2nd Canadian Conference

ON PHYSICIAN HEALTH

Healthier Doctors ↔ Healthier Communities

DEVELOPING PHYSICIAN HEALTH CURRICULUM IN UGME AND PGME

Part 1: Mindfulness in Medicine

M Andrew, A Chakravarti, C Hurst, L LaCaprara, A Takhar

THE CANADIAN MEDICAL FOUNDATION
LA FONDATION MÉDICALE CANADIENNE

OMA
PHYSICIAN HEALTH PROGRAM

ASSOCIATION MÉDICALE CANADIENNE
CANADIAN MEDICAL ASSOCIATION

Objectives

At the end of this workshop, participants will be able to:

- Understand the basic components of mindfulness based approaches to physician health in medical training and the research supporting these interventions.
- Consider various models and approaches currently being used to teach mindfulness skills in formal and informal curriculum.
- Explore avenues for increasing mindfulness or other wellness interventions into the undergraduate curriculum in their medical program.

Mindfulness in Medical Education

- Why here?
- Why now?

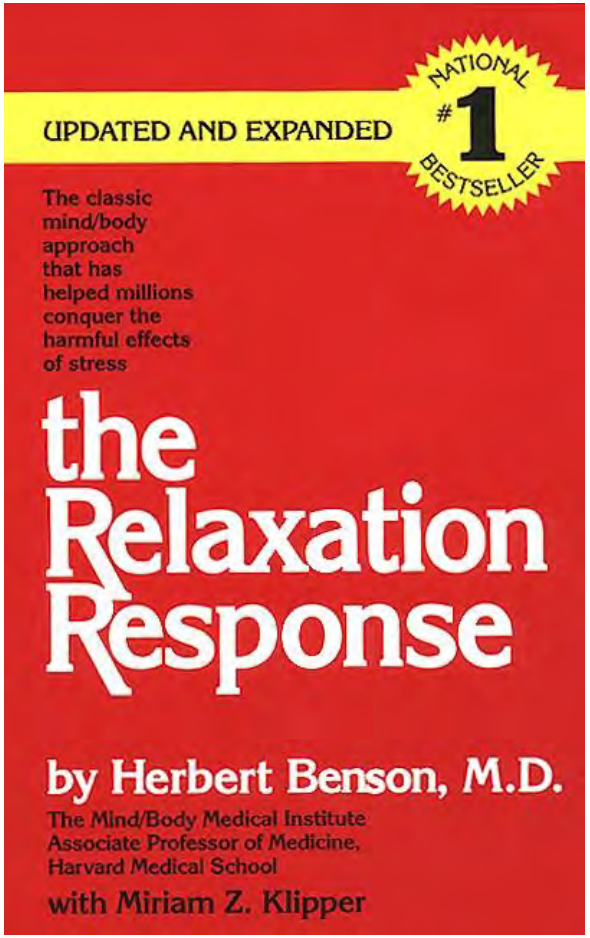
What is Mindfulness?

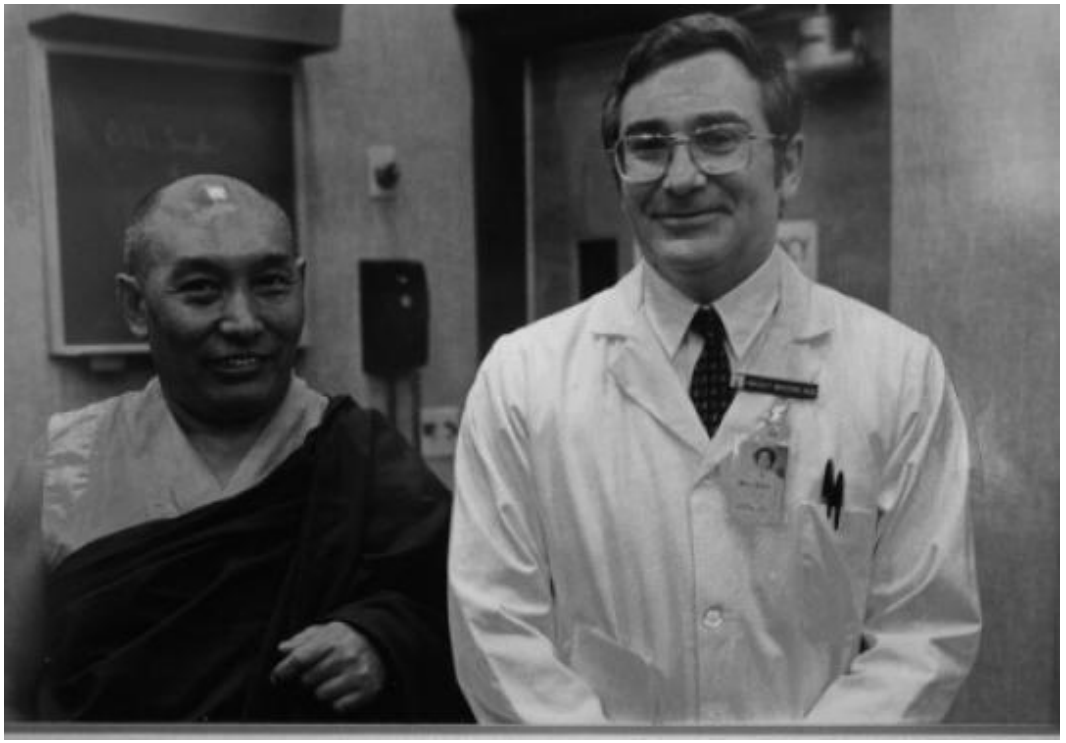
- "Paying attention in a particular way: on purpose, in the present moment, and non-judgmentally" *Kabat-Zinn, 1994*

