

**Special Topics in Public Health Law:  
Intellectual Property Law and Health Technologies**  
HPM 550, Fall 1 2015  
Thursday 3:30pm – 6:20pm, FXB G11

**Instructor Information**

Joanna T. Brougher, J.D., M.P.H.  
Adjunct Lecturer in Health Policy and Management  
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Phone: 617-699-2931

Office hours: Before class on Thursday by appointment only  
Office address: [TBD]

**Texts and Reading Materials**

Brougher, Joanna. *“Intellectual Property and Health Technologies: Balancing Innovation and the Public's Health”* Springer, 2014 Ed.

Selected materials containing the assigned, edited or excerpted portions of legal cases and articles will be available electronically on the course website.

**Learning Objectives**

Students completing this course will be able to:

1. Describe basic principles and processes of patent law and drug approval processes in the U.S.
2. Explain the roles of Congress, the courts, administrative agencies, and international law in regulating intellectual property as it relates to matters of public health.
3. Analyze underlying conflicts in intellectual property law between stimulating innovation and promoting access to health technologies.
4. Critically evaluate the current intellectual property regime as a mechanism for spurring health technology innovation, as well as proposals for alternative mechanisms for encouraging innovation.
5. Identify and critically analyze legal and ethical issues arising in assigning intellectual property rights in health technologies.

**Outcome Measures**

1. **HOMEWORK ASSIGNMENTS:** You will have 2 homework assignments. Each homework assignment will consist of essay questions that are designed to deepen your understanding of the readings and give you practice applying what you have learned to new legal and policy scenarios. You must answer each question in no more than two double-spaced pages.

2. FINAL EXAM OR PAPER: You will take an at home exam consisting of essay questions or you will be able to write a 8-10 page paper suitable for publication. You will be allowed to consult your course readings and notes during the exam.

### **Grading Criteria**

1. HOMEWORK: Each of the 2 homework assignments will be worth 25% of your overall grade, for a total of 50%.
2. FINAL: The final will constitute 50% of the overall course grade.
3. CLASS PARTICIPATION: Class participation consists of three elements: attendance, preparation, and thoughtful contribution to class discussions. Class participation will be evaluated qualitatively and ratings will be used to move students whose written work scores are near a grade cutoff point on the final distribution.

### **Additional Information**

**Lecture Slides:** The lecture slides will be available on the course website the day before the lecture. Supplementary materials and announcements will also be posted online from time to time.

**Policy on Academic Integrity:** Please make sure you understand the following rules regarding collaboration on assignments and academic integrity. If anything about these policies is unclear, it is your responsibility to ask the instructor for clarification.

1. **Homework:** Your responses to homework questions must represent your own work only. This is not a collaborative project. You should generate ideas for your answers and write your answers on your own. When you derive facts or ideas from reading and research, you must indicate the sources.
2. **Final Exam:** Final exams must be completed independently. During the exam, you may consult your notes and course readings. You may acknowledge cases and other readings by short name. It is not necessary to make attributions to course lectures.

**Exam accommodations:** Please follow standard HSPH procedures for requesting accommodations relating to a disability. Requests to take the final exam at an alternative time for personal reasons will be considered, but granted only in exceptional circumstances. Please make such requests as early as possible.

**Late work:** Unless you have been granted an extension in advance of the homework deadline, homework assignments submitted up to 24 hours late will be assessed a penalty of 1 point. The penalty will increase to 2 points after 24 hours, and to 3 points after 48 hours. After 72 hours, late assignments will not be accepted.

### **Course Evaluations**

HSPH requires completion of a course evaluation for each course you take. Your grade will not be available until you submit the evaluation. In addition, registration future terms will be blocked until you have completed evaluations for courses in prior terms.

## Class Schedule and Readings

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### **Session 1: Overview of Intellectual Property Law & Obtaining Patent Protection** **Sept 3:**

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Concepts: Overview of IP law, including, patent, trademark, and copyright; understanding the role of the United States Patent & Trademark Office in regulating intellectual property; understanding the requirements and hurdles to obtaining patent protection; navigating the patent prosecution life cycle; examining recent changes in patent law and their impact on the future of health technologies.

Readings: Brougher, Chapters 1, 2 & 5

35 U.S.C. § 101, 102, 103, 112

*University of California v. Eli Lilly & Co.*, 119 F.3d 1559 (Fed. Cir. 1997)

*Madey v. Duke University*, 307 F.3d 1351 (Fed. Cir. 2002)

*Bowman v. Monsanto Co.*, 569 U.S. \_\_\_\_ (2013)

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### **Session 2: Patentability of Genes & Medical Processes** **Sept 10 & 17:**

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Concepts: Requirements for patenting genetic research and medical treatment processes and the debate surrounding them.

Readings: Brougher, Chapters 3 & 4

*Diamond v. Chakrabarty*, 447 U.S. 303 (1980).

*President & Fellows of Harvard College v. Canada* (Commissioner of Patents)

*Association for Molecular Pathology et al., v. Myriad Genetics, Inc.*, 569 U.S. \_\_\_\_ (2013).

Kesselheim, AK, and Mello, MM. "Gene Patenting - Is the Pendulum Swinging Back." *New England Journal of Medicine* 2010; 362:1855-1858.

*Lab. Corp. of Am. Holdings v. Metabolite Labs., Inc.*, 126 S. Ct. 2921 (2006).

*Prometheus Laboratories, Inc. v. Mayo Collaborative Services*, 566 U.S. \_\_\_\_ (2012)

Kesselheim, AK, and Mello, MM. "Medical-Process Patents – Monopolizing the Delivery of Health Care." *New England Journal of Medicine* 2006; 355:2036-2041.

*Optional:* Sturges, ML. "Who Should Hold Property Rights to the Human Genome? An Application of the Common Heritage of Humankind." 13 *Am. U. Int'l L. Rev.* 219 (1997).

Erramouspe, M. "Staking Patent Claims on the Human Blueprint: Rewards and Rent-Dissipating Races." 43 *UCLA L. Rev.* 961 (1995-1996).

Eisenberg, RS. "Re-Examining the Role of Patents in Appropriating the Value of DNA Sequences." 49 *Emory L.J.* 783, 784 (2000).

Feisee, L, "Are Biotechnology Patents Important? Yes!," 1 *PTO TODAY* 9, 9. (2000).

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**Session 3:**  
**Sept. 17**

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**Rights and Roles of Universities and Inventors**

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Concepts: How the Bayh-Dole Act and other aspects of the intellectual property regime allocate rights to inventors and universities.

Readings: *Burroughs Wellcome Co. v. Barr Laboratories, Inc.*, 40 F. 3d 1223 (1994)

Bayh-Dole codified in 35 U.S.C. § 200-212, Available at [http://www.law.cornell.edu/uscode/html/uscode35/usc\\_sup\\_01\\_35\\_10\\_II\\_20\\_18.html](http://www.law.cornell.edu/uscode/html/uscode35/usc_sup_01_35_10_II_20_18.html)

*In the Case of NORVIR*

*In the Case of Xalatan*

*Board of Trustees of the Leland Stanford Junior University v. Roche Molecular Systems*, 563 U. S. \_\_\_\_ (2011)

*Optional:* Pulsinelli, G. "Share and Share Alike: Increasing Access to Government-Funded Inventions Under the Bayh-Dole Act," *Minnesota Journal of Law, Science & Technology*, 7 *Minn. J. L. Sci. & Tech.* 393 (2006).

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**Session 4: Drug Development and FDA Regulatory Processes****Sept 24:**

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Concepts: Understanding how drugs come to market, including a look at navigating the FDA regulatory process, and market exclusivity-based incentives for drug development.

Readings: Brougher, Chapter 6

Frank, RG. 2003. "Editorial: New estimates of drug development costs," *Journal of Health Economics* 22: 325-30.

Frank, RG. "Regulation of Follow-on Biologics," *New England Journal of Medicine* 2007; 357:9.

Li, JS et al. "Economic Return of Clinical Trials Performed Under the Pediatric Exclusivity Program," *JAMA* 2007; 297:5.

So, AD et al. "Is Bayh-Dole Good for Developing Countries? Lessons from the US Experience," *PLoS Biology* 2008; 6:10.

*Optional:* Kesselheim, AS. and Solomon, DH. "Incentives for Drug Development - The Curious Case of Colchicine," *New England Journal of Medicine* 2010; 362:22.

Kesselheim, AS. "Drug Development for Neglected Diseases - The Trouble with FDA Review Vouchers," *New England Journal of Medicine* 2008; 359:19

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**Session 5: Patent Battles: Brand-Name Drugs vs. Generics****Oct 1:**

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Concepts: How the patent regime stimulates and mediates battles between brand-name drugs and generics—for example, through the Hatch-Waxman Act, patent term extension, evergreening, pay-for-delay settlements, and the new Healthcare Reform Bill.

Readings: Brougher, Chapters 7 & 8

*Merck KGaA v. Integra Lifesciences I, Ltd.*, 545 U.S. 193 (2005)

Heller, MA., and Eisenberg, RS. 1998. "Can Patents Deter Innovation? The Anti-Commons in Biomedical Research." *Science* 280: 698–701.

Patient Protection Affordable Care Act, Title VII - Improving Access to Innovative Medical Therapies, Subtitle A: Biologics Price Competition and Innovation. pgs. 686-703.

Mossinghoff, GJ. "Overview of the Hatch-Waxman Act and Its Impact on the Drug Development Process," *Food and Drug Law Journal*, Vol. 54, 187-194.

Bansal, IB et al, "Evergreening – A Controversial Issue in Pharma Milieu," *Journal of Intellectual Property Rights*, Vol. 14, July 2009, pp. 299-306.

Thomas, JR. "Patent 'Evergreening': Issues in Innovation and Competition," Congressional Research Service, November 13, 2009.

Pay-for-Delay: How Drug Company Pay-Offs Cost Consumers Billions, An FTC Staff Study, Federal Trade Commission, January 2010

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**Session 6: International Patent Law**  
**Oct 17:**

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Concepts: Understanding the role of patents and other factors that impact access to medicines in developing countries.

Readings: Brougher, Chapter 9

Attaran, A, Gillespie-White, L. "Do patents constrain access to AIDS treatment in poor countries? Antiretroviral drugs in Africa," *JAMA* 286: 1886-92 (2001).

Westerhous, M, Castro, A. "How Do Intellectual Property Law and International Trade Agreements Affect Access to Antiretroviral Therapy?" *PLoS Medicine* 3(8): e332 (2006).

Reich, MR and Bery, P. "Expanding Access to ARVs: The Challenges of Patents and Prices," in KH. Meyer and H.F. Pizer, eds. *AIDS in the 21<sup>st</sup> Century*, New York: Elsevier, pp. 324-50 (2005).

*Optional:* Commission on Intellectual Property Rights (UK). 2002. *Integrating Intellectual Property Rights and Development Policy*. (September), 1-56. Available at [http://www.iprcommission.org/graphic/documents/final\\_report.htm](http://www.iprcommission.org/graphic/documents/final_report.htm)

# HPM 554 Syllabus

## Leadership in Public Health: From Theory to Action

**Michael McCormack**

**Fawn A. Phelps**

**Spring 1, 2016**

### **Contact info:**

Class time: Mondays and Wednesdays, 10:30am – 12:20pm  
Location: Kresge 200  
First Class: Monday, January 25  
Last Class: Wednesday, March 9  
Instructors: Michael McCormack, MPA, Instructor & Deputy Director of Leadership Development and Director of Practice  
Office Address Kresge G-29  
Office phone 617-432-3592  
Email: [mmccorma@hsph.harvard.edu](mailto:mmccorma@hsph.harvard.edu)

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Office Address Kresge 112  
Office Phone 617-432-2209  
Email: [fphelps@hsph.harvard.edu](mailto:fphelps@hsph.harvard.edu)

Instructors' Asst: Sanam Roder-DeWan  
Email: [roderdewan@mail.harvard.edu](mailto:roderdewan@mail.harvard.edu)

Class website: Canvas  
Assessment: Written Assignments, Class Participation, and Client Feedback

### **Course Description:**

Public Health and the health care industry are in an era of increasingly rapid change. The complexity of public health and health care issues, health care financing and operations, and the intractable public health challenges call for leadership that is dynamic, thoughtful, and inclusive. Now more than ever, public health practitioners need to develop leadership skills that enable them to work across programmatic and systemic “silos” while engaging and working with diverse communities, researchers, and other stakeholders.

This course integrates the development of leadership, problem solving, and team work skills with the completion of client-generated scopes of work focused on: patient engagement in electronic medical records, community-focused provider staffing, and workplace wellness.

The course focuses on three key areas:

1. Working effectively in teams to produce a product as specified by Codman Square Health Center of Massachusetts (Codman HC).
2. Action-oriented cross-sector collaboration (e.g., clinicians, frontline health center staff, community health workers, community organizations and residents)
3. Working effectively and authentically with diverse populations

*The client for the course is Codman Square Health Center, a national leader in community-based care. This course is a real-time dive into community-focused care and community health center operations. Get involved in the community and put your classroom theories to the test.*

**Course Objectives:**

At the completion of the course, participants will be able to:

1. Critically evaluate a theoretical approach to leadership and teams, and apply this knowledge, while meeting the project requirements of the client.
2. Apply the theories of leadership that are taught in this class to a client project that benefits a diverse, urban population and to your own leadership development. Become a more effective leader and team member through greater self-awareness.
3. Provide and receive candid and constructive feedback to and from one’s peers regarding his/her effectiveness as a team member.

**Class Schedule:**

| <b>Class</b> | <b>Date</b> | <b>Topic</b>  | <b>Assignment Due Dates</b>                                   |
|--------------|-------------|---|---|
| 1            | 1/25        | Course Overview and Theory & Guest Lecture  |   |
| 2            | 1/27        | Client Presentations: Codman Square Health Center Leadership Present on Projects  |   |
| 3            | 2/1         | Establish Student Teams and Prepare for Site Visit  |   |
| 4            | 2/3         | Site Visit: Student Teams to Codman Square Health Center<br>637 Washington St<br>Dorchester, MA 02124<br><br>NOTE:11:10 am Start Time for Codman Mtg. | Students responsible for getting to and from Codman Square HC |
| 5            | 2/8         | De-brief Site Visit, Systems Thinking and Problem Solving   |   |
| 6            | 2/10        | Team Check-in and Guest Speakers<br>NOTE: Teams will be divided into three  | Team Membership Roster and Charter<br>In-class Team Report    |



|    |      |  |                                      |
|----|------|--|--------------------------------------|
|    |      | different rooms – see Canvas to confirm your team’s classroom location |                                      |
|    | 2/15 | <i>President’s Day – No Class</i>                                      |                                      |
| 7  | 2/17 | Working Session  | In-class Team Report                 |
| 8  | 2/22 | Team Emotional Intelligence  |                                      |
| 9  | 2/24 | The View from the Balcony & Working Session                            | Mid-term Reflection                  |
| 10 | 2/29 | Team Dynamics and Managing Conflict                                    | In-class Team Report                 |
| 11 | 3/2  | Dress Rehearsal of Team’s Client Presentations & Distribute Final Exam | Dress Rehearsal Client Presentations |
| 12 | 3/7  | Present Findings to Codman Leadership                                  | Client Presentations                 |
| 13 | 3/9  | De-brief and Giving Feedback   | Team Debriefs, Reflections, Close    |
|    |      |  | Final Exam Due: Friday 3/11 4pm      |

**Required Readings:**

All readings are available on HPM 554 Canvas site.

**Assignments:**

**Group performance: 60%**

1. Team Status Report to Class (10%) Due semi-weekly Feb. 10, 17 and 29.

Each team will present a semi-weekly update to the class on their team’s research and dynamics. Including updates on:

- a. What has the team learned re: the technical elements of the work for Codman HC?
- b. What is the adaptive challenge for Codman HC within the team’s specific project?
- c. What has the team learned re: team dynamics?
- d. What has the team struggled with and where does the team need help?

2. Final Recommendations to the Client (40%)

Presentation of realistic recommendations backed by nuanced research that address the client’s scope of work.

3. Codman Square’s Assessment of the team’s research and recommendations (10%)

**Individual Performance: 40%**

1. Take-home final examination (30%) Due Friday, March 11 4pm.

The essay questions on the open-book, take-home final examination may cover the following topics:

- Adaptive work v. technical work
- Self-awareness
- Theories of change
- Mapping power dynamics
- Working in teams
- Working with diverse populations

- Implications of this course for the student's area of primary academic and/or professional interest

This open-book, take-home final exam is to be completed in **no more than eight (8) hours** of total work time. Reading your assigned readings prior to opening this exam will not count toward the eight-hour limit. The format: submissions will be **no more than ten (10) total pages**, double spaced, 12-point font, with regular 1 inch margins. We will stop reading at the bottom of page 10.

## 2. Class Participation (10%)

Based on attendance, participation (i.e. the work of their team as well as discussions in the class) and quality of contribution to their team and the class.

## 3. Self Reflection (not for credit) Due Monday, February 22 at the beginning of class

Mid-way through the course (Feb. 22) students will submit a 2-page self-reflection paper on what they have learned, what they need to develop, and how their team is functioning. This will not be graded.

## Grading Criteria

A = Demonstrable grasp of the key concepts and direct application to the client project; creative and realistic approaches to problem-solving, full participation in a team demonstrating the ability to move the team forward.

Written work: detailed examples from client team work tied to personal leadership development insights, text succinctly ties theory to lessons from client projects and to personal development, and well structured and well written.

B = Grasp of key concepts and application to the client project, somewhat creative approaches to problem solving, and participation in team.

Written work: examples from client team work tied to personal leadership development insights, text ties theory to lessons from client projects and to personal development, and narrative and sentences have clear structure.

C = Poor comprehension of key concepts and inability to apply knowledge to the client project; lack of creative approach to team task; lack of effective engagement with team and class.

Written work: limited or no examples from client team work tied to personal leadership development insights, limited or no connections between theory, lessons from client projects and personal development, confusing narrative and sentence structure, and late submission.

F = Any combination of the following behaviors: Poor attendance, lack of class participation, failure to support the work of the team(s) you are part of, using technology for work unrelated to this class, poorly written paper(s), missing deadlines, including often arriving late to class or leaving early without discussion with faculty in advance.

Written work: no examples from client team work tied to personal leadership development insights, no connections between theory, lessons from client projects and personal development, poor narrative and sentence structure, and incomplete or no submission.

### **Week 1 – January 25 and 27, 2016**

### **Leadership in Public Health, Course Structure and Introduction to Codman Square Health Center**

#### **Class 1 – January 25**

#### **Leadership in Public Health and an Introduction to Course Structure**

##### Course Overview and Theory

Set expectations about the requirements of the class by reviewing the syllabus, and then lay groundwork for working in teams and building community collaboration. The research and writings of Ron Heifetz provide an innovative model for the public health professional to understand and appreciate the need for engaging with a wide variety of stakeholders when planning changes in public health (PH) policy. Many of the most challenging issues a PH leader encounters are complex and cannot be solved using only technical problem-solving methods. In particular, understanding adaptive problems, as Heifetz defines them, and being able to distinguish these from other problem types, can give the PH professional better strategies for truly dealing with seemingly intractable problems.

##### **Session Objectives:**

- Present overview of course objectives, syllabus and grading criteria to students
- Introduction of Bruce Tuckman’s stages of group development
- Apply Heifetz model to the major challenges facing PH professionals
- Develop an understanding of community health center movement history and current landscape with a focus on Boston and Codman HC
- Review “scopes of work” in preparation for session with Codman HC

**Important:** Be prepared to discuss Heifetz reading and Walczak TEDx talk assigned as pre-work for this class

**Guest Lecturer:** Dr. Paul Campbell, Lecturer on Global Health

<http://www.hsph.harvard.edu/paul-campbell/>

##### **Pre-Session Required Reading and Website Review:**

- Heifetz, Ronald A. “Adaptive work” *The Adaptive State: Strategies for personalizing the public realm*. Edited by Bentley, Tom; Wilsdon, James. Pp. 68 – 78. Demos published in 2003  
<http://www.demos.co.uk/files/HPAPft.pdf>
- TEDxBoston- Bill Walczak - Codman Square Health Center Founder  
<https://www.youtube.com/watch?v=yBgMh0LBzi0> (Length 18:37 min)
- Review Codman Square Community Health Center’s Website: [www.Codman.org](http://www.Codman.org)

### **Required Reading for Online Canvas Discussion:**

- Case: Harry and Learning Team 28 by Lynn Isabella, Roy Kuruvilla, James Pilachowski, and Prashant Prasad Source: Darden School of Business. 6 pages  
Publication Date: Mar. 15 2004 (read and discuss on the Canvas site)  
<https://cb.hbsp.harvard.edu/cbmp/pl/43844995/43845003/52c4294b17e0f217b4aa0f5ce57b9839>

### **Canvas Discussion Questions:**

- What's your impression of this learning team?
- Who or what is Learning Team 28's problem?
- Was the secret meeting a good idea?

Case/Team specific issues:

- How did this team come together; what were their expectations of one another?  
How clearly were they discussed?

Broader issues:

- How does conflict form in a team?
- How can it be beneficial (or not)?

## **Class 2 – January 27**

### **Introduction to Codman Square and Team Projects**

Client Presents: Codman Square Health Center Leadership Present on Projects

There is a great deal to understand about the diverse population of the Codman Square neighborhood and broader Boston community. This session is an introduction to this population and to the current service delivery issues facing Codman Square Community Health Center (Codman HC).

Guest Speakers: Debbie Hilton-Creek, MBA (Chief Human Resources Officer), Scotland Huber (Communication and Marketing Manager), and Louise Keogh Weed, MPH (Director of Medical Management and Improvement) will meet with the class to give context and history for the organization, talk about the public health need of their work, and explain and discuss the team projects.

Following the presentation there will be a discussion of the scopes of work and pathways to action. There will also be a review of Heifetz's adaptive work model from Class #1.

### **Session Objectives:**

- Discuss and learn details about the issues and related Codman scopes of work: patient engagement in electronic medical records, community-focused provider staffing, and workplace wellness.
- Discuss pathways to action for the Codman scope of work

### **Pre-Session Required Readings and Videos:**

- Codman Square HC Video: [About Codman Square with CEO Sandra Cotterell](#) (Length: 5:42)
- Codman Square HPM 554 Scopes of Work
- SKIM: Codman Square: History (1630 to present), Turmoil (1950-1980) and Revival (1980-2000): Factors which lead to Racial and Ethnic Placement, Racial Segregation,

Racial Transition, and Stable Integration. Memo from Codman Square Health Center Founder William J. Walczak (SKIM 30 pages)

- SKIM: Boston Urban Symposium, Boston University. "Mapping Neighborhood Transformation: An Assessment of Susceptibility and Recommendation for Codman Square (SKIM 81 pages)  
<http://www.dotnews.com/BU%20CSNDC%20Mapping%20Neighborhood%20Transformation.pdf>

## **Week 2 - February 1 and 3**

### **Organizing to Learn, "Flying without a Net," and Site Visit**

#### **Class 3 - February 1**

#### **"Flying Without a Net" and Developing Teams Organized to Learn**

Establish Student Teams and Prepare for Site Visit

Class will divide into teams based on the scopes of work Codman Square HC presented and prepare for site visit. We will apply Tuckman stages of group development and Edmondson's organizing to learn models to the creation scope of work teams. We will also discuss what it is like to "fly without a net" – to take a risk, even if it means failure. Being willing to take risks and learning from mistakes is critical to effective leadership. We will discuss what this means for our own leadership.

#### **Session Objectives:**

- Apply the Bruce Tuckman stages of group development model and Amy Edmondson organizing to learn model to team formation
- Individual teams will structure themselves, and assign roles and responsibilities for the site visit
- Discuss risk and potential failure in the context of "Flying without a Net"
- Prepare for Codman Square HC site visit

#### **Pre-Session Required Reading:**

- DeLong, Thomas J.. Preface, "The Achilles Heel of the Driven, Ambitious Professional" (Chapter 1) and "The Challenge of Doing the Right Thing Poorly" (Chapter 2), excerpted from *Flying Without a Net: Turn Fear of Change into Fuel for Success*. Harvard Business School Publishing 2011.  
Chapter 1 (20 pages) <https://cb.hbsp.harvard.edu/cbmp/pl/43844995/43844997/87eeb03113fe7b33391472f85b31da26>  
Chapter 2 (13 pages) <https://cb.hbsp.harvard.edu/cbmp/pl/43844995/43844999/3b7d10367a207806334305c67ae74956>
- Amy Edmondson on Teaming  
<https://www.youtube.com/watch?v=T3CxfYfwgY0> (3:54 min)
- Starvish, Maggie, "Teaming in the Twenty-First Century"  
<http://hbswk.hbs.edu/item/7122.html> (3 pages)
- Review: Codman Square CHC Scopes of Work (Class #2)

### **Class 4 – February 3**

#### **What Leaders Do: Site Visit and Listening to Key Stakeholders**

We will visit Codman Square HC and engage in dialogue with Codman Square HC staff. The visit will provide insights and context for the project work. Seeking client input early in the process helps teams produce more effective interventions.

**Note: Our Meeting at Codman Square Health Center will start at 11:10am** and end at 12:30pm. Students are responsible for their transportation to Codman Square Health Center 637 Washington St., Dorchester, MA 02124

**Important:** After the visit and before the next class on February 8, *teams will begin meeting on their own time* and begin work on their team charter, their assigned scope of work, and discuss issues with other teams as appropriate in order to develop cohesive recommendations. Teams will nominate a representative to report on their progress at the February 10 class. Teams are invited to seek advice from the instructors when needed.

#### **Session Objectives:**

- Listen to key stakeholders
- Work effectively as a team on issues relating to team formation, the individual team scope of work as well as the overall goal.
- Critically evaluate the role of leadership and effective teamwork as the work progresses.
- Incorporate the views of the Codman Square HC staff and patients into your own thinking.
- Consider how your responses to the scopes of work need to be communicated to Codman Square HC leadership as well as to community members.

#### **Pre-Session Required Reading:**

- Mathieu, W.A. The Listening Book, pp. 24-25  
Rogers, Carl R. and Roethlisberger, F. J. "Barriers and Gateways to Communication" Harvard Business Review: On Human Relations, July–August 1952. Pp. 105-111 <https://cb.hbsp.harvard.edu/cbmp/pl/43844995/43845005/bfb7c65822f5ce7fb650f3189525b44b>

### **Week 3 – February 8 and 10**

#### **What Leaders Do: Systems Thinking & Listening to Context, Content Experts and Team Members**

### **Class 5 – February 8**

#### **What Leaders Do: Systems Thinking and Problem Solving**

All too often Public Health practitioners - from clinicians to case workers to management - have competing priorities, too little time, and too little budget to effect change. They are so

often enmeshed in day-to-day critical issues that they sometimes are unable to step back and take a see the entire system and think about “upstream interventions” that may prevent many of the “downstream crises”.

We will have an opportunity to think about this and where best to focus efforts in generating solutions.

### **Session Objectives:**

- Discuss Systems Thinking and how best to apply this to your current challenge
- Discuss how change might be introduced at Codman Square HC given the constraints they face
- Explore problem solving tools applicable to the scopes of work
- Evaluate the tool of “Dialogue” as a means of engaging and empowering community participation in understanding, defining and resolving public health issues
- Determine what you would like to learn from the larger Codman Square community, and what questions you would like to ask/discussions you would like to have

### **Pre-Session Required Reading:**

- Thich Nhat Hanh, Thundering Silence: Sutra on Knowing the Better Way to Catch a Snake, "The Raft is Not the Shore," Parallax Press, 1993, Berkeley CA. (pp.30-33).
- Exposing the Hidden Benefits of Business as Usual. David Peter Stroh. Applied Systems Thinking. 2006. Article 3 (5 pages) [http://www.appliedsystemsthinking.com/supporting\\_documents/Leveraging\\_HiddenBenefits.pdf](http://www.appliedsystemsthinking.com/supporting_documents/Leveraging_HiddenBenefits.pdf)
- Leveraging Change: the Power of Systems Thinking in Action. David Peter Stroh. Applied Systems Thinking., 2008 Article 1 (13 pages) [http://www.appliedsystemsthinking.com/supporting\\_documents/Leveraging Power.pdf](http://www.appliedsystemsthinking.com/supporting_documents/Leveraging_Power.pdf)
- Building the Foundation for Change. David Peter Stroh. Applied Systems 2008 Thinking Article 5 (6 pages) [http://www.appliedsystemsthinking.com/supporting\\_documents/Leveraging Building4Change.pdf](http://www.appliedsystemsthinking.com/supporting_documents/Leveraging_Building4Change.pdf)

### **Class 6 – February 10**

#### **What Leaders Do: Listening to Context, Content Experts and Team Members**

**Note:** Teams will be divided into three different rooms according to scope of work – see Canvas to confirm your class location

**Important: Assignment Due** at the beginning of class: team membership, charter and initial team report. Be prepared, through a team spokesperson, to report in class on your team’s charter and initial response to the scope of work.

By class six, teams should have a solid start to their research for the Codman Square HC scopes of work. The team check-in is an opportunity to assess where the teams are with regard to the Codman Square HC scopes of work.

Questions for team check-in:

- a. What has the team learned re: the technical elements of the work for Codman HC?
- b. What is the adaptive challenge for Codman HC within the team's specific project?
- c. What has the team learned re: team dynamics?
- d. What has the team struggled with and where does the team need help?

