeting (Fellows are encouraged to present their research projects) - June
- Fellows Graduation Dinner - June

We are sure your experience will be excellent but opportunities exist for elective time towards the end of the year to enhance your training in an area that may not have been available at your home hospital. These are some of the opportunities available and working with another consultant may be of interest to you:

City-Wide Subspecialty Electives:
- Paediatric Spine
- Spinal Oncology
- Spine Trauma
- Degenerative Spine
- MIS (Minimal Invasive Spine Surgery)
- Adult Spine Deformity

If you have interest in this experience, we would recommend that you discuss this with your hospital fellowship director* who will then bring this forward to our city-wide committee which will meet in September to discuss organizational logistics further.

* Hospital Fellowship Directors:

     Dr. Joel Finkelstein – Sunnybrook Health Sciences Centre
     Dr. Eric Massicotte – Toronto Western Hospital / University Health Network
     Drs. Henry Ahn / Howard Ginsberg – St. Michael's Hospital
     Dr. Reinhard Zeller – Hospital for Sick Children

We also hope that the integration of various holiday times will provide you with the opportunity to explore various parts of Toronto, Ontario and Canada during your fellowship. We sincerely hope that your experiences in Toronto, both educational and otherwise meet or exceed your expectations.

Best regards,

Michael Fehlings MD PhD FRCSC FACS
Professor Department of Surgery
Co-Director, University of Toronto
Department of Surgery Spine Program

Albert Yee MD MSc FRCSC
Professor Department of Surgery
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Spine Fellowship Survey

1. Please describe your experience during your fellowship year? How did you find the clinics with the various clinicians (orthopaedic/neurosurgery/APPs and nursing staff), work on rounds, surgical planning conferences, fellow's curriculum presentations and operating room experience? Is there anything that was sub-optimal about the experience? Was there any experience that was particularly exceptional?

2. Did you enjoy your fellowship year? Did you benefit from the fellowship year? How has it been different from other educational experiences that you may have experienced on similar material?

3. How do you anticipate using your new experiences acquired through spine fellowship training in the future? Would you provide details on what you are planning to do after your fellowship year?

4. Do you feel that you are better able to identify, manage, and treat spinal conditions as a result of the spine fellowship year experience? How did you determine if you were competent at achieving an/all objectives(s)? Do you feel there was ample time to become competent and achieve the objectives?

5. Has this fellowship experience enhanced your ability to function as an independent sub-specialized spine surgeon? Please give specific examples.

6. Did you learn something from each of your educators within the Divisions of Orthopaedic s and Neurosurgery including: orthopaedic surgeons and neurosurgeons, hospitalists, internists, advance practice therapists, nursing staff etc.

7. Do you feel you are able to care for the patients you work with better because of the experiences obtained during your fellowship year? If so, in what ways?

8. What was the most rewarding or satisfying aspect of the fellowship year?

9. What was the least rewarding or least satisfying aspect of the fellowship year?

10. How could the fellowship year be improved?

Evaluating multimedia presentations

A PowerPoint presentation is just another form of communication, and the same rules apply to multimedia that apply to writing or verbal communication. And remember that multimedia is only one part of a complete presentation — it's not a substitute for verbal communication, handouts, and answering questions from the audience.

BY DAVID WALBERT

I don't like PowerPoint. I'm happy to admit that; in fact I proclaim it loudly whenever I have the opportunity. PowerPoint became popular because it made presentations easy, but I would argue that it makes them *too* easy, encouraging and enabling presenters to dumb down what they have to say, letting the slides speak for them and condensing complicated arguments into simplistic bullet points from which the audience is continually distracted by a jumble of irrelevant images, sounds, and animations.

It doesn't have to be this way — and if we're going to use PowerPoint in the classroom, we can't *allow* it to be this way. It's possible to use PowerPoint as part of a presentation that is thoughtful, educational, and encouraging of higher-order thinking[1], that gives students a chance to apply, synthesize, and evaluate information rather than merely reciting it, that opens the door to debate rather than closing it. But to do that, we have to keep it in its proper context. PowerPoint can be a powerful tool for enhancing good presentations, but it's not a crutch for poor ones. A multimedia presentation is just another form of communication, and the same rules apply to multimedia that apply to writing or verbal communication: consider your audience, keep your topic in mind, and so on. And remember that multimedia is only one part of a complete presentation — it's not a substitute for verbal communication, handouts, and answering questions from the audience.

So when you use PowerPoint or ask your students to use it, think carefully about what your educational purpose is, and *always keep that in mind.* Don't let the typical style of PowerPoint drive your content and educational purpose; put the content *first* and find a style that reflects it.

Four rules for multimedia presentations in education

When you consider adding a multimedia aid such as a slideshow to your presentation, or ask students to create a multimedia presentation, keep these four rules in mind.

1. COMMUNICATION IS EVERYTHING.

First, always remember that **a presentation aid is a vehicle for communication**. It is not a work of art unto itself. It is not designed *primarily* to entertain or to display artistry, though artistry and entertainment can aid communication. Before you design a presentation — whether or not you use multimedia software — ask yourself *What am I trying to communicate?* What ideas, information, or emotions do you want your audience to take away? (Before you assign your students a presentation, ask yourself what you want them to communicate — and make sure they ask themselves the same question.)

Every decision you make from that point forward should take into account the answer to that question. Does the music from *Chariots of Fire* communicate something important about your topic, or is it just pleasant to listen to? If the latter, it's irrelevant and therefore distracting. Does that piece of clip art communicate anything at all, beyond the fact that the presenter owns a nifty collection of clip art? Do flying and exploding slides enhance communication or merely distract your audience?

Eschewing clip art doesn't necessarily mean avoiding visuals or being boring. Consider taking original photographs or creating custom diagrams that serve literally to *illustrate* your topic rather than merely to decorate it. Then, explain those images verbally in your presentation and invite the audience to ask questions about them.