- Promotion of wellbeing among healthcare providers and the facilitation of healing in patients

Can. Family Physician August 2009

History and Context
The Relaxation Response





Principles of Mindfulness

- Mindfulness is deliberately paying attention, non-judgmentally – at this moment
- Mindfulness encompasses both internal processes and external environments
- Mindfulness is being aware of what is present for you mentally, emotionally and physically
- With practice, mindfulness cultivates the possibility of freeing yourself of reactive, habitual patterns of thinking, feeling, acting, sensing and perception
- Mindfulness promotes awareness, balance, choice, wisdom and acceptance of what is

Elements of Mindfulness

- Attention
- Awareness
- Non-Judging
- Beginner's Mind
- Critical Curiosity
- Presence
- Letting Go
- Acceptance
- Trust
- Non Attachment
- Non Striving
- Patience
- Attentive Observation
- Vigilance
- Engagement
- Clear Comprehension

Research and Evidence Base

PubMed search of terms mindfulness/mindful revealed the following trends:

- 1969 – 1978: 10 articles
- 1979 – 1988: 22 articles
- 1989 – 1998: 93 articles
- 1999 – 2008: 300 articles (including 80 in 2008)
- October, 2011: 232,423 articles

Scientific Advances

Brain:

- Emotion-regulation
- Working memory, cognitive control, attention
- Activation in specific somatic maps of the body,
- Cortical thickening in specific regions

Body:

- Symptom reduction, greater physical well-being, immune function enhancement
- Epigenetic up and down regulation of activity in large numbers and classes of genes

Outcomes of MBSR in Medical Education

- 5-year study of MBSR as a stress management intervention for 2nd-year medical students.
- Students who self-selected for the MBSR intervention reported greater overall mood disturbance at baseline compared with parallel cohort controls.
- At the conclusion of the intervention, students in the MBSR group reported significant improvement in mood states and reported significantly lower psychological distress compared with controls.

Rosenzweig, Steven MD; Reibel, Diane K.; Greeson, Jeffrey M.; Brainard, George C.; and Hojat, Mohammadreza, "Mindfulness-based stress reduction lowers psychological distress in medical students" (2003).

MBSR
Structure and Methods

- Group Orientation (120 min) or Individual (60 min) Intake and Assessment sessions
- Eight-weekly classes 2.5-3.5 hours in duration
- All day silent retreat (7.5 hours) 7th week
- Formal Mindfulness Meditation Methods
  - Body Scan
  - Gentle Yoga
  - Sitting Meditation
  - Walking Meditation