Classroom time will be divided into two parts: the first part will focus on team check-in and teaming theories; and the second section of class will feature a guest speaker who is a recognized leader in the field of your team's scope of work, including:

Patient engagement in electronic medical records:

Michael Lee, MD, MBA Director, Clinical Informatics Atrius Health

Community-focused provider staffing:

Pano Yeracaris MD MPH, Co-Director CTC Rhode Island & SyncHealth LLC

Workplace wellness:

Mari Ryan, MBA, MHP, CWWPC, CWP, CEO AdvancingWellness (to be confirmed)

Kevin Myers, MSPH, Senior Project Associate, Health Resources in Action

### **Session Objectives:**

- Assess your progress against Codman Square HC's scope of work
- Shared understanding of your team's approach to your work (team structure, research approach and methods)
- Share insights about the Codman Square community and next steps
- Assess quality of student teams' work, and determine next steps
- Understanding of the broader landscape of the scope of work's topic focus through discussion with topic thought leader

**Pre-Session Required Reading:** No Reading

### **Week 4 - February 15 and 17**

#### **The Art and Science of Working in Teams**

#### **February 15**

**No Class, President's Day**

### **Class 7 - February 17**

#### **Working Session**

Class will include time to work as a team on client deliverables. Teams should be well along in their research and development of solutions for the Codman challenges. This is an opportunity to assess the full class and teams progress regarding the final deliverable.



**Session Objectives:**

- Critically evaluate where each team is, and how what each team is doing is contributing to the overall class solution
- Share insights about Codman Square Health Center and the community it serves. Assess quality of work, and determine what needs to be done
- Assess your progress against Codman's challenge and criteria

**Pre-Session Required Reading:**

- Block, Peter. *Flawless Consulting: A Guide to Getting Your Expertise Used*. Wiley. New York NY. 1981. Chapters 8 -9. Pp. 113-139

**Week 5 - February 22 and 24****Balancing Deadlines, Exploration of Opportunities and A Leadership Perspective: 'The View from the Balcony'****Class 8 - February 22****Team Emotional Intelligence**

Both individuals and groups have emotional intelligence. A key leadership skill is the cultivation of one's emotional intelligence along with the emotional intelligence of a team. This class will include both exploration of team emotional intelligence and time for cross-team exploration of how to create coordinated, holistic recommendations to Codman.

**Session Objectives:**

- Learn the emotional intelligence framework, and put it into practice
- Assess the emotional intelligence of your group. Where are you thriving and where do you need help?
- Understand the links between emotional intelligence and managing conflict.
- Reflect upon your own emotional intelligence
- Engage in constructive dialogue across teams to develop collaborative, holistic recommendations to Codman.
- Identify and develop a plan to resolve any outstanding conflicts with teams in preparation to move into the final stage of the project work. , and prepare presentation for Thursday rehearsal and feedback session

**Pre-Session Required Reading:**

- Review: *Tuckman stages of group development*  
Druskat, Vanessa Urch and Wolff, Steven B. "Building the Emotional Intelligence of Groups." *Harvard Business Review*. March 2001 Pp. 81-90. <https://cb.hbsp.harvard.edu/cbmp/pl/43844995/43845007/a8aa321f43fba89ea75ff26810a854d5>
- Brockelbank, Sue and Maurer, Rick. "Jack Gibb's Theory of Trust Formation and Group Development" Wiley. New York. 1964. Pp. 279-309  
<http://quakerspiritualformation.org/wp-content/uploads/2013/04/Jack-Gibb.doc>

Optional Reading:

For more on team emotional intelligence (17 page book chapter):

Elfenbein, Hillary Anger “Team Emotional Intelligence: What it Can Mean and How it Can Affect Performance.” In V. Druskat, F. Sala, & G. Mount (Eds.), *The link between emotional intelligence and effective performance*. 2004.

## **Class 9 - February 24**

### **Working Session: The “View from The Balcony”: Status of your Research and Recommendation(s)**

***Assignment Due at Beginning of Class: 2-Page Midterm Reflection Paper (not for credit)***

Teams should be entering the final stages of research and developing solutions for the Codman challenges. This is an opportunity for the whole class to see and assess where the teams are with regard to the final deliverable.

#### **Session Objectives:**

- Critically evaluate each team’s work to date
- Assess quality of work and determine what improvements are needed
- Assess teams’ progress against Codman’s challenge and criteria
- Identify common themes across the team recommendations
- Share insights about the Codman Square community and identify knowledge gaps

#### **Pre-Session Required Reading:**

Review: Heifetz from class #1 No readings

## **Week 6 – February 29 and March 2**

### **Leadership in Action: Work and the Team, and Will your Recommendation(s) Work for Codman and the affected stakeholders?**

## **Class 10 – February 29**

### **Team Dynamics and Managing Conflict**

Public health requires working with a broad constituency and cross-functional/cross-sector teams. Conflict is an inevitable component of cross-sectoral work. Anticipating conflict and navigating conflict toward a mutually beneficial outcome is a skill critical to the success of your work.

#### **Session Objectives:**

- Assess leadership in your team, the roles that you and other team members assume, and what works well and what could be improved.
- Learn two tools for understanding conflict, and practice how best to utilize these tools
- Understand how conflict is a normal part of any teamwork and that it can often be productive when well managed
- Reflect upon your own approach to conflict and collaboration

**Pre-Session Required Reading:**

- Workbook “Managing Difficult Interactions” Harvard Business Press. 2008 Pp. ix - 68 <https://cb.hbsp.harvard.edu/cbmp/pl/43844995/43845001/2b8e0ee0d1748dc22d371824fa2406ef>

**Class 11 – March 2****Dress Rehearsal of Presentation to Codman****Final Team Preparation for Presentation**

This class will be focused on preparing your presentation to Codman, including a rehearsal of your presentation and a feedback/coaching session. The content of this session is dependent upon your collective assessment of the practice presentation to Codman. As part of your assessment include in your consideration: Heifetz’s model, how risky is this solution, and were you ‘flying without a net’?

- Assess your recommendation against Codman’s scope of work
- Identify common elements from each team can be interwoven to create a holistic presentation of recommendations to Codman
- Incorporate feedback from teams, instructors, observers
- Apply Heifetz’s model to assess your recommendation
- Assess whether you are “flying without a net”, and how this affects your recommendation

**Pre-Session Required Reading:** No readings

**Week 7 – March 7 and 9****Leadership in Action: Will your Recommendation(s) Work for Codman and the affected stakeholders?****Class 12 – March 7****Present your Recommendation to Codman Square Health Center Leadership**

This session will focus on presenting your final recommendation to Codman and receiving feedback from Codman. You will have the opportunity to engage in a dialogue with Codman leadership and assess whether your recommendation will help the organization to improve care for the community they serve.

**Session Objectives:**

- Present your recommendations to the management of Codman
- Receive feedback from the panel of experts about their work and recommendations
- Engage in discussion with Codman leadership team

**Guests: Codman HC Leadership**

**Pre-Session Required Reading:** No readings

**Class 13 – March 9**

**Team Dynamics and Individual Contributions: Giving and Getting Candid and Constructive Feedback**

Group and Team Reflection: During this class you will have the opportunity to analyze the feedback you received from Codman. You will be able to assess how the class performed as a whole – both in terms of quality of the recommendations and the presentation - as well the process that the class used in arriving at its recommendation(s) and presentation. Using the Heifetz model in this regard will be very helpful.

Individual Reflection: Providing feedback is something that all of us need to do at one point or another – either as leaders or teammates. It is easy to gloss over this aspect of team effectiveness, but we want to provide an opportunity for everyone to give and get constructive feedback on their effectiveness as a team member and as a leader. This candid and constructive feedback can often be a difficult conversation, and people are reluctant to do it. Yet feedback is essential in ensuring continuous improvement, both for an individual as well as a team. The instructor will provide a “safe environment” for students, and also ensure that each team member gives and gets open and honest feedback.

**Session Objectives:**

- Analyze your presentation to Codman leadership
- Assess the quality of your presentation and recommendation
- Assess the quality of your group process in arriving at your recommendation
- Utilize Heifetz’s model to take a “view from the balcony”
- Applying the Tuckman stages of group development, each team member will practice giving and receiving candid and constructive feedback in a “safe” face-to-face environment
- Learn and practice providing positive and constructive feedback and potentially having a difficult conversation
- Learn and practice receiving constructive feedback and potentially having a difficult conversation
- Develop an individual action plan for areas of growth after HPM 554

**Pre-Session Required Reading:**

- Review: Tuckman stages of group development (Class #1)
- Review: Mathieu, The Listening Book, pp. 24-25 (Class #4)
- Review: Carl R. and Roethlisberger, F. J. “Barriers and Gateways to Communication” Harvard Business Review: On Human Relations, July–August 1952. Pp. 105-111 (Class #4)

### **Friday, March 11 at 4pm: Take-home Final Examination Due**

The essay questions on the open-book, take-home final examination may cover the following topics:

- Adaptive work v. technical work
- Self-awareness
- Theories of change
- Mapping power dynamics
- Working in teams
- Working with diverse populations
- Implications of this course for the student's area of primary academic and/or professional interest

This open-book, take-home final exam is to be completed in **no more than eight (8) hours** of total work time. Reading your assigned readings prior to opening this exam will not count toward the eight-hour limit. The format: submissions will be **no more than ten (10) total pages**, double spaced, 12-point font, with regular 1 inch margins. We will stop reading at the bottom of page 10.

# **Innovation and Entrepreneurship in Health Care**

## **HPM 557**

### **2015 Syllabus**

#### **Faculty:**

Rick Siegrist, co-instructor, email [rsiegris@hsph.harvard.edu](mailto:rsiegris@hsph.harvard.edu), phone: 508-395-1884

Teresa Chahine, co-instructor, email [tchahine@hsph.harvard.edu](mailto:tchahine@hsph.harvard.edu), phone: 617-384-8855

Allison Blajda and Tiffany Lin, teaching assistants, email [hpm557ta@gmail.com](mailto:hpm557ta@gmail.com)

#### **Objectives and Approach:**

The Innovation and Entrepreneurship in Health Care course is designed to expose you to the theory and practice of innovation and entrepreneurship in health care settings, both domestically and abroad. The first half of the sessions focus on various aspects of starting and growing a new health care business, whether a for-profit or non-profit venture. The second half of the sessions focus on fostering innovation and intrapreneurship in established organizations such as non-profit, for-profit or governmental organizations engaged in health care related activities.

The course places particular emphasis on the development and practical application of innovation and entrepreneurial skills in the health care. By the end of the course, you should be able to:

- a) Analyze the idea, value proposition, team, business model, financing and execution of any early stage health care company and make recommendations for improvement.
- b) Assess the innovation environment, challenges and barriers for any established health care company and make recommendations for improvement.
- c) Generate new, innovative solutions to optimize resources and improve outcomes in health care.

As healthcare organizations strive to deliver on the triple aim of better health and better care at lower cost, they need to identify new ways to understand healthcare information and introduce new methods of healthcare management and care delivery. Fortunately, many health care organizations now recognize the importance of being innovative in order to survive in such a rapidly changing environment. However, most people in those organizations do not truly understand how to foster such innovation, either internally or externally. Through this course, we hope to prepare you to encourage effective innovation and intrapreneurship within an existing organization and/or contribute to the success of or start an innovative, entrepreneurial venture in health care.

#### **Class Preparation and Participation:**

We expect you to make an effort to prepare every case. This preparation is particularly important since the cases build upon one another and techniques introduced in one case are

frequently applied in future cases. We suggest between two and three hours of preparation for each class and encourage case discussion in small study groups where feasible.

The assigned readings are not simply background readings. They introduce key concepts regarding innovation and entrepreneurship that are essential to properly analyze the cases and participate in-class exercises.

Since the course will be primarily case oriented, class participation is very important. We value the quality of classroom participation over quantity. We will complement the case study approach with practical lectures on key concepts in innovation and entrepreneurship and in-class exercises to allow you to apply those concepts. We will also have guest speakers with particular knowledge about the case or topics being discussed.

### **Grading:**

We will determine your grade for the course as follows:

|   |            |
|---|------------|
| Mid Term Paper due on November 24, 2015 | 40%        |
| Final Paper due on December 18, 2015    | 40%        |
| Class preparation and participation     | 20%        |
| Total                                   | <hr/> 100% |

A three-page mid term paper will be due on November 24, 2015. We will distribute the case and related questions for the paper at the end of class on November 18, 2015.

The final paper will be due on December 18, 2015. We will distribute the case and related questions for the paper on December 9, 2015.

### **Office Hours:**

Rick Siegrist's office hours will be by appointment, either in person or via the phone. His telephone number is 508-395-1884, and he can be reached at [rsiegris@hsph.harvard.edu](mailto:rsiegris@hsph.harvard.edu) or at [ricksiegrist@gmail.com](mailto:ricksiegrist@gmail.com). His office is Kresge 338.

Teresa Chahine's office hours will be by appointment, either in person or via the phone. Her telephone number is 617-384-8855, and she can be reached at [tchahine@hsph.harvard.edu](mailto:tchahine@hsph.harvard.edu). Her office is Landmark Center 4<sup>th</sup> Floor West, 401 Park Drive.

### **Suggested Book:**

Kawasaki G. The Art of the Start 2.0: The Time-Tested, Battle-Hardened Guide for Anyone Starting Anything. Penguin Group, 2015.

## Course Session Details:

### **Session 1      10/26/15, 1:30-3:20/3:30-5:20      Introduction – Lenny’s Lemonade**

**Case:** None

**Reading:** Siegrist RB. 2013. Entrepreneurship in Health Care, pp. 1 to 21.

**Assignment:** None. Session will be an interactive class discussion, applying course concepts to a simple organization as an introduction to the course content and approach.

### **Session 2      10/28/15, 1:30-3:20/3:30-5:20      Idea/Value Proposition/Team Formation**

**Case:** Walker BL. 2014. North End HealthCare: Pediatric Ambulatory Surgery Center Expansion Strategy, HSPH

**Reading:** Siegrist RB. 2013. Entrepreneurship in Health Care, pp. 1 to 5.  
Blank S. May 2013. Why the Lean Startup Changes Everything. Harvard Business Review, pp. 65-72.

**Assignment:** 1. What kind of innovation is involved in NEHC’s approach?  
2. What is their value proposition?  
3. Evaluate the strengths and weaknesses of their management team.  
4. What expansion strategy should NEHC follow? Why?

### **Session 3      11/2/15, 1:30-3:20/3:30-5:20      Idea/Value Proposition/Team Formation In-Class Exercise**

**Case:** None

**Reading:** Fitzgerald M. Oct 13, 2013. Why is it so hard to find a doctor? The Boston Globe Magazine.

**Assignment:** 1. Break into groups of approximately six people and discuss the reading.  
2. Propose an idea for a solution to help address the primary care doctor shortage.  
3. Develop a value proposition for that idea/solution.  
4. Choose a spokesperson to briefly present your idea/value proposition to the class.

### **Session 4      11/4/15, 1:30-3:20/3:30-5:20      Business Model/Competition**

**Case:** Anderson E, Pridgen J, Waldron H, Ward M. May 2014. FamilyTouch.

**Reading:** Siegrist RB. 2013. Entrepreneurship in Health Care, pp. 5 to 9.  
Johnson MW, Christensen CM, Kagermann H. Dec 2008. Reinventing Your Business Model. Harvard Business Review, pp. 50-59.  
Burke A, Hussels S. Mar 2013. How Competition Strengthens Startups. Harvard Business Review, pp. 24.

**Assignment:** 1. What kind of innovation is FamilyTouch?  
2. What is the company’s value proposition?



3. Who is FamilyTouch's competition? How does FamilyTouch differentiate itself?
4. Evaluate the FamilyTouch business model. What are the strengths and weaknesses? What changes would you suggest?

**Session 5      11/9/15, 1:30-3:20/3:30-5:20      Business Model/Competition  
In-Class Exercise**

**Case:** None

**Reading:** Review readings from session 4.

- Assignment:**
1. Break into the same groups as for the session 3 in-class exercise.
  2. Develop a business model for your idea/solution, including revenue, distribution, support and profit/cost models.
  3. Compare your idea/solution with potential competitors. What distinguishes you from those competitors?
  4. Choose a spokesperson to briefly present your business model and one to briefly present your competitor analysis to the class. Should be different spokespeople than for session 3.

**Session 6      11/16/15, 1:30-3:20/3:30-5:20      International Entrepreneurship**

**Case:** Lundberg K. 2015. The Trials of a Social Entrepreneur:

ZiDi™, MicroClinic Technologies and Kenyan Healthcare

**Reading:** Crean, KW. Feb 2010. Accelerating Innovation in Information and Communication Technology For Health. Health Affairs, pp. 278-283.  
Thompson JD, MacMillian JC. Sep 2010. Making Social Ventures Work. Harvard Business Review, pp. 66-73.

Sabeti H. Nov 2011. The For-Benefit Enterprise. Harvard Business Review, pp. 98-104.

**Assignment:** TBD

**Session 7      11/18/15, 1:30-3:20/3:30-5:20      Execution and Exit Strategy**

**Case:** Siegrist RB. 2015. Cambria Health: Failure in Vision, Strategy or Execution?

**Reading:** Siegrist RB. 2013. Entrepreneurship in Health Care, pp. 19 to 21.  
Halvorson H. May 2014. Get Your Team to Do What It Says It's Going to Do. Harvard Business Review, pp. 82-87.  
Onyemah V, Pesquera MR, Ali A. May 2013. What Entrepreneurs Get Wrong. Harvard Business Review, pp. 74-79.

- Assignment:**
1. Evaluate Cambria Health in terms of:
    - a. Idea and value proposition
    - b. Team formation
    - c. Business model and competition

d. Execution

2. What do you think contributed most to the lack of success of Cambria Health?
3. What would you do differently?

**Session 8**      **11/23/15, 1:30-3:20/3:30-5:20**      **Financing/Valuation/Pitch  
In-Class Exercise**

**Case:** None

**Reading:** Siegrist RB. 2013. Entrepreneurship in Health Care, pp. 9 to 15.  
Mulcahy D. May 2013. Six Myths About Venture Capitalists. Harvard Business Review, pp. 80-83.  
Deepak M. May 2013. How to Negotiate with VCs. Harvard Business Review, pp. 84-90.  
Bugg-Levine A., Kogut B, Kulatilaka N. Jan/Feb 2012. A New Approach to Funding Social Enterprises. Harvard Business Review, pp. 119 – 123.

**Guest:** To be determined

- Assignment:**
1. Break into the same groups as for the session 3/5 in-class exercises.
  2. Two to three groups should discuss financing options for your venture.
  3. Two to three groups should discuss the valuation of your venture.
  4. Two to three groups should prepare a brief pitch for your venture.
  5. Choose a spokesperson to briefly present your preferred financing option, your valuation determination or your pitch. Should be different spokespeople than for session 3 or 5.

**Session 9**      **11/30/15, 1:30-3:20/3:30-5:20**      **Structure/Equity/Intellectual Property**

**Case:** Marguis C, Margolis J. Dec 2012. How Much is Sweat Equity Worth? Harvard Business Review, pp. 121-123.

**Reading:** Siegrist RB. 2013. Entrepreneurship in Health Care, pp. 15 to 18.  
Kotha R, Kim P, Alexy O. Nov 2014. Turn Your Science into a Business. Harvard Business Review, pp. 106-114.

**Guest:** David Broadwin, JD, Partner, Foley Hoag LLP, Boston, MA.

- Assignment:**
1. What arguments are Brooks and Tyler making about their respective contributions to the company?
  2. Which arguments do you find the most convincing?
  3. How much equity should Brooks give Tyler in the company?
  4. What do you think the short term and long term ramifications of your recommended equity split might be?

**Session 10**      **12/2/15, 1:30-3:20/3:30-5:20**      **Innovation – Non-Profit Hospital**

**Case:** Young DW. 2012. North Lake Medical Center. Crimson Press.

**Readings:** Siegrist RB. 2013. Management Control Structure and Process, pp. 1-17.

Webb J. Jan 23, 2013. How Dreamworks, LinkedIn and Google Build Intrapreneurial Cultures. [www.innovationexcellence.com](http://www.innovationexcellence.com).

- Assignment:**
1. What kind of innovation is involved in NLMC's approach to management?
  2. How important is the new budgeting and reporting system to NLMC's effort?
  3. What role did senior management play in encouraging and supporting the innovation?
  4. What pitfalls might occur that could derail the ultimate success of the innovation?

**Session 11      12/7/15, 1:30-3:20/3:30-5:20      Innovation – For-Profit Payer**

**Case:** Herzlinger RE. 2014. Vitality Group: Paying for Self-Care, HBS 9-310-071

**Reading:** Stewart JB. Jan 29, 2015. "How, and Why, Apple Overtook Microsoft", New York Times.

Pfizer M, Bockstette V, Stamp M. Sep 2013. Innovating for Shared Value. Harvard Business Review, pp. 100-107.

Anthony S. Sep 2012. The New Corporate Garage. Harvard Business Review, pp. 44-53.

- Assignment:**
1. What kind of innovation is the Vitality program?
  2. What is their value proposition?
  3. Who is Vitality's competition? How do they differentiate themselves?
  4. What business model should Vitality pursue and why?
  5. How have the Discovery Group and Vitality fostered internal innovation?

**Session 12      12/9/15, 1:30-3:20/3:30-5:20      Innovation – Government Agency**

**Case:** Lapedis JB, Madden SL. 2015. Health Policy Commission – The CHART Program.

**Reading:** Isenberg DJ. Jun 2010. How to Start an Entrepreneurship Revolution. Harvard Business Review, pp. 41-50.

Arnold E, Magia S. 2013. Intrapreneurship in Government – Making it work. Deloitte University Press.

**Assignment:** TBD

**Session 13      12/14/15, 1:30-3:20/3:30-5:20      Innovation – International**

**Case:** Khanna T, Gupta B. 2014. Health City Caymen Islands. Harvard Business School 9-714-510.

**Reading:** Altringer B. Nov 19, 2013. A New Model for Innovation in Big Companies. Harvard Business Review post on Innovation

- Assignment:**
1. What kind of innovation is Health City Caymen Islands?
  2. What are the challenges and barriers to success for Health City Caymen Islands?

3. Why and how did Narayana Health foster the innovation that lead to Health City Caymen Islands?
4. What role is Ascension Health playing? How innovative an organization is Ascension Health?

**Session 14**    **12/16/15, 1:30-3:20/3:30-5:20**            **Becoming Intra/Entrepreneurs**  
**In-Class Exercise**

**Case:** None

**Reading:** Schlesinger L, Kiefer C. Jul 14, 2014. Act Like an Entrepreneur Inside Your Organization. Harvard Business Review post on Leadership.  
Wasserman N. Feb 2008. The Founder's Dilemma. Harvard Business Review, pp. 103-109.

**Assignment:**

1. Break into groups of approximately six people. Groups should be different than the groups for previous in-class exercises.
2. Discuss how you might pursue intrapreneurship or entrepreneurship in your future career.
3. What challenges or barriers do you foresee and how might you address them?
4. Choose a spokesperson to summarize and briefly present your group's thoughts to the class.

**HPM 558 Syllabus**  
**Leadership in Public Health: Personal Mastery**  
**Michael McCormack**  
**Fawn A. Phelps**  
**Summer 2 2015**

**Contact info:**

Class time: Monday and Wednesday  
9:00am – 12:00pm  
1:30- 4:00pm  
Friday 9:00 – 12:00 class

Location: Still Harbor Center for Discernment & Action  
666 Dorchester Avenue, South Boston, MA (Andrew Sq. T Stop)

First Class: Monday, July 27, 2015  
Last Class: Wednesday, August 12, 2015

Instructors: Michael McCormack, MPA, Instructor &  
Director of Practice  
Office Address Kresge G-29  
Office phone 617-432-3592  
Email: [mmccorma@hsph.harvard.edu](mailto:mmccorma@hsph.harvard.edu)

Fawn A. Phelps, MPA, Instructor &  
Director of Leadership Development  
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Teaching Assistant: Justine A. Scott, MPH  
Phone: 509-951-5340  
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Still Harbor Facilitators: Edward Cardoza and Perry Dougherty

Instructors' Asst: Elizabeth Marble ([emarble@hsph.harvard.edu](mailto:emarble@hsph.harvard.edu))  
Class website: Canvas  
Assessment: Pass/Fail: Class Participation and Group Work

**Course Description:**

“Tell me, what is it you plan to do with your one wild and precious life?”  
-Mary Oliver

*Leadership in Public Health: Personal Mastery* is the foundation course for the DrPH’s leadership development curriculum. The DrPH leadership development programming is rooted in leadership theory and includes experiential and reflective exercises.

The landscape of public health is deeply complex and rapidly changing. Public health leaders understand systemic problems, set new directions, lead change and learn quickly from mistakes. Public health leaders connect with and inspire others to join them in addressing the most intractable population health challenges. The transformational public health leader develops this capacity through an ongoing cycle of study, introspection and application.

Leadership development often requires the expansion or altering of a person’s perception of self and of others. A person can change how they view themselves and how they view and engage with others through intensive personal and group experiences with time for reflection and learning.

In this foundation course, you will:

1. Develop a greater understanding of yourself as a leader and a learner, including your strengths, preferences, growth edges, blind spots and limitations, which if not identified and addressed are likely to undermine your leadership and personal effectiveness. You will further develop your ability to overcome your gaps and manage your limitations;
2. Further grow your ability to understand, engage, and effectively support and challenge others, including your DrPH colleagues; and,
3. Deepen your understanding and application of narrative and dialogue to build community and to call a community to action.

### **Learning Objectives:**

At the end of this foundation course, you will be able to:

1. Describe yourself as a leader and learner including your strengths and your impact on others.
2. Explain the basic elements of constructive-developmental theory.
3. Apply constructive-developmental theory to your own leadership development.
4. Explain the principles for building strong working relationships.
5. Describe your skills for working with others as peers, and an awareness of your peers’ skills for working with others.
6. Receive and provide candid and constructive feedback.
7. Cultivate and apply narrative for a deeper understanding of self, building community, and calling for change.
8. Develop skills of dialogue, deep listening, reflection, and mindful awareness.
9. Explain the intersection of your values and your vision for your public health practice.

Note: the structure and content of this course is informed by the Harvard Graduate School of Education's EdLD personal mastery curriculum (designed by Lisa Lahey and Bob Goodman) and designed in collaboration with the Still Harbor facilitation team (Perry Dougherty and Edward Cardoza).

**Class Schedule:**

| <b>Class</b>      | <b>Date</b> | <b>Topic</b>   | <b>Session Pre-work<br/>(completed before the start of class)</b>    |
|-------------------|-------------|--|--|
| <b>Week One</b>   |             |  |  |
| 1a                | 7/27 AM     | Welcome and Getting Acquainted                               | Readings and Reflection  |
|                   |             | Harvard Chan DrPH Provides Lunch (this day only)             |  |
| 1b                | 7/27 PM     | Exploring Your Vision and Values                             |  |
| 2a                | 7/29 AM     | Leadership and the Power of Narrative                        | Readings and Journaling  |
| 2b                | 7/29 PM     | Global Health. Domestic Health. Your Public Health Practice. |  |
| 3                 | 7/31 AM     | Reflection and Group Dialogue                                | Journaling   |
| <b>Week Two</b>   |             |  |  |
| 4a                | 8/3 AM      | Realizing and Redefining your Learning Journey               | <b>Writing Assignment Due: Two-page reflection essay</b><br>Readings |
| 4b                | 8/3 PM      | Assumptions: Constructive-Developmental Theory               |  |
| 5a                | 8/5 AM      | Inquiry and Action   | Readings and Journaling  |
| 5b                | 8/5 PM      | Immunity to Change: Map Making I                             |  |
| 6                 | 8/7 AM      | Reflection and Group Dialogue                                | Journaling   |
| <b>Week Three</b> |             |  |  |
| 7a                | 8/10 AM     | Change: Discernment and Action                               | <b>Writing Assignment Due: Two-page reflection essay</b><br>Readings |
| 7b                | 8/10 PM     | Immunity to Change: Map Making II                            | Refined Immunity to Change Map                                       |
| 8a                | 8/12 AM     | Personal Mastery: Putting It All Together                    | Readings and Journaling  |
| 8b                | 8/12 PM     | Closing  | <b>Culminating Artifact</b>  |

**Required Course Materials:**

Texts:

Freire, Paulo (2000). *Pedagogy of the Oppressed*. Bloomsbury Academic.

Kegan, Robert and Lahey, Lisa (2009). *Immunity to Change: How to Overcome It and Unlock the Potential in Yourself and Your Organization*. Harvard Business Review Press.

Schulz, Kathryn (2011) *Being Wrong: Adventures in the Margin of Error*. Ecco/HarperCollins

Additional readings are available on the course Canvas site.

Blank book for personal journal

### **Grading Criteria and Assessments:**

*Leadership in Public Health: Personal Mastery* is pass/fail to allow students to deeply engage in their development without regard for grades. Students earn a “pass” by meeting course expectations (below) and demonstrating development on the course objectives.

Pass = Attendance at all sessions; on-time submission of written assignments; active participation in class discussions; and providing candid and constructive feedback to peers.

Fail = Any unexcused absence; failure to submit written assignments on time; failure to actively participate in class discussions; and failure to provide constructive feedback to peers.

### **Course Expectations:**

- Attend and participate in all classes. If you need to miss a class due to an emergency please contact Justine Scott ( [justine.a.scott@mail.harvard.edu](mailto:justine.a.scott@mail.harvard.edu)) by email as soon as possible.
- Submit all assessment and written work on time. If you cannot meet a due date, please contact both instructors, Michael McCormack and Fawn Phelps by email as soon as possible.
- Regular journaling, incorporating insights and reflections into weekly reflection papers. The papers should capture the changes in thinking, or, if not, reflect what has been affirmed for the students.
- Maintain an open disposition to understanding yourself in order to influence others. Actively seeking input from instructors and cohort about behaviors that contribute to learning about community engagement. Being present in working through conflict.
- Provide and receive candid and constructive feedback to and from one’s peers regarding his/her effectiveness as a community member.

### **WEEK ONE: July 27 – July 31**



“Look closely at the present you are constructing: it should look like the future you are dreaming.”

-Alice Walker

**Class 1a – Monday, July 27 9:00am - noon**

**Welcome and Getting Acquainted**

Focus: Community-Building, Inner Journey, Interpersonal Connection, and Self-Knowledge

Practices: Personal Narrative and Deep Listening

Teaching Team: Michael McCormack and Edward Cardoza

Welcome. Your ability to lead and learn over the course of your life will be aided greatly by getting in touch with your innate leadership, understanding the power of experiential and reflective learning, engaging the stories of your life and the world around you, building community with those working alongside you, and determining what matters most to you. This course is an opportunity to understand your inner journey so that you may be the change you wish to see in the world--we don't say this lightly.