2. TECHNOLOGY IS ONLY A TOOL.

If the slideshow has no value apart from its content, neither does the technology. We have an obligation to teach not just the use of technology but the **appropriate use of technology**. Before you use presentation software to teach something or ask your students to use it in a presentation, ask yourself: *Does the use of multimedia presentation software add value to the presentation?* If you can't name the way in which the presentation is enhanced by the use of multimedia slides, *don't use them*. You're wasting your time and your students' time.

This principle extends to all classroom use of technology and, for that matter, to any product you could ask students to create to demonstrate their knowledge or to share it with their peers. Whether it's a database, a spreadsheet, a Web page, a traditional oral presentation, or something visual like a poster or a diorama, ask yourself what value the medium adds to the content. Does the medium enhance the content? Communicate it more effectively than a simpler medium (such as text or speech)? Make it easier to analyze and evaluate content you needed to work with anyway? If not, why choose that medium?

I realize that the curriculum demands that we teach students to create multimedia presentations. But they shouldn't be taught in isolation, because they won't (or shouldn't) be used in isolation in real life. You might consider giving students several options for visual aids for their presentation, and ask them to choose the format most appropriate to their content — and then assess them on the effectiveness of their choice. We commonly

teach students to choose which type of graph (bar, pie, etc.) is most appropriate to their data; why not teach this skill for other kinds of visual aids as well?

3. COMMUNICATION GOES BOTH WAYS.

Third, because everything in a K–12 classroom is supposed to be a learning experience, **encourage discussion and debate** about presentations. The impact of PowerPoint is often to shut down conversation, not to facilitate it, because while you can argue with a person, you can't argue with sound bytes. Think about the phrase "bullet points" — as if you're shooting ideas at your audience, which in a way you are. Don't shoot ideas at your students, and don't let your students shoot ideas at one another! Only so much information will fit on a PowerPoint slide, so presenters should *always elaborate orally on the text and images* in their presentations, and the audience should be expected to *listen and respond thoughtfully* to that oral elaboration — not just to the bullet points on the screen.

To facilitate interaction between presenter and audience, consider adding question cues or discussion prompts to the slideshow. Special slides could offer topics for discussion, specific questions, or simply an invitation to the audience ("Questions?"). Discussion slides could have a common appearance that sets them off from the rest of the slideshow and lets the audience know that their contribution is wanted.

4. MAKE YOUR ASSESSMENT REFLECT YOUR PRIORITIES.

Finally, when you evaluate students' presentations, **judge the content first**. It's tempting, and easy, to give lots of points for artfully designed slides and clever use of clip art. But remember our first two rules: *it's not about the presentation*, at least not primarily. So, when designing a rubric for multimedia presentations:

1. Judge the content first. *What has the student learned?*
2. Next, judge the communication. *How effectively does the presentation communicate what the student has learned?*
3. Last, judge the presentation. *How effective is the presentation as a presentation?*

In short, you can evaluate a multimedia presentation essentially the way you would a piece of writing, with the content of the writing first and the mechanics (grammar and spelling) last. You might want to think about presentations in terms of a version of the Five Features of Effective Writing[2]: focus, organization, support and elaboration, style, and conventions, in that order.

The ~~five~~ six features of effective ~~writing~~ presentations: a rubric

Here's a (rough) rubric for evaluating multimedia presentations based on the features of effective writing. Elementary teachers may want to ramp down the level of expectations, but the principles remain the same. And remember, if you're trying to improve a presentation rather than merely grade it, think about the features in this order. If you don't have a focus, you don't have anything! (A note: to make the rubric clearer, I've used plain — and

occasionally blunt — English. Obviously, you'd want to tone down the comments if you're evaluating student work.)

FOCUS

What's the point of this presentation? What primary information is the presenter trying to convey, what argument is he/she making? How clearly does the presentation reflect the focus? Ignore the appearance of the slides for the moment.

- **4 points** — The presentation had a clear and consistent focus. I came away knowing exactly what point the presenter was trying to make.
- **3 points** — By the time he/she finished, I understood the presenter's point clearly, but I had some doubts along the way.
- **2 points** — I am fairly certain what point the presenter was trying to make, but I'd like further clarification.
- **1 point** — On further reflection, I think I can figure out what the point of this presentation was, but I shouldn't have to work this hard.
- **0 points** — I have absolutely no idea what this person was talking about.

ORGANIZATION

Are the slides presented in an order that makes logical sense and supports the *focus* of the presentation? Is the overall plan of the presentation evident and consistent? Is the information on each slide presented in a logical manner, with clear titles, headings, paragraphs, and bulleted or numbered lists?

- **4 points** — At every point in the presentation, I knew exactly where the presenter was and where we had been, and I had a sense of where we were going. I never lost sight of the presenter's focus.
- **3 points** — I generally knew where the presenter was and where he/she was headed, but there were a couple of places where I was a little confused. Some of the slides may not have been clear, and a couple seemed outside the focus of the presentation.
- **2 points** — I was never totally lost during the presentation, but several of the slides were unclear or confusing, and there were several places where I wasn't sure where the presenter was headed. Several of the slides seemed to deviate from the main point, and it was sometimes difficult to tell what was a page title, what was a heading, and what was regular text.
- **1 point** — By the time the presenter finished, I understood what the focus was, but most of the slides seemed jumbled.
- **0 points** — I was lost during most of the presentation. Few if any of the slides seemed logical when presented.

SUPPORT AND ELABORATION

Is there enough supporting information or arguments in the presentation to make the main point effectively? Were any of the slides (or the content on the slides) irrelevant to the presentation's focus? Consider not only text but images. If images accompany the text of slides, do they support the presenter's point, or are they merely decorative? If the presenter

summarized his/her argument with bullet points, did he/she elaborate on them orally or merely read what was on the screen?

- **4 points** — There was plenty of supporting information, evidence, images, etc. to make the presenter's point. I am thoroughly convinced!
- **3 points** — The presenter provided enough support for his/her argument, but some images seemed extraneous or purely decorative, and a couple of bullet points needed further clarification.
- **2 points** — There was a fair amount of supporting information, but it was too sparse. The presenter did not sufficiently elaborate on many of the bullet points, and the images added little to my understanding of the issue.
- **1 point** — The presenter relied too heavily on short bullet points in the multimedia presentation and didn't provide sufficient oral elaboration. The images were purely decorative and added nothing to my understanding of the issue.
- **0 point** — The presenter gave virtually no evidence at all for his/her argument. And what was with that clip art?!?