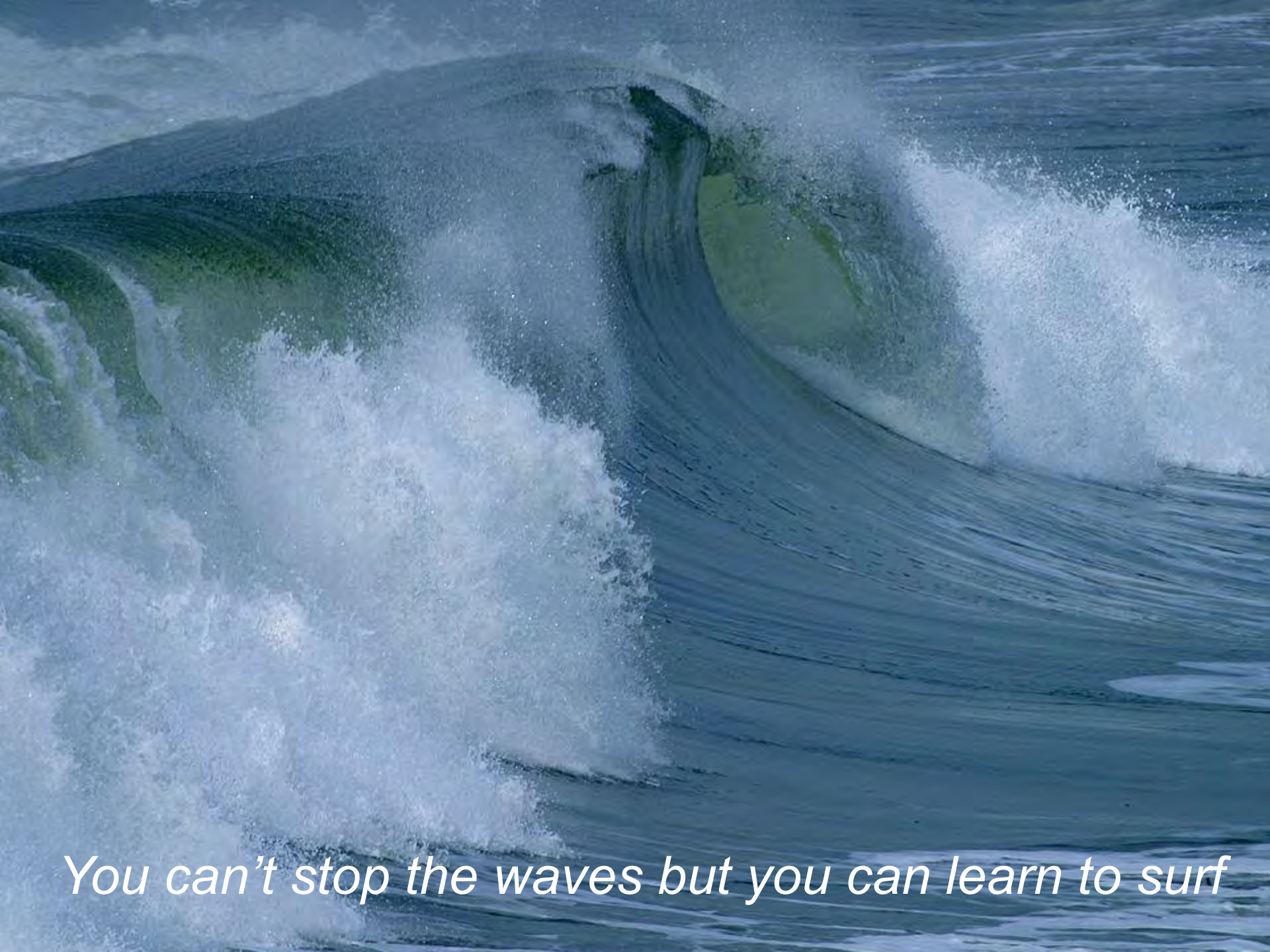
MBSR
Structure and Methods

- Informal Mindfulness Meditation Practices (mindfulness in everyday life)
  - Awareness of pleasant and unpleasant events
  - Awareness of Breathing
  - Deliberate awareness of routine activities and events
- Daily home assignments (min. 45 min formal practice, 5-15 min informal practice, 6 days per week x 8 weeks)
- Individual/Group dialogue, inquiry, reflection
- Post Program exit interview, assessment instruments and self evaluation

MBSR and MBI

Applications in medical education and quality of healthcare

- Reduced psychological distress and increased empathy in medical students
- Better patient outcomes when healthcare provider has had mindfulness training (symptom severity, satisfaction)
- Role in medical error reduction


You can’t stop the waves but you can learn to surf

A Mindful Experience

Debriefing…

Examples of Mindfulness in the Medical Curriculum

The Health Enhancement Program (HEP) at Monash University Medical School

- The HEP incorporates two components:
  - a mindfulness program; and
  - the ESSENCE lifestyle model.
- It is delivered to approximately 315 medical students annually. The mindfulness component of the Monash Program has also been incorporated into the optional self-care workshops at Harvard Medical School.

Hassed, C., Sierpina, V., Kreitzer, M., The Health Enhancement Program at Monash University. *EXPLORE* November/December 2008, Vol. 4, No. 6

Health Enhancement Program

- 9 hours of lectures. The lecture content is supported by six 2-hour tutorials to provide an experiential and clinical context to the theoretical content. Tutorial content includes one hour on the Stress Release Program and one hour dedicated successively to other elements of the ESSENCE model.

The “ESSENCE of Health” Lifestyle Model

- **E**ducation: the importance of knowledge and reflection
- **S**tress management: the importance of mental health (intervention covered in the mindfulness program)
- **S**pirituality: the role of meaning and/or spirituality on coping, health, and illness
- **E**xercise: the importance and application of physical activity
- **N**utrition: the role of healthy nutrition and the influences on eating patterns
- **C**onnectedness: the role of social support for well-being and healthcare
- **E**nvironment: creating a healthy physical, emotional, and social environment

Hassed, C., Sierpina, V., Kreitzer, M., The Health Enhancement Program at Monash University. *EXPLORE* November/December 2008, Vol. 4, No. 6

The Stress Release Program:
A Mindfulness-Based Stress Management and Cognitive Therapy Program

- **The Stress Release Program** incorporates a variety of mindfulness practices and a series of related cognitive strategies to help identify and deal with the processes underpinning stress, negative emotions, and poor performance. Students are encouraged to do weekly “homework” in terms of personally applying the mindfulness strategies, with discussion taking place the following week regarding the group's experiences and insights.
- **Mindfulness Meditation Practice** Students are recommended to punctuate the day with two 5-minute “full stops” and as many 15 to 30–second “commas” as needed. They can increase the duration and frequency of practice according to need and motivation.

Hassed, C., Sierpina, V., Kreitzer, M., The Health Enhancement Program at Monash University. *EXPLORE* November/December 2008, Vol. 4, No. 6

A Mindfulness-Based Stress Management and Cognitive Therapy Program

Mindfulness-Based Cognitive Tasks

These tasks are set as homework each week and students discuss their insights and experiences the following week. In the modified Monash program, tasks 1, 2, 3, and 7 are set as the 4 weekly tasks.