In this first class, we'll explore the goals, strategy, requirements, and norms of the course and begin to explore the stories of our lives that bring us into this community through reflective, discursive, and critical lenses.

Note: Harvard Chan DrPH will provide lunch (this day only)

**Required Reading:**

1. Marshall Ganz, “Why Stories Matter.” *Sojourners*. March 2009.  
Online: <http://sojo.net/magazine/2009/03/why-stories-matter> [2 pages]
2. Thich Nhat Hanh, “The Raft is Not the Shore”, *Thundering Silence: Sutra on Knowing the Better Way to Catch a Snake*, (Berkeley, CA: Parallax Press, 1994), p. 30-33. [4 pages]
3. Carol Dweck, “The Mindsets”, Chapter 1 in *Mindset* (New York: Ballantine Books, 2006), p.1-10 [10 pages]
4. Jerome Bruner, “Two Modes of Thought”, Chapter 2 in *Actual Minds, Possible Worlds* (Cambridge: Harvard University Press, 1986), p.11 – 25. [15 pages]
5. J.K. Rowling, “The Fringe Benefits of Failure, and the Importance of Imagination.” *Harvard Magazine*. June 5, 2008.  
Online: <http://harvardmagazine.com/2008/06/the-fringe-benefits-failure-the-importance-imagination> [5 pages]
6. Thomas J. DeLong, “The Achilles Heel of the Driven, Ambitious Professional,” Chapter 1 and “The Challenge of Doing the Right Thing Poorly,” Chapter 2 in

Flying Without a Net: Turn Fear of Change into Fuel for Success (Boston, Mass.: Harvard Business School Publishing 2011). [35 pages]

**Comment [1]:** Heads up, Justine, that we have added two new readings to this section - the last additions

Reading focal points:

1. How does learning from failure shape your leadership practice? Think of an example where you did and did not apply lessons learned from a failure to your public health practice.
2. Apply DeLong's eleven traits common to driven professionals to your leadership practice.

### **Class 1b – Monday, July 27 1:30pm - 4:00pm**

#### **Exploring Your Vision and Values**

Focus: Alignment/Misalignment, Community Building, Inner Journey, and Self-Knowledge

Practices: Critical Incident Reflection and guided journaling (Reflective Writing)

Teaching Team: Michael McCormack and Edward Cardoza

Vision and Values:

Developing a vision and discerning your values involves taking stock of your life experience, noticing what you see around you in the world today, and considering your hopes for tomorrow. Discovering the threads that connect your past, present, and future views of the world will allow you to begin to articulate:

1. what you hope to see enacted through your life, work, and experience, and
2. upon what values do you base your decisions and actions.

Over the next three weeks together and throughout the DrPH leadership development curriculum, we hope that your vision and values will be uncovered, clarified, challenged, and refined.

Critical Incident Reflection:

We will explore the tool of Critical Incident Reflection in this session. Critical Incident Reflection is the act of applying a process of inquiry and reflection to an experience. The process allows participants to:

1. test the logic behind thinking
2. recognize and question the assumptions underlying beliefs and actions
3. engage in deeper learning

We look backwards in order to reflect upon the present and look forward. Leadership comes in many forms, but having a robust understanding of personal vision and values that are guiding and motivating you is an essential step in developing and strengthening the foundation upon which your behaviors and actions will be built.

Vision and Values Guided Journaling:

We will close the session with with a guided journaling session focused on refining your vision for public health and where are you in that vision.

Myths of vision:

Myth 1: You are either born with a vision or not.

Myth 2: Your vision must be new and unique.

Myth 3: Having a vision is dependent on intellect and/or skill.

Myth 4: Your vision must be perfectly crafted (bulletproof) before you share it.

Myth 5: Your vision will never change.

### **Class 2a – Wednesday, July 29 9:00am - noon**

#### **Leadership and the Power of Narrative**

Focus: Community-Building, Connection, Inner Journey, Narrative and Self-Knowledge

Practices: Reflective writing and experiential learning through dialogue

Teaching Team: Michael McCormack and Edward Cardoza

Guest: Dr. Howard Koh (10:30am-noon)

Listening. Really listening to a narrative is a leadership practice. Listening to another's questions and how they answer those questions. Within those questions and answers, where is the other's privilege? Where is the other's marginalization? How does another's narrative intersect with your narrative? What are your questions and what are your answers? Within those questions and answers, where is your privilege? Where is your marginalization?

#### **Required Reading:**

1. Arthur Kleinman, "What Really Matters: Living a Moral Life amidst Uncertainty and Danger." (Oxford: Oxford University Press, 2007), Introduction and Chapter 3. [X pages]
2. Paul Farmer, "Pathologies of Power: Health, Human Rights, and the New War on the Poor." (Berkeley, CA: University of California Press, 2004), Chapter 5. [X pages]
3. Adam Kahane, "Power and Love: A Theory and Practice of Social Change." (San Francisco, CA: Berrett-Koehler Publishers, 2010) p. 1-52 and 127-142 [56 pages]
4. Watch: TED: "The Danger of the Single Story" by Chimamanda Adichie Ngozi [http://www.ted.com/talks/chimamanda\\_adichie\\_the\\_danger\\_of\\_a\\_single\\_story?language=en](http://www.ted.com/talks/chimamanda_adichie_the_danger_of_a_single_story?language=en) [18:46 minutes]

#### **Optional Reading:**

1. Ivan Illich : To Hell with Good Intentions [http://www.swaraj.org/illich\\_hell.htm](http://www.swaraj.org/illich_hell.htm) [5 pages]

Comment [2]: need # of pages

Comment [3]: need number of pages

2. Bill George, et al., "Discovering Your Authentic Leadership" [https://hbr.org/2007/02/discovering-your-authentic-leadership&cm\\_sp=Article--Links--Top%20of%20Page%20Recirculation](https://hbr.org/2007/02/discovering-your-authentic-leadership&cm_sp=Article--Links--Top%20of%20Page%20Recirculation)  
[16 pages]

Reading focal points:

1. Read and listen for the concepts about narrative.
2. Within the narratives, read and listen for the questions and the answers.
3. Read and listen for the inner journey and how it connects with the externalized story.
4. Read and listen for privilege and difference.

**Class 2b – Wednesday, July 29 1:30pm - 4:00pm**

**Global Health. Domestic Health. Your Public Health Practice.**

Focus: Community-Building, Connection, and Narrative (Story, Belonging, Otherness)

Practices: Active listening within community dialogue

Teaching Team: Michael McCormack and Edward Cardoza

Where does your work belong in the field of public health? How does your framework for practicing public health align with your colleagues within Harvard Chan and beyond?

**Class 3 – Friday, July 31 9:00am - noon**

**Reflection and Group Dialogue**

Focus: Community-Building, Inner Journey, Narrative (Internal Narratives Externalized), and Self-Knowledge

Practices: Reflective writing and experiential learning through dialogue

Teaching Team: Michael McCormack

Community and small group dialogue exploring the integration of ideas across discourse, experience, and other DrPH course work. Using active listening to engage with each other and explore agreement and difference.

**Entrance**

-Dana Gioia

*Whoever you are: step out of doors tonight,*

*Out of the room that lets you feel secure.*

*Infinity is open to your sight.*

*Whoever you are.*

*With eyes that have forgotten how to see*

*From viewing things already too well-known,  
Lift up into the dark a huge, black tree  
And put it in the heavens: tall, alone.  
And you have made the world and all you see.  
It ripens like the words still in your mouth.  
And when at last you comprehend its truth,  
Then close your eyes and gently set it free.*

**Writing assignment due: Monday, August 3 at the beginning of class:**

In a two-page, double-spaced essay, please **reflect on at least two of the three questions below**. Please include specific examples of shifts in your awareness - moments in time, conversations and resulting realizations. The more detail the better. Please submit the papers to Canvas course site before the beginning of class.

- 1) What new perceptions do you have about leading and learning?
- 2) What new awareness do you have of your strengths and your impact on others?
- 3) How has your practice of narrative this week led to a deeper understanding of self and to building community?

**WEEK TWO: August 3 – August 7**

**Class 4a – Monday, August 3 9:00 am - noon**

**Realizing and Redefining your Learning Journey**

***Writing assignment due at the beginning of class - submit to Canvas course site.***

Focus: Community Building, Inner Journey (Vulnerability and Power), and Narrative (Masks and Roles)

Practices: Reflective Observation, Questioning, Creativity

Teaching Team: Michael McCormack, Fawn Phelps and Perry Dougherty

*“In terms of the learning cycle, the[is] integration process is what we expect to happen during ‘reflective observation.’ As implied by the term ‘reflective,’ it may take considerable time to get everything integrated and see the full meaning of our experience. We have to think about things (reflect) and examine the images in our memory (observation). We stand back from our experience, look it over, and think about it. And what we look for is an image that fits ‘all’ of our experience. We look for unity. The task for the teacher is to help her students in this search. But it is inherently private, and we cannot enforce it directly.”*

*- James Zull from The Art of Changing the Brain: Enriching Learning by Exploring the Biology of Learning*

How do you transform the desire to be right into the desire to learn in yourself and in others? How do we begin to trust in and gain insight from our own experiences? Learning from experience and helping others do the same is fundamental to

leadership development. We will look at the relationship between knowing and not knowing. We will explore how the status quo is maintained and how transformative change happens within ourselves and the world around us.

**Required Reading:**

1. Paulo Freire, "The Pedagogy of the Oppressed," (New York: Continuum, 1968/2006) Introduction, Chapters 1, 2, 3) page 11-124. [113 pages]
2. Robert Kegan and Lisa Lahey, "Immunity to Change: How to Overcome it and Unlock Potential in Yourself and Your Organization," (Boston, Mass: Harvard Business Press, 2009), Chapter 1. [20 pages]
3. Audre Lorde, "Poetry is Not a Luxury" [http://www.vanderbilt.edu/womantowoman/Poetry is not a Luxury.pdf](http://www.vanderbilt.edu/womantowoman/Poetry_is_not_a_Luxury.pdf) [2 pages]
4. Kathryn Schulz, "Being Wrong: Adventures in the Margin of Error," (New York: Ecco/HarperCollins) Chapters 1, 2, 14, 15. [ 80 pages]

**Optional Reading:**

1. David A Kolb and Bauback Yeganeh, "Deliberate Experiential Learning," (Case Western Reserve University Working Paper, 2011) <http://learningfromexperience.com/media/2012/02/deliberate-experiential-learning.pdf> [11 pages]
2. Jennifer Garvey Berger, "Changing on the Job: Developing Leaders for a Complex World," (Stanford, California: Stanford Business Books, 2012), pp. 32-47, pp. 53-58. [20 pages]
3. Mark Nepo, "Because of My Not Knowing" in "Living the Questions: Essays Inspired by the Work and Life of Parker J. Palmer" (San Francisco: Jossey-Bass, 2005). [ pages]

**Comment [4]:** need number of pages

Reading focal points:

1. What is the relationship between knowing and not knowing?
2. How do you cultivate internal trust in your experiences to shape your leadership style?
3. How might "immunity to change" apply to your leadership practice? What is your growth edge?

How do you transform the desire to be right into the desire to learn in yourself and in others? How do we begin to trust in and gain insight from our own experiences? Learning from experience and helping others do the same is fundamental to leadership development. We will look at the relationship between knowing and not

knowing. We will explore how the status quo is maintained and how transformative change happens within ourselves and the world around us.

**Class 4b – Monday, August 3 1:30pm - 4:00pm**

**Assumptions: Constructive-Developmental Theory**

Focus: Self-Knowledge

Practices: Exploration of theory, ladder of inference and personal application

Teaching Team: Michael McCormack and Fawn Phelps

Guest: Lauren Britt-Elmore, EdM

Robert Kegan asserts that the principle of changing subject to object is the driver of adult development. What is adult development? What are adults' actual developmental abilities and how might these be adequate - or not- for handling the challenges of public health leadership? How does our meaning-making system influence our leadership development?

**Class 5a – Wednesday, August 5 9:00am - noon**

**Inquiry & Action**

Focus: Narrative (Present/Future Thinking) and Self-Observation

Practices: Mindfulness, Self-Assessment

Teaching Team: Michael McCormack, Fawn Phelps and Perry Dougherty

How do we begin, as Brene Brown suggests, “[p]aying attention to the space between where we’re standing and where we want to go?” It can be difficult to navigate the relationship between past, present, and future as we look at our lives, our organizations, our communities and the world. We often look to others who can help us connect the dots, and can help us feel as if we belong and have a purpose. How do we shift the gaze inward, to ourselves, for minding the gap between present and future? How do we develop the mindfulness to pay attention and stay engaged? How do we align our actions with our values? In our own lives and in our cultures?

**Required Reading:**

1. Brene Brown, “Daring Greatly: How the Courage to Be Vulnerable Transforms the Way We Live, Love, Parent, and Lead,” (New York: Penguin Publishing Group, 2012), Chapter 5 p. 172-182. [10 pages]
2. Chip Heath and Dan Heath, “Switch: How to Change Things When Change is Hard,” (New York: Crown Business, 2010), Chapter 2. [22 pages]
3. Ronald Heifetz, “Adaptive work” *The Adaptive State: Strategies for personalizing the public realm*. Edited by Bentley, Tom; Wilsdon, James. Pp.

68 – 78. Demos published in 2003. [10 pages] <http://www.demos.co.uk/files/HPAPft.pdf>

4. Robert Kegan and Lisa Lahey, "Immunity to Change: How to Overcome it and Unlock Potential in Yourself and Your Organization," (Boston, Mass: Harvard Business Press, 2009), Excerpts from Ch. 9, pp. 227-246. [21 pages]

**Optional Reading:**

1. Jon Kabat-Zinn, "Wherever You Go, There You Are" (Boston, MA: Hachette Books, 2005) Essays "Simple But Not Easy," "Stopping," and "This is It," p. 8-16. [8 pages]
2. Watch: TEDxTeen Talk: "The power of listening" by Mteto Maphoyi <http://www.tedxteen.com/talks/tedxteen-2012/113-mteto-maphoyi-the-power-of-listening> [12:34 minutes]

Reading focal points:

1. What is the difference between adaptive and technical work?
2. What about your "immunity to change" has you? What would you like to move from subject to object?
3. How can you apply "minding the gap" to your public health practice?

**Class 5b – Wednesday, August 5 1:30pm - 4:00pm**

**Immunity to Change: Map Making I**

Focus: Self-Knowledge

Practice: Guided exercise for theory application

Teaching Team: Michael McCormack and Fawn Phelps

We will complete the first three columns of your immunity to change map. Your map's effectiveness is directly related to the power of your improvement goal. We will explore the relationship between your improvement goal and the gap between where you are now and where you want to be in your public health practice.

**Class 6 – Friday, August 7 9:00am - noon**

**Reflection and Group Dialogue**

Focus: Community-Building and Self-Knowledge

Practices: Reflective writing and experiential learning through dialogue

Teaching Team: Michael McCormack and Fawn Phelps

Community and small group dialogue exploring the integration of ideas across discourse, experience, and other DrPH course work. Using active listening to engage with each other and explore agreement and difference.

**Writing assignment due: Monday, August 10 at the beginning of class:**



In a two-page, double-spaced essay, please reflect on at least two of the three questions below. Please include specific examples of shifts in your awareness - moments in time, conversations and resulting realizations. The more detail the better. Please submit the papers to Canvas course site before the beginning of class.

1. Describe a moment of dialogue, deep listening, reflection, and/or mindful awareness of yours from the past week in the context of constructive-developmental theory.
2. Detail a moment from the past week when your understanding of the intersection of your values and your public health practice shifted.
3. How and in what moment did your awareness of your skills for working with others and the skills of your colleagues come into sharper focus?

### **WEEK THREE: August 10 – August 12**

#### **Class 7a – Monday, August 10 9:00am - noon**

##### **Change: Discernment and Action**

***Writing assignment due at the beginning of class - submit to Canvas course site.***

Focus: Narrative (Essentials and Morals) Presence, Purpose and Values

Practices: Case Study, Discernment, Decision-Making

Teaching Team: Michael McCormack, Fawn Phelps and Perry Dougherty

Being able to hold complexity and simplicity at once is often the task of a public health leader. How do we learn from and work with others in managing complexity? How do we cultivate trust?

By examining lessons from Lederach's concept of "moral imagination" in breaking cycles of violence for peacebuilding and conflict resolution, we can see the essential importance of relationships, curiosity, creativity, and risk. In class, we will explore cases from the shared experience of participants in order to consider how purpose, values, relationships, curiosity, creativity, and risk operate in transformative leadership contexts.

#### **Required Reading**

1. John Paul Lederach, "The Moral Imagination: The Art and Soul of Building Peace," (Oxford: Oxford University Press, 2010), Chapters 1-4 p. 3-40. [37 pages]
2. Simon Sinek, "Start with Why: How Great Leaders Inspire Everyone to Action," (New York: Portfolio/Penguin Publishing Group, 2011), Chapter 6. [32 pages]
3. Deborah Ancona, et al., "In Praise of the Incomplete Leader," (Boston, MA: Harvard Business Publishing, 2007), [18 pages]  
<https://hbr.org/2007/02/in-praise-of-the-incomplete-leader>

4. Watch: TED: “How Great Leaders Inspire Action” by Simon Sinek [http://www.ted.com/talks/simon\\_sinek\\_how\\_great\\_leaders\\_inspire\\_action?language=en](http://www.ted.com/talks/simon_sinek_how_great_leaders_inspire_action?language=en) [18:01 minutes]

Reading focal points:

1. What is your why for your public health practice? Has it changed over the duration of this course?
2. Think of an example from your past public health practice where the application of Lederach’s four frames might have changed the outcome. Apply the four frames to help you understand that example differently.
  - a. centrality of relationship
  - b. paradoxical curiosity - the both/and
  - c. provide space for the creative act
  - d. willingness to risk (violence known/peace is the mystery)

**Class 7b – Monday, August 10 1:30pm - 4:00pm**

**Immunity to Change: Map Making II**

Focus: Self-Knowledge

Practice: Guided Exercise for Theory Application

Teaching Team: Michael McCormack and Fawn Phelps

We will review the first three columns and complete the fourth column of your immunity to change map. We will explore the role assumptions play in adult development, and the assumptions that are cultivating your immunity to change.

We will discuss the role executive coaching will play in your leadership development during the DrPH program’s first year.

**Bring to class on Wednesday a culminating artifact. Additional details will be provided in class.**

**Class 8a – Wednesday, August 12 9:00am - noon**

**Personal Mastery: Putting It All Together**

Focus: Self-Knowledge

Practices: Self-Inquiry, Self-Assessment, Presentation and Voice Skills

Teaching Team: Michael McCormack, Fawn Phelps and Perry Dougherty

How do we live in the questions? What questions have emerged for you? What questions have emerged for the group? How has your personal vision and values statement evolved during this course?

Independent of your formal authority, how will you learn and lead with informal authority? How will you engage others to support your leadership development? How will you provide support to others in their leadership development? How will you care for yourself and others when you are uncertain, challenged or even fail?

Guidance on navigating these questions is grounded in ancient traditions and centuries of exploration of purpose and the meaning of life. You are in charge of the next steps of your leadership development. What course will you chart for living in the questions?

### **Required Reading**

1. Mary Catherine Bateson, "Composing a Life Story" *Willing to Learn: Passages of Personal Discovery* via BuzzFlash.com March 29, 2005 (Steerforth Press, 2004). [5 pages]
2. Rainer Maria Rilke, "Letters to a Young Poet" (Malden, MA: Scriptor Press, 2001), p. 13-16. [4 pages] <https://kbachuntitled.files.wordpress.com/2013/04/rainer-maria-rilke-letters-to-a-young-poet.pdf>
3. Robert Steven Kaplan, "What to Ask the Person in the Mirror: Critical Questions for Becoming a More Effective Leader and Reaching Your Potential," (Boston, MA: Harvard Business Publishing, 2011), Chapter 8 and Appendix. [22 pages]

Reading focal points:

1. What now? How will this course inform how you will compose your public health practice?
2. What are the authentic and achievable next steps to apply this course work to your public health practice with the DrPH program and beyond?

### **Class 8b – Wednesday, August 12 1:30pm - 4:00pm**

#### **Closing**

***Culminating Artifact: Bring to class on Wednesday a culminating artifact.***

***Additional details will be provided in class on Monday, August 10.***

Focus: Community-Building and Inner Journey

Practices: Narrative, Reflection, Declaration, and Integration

Teaching Team: Edward Cardoza, Perry Dougherty, Michael McCormack and Fawn Phelps

### **Course Evaluations:**

Completion of the evaluation is a requirement for this course. Your grade will not be available until you submit the evaluation. In addition, registration for future terms will be blocked until you have completed evaluations for courses in prior terms.

### **Course Bibliography:**

1. Deborah Ancona, et al., "In Praise of the Incomplete Leader," (Boston, MA: Harvard Business Publishing, 2007), <https://hbr.org/2007/02/in-praise-of-the-incomplete-leader>
2. Mary Catherine Bateson, "Composing a Life Story" *Willing to Learn: Passages of Personal Discovery* via BuzzFlash.com March 29, 2005 (Steerforth Press, 2004).
3. Jennifer Garvey Berger, "Changing on the Job: Developing Leaders for a Complex World," (Stanford, California: Stanford Business Books, 2012), pp. 32-47, pp. 53-58.
4. Brene Brown, "Daring Greatly: How the Courage to Be Vulnerable Transforms the Way We Live, Love, Parent, and Lead," (New York: Penguin Publishing Group, 2012), Chapter 5 p. 172-182.
5. Jerome Bruner, "Two Modes of Thought", Chapter 2 in *Actual Minds, Possible Worlds* (Cambridge: Harvard University Press, 1986), p.11 – 25.
6. Thomas J. DeLong, "The Achilles Heel of the Driven, Ambitious Professional," Chapter 1 and "The Challenge of Doing the Right Thing Poorly," Chapter 2 in *Flying Without a Net: Turn Fear of Change into Fuel for Success* (Boston, Mass.: Harvard Business School Publishing 2011).
7. Carol Dweck, "The Mindsets", Chapter 1 in *Mindset* (New York: Ballantine Books, 2006), p.1-10
8. Paul Farmer, "Pathologies of Power: Health, Human Rights, and the New War on the Poor." (Berkeley, CA: University of California Press, 2004), Chapter 5.
9. Paulo Freire, "The Pedagogy of the Oppressed," (New York: Continuum, 1968/2006) Introduction, Chapters 1, 2, 3) page 11-124.
10. Marshall Ganz, "Why Stories Matter." *Sojourners*. March 2009.  
Online: <http://sojo.net/magazine/2009/03/why-stories-matter>
11. Bill George, et al., "Discovering Your Authentic Leadership" [https://hbr.org/2007/02/discovering-your-authentic-leadership&cm\\_sp=Article-Links-Top%20of%20Page%20Recirculation](https://hbr.org/2007/02/discovering-your-authentic-leadership&cm_sp=Article-Links-Top%20of%20Page%20Recirculation)

**Comment [5]:** Heads up, Justine, that we have added two new readings to this section - the last additions

12. Thich Nhat Hanh, "The Raft is Not the Shore", *Thundering Silence: Sutra on Knowing the Better Way to Catch a Snake*, (Berkeley, CA: Parallax Press, 1994), p. 30-33.
13. Chip Heath and Dan Heath, "Switch: How to Change Things When Change is Hard," (New York: Crown Business, 2010), Chapter 2.
14. Ronald Heifetz, "Adaptive work" *The Adaptive State: Strategies for personalizing the public realm*. Edited by Bentley, Tom; Wilsdon, James. Pp. 68 – 78. Demos published in 2003.
15. Ivan Illich : To Hell with Good Intentions [http://www.swaraj.org/illich\\_hell.htm](http://www.swaraj.org/illich_hell.htm)
16. Jon Kabat-Zinn, "Wherever You Go, There You Are" (Boston, MA: Hachette Books, 2005) Essays "Simple But Not Easy," "Stopping," and "This is It," p. 8-16.
17. Adam Kahane, "Power and Love: A Theory and Practice of Social Change." (San Francisco, CA: Berrett-Koehler Publishers, 2010) p. 1-52 and 127-142.
18. Robert Steven Kaplan, "What to Ask the Person in the Mirror: Critical Questions for Becoming a More Effective Leader and Reaching Your Potential," (Boston, MA: Harvard Business Publishing, 2011), Chapter 8 and Appendix.
19. Robert Kegan and Lisa Lahey, "Immunity to Change: How to Overcome it and Unlock Potential in Yourself and Your Organization," (Boston, Mass: Harvard Business Press, 2009), Chapter 1. Excerpts from Ch. 9, pp. 227-246.
20. Arthur Kleinman, "What Really Matters: Living a Moral Life amidst Uncertainty and Danger." (Oxford: Oxford University Press, 2007), Introduction and Chapter 3.
21. David A Kolb and Bauback Yeganeh, "Deliberate Experiential Learning," (Case Western Reserve University Working Paper, 2011) <http://learningfromexperience.com/media/2012/02/deliberate-experiential-learning.pdf>
22. John Paul Lederach, "The Moral Imagination: The Art and Soul of Building Peace," (Oxford: Oxford University Press, 2010), Chapters 1-4 p. 3-40.
23. Audre Lorde, "Poetry is Not a Luxury" [http://www.vanderbilt.edu/womantowoman/Poetry\\_is\\_not\\_a\\_Luxury.pdf](http://www.vanderbilt.edu/womantowoman/Poetry_is_not_a_Luxury.pdf)

24. Watch: TEDxTeen Talk: “The power of listening” by Mteto Maphoyi [12:34 minutes]
25. Mark Nepo, “Because of My Not Knowing” in “Living the Questions: Essays Inspired by the Work and Life of Parker J. Palmer” (San Francisco: Jossey-Bass, 2005).
26. Watch: TED: “The Danger of the Single Story” by Chimamanda Adichie Ngozi [http://www.ted.com/talks/chimamanda\\_adichie\\_the\\_danger\\_of\\_a\\_single\\_story?language=en](http://www.ted.com/talks/chimamanda_adichie_the_danger_of_a_single_story?language=en) [18:46 minutes]
27. Rainer Maria Rilke, “Letters to a Young Poet” (Malden, MA: Scriptor Press, 2001), p. 13-16. <https://kbachuntitled.files.wordpress.com/2013/04/rainer-maria-rilke-letters-to-a-young-poet.pdf>
28. J.K. Rowling, “The Fringe Benefits of Failure, and the Importance of Imagination.” *Harvard Magazine*. June 5, 2008.  
Online: <http://harvardmagazine.com/2008/06/the-fringe-benefits-failure-the-importance-imagination>
29. Kathryn Schulz, “Being Wrong: Adventures in the Margin of Error,” (New York: Ecco/HarperCollins) 1, 2, 14, 15.
30. Simon Sinek, “Start with Why: How Great Leaders Inspire Everyone to Action,” (New York: Portfolio/Penguin Publishing Group, 2011), Chapter 6
31. Watch: TED: “How Great Leaders Inspire Action” by Simon Sinek [http://www.ted.com/talks/simon\\_sinek\\_how\\_great\\_leaders\\_inspire\\_action?language=en](http://www.ted.com/talks/simon_sinek_how_great_leaders_inspire_action?language=en) [18:01 minutes]

### **About Still Harbor:**

Founded in 2008, Still Harbor’s programs facilitate and teach integrated techniques of reflection, discernment, and action with the goal of uncovering sense of purpose, pursuing innovation, and cultivating resilience in people and organizations working to create positive change in the world. Still Harbor believes that developing a deep understanding of self, a healthy orientation to others, and a full appreciation of the world at large requires an ongoing commitment to interior formation in addition to professional development and intellectual training.

Using an approach that links discernment to action, the individuals and organizations

Still Harbor works with develop insights, approaches, and collaborations that become part of the solutions to today’s most pressing challenges

Below are brief biographies for Edward Cardoza and Perry Dougherty along with testimonial quotes from Still Harbor clients.

## **Biographies:**

**Edward M. Cardoza, MA.Min.** Founded Still Harbor in 2008 and is currently serving as Executive Director. Still Harbor has a mission to offer accompaniment to individuals and organizations engaged in social justice efforts by serving as a spiritual community and learning partner. Cardoza received a Masters in Arts in Ministry from Saint John's Seminary School of Theology in 2003. He completed a practicum in spiritual direction at the Center for Religious Development through the Weston Jesuit School of Theology in Cambridge, MA. Cardoza serves as a board member of Partners In Health ([www.pih.org](http://www.pih.org)), where he was the Vice President for Development for six years helping to grow the organization from \$6.2 million to \$68 million in six years. During his time at Partners In Health, he lectured at over 150 colleges, universities and secondary schools throughout the United States on themes of service, social justice, global health and liberation theology. As a co-founder of the Praxis Network, Cardoza has assisted over a dozen organizations launch, develop and mature. He also served on the boards of Last Mile Health, Project Muso, Village Health Works and Episcopalians for Global Reconciliation.

**Rev. Perry Dougherty** is the Director of the Institute for Spiritual Formation & Society of Still Harbor. In her role, she manages all organizational partnerships, develops content and writes learning curricula, facilitates retreats and teaches workshops on the intersection of the spiritual (interior) life with leadership for social change. Dougherty has a background in corporate training and development as well as non-profit development, communications, and management with social justice organizations. Prior to joining Still Harbor full time in 2011, Dougherty supported the executive leadership and Board of Directors of Partners In Health in a variety of administrative, project management, development, and communications roles. Dougherty has worked as a part-time contractor for DMA Health Strategies. Dougherty offers an informed perspective on pedagogy and learning, which she studied at Washington University in St. Louis in receiving her bachelor's degree in Social Thought and Analysis with a specialization in the Sociology of Education. Perry is an ordained Interspiritual Minister, the Editor of Anchor magazine, and a meditation teacher.