STYLE

With respect to a multimedia presentation, *style* refers both to the style of the writing and to the appearance of the slides. Do word choice, sentence fluency, and voice reflect the presenter's purpose and audience? (See our article on style[3] for an explanation of what these terms mean and how to evaluate them.) Similarly, do the layout and design of the slides, the fonts, and the images reflect the presenter's purpose and audience? If it's a serious presentation, for example, fonts should carry some visual weight — go with something simple, like Times or Verdana, rather than something cute like Chalkboard — and amateurish clip art should be avoided in favor of images that convey meaning and thoughtfulness of purpose. The layout of the slides — placement of headers and titles, for example — should be clear and free of ornament that distracts from the content of the presentation. Obviously, clashing colors or color schemes involving more than three or four colors should be avoided in almost any case.

In short, *keep it simple*. Certainly you want the appearance of the slides to be interesting, and the presenter's personal voice can still come through, but the content has to come first. Unnecessary clip art, overly bright and distracting colors, big headers that crowd the text of pages, and so on will only distract the audience. There's plenty of room for embellishment in the accompanying oral presentation.

- **4 points** — The text and the visual design were clear, interesting, and appropriate to the purpose and audience of the presentation. Fonts, colors, etc. seemed well chosen to reflect the presenter's purpose and aided in my ability to process the visual content of the presentation.
- **3 points** — The text and visual design were clear and interesting but somewhat inconsistent in style. Although the design may not have distracted from the content, it also did not enhance my ability to understand the presentation.
- **2 points** — The layout and color choices distracted somewhat from the content of the presentation, and some of the images were purely decorative and seemed out of place.

At times I found myself staring at the screen and forgetting what the presenter was talking about. The text of the slides was reasonably clear but uninteresting.

- **1 point** — Fonts and colors were inconsistent; text was dull and inappropriate to the presenter's purpose (too informal, for example).
- **0 points** — Colors, fonts, and layout seemed almost random. The design was confusing and made it difficult to understand (or even find) the content of the presentation.

CONVENTIONS

For a multimedia presentation, this includes the conventions of writing (grammar, spelling, and usage) as well as the layout of slides, legibility, and timing. Was the text free of errors in grammar, spelling, and usage? Had the presenter edited carefully or were there sloppy errors? Was the layout of the pages consistent and clean? Was the text easily readable, and headings clearly distinguished from regular text? (When we evaluate fonts with respect to conventions, we're looking just at whether they're readable, not whether they're attractive or otherwise suitable to the presentation.) Notice that I have assigned only one-fifth of the total points to *all* of these qualities together. You may think this is extreme, and of course you're free to change it.

- **4 points** — The presentation was easy to read; text was free of errors.
- **3 points** — There were one or a few errors in grammar, spellling, or usage, but they did not detract from the content. Text was clear and easily readable.
- **2 points** — There were several errors in grammar, spelling, or usage. Text was not as readable as it could have been — the face may have been "cute" rather than readable, or the size may have been too small for ease of reading. Some images may have been difficult to see. Layout of the slides may not have been consistent throughout the presentation, resulting in some confusion.
- **1 point** — The presentation was riddled with sloppy errors that detracted from the content. The layout of the slides was inconsistent and made comprehension difficult, and the text was often difficult to read.
- **0 points** — Problems with grammar, spelling, usage, layout, and font choices made this presentation nearly incomprehensible.

(AND ONE MORE:) PRESENTATION SKILLS

Because PowerPoint presentations need to be accompanied by a real, live human being to be effective (be honest now — have you ever *really* learned anything from one of these awful printouts of PowerPoint slides?), you'll need to evaluate the presenter's skill in speaking and in responding to the audience. To cover that fully would require another article and another rubric, but consider the following in how the oral portion of the presentation relates to the multimedia portion: Did the presenter rely on the text on the screen, or did he/she clearly understand and communicate information and ideas a couple of levels deeper than mere bullet points? Did he/she read the text on the screen or speak independently, leaving the bullet points merely for the audience's reference? How did he/she respond to questions from the audience — with confidence or with uncertainty? by

repeating the bullet points in the presentation or by elaborating with additional information or a new perspective?

- **4 points** — The presenter gave a clear, thorough, convincing presentation apart from the PowerPoint. The PowerPoint enhanced the presentation and was useful as a reference, but I felt that the presentation would still have been quite good without it. The presenter welcomed questions from the audience and responded thoughtfully.
- **3 points** — The presenter spoke well and with confidence but occasionally read bullet points without sufficient elaboration. In some cases, he/she diverted from the "script" a little too much — I was uncertain of the connection between what he/she was saying and the information on the screen. His/her responses to questions were good but could have been stronger.
- **2 points** — The presenter spoke with some confidence but relied heavily on the text on the screen. This probably would not have been a strong, coherent presentation without the PowerPoint to hold it together.
- **1 point** — The presenter mostly read the bullet points on the screen, only occasionally elaborating on them. He/she looked at the screen as much as at the audience and faltered when responding to questions from the audience or speaking independently.
- **0 points** — The presenter merely read the bullet points on the screen, then referred back to them in response to questions. It seemed almost as though he/she had never seen the PowerPoint before today.

Teaching students to evaluate presentations

If you assign and evaluate multimedia presentations thoughtfully, you'll not only help students to design and give presentations more effectively. You'll also help them to develop the ability to evaluate other people's presentations — which may be an even more critical skill. Students may give few formal presentations in their lives, but they'll watch plenty of them — in the form of television news, political speeches, and so on. Critically evaluating their own presentations will help them learn to see through the razzle-dazzle when they're watching a presentation in which the accompanying visuals are as likely to obscure the facts as to illuminate them.