1. **Perception:** are events inherently stressful or stressful depending on how they are perceived?
2. **Letting go and acceptance:** do thoughts, feelings, and events inevitably cause stress, or is it our relationship and attitude to them?
3. **Presence of mind:** what is the effect of being more in the present moment through a connectedness to the senses rather than preoccupied with the past and future?
4. **Limitations:** do we impose much stress and avoidant behaviour on ourselves with unexamined, unreasonable, and limiting ideas about ourselves?
5. **Listening:** does much stress and depression originate in the unconscious mental chatter we listen to, and do we have a choice whether to listen to it or not?
6. **Self-discipline:** what is the cause and effect of not getting on with things when we need to, and not stopping when we need to?
7. **Emotions:** without suppressing emotions or criticizing their presence, can we cultivate a wiser choice as to which ones to entertain and act upon?
8. **Expanding self-interest:** what is the effect of being more interested in and responsive to the needs of those in our daily environment?

Hassed, C., Sierpina, V., Kreitzer, M., The Health Enhancement Program at Monash University. *EXPLOR* November/December 2008, Vol. 4, No. 6

A Mindfulness-Based Stress Management and Cognitive Therapy Program

- Over 90% of students reporting using the skills in their daily life.
- Student well-being was also measured before (mid-semester) and after the HEP, with the post course evaluation taking place just prior to the midyear exams; a time when one would expect student well-being to be at its lowest point. In contrast to these expectations, by the end of the HEP students reported improved well-being on all scales used.

Hassed C, de Lisle S, Sullivan G, Pier C. Enhancing the health of medical students: Outcomes of an integrated mindfulness and lifestyle program. *Adv Health Sci Educ Theory Pract. 2008. July 23, 2008.*

The Mindfulness in Medicine Program at the University of Rochester

The goal of the mindful practice curriculum is to foster patient safety, caring attitudes and professionalism:

- By enhancing mindful practice in residents and students when encountering challenging situations in clinical medicine; and
- To foster elements of mindful practice (attentive observation, critical curiosity, informed flexibility and presence) in trainees at multiple levels.

Mindfulness and Clinical Practice

- Attentive Observation
- Critical Curiosity
- Beginners Mind
- Presence

- Quality of Care
  - Noticing
  - Clinical reasoning
  - Technical skills
- Quality of Caring
  - Compassion
  - Empathy
  - Ethics
- Well-Being
  - Adaptability
  - Self-care
  - Self-monitoring

Curriculum Design

Students/Residents

- Required for all trainees in participating programs
- 5 -6 sessions per year
- 90 minutes
- When?
- During 3rd year clerkships (4-yr med school) for students
- Every 2-4 weeks for residents

Faculty

- 2 faculty members from each department
- Faculty development:
  - Intensive MBSR training (6 weeks, 2.5h/wk plus all day retreat)
  - 3-hr teaching MBSR workshop
  - 3-hr narrative medicine workshop
  - 3-hr appreciative inquiry workshop
  - 3-hr run-through session

Session Structure

- Introduction of the theme
- Didactic / brief discussion
- Brief experiential exercise
- Videos, meditation, observation, exercise
- Narrative exercise (written or oral)
- Debriefed in pairs or large group
- Brief meditative or experiential exercise
- “Homework”
- Discussion

Mindfulness Themes

- Noticing
- Being with suffering
- Professionalism
- How Doctors think
- Time
- Self-care and burnout
- Mindful Communication
- Responding to errors
- Balance
- Death and dying
- Conflict
- Terms and partnership

Home Practice

- Stop, breathe, be
  - For the next week, each time you begin a new activity or see a patient, stop momentarily before beginning, take a breath, and then begin
- Formal practice
  - Two minutes each morning
  - Two minutes each evening
  - Increase as tolerated

Outcomes

- Primary care physician clinical trial
- 70 primary care physicians
- Eight 2.5-hr weekly evening sessions
- Full-day Saturday retreat off-site
- Ten monthly 2.5-hr sessions (ending Sept 08)
- Outcome measures
  - Well-being, empathy, mindfulness, burnout
  - Clinical efficiency, quality of disease management
  - Diagnosis of mental disorders, evaluation of course
- Physicians who participated in the study showed improvements in measures of well-being and demonstrated an enhancement in personal characteristics associated with a more patient centered orientation to clinical care

Krasner, M., Epstein, R., Beckman, H. Association of an educational program in mindfulness communication with burnout, empathy, and attitudes among primary care physicians. *JAMA*, September 23/30, 2009—Vol 302, No. 12

Dalhousie University

- Electives comprise 10% of the medical curriculum
- One half day per week throughout YR 1&2
- 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
- Allows the student to plan, develop, and execute a personal project
- Fosters long-term mentorship with preceptor
- Students pose a research question and complete a written report for evaluation upon elective completion

Dalhousie Faculty of Medicine Undergraduate Medical Education Program Blueprint and Curriculum Overview
http://undergraduate.medicine.dal.ca/curriculum/documents/UGME_Blueprint_March_2011.pdf

Dalhousie: Mindfulness in Medicine Elective

Schedule

- One 90-minute seminar per week, for 8-10 weeks, September to November, and repeated January to April

Course Objectives

- Participants will learn and practice sitting meditation, walking meditation, qi gong breathing, standing meditation, and partake in discussions about integrating mindfulness into our professional and private lives