**Michael McCormack, MPA** is the Director of Practice, and Deputy Director for the Public Health Leadership Program at the Harvard School of Public Health (HSPH). He is a co-instructor of Leadership in Public Health: From Theory to Action, a highly experiential course that helps students learn about applying PH theories while working with an external client. Using the classroom setting as a petri dish to learn about teams and leadership through first hand real time experiences. Serving as both an instructor and a member of the OED staff, he has developed a workshop series on Self-assessment for students and staff. Outside of HSPH, Michael is the Director of the Massachusetts Institute for Community Health Leadership, which he created in 2005. The purpose of the nine month long Institute is to build bench strength for future leaders in nonprofit community-based organizations. The



program strengthens participants' understanding of and ability to be effective collaborative leaders.

Michael received his M.S. in Organization Development from American University School of Public Affairs. Prior to his work with the BCBSMA Foundation, Michael had roles as the Training and Development Manager at Northwestern Memorial Hospital in Chicago, Manager of Training at The Methodist Medical Center of Illinois, and Director of Human Resources for a high tech start up organization. He has also worked as senior training and organization development consultant for Quaker Oats, and as an independent consultant. He has extensive experience in working with teams, coaching executives and developing one's leadership abilities. He has been living and working in Boston since 1991 and has been at HSPH since the fall of 2008.

**Fawn Phelps, MPA** is the Director of Leadership Development at the Harvard School of Public Health. She has more than 15 years of experience in legislative and regulatory advocacy focused on the well-being of low-income and disadvantaged populations. She joined HSPH after 7 years at Health Care For All where she served as Policy Director, Interim-Executive Director, and manager of the coalition backing Massachusetts' 2006 health reform. She has a BA from Wesleyan University and a MPA from the Harvard Kennedy School with a concentration in advanced leadership development.

**Guest Lecturers:**

**Lauren Britt-Elmore, EdM** is a Doctoral Candidate at the Harvard Graduate School of Education. Her dissertation research focuses on how arts faculty are adjusting their pedagogy to the presence of massive open online courses (MOOCs) in higher education. She is also interested in leadership of fine arts schools and departments, the organizational relationship between fine arts departments and their parent institutions, the responsibility of creative arts faculty to students with psychological issues. These interests are the direct result of her professional experiences in theatre and higher education, where she served as a senior level administrator in a graduate level theatre school. Since coming to Harvard, Ms. Elmore has completed research on family understanding of the college admissions process in Malden Public Schools, the role of creative arts faculty in the Virginia Tech massacre, and conducted a historical analysis of Robert Brustein's early leadership as the Dean of the Yale School of Drama. In addition to her academic research at Harvard, Ms. Elmore has served as an Instructor and Teaching Fellow for courses at both the Education School and the Extension School. She has worked as a Facilitator and Instructional Designer for Programs in Professional Education, hosted by the School of Education. In this capacity, Ms. Elmore uses her training as a theatre artist, her experience in artistic organizations, and her study of effective educational leadership to inform her practice. Ms. Elmore holds a master's in Fine Arts from Columbia University and a master's of Education from the Harvard Graduate School of Education. She earned her bachelor's of arts with Honors from Wesleyan University.

**Dr. Howard K. Koh** is Harvey V. Fineberg Professor of the Practice of Public Health Leadership and Director of the Leading Change Studio at the Harvard T. H. Chan School of Public Health. In these roles, he advances leadership education and training at the Harvard T.H. Chan School of Public Health as well as with the Harvard Kennedy School, the Harvard Business School and across Harvard University.

From 2009-2014, Dr. Koh served as the 14th Assistant Secretary for Health for the U.S. Department of Health and Human Services (HHS), after being nominated by President Barack Obama and being confirmed by the U.S. Senate. During that time he oversaw 12 core public health offices, including the Office of the Surgeon General and the U.S. Public Health Service Commissioned Corps, 10 Regional Health Offices across the nation, and 10 Presidential and Secretarial advisory committees. He also served as senior public health advisor to the Secretary of HHS. During his tenure, he promoted the disease prevention and public health dimensions of the Affordable Care Act, advanced outreach to enroll underserved and minority populations into health insurance coverage and was the primary architect of landmark HHS strategic plans for tobacco control, health disparities and chronic hepatitis. He also led interdisciplinary implementation of Healthy People 2020 and the National HIV/AIDS Strategy as well as initiatives in a multitude of other areas, such as nutrition and physical activity (including HHS activities for Let's Move!), cancer control, adult immunization, environmental health and climate change, women's health, adolescent health, Asian American and Pacific Islander health, behavioral health, health literacy, multiple chronic conditions, organ donation and epilepsy.

Dr. Koh previously served at Harvard School of Public Health (2003-2009) as the Harvey V. Fineberg Professor of the Practice of Public Health, Associate Dean for Public Health Practice and Director of the Harvard School of Public Health Center for Public Health Preparedness. He has served as Principal Investigator of \$20 million in research grant activities and has published more than 250 articles in the medical and public health literature. His writings touch areas such as health reform, disease prevention and health promotion, health disparities, tobacco control, cancer control, melanoma and skin oncology, public health preparedness, health literacy, health issues of the homeless and public health leadership.

Dr. Koh was Commissioner of Public Health for the Commonwealth of Massachusetts (1997-2003) after being appointed by Governor William Weld. As Commissioner, Dr. Koh led the Massachusetts Department of Public Health, which included a wide range of health services, four hospitals, and a staff of more than 3,000 professionals. In this capacity, he emphasized the power of prevention and strengthened the state's commitment to eliminating health disparities. During his service, the state saw advances in areas such as tobacco control, cancer screening, bioterrorism response after 9/11 and anthrax, health issues of the homeless, newborn screening, organ donation, suicide prevention and international public health partnerships.

Dr. Koh graduated from Yale College, where he was President of the Yale Glee Club, and the Yale University School of Medicine. He completed postgraduate training at Boston City Hospital and Massachusetts General Hospital, serving as chief resident in both hospitals. He has earned board certification in four medical fields: internal medicine, hematology, medical oncology, and dermatology, as well as a Master of Public Health degree from Boston University. At Boston University Schools of Medicine and Public Health, he was Professor of Dermatology, Medicine and Public Health as well as Director of Cancer Prevention and Control.

He has earned over 70 awards and honors for interdisciplinary accomplishments in medicine and public health, including the Dr. Martin Luther King Jr. Legacy Award for National Service, the Distinguished Service Award from the American Cancer Society, the 2014 Sedgwick Memorial Medal from the American Public Health Association (the highest honor of the organization), and five honorary doctorate degrees. President Bill Clinton appointed Dr. Koh as a member of the National Cancer Advisory Board (2000-2002). He is an elected member of the Institute of Medicine of the National Academies. A past Chair of the Massachusetts Coalition for a Healthy Future (the group that pushed for the Commonwealth's groundbreaking tobacco control initiative), Dr. Koh was named by the New England Division of the American Cancer Society as "one of the most influential persons in the fight against tobacco during the last 25 years." He has also received the Champion Award from the Campaign for Tobacco Free Kids, the "Hero of Epilepsy" Award from the Epilepsy Foundation, the Distinguished National Leadership Award from the National Colorectal Cancer Roundtable, the Baruch S. Blumberg Prize from the Hepatitis B Foundation, the National Leadership Award from The Community Anti-Drug Coalitions of America (CADCA) and the Dr. Jim O'Connell Award from the Boston Healthcare for the Homeless Program. He was named to the K100 (the 100 leading Korean Americans in the first century of Korean immigration to the United States) and has received the Boston University Distinguished Alumnus Award. He enjoys the distinction of throwing out the ceremonial first pitch on two different occasions: at Nationals Park in Washington DC on behalf of HHS(2011), and at Fenway Park where he was designated a "Medical All Star" by the Boston Red Sox (2003) in recognition of his national contributions to the field of early detection and prevention of melanoma.

Dr. Koh and his wife, Dr. Claudia Arrigg, are the proud parents of three adult children.

# Principles of Injury Control (ID240) Spring 1, 2016

## Course Objectives

- To increase knowledge about a major public health problem: injuries
- To familiarize students with general approaches and specific methods to reduce injury
- To increase ability to critically evaluate prevention policies

## Course Information

Dates: Wednesdays, Jan 27 – March 9, 2016  
Time: 4:00 to 6:30 (Session a: 4:00-5:10, Session b: 5:20-6:30)  
The course starts promptly at 4:00, *don't be late*  
Location: Kresge 201

## Instructor

David Hemenway, Ph.D.  
Health Policy & Management  
677 Huntington Ave. Kresge 309  
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Relevant Web sites: [www.hsph.harvard.edu/faculty/david-hemenway](http://www.hsph.harvard.edu/faculty/david-hemenway)  
[www.hsph.harvard.edu/hicrc](http://www.hsph.harvard.edu/hicrc)

## Teaching Assistant

Avanti Adhia  
Social & Behavioral Sciences

E-mail: [aba567@mail.harvard.edu](mailto:aba567@mail.harvard.edu)

## Texts

- Buy: *While We Were Sleeping*, by David Hemenway
- Buy: *Private Guns, Public Health*, by David Hemenway
- \*Readings available free on the Internet are marked with a \*, just follow the hyperlink
- \*\*Journal articles available on-line through Harvard libraries are marked with a \*\*
- \*\*\*All other readings are available on the course website under the 'Files' tab in the 'Readings' folder

## Course Requirements

- Data analysis assignment (due 2/10): 20%
- Term paper (due 3/9): 50%
- Take home quiz (due 3/9): 15%
- Class participation and oral presentation: 15%

**Mid-Term Assignment: Data Analysis**  
**Due: February 10 (beginning of class)**

**Overview**

For this assignment, you are required to analyze data from the dataset below. **The goal is to find an interesting association, and to show that relationship in a table or graph where the results would be clear to a lay audience.** Your assignment should be no longer than ONE page, and should include a table or graph along with a short paragraph discussing the findings. (The table should not be a computer printout, but an actual table in Word or Wordperfect, with everything clearly labeled in English.)

The goal is not to run a multiple regression with lots of variables. Chi-square or t-tests are fine, but the reader needs to be able also to see the size of any association and how many people are in the various categories. A 2x2 table is often ideal.

**Dataset:**

2008 Boston Youth Survey: School-based survey assessing the prevalence of youth violence, as well as other health and social variables

**To get you started...**

Here are some examples of the type of questions that you might choose to investigate.

- 1) How does the prevalence of violent behavior vary by immigration status?
- 2) Are young people who have been assaulted more likely to exhibit depression?
- 3) Are smokers more likely to carry guns?
- 4) Are students who attacked someone in the past year less likely to feel safe at school?

**Tips:**

- Make the table clear – the main interesting finding should be obvious from a glance at the table
- In the table, use raw numbers to indicate the number of respondents, and include percentages where appropriate.
- If number of respondents is not the full number from the survey, please indicate why.
- Remember that the word “data” is plural! As in “The data indicate...”

**Final Assignment: Term paper**  
**Due: March 9 (beginning of class)**

You will be expected to write and hand-in a 5-page paper on an injury topic. We will provide a list of potential topics for you to choose from, or you may choose one of your own. The paper might address the scope and magnitude of the problem, risk and protective factors, and/or interventions and evaluation. You will be expected to do a 3-minute (Power Point) presentation of your paper on the day it is due.

*More information will be provided when the course begins.*

**Course Schedule 2016**

|                         | <b>Date</b> | <b>Session</b> | <b>Topic</b>                           | <b>Lecturer</b> |
|-------------------------|-------------|----------------|--|-----------------|
|                         | Jan. 27     | 1a             | Introduction                           | Hemenway        |
|                         |             | 1b             | Success Stories in Injury Prevention   |                 |
|                         | Feb. 3      | 2a             | Guns (1)                               | Hemenway        |
|                         |             | 2b             | Guns (2)                               | Hemenway        |
| Data Analysis Due       | Feb. 10     | 3a             | Motor Vehicles (1)                     | Hemenway        |
|                         |             | 3b             | Motor Vehicles (2)                     | Hemenway        |
|                         | Feb. 17     | 4a             | Suicide                                | Miller          |
|                         |             | 4b             | Childhood Intentional Injury           | Sege            |
|                         | Feb. 24     | 5a             | Alcohol                                | Howland         |
|                         |             | 5b             | Occupational Injury                    | Davis           |
|                         | Mar 2       | 6a             | Intimate Partner Violence              | Rothman         |
|                         |             | 6b             | Harvard Injury Control Research Center | Hemenway        |
| Quiz and Term Paper Due | Mar.9       | 7              | Student Presentations                  | Students        |

## Contact Information for Guest Lecturers

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## READING LIST

*January 27, 2016*

### **Session 1a – Introduction (Hemenway)**

\*\*\*Christoffel T, Gallagher S. *Injury Prevention and Public Health: Practical Knowledge, Skills and Strategies*, 2nd Ed. Jones & Bartlett Publishers. 2005. pp. 3-10, 153-165.

\*\*\*Hemenway D. *Prices and Choices*, 3rd Edition. U Press of America, 1993. (Chapter 21, “Risk Compensation”), (Chapter 22, “Nervous Nellies”), (Chapter 24, “Injury Prevention”).

### **Session 1b – Success Stories in Injury Prevention**

Hemenway D. *While We Were Sleeping*. U Cal Press, 2009. Introduction, and Chapters 8-10.

*February 3, 2016*

### **Sessions 2a, 2b – Guns (Hemenway)**

Hemenway D. *Private Guns Public Health*. U Michigan Press, 2006. Preface (xi-xiv), Chapters 2 (pp. 8-26), 4 (pp. 64-78) & Afterward (pp. 227-251).

Hemenway D. *While We Were Sleeping*. pp. 158-163.

\*\*Hemenway D, Miller M. Public health approach to the prevention of gun violence. *New England Journal of Medicine*. 2013; 368:2033-35.

\*\*Hemenway D. Preventing gun violence by changing social norms. *JAMA-Internal Medicine*. 2013; 173:1167-68.

\*\*Barber C, Azrael D, Hemenway D. A truly national National Violent Death Reporting System. *Injury Prevention*. 2013; 19:225-26.

\*\*\*Hemenway D. Risk and benefits of a gun in the home. *American Journal of Lifestyle Medicine*. 2011; 5:502-511.

\*\*Hemenway D, Solnick SJ. The epidemiology of self-defense gun use: evidence from the National Crime Victimization Surveys 2007-2011. *Preventive Medicine*. 2015; 79: 22-27.

**February 10, 2016**

**Sessions 3a,b – Motor Vehicle Injuries (Hemenway)**

Hemenway D. *While We Were Sleeping*. Chapter 1

\*\*Waller PF. Public health's contribution to motor vehicle injury prevention. *American Journal of Preventive Medicine*. 2001; 21(4S): 3-4.

\*Ringel JS, Zmud J, Connot K et al. Costs and effectiveness in interventions to reduce motor vehicle-related injuries and death. RAND report 2015, chapter 4, pp 49-55.

[http://www.rand.org/content/dam/rand/pubs/tools/TL100/TL144z1/RAND\\_TL144z1.pdf](http://www.rand.org/content/dam/rand/pubs/tools/TL100/TL144z1/RAND_TL144z1.pdf)

\*Booz Allen Hamilton. Transportation and Health: Policy Interventions for Safer, Healthier Peoples and Communities. 2011, chapter 3, pp 3-1 to 3-6.

<http://www.prevent.org/data/files/transportation/transportationandhealthpolicycomplete.pdf>

\*\*\*Vanderbilt T. Traffic: Why We Drive the Way We Do. New York: Vintage Books, 2008, Chapter 2, 51-73.

\*Research and Innovative Technology Administration. Department of Transportation. Connected Vehicle. [http://www.its.dot.gov/safety\\_pilot/index.htm](http://www.its.dot.gov/safety_pilot/index.htm)

**February 17, 2016**

**Session 4a – Suicide (Miller)**

\*\*Miller M, Azrael D, Barber C. Suicide mortality in the United States: the importance of attending to method in understanding population-level disparities in the burden of suicide. *Annual Review of Public Health*. 2012; 33:393-408.

\*Miller M, Hemenway D. Guns and suicide in the United States. *The New England Journal of Medicine*. 2008; 359:989-991. <http://content.nejm.org/cgi/content/full/359/10/989>.

\*Friend, T. Jumpers: The Fatal Grandeur of the Golden Gate Bridge. *The New Yorker*. 10/3/2004. Available online. [http://www.newyorker.com/archive/2003/10/13/031013fa\\_fact](http://www.newyorker.com/archive/2003/10/13/031013fa_fact)

Hemenway D. *While We Were Sleeping*. pp. 95-100; 155-158

**Session 4b – ACES & HOPE: Late Effects of Childhood Intentional Injury (Sege)**

\*\*Felitti VJ, Anda RF, Nordenberg D, Williamson DF, Spitz AM, Edwards V, Koss MP, Marks JS. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) StudyExternal Web Site Icon. *American Journal of Preventive Medicine* 1998;14:245-258.

\*\*Sege R, Linkenbach J. Essentials for childhood: promoting healthy outcomes from positive experiences. *Pediatrics*. 2014; 133:e1489-91.

**February 24, 2016**

**Session 5a– Alcohol and Injury (Howland)**

\*\*\*Howland J, Almeida A, Rohsenow D, Minsky S, Greece J. How safe are federal regulations on occupational alcohol use? *Journal of Public Health Policy*. 2006; 27: 389-404.

\*\*\*Rohsenow DJ, Howland J, Arnedt JT, et al. Intoxication with bourbon versus vodka: Effects on hangover, sleep, and next-day neurocognitive performance in young adults. *Alcoholism: Clinical and Experimental Research*. 2010; 34: 1-10.

**Session 5b – Occupational Injury (Davis)**

\*\*\*Levy, BS, Wegman DH, Baron SL, Sokas, RK: *Occupational and Environmental Health: Recognizing and Prevention Disease and Injury, 6<sup>th</sup> edition*, Oxford University Press, 2011. Pages 315-334. Injuries and Occupational Safety by Castillo DN, Pizatella TL and Stout N.A.

\*\*Azaroff L, Levenstein C, Wegman D: Occupational injury and illness surveillance: conceptual filters explain underreporting. *American Journal Public Health*: 2002; 92:1421-29.

Hemenway D. *While We Were Sleeping*. Chapter 3

**March 2, 2016**

**Session 6a – Intimate Partner Violence (Rothman)**

\*Centers for Disease Control. National Intimate Partner and Sexual Violence Survey. 2010. [http://www.cdc.gov/violenceprevention/pdf/nisvs\\_report2010-a.pdf](http://www.cdc.gov/violenceprevention/pdf/nisvs_report2010-a.pdf) (Browse)

\*\*Liebschutz JM, Rothman EF. Intimate-partner violence--what physicians can do. *New England Journal of Medicine*. 2012; 367(22):2071-3.

Hemenway D. *While We Were Sleeping*. pp. 109-110

**Session 6b – Harvard Injury Control Research Center (Hemenway)**

\*\*Hemenway D. Three common beliefs that are impediments to injury prevention. *Injury Prevention*. 2013; 19:290-93.

\*\*Solnick SJ, Hemenway D. ‘The Twinkie Defense:’ the relationship between carbonated non-diet soft drinks and violence perpetration among Boston high school students. *Injury Prevention*. 2012; 18:259-63.

\*\*Connorton E, Miller M, Perry MJ, Hemenway D. Mental health and unintentional injuring: results from the national co-morbidity survey replication. *Injury Prevention*. 2011; 17:171-75.

\*Kraft D. Women: the newest weapon in the fight against gun violence. *Atlantic Magazine*, 2013. <http://www.theatlantic.com/national/archive/2013/10/women-the-newest-weapon-in-the-fight-against-gun-violence/280986/>

\*Levin M, Craig E. Toddlers suffer severe burns from broiling fireplace glass, as businesses write their own safety rules. FairWarning. January 11, 2011. <http://www.fairwarning.org/2011/01/hundreds-of-toddlers-are-burned-by-broiling-fireplace-glass-as-businesses-write-their-own-safety-rules>

Hemenway D. *While We Were Sleeping*. Chapters 2 and 4.

**March 9, 2016**

**Sessions 7a, 7b – Student Presentations**

No readings!

**ID251: Ethical Basis of the Practice of Public Health**  
**Summer 1, 2015 (version June 18, 2015: Updated July 14, 2015)**

**COURSE MEETINGS:**

Section 1: Monday through Friday, 10:30 am – 12:20 pm in FXB G13

Section 2: Monday through Friday, 3:30 – 5:20 pm in Room Kresge G2

**INSTRUCTORS:**

Lisa S. Lehmann, MD, PhD, MSc  
Associate Professor of Health Policy &  
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Office hours: By appointment

**Directions:** From Brigham & Women's  
Hospital, 15 Francis St, Boston, MA 02115 -  
cross trolley tracks at Huntington Avenue, 1st  
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left, then sharp right into Division of General  
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**TEACHING FELLOWS:**

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## **OBJECTIVES:**

At the completion of this course, you will be able to:

1. Describe and distinguish several of the leading theories and principles for the analysis of ethical problems in public health and critically evaluate the strengths and weaknesses of each.
2. Describe some of the leading ethical controversies in contemporary public health and clinical practice.
3. Construct a strong ethical argument addressing a public health ethical problem.
4. Apply a systematic process of ethical analysis to arrive at ethically defensible solutions to complex problems in public health.

## **COURSE MATERIALS:**

Required readings are either accessible online via the Harvard library system or on the course website.

The following materials (hard copies on reserve at Countway Library) are recommended references for those who desire more background information about foundational issues in the course:

Moral philosophy: Will Kymlicka, *Contemporary Political Philosophy: An Introduction* (2<sup>nd</sup> ed. 2002)

## **HOMEWORK & GRADING:**

### **Homework**

Two homework questions will be distributed. One will be due at the end of the first full week, and the other during the second week of class. Your response essay should not exceed 2 double-spaced pages (12-pt font, 1 inch margins). The homework will be due at the beginning of class on Thursday 7/9 and Wed 7/15. Please submit your homework on the course website. Your responses to the homework question must represent your own work only. This is not a collaborative project. You should generate ideas for your answers and write your answers on your own. You may consult your notes and all course materials in preparing your homework answers.

### **Final Paper**

A final paper will be due by 6:00 pm on the last day of the course. For this paper you should choose one public health ethics dilemma that you are passionate about and that you have not previously written about. You should construct an ethical argument for how you think the dilemma/issue should be resolved. Your argument should demonstrate your understanding of how to apply the most relevant ethical theories, principles, and/or frameworks presented in class. In other words, you may choose one or two theories or principles on which to base your argument – you do not need to include them all. Your response should not exceed 5 double-

spaced pages (12-pt font, 1 inch margins). **An optional outline of a detailed argument may be submitted by 9:00 AM Monday July 20, 2015.** You will receive feedback on your outline with the goal of helping you construct a compelling argument in your final paper. Your final paper must be completed independently and should reflect your own work.

### **Paper Submission Process**

- Please put your Harvard University ID, but not your name, on the document.
- To help facilitate fair grading, please submit your assignments anonymously. Please place your 8-digit HUID in the header and in the file name. Please use this naming convention for your file: HUID\_Homework1. For example, 098706741\_FinalPaper.docx
- Please upload your papers in a word document (.doc or .docx, please no PDFs) to the Dropbox on the course website.

### **Class participation**

Class participation consists of three elements: (1) attendance; (2) evidence of preparation; and (3) making thoughtful, relevant contributions to class discussions. If you must miss a class session, we invite you to attend that lecture in the other section of the course. [Due to the discussion-oriented nature of the course, audio or video recording is often not possible.](#) [Therefore, make every effort to attend class. If you are going to miss a class, please notify Drs. Rose or Lehmann in advance.](#)

### **Course grade calculation**

Initial score = weighted average of final paper score (60%) and homework 1 (15%), homework 2 (15%) and class participation (10%).

### **IMPORTANT POLICIES:**

#### **Policy on extensions**

Summer students typically juggle a number of responsibilities in addition to their coursework. Although this can create challenges for timely completion of coursework, in fairness to all students, we are not able to grant extensions on the homework or final paper to accommodate competing demands (e.g., grant application deadlines, conferences, [personal responsibilities](#)). However, emergencies do arise (e.g., family emergency, [personal serious illness](#)) and we can often offer flexibility in such cases. *Let Dr. Rose and Dr. Lehmann know as soon as you become aware of such a situation.* Only in very exceptional circumstances would we grant an extension once an assignment is late.

#### **Policy on late work**

Written work that is received late, where an extension was not granted in advance of the deadline, will ordinarily be assessed a penalty. [For work received within 12 hours of the assignment deadline, the grade will be reduced by one partial “step”;](#) for example, an “A” would then be an “A-“, or a “B+” would then be a “B”. Another partial grade step will be deducted for each 12 hour period the assignment is late. [Work that is submitted after 3 days \(72 hours after](#)



due date) will receive a grade of a zero, unless a specific extension has been made by Dr. Rose or Dr. Lehmann, see “Policy on extensions” above.

### **Policy on acknowledging sources**

“Whenever ideas or facts are derived from a student’s reading and research the sources must be indicated. The term ‘sources’ includes not only published primary and secondary material, but also information and opinions gained directly from other people.... Quotations must be placed within quotation marks, and the source must be credited. All paraphrased material also must be completely acknowledged.” It is not necessary to reference course lectures.

### **Policy on use of computers and phones in class**

The use of cell phones, smart phones, laptops, iPads or other mobile communication devices is often disruptive, and is therefore **prohibited** during class unless we specify otherwise. Please prepare in advance by printing any readings or class materials before coming to class. Given that this class focuses on active student engagement and discussion, we believe the “no laptop/cell” policy will provide the best learning environment for everyone.

### **COURSE COMMUNICATIONS:**

Course announcements, instructors’ lecture slides, and additional materials and information will be available on **the course website**, which can be accessed through your MyHSPH portal. A Harvard PIN is required. We will also communicate periodically by email.

This syllabus may be modified at any time by the course instructors. We will announce any changes in class and/or on the course website. Therefore, please check the course website daily. If there is a time-sensitive announcement, we will send an email as well. We recommend that you check the website and your email daily.

**COURSE SCHEDULE: (Dates apply to both sections of the course)**

| <b>Date</b> | <b>Instructor</b> | <b>Topic</b>  | <b>Key Dates</b>                          |
|-------------|-------------------|---|---|
| Thurs 7/2   | Rose              | Course Introduction & Moral reasoning   | ↓↓↓↓↓↓                                    |
| Fri 7/3     | <b>NO CLASS</b>   |   |   |
| Mon 7/6     | Rose              | Ethical Theory  |   |
| Tues 7/7    | Rose              | Skill Building Workshop: Constructing an ethical argument                     |   |
| Wed 7/8     | Rose              | Scarcity and Rationing: Applying Ethical Arguments                            |   |
| Thurs 7/9   | Lehmann           | Allocation of High Cost Medications: The case of hepatitis C treatment        |   |
| Fri 7/10    | Berry             | Global Health Inequalities and Justice  |   |
| Mon 7/13    | Rose              | Personal Responsibility for Health  |   |
| Tues 7/14   | Lehmann           | Rights and Access to Health care  |   |
| Wed 7/15    | Rose              | MMR Vaccinations: Are religious or personal exemptions ethically permissible? | <b>Homework 2 Due</b>                     |
| Thurs 7/16  | Lehmann           | Ethics and Ebola: Responding to public health epidemics                       |   |
| Fri 7/17    | Oseroff           | Identified vs. Statistical Lives  |   |
| Mon 7/20    | Oseroff & Berry   | Final Paper Review session  | <b>Final paper outline due (Optional)</b> |
| Tues 7/21   | Lehmann           | Genetic Screening   |   |
| Wed 7/22    | Lehmann           | Regulation of Direct to Consumer Genetic Testing                              |   |
| Thurs 7/23  | Lehmann           | Paternalistic Public Health Policy: Demarketing soda in NYC                   |   |
| Fri 7/24    | Lehmann           | Tobacco Control and e-Cigarettes  | <b>Final paper due 6:00pm</b>             |

## **READING ASSIGNMENTS:**

Readings designated “**Access online**” can be accessed through links provided on the Readings page of the course website. Readings designated “**Available on course website**” are available on the course website.

**Course Introduction:** Lehmann & Rose

### **Moral Reasoning**

*Instructor:* Rose

*Readings:* Morality and Moral Justification. Tom Beauchamp & James Childress, *Principles of Biomedical Ethics* (4th ed. 2001), PP 3-43. [NOTE: THERE ARE NEWER EDITIONS OF THIS BOOK, BUT THIS EDITION IS PREFERRED FOR THIS COURSE.] **AVAILABLE ON COURSE WEBSITE.**

Ruger JP. Ethics in American health 1: ethical approaches to health policy. *Am J Pub Health* 2008;98:1751-56. **Access online.**

### **Ethical Theory**

*Instructor:* Rose

*Readings:* Moral philosophy: Will Kymlicka, *Contemporary Political Philosophy: An Introduction* (2<sup>nd</sup> ed. 2002)  
*Read Chapters:* 2 “Utilitarianism” and 3 “Liberal Equality” (part of) (PP10-32. And 53-75) **AVAILABLE ON COURSE WEBSITE.**

[NOTE: THIS READING MAY BE CHALLENGING FOR THOSE WITHOUT A PHILOSOPHY BACKGROUND, SO PLEASE ALLOW ENOUGH TIME TO READ CAREFULLY. THIS MATERIAL WILL LAY THE FOUNDATION FOR THE REST OF THE COURSE.]