To encourage students to think more critically about presentations, you might ask students to evaluate one another's presentations based on this rubric. Of course, you'll want to make sure that their criticisms are offered constructively. If you're worried that students will be too negative with one another, show them a clip of a television news broadcast, instead: pretend that it's a PowerPoint presentation and evaluate it as a class. It might be a learning experience for the teacher, too!

More rubrics for evaluating multimedia presentations

These rubrics, guides, and articles provide additional means of evaluating PowerPoint and other multimedia presentations.

Jamie McKenzie, "Scoring Power Points[4]," in *From Now On*[5] 10:1 (September 2000). Arguing against PowerPoint as a goal in itself and technology for technology's sake, McKenzie gives detailed guidelines for creating PowerPoint presentations that are clear, interesting, logical, and effective at communicating ideas.

PowerPoint Rubric[6] from the University of Wisconsin. Designed for self-assessment and peer feedback, this rubric covers the entire process of presentation design, from research to storyboarding to writing, content, and graphic design. Also includes a section for evaluating teamwork.

Multimedia Mania Rubric[7] from Multimedia Mania! 2004 at North Carolina State University. Focuses on design, organization, and technical issues but is quite thorough in addressing those areas.

Multimedia Rubric[8] from Raymond Pastore of Bloomsburg University. Adapted from the Multimedia Mania rubric. Designed for the college level, this rubric assumes or encourages the use of audio and video in addition to text and images.

On the web

More from LEARN NC

Visit us on the web at www.learnnc.org to learn more about topics related to this article, including PowerPoint, evaluation, language arts, presentations, speech, technology, technology skills, and writing.

Notes

1. See http://www.learnnc.org/glossary/higher-order+thinking.

2. See http://www.learnnc.org/articles/few-features.

3. See http://www.learnnc.org/articles/few-style.

4. See http://www.fno.org/sept00/powerpoints.html.

5. See http://www.fno.org.

6. See http://www.uwstout.edu/soe/profdev/pptrubric.html.

7. See http://www.ncsu.edu/mmania/mm_docs/mm_judge_rubric2.html.

8. See http://teacherworld.com/multimediarubric.html.

About the author

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David Walbert is Editorial and Web Director for LEARN NC in the University of North Carolina at Chapel Hill School of Education. He is responsible for all of LEARN NC's educational publications, oversees development of various web applications including LEARN NC's website and content management systems, and is the organization's primary web, information, and visual designer. He has worked with LEARN NC since August 1997.

David holds a Ph.D. in History from the University of North Carolina at Chapel Hill. He is the author of *Garden Spot: Lancaster County, the Old Order Amish, and the Selling of Rural America*, published in 2002 by Oxford University Press. With LEARN NC, he has written numerous articles for K–12 teachers on topics such as historical education, visual literacy, writing instruction, and technology integration.

CanMEDS 2005 Framework

MEDICAL EXPERT

Definition: As *Medical Experts*, physicians integrate all of the CanMEDS Roles, applying medical knowledge, clinical skills, and professional attitudes in their provision of patient-centered care. *Medical Expert* is the central physician Role in the CanMEDS framework.

Description: Physicians possess a defined body of knowledge, clinical skills, procedural skills and professional attitudes, which are directed to effective patient-centered care. They apply these competencies to collect and interpret information, make appropriate clinical decisions, and carry out diagnostic and therapeutic interventions. They do so within the boundaries of their discipline, personal expertise, the healthcare setting and the patient's preferences and context. Their care is characterized by up-to-date, ethical, and resource-efficient clinical practice as well as with effective communication in partnership with patients, other health care providers and the community. The Role of Medical Expert is central to the function of physicians and draws on the competencies included in the Roles of Communicator, Collaborator, Manager, Health Advocate, Scholar and Professional.

Key Competencies: *Physicians are able to...*
1. Function effectively as consultants, integrating all of the CanMEDS Roles to provide optimal, ethical and patient-centered medical care;
2. Establish and maintain clinical knowledge, skills and attitudes appropriate to their practice;
3. Perform a complete and appropriate assessment of a patient;
4. Use preventive and therapeutic interventions effectively;
5. Demonstrate proficient and appropriate use of procedural skills, both diagnostic and therapeutic;
6. Seek appropriate consultation from other health professionals, recognizing the limits of their expertise.

Enabling Competencies: *Physicians are able to...*

1. Function effectively as consultants, integrating all of the CanMEDS Roles to provide optimal, ethical and patient-centered medical care

    1.1. Effectively perform a consultation, including the presentation of well-documented assessments and recommendations in written and/or verbal form in response to a request from another health care professional

    1.2. Demonstrate effective use of all CanMEDS competencies relevant to their practice

    1.3. Identify and appropriately respond to relevant ethical issues arising in patient care

1.4. Effectively and appropriately prioritize professional duties when faced with multiple patients and problems

1.5. Demonstrate compassionate and patient-centered care

1.6. Recognize and respond to the ethical dimensions in medical decision-making

1.7. Demonstrate medical expertise in situations other than patient care, such as providing expert legal testimony or advising governments, as needed

2. Establish and maintain clinical knowledge, skills and attitudes appropriate to their practice

2.1. Apply knowledge of the clinical, socio-behavioural, and fundamental biomedical sciences relevant to the physician's specialty

2.2. Describe the Royal College framework of competencies relevant to the physician's specialty

2.3. Apply lifelong learning skills of the Scholar Role to implement a personal program to keep up-to-date, and enhance areas of professional competence

2.4. Contribute to the enhancement of quality care and patient safety in their practice, integrating the available best evidence and best practices

3. Perform a complete and appropriate assessment of a patient

3.1 Effectively identify and explore issues to be addressed in a patient encounter, including the patient's context and preferences

3.2 For the purposes of prevention and health promotion, diagnosis and or management, elicit a history that is relevant, concise and accurate to context and preferences

3.3 For the purposes of prevention and health promotion, diagnosis and/or management, perform a focused physical examination that is relevant and accurate

3.4 Select medically appropriate investigative methods in a resource-effective and ethical manner

3.5 Demonstrate effective clinical problem solving and judgment to address patient problems, including interpreting available data and integrating information to generate differential diagnoses and management plans