Educational Objectives

- Be more alert and attentive during seminars, lectures, and clinics
- Be more patient, empathic and humanistic towards themselves, their patients, and others
- More objectively observe, rather than be “carried away” by emotions, and thus behave more appropriately, especially during potentially stressful situations
- Embody relaxed, confident, awareness, essential for managing fearful anxious patients
- Act more consistently from ones core values ie., be more congruent (less ego-dominated), and thus experience a higher quality of life (private and professional), peace, contentment and joy

Evaluation

- Each student is assigned a grade based on attendance, contribution to discussions, and journaling.

http://www.cdha.nshealth.ca/media-centre/event/mindfulness-health-care-professionals

University of Toronto

Mindfulness Classes UGME:

- 45 minute classes
- Bi-weekly
- Co-lead by student and staff
- Cover basic mindfulness approach
- Core practice- breathing, bodyscan, awareness of emotions, thoughts, senses etc.
- Debrief
- Introduce and discuss a particular theme- mindfulness and perfectionism,
- Mindfulness and error, mindfulness of emotion, etc.
- Now in third year—small groups attendance variable 5-10 attendees.

The Mindfulness-Based Resiliency and Latros Therapeutic Enhancement Seminar

- 4 sessions for Psychiatric Residents
- Evenings
- Each session = 1.5 hrs., dinner included
- Goals: Deepen therapeutic skill
  - Engage more effectively with patients in a variety of settings; improve therapeutic alliance
  - Feel more comfortable and competent in psychotherapy.
  - Increase capacity to manage and make use of ‘countertransference’
  - Capped at 60 residents for this year. Waiting list for 2012
  - Dr. Steven Selchen

A Mindful Experience

What are the challenges in incorporating mindfulness into the Formal or Informal UGME Curriculum?

Which curricular elements would be crucial if you were to develop a mindfulness initiative at your school?

Questions/ Comments ?

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DEVELOPING PHYSICIAN HEALTH CURRICULUM IN UGME AND PGME

Part 2: Teaching Resident Resilience in the Context of Adverse Events

M Andrew, A Chakravarti, C Hurst, L LaCaprara, A Takhar

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Objectives

At the end of this workshop, participants will be able to:

- become familiar with relevant literature and themes associated with adverse events and trainee resilience;
- gain an understanding of various workshop strategies for presenting material about adverse events in post graduate training including the use of appreciative enquiry and narrative explorations; and
- become familiar with basic mindfulness principles and practices that foster trainee resilience in the context of adverse events.

An Honest Mistake?

- 46 year old man presents to the emergency department (now three days in a row) complaining of vague chest pain. Yesterday, he presented with RUQ abdominal pain prompting suspicion of cholecystitis. Chest pain work up is negative today (no rise in cardiac enzymes, normal ECG), similar to the patient's presentation on Day 1.
- Patient says tearfully to the PGY-2 resident, "There is something seriously wrong with me".
- It is an extremely busy night in the emergency department. The PGY-2 resident and staff fail to review the chest xray demonstrating a widened mediastinum and a new right-sided pleural effusion. Blood pressure in both arms was not taken.

Missed Diagnosis – Aortic Dissection

- The patient was discharged home with follow-up instructions and prescription for analgesic medications.
- The patient dissected and died the following day.
- The entire team fears that the patient's family will pursue legal action at some point in the near future

The Response

- The staff physician is upset that the resident missed key information in the patient's presentation and trusted the resident to be responsible for reviewing the chest xray.
- The staff physician becomes defensive and blames the resident's poor judgement and inadequacy in communicating critical information to him.
- The resident feels awful and blames herself for 'killing the patient'. She spends most nights not sleeping and feeling guilty. She becomes withdrawn from her friends and family fearing that they will see her as an "incompetent and dangerous doctor". She can not concentrate at work as she is worried about legal action taken against her.

The Response

- The resident wishes that the staff physician had been more involved in managing the patient and is worried that her mistake will affect his ability to practice medicine.
- Staff says, “If I lose my license, it’s all your fault!”
- The staff physician is terrified and feels guilty that he missed a critical diagnosis as he was Most Responsible Physician. He wishes he had taken more time reviewing the case with the resident and overseeing her work. He is an academic physician who has a promising career in research and is afraid this legal case will destroy his reputation and lifetime of hard work.

Residents' Emotional Responses

- Scared
- Guilty
- Embarrassed
- Afraid
- Mad at myself
- Extraordinarily awful
- Frightened and discouraged
- Afraid I'll get in trouble