### **Skill Building Workshop: Constructing an Ethical Argument**

*Instructors:* Rose

*Readings:* Case Study: Surgical Treatment for Epilepsy in the Developing World: a Question of Justification. **Available on course website.**

Kass N. An ethics framework for public health and avian influenza pandemic preparedness. *Yale J Biol Med* 2005;78:235-50. **Access online.**

### Scarcity and rationing: Applying Ethical Arguments

*Instructor:* Rose

*Readings:* Case Study: Who should be Dialyzed? **Available on course website.**

Persad, G, Wertheimer, A, Emanuel, E. Principles for allocation of scarce medical interventions. *Lancet* 2009;373:423-431. **Access online.**

N. Daniels. Fair process in patient selection for antiretroviral treatment in WHO's goal of 3 by 5. *Lancet* 2005 366(9480): 169-171. **Access online.**

### Allocation of high cost medications: The case of hepatitis C treatment

*Instructor:* Lehmann

*Readings:* de Vos A. S., Prins M., Kretzschmar M. E. Hepatitis C virus treatment as prevention among injecting drug users: who should we cure first? *Addiction* 2015; 110: 975–83.

**Access online.**

Emanuel E.J. & Wertheimer (2006). [Who should get influenza vaccine when not all can?](#) *Science* 2006; 312: 854-5. (doi: 10.1126/science.1125347). **Access online.**

State of Michigan Department of Community Health (office of Public Health Preparedness). (2012). [Guidelines for Ethical Allocation of Scarce Medical Resources and Services during Public Health Emergencies in Michigan](#) - Version 2.0, pp. 1-6, 19-23. **Access online.**

### Global Health Inequalities and Justice

*Instructor:* Berry

*Readings:* Dugger, Celia. (2004) *An Exodus of African Nurses Puts Infants and the Ill in Peril.* New York Times. **Access online.**

Pogge, Thomas. (2002) *Eradicating Systemic Poverty: Brief for a Global Resources Dividend.* In *World Poverty and Human Rights.* Read sections 8.0-8.3 (pp 197-204) **AVAILABLE ON COURSE WEBSITE.**

Nagel, Thomas. (2005) *The Problem of Global Justice.* Philosophy and Public Affairs. Section III only (pp 117-122). **AVAILABLE ON COURSE WEBSITE.**

## Personal Responsibility for Health

*Instructor:* Rose

*Readings:* Case Study for Discussion: The West Virginia Medicaid State Plan <http://kff.org/medicaid/fact-sheet/west-virginia-medicaid-state-plan-amendment-key/>

Olsen JA, Richardson J, Dolan P, Menzel P. The moral relevance of personal characteristics in setting health care priorities. *Soc Sci Med* 2003;57:1163-72.

**Access online.**

Daniel Wikler, "Personal and Social Responsibility for Health," *Ethics & International Affairs*, 2002, 47-55. **Access online.**

## Rights and Access to Health Care

*Instructor:* Lehmann

*Readings:* *Owens v Nacogdoches County Hospital District*, 741 F.Supp 1269 (1990). **Available on course website.**

Ruger JP. The moral foundations of health insurance. *Q J Med* 2007;100:53-57.

**Access online.**

Hall MA. Supreme Court arguments on the ACA – a clash of two world views. *N Engl J Med* 2012; 366:1462-1463. **Access online.**

Jost TS. A mutual aid society. *Hastings Ctr Rep* 2012;42(5):14-16. **Access online.**

**Optional:** Rulli T, Emanuel AJ, Wendler D. The moral duty to buy health insurance. *JAMA* 2012:137-8. **Access online.**

## MMR Vaccinations: Are religious or personal exemptions ethically permissible?

*Instructor:* Rose

*Readings:* Colgrove, J. and R. Bayer. Manifold Restraints: Liberty, Public Health, and the Legacy of *Jacobson v Massachusetts*. *Am J Public Health*. 2005 April; 95(4): 571-576.

Gostin, L.O. Law, Ethics, and Public Health in the Vaccination Debates. *JAMA* 2015: 1099-110.

Kruse, M. Why Is there a Religious Exemption for Vaccinations?: Almost No Religions Object to Them. *Slate*: Feb. 5, 2015. [http://www.slate.com/articles/health\\_and\\_science/medical\\_examiner/2015/02/religious\\_exemption\\_for\\_vaccines\\_christian\\_scientists\\_catholics\\_and\\_dutch.html](http://www.slate.com/articles/health_and_science/medical_examiner/2015/02/religious_exemption_for_vaccines_christian_scientists_catholics_and_dutch.html) **Access online.**

California's New Vaccination Exemption Law. Senate Bill No. 277, Chapter 3.  
[https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill\\_id=201520160SB277](https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB277)

**Access online.**

### **Ethics and Ebola: Responding to public health epidemics**

*Instructor:* Lehmann

*Readings:* Kass N. Ebola, Ethics, and Public Health: What Next?. *Ann Intern Med.* 2014;161:744-745. doi:10.7326/M14-1864 **Access online.**

Ethical considerations for use of unregistered interventions for Ebola virus disease. Report of an advisory panel to WHO. 2014. **Access online.**

Adebamowo C. Randomised controlled trials for Ebola: practical and ethical issues. *The Lancet.* October 13, 2014. **Access online.**

### **Identified vs. Statistical Lives**

*Instructor:* Oseroff

*Readings:* Daniels, N. "Reasonable Disagreement About Identified Vs. Statistical Victims." *The Hastings Center Report* 42, no. 1 (2012): 35–45. **Access online.**

**Optional:** Eyal, N. "Concentrated risk, Coventry Blitz, Chamberlain's Cancer," in *Statistical versus Identified Lives* (I. Glenn Cohen, Norman Daniels, and Nir Eyal eds., forthcoming). **Available on course website.**

### **Final Paper Review Session**

*Instructor:* Oseroff & Berry

*Readings:* Use the extra time to consider whether there are questions you want answered during the session. Please email Kelsey/Ben ahead of time with questions if possible.

### **Genetic Screening**

*Instructor:* Lehmann

*Readings:* Case Study: PKU and Follow-Up. **Available on course website.**

Bernheim RG, Bonnie R, Nieburg P. Public health genetics: screening programs and individual testing/counseling. *ASPH: Ethics and Public Health Model Curriculum*, 2003: 193-211. **Available on course website.**

Buchanan A. et al. *From Chance to Choice: Genetics & Justice* (2000), pp. 309-15.

**Available on course website.**

### **Regulation of Direct to Consumer Genetic Testing**

*Instructor:* Lehmann

*Readings:* **Case Study: 23andMe**

Annas, George J., and Sherman Elias. "23andMe and the FDA." *New England Journal of Medicine* 370, no. 11 (2014): 985-988. **Access online.**

Skirton, H., Goldsmith, L., Jackson, L., & O'Connor, A. (2012). Direct to consumer genetic testing: a systematic review of position statements, policies and recommendations. *Clinical genetics*, 82(3), 210-218. **Access online.**

Su, Yeyang, Pascal Borry, Ina C. Otte, and Heidi C. Howard. "'It's our DNA, we deserve the right to test!' A content analysis of a petition for the right to access direct-to-consumer genetic testing." *Personalized Medicine* 10, no. 7 (2013): 729-739. **Access online.**

### **Paternalistic Public Health Policy: Demarketing soda in NYC**

*Instructor:* Lehmann

*Readings:* CASE FOR DISCUSSION: NYC Soda Ban. **AVAILABLE ON COURSE WEBSITE.**

Grynbaum, M. (2012). New York plans to ban sale of big sizes of sugary drinks. *New York Times*. **Access online.**

Rajczi, A. (2008). A Liberal Approach to the Obesity Epidemic. *Public Affairs Quarterly*, 22(3): 269-87. **Access online.**

Thaler, R. H., & Sunstein, C. R. (2003). Libertarian paternalism. *The American Economic Review*, 93(2): 175-9. **Access online.**

### **Tobacco Control and e-Cigarettes**

*Instructor:* Lehmann

*Readings:* Benowitz, Neal L., and Maciej L. Goniewicz. "The regulatory challenge of electronic cigarettes." *JAMA* 310, no. 7 (2013): 685-686. **Access online.**

Cahn, Zachary, and Michael Siegel. "Electronic cigarettes as a harm reduction strategy for tobacco control: A step forward or a repeat of past mistakes &

quest." *Journal of public health policy* 32, no. 1 (2011): 16-31. **Access online.**

Foulds, J., S. Veldheer, and A. Berg. "Electronic cigarettes (e-cigs): views of aficionados and clinical/public health perspectives." *International journal of clinical practice* 65, no. 10 (2011): 1037-1042. **Access online.**



**ID 266: PRACTICE AND CULMINATING EXPERIENCE FOR HEALTH POLICY**  
**Fall 2016 and Spring 2017**  
**2.50 credits**

**Instructor:**

- Amy Rosenthal, MPA, MPH ([arosenth@hsph.harvard.edu](mailto:arosenth@hsph.harvard.edu))

**Teaching Assistant:**

- Lisa Flynn ([lif992@mail.harvard.edu](mailto:lif992@mail.harvard.edu))

**Practicum Support:**

- Stacey King, Assistant Director of MPH Field Practice, ([seking@hsph.harvard.edu](mailto:seking@hsph.harvard.edu))

**Timing:**

- *Fall 1 and Fall 2*, Wednesdays, 5:30 – 7:20pm
- *Spring 1 and Spring 2*, Tuesdays 5:30-7:20 pm

**Classroom:**

- Kresge 200, unless otherwise noted in the syllabus

**Learning Objectives:**

All students completing a Master's Degree in Public Health must complete a *Practicum* and *Culminating Experience*. This course is designed to help you with these two degree requirements, incorporating the following Learning Objectives:

- Integrate and synthesize competencies gained during the degree program through coursework and field practice
- Apply graduate-level skills and competencies to a real world public health problem(s) or issue(s)
- Explore a substantive public health or health care topic that is salient to a health care or public health organization
- Acquire practical and professional skills and knowledge from others including practicum instructors, experienced practitioners, and other students
- Complete a successful practicum as outlined by a scope of work and deliverables that are mutually agreed upon by the student, host organization, and faculty
- Identify career options with the assistance of experienced practitioners, faculty, alumni, and career counseling professionals
- Gain insight into public health practice and professional awareness through shared practicum experience with peers
- Enhance the skills needed to function in a professional public health setting

- Reflect on professional growth in core competencies as a public health practitioner through a series of exercises called the culminating experience

### **Ground Rules for Course:**

Students are expected to attend all sessions, and to participate fully in class discussions. As many sessions will involve outside speakers, we expect that students will show respect for invited guests as well as for one another.

In addition, NO electronic devices may be used during this class including laptops, cell phones, tablets, etc. Your full presence is needed in this course that emphasizes leadership and management competencies, including communication skills that cannot be strengthened if you are distracted by these devices. Please use the following link for more information on the educational rationale for this policy:

<http://www.nytimes.com/2013/05/05/opinion/sunday/a-focus-on-distraction.html>

### **Course Website and Information:**

We will maintain a Canvas course website for ID 266 with course materials, updates, scheduling information, and interesting and useful materials. Please use it!

### **Course Grading:**

1. Class Attendance and Participation: 5%
2. Self-Assessment & Learning Goals Paper: 10%
3. Learning Agreement: 10%
4. Midterm Practicum Updates: 10%
5. Practicum Evaluation: 15%
6. Culminating Experience:
  - Final Paper: 25%
  - Poster Presentation: 25%

All papers should be double-spaced, Arial, 12-font, 1-inch margins, and are to be submitted by 5 p.m. on the day the assignment is due; the Canvas Dropbox will close at that time. **Any assignment that is late (without prior approval by the course instructor) will be significantly penalized and may not be accepted for credit. You are expected to keep track of the deadlines for assignments without reminders.**

As you work on these assignments, think ahead to Commencement next May and what you would be most proud of in terms of accomplishments over the course of the year. This year is composed of a number of building blocks that will combine to construct a “Culminating Experience”, i.e. a mix of academic coursework, practicum work, interactions with peers,

faculty and outside guests. Each of these building blocks will add to your growth as a public health professional and enhance your readiness to move into the next phase of your career.

**NOTE:** This course is focused on your own growth and development throughout the year and is geared toward practical learning. Doing well in this course does not mean that you have had the most successful Practicum nor the greatest growth over the course the MPH; rather, it is based on the insights you have gained about yourself, public health, your steps moving forward.

### **1. Class Participation and Attendance (5%)**

As stated above, you are expected to attend every class and actively participate. If you cannot attend, please email Amy Rosenthal and Lisa Flynn in advance of class with an explanation for your absence (this should be done at least 24-hours before class, unless there is an emergency or sudden illness). A couple smaller assignments will be factored into this participation grade (e.g., completing the evaluation for the MBTI session, writing a brief assignment for the communications session).

### **2. Self-Assessment Paper: Due Tuesday, September 6<sup>th</sup> at 5 pm (10%)**

During Session 1, you will be asked to complete a self-assessment of your skills against the [competencies required by the Health Policy Field of Study](#). The self-assessment is a survey that you will take on CareerConnect; it should take no more than 10 minutes to complete. To take the survey, log into CareerConnect (<https://hsph-harvard-csm.symlicity.com/students/>) and choose the "Survey" function from the left-hand navigation bar. Then choose the MPH-45 Self-Assessment survey. You will receive an email with instructions as well.

*Once completed, you will write AND UPLOAD TO CANVAS a paper (maximum 2 pages) including the following:*

- A. Explain what you learned regarding your existing skills from this self-assessment.
- B. Reflect on the skills and knowledge that you would like to develop through your Practicum, which may include both skills identified on the self-assessment, as well as individual learning goals.
- C. What would you like the focus of your project to be?
- D. Develop your learning goals for the Practicum based on Step B of this assessment.
- E. *Please attach your Self-Assessment and a current resume or CV to this paper and upload it to Canvas.*

### **2. Learning Agreement: Due November 4<sup>th</sup> at 5 pm (10%)**

The Learning Agreement is the cornerstone of your Practicum. It is the agreement between you and your Preceptor regarding your learning objectives, the project you will undertake, and the deliverables expected of you. This agreement should include your learning goals for your

Practicum and will become part of your MPH record. It is to be uploaded and approved through CareerConnect. Your final paper will include elements drawn from your Learning Agreement.

The instructions for submitting the Learning Agreement form on CareerConnect are available [here](#). This must be signed by you, your Preceptor and your course Instructor.

**NOTE:** Any changes regarding your Preceptor or Practicum project that occur after November 4, 2016 must be submitted in an updated Learning Agreement via CareerConnect by January 15, 2017 to ensure that the MPH office has accurate contact information for your Preceptor and that details about your project are current.

### **3. Midterm Practicum Updates: Friday, February 10<sup>th</sup> at 5 pm (15%)**

This is an opportunity for you to assess your progress toward achieving your learning goals for your Practicum and is part of your Culminating Experience requirement. Papers will be not be graded based on whether you are achieving your goals or whether your Practicum is a huge success or a bit rough; rather, papers will be graded based on your degree of insight, and your strategy to take corrective action in the face of challenges and roadblocks in the way of your goals. This should be no longer than 5 pages.

### **4. Final Practicum Evaluation: mid-April (15%)**

The Final Practicum Evaluation is primarily based on a performance evaluation from your Practicum Preceptor, as well as other deliverables due your host organization (as agreed upon at the Learning Agreement stage). The Preceptor evaluation will be sent automatically from the Office of Education to your Preceptor. It provides your Preceptor with an opportunity to discuss your progress with your course instructor and to have a final assessment of your Practicum performance. The Preceptor will determine whether these can be shared with you or whether they will remain confidential. The Preceptor midpoint and final evaluations are [available online](#) so that both you and your Preceptor can have open conversations about expectations and progress, and you can use these tools to discuss any problems that may arise. The course instructor has the ability to provide this evaluation if the Preceptor does not complete the evaluation form or a student does not complete, to the best of his/her ability, the deliverables for the host organization.

### **5. Culminating Experience: April/May, 2017**

We hope this program is a “year of change” for you as a public health professional. The Culminating Experience is an opportunity for you to compare the development of your public health competencies at the end of the academic program versus the results of the self-assessment you did at the beginning of the year and any midpoint reflection assignments. We expect you to have developed these competencies and grown professionally in a variety of ways: academic coursework, your Practicum, extracurricular projects and activities, and so on.

**Final Paper: April 21st, 2017 at 5 pm (25%)**

You will be required to write a paper no longer than 10 pages addressing the following points:

- Your assessment (based on the departmental competencies; for a copy click [here](#)) regarding what you have learned through during the course of your program (including coursework, practice, and other types of learning activities)
- Your assessment regarding what you have learned from your Practicum, and whether you achieved your learning goals
- Your perspective regarding other aspects of your MPH experience; this may include what you learned from your peers or speakers, how you worked in teams, what you learned about your own leadership skills, what you learned from extracurricular activities, etc.

Grading will be based on the insight you have gained over the course of the year – it will not be based on how much you have developed new skills or how successful your Practicum project was. This is to be a candid assessment of your MPH experience and how this has shaped you. Please be candid. This will be graded by your course instructor and will constitute 25% of your final grade.

**Poster Presentation: Presentation date will be assigned to you – April 11<sup>th</sup>, 18<sup>th</sup> or 25<sup>th</sup> (25%)**

You will be required to develop a poster detailing your Practicum and key learnings, and to present your poster before your classmates and faculty. Poster presentations can be done individually or as a team, in the case of a team-based Practicum. Presentations to your colleagues will take place during Spring 2. Grading will be based on what you have learned from your Practicum and what you can teach your peers. It will not rest on the success of your Practicum; in fact, some of the best learnings emerge from difficult and failed practice experiences. This is an opportunity to gain further insight from your Practicum and provide your peers with lessons that will benefit them in their future professional pursuits. Your course instructor will grade the posters/presentations and it will constitute 25% of your final grade.

*Completed posted designs will need to be turned in approximately one week prior to your presentation date (specific details will be distributed in the Spring) in order to be printed. Print versions (required) will cost approximately \$35 (student accounts will be billed for this cost).*

**NOTE:** There will be a poster training session on Tuesday, March 21<sup>st</sup>. Resources are available [online](#).

## **Course Schedule:**

### **Suggested Workshops**

In order to enhance your overall success in finding a suitable Practicum that will meet your learning objectives, we have partnered with the Office of Alumni Affairs and Career Advancement (OAACA) to offer the recommended sessions listed below. For more details, log into CareerConnect and select Events > Workshops from the left hand navigation bar.

#### **Resume Workshop**

August 30, 2016 (12:30 – 1:30 p.m.), Kresge 202

#### **International Students: Strategies for Finding Practicum and Employment in the U.S. and Networking Advice/Practice**

Sep. 1, 2016 (12:30 – 1:30 p.m.), Kresge 202

#### **A Harvard Chan Alum's Guide to Networking & the Informational Interview**

Sep. 8, 2016 (12:30 – 1:30 p.m.), Kresge 502

#### **Mock Interview Day**

October 6, 2016 (9 a.m. – 4 p.m.), Kresge G-4 Suite

*We strongly encourage you to attend the resume sessions so that you will be prepared to submit your resume to various Practicum host organizations at the Practice Open House on Tuesday, September 20, and for the Practicum application process, which requires you to be actively seeking Practicum placement in September. Updated, clean and attractive resumes are crucial to this process.*

### **Required Fall 1 & Fall 2 Sessions**

There are a total of 10 classroom sessions and in Fall 1 and 2.

#### **Wednesday, August 31<sup>st</sup> – Session 1**

*Introductions, Course Overview and Guide to Developing Your Practicum*

*Lecturer: Amy Rosenthal*

- This session will include an overview of course objectives and the practicum process. We will also do introductions to one another and get a better sense of each person's professional interests.

**Wednesday, September 7<sup>th</sup>** – Session 2

*Things to Think About with Your Practicum – Advice from Previous Students*

*Lecturer:* Amy Rosenthal & Lisa Flynn

- This first half of class will share insights from last year's class – what they wished they had known about their practicum projects in advance, what skills they should have used, etc.

*Career Advancement & Practicum Search Exercise*

*Lecturer:* Dustin Gee, Assistant Director of Employer Relations, Harvard Chan

- Staff from the Office of Alumni Affairs and Career Advancement will lead students through an exercise on identifying your values, interests, expertise and skills and how that relates to your career. They will also give a brief overview of the professional development services and resources they offer.

**Wednesday, September 7<sup>th</sup>** (2:00 pm – 5:00 pm)

*One-on-One Practicum Meetings at Harvard Chan*

- Amy will be doing one-on-one meetings to discuss practicum projects. Sign-ups with Lisa are required.

**Thursday, September 8<sup>th</sup>** (9:00 am – 5:00 pm)

*One-on-One Practicum Meetings at Harvard Chan*

- Stacey King will be doing one-on-one meetings to discuss practicum projects. Sign-ups with Lisa are required.

**Friday, September 9<sup>th</sup>** (9:30 am – 4:00 pm)

*One-on-One Practicum Meetings at Harvard Chan*

- Amy will be doing one-on-one meetings to discuss practicum projects. Sign-ups with Lisa are required.

**Wednesday, September 14<sup>th</sup>** – Session 3

*Understanding Communication Preferences: The Myers-Briggs Type Indicator (MBTI)*

*Guest Lecturer:* Anne Occhipinti, Assistant Dean for Professional Education, Harvard Chan

- This session will enable you to use the MBTI to better understand your personal communications style and to improve your effectiveness with others, including your Preceptor and colleagues during the practicum.

**TUESDAY, September 20<sup>th</sup>** – Session 4

*Practicum Career Fair – Kresge Cafe, 5:30 -- 6:45 pm*

- Boston area organizations that are interested in hosting a student for their Practicum will table in Kresge Café and be available to discuss opportunities with you.

**Wednesday, September 28<sup>th</sup> – NO CLASS**

**Wednesday, October 5<sup>th</sup> – Session 5**

*Policy and Politics*

*Lecturer:* Amy Rosenthal

- Policy work does not happen in a vacuum. Regardless of the merits or strengths of a policy proposal, if the political environment is not favorable the policy will not move forward. This session will use examples from several U.S. health care debates as case studies for the lecture and small group exercise.

**Wednesday October 12<sup>th</sup> – NO CLASS (Yom Kippur)**

- In preparation for the Communications Skills class (October 26<sup>th</sup>), you will be asked to turn in a brief writing assignment via Canvas on October 12<sup>th</sup>. The assignment will be given to you on October 5<sup>th</sup>.

**Wednesday, October 19<sup>th</sup> – NO CLASS (Finals Fall 1)**

**Wednesday, October 26<sup>th</sup> – Session 6**

*Effective Communication Skills to Make Policy Change*

*Guest Lecturer:* Colleen Chapman

- Communicating your work to key audiences is a core piece of impacting policy and behavioral change. This class will focus on strategies aimed at helping you effectively communicate a policy you are promoting. Colleen Chapman, a national health communications strategist who has worked on the most prominent health policy of the past decade, will facilitate this session.

**Wednesday, November 2<sup>nd</sup> – NO CLASS**

**Wednesday, November 9<sup>th</sup> – Session 7**

**Election Debrief**

*Guest Lecturer:* TBD

**Wednesday, November 16<sup>th</sup> – Session 8**

*Learning from Experienced Practitioners*

*Guest Lecturer:* Stephen Rosenfeld

- Stephen Rosenfeld will share lessons from his professional career and discuss how he transitioned from practicing law to working in state government to working in the nonprofit sector. Steve started work as a practicing attorney who litigated in all federal and state courts with jurisdiction in Massachusetts, including the United States Supreme Court. Over time, he transitioned his work and served as the Chief of Staff for the Governor of



Massachusetts, founded the non-profit organization Health Law Advocates, and is currently doing work in New Orleans to increase health access for the uninsured.

**Wednesday, November 23<sup>rd</sup> – NO CLASS** (Thanksgiving)

**Wednesday, November 30<sup>th</sup> – Session 9**

*Learning from Experienced Practitioners*

*Guest Lecturer: Ann Hwang*

- Ann Hwang is a board certified internist, the Director of the Center for Consumer Engagement in Health Innovation at Community Catalyst and a visiting Fellow at the Department of Health Care Policy at Harvard Medical School. She previously served as the Director of Health Care Policy and Strategy for the Commonwealth of Massachusetts Executive Office of Health and Human Services and as a Senior Health Policy Advisor to the Massachusetts Health Connector. Ann will talk with the class about how she has been able to continue to practice medicine part-time while also playing a significant role in the development of health policy.

**Wednesday, December 7<sup>th</sup> – Session 10**

*Final Skill Building Session*

*Guest Lecturer: TBD*

- Final course topic will be determined during the semester after the interests and needs of the class have been better assessed.

**Wednesday, December 14<sup>th</sup> – NO CLASS** (Finals Fall 2)

### **Required Spring 2 Sessions**

During Spring 2 students will share the results of their individual or team-based field experiences on **Tuesday** evenings with classmates through a series of poster presentations.

**Feb 7.** Practicum Class Check-In

**March 21.** Planning for Spring 2 and Poster Training

**April 11.** Poster Session 1

**April 18.** Poster Session 2

**April 21 (Friday).** Final Paper due at 5 pm.

**April 25.** Poster Session 3

**May 2.** Discussion regarding insights gained from the year

### **Culminating Experience**

During the final class session, we will discuss the key learnings from your year and roughly follow the outline of your final paper:

- Your assessment (based on the departmental learning goals – for a copy click [here](#)) regarding what you have learned through your academic coursework
- Your assessment regarding what you have learned from your Practicum, and whether you achieved your learning goals
- Your perspective regarding other aspects of your MPH experience; this may include what you learned from your peers or speakers, how you worked in teams, what you learned about your own leadership skills, what you learned from extracurricular activities, etc.

*This is an opportunity to assess your progress both individually and as a class.*

### **Finding a Practicum and Key Deadlines:**

In looking for a Practicum placement, please be sure to consult CareerConnect on a regular basis. We will try to update this weekly, but the best source for information is the CareerConnect website itself:

<https://hsph-harvard-csm.symplicity.com/students/index.php>

### **Team-based Practicum**

For those of you who will be working in a team-based Practicum, you will be required to meet as a team with an assigned faculty/staff member to establish roles and responsibilities, review your ground rules, and determine an escalation process should you find your team having problems, which is not uncommon. Your team's assigned faculty/staff member and the timing for your required planning meeting will be determined after you have been accepted into a Practicum. Please note that the course instructor, in consultation with the Office of Education, has the sole decision-making authority to approve a student's participation in a team-based Practicum, particularly on a Practicum involving international travel.

*See class PowerPoint reviewing CareerConnect "How To's."*

**Self-Assessment & Learning Goals: September 6, 2016**

**Practice Open House: September 20, 2016**

**Learning Agreement: November 4, 2016**

**Begin Practicum: early November 2016**

### **Practicum Requirements (from the Practice website)**

The following information can be found online at: <https://www.hsph.harvard.edu/public-health-practice-resources/for-students/mph-practicum-information/practicum-guidelines/>

#### **Purpose**

The Practicum provides an opportunity for students to integrate and apply knowledge and skills from coursework to the types of settings where they will work as public health professionals. Successful public health practice requires the application of practical knowledge and skills. Individual experiences may vary but should incorporate public health competencies through participation as a member of a team within a public health setting. Because these are general guidelines, students should consult their advisors or course instructors for further degree program requirements.

#### **Practice Structure**

Students will work at a practice site in accordance with individual program requirements. In addition to the practice placement, students should meet on a regular basis with the course instructor and other students.

- MPH-45 Practicum (minimum **120 hours** total, during the academic year): 8-10 hours per week, 1-2 semesters in length depending on program requirements
- MPH-65 Practicum (minimum **300 hours** total, during the summer): Full time for 8 weeks, or the equivalent

#### **Objectives of Required Student Practicum**

- Integrating, synthesizing and applying knowledge and skills acquired at the Harvard Chan School to a real world problem or issue
- Enhancing and developing skills needed to function in a professional public health setting, particularly:
  - Problem solving and analysis
  - Interpersonal skills
  - Oral and written communication
- Working on a substantive public health problem or issue that is salient to the host organization
- Engaging in professional self-assessment and critical reflection

#### *Acceptable practice placements should:*

- Require the student to rigorously apply graduate level skills and competencies acquired in his/her degree program
- Address a practical issue or problem in a “real world” setting
- Address a problem or issue likely to be encountered in the practice of public health
- Advance the student’s skills and knowledge

- Focus on specific projects and deliverables
- Be manageable in terms of the student's time, skills, and knowledge
- Have a Preceptor who has the appropriate education and training to oversee the project, is willing to agree to the responsibilities described in the project agreement, and is approved by the instructor
- Enhance the career potential and professional development of the student

#### Host Organization Preceptor Responsibilities

- Work with the student, develop a realistic project scope and work schedule with the student
- At the beginning of practice placement, orient student to the organization and co-workers
- Be available on a regular basis to meet with and supervise the student and to provide performance feedback
- Provide resources needed to complete project (e.g., work space, computer, administrative support, access to data)
- Provide written feedback for the student and the school by completing an [online mid-point and final evaluation form](#)
- Agree to assist in student's professional development activities (e.g., introduce students to leaders of the organization, attend meetings during practice placement, conduct informational interviews)

#### Approval Process For Practice Placements

All practice placements must be approved in writing by the course instructor, the Preceptor, and the student. Students may need to submit a project proposal as a preliminary step. Practice course instructors within each Field of Study may have slightly different approval processes for student field practice placements.

Read more about [Learning Agreements](#) and using CareerConnect to manage your Practicum documentation.

#### Methods of Evaluation

Evaluation of the student's performance at the field site is determined by the practice course instructor or degree program leaders. Check with your department for details.

Materials generally required include:

- Final written project report, poster, and/or oral presentation  
Presentation: 15-20 minutes  
Paper with an executive summary; maximum of 15 pages, excluding sources  
Class participation (when required)
- Other assignments as determined by instructor (e.g., reflective memos, self-assessment)

### **Human Subjects Requirements**

Any Practicum project involving research on human subjects or analysis of identifiable data from human subjects may require pre-clearance by Harvard Chan School's Human Subjects Committee (HSC).

Students should consult the HSC's Guidelines for Class-Based Research and discuss with their advisors whether their project may require clearance: <https://www.hsph.harvard.edu/ohra/>.