4. Use preventive and therapeutic interventions effectively

4.1 Implement an effective management plan in collaboration with a patient and their family

4.2 Demonstrate effective, appropriate, and timely application of preventive and therapeutic interventions relevant to the physician's practice

4.3 Ensure appropriate informed consent is obtained for therapies

4.4 Ensure patients receive appropriate end-of-life care

5. Demonstrate proficient and appropriate use of procedural skills, both diagnostic and therapeutic

  5.1 Demonstrate effective, appropriate, and timely performance of diagnostic procedures relevant to their practice

  5.2 Demonstrate effective, appropriate, and timely performance of therapeutic procedures relevant to their practice

  5.3 Ensure appropriate informed consent is obtained for procedures

  5.4 Appropriately document and disseminate information related to procedures performed and their outcomes

  5.5 Ensure adequate follow-up is arranged for procedures performed

6. Seek appropriate consultation from other health professionals, recognizing the limits of their expertise

  6.1 Demonstrate insight into their own limitations of expertise via self-assessment

  6.2 Demonstrate effective, appropriate, and timely consultation of another health professional as needed for optimal patient care

  6.3 Arrange appropriate follow-up care services for a patient and their family

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COMMUNICATOR

Definition: As *Communicators*, physicians effectively facilitate the doctor-patient relationship and the dynamic exchanges that occur before, during, and after the medical encounter.

Description: Physicians enable patient-centered therapeutic communication through shared decision-making and effective dynamic interactions with patients, families, caregivers, other professionals, and important other individuals. The competencies of this Role are essential for establishing rapport and trust, formulating a diagnosis, delivering information, striving for mutual understanding, and facilitating a shared plan of care. Poor communication can lead to undesired outcomes, and effective communication is critical for optimal patient outcomes. The application of these communication competencies and the nature of the doctor-patient relationship vary for different specialties and forms of medical practice.

Key Competencies: *Physicians are able to…*
  1. Develop rapport, trust and ethical therapeutic relationships with patients and families;
  2. Accurately elicit and synthesize relevant information and perspectives of patients and families, colleagues and other professionals;
  3. Accurately convey relevant information and explanations to patients and families, colleagues and other professionals;
  4. Develop a common understanding on issues, problems and plans with patients and families, colleagues and other professionals to develop a shared plan of care;
  5. Convey effective oral and written information about a medical encounter.

Enabling Competencies: *Physicians are able to...*

1. **Develop rapport, trust, and ethical therapeutic relationships with patients and families**

   1.1. Recognize that being a good communicator is a core clinical skill for physicians, and that effective physician-patient communication can foster patient satisfaction, physician satisfaction, adherence and improved clinical outcomes

   1.2. Establish positive therapeutic relationships with patients and their families that are characterized by understanding, trust, respect, honesty and empathy

   1.3. Respect patient confidentiality, privacy and autonomy

   1.4. Listen effectively

   1.5. Be aware and responsive to nonverbal cues

   1.6. Effectively facilitate a structured clinical encounter

2. **Accurately elicit and synthesize relevant information and perspectives of patients and families, colleagues, and other professionals**

   2.1. Gather information about a disease, but also about a patient's beliefs, concerns, expectations and illness experience

   2.2. Seek out and synthesize relevant information from other sources, such as a patient's family, caregivers and other professionals

3. **Accurately convey relevant information and explanations to patients and families, colleagues and other professionals**

   3.1. Deliver information to a patient and family, colleagues and other professionals in a humane manner and in such a way that it is understandable, encourages discussion and participation in decision-making

4. **Develop a common understanding on issues, problems and plans with patients, families, and other professionals to develop a shared plan of care**

   4.1. Effectively identify and explore problems to be addressed from a patient encounter, including the patient's context, responses, concerns, and preferences

   4.2. Respect diversity and difference, including but not limited to the impact of gender, religion and cultural beliefs on decision-making

   4.3. Encourage discussion, questions, and interaction in the encounter

   4.4. Engage patients, families, and relevant health professionals in shared decision-making to develop a plan of care

   4.5. Effectively address challenging communication issues such as obtaining informed consent, delivering bad news, and addressing anger, confusion and misunderstanding

5. Convey effective oral and written information about a medical encounter

5.1. Maintain clear, accurate, and appropriate records (e.g., written or electronic) of clinical encounters and plans

5.2. Effectively present verbal reports of clinical encounters and plans

5.3. When appropriate, effectively present medical information to the public or media about a medical issue

COLLABORATOR

Definition: As *Collaborators*, physicians effectively work within a healthcare team to achieve optimal patient care.

Description: Physicians work in partnership with others who are appropriately involved in the care of individuals or specific groups of patients. This is increasingly important in a modern multiprofessional environment, where the goal of patient-centred care is widely shared. Modern healthcare teams not only include a group of professionals working closely together at one site, such as a ward team, but also extended teams with a variety of perspectives and skills, in multiple locations. It is therefore essential for physicians to be able to collaborate effectively with patients, families, and an interprofessional team of expert health professionals for the provision of optimal care, education and scholarship.

Key Competencies: *Physicians are able to…*
1. Participate effectively and appropriately in an interprofessional healthcare team;
2. Effectively work with other health professionals to prevent, negotiate, and resolve interprofessional conflict.

Enabling Competencies: *Physicians are able to…*

1. Participate effectively and appropriately in an interprofessional healthcare team

1.1. Clearly describe their roles and responsibilities to other professionals

1.2. Describe the roles and responsibilities of other professionals within the health care team

1.3. Recognize and respect the diversity of roles, responsibilities and competences of other professionals in relation to their own

1.4. Work with others to assess, plan, provide and integrate care for individual patients (or groups of patients)

1.5. Where appropriate, work with others to assess, plan, provide and review other tasks, such as research problems, educational work, program review or administrative responsibilities

1.6. Participate effectively in interprofessional team meetings

1.7. Enter into interdependent relationships with other professions for the provision of quality care

1.8. Describe the principles of team dynamics

1.9. Respect team ethics, including confidentiality, resource allocation and professionalism

1.10. Where appropriate, demonstrate leadership in a healthcare team

2. Effectively work with other health professionals to prevent, negotiate, and resolve interprofessional conflict

2.1. Demonstrate a respectful attitude towards other colleagues and members of an interprofessional team

2.2. Work with other professionals to prevent conflicts

2.3. Employ collaborative negotiation to resolve conflicts

2.4. Respect differences, misunderstandings and limitations in other professionals

2.5. Recognize one's own differences, misunderstanding and limitations that may contribute to interprofessional tension

2.6. Reflect on interprofessional team function

MANAGER

Definition: As *Managers*, physicians are integral participants in healthcare organizations, organizing sustainable practices, making decisions about allocating resources, and contributing to the effectiveness of the healthcare system.