Fischer et al., J Gen Intern Med, 2006

A Resident's Perspective

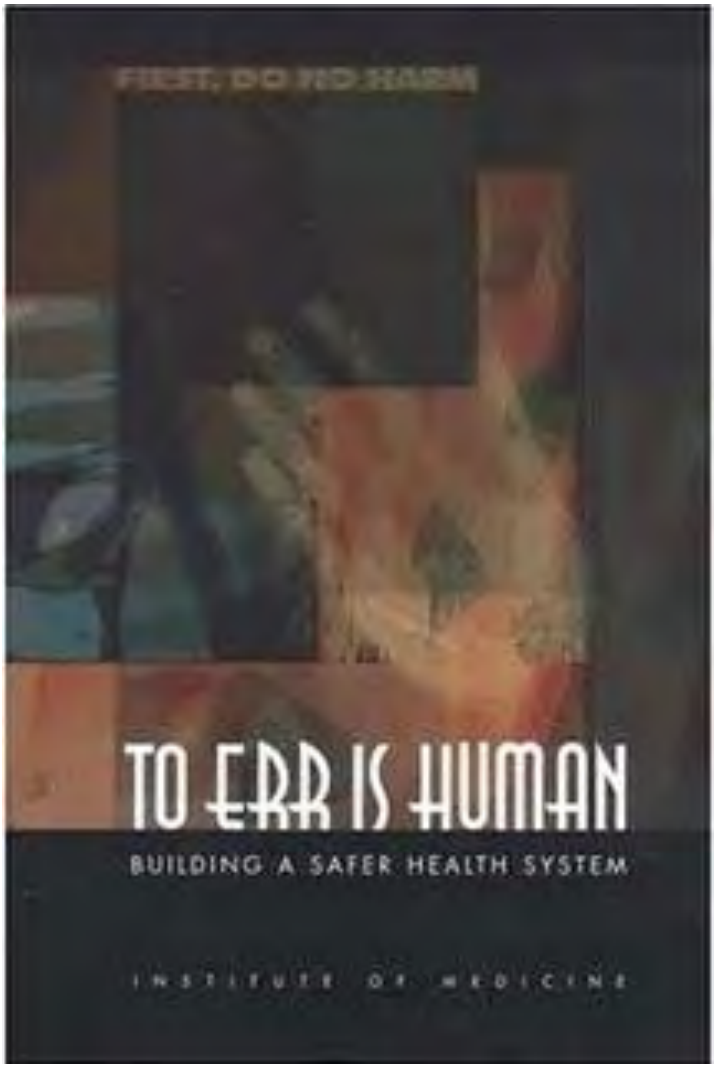
- Unique attributes of the trainee:
  - Less clinical experience, still learning with each case
  - Greater likelihood of error
  - Needs to know how much responsibility to take and when to turn to supervisor for help or input
  - Lower position in hierarchy of physicians: more likely to accept blame, criticism of incompetence, lower degree of confidence
- Legal action, blame from staff physician/supervisors taken very seriously: impacts course of resident's career, their physical and mental health and well-being
- Generally feel unprepared to deal with errors

Outline

- Why focus on adverse events? – a resident's perspective
- What does the literature say? – Errors and Sequelae
- What can mindfulness add?
- What do physicians say? – Narrative example
- What does experience tell us? – a Taste of Appreciative Inquiry
- How do you teach this? - Strategies

To Err is Human

- Estimated 44,000 to 98,000 deaths annually from adverse events



CanMEDS Train-the-Trainer Workshop

Royal College Train the Trainer April 14-15, 2011 Professional: Physician Health

Co-Chairs:
Dr. Leslie Flynn
Dr. Derek Puddester

Awareness and Attitudes Medical Errors

- Students & Residents think about medical errors as “inevitable” and “part of the practice of medicine”
- When they begin – they identify with the patient
- As they proceed – they identify with the profession…

Fischer et al., J Gen Intern Med, 2006

Association of Resident Fatigue and Distress with Perceived Medical Errors

- Among internal medicine residents, higher levels of fatigue and distress are independently associated with self-perceived medical errors

West,P., Tan, A. et al JAMA, September 2009 – Vol 302, No 12

Rates of Medication Errors Among Depressed and Burnt Out Residents

Prospective Cohort Study

- 24 (20%) of residents met criteria for depression
- 92(74%) of residents met criteria for burnout
- Depressed residents made 6.2 times as many med errors than residents who were not
- Similar rates of med errors for burnt out and non burnt out residents
- More research required

A. M. Fahrenkopf et al BMJ, 2008336(7642):448-491

Disclosure and Apology

- 98% of physicians would disclose major errors to patients, but only about ¾ would disclose minor errors
- 34 states have “apology laws” that provide some degree of protection from liability.
- Apology consists of: acknowledgement, explanation, remorse/shame/forbearance, and reparation
- Apology may lower amount of settlements but may not have much effect on # of claims.

Lazare, A. Apology in medical practice: an emerging clinical skill. JAMA. 2006;296:1323

Factors Influencing Learner Response

- Supervision
- Program
- Institution
- Event
- Role Confusion
- Professional or Legal consequences