It is the student's responsibility to inform the advisor of any planned interaction with human subjects or data from human subjects for research purposes, so that the advisor may evaluate the need for HSC review. *Because HSC review may take up to three months, students who plan to work with human subjects or identifiable data must initiate the review process at the earliest possible date.*

Regardless of whether the project requires HSC approval, students should bear in mind that all work products they complete for an organization must be submitted to the course instructors or program leaders. In certain cases, it may be appropriate to inform persons from whom information is being gathered that the report will be submitted to faculty members, and to describe your plans for protecting the confidentiality of the person(s) or data that can be ascribed to them, prior to submission. No assurances of confidentiality should be made except by agreement with the Harvard Chan School's course instructor and program leader.

### **Practicum Policy Waiver**

At the Harvard T.H. Chan School of Public Health we do not anticipate there will be circumstances under which a professional student would be exempt from the Practicum requirement.

**ID 267: PRACTICE AND CULMINATING EXPERIENCE FOR HPM-Management**  
**Fall 2016 and Spring 2017**  
**2.50 credits**

**Instructors:**

- Dr. William Bean ([wbean@hsph.harvard.edu](mailto:wbean@hsph.harvard.edu))

**Teaching Assistant/Course Administrator:**

- Nancy Perna ([nperna@hsph.harvard.edu](mailto:nperna@hsph.harvard.edu))  
Kresge 112                      Tel: 617-432-0091

**Timing and Room:**

- *Fall 1*, Tuesdays, 5:30 – 7:20pm
- *Spring 2*, Tuesdays, 5:30-7:20 - TBD

**Classroom:** FXB G-12 in Fall 1, and TBD in Spring 2 (unless otherwise noted in the syllabus).

**Learning Objectives:**

All students completing a Master's Degree in Public Health must complete a *Practicum* and *Culminating Experience*. This course is designed to help you with these two degree requirements, incorporating the following Learning Objectives:

- Integrate and synthesize competencies gained during the degree program through coursework and field practice
- Apply graduate-level skills and competencies to a real world public health problem or issue
- Explore a substantive public health or health care topic that is salient to a health care or public health organization
- Acquire practicum and professional skills and knowledge from others including practicum instructors, experienced practitioners, and other students
- Complete a successful practicum as outlined by a scope of work and deliverables which are mutually agreed upon by the student, host organization, and faculty
- Identify career options with the assistance of experienced practitioners, faculty, alumni, and career counseling professionals
- Increase professional skills and knowledge through communicating practice experiences with peers
- Enhance the skills needed to function in a professional public health setting
- Reflect on professional growth in core competencies as a public health practitioner through a series of exercises called the culminating experience.

**Course Grading:**

- |                               |                                      |
|-------------------------------|--------------------------------------|
| 1. Learning Goals: 10%        | Due September 4, 2016 at 5 pm        |
| 2. Learning Agreement: 10%    | Due November 4, 2016 at 5 pm         |
| 3. Mid-Term Review Paper: 15% | Due February 10, 2017 at 5 pm        |
| 4. Practicum Evaluation: 15%  | Preceptor submits in April, 2017     |
| 5. Culminating Experience:    |                                      |
| • Final Paper: 25%            | Due May 5, 2017 at 5 pm              |
| • Poster Presentation: 25%    | Date in April, 2017 will be assigned |

All papers should be double-spaced, Arial, 12-font, 1-inch margins, and are to be submitted by 5 p.m. on the day the assignment is due; the Canvas dropbox will close at that time. Any assignment that is late, (without prior approval by the course instructor) will not be accepted and you will receive a failing grade for it. I expect you to keep track of the deadlines for assignments without reminders from me.

As you work on these assignments, think ahead to Commencement next May, and what you would be most proud of in terms of accomplishments over the course of the year. This year is composed of a number of building blocks that will combine to form a “Culminating Experience”, i.e. a mix of academic coursework, practicum work, interactions with peers, faculty and outside guests. Each of these building blocks will culminate in your growth as a public health professional and your readiness to move into the next phase of your career.

**Note:** This course is focused on your own growth and development throughout the year, and is geared toward practical learning. Doing well in this course does not mean that you have had the most successful Practicum nor the greatest growth over the course the MPH; rather, it is based on the insights you have gained about yourself, public health, your steps moving forward.

**1. Learning Goals: Due Sunday, September 4 at 5 pm. (10%)**

During Session 1, you will be asked to complete a self-assessment of your skills against the competencies required by the Health Policy Field of Study. The self-assessment is a survey that you will take on CareerConnect; it should take no more than 10 minutes to complete. To take the survey, log into CareerConnect (<https://hsph-harvard-csm.symplicity.com/students/>) and choose the “Survey” function from the left hand navigation bar. Then choose the MPH-45 self-assessment survey. You will receive an email with instructions as well. Once completed, you will write a paper (maximum 2 pages) and include the following:

- A. Explain what you learned regarding your existing skills from this self-assessment.
- B. Reflect on the skills and knowledge that you would like to develop through your Practicum, which may include both skills identified on the self-assessment, as well as individual learning goals.

- C. What would you like the focus of your project to be?
- D. Develop your learning goals for the Practicum based on Step B of this assessment.
- E. *Please attach a current resume or CV to this paper and upload it to Canvas.*

**2. Learning Agreement: Due Friday, November 4, 2016 at 5 p.m. (10%)**

The Learning Agreement is the cornerstone of your Practicum; it is the agreement between you and your preceptor regarding your learning objectives, the project you will undertake, and the deliverables expected of you. This agreement should include your learning goals for your Practicum, and will become part of your MPH record, and is uploaded and approved through CareerConnect. Your final paper should include elements drawn from your Learning Agreement. The instructions for submitting the Learning Agreement form on CareerConnect are available [here](#). This must be signed by you, your Preceptor and your course Instructor.

**NOTE:** Any changes that occur after November 4 regarding your preceptor or your project must be submitted via CareerConnect by January 15, 2017, to ensure that the MPH office has accurate contact information for your preceptor, and that details about your project are current.

**3. Mid-Year Review: Due Friday, February 10, 2017 at 5 pm. (15%)**

This is an opportunity for you to assess where you are in achieving your learning goals for your Practicum, and is part of your Culminating Experience requirement. Papers will be not be graded on whether you are achieving your goals or not, or whether your Practicum is a huge success or a bit rough; rather, papers will be graded based on your degree of insight, and if you are not achieving your goals your strategy to take corrective action. This should be no longer than 5 pages.

**4. Final Practicum Evaluation: April, 2017. (15%)**

This is based on an evaluation from your preceptor regarding your performance in your Practicum as well as other deliverables to your host organization. The Preceptor evaluation will be sent automatically from the Office of Education to your preceptor, and is an opportunity for your preceptor to discuss your progress to date with your course instructor, and to have a final assessment of your Practicum performance. The preceptor will determine whether these can be shared with you or whether they will remain confidential. The preceptor midpoint and final evaluations are [available online](#) so that both you and your preceptor can have open conversations about expectations and progress, and can use these tools to discuss any problems that may arise. Only the preceptor's final evaluation will be part of your course grade.

**5. Culminating Experience: April/May, 2017.**

Consider that this program is a "year of change" for you as a public health professional. The Culminating Experience is an opportunity for you to assess the development of your



public health competencies at the end of the academic program compared to the self-assessment you did at the beginning of the year and any midpoint reflection assignments. You will have developed these competencies and grown professionally in a variety of ways: academic coursework, your Practicum, extracurricular projects or activities, and so on.

**Poster Presentation: Date in April, 2017 will be assigned to you. (25%)**

You will be required to develop a poster detailing your Practicum and key learnings. This can be done either individually or with your team if you were in a team-based Practicum. You will be presenting this to your colleagues during Spring 2. Grading will be done on the basis of what you have learned from your Practicum, and what you can teach your peers. It will not be done on the success of your Practicum; in fact, some of the best learnings emerge from difficult and failed practice experiences. This is an opportunity to learn from your Practicum and provide your peers with some learnings that will benefit them. This will be graded by your course instructor and will constitute 25% of your final grade.

**Note:** There will be a poster training session during class on Monday, March 20. Resources are available [online](#).

**Final Paper: Due Friday, May 5, 2017 at 5 pm. (25%)**

**Culminating Experience Paper:** [7-10 pages, double spaced, 1" margins].

Please address the following points in your paper:

- Based on your self-assessment of [core competencies](#) for your field of study, compared to when you started the MPH program, describe your area(s) of greatest professional growth. Provide example(s) that illustrate your growth and contributing factors, which can include both classroom and out-of-classroom experiences. Include your perspective regarding other aspects of your MPH experience; this may include what you learned from your peers or speakers, how you worked in teams, what you learned about your own leadership skills, what you learned from extracurricular activities, etc.
- Discuss how you applied skills learned in the classroom in a real world setting through your Practicum experience, and key learnings from this experience. Key learnings should include at least one area of success as well as at least one area of challenge.
- Identify the [competency](#) that was most challenging for you to achieve or that you feel may continue to be challenging for you. How did you address this challenge? What will be your professional development strategy for future challenges?

Grading will be based on the insight you have gained over the course of the year, and not on the basis of how much you have developed new skills or how successful your Practicum project was. This is to be a candid assessment of your MPH experience, and

how this has shaped you. Please be candid. This will be graded by your course instructor and will constitute 25% of your final grade.

### **Schedule of Classroom Sessions for Spring 2, 2017:**

During Spring 2 students will share the results of their individual or team-based field experiences on Monday evenings with classmates through poster presentations:

**March 21.** Planning for Spring 2 and Poster Training

**April 11.** Poster Session 1

**April 18.** Poster Session 2

**April 25.** Poster Session 3

**May 2.** Discussion regarding “culminating experience”/insights gained from the year

**May 5.** Final Paper due at 5 pm

### **Culminating Experience:**

During the final class session, we will discuss the key learnings from your year and roughly follow the outline of your final paper:

- Your assessment (based on the departmental learning goals – for a copy click [here](#)) regarding what you have learned through your academic coursework
- Your assessment regarding what you have learned from your Practicum, and whether you achieved your learning goals
- Your perspective regarding other aspects of your MPH experience; this may include what you learned from your peers or speakers, how you worked in teams, what you learned about your own leadership skills, what you learned from extracurricular activities, etc.

This is an opportunity to assess your progress both individually and as a class.

### **Ground Rules for Course:**

Students are expected to attend all sessions, and to participate fully in class discussions. As many sessions will involve outside speakers, we expect that students will show respect for invited guests as well as for one another.

In addition, **NO** electronic devices may be used during this class including laptops, cell phones, tablets, etc. Your full presence is needed in this course that emphasizes leadership and management competencies, including communication skills that cannot be strengthened if you are distracted by these devices. Please use the following link for more information on the educational rationale for this policy:

<http://www.nytimes.com/2013/05/05/opinion/sunday/a-focus-on-distraction.html>

### **Course website and information:**

We will maintain a Canvas course website for ID 267 with course materials, updates, scheduling information, and interesting and useful materials. Please use it!

| Date                       | Topic                                   | Description  |
|----------------------------|---|--|
| 30 August                  | Introduction                            | Discussion of course objectives, practicum opportunities and what to expect this year  |
| 6 September                | Class Discussion                        | Class Discussion: <ul style="list-style-type: none"> <li>• Self-Assessment</li> <li>• Practicum Opportunities</li> <li>• Career Decisions</li> </ul> |
| 13 September               | Alumni Panel                            | Anthony Dias, Stacey Drubner, tbd  |
| 20 September               | Practice Open House<br>Kresge Cafeteria | You are expected to attend the Open House in lieu of class   |
| 27 September<br>Kresge 502 | Dr. Atul Gawande                        | *Please note that this session will be held in Kresge 502. GHP530 will join us.  |
| 4 October                  | Entrepreneurship                        | Trishan Panch, CEO, Wellframe  |
| 11 October                 | tbd                                     | tbd  |
| 18 October                 | Finals Week                             | No session   |
| 25 October                 | Fall 2 – Potential Session              | To be discussed with class   |

**Recommended Sessions:**

In order to enhance your overall success in finding a suitable Practicum that will meet your learning objectives, we have partnered with the Office of Alumni Affairs and Career Advancement (OAACA) to offer the recommended sessions listed below. For more details, log into CareerConnect, and select Events > Workshops from the left-hand navigation bar.

**Resume Workshop**

August 30, 2016 (12:30 – 1:30 p.m.), Kresge 202

**International Students: Strategies for Finding Practicum and Employment in the U.S. and Networking Advice/Practice**

Sept 1, 2016 (12:30 – 1:30 p.m.), Kresge 202

**A Harvard Chan Alum's Guide to Networking & the Informational Interview**

Sept 8, 2016 (12:30 – 1:30 p.m.), Kresge 502

**Practice Open House**

September 20 (5:30 – 6:45 p.m.), Kresge Cafeteria

**Mock Interview Day**

October 6, 2016 (9 a.m. – 4 p.m.), Kresge G-4 Suite

We strongly encourage you to attend the resume sessions so that you will be prepared to submit your resume to various Practicum host organizations at the Practice Open House on Tuesday, September 20, and for the Practicum application process, which requires that you are actively seeking your Practicum placement in September.

**Team-based Practicum:**

For those of you who will be working in a team-based Practicum, you will be required to meet as a team with an assigned faculty/staff member to establish roles and responsibilities, review your ground rules, and determine an escalation process should you find your team having problems, which is not uncommon. Your team's assigned faculty/staff member and the timing for your required planning meeting will be determined after you have been accepted into a Practicum. Please note that the course instructor, in consultation with the Office of Education, has the sole decision-making authority to approve a student's participation in a team-based Practicum, particularly on a Practicum involving international travel.

### **Finding a Practicum and Key Deadlines:**

In looking for a Practicum placement, please be sure to consult CareerConnect on a regular basis. We will try to update this weekly, but the best source for information is the CareerConnect website itself:

<https://hsph-harvard-csm.symplicity.com/students/index.php>

If you have questions regarding how to use CareerConnect, or encounter any problems, please send an email to [mph-practice@hsph.harvard.edu](mailto:mph-practice@hsph.harvard.edu).

**Learning Goals: September 5, 2016**

**Practice Open House: September 20, 2016**

**Learning Agreement: November 4, 2016**

**Begin Practicum by early November, 2016**

### **Practicum Requirements (from the Practice website):**

The following information can be found online

at: <https://www.hsph.harvard.edu/public-health-practice-resources/for-students/mph-practicum-information/practicum-guidelines/>

#### **Purpose**

The Practicum provides an opportunity for students to integrate and apply knowledge and skills from coursework to the types of settings where they will work as public health professionals. Successful public health practice requires the application of practical knowledge and skills.

Individual experiences may vary but should incorporate public health competencies through participation as a member of a team within a public health setting. Because these are general guidelines, students should consult their advisors or course instructors for further degree program requirements.

#### **Practice Structure**

Students will work at a practice site in accordance with individual program requirements. In addition to the practice placement, students should meet on a regular basis with the course instructor and other students.

- Students are advised to search for a practice placement 3-6 months before the practice is to begin
- MPH-45 Practicum (minimum **120 hours** total, during the academic year): 8-10 hours per week, 2 quarters in length depending on placement requirements.

## Objectives of Required Student Practicum

- Integrating, synthesizing and applying knowledge and skills acquired at the Harvard Chan School to a real world problem or issue
- Enhancing and developing skills needed to function in a professional public health setting, particularly:
  - Problem solving and analysis
  - Interpersonal skills
  - Oral and written communication
- Working on a substantive public health problem or issue that is salient to the host organization
- Engaging in professional self-assessment and critical reflection

### *Acceptable practice placements should:*

- Require the student to rigorously apply graduate level skills and competencies acquired in his/her degree program
- Address a practical issue or problem in a “real world” setting
- Address a problem or issue likely to be encountered in the practice of public health
- Advance the student’s skills and knowledge
- Focus on specific projects and deliverables
- Be manageable in terms of the student’s time, skills, and knowledge
- Have a preceptor who has the appropriate education and training to oversee the project, is willing to agree to the responsibilities described in the project agreement, and is approved by the instructor
- Enhance the career potential and professional development of the student

## Host Organization Preceptor Responsibilities

- Work with the student, develop a realistic project scope and work schedule with the student
- At the beginning of practice placement, orient student to the organization and co-workers
- Be available on a regular basis to meet with and supervise the student and to provide performance feedback
- Provide resources needed to complete project (e.g., work space, computer, administrative support, access to data)
- Provide written feedback for the student and the school by completing an [online mid-point and final evaluation form](#)
- Agree to assist in student’s professional development activities (e.g., introduce students to leaders of the organization, attend meetings during practice placement, conduct informational interviews)

## Approval Process For Practice Placements

All practice placements must be approved in writing by the course instructor, the preceptor, and the student. Students may need to submit a project proposal as a preliminary step. Practice course instructors within each Field of Study may have slightly different approval processes for student field practice placements.

Read more about [Learning Agreements](#) and using CareerConnect to manage your Practicum documentation.

## Methods of Evaluation

Evaluation of the student's performance at the field site is determined by the practice course instructor or degree program leaders. Check with your department for details.

Materials generally required include:

- Final written project report, poster, and/or oral presentation  
Presentation: 15-20 minutes  
Paper with an executive summary; maximum of 15 pages, excluding sources  
Class participation (when required)
- Other assignments as determined by instructor (e.g., reflective memos, self-assessment)

## Human Subjects Requirements

Any Practicum project involving research on human subjects or analysis of identifiable data from human subjects may require pre-clearance by Harvard Chan School's Human Subjects Committee (HSC).

Students should consult the HSC's Guidelines for Class-Based Research and discuss with their advisors whether their project may require clearance: <https://www.hsph.harvard.edu/ohra/>.

It is the student's responsibility to inform the advisor of any planned interaction with human subjects or data from human subjects for research purposes, so that the advisor may evaluate the need for HSC review. *Because HSC review may take up to three months, students who plan to work with human subjects or identifiable data must initiate the review process at the earliest possible date.*

Regardless of whether the project requires HSC approval, students should bear in mind that all work products they complete for an organization must be submitted to the course instructors or program leaders. In certain cases, it may be appropriate to inform persons from whom information is being gathered that the report will be submitted to



faculty members, and to describe your plans for protecting the confidentiality of the person(s) or data that can be ascribed to them, prior to submission. No assurances of confidentiality should be made except by agreement with the Harvard Chan School's course instructor and program leader.

### **Practicum Policy Waiver**

At the Harvard T.H. Chan School of Public Health we do not anticipate there will be circumstances under which a professional student would be exempt from the Practicum requirement.

## **RDS 280 Decision Analysis for Health and Medical Practices**

Fall-2 2015, Harvard T.H. Chan School of Public Health

Difficult decisions must be made in medicine and when setting priorities in public health. Health decision science aims to put a structure on these problems with the ultimate goal of maximizing population health in the face of real world constraints. Students will leave this course with the ability to proficiently consume and critically evaluate health decision science (including cost-effectiveness) studies. This course is a prerequisite for RDS 285, RDS 282, and RDS 284.

### Time and place

Tuesday and Thursday, 1:30-3:20p  
Kresge G1

### Instructor

#### **Ankur Pandya, PhD**

Assistant Professor of Health Decision Science  
Department of Health Policy and Management  
[anpandya@hsph.harvard.edu](mailto:anpandya@hsph.harvard.edu)

718 Huntington Ave, 2<sup>nd</sup> Floor (Center for Health Decision Science)  
Office hours: Thursdays 4:00-5:00p and by appointment

### Guest lecturer

#### **Joseph Pliskin, PhD**

Sidney Liswood Professor of Health Care Management  
Ben-Gurion University of the Negev  
Adjunct Professor of Health Policy and Management  
Harvard T.H. Chan School of Public Health  
[jpliskin@bgu.ac.il](mailto:jpliskin@bgu.ac.il)

### Teaching assistants

- Yunfei Li, [yul049@mail.harvard.edu](mailto:yul049@mail.harvard.edu)
- Kate Lofgren, [klofgren@g.harvard.edu](mailto:klofgren@g.harvard.edu)
- Vidit Munshi, [vmunshi@g.harvard.edu](mailto:vmunshi@g.harvard.edu)
- Lina Song (Head TA), [dsong@fas.harvard.edu](mailto:dsong@fas.harvard.edu)
- Stephen Sy, [ssy@hsph.harvard.edu](mailto:ssy@hsph.harvard.edu)

### TA office hours

Tuesdays and Thursdays, 12:30-1:30p

Locations vary (see last page of syllabus for locations)

These office hours are terrific resources for reviewing and clarifying course content (including going over assignments).

### Grading policy

- Assignment 1 (10%), hard copy **due Thursday 11/19/15 at 1:30p**
- Midterm exam (40%), hard copy **due Tuesday 11/24/15 at 1:30p**
- Assignment 2 (10%), hard copy **due Tuesday 12/15/15 at 1:30p**
- Final exam (40%), hard copy **due Thursday 12/17/15 at 1:30p**

## Exams

Exams are take-home and **must be done independently (this includes no discussion with other students about the exam)**. This course will adhere to the Harvard T.H. Chan School of Public Health [Academic Integrity policies](#). Students who violate these policies will be subject to disciplinary action including the possibility of being required to withdraw from the school. The teaching staff will not answer questions about course content after the exams are released, so be sure you are comfortable with the concepts before the TA review sessions.

## Homework

There are two assignments for the course, each due before the exams are released. Helpful tip for the assignments: the solutions will be posted before they are due! The goal of the assignments is to force you to think about required course material before the exams are posted. Recall that the teaching staff will not answer questions related to course content after the exams are released, so please use the time before (and during) the TA review sessions to clear up any concepts before the exams are released. We recommend that you complete questions as they are posted and check your answers against the posted solutions shortly after.

- Assignment 1 consists of Questions 1, 2, and 3
- Assignment 2 consists of Questions 4 and 5

## Recommended decision analysis texts

**There is no required textbook for this course.** However, you have the option of reading the required topic material in a number of different textbooks (all on reserve at Countway Library or available online). Many of the suggested readings come from Hunink (**2<sup>nd</sup> Ed.**), therefore we recommend you consider purchasing a copy for yourself or to share with a fellow classmate. If you prefer to use a different text book, feel free to do so. The following options are provided to accommodate students from a variety of backgrounds and with varied learning styles.

- Hunink MM, Weinstein MC, Wittenberg E, et al. *Decision Making in Health and Medicine: Integrating Evidence and Values*, 2<sup>nd</sup> Ed. Cambridge, UK: Cambridge University Press (2014).
- Gold MR, Siegel JE, Russell LB, and Weinstein MC. *Cost-Effectiveness in Health and Medicine: The Report of the Panel on Cost-Effectiveness in Health and Medicine*. New York: Oxford University Press (1996).
- Jamison DT, Breman JG, Measham AR, et al. *Disease Control Priorities in Developing Countries*. 2nd Edition. New York: The World Bank and Oxford University Press (2006).
- Muennig P. *Cost-Effectiveness Analysis in Health: A Practical Approach*. Jossey-Bass; 2nd Edition (2007)
- Drummond M, Stoddart G, Torrance G. *Methods for the Economic Evaluation of Health Care Programmes*, 3rd edition. Oxford: Oxford University Press (2005).
- Tan-Torres Edejer T, Baltussen R, Adam T, Hutubessy R, Acharya A, Evans DB, Murray CJL. *Making Choices in Health: WHO Guide to Cost-Effectiveness Analysis*. [World Health Organization, Geneva](#) (2004).

## Course calendar

| Date  | Session # | Topic  | Speaker(s)         | Assignment(s)           |
|-------|-----------|--|--------------------|-------------------------|
| 10/27 | 1         | Introduction to health decision science  | Pandya             |                         |
| 10/29 | 2         | Structuring decision problems  | Pandya             |                         |
| 11/3  | 3         | Analyzing decision trees   | Pandya             | Q1 solution posted      |
| 11/5  | 4         | Using Bayes' theorem   | Pandya             |                         |
| 11/10 | 5         | Test characteristics   | Pandya             | Q2 solution posted      |
| 11/12 | 6         | Choosing a positivity criterion  | Pandya             |                         |
| 11/17 | 7         | Valuing health outcomes I  | Pandya             | Q3 solution posted      |
| 11/19 | 8         | Midterm exam review session  | TAs                | <b>Assignment 1 due</b> |
| 11/24 | 9         | Valuing health outcomes II   | Pandya             | <b>Midterm due</b>      |
| 11/26 | n/a       | THANKSGIVING   | n/a                |                         |
| 12/1  | 10        | Biases and heuristics in decision making   | Pliskin            |                         |
| 12/3  | 11        | Making better decisions with existing resources /<br>Introduction to economic evaluation in healthcare | Pliskin,<br>Pandya | Q4 solution posted      |
| 12/8  | 12        | Cost-effectiveness analysis I  | Pandya             |                         |
| 12/10 | 13        | Cost-effectiveness analysis II   | Pandya             | Q5 solution posted      |
| 12/15 | 14        | Final exam review session  | TAs                | <b>Assignment 2 due</b> |
| 12/17 | 15        | Cost-effectiveness analysis in practice / Advanced<br>modeling methods                                 | Pandya             | <b>Final exam due</b>   |

## Course schedule and syllabus

### **Session 1. Introduction to health decision science**

Tuesday October 27<sup>th</sup>

#### Key points

- Why health decision science?
- Business of the course
- The analytic framework we will use for thinking about decision problems

#### Suggested readings

- [“Forbidden Topic in Health Policy Debate: Cost Effectiveness”](#) nytimes.com, Dec. 15<sup>th</sup> 2014
- [“For Better Treatment, Doctors And Patients Share the Decisions”](#) National Public Radio, Jul. 24<sup>th</sup> 2014
- [“The Moral Imperative toward Cost-Effectiveness in Global Health”](#) Center for Global Development (essay), Mar. 2013

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### **Session 2. Structuring decision problems**

Thursday October 29<sup>th</sup>

#### Key points

- How to frame and design a decision problem under uncertainty
- Building a decision tree
- Probabilities and the sequence of events

### Suggested readings

- Hunink Chapter 1
  - Mastracci TM et al., "[Users' guide to the surgical literature: how to use a decision analysis](#)" Canadian Journal of Surgery, 2007
- 

### **Session 3. Analyzing decision trees**

Tuesday November 3<sup>rd</sup>

#### Key points

- How to solve a decision tree with expected value
- Sensitivity analysis
- Threshold analysis

#### Suggested readings

- Hunink Chapters 2, 3
  - Schrag D et al., "[Decision analysis – effects of prophylactic mastectomy and oophorectomy on life expectancy among women with BRCA1 or BRCA2 mutations](#)" New England Journal of Medicine, 1997
  - Pauker SG and Kassirer JP, "[The Threshold Approach to Clinical Decision Making](#)" New England Journal of Medicine, 1980
- 

### **Session 4. Using Bayes' Theorem**

Thursday November 5<sup>th</sup>

#### Key points

- The importance of conditional probabilities in health and medical practices
- Probability revision
- How to calculate the value of information

#### Suggested readings

- Hunink Chapter 5
  - Rifkin RD and Hood WB, "[Bayesian Analysis of Electrocardiographic Exercise Stress Testing](#)" New England Journal of Medicine, 1977
  - Carlen R, "[Drug Testing in Sport: Bayes Theorem Meets Advanced Technology](#)" JAMA 1996
  - Gill CJ et al., "[Why clinicians are natural Bayesians](#)" BMJ 2005
- 

### **Session 5. Test characteristics**

Tuesday November 10<sup>th</sup>

#### Key points

- How to evaluate an imperfect test
- What operating characteristics do and don't say about diagnostic tests
- Probability revision using likelihood ratios

#### Suggested readings

- Hunink Chapters 5, 6
- Grimes DA and Schulz KF, "[Uses and abuses of screening tests](#)" The Lancet, 2002

- Weyer GW and Davis AM, "[Screening for Asymptomatic Carotid Artery Stenosis](#)" JAMA, 2015
- 

### **Session 6. Choosing a positive criterion**

Thursday November 12<sup>th</sup>

#### Key points

- How to evaluate tests with continuous results
- Receiver operating characteristics (ROC) curves
- Connecting likelihood ratios to decision-making

#### Suggested readings

- Hunink Chapter 7
  - Obuchowski NA, "[Receiver Operating Characteristics Curves and Their Use in Radiology](#)" Radiology, 2003
  - Thompson IM, "[Operating Characteristics of Prostate-Specific Antigen in Men With an Initial PSA Level of 3.0 ng/mL or Lower](#)" JAMA, 2005
- 

### **Session 7. Valuing health outcomes I**

Tuesday November 17<sup>th</sup>

#### Key points

- Quantifying health using mortality and morbidity
- How to directly measure health-related quality-of-life
- Utility theory and health measurement

#### Suggested readings

- Hunink Chapter 4
  - Prosser LA et al., "[Health Utility Elicitation. Is There Still a Role for Direct Methods?](#)" Pharmacoeconomics, 2012
  - Tsevat J, "[The Will to Live among HIV-Infected Patients](#)" Annals of Internal Medicine, 1999
- 

### **Session 8. Midterm review session (TAs)**

Thursday November 19<sup>th</sup>

#### Assignments/exams notes

- **ASSIGNMENT 1 DUE AT START OF CLASS; MIDTERM EXAM POSTED AT 4p**
- 

### **Session 9. Valuing health outcomes II**

Tuesday November 24<sup>th</sup>

#### Key points

- Patient- versus population-based perspectives for valuing health outcomes
- How to use classification instruments (such EQ-5D or SF-6D) to measure health-related quality-of-life
- Quality-adjusted life years (QALYs) and disability-adjusted life years (DALYs)

#### Suggested readings

- Hunink Chapter 4
- Sullivan PW and Ghushchyan V, "[Preference-Based EQ-5D Index Scores for Chronic Conditions in the United States](#)" Medical Decision Making, 2006
- Salomon JA et al., "[Common values in assessing health outcomes from disease and injury: disability weights measurement study for the Global Burden of Disease Study 2010](#)" The Lancet, 2012

Assignments/exams notes

- **MIDTERM EXAM DUE AT START OF CLASS**
- 

**Thanksgiving**

Thursday November 26<sup>th</sup>

Assignments/exams notes

- Eat / sleep / play
- 

**Session 10. Biases and heuristics in decision making (Pliskin)**

Tuesday December 1<sup>st</sup>

Key points

- Judgement under uncertainty
- Importance of framing

Suggested readings

- Hunink Chapter 13
- 

**Session 11. Making better decisions with existing resources (Pliskin) / Introduction to economic evaluation in healthcare (Pandya)**

Thursday December 3<sup>rd</sup>

Key points

- Understanding goals and performance measurement
- Optimizing under constraints
- Types of economic evaluation in healthcare

Suggested readings

- Hunink Chapter 9
- 

**Session 12. Cost-effectiveness analysis I**

Tuesday December 8<sup>th</sup>

Key points

- How to maximize population health under a budget constraint ("Shopping Spree")
- Adding a constraint: mutually exclusive options ("Competing Choice")
- Strong dominance ("No-brainer" situations)

Suggested readings

- Hunink Chapter 9
  - Doubilet P, "[Use and Misuse of the Term 'Cost Effective' in Medicine](#)" New England Journal of Medicine, 1986
  - Weinstein MC et al., "[Recommendations of the Panel on Cost-Effectiveness in Health and Medicine](#)" JAMA, 1996
- 

### Session 13. Cost-effectiveness analysis II

Thursday December 10<sup>th</sup>

#### Key points

- How to calculate incremental cost effectiveness ratios (ICERs)
- Extended ("weak") dominance
- How much is a given society willing to pay for health?