Description: Physicians interact with their work environment as individuals, as members of teams or groups, and as participants in the health system locally, regionally or nationally. The balance in the emphasis among these three levels varies depending on the nature of the specialty, but all specialties have explicitly identified management responsibilities as a core requirement for the practice of medicine in their discipline. Physicians function as Managers in their everyday practice activities involving co-workers, resources and organizational tasks, such as care processes, and policies as well as balancing their personal lives. Thus, physicians require the ability to prioritize, effectively execute tasks collaboratively with colleagues, and make systematic choices when allocating scarce healthcare resources. The CanMEDS Manager Role describes the active engagement of all physicians as integral participants in decision-making in the operation of the healthcare system.

Key Competencies: *Physicians are able to…*
1. Participate in activities that contribute to the effectiveness of their healthcare organizations and systems;
2. Manage their practice and career effectively;
3. Allocate finite healthcare resources appropriately;
4. Serve in administration and leadership roles, as appropriate.

Enabling Competencies: *Physicians are able to…*

1. Participate in activities that contribute to the effectiveness of their healthcare organizations and systems

1.1. Work collaboratively with others in their organizations

    1.2.   Participate in systemic quality process evaluation and improvement, such as patient safety initiatives

    1.3.   Describe the structure and function of the healthcare system as it relates to their specialty, including the roles of physicians

    1.4.   Describe principles of healthcare financing, including physician remuneration, budgeting and organizational funding

2. Manage their practice and career effectively

    2.1.   Set priorities and manage time to balance patient care, practice requirements, outside activities and personal life

    2.2.   Manage a practice including finances and human resources

    2.3.   Implement processes to ensure personal practice improvement

    2.4.   Employ information technology appropriately for patient care

3. Allocate finite healthcare resources appropriately

    3.1.   Recognize the importance of just allocation of healthcare resources, balancing effectiveness, efficiency and access with optimal patient care

    3.2.   Apply evidence and management processes for cost-appropriate care

4. Serve in administration and leadership roles, as appropriate

    4.1. Chair or participate effectively in committees and meetings

    4.2. Lead or implement a change in health care

    4.3. Plan relevant elements of health care delivery (e.g., work schedules)

HEALTH ADVOCATE

Definition: As *Health Advocates*, physicians responsibly use their expertise and influence to advance the health and well-being of individual patients, communities, and populations.

Description: Physicians recognize their duty and ability to improve the overall health of their patients and the society they serve. Doctors identify advocacy activities as important for the individual patient, for populations of patients and for communities. Individual patients need physicians to assist them in navigating the healthcare system and accessing the appropriate health resources in a timely manner. Communities and societies need physicians' special expertise to identify and collaboratively address broad health issues and the determinants of health. At this level, health advocacy involves efforts to change specific practices or policies on behalf of those served. Framed in this multi-level way, health advocacy is an essential and fundamental component of health promotion. Health advocacy is appropriately expressed both by individual and collective actions of physicians in influencing public health and policy.

Key Competencies: *Physicians are able to...*
    1. Respond to individual patient health needs and issues as part of patient care;
    2. Respond to the health needs of the communities that they serve;

3. Identify the determinants of health of the populations that they serve;

4. Promote the health of individual patients, communities and populations.

Enabling Competencies: *Physicians are able to…*

1. **Respond to individual patient health needs and issues as part of patient care**

    1.1. Identify the health needs of an individual patient

    1.2. Identify opportunities for advocacy, health promotion and disease prevention with individuals to whom they provide care

2. **Respond to the health needs of the communities that they serve**

    2.1. Describe the practice communities that they serve

    2.2. Identify opportunities for advocacy, health promotion and disease prevention in the communities that they serve, and respond appropriately

    2.3. Appreciate the possibility of competing interests between the communities served and other populations

3. **Identify the determinants of health for the populations that they serve**

    3.1. Identify the determinants of health of the populations, including barriers to access to care and resources

    3.2. Identify vulnerable or marginalized populations within those served and respond appropriately

4. **Promote the health of individual patients, communities, and populations**

    4.1. Describe an approach to implementing a change in a determinant of health of the populations they serve

    4.2. Describe how public policy impacts on the health of the populations served

    4.3. Identify points of influence in the healthcare system and its structure

    4.4. Describe the ethical and professional issues inherent in health advocacy, including altruism, social justice, autonomy, integrity and idealism

    4.5. Appreciate the possibility of conflict inherent in their role as a health advocate for a patient or community with that of manager or gatekeeper

    4.6. Describe the role of the medical profession in advocating collectively for health and patient safety

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SCHOLAR

Definition: As *Scholars,* physicians demonstrate a lifelong commitment to reflective learning, as well as the creation, dissemination, application and translation of medical knowledge.

Description: Physicians engage in a lifelong pursuit of mastering their domain of expertise. As learners, they recognize the need to be continually learning and model this for others. Through their scholarly activities, they contribute to the creation, dissemination, application and translation of medical knowledge. As teachers, they facilitate the education of their students, patients, colleagues, and others.

Key Competencies: *Physicians are able to…*
1. Maintain and enhance professional activities through ongoing learning;
2. Critically evaluate information and its sources, and apply this appropriately to practice decisions;
3. Facilitate the learning of patients, families, students, residents, other health professionals, the public, and others, as appropriate;
4. Contribute to the creation, dissemination, application, and translation of new medical knowledge and practices.