Fischer et al., J Gen Intern Med, 2006

Approach to Adverse Events

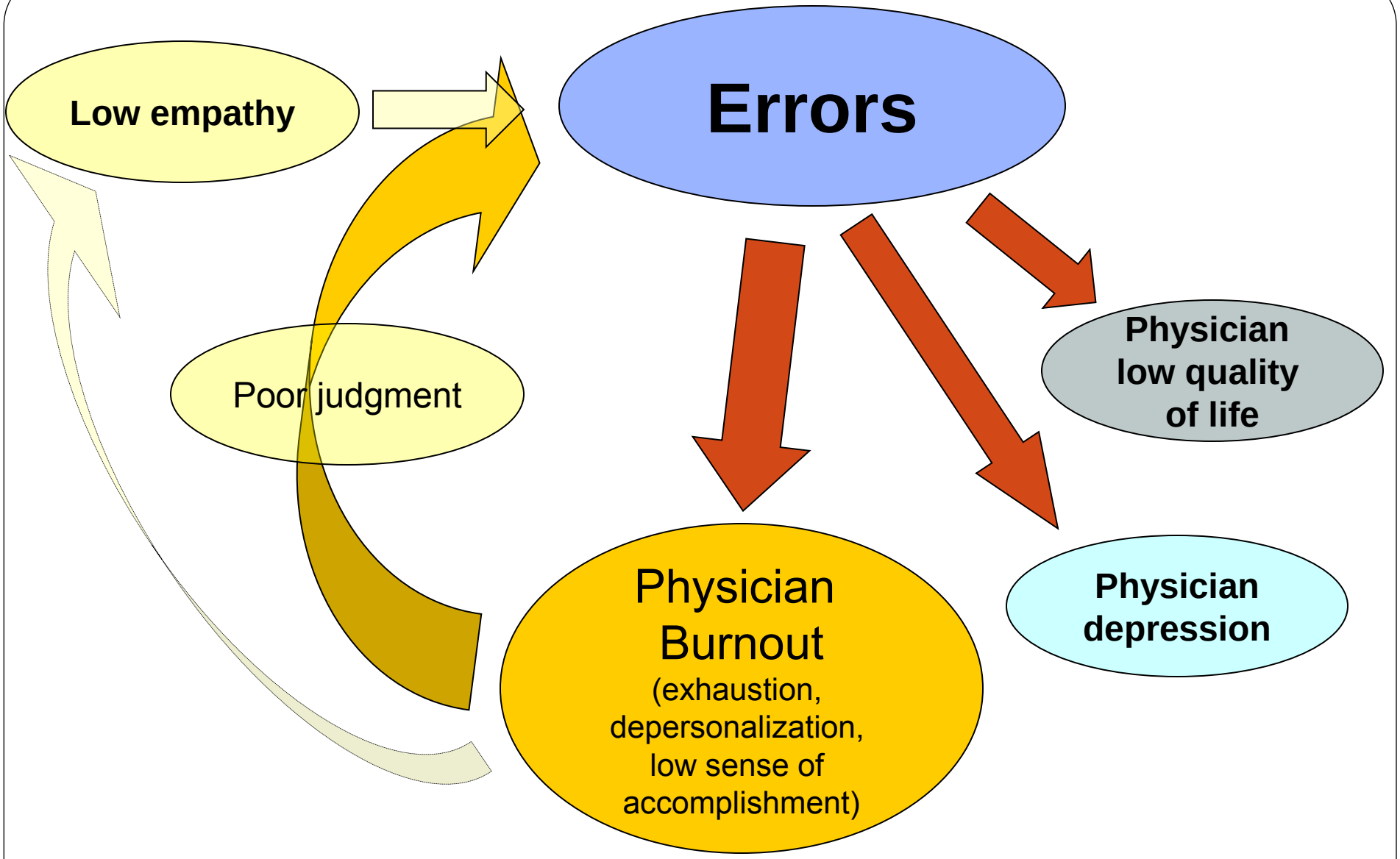
- A non-punitive approach is an absolute requirement
- Reinforces the successful implementation of improvement strategies for the organization
- Ultimate goal is improved patient care

Flynn, L., CanMeds Train the Trainer Physician Health Workshop, 2011

When Something Goes Wrong

- Discussions about medical errors facilitate professional learning
- Discussions about medical errors provide emotional support after an error
- Physicians report they do not usually discuss their errors

Kaldjian et al., J Med Ethics 2008



Causes and consequences of errors

How Do We Begin These Conversations?

Read the blue section of “Playing the Moonlight Sonata from Memory”. Afterward, please consider and discuss the following:

- What effect does selectively remembering negative experiences have on daily life and work?

- What issues does this raise regarding our responsibilities for mentoring of trainees?

Responding mindfully to errors

Ronald Epstein, MD
Timothy Quill, MD
Michael Krasner, MD
Scott McDonald, MD

Mindful practice Module 7

Departments: Family Medicine, Internal Medicine, Psychiatry
Divisions: Oncology, Medical Humanities, Palliative Care

What is Mindfulness?

Definition:
“Paying attention in a particular way: on purpose, in the present moment, and non-judgmentally” *Kabat-Zinn, 1994*

Mindfulness and Clinical Practice

- Attentive Observation
- Critical Curiosity
- Beginners Mind
- Presence

- Quality of Care
  - Noticing
  - Clinical reasoning
  - Technical skills
- Quality of Caring
  - Compassion
  - Empathy
  - Ethics
- Well-Being
  - Adaptability
  - Self-care
  - Self-monitoring

Reactions and Responses to Errors

Common reactions:

- Denial
- Judgment
- Blame
- Withdrawal
- Rigidity
- Fear

Mindful responses:

- Acceptance
- Openness to other perspectives
- Compassion (for self and others)
- Engagement
- Flexibility
- Courage