#### Suggested readings

- Hunink Chapter 9
  - Kim JJ et al., "[Cost-Effectiveness of Human Papillomavirus Vaccination and Cervical Cancer Screening in Women Older Than 30 Years in the United States](#)" Annals of Internal Medicine, 2009
  - Neumann PJ, "[Updating Cost-Effectiveness – The Curious Resilience of the \\$50,000-per-QALY Threshold](#)" New England Journal of Medicine, 2014
- 

### Session 14. Final review session (TAs)

Tuesday December 15<sup>th</sup>

#### Assignments/exams notes

- **ASSIGNMENT 2 DUE AT START OF CLASS; FINAL EXAM POSTED AT 4p**
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### Session 15. Cost-effectiveness analysis in practice / Advanced modeling methods

Thursday December 17<sup>th</sup>

#### Key points

- Uses and limitations of cost-effectiveness analysis in health policy
- Introduction to disease modeling (including Markov models) in health decision science
- Other types of simulation models

#### Suggested readings

- Hunink Chapters 10, 11, 12
- Garber AM, "[A Menu Without Prices](#)" Annals of Internal Medicine, 2008
- Pandya A et al., "[Cost-effectiveness of 10-Year Risk Thresholds for Initiation of Statin Therapy for Primary Prevention of Cardiovascular Disease](#)" JAMA, 2015
- Goldie SJ et al., "[Cost-Effectiveness of Cervical-Cancer Screening in Five Developing Countries](#)" New England Journal of Medicine, 2005

#### Assignments/exams notes

- **FINAL EXAM DUE AT START OF CLASS**



## Office hours schedule

*All office hours are 12:30-1:25p (locations vary -- see below)*

| <b>Day of week</b> | <b>Date</b>  | <b>TA1</b> | <b>TA2</b> | <b>Room</b> |
|--------------------|--------------|------------|------------|-------------|
| Tuesday            | 11-3         | Stephen    | Lina       | G1          |
| Thursday           | 11-5         | Yunfei     | Ankur      | FXB G10     |
| Tuesday            | 11-10        | Vidit      | Kate       | FXB G10     |
| Thursday           | 11-12        | Yunfei     | Ankur      | G1          |
| Tuesday            | 11-17        | Stephen    | Lina       | Kresge 426  |
| Thursday           | 11-19        | Vidit      | Kate       | Kresge 426  |
| Tuesday            | MIDTERM      | --         | --         | --          |
| Thursday           | THANKSGIVING | --         | --         | --          |
| Tuesday            | 12-1         | Stephen    | Lina       | FXB G10     |
| Thursday           | 12-3         | Yunfei     | Ankur      | FXB G10     |
| Tuesday            | 12-8         | Vidit      | Kate       | FXB G10     |
| Thursday           | 12-10        | Yunfei     | Ankur      | FXB G10     |
| Tuesday            | 12-12        | Stephen    | Lina       | FXB G10     |
| Thursday           | FINAL        | --         | --         | --          |

## Students with Disability Accommodations at Harvard Chan

The Office for Student Affairs (OSA) working with Harvard University Disability Services is the designated office at the School which reviews requests for disability accommodations. Please see <http://www.hsph.harvard.edu/student-handbook/services/disabilites-services-for-students-with/> for more information.

Spring 2, 2016

**RDS 282: Economic Evaluation for Health Policy and Program Management**

**Instructor: Stephen C. Resch MPH, PhD, with Lisa A. Robinson.**

**Teaching Fellow: Fangli Geng**

**COURSE INFORMATION**

This is an intermediate-level course on the theory, methods, and applications of economic evaluation in the health context. “Economic evaluation” is a generic term that includes cost-effectiveness analysis (CEA) and benefit-cost analysis (BCA). The course is taught primarily from the societal perspective, although the implications of other perspectives are also explored.

Topics include: [1] theoretical foundations of CEA and BCA; [2] controversies and limitations of economic evaluation in practice; [3] measurement and valuation methods for the costs and benefits of health programs; [4] applications of economic evaluation to policymaking. Both developed and developing country contexts will be covered.

**EXPECTATIONS:**

We expect you to read the assigned material carefully before the relevant class. We expect you to engage in class both by listening attentively to others and by contributing constructive and thoughtful comments. Prior to some classes, we will ask you to answer one or two short questions on the course website. For those classes, you must post your response on the course website’s discussion board by 8:00 am on the day of class. We strongly encourage you to read your classmates’ comments thoroughly.

**GRADING:**

Student performance will be evaluated as follows:

- 20% take home quiz on Costing section
- 20% take home quiz on QALYs and ICERs section
- 20% take home quiz on BCA and Valuing Health and Longevity
- 40% in class final
- BONUS #1: (2pt toward overall course grade) Find a current event news item in a magazine or newspaper related to class topic and write a 350 word commentary blog post on the course website’s discussion board.
- BONUS #2: (1pt toward overall course grade) A track record of consistent constructive participation in class and on discussion board can positively impact your final grade for students at the cusp of a higher letter grade.

**Required Textbook:**

- Drummond MF, Sculpher M, Torrance GW, O’Brien BJ, Stoddart GL. *Methods for the Economic Evaluation of Health Care Programmes*, 3rd edition. Oxford: Oxford University Press, 2005.

**Suggested Textbooks for Reference:**

- Boardman AE, Greenberg DH, Vining AR, Weimer, DL. *Cost-Benefit Analysis: Concepts and Practice*, 4th edition. Upper Saddle River, N.J.: Pearson, 2011.
- Gold MR, Siegel JE, Russell LB, Weinstein MC, eds.: *Cost-Effectiveness in Health and Medicine*. New York: Oxford University Press, 1996. (Don’t buy this version... new, extensively revised edition is coming out very soon!)

Spring 2, 2016

**SESSION TOPIC SUMMARY**

| <b>Week</b> | <b>MONDAYS</b>  | <b>WEDNESDAYS</b>  | <b>OPTIONAL FRIDAYS<br/>REVIEWS</b>              | <b>QUIZZES</b>                                   |
|-------------|---|--|--|--|
| 1           | Mar 21 – Overview, Concepts, & Analytic Frameworks      | Mar 23 – Cost-Effectiveness Analysis                                   | Review Micro-Economic Foundations (Online video) |  |
| 2           | Mar 28 – Estimating Costs                               | Mar 30 – Estimating Costs  |  | Apr 1 - Take Home Costing Quiz, due 6 pm online  |
| 3           | Apr 4 – Discounting                                     | Apr 6 – Estimating QALYs   | April 8 - Review CC/SS (F. Geng)                 |  |
| 4           | Apr 11 – Estimating QALYs                               | Apr 13 – ICERs; Integrating CC/SS                                      |  | Apr 15- Take Home Outcomes Quiz. due 6 pm online |
| 5           | Apr 18 – Benefit-Cost Analysis                          | Apr 20 – Valuing Health & Longevity: Revealed Preferences              |  |  |
| 6           | Apr 25 – Valuing Health & Longevity: Stated Preferences | Apr 27 – Developing Cost-Effectiveness Thresholds and Priority-Setting |  | Apr 29 Take Home BCA/VH&L Quiz, due 6 pm online  |
| 7           | May 2 – Assessing Distribution & Equity                 | May 4 – Incorporating Behavioral Economics                             | May 6 – FINAL REVIEW (F.Geng)                    |  |
| 8           | May 9 – Extra-Welfarist View of CEA                     | May 11 – Final Exam (in class)   |  |  |

Spring 2, 2016

## READINGS BY SESSION

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|                  |                 |  |
|------------------|-----------------|--|
| <b>Session 1</b> | <b>3/21 MON</b> | <b>Overview, Concepts, &amp; Analytic Frameworks</b> |
|------------------|-----------------|--|

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**Readings:** None

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|                  |                 |   |
|------------------|-----------------|---|
| <b>Session 2</b> | <b>3/23 WED</b> | <b>Cost-Effectiveness Analysis: Introduction &amp; Examples</b> |
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### Readings

*Required:*

- Tengs TO, Adams ME, Pliskin JS, et al. Five-hundred life-saving interventions and their cost-effectiveness. *Risk Analysis*. 1995;15(3):369-390. <http://www.ce.cmu.edu/~hsm/bca2005/lnotes/500-interventions.pdf>
- Thompson D, Taylor DCA, Montoya EL, Winer EP, Jones SE, Weinstein MC: Cost-effectiveness of switching to exemestane after 2 to 3 years of therapy with tamoxifen in postmenopausal women with early-stage breast cancer. *Value in Health*. 2007; 10(5):367-376. <http://www.blackwell-synergy.com.ezp1.harvard.edu/doi/abs/10.1111/j.1524-4733.2007.00190.x>

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| <b>Session 3</b> | <b>3/28 MON</b> | <b>Estimating Costs: Concepts &amp; Techniques</b> |
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### Readings

*Required:*

- Drummond Chapter 4

*Doctoral Students and Those Interested in CEA of Pharmaceuticals:*

- Garrison LP, Mansley EC, Abbott TA, et al. Good Research Practices for Measuring Drug Costs in Cost-Effectiveness Analyses: A Societal Perspective: The ISPOR Drug Cost Task Force Report—Part II *Value in Health* 2010; 13(1):8-13.

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|                  |                 |  |
|------------------|-----------------|--|
| <b>Session 4</b> | <b>3/30 WED</b> | <b>Estimating Costs: Concepts &amp; Techniques</b> |
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### Readings

*Required:*

- Barnett, PG. An Improved Set of Standards for Finding Cost for Cost-Effectiveness Analysis. *Medical Care*. 47:S82-S88, July 2009.

*Doctoral Students and Those Interested in CEA Alongside Clinical Trials:*

- Ramsey S, Willke R, Briggs A, et al. Good Research Practices for Cost-Effectiveness Analysis Alongside Clinical Trials: The ISPOR RCT-CEA Task Force Report. *Value in Health* 8(5):521-533

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|                  |                |                    |
|------------------|----------------|--------------------|
| <b>Session 5</b> | <b>4/4 MON</b> | <b>Discounting</b> |
|------------------|----------------|--------------------|

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### Readings

*Required:*

Boardman et al. Chapter 6, “Discounting Benefits and Costs in Future Time Periods.”

## Spring 2, 2016

### *Doctoral Students:*

- Nord E. 2011. Discounting future health benefits: the poverty of consistency arguments. *Health Economics* 20: 16–26.
- Hammitt JK. Discounting health and cost-effectiveness analysis: a response to Nord. *Health Economics* 2011
- Brouwer W et al. Need for differential discounting of costs and health effects in cost effectiveness analysis. *BMJ* 2005;331:446–8  
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1188116/pdf/bmj33100446.pdf>

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|                  |                |  |
|------------------|----------------|--|
| <b>Session 6</b> | <b>4/6 WED</b> | <b>Estimating QALYs: Concepts &amp; Techniques</b> |
|------------------|----------------|--|

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### **Readings**

#### *Required:*

- Weinstein MC, Torrance G, McGuire A. 2009. QALYs: the basics. *Value in Health*. 12 (Supp 1):S5-9.
- Nord E, Daniels N, Kamlet M. QALYs: Some challenges. *Value in Health* 2009; 12 (Suppl 1): S10-S15.

#### *Suggested:*

- Lipscomb J, Drummond M, Fryback D, Gold M, Revicki D. Retaining, and enhancing, the QALY. *Value in Health*. 2009 Mar;12 Suppl 1:S18-26.

### *Doctoral Students and Those Interested in DALYs:*

- Salomon JA, Vos T, Hogan DR, et al. Common values in assessing health outcomes from disease and injury: disability weights measurement study for the Global Burden of Disease Study 2010. *Lancet* 2012;380(9859):2129-2143.

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|                  |                 |                                   |
|------------------|-----------------|-----------------------------------|
| <b>Session 7</b> | <b>4/11 MON</b> | <b>Estimating QALYs: Examples</b> |
|------------------|-----------------|-----------------------------------|

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### **Readings**

#### *Required:*

- Drummond Ch. 6
- Dolan, P.: Modelling valuations in EuroQol health states. *Med. Care* 35, 1095–1108 (1997)
- Shaw *Medical Care* 2005. US valuation D1 method

#### *Doctoral Students:*

- Dolan P, Shaw R, Tsuchiya A, Williams A. QALY maximisation and people's preferences: a methodological review of the literature. *Health Economics* 2005; 14:197-208.
- Devlin, N.J., Tsuchiya, A., Buckingham, K., Tilling, C.: A uniform time trade off method for states better and worse than dead: feasibility study of the 'lead-time' approach. *Health Econ.* 20(3), 348–361 (2011)

**Readings**

*Required:*

- Weinstein MC, Siegel JE, Gold MR, Kamlet MS, Russell LB. Recommendations of the Panel on Cost-Effectiveness in Health and Medicine. JAMA. 1996 Oct 23-30;276(15):1253-58.

**Readings**

*Required:*

- Chapter 8, “Cost Benefit Analysis,” in Haddix AC, Teutsch SM, Corso PS. (eds). 2003. Prevention Effectiveness: A Guide to Decision Analysis and Economic Evaluation, 2nd edition. New York, NY: Oxford University Press.
- World Bank benefit-cost analysis [to be provided].

*Recommended:*

- Boardman et al. Chapter 3, “Microeconomic Foundations of Cost-Benefit Analysis. ”

**Readings**

*Required:*

- Robinson, L.A. and J.K. Hammitt. Skills of the Trade: Valuing Health Risk Reductions in Benefit-Cost Analysis. Journal of Benefit-Cost Analysis. 2013; 4(1):107-130. <http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=9456622&fulltextType=RA&fileId=S2194588800000518>
- Viscusi, W.K. “Using Data from the Census of Fatal Occupational Injuries to Estimate the ‘Value of a Statistical Life.’” Monthly Labor Review. 2013. <http://www.bls.gov/opub/mlr/2013/article/using-data-from-the-census-of-fatal-occupational-injuries-to-estimate-the.htm>

*Recommended:*

- Viscusi, W.K. The Value of Life: Estimates with Risks by Occupation and Industry. Economic Inquiry. 2004; 42(1): 29-48.
- Kniesner, T. J., W.K. Viscusi, and J.P. Ziliak. Policy Relevant Heterogeneity in the Value of Statistical Life: New Evidence from Panel Data Quantile Regressions. Journal of Risk and Uncertainty. 2010; 40: 15-31.

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**Session 11    4/25 MON (Robinson)    Valuing Health & Longevity: Stated Preferences**

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**Readings**

*Required:*

- Chapter 4, “Designing a Contingent Valuation Questionnaire,” in Bateman, I. J., R. T. Carson, et al. 2002. *Economic Valuation with Stated Preference Techniques*. Cheltenham UK and Northampton MA: Edward Elgar. (Read pp. 112-113 (Summary), pp. 116-150 (Section 4.2), skim other sections.)
- Corso, P.S., J.K. Hammitt, and J.D. Graham. Valuing Mortality-Risk Reduction: Using Visual Aids to Improve the Validity of Contingent Valuation. *Journal of Risk and Uncertainty*. 2001; 23(2):165-184. (Read pp. 165-167 (section 1), pp. 170-172 (section 4) and pp. 177-179 (section 6) carefully, skim other sections.)
- Seelye, K.Q. and J. Tierney. 2003. “EPA Drops Age-Based Cost Studies.” *New York Times*.

*Recommended:*

- Remainder of Bateman et al. Chapter 4.

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**Session 12    4/27 WED    Developing Cost-Effectiveness Thresholds and Priority Setting**

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**Readings**

*Required:*

- Robinson, LA, Hammitt JK, Chang AY, Resch R. Understanding and Improving the One-to-Three Times GDP Per Capita Cost-Effectiveness Thresholds (under review).
- Shillcutt SD, Walker DG, Goodman CA, Mills AJ. Cost-Effectiveness in Low- and Middle-Income Countries: A Review of the Debates Surrounding Decision Rules Pharmacoeconomics. 2009; 27(11): 903–917.

*Doctoral Students:*

- Klaxton K et al. Methods for estimating the NICE cost-effectiveness threshold: Final Report. Nov 2013. York University Center for Health Economics Working Paper 81. [https://www.york.ac.uk/media/che/documents/papers/researchpapers/CHERP81\\_methods\\_estimation\\_NICE\\_costeffectiveness\\_threshold\\_\(Nov2013\).pdf](https://www.york.ac.uk/media/che/documents/papers/researchpapers/CHERP81_methods_estimation_NICE_costeffectiveness_threshold_(Nov2013).pdf)

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**Session 13    5/2 MON    Assessing Distribution & Equity in Economic Evaluation**

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**Readings**

*Required:*

- Brock D. Ethical Issues in the Use of Cost Effectiveness Analysis for the Prioritization of Health Care  
Resources <http://www.nyu.edu/gsas/dept/philo/courses/bioethics/Papers/EthicalIssues.PDF>
- Robinson LA, Hammitt JK, Zeckhauser R. The Role of Distribution in U.S. Regulatory Analysis and Decision Making. *Review of Environmental Economics and Policy*. Forthcoming (provisionally accepted pending copy-editing).

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**Session 14 5/4 WED (Robinson)**

**Incorporating Behavioral Economics**

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**Readings**

*Required:*

- Robinson LA, Hammitt JK. Behavioral Economics and Regulatory Analysis. Risk Analysis. 2011; 31(9): 1408-1422.
- Portney, PR. "Trouble in Happyville." Journal of Policy Analysis and Management. 1992: 11(1): 131-132.

*Recommended:*

- Beshears J, Choi JJ, Laibson D, Madrian BC. How are Preferences Revealed? Journal of Public Economics. 2008; 92:1787-1794.

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**Session 15 5/9 MON**

**Extra-Welfarist View of CEA**

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**Readings**

*Required:*

- Brouwer WBF, Culyer AJ, vanExcel NJA, Rutten FFH. Welfarism vs. extra-welfarism. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.394.8302&rep=rep1&type=pdf>
- Culyer T. The welfarist and extra-welfarist economics of health care finance and provision. In The Humble Economist. Cookson R Claxton K. (eds.) pp. 79-116. <https://www.york.ac.uk/che/publications/books/the-humble-economist/>

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**Session 16 5/11 WED**

**Final EXAM (in class)**

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**RDS 284 – Decision Theory**  
Professor James K. Hammitt

This is a doctoral-level course in the theory of choice with applications to health and environmental policy. The focus is the standard model of individual decision making under uncertainty with extensions to social choice, benefit-cost and cost-effectiveness analysis. The course is intended for students who plan to pursue health- or environment-related economic and decision-analytic research.

The objectives of the course are to introduce the axiomatic method of economic reasoning, to present the subjective expected utility model and challenges and alternatives to it, and to explore methodological issues arising from the application of these techniques to health-policy issues. Topics include the theory of choice, traditional models of expected utility, multi-attribute utility theory, subjective probability, the expected value of information, expert judgment, alternative representations of uncertainty, and alternative models of decision making.

Prerequisites are knowledge of multivariate calculus and familiarity with probability.

In addition to regular attendance and readings, course requirements include:

- a. One paper of about five pages critically discussing one or more articles from the reading list or other articles approved by the instructor (worth 20% of the grade). The paper is due Friday, December 9 at 6 pm EST.
- b. Six problem sets (worth 30% of the grade). Students are welcome to work together on the homework assignments, but each must submit a separate write-up.

| <u>Problem Set</u> | <u>Due date</u> |
|--------------------|-----------------|
| 1                  | September 14    |
| 2                  | September 28    |
| 3                  | October 5       |
| 4                  | October 17      |
| 5                  | October 26      |
| 6                  | November 16     |

c. A final exam (50% of the grade). The take-home exam will be distributed Wednesday, December 7 and due Friday, December 16 at 6 pm EST.

d. The course will observe reading period. The final course meeting will be November 30.

The course meets Mondays and Wednesdays from 10:30 to 12:20, in FXB G3 at HSPH. Professor Hammitt's office is at 718 Huntington Ave., Boston. He may be reached via email ([jkh@harvard.edu](mailto:jkh@harvard.edu)) or telephone (432-4343).

**Primary Texts:**

David M. Kreps, *Notes on the Theory of Choice*, Westview 1988.

Ralph J. Keeney and Howard Raiffa, *Decisions with Multiple Objectives: Preferences and Value Tradeoffs*, Wiley 1976 and Cambridge 1993.

**Supplementary Texts:**

Christian Gollier, *The Economics of Risk and Time*, MIT Press 2001.

Peter Wakker, *Prospect Theory: For Risk and Ambiguity*, Cambridge University Press 2010.

Roger M. Cooke, *Experts in Uncertainty: Opinion and Subjective Probability in Science*, Oxford, 1991.

Morris H. DeGroot, *Optimal Statistical Decisions*, McGraw-Hill, 1970.

Paul R. Kleindorfer, Howard C. Kunreuther, and Paul J.H. Schoemaker, *Decision Sciences: An Integrative Perspective*, Cambridge, 1993.

M. Granger Morgan and Max Henrion, *Uncertainty: A Guide to Dealing with Uncertainty in Quantitative Risk and Policy Analysis*, Cambridge, 1990.

John Pratt, Howard Raiffa, and Robert Schlaifer, *Introduction to Statistical Decision Theory*, MIT Press, 1995.

Howard Raiffa, *Decision Analysis*, Addison-Wesley, 1968.

Textbook readings will be supplemented by selected articles.

**Course Topics and Readings**  
(\* required)

**I. UTILITY AND CHOICE**

**1. Introduction, Binary Relations**

\*Kreps, Chapter 1  
Kleindorfer et al., Chapter 4

**2. Preference Relations, Revealed Preference**

\*Kreps, Chapter 2

**3. Ordinal Utility, Von Neumann-Morgenstern Axioms**

\*Kreps, Chapters 3 and 4  
Pratt, John W., Howard Raiffa, and Robert Schlaifer, “The Foundations of Decision under Uncertainty: An Elementary Exposition,” *Journal of the American Statistical Association* 59(306): 353-375, 1964. <http://www.jstor.org.ezp-prod1.hul.harvard.edu/stable/2282993>

**4. Cardinal Utility, Risk Aversion**

\*Kreps, Chapter 5 and 6  
\*Keeney and Raiffa, Chapter 4  
\*Eeckhoudt, Louis, Philippe Godfroid, and Christian Gollier, “Willingness to Pay, the Risk Premium, and Risk Aversion,” *Economics Letters* 55: 355-360 (1997). [doi:10.1016/S0165-1765\(97\)00094-3](https://doi.org/10.1016/S0165-1765(97)00094-3)  
Pratt, John W., “Risk Aversion in the Small and in the Large,” *Econometrica* 32: 122-136, 1964. <http://www.jstor.org.ezp-prod1.hul.harvard.edu/stable/1913738>  
Pratt, Raiffa, and Schlaifer, Chapters 2, 3, and Appendix 3

**5. Stochastic Dominance, Rothschild-Stiglitz Risk**

\*Rothschild, Michael, and Joseph E. Stiglitz, “Increasing Risk: 1. A Definition,” *Journal of Economic Theory* 2: 225-243, 1970. [doi:10.1016/0022-0531\(70\)90038-4](https://doi.org/10.1016/0022-0531(70)90038-4)  
Huang, Chi-fu, *Foundations for Financial Economics*, North Holland, New York, 1988, Chapters 1 and 2

**6. Prudence, Temperance, and Risk Tolerance**

\*Kimball, Miles S., “Precautionary Saving in the Small and in the Large,” *Econometrica* 58: 53-73, 1990. <http://www.jstor.org.ezp-prod1.hul.harvard.edu/stable/2938334>  
\*Gollier, Christian, and John W. Pratt, “Risk Vulnerability and the Tempering Effect of Background Risk,” *Econometrica* 64: 1109-1123, 1996. <http://www.jstor.org.ezp-prod1.hul.harvard.edu/stable/2171958>  
\*Ross, Stephen A., “Some Stronger Measures of Risk Aversion in the Small and the Large with Applications,” *Econometrica* 49: 621-638, 1981. <http://www.jstor.org.ezp-prod1.hul.harvard.edu/stable/1911515>

- \*Eeckhoudt, Louis, and Harris Schlesinger, “Putting Risk in its Proper Place,” *American Economic Review* 96: 280-289, 2006. <https://www-aeaweb-org.ezp-prod1.hul.harvard.edu/articles.php?doi=10.1257/000282806776157777>
- Pratt, John W., and Richard J. Zeckhauser, “Proper Risk Aversion,” *Econometrica* 55: 143-154, 1987. <http://www.jstor.org.ezp-prod1.hul.harvard.edu/stable/1911160>

## **7. Multiattribute Utility Theory: Value Functions and Tradeoffs under Certainty**

\*Keeney & Raiffa, Chapter 3

## **8. Multiattribute Utility Theory: Utility Functions and Tradeoffs under Uncertainty**

\*Keeney & Raiffa, Chapter 5

## **9. Multiattribute Utility Theory: Generalization to N Attributes**

\*Keeney & Raiffa, Chapter 6

## **10. Intertemporal Preferences: Exponential Discounting**

\*Keeney & Raiffa, Chapter 9

\*Keeler, Emmett B., and Shan Cretin, “Discounting of Life-Saving and Other Nonmonetary Effects,” *Management Science* 29: 300-306, 1983. <http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=7344498&site=ehost-live&scope=site>

Hammitt, James K., “Discounting Health and Cost-Effectiveness Analysis: A Response to Nord,” *Health Economics* 21: 878–882, 2012. <http://onlinelibrary.wiley.com.ezp-prod1.hul.harvard.edu/doi/10.1002/hec.1782/abstract>

Frederick, Shane, George Loewenstein, and Ted O’Donoghue, “Time Discounting and Time Preference: A Critical Review,” *Journal of Economic Literature* 40: 351–401, 2002. <http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=6895819&site=ehost-live&scope=site>

## **11. Intertemporal Preferences: Hyperbolic Discounting**

\*Harvey, Charles M., “The Reasonableness of Non-Constant Discounting,” *Journal of Public Economics* 53: 31-51, 1994. [doi:10.1016/0047-2727\(94\)90012-4](https://doi.org/10.1016/0047-2727(94)90012-4)

Cropper, Maureen L., Sema K. Aydede, and Paul R. Portney, “Rates of Time Preference for Saving Lives,” *American Economic Review* 82: 469-472, 1992. <http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/233030874?accountid=11311>

## **12. Intertemporal Preferences: Uncertainty and Social Decisions**

\*Gollier, Christian, and James K. Hammitt, “The Long Run Discount Rate Controversy,” *Annual Review of Resource Economics*, in press. <http://www.annualreviews.org.ezp-prod1.hul.harvard.edu/doi/abs/10.1146/annurev-resource-100913-012516>

\*Hammitt, James K., and Charles M. Harvey, “Equity, Efficiency, Uncertainty, and the Mitigation of Global Climate Change,” *Risk Analysis* 20(6): 851-860, 2000.

<http://onlinelibrary.wiley.com.ezp-prod1.hul.harvard.edu/doi/10.1111/0272-4332.206078/abstract>

Moore, Mark A., Anthony E. Boardman, Aidan R. Vining, David L. Weimer, and David H. Greenberg, “Just Give Me a Number! Practical Values for the Social Discount Rate,” *Journal of Policy Analysis and Management* 23: 789-812, 2004. <http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=14406480&site=ehost-live&scope=site>

### 13. Health Applications: QALYs and HYE

\*Pliskin, Joseph S., Donald S. Shepard, and Milton C. Weinstein, “Utility Functions for Life Years and Health Status,” *Operations Research* 28: 206-224, 1980. <http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=mth&AN=14619563&site=ehost-live&scope=site>

\*Bleichrodt, Han, Peter Wakker, and Magnus Johannesson, “Characterizing QALYs by Risk Neutrality,” *Journal of Risk and Uncertainty* 15: 107-114, 1997. <http://link.springer.com.ezp-prod1.hul.harvard.edu/article/10.1023/A%3A1007726117003#enumeration>

Miyamoto, John M., Peter P. Wakker, Han Bleichrodt, and Hans J.M. Peters, “The Zero-Condition: A Simplifying Assumption in QALY Measurement and Multiattribute Utility,” *Management Science* 44: 839-849, 1998. <http://pubsonline.informs.org.ezp-prod1.hul.harvard.edu/doi/abs/10.1287/mnsc.44.6.839>

### 14. Health Applications: QALYs and HYE

Bleichrodt, Han, and Martin Filko, “New Tests of Qalys When Health Varies Over Time,” *Journal of Health Economics* 27: 1237–1249, 2008. <http://www.sciencedirect.com.ezp-prod1.hul.harvard.edu/science/article/pii/S016762960800057X>

McNeil, Barbara J., Ralph Weichselbaum, and Stephen G. Pauker, “Speech and Survival: Tradeoffs between Quality and Quantity of Life in Laryngeal Cancer,” *New England Journal of Medicine* 305: 982-987, 1981. <http://www.nejm.org.ezp-prod1.hul.harvard.edu/doi/full/10.1056/NEJM198110223051704>

Hammitt, James K., “Admissible Utility Functions for Health, Longevity, and Wealth: Integrating Monetary and Life-Year Measures,” *Journal of Risk and Uncertainty* 47: 311–325, 2013, <http://link.springer.com.ezp-prod1.hul.harvard.edu/article/10.1007/s11166-013-9178-4> .