Enabling Competencies: *Physicians are able to…*

1. Maintain and enhance professional activities through ongoing learning.

1.1. Describe the principles of maintenance of competence

1.2. Describe the principles and strategies for implementing a personal knowledge management system

1.3. Recognize and reflect learning issues in practice

1.4. Conduct a personal practice audit

1.5. Pose an appropriate learning question

1.6. Access and interpret the relevant evidence

1.7. Integrate new learning into practice

1.8 Evaluate the impact of any change in practice

1.9 Document the learning process

2. Critically evaluate medical information and its sources, and apply this appropriately to practice decisions

2.1. Describe the principles of critical appraisal

2.2. Critically appraise retrieved evidence in order to address a clinical question

2.3. Integrate critical appraisal conclusions into clinical care

3. Facilitate the learning of patients, families, students, residents, other health professionals, the public and others, as appropriate

3.1. Describe principles of learning relevant to medical education

3.2. Collaboratively identify the learning needs and desired learning outcomes of others

3.3. Select effective teaching strategies and content to facilitate others' learning

3.4. Demonstrate an effective lecture or presentation

3.5. Assess and reflect on a teaching encounter

3.6. Provide effective feedback

3.7. Describe the principles of ethics with respect to teaching

4. **Contribute to the development, dissemination, and translation of new knowledge and practices**

   4.1. Describe the principles of research and scholarly inquiry

   4.2. Describe the principles of research ethics

   4.3. Pose a scholarly question

   4.4. Conduct a systematic search for evidence

   4.5. Select and apply appropriate methods to address the question

   4.6. Appropriately disseminate the findings of a study

PROFESSIONAL

Definition: As *Professionals*, physicians are committed to the health and well-being of individuals and society through ethical practice, profession-led regulation, and high personal standards of behaviour.

Description: Physicians have a unique societal role as professionals who are dedicated to the health and caring of others. Their work requires the mastery of a complex body of knowledge and skills, as well as the art of medicine. As such, the Professional Role is guided by codes of ethics and a commitment to clinical competence, the embracing of appropriate attitudes and behaviors, integrity, altruism, personal well-being, and to the promotion of the public good within their domain. These commitments form the basis of a social contract between a physician and society. Society, in return, grants physicians the privilege of profession-led regulation with the understanding that they are accountable to those served. [1]

Key Competencies: *Physicians are able to…*
   1. Demonstrate a commitment to their patients, profession, and society through ethical practice;
   2. Demonstrate a commitment to their patients, profession, and society through participation in profession-led regulation;
   3. Demonstrate a commitment to physician health and sustainable practice.

Enabling Competencies: *Physicians are able to…*

1. **Demonstrate a commitment to their patients, profession, and society through ethical practice**

   1.1. Exhibit appropriate professional behaviors in practice, including honesty, integrity, commitment, compassion, respect and altruism

   1.2. Demonstrate a commitment to delivering the highest quality care and maintenance of competence

   1.3. Recognize and appropriately respond to ethical issues encountered in practice

   1.4. Appropriately manage conflicts of interest

   1.5. Recognize the principles and limits of patient confidentiality as defined by professional practice standards and the law

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[1] This description is adapted from Cruess S, Johnston S, Cruess R. 2004. "Profession": a working definition for medical educators. *Teaching and Learning in Medicine*. 16(1): 74-6.

1.6. Maintain appropriate relations with patients.

2. Demonstrate a commitment to their patients, profession and society through participation in profession-led regulation

2.1. Appreciate the professional, legal and ethical codes of practice

2.2. Fulfill the regulatory and legal obligations required of current practice

2.3. Demonstrate accountability to professional regulatory bodies

2.4. Recognize and respond to others' unprofessional behaviors in practice

2.5. Participate in peer review

3. Demonstrate a commitment to physician health and sustainable practice

3.1. Balance personal and professional priorities to ensure personal health and a sustainable practice

3.2. Strive to heighten personal and professional awareness and insight

3.3. Recognize other professionals in need and respond appropriately

Source: Frank, JR., Jabbour, M., et al. Eds. Report of the CanMEDS Phase IV Working Groups. Ottawa: The Royal College of Physicians and Surgeons of Canada. March, 2005.

University of Toronto Campus

Website link to maps and resources

www.utoronto.ca/campuses/maps.htm

Spine Faculty

Dr. Henry Ahn is currently on staff at St. Michael's Hospital. He has a clinical interest in adult spinal disorders and an academic focus on clinical epidemiology and outcomes relating to the spinal diseases-

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Dr. Margarete Akens (Dr. med. vet, PhD) is a recent recruit to the Sunnybrook Research Institute, Holland Musculoskeletal Program at Sunnybrook Health Sciences Centre. She holds an appointment as a Lecturer in the Department of Surgery, University of Toronto and a hospital appointment as a Junior Scientist. Her interests include vertebral metastatic disease, photodynamic therapy, and cartilage metabolism.

Dr. Carlo Ammendolia DC, PhD is a clinical epidemiologist and staff clinician in the Department of Medicine at Mount Sinai Hospital. He is also an Assistant Professor in the Department of Health Policy, Management and Evaluation at the University of Toronto. Dr. Ammendolia combines clinical practice and research with a focus on non-surgical management of spinal disorders.

Dr. Leo da Costa worked as a staff neurosurgeon in Brazil for three years before coming to Toronto for his fellowship training. He joined the Division of Neurosurgery as an Assistant Professor in September 2008. His clinical practice is focused on patients with Cerebrovascular and Spine diseases.

Dr. James Drake is the current Harold J. Hoffman/Shopper's Drug Mart Chair in Pediatric Neurosurgery. His clinical practice focuses on hydrocephalus, spasticity, neuroendoscopic procedures, the pediatric spine, and peripheral nerve surgery. His research is devoted to engineering applications to neurosurgery.

Dr. Mark Erwin is a clinician-scientist practicing in a multidisciplinary health centre and the Toronto Western Hospital. He is the CCRF Scientist in Disc Biology and is an Assistant Professor at the University of Toronto and the Toronto Western Hospital. Dr. Erwin's research concerns various aspects of intervertebral disc biology.