Mindfulness and Errors:
From Reactivity to Healthy Responsiveness

- Attentiveness to recognize and respond to errors and near misses :
  - Awareness and acknowledgment rather than denial
- Curiosity in the face of culpability and blame:
  - Opening up rather than shutting down
- Adopting a beginner's mind in seeking solutions:
  - Flexibility rather than rigidity driven by fear
- Being present even when things are stressful:
  - Engagement rather than withdrawal

Paired Interview:
Healthy Responses to Medical Errors

- *Focus on a moment in the midst of a bad outcome or a error in which you responded in a way that was helpful, perceptive, thoughtful and/or reparative. Perhaps it involved disclosure, an apology, or an ability to forgive yourself. Or, perhaps someone apologized to you. It can be a clinical or non-clinical setting.*
- *Take 5 minutes, and jot some notes in anticipation of telling it to a colleague.*

Find a Partner and Take 5 minutes:

For the storyteller, focus on:

- What happened
- Helpful qualities you brought to that moment
- Who else was involved, and how they contributed
- Context and setting

For the listener, focus on:

- Be attentive, don't interrupt
- Ask questions to help your partner clarify and provide details
- Don't talk about your own ideas or experiences
- Use reflective questions and empathy when appropriate

If you get done sooner, just be silent. We'll let you know when it is time to switch.

Reflective Questions

- Attentive Observation
  - “If there were data that you ignored, what might they be?
  - “What did you notice?” “What were you unable to see?”

- Critical Curiosity
  - “What are you assuming that might not be true?”
  - “What was surprising or unexpected?”

- Beginner’s Mind
  - “What would a trusted peer say about how you managed or feel about this situation?”
  - “Can you see the same situation/patient with new eyes?”

- Presence.
  - “What do you notice about yourself when you are at your best?”
  - “What moved you most about this situation?”

What Did You Learn…

- About your personal reactions to telling and hearing the story?
  - Thoughts
  - Feelings
  - Bodily sensations
- About being mindful in stressful/challenging situations?
- About how you practice medicine?

Approaches to Teaching

Strategies to:

- Begin conversations about difficult topics
- Demystify and normalize talking about mistakes and adverse events
- Cultivate an ability to respond less reactively and more mindfully to stressful events
- Enhance resilience
- Address health and sustainability competency of the CanMEDs Professional role

Strategies

- Narrative
  - Moonlight Sonata, Casey's Legacy
- Live testimonials
- Video clips
- Appreciative Inquiry
- MBSR
- Regular, normalized debriefing (near misses)

Critical Ingredients

- Real life, but distant
- Bridge the challenge of topic about something “hypothetical”
- Tap in to emotions
  - Recognize that fear might be one
- Comfortable…enough
- Break the ice on a “taboo” topic
- Dialogue
- Safe Space

Wrap-Up

- Ideally, resident curricula would include mindfulness and other strategies aimed at preparing residents for dealing with adverse events

- Faculty development is also crucial:
  - Supervisors can respond reflexively rather than reflectively – fear of legal, judgement, blame

- Facilitate resident connecting with supports – physicians tend to suffer alone – isolated from colleagues

Resources

- CanMEDS Physician Health Guide
- Royal College of Physicians and Surgeons Train the Trainer Binder on Physician Health (Professional Role)
- Royal College of Physicians and Surgeons of Canada Website
- CMA Center for Physician Health & Wellbeing Website
- www.ePhysicianHealth.com
- CMPA Website – Online Education
- CMPA Perspective – September 2010
- Canadian Patient Safety Institute - Canadian Disclosure Guidelines
- Mindful Practice Programs, U. of Rochester
- Casey's Legacy – W. Richard Boyte, Health Affairs, 20, no.2 (2001):250-254

Timing 1:30-3:00 (Tentative Draft)

- 130-145: Introduction — Amandeep/Melissa
- 145-155: Lit review /To Err — Claudia/Anita
- 155-220: Narrative read/discuss — Melissa
- 220-240: Mindfulness/AI — Anita
- 240-25o: Workshop Strategies — Melissa??
- 250-300: Resources and Wrap Up — Amandeep

Relevant Literature

MEDICAL ERROR/ADVERSE EVENT

- West, C.P. , Tan, A., et al (2009) Association of Resident Fatigue and Distress with Perceived Medical Errors JAMA Vol 302, No. 12
- Fahrenkopf, A. et al (2007)Rates of Medication Errors among Depressed and Burnt out Residents: Prospective Cohort Study BMJ
- Kim, H.J, Kim, J.H., Park, K.D., Choi, K.G., & Lee, H.W. (2011). A survey of sleep deprivation patterns and their effects on cognitive functions of residents and interns in Korea. *Sleep Medicine, 12(4,),* 390-396
- Leff, D.R., Orihuela-Espin, F., Athanasiou, T., Karimyan, V., Elwell, C., Wong, J., Yang, G. Z., & Darzi, A.W. (2010). Circadian cortical compensation: a longitudinal study of brain function during technical and cognitive skills in acutely sleep-deprived surgical residents. *Annals of Surgery*, *252(6),*1082-1090.
- West, C.P., Shanafelt, T.D., & Kolars, J. C.(2011) . Quality of life, burnout, educational debt, and medical knowledge among internal medicine residents. *JAMA, 306(9)*, 952-960.

Relevant Literature

PROGRAMS/ COPING STRATEGIES BEING IMPLEMENTED

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