Broome, John, “Qalys,” *Journal of Public Economics* 50: 149-167, 1993. [doi:10.1016/0047-2727\(93\)90047-W](https://doi.org/10.1016/0047-2727(93)90047-W)

### 15. Health Applications: Value of a Statistical Life (VSL)

\*Hammitt, James K., “Valuing Mortality Risk: Theory and Practice,” *Environmental Science and Technology* 34(8): 1396-1400, 2000. DOI: [10.1021/es990733n](https://doi.org/10.1021/es990733n)

\*Eeckhoudt, Louis R., and James K. Hammitt, “Does Risk Aversion Increase the Value of Mortality Risk?” *Journal of Environmental Economics and Management* 47: 13-29, 2004. [doi:10.1016/S0095-0696\(03\)00076-7](https://doi.org/10.1016/S0095-0696(03)00076-7)

\*Ng, Yew-Kwang, “The Older the More Valuable: Divergence Between Utility and Dollar Values of Life as One Ages,” *Journal of Economics* 55: 1-16, 1992. [http://ezp-prod1.hul.harvard.edu/doi/abs/10.1016/0014-1801\(92\)90001-7](http://ezp-prod1.hul.harvard.edu/doi/abs/10.1016/0014-1801(92)90001-7)

[prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=4641943&site=ehost-live&scope=site](http://prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=4641943&site=ehost-live&scope=site)

Shepard, Donald S., and Richard J. Zeckhauser, "Survival versus Consumption,"

*Management Science* 30: 423-439, 1984. <http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/205840483?accountid=11311>

Broome, John, "The Economic Value of Life," *Economica* 52: 281-294, 1985.

<http://www.jstor.org.ezp-prod1.hul.harvard.edu/stable/2553852>

## 16. Health Applications: Estimating the Value of a Statistical Life

\*Viscusi, W. Kip, and Joseph E. Aldy, "The Value of a Statistical Life: A Critical Review of Market Estimates Throughout the World," *Journal of Risk and Uncertainty* 27: 5-76, 2003.

<http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/203538034/fulltext/A7B555F619C54959PQ/1?accountid=11311>

\*Jones-Lee, Michael W., M. Hammerton, and P.R. Philips, "The Value of Safety: Results of a National Sample Survey," *Economic Journal* 95: 49-72, 1985. <http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=4533107&site=ehost-live&scope=site>

Hammitt, James K., "Evaluating Contingent Valuation of Environmental Health Risks: The Proportionality Test," *Association of Environmental and Resource Economists Newsletter* 20(1): 14-19, May 2000.

[http://www.aere.org/newsletters/documents/Newsletter\\_May00.pdf](http://www.aere.org/newsletters/documents/Newsletter_May00.pdf)

Hammitt, James K., "Valuing Changes in Mortality Risk: Lives Saved vs. Life Years Saved," *Review of Environmental Economics and Policy* 1: 228-240, 2007.

<http://reep.oxfordjournals.org.ezp-prod1.hul.harvard.edu/content/1/2/228.full>

## 17. Social Preferences, Benefit-Cost and Cost-Effectiveness Analysis

\*Keeney & Raiffa, Chapter 10

\*Hanemann, W. Michael, "Willingness to Pay and Willingness to Accept: How Much Can They Differ?" *American Economic Review* 81: 635-647, 1991.

<http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/233023581?accountid=11311>

Dolan, Paul, "The Measurement of Individual Utility and Social Welfare," *Journal of Health Economics* 17: 39-52, 1998. [doi:10.1016/S0167-6296\(97\)00022-2](https://doi.org/10.1016/S0167-6296(97)00022-2)

Kleindorfer et al., Chapter 9

Sen, Amartya, "Rationality and Social Choice," *American Economic Review* 85: 1-24, 1995.

<http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/233027874/5FCD9563733A4C82PQ/2?accountid=11311>

## 18. Public Risk and Equity

\*Pratt, John W., and Richard J. Zeckhauser, "Willingness to Pay and the Distribution of Risk and Wealth," *Journal of Political Economy* 104: 747-763, 1996. <http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=9607214381&site=ehost-live&scope=site>

- \*Keeney, Ralph L., “Utility Functions for Equity and Public Risk,” *Management Science* 26: 345-353, 1980. <http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/205838195/306C9ED60B3A48A0PQ/1?accountid=11311>
- \*Broome, John, “Equity in Risk Bearing,” *Operations Research* 30: 412-414, 1982. <http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=mth&AN=4470348&site=ehost-live&scope=site>
- Hammitt, James K., and Nicholas Treich, “Statistical vs. Identified Lives in Benefit-Cost Analysis,” *Journal of Risk and Uncertainty* 35: 45-66, 2007. <http://link.springer.com.ezp-prod1.hul.harvard.edu/article/10.1007/s11166-007-9015-8>
- Adler, Matthew D., James K. Hammitt, and Nicholas Treich, “The Social Value of Mortality Risk Reduction: VSL vs. the Social Welfare Function Approach,” *Journal of Health Economics* 35: 82-93, 2014. <http://www.sciencedirect.com.ezp-prod1.hul.harvard.edu/science/article/pii/S0167629614000113>
- Adler, Matthew D., “Risk Equity: A New Proposal” *Harvard Environmental Law Review* 32(1):1-47, 2008. <http://www.heinonline.org.ezp-prod1.hul.harvard.edu/HOL/Page?handle=hein.journals/helr32&id=1&size=2&collection=journals&index=journals/helr>

## II. SUBJECTIVE UNCERTAINTY

### 19. Subjective Expected Utility Theory, Savage Axioms

- \*Kreps, Chapters 11, 8 and 9  
Leamer, Edward E., *Specification Searches*, Wiley, 1978. Chapter 2.  
Kleindorfer et al., Chapter 3  
Cooke, Chapters 6 and 7  
Morgan and Henrion, Chapters 4 and 5.1-5.3

### 20. Statistical Decision Theory and Bayes Theorem

- \*Raiffa, Chapter 7  
DeGroot, Chapter 9 (review Chapter 4 if necessary)  
Pratt, Raiffa, and Schlaifer, Chapter 20

### 21. Value of Information

- \*Hilton, Ronald W., “The Determinants of Information Value: Synthesizing Some General Results,” *Management Science* 27: 57-64, 1981. <http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/205835750?accountid=11311>
- \*Louis Eeckhoudt and Philippe Godfroid, “Risk Aversion and the Value of Information,” *Journal of Economic Education* 31: 382-388, 2000. <http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/235267965?accountid=11311>
- Hammitt, James K., and Jonathan A.K. Cave, “Research Planning for Food Safety: A Value-of-Information Approach,” RAND, 1991. Sections IV and VI. <http://www.rand.org/content/dam/rand/pubs/reports/2007/R3946.pdf>
- Morgan and Henrion, Chapter 12

Hammitt, James K., and Alexander I. Shlyakhter, “The Expected Value of Information and the Probability of Surprise,” *Risk Analysis* 19: 135-152, 1999. <http://link.springer.com.ezp-prod1.hul.harvard.edu/article/10.1023/A:1006966613058>

Pratt, Raiffa, and Schlaifer, Chapters 14, 16, 17 and 23B

## 22. Evaluating and Combining Subjective Probabilities

Cooke, Chapters 8\* and 9

Morgan and Henrion, Chapters 6\* and 7

\*Winkler, Robert L., and Roy M. Poses, “Evaluating and Combining Physicians’ Probabilities of Survival in an Intensive Care Unit,” *Management Science* 39: 1526-1543, 1993.

<http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/213312570?accountid=11311>

\*Tversky, Amos, and Daniel Kahneman, “Heuristics and Biases,” *Science* 185: 1124-1131, 1974. <http://www.jstor.org.ezp-prod1.hul.harvard.edu/stable/1738360>

Cosmides, Leda, and John Tooby, “Are Humans Good Intuitive Statisticians After All? Rethinking Some Conclusions from the Literature on Judgment Under Uncertainty” *Cognition* 58: 1-73, 1996. [doi:10.1016/0010-0277\(95\)00664-8](https://doi.org/10.1016/0010-0277(95)00664-8)

## III. CHALLENGES AND ALTERNATIVE THEORIES

### 23. Prospect and Regret Theories

\*Rabin, Matthew, “Risk Aversion and Expected Utility Theory: A Calibration Theorem,” *Econometrica* 68: 1281-1292, 2000. <http://www.jstor.org.ezp-prod1.hul.harvard.edu/stable/2999450>

\*Bell, David E., “Regret in Decision Making Under Uncertainty,” *Operations Research* 30: 961-981, 1982. <http://www.jstor.org.ezp-prod1.hul.harvard.edu/stable/170353>

\*Kahneman, Daniel, and Amos Tversky, “Prospect Theory: An Analysis of Decision Under Risk,” *Econometrica* 47: 263-291, 1979. <http://www.jstor.org.ezp-prod1.hul.harvard.edu/stable/1914185>

Tversky, Amos, and Daniel Kahneman, “Advances in Prospect Theory: Cumulative Representation of Uncertainty,” *Journal of Risk and Uncertainty* 5: 297-323, 1992.

<http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=16619060&site=ehost-live&scope=site>

Marquis, M. Susan, and Martin R. Holmer, “Alternative Models of Choice for Uncertainty and Demand for Health Insurance,” *Review of Economics and Statistics* 78: 421-427, 1996. <http://www.jstor.org.ezp-prod1.hul.harvard.edu/stable/2109789>

### 24. Non-Expected Utility

\*Machina, Mark J., “Choice under uncertainty: problems solved and unsolved,” *Journal of Economic Perspectives* 1: 121-154, 1987. <https://www-aeaweb-org.ezp-prod1.hul.harvard.edu/articles?id=10.1257/jep.1.1.121>

\*Machina, Mark J., “Dynamic consistency and non-expected utility models of choice under uncertainty,” *Journal of Economic Literature* 27: 1622-1668, 1989.



<http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/213202508?accountid=11311>

Starmer, Chris, “Developments in Non-Expected Utility Theory: The Hunt for a Descriptive Theory of Choice under Risk,” *Journal of Economic Literature* 38: 332-382, 2000.

<https://www-aeaweb-org.ezp-prod1.hul.harvard.edu/articles?id=10.1257/jel.38.2.332>

Gilboa, Itzhak, Andrew Postlewaite, and David Schmeidler, “Is It Always Rational to Satisfy Savage’s Axioms?” *Economics and Philosophy*, 25: 285–296, 2009. <http://dx.doi.org.ezp-prod1.hul.harvard.edu/10.1017/S0266267109990241>

## 25. Summary

\*Wakker, Peter, “Lessons Learned by (from?) an Economist Working in Medical Decision Making,” *Medical Decision Making* 28: 690-698, 2008. <http://mdm.sagepub.com.ezp-prod1.hul.harvard.edu/content/28/5/690.full.pdf+html>

Moscati, Ivan, “How Economists Came to Accept Expected Utility Theory: The Case of Samuelson and Savage,” *Journal of Economic Perspectives* 30: 219-236, 2016.

<https://www-aeaweb-org.ezp-prod1.hul.harvard.edu/articles?id=10.1257/jep.30.2.219>

Wakker, Peter, “Separating Marginal Utility and Probabilistic Risk Aversion,” *Theory and Decision* 36: 1-44, 1994.

Brian J. Cohen, “Is Expected Utility Theory Normative for Medical Decision Making?” (with comments and response) *Medical Decision Making* 16: 1-14, 1996.

Smith, James E., and Detlof von Winterfeldt, “Decision Analysis in Management Science,”

*Management Science* 50(5): 561-574, 2004. [http://ezp-](http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=h)

[prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=h&AN=13243309&site=ehost-live&scope=site](http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=h&AN=13243309&site=ehost-live&scope=site)

**RDS 285**  
**Decision Analysis Methods in Public Health and Medicine**  
Spring 1 2016  
Mondays & Wednesdays, 1:30-3:20pm  
FXB-G12

**Instructor**

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Email: klofgren@g.harvard.edu  
Office hours: Tuesdays, 12:30-1:30pm  
Location: Kresge 201

Vidit Munshi  
Email: vmunshi@g.harvard.edu  
Office hours: Wednesdays, 12:30-1:30pm  
Location: Kresge 907, except Feb 3 (Kresge 426), Mar 2 (Kresge 202B), Mar 9 (Kresge 202A)

**Course Objectives**

This is an intermediate-level course on methods of decision analysis. The emphasis is on methods that are applicable to issues of medical decision making, although most of the course material is also relevant to analyses of environmental and safety decisions. Students will learn to apply state-of-the-art modeling methods used to evaluate the comparative effectiveness and cost-effectiveness of health interventions. Students are expected to gain facility with a computer package for decision analysis (TreeAge software). While the primary emphasis is not on mathematical theory, a certain amount of theoretical background may be presented for some topics.

*This is not an introductory course.* Prerequisites include an introductory course in decision analysis (e.g., RDS 280, RDS 286), probability and statistics (e.g., BIO 201, ID 201), and some facility with mathematical notation and reasoning.

## Course Materials

### Readings

Required readings for each session are either accessible online (links are provided) or posted on the course Canvas site (Readings folder). Other materials (e.g., assignments and labs) will be posted in Canvas. There is no required textbook, but the following book may be a helpful resource:

Hunink MGM, Weinstein MC, Wittenberg E, Drummond MF, Pliskin JS, Wong JB, Glasziou PP. *Decision Making in Health and Medicine: Integrating Evidence and Values*. 2<sup>nd</sup> edition. Cambridge University Press, 2014.

### Software

Students will be required to purchase a student course license of the decision analysis software, TreeAge Pro Suite (\$45). The software is available for direct purchase at [www.treeage.com/shop/](http://www.treeage.com/shop/) and should be downloaded directly to your personal desktop or laptop. See course Canvas site for instructions on how to purchase/download the software.

## Outcome Measures

### Assignments

There will be three assignments due at the start of class on the following dates:

- Assignment #1: **February 3** (W)
- Assignment #2: **February 10** (W)
- Assignment #3: **February 29** (M)

### Examinations

There will be two exams:

- Exam #1 (take-home): distributed after class on **Feb 17** (W); due **Feb 19** (F) at 12pm
- Exam #2 (take-home): distributed after class on **Mar 9** (W); due **Mar 11** (F) at 12pm

### Lab Sessions (optional, but strongly encouraged)

Weekly, 1.5-hour lab sessions will be offered twice (same lab repeated) by the Teaching Fellows and are scheduled for **Thursday afternoons (3:30-5:00pm) in Kresge 200**, and **Friday afternoons (12:30-2:00pm) in Kresge LL-6**, except **Jan 29 in Kresge 205**. Lab attendance is not required, but *strongly* encouraged. Students are also encouraged to try the assigned practice problems prior to lab, although these will not be handed in or graded. Labs #1 and #2 will focus on the use of TreeAge software, based on self-instructional tutorials.

- Lab #1 (Jan 28 & 29): TreeAge Tutorial #1 and Matrix Algebra Primer
- Lab #2 (Feb 4 & 5): TreeAge Tutorial #2
- Lab #3 (Feb 11 & 12): Life Expectancy, Probability Estimation, and the DEALE
- Lab #4 (Feb 25 & 26): ROC Analysis and Model Calibration
- Lab #5 (Mar 3 & 4): 1<sup>st</sup> and 2<sup>nd</sup> Order Monte Carlo Simulation and VOI

\* Note: there will be no labs during the weeks of the exams.

### Grading Criteria

Grades will be based:

- 30% on the assignments (10% each)
- 30% on exam #1
- 35% on exam #2
- 5% on course participation and engagement

### Collaboration

You are encouraged to work with others on assignments and labs, but you must each write up the work yourself and hand in a completed assignment separately. **With no exception**, exams must be done independently.

## RDS 285 Class Schedule: At-a-Glance

|                                |                  |  |
|--------------------------------|------------------|--|
| <b>Session 1</b>               |                  |  |
| January 25 (M)                 | Kim              | Introduction to Decision Analysis Methods  |
| <b>Session 2</b>               |                  |  |
| January 27 (W)                 | Kim              | Markov Models (1)  |
| <b>Lab 1</b>                   |                  |  |
| January 28 & 29                | Teaching Fellows | TreeAge Tutorial #1 and Matrix Algebra Primer  |
| <b>Session 3</b>               |                  |  |
| February 1 (M)                 | Kim              | Markov Models (2)  |
| <b>Session 4</b>               |                  |  |
| February 3 (W)                 | Kim              | Life Expectancy Estimation<br><i>Assignment #1 due at start of class</i>                                     |
| <b>Lab 2</b>                   |                  |  |
| February 4 & 5                 | Teaching Fellows | TreeAge Tutorial #2  |
| <b>Session 5</b>               |                  |  |
| February 8 (M)                 | Kim              | Estimating Probabilities from the Literature   |
| <b>Session 6</b>               |                  |  |
| February 10 (W)                | Wittenberg       | Health State Utilities<br><i>Assignment #2 due at start of class</i>   |
| <b>Lab 3</b>                   |                  |  |
| February 11 & 12               | Teaching Fellows | Life Expectancy, Probability Estimation, and DEALE   |
| <b>Holiday</b>                 |                  |  |
| February 15 (M)                | No Class         | President's Day  |
| <b>Session 7</b>               |                  |  |
| February 17 (W)                | Resch            | Costs and Cost-Effectiveness Analysis<br><i>Exam #1 distributed at end of class; due February 19 at 12pm</i> |
| <b>NO LAB</b> February 18 & 19 |                  |  |
| <b>Session 8</b>               |                  |  |
| February 22 (M)                | Kim              | Estimating Probabilities (cont) and ROC Analysis   |
| <b>Session 9</b>               |                  |  |
| February 24 (W)                | Kim              | Model Calibration and Validation   |
| <b>Lab 4</b>                   |                  |  |
| February 25 & 26               | Teaching Fellows | ROC Analysis and Model Calibration   |
| <b>Session 10</b>              |                  |  |
| February 29 (M)                | Kim              | Probabilistic Sensitivity Analysis<br><i>Assignment #3 due at start of class</i>                             |
| <b>Session 11</b>              |                  |  |
| March 2 (W)                    | Kim              | Value of Information Analysis  |
| <b>Lab 5</b>                   |                  |  |
| March 3 & 4                    | Teaching Fellows | 1 <sup>st</sup> and 2 <sup>nd</sup> Order Monte Carlo Simulation and VOI                                     |
| <b>Session 12</b>              |                  |  |
| March 7 (M)                    | Soeteman, Kim    | Alternative Models: Discrete Event, Dynamic, LP Models   |
| <b>Session 13</b>              |                  |  |
| March 9 (W)                    | Teaching Fellows | Final Review<br><i>Exam #2 distributed at end of class; due March 11 at 12pm</i>                             |
| <b>NO LAB</b> March 10 & 11    |                  |  |

|                  |                       |                     |
|------------------|-----------------------|---------------------|
| <b>Session 1</b> | <b>January 25 (M)</b> | <b>Introduction</b> |
|------------------|-----------------------|---------------------|

**Readings:**

Buxton MJ, Drummond MF, Van Hout BA, Prince RL, Sheldon TA, Szucs T, Vray M. Modelling in economic evaluation: an unavoidable fact of life. *Health Economics* 1997;6:217-227. <http://onlinelibrary.wiley.com.ezp-prod1.hul.harvard.edu/doi/10.1002/%28SICI%291099-1050%28199705%296:3%3C217::AID-HEC267%3E3.0.CO;2-W/pdf>

Roberts M, Russell LB, Paltiel AD, Chambers M, McEwan P, Krahn M, on behalf of the ISPOR-SMDM Modeling Good Research Practices Task Force. Conceptualizing a model: A report of the ISPOR-SMDM Modeling Good Research Practices Task Force-2. *Value in Health* 2012;15:804-811. <http://dx.doi.org.ezp-prod1.hul.harvard.edu/10.1016/j.jval.2012.06.016>

|                  |                       |                          |
|------------------|-----------------------|--------------------------|
| <b>Session 2</b> | <b>January 27 (W)</b> | <b>Markov Models (1)</b> |
|------------------|-----------------------|--------------------------|

**Readings:**

Siebert U, Alagoz O, Bayoumi AM, Jahn B, Owens DK, Cohen DJ, Kuntz KM, on behalf of the ISPOR-SMDM Modeling Good Research Practices Task Force. State-transition modeling: A report of the ISPOR-SMDM Modeling Good Research Practices Task Force-3. *Value in Health* 2012;15:812-820. <http://dx.doi.org.ezp-prod1.hul.harvard.edu/10.1016/j.jval.2012.06.014>

Kuntz KM, Weinstein MC. Modelling in economic evaluation. In Drummond M, McGuire A, eds. *Economic Evaluation in Health Care. Merging Theory with Practice*. Oxford University Press, 2001, Chapter 7, pp. 141-171.

**Supplemental Reading:**

Hunink MGM, Weinstein MC, Wittenberg E, Drummond MF, Pliskin JS, Wong JB, Glasziou PP. Recurring events. In *Decision Making in Health and Medicine: Integrating Evidence and Values*. 2<sup>nd</sup> edition. Cambridge University Press, 2014, Chapter 10, pp. 300-333.

**Assignment:** Review Matrix Algebra Primer (in Lab 1 folder on course Canvas site)

|               |                            |  |
|---------------|----------------------------|--|
| <b>Lab #1</b> | <b>January 28 &amp; 29</b> | <b>TreeAge Tutorial #1 and Matrix Algebra Primer</b> |
|---------------|----------------------------|--|

|                  |                       |                          |
|------------------|-----------------------|--------------------------|
| <b>Session 3</b> | <b>February 1 (M)</b> | <b>Markov Models (2)</b> |
|------------------|-----------------------|--------------------------|

**Readings:**

Revisit readings from session 2.

|                  |                       |                                   |
|------------------|-----------------------|-----------------------------------|
| <b>Session 4</b> | <b>February 3 (W)</b> | <b>Life Expectancy Estimation</b> |
|------------------|-----------------------|-----------------------------------|

**\*\*\* ASSIGNMENT #1 DUE AT THE START OF CLASS \*\*\***

**Readings:**

Fleurence RL, Hollenbeak CS. Rates and probabilities in economic modelling: Transformation, translation and appropriate application. *Pharmacoeconomics* 2007;25:3-6.  
<http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=23686585&site=ehost-live&scope=site>

Lee ET. Functions of survival time. In *Statistical Methods for Survival Data Analysis*, New York: John Wiley & Sons, 1992, Chapter 2, pp.8-18.

Beck JR, Kassirer JP, Pauker SG. A convenient approximation of life expectancy (The "DEALE"). I. Validation of the method, and II. Use in medical decision making. *American Journal of Medicine* 1982; 73:883-897.  
[http://dx.doi.org.ezp-prod1.hul.harvard.edu/10.1016/0002-9343\(82\)90786-0](http://dx.doi.org.ezp-prod1.hul.harvard.edu/10.1016/0002-9343(82)90786-0)  
[http://dx.doi.org.ezp-prod1.hul.harvard.edu/10.1016/0002-9343\(82\)90787-2](http://dx.doi.org.ezp-prod1.hul.harvard.edu/10.1016/0002-9343(82)90787-2)

|               |                           |                            |
|---------------|---------------------------|----------------------------|
| <b>Lab #2</b> | <b>February 4 &amp; 5</b> | <b>TreeAge Tutorial #2</b> |
|---------------|---------------------------|----------------------------|

|                  |                       |   |
|------------------|-----------------------|---|
| <b>Session 5</b> | <b>February 8 (M)</b> | <b>Estimating Probabilities from the Literature</b> |
|------------------|-----------------------|---|

**Readings:**

Miller DK, Homan SM. Determining transition probabilities: confusion and suggestions. *Medical Decision Making* 1994;14:52-58.

Revisit relevant sections of Kuntz KM, Weinstein MC. Modelling in economic evaluation. In Drummond M, McGuire A, eds. *Economic Evaluation in Health Care. Merging Theory with Practice*. Oxford University Press, 2001, Chapter 7, pp. 141-171 [from Session 2].

|                                       |                        |                               |
|---------------------------------------|------------------------|-------------------------------|
| <b>Session 6</b>                      | <b>February 10 (W)</b> | <b>Health State Utilities</b> |
| Guest Instructor: Eve Wittenberg, PhD |                        |                               |

**\*\*\* ASSIGNMENT #2 DUE AT THE START OF CLASS \*\*\***

**Readings:**

Hunink MGM, Weinstein MC, Wittenberg E, Drummond MF, Pliskin JS, Wong JB, Glasziou PP. Valuing outcomes. In *Decision Making in Health and Medicine: Integrating Evidence and Values*. 2<sup>nd</sup> edition. Cambridge University Press, 2014, Chapter 4, pp. 78-117.

Brazier J. Valuing health states for use in cost-effectiveness analysis. *Pharmacoeconomics* 2008;26:769-779. <http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=34479204&site=ehost-live&scope=site>

Neumann PJ. What's next for QALYs. *Journal of the American Medical Association* 2011;305:1806-1807. <http://jama.jamanetwork.com.ezp-prod1.hul.harvard.edu/article.aspx?articleid=899527>

|  |                             |  |
|--|-----------------------------|--|
| <b>Lab #3</b>  | <b>February 11 &amp; 12</b> | <b>Life Expectancy,<br/>Prob Estimation, DEALE</b> |
| <b>No Class</b>  | <b>February 15 (M)</b>      | <b>President's Day</b>                             |
| <b>Session 7</b><br>Guest Instructor: Stephen Resch, PhD | <b>February 17 (W)</b>      | <b>Costs and<br/>Cost-Effectiveness Analysis</b>   |

### Readings:

Fishman PA, Hornbrook MC. Assigning resources to health care use for health services research: options and consequences. *Medical Care* 2009;47:S70-S75. <http://ezp1.harvard.edu/login?url=http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&AN=00005650-200907001-00012&LSLINK=80&D=ovft>

Barnett PG. An improved set of standards for finding cost for cost-effectiveness analysis. *Medical Care* 2009;47:S82-S88. <http://ezp1.harvard.edu/login?url=http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&AN=00005650-200907001-00014&LSLINK=80&D=ovft>

**\*\*\* EXAM #1 (TAKE-HOME) POSTED AT END OF CLASS \*\*\***

**DUE BY FRIDAY, FEBRUARY 19 at 12:00 NOON at**  
Center for Health Decision Science  
718 Huntington Avenue, 2<sup>nd</sup> Floor

|               |                             |
|---------------|-----------------------------|
| <b>No Lab</b> | <b>February 18 &amp; 19</b> |
|---------------|-----------------------------|



|                  |                        |   |
|------------------|------------------------|---|
| <b>Session 8</b> | <b>February 22 (M)</b> | <b>Estimating Probabilities (cont) and ROC Analysis</b> |
|------------------|------------------------|---|

**Readings:**

Revisit readings from session 5.

Weinstein MC, Fineberg HV. The choice of a positivity criterion. In *Clinical Decision Analysis*. Philadelphia: W.B. Saunders, 1980, pp. 113-126.

|                  |                        |   |
|------------------|------------------------|---|
| <b>Session 9</b> | <b>February 24 (W)</b> | <b>Model Calibration and Validation</b> |
|------------------|------------------------|---|

**Readings:**

Vanni T, Karnon J, Madan J, White RG, Edmunds WJ, Foss A, Legood R. Calibrating models in economic evaluation: A seven-step approach. *Pharmacoeconomics* 2011;29 :35-49.

<http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=heh&AN=70064068&site=ehost-live&scope=site>

Stout NK, Knudsen AB, Chung YK, McMahon PM, Gazelle GS. Calibration methods used in cancer simulation models and suggested reporting guidelines. *Pharmacoeconomics*

2009;27:533-545. <http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=44275598&site=ehost-live&scope=site>

Eddy DM, Hollingworth W, Caro JJ, Tsevat J, McDonald KM, Wong JB, on behalf of the ISPOR-SMDM Modeling Good Research Practices Task Force. Model transparency and validation: A report of the ISPOR-SMDM Modeling Good Research Practices Task Force-7. *Value in Health* 2012;15:843-850. <http://dx.doi.org.ezp-prod1.hul.harvard.edu/10.1016/j.jval.2012.04.012>

**Supplemental Readings:**

Kennedy MC, O'Hagan A. Bayesian calibration of computer models. *J R Statist Soc B* 2001;63:425-464. <http://www.jstor.org.ezp-prod1.hul.harvard.edu/stable/2680584>

|               |                             |   |
|---------------|-----------------------------|---|
| <b>Lab #4</b> | <b>February 25 &amp; 26</b> | <b>ROC Analysis and Model Calibration</b> |
|---------------|-----------------------------|---|

|                   |                        |   |
|-------------------|------------------------|---|
| <b>Session 10</b> | <b>February 29 (M)</b> | <b>Probabilistic<br/>Sensitivity Analysis</b> |
|-------------------|------------------------|---|

**\*\*\* ASSIGNMENT #3 DUE AT START OF CLASS \*\*\***  
**\*\*\* PRACTICE EXAM FOR REVIEW SESSION POSTED AT END OF CLASS \*\*\***

### Readings:

Hunink MGM, Weinstein MC, Wittenberg E, Drummond MF, Pliskin JS, Wong JB, Glasziou PP. Heterogeneity and uncertainty. In *Decision Making in Health and Medicine: Integrating Evidence