Dr. Mahmood Fazl graduated from Shiraz Medical School in Shiraz, Iran, in 1975, and entered the University of Toronto Neurosurgery Training Program in 1977. Dr. Fazl became Assistant Professor in the Department of Surgery in 1991, and his main clinical interests are in the fields of spinal and trauma neurosurgery.

Dr. Michael G. Fehlings MD PhD FRCSC FACS--Michael Fehlings is a Professor in the Division of Neurosurgery and Krembil Chair in Neural Repair and Regeneration. He combines a clinical practice in complex spinal neurosurgery with a translationally oriented research program focused on traumatic and nontraumatic spinal cord injury

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Dr. Joel Finkelstein is a clinician investigator at the University or Toronto, an Associate Professor in the department of surgery, and Spine Section Head of the Sunnybrook Spine Program. His clinical and research interests include clinical

epidemiology, metastatic disease and biomechanics as it relates to the spine.

Dr. Michael Ford is an Assistant Professor at the University of Toronto and is on staff at Sunnybrook Health Sciences Centre. He has a special interest spine deformity reconstruction, trauma and the surgical management of metastatic spine disease. His research focuses on novel minimally invasive treatment for high energy burst fractures of the spine.

Dr. Howard Ginsberg is an active staff member at St. Michael's Hospital and currently holds the position of Assistant Professor in the Department of Surgery and the Institute of Biomaterials and Biomedical Engineering. His research focuses on engineering applications to neurosurgical procedures with the goal of improving safety and outcome for patients.

Dr. Rita Kandel is a Professor in the Department of Laboratory Medicine and Pathobiology at the University of Toronto, and a practicing pathologist at Mount

Sinai Hospital. Her research interests are in tissue engineering of articuloskeletal tissues and the mechanisms regulating formation and degradation and these tissues.

Dr. Stephen Lewis is an attending Orthopaedic physician at the Toronto Western Hospital and Hospital for Sick Children with a subspecialty in spinal deformity and revision spinal surgeries.

Dr. Todd Mainprize is a Neurosurgeon who trained at the University of Toronto and who currently works at Sunnybrook Health Science Centre. He works with traumatic spinal injuries and degenerative spinal problems.

Dr. Barry Malcolm has expertise in spinal diseases and disorders and musculoskeletal disability. He is currently an Assistant Professor of Surgery at the University of Toronto and active staff at Sunnybrook Health Sciences Centre.

Dr. Eric Massicotte is an Assistant Professor in the Department of Surgery at the University of Toronto, and member of the Division of Neurosurgery at the Toronto Western Hospital. His clinical practice focuses on spine with research interests in outcome measures and guidelines, and medical education.

Dr. Cindi Morshead is currently an Assistant Professor in the Department of Surgery at the University of Toronto. Her research focuses on neural stem cells and their use in to treat neurodegenerative disease and promote tissue repair in models of stroke and spinal cord injury.

Dr. Farhad Pirouzmand is on the neurosurgical faculty at the University of Toronto. Prior to this, he was the Program Director of Neurosurgery at the University of Saskatchewan. His main areas of interest are skull base, spine, and orbital reconstructive surgery.

Dr. Raj Rampersaud received his Orthopaedic and Neurosurgical spinal fellowship training was at the University of Western Ontario and University of Tennessee respectively. He has been on staff at UHN since 1999. His academic interests are in the clinical outcomes research including adverse events and minimally invasive spinal surgery.

Dr. Arjun Sahgal completed his residency at the University of Toronto and a Spine Radiosurgery fellowship at the University of California, San Francisco. He currently is an assistant professor at the Princess Margaret Hospital and Sunnybrook Health Sciences Centre and leads the University of Toronto Spine Radiosurgery program.

Dr. Molly Shoichet holds the Canada Research Chair in Tissue Engineering and is a Professor of Chemical Engineering & Applied Chemistry, Chemistry and Biomaterials & Biomedical Engineering at the University of Toronto. She is an expert in the study of Polymers for Regeneration with an interest in drug delivery and scaffold design.

Dr. Alexander Velumian is an Assistant Professor in Departments of Surgery and Physiology of University of Toronto and a Research Neuroscientist in the Division of Neurosurgery of the Toronto Western Hospital. His current research is focused on using electrophysiological techniques to examine the cellular mechanisms of spinal cord injury.

Dr. James G. Wright is Chief of Perioperative Services, and Surgeon-in-Chief, Department of Surgery at The Hospital for Sick Children (SickKids). Dr. Wright also remains an active researcher, focusing on the systematic study of characteristics of health and disease and outcomes of treatment modalities in children.

Dr. Cari Whyne is an Associate Professor in the Department of Surgery, the Institute of Biomaterials and Biomedical Engineering and the Institute of Medical Sciences at the University of Toronto. She is the Director of the Holland Musculoskeletal Research Program, as well as the Director of the Orthopaedic Biomechanics Laboratory, both at Sunnybrook Health Sciences Centre.

Dr. Albert Yee is an Associate Professor at the University of Toronto and joined the staff of Sunnybrook Health Sciences Centre in 2001. Dr. Yee has a clinical interest in adult degenerative and metastatic spinal disease and a translational research interest in new therapies for the treatment of adult degenerative and vertebral metastatic disease.

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Dr. Karl Zabjek PhD, is an Assistant Professor in the Department of Physical therapy at the University of Toronto, Scientist at the Bloorview Research Institute, and Adjunct Scientist at the Toronto Rehabilitation Institute. Dr. Zabjek has a background in Clinical Biomechanics with a research interest situated within the field of Paediatric Spinal Deformities. Dr. Zabjek's current workis focused on the development of new models that assess the structure, function and mobility of the spine.

Dr. Reinhard Zeller is head of the Orthopaedic Spine Service at SickKids. His practice focuses on the care of children and adolescents with spinal deformities. His research interests are focused on developing innovative treatments for complex spinal deformities with a special interest in robotic implants and fusionless techniques.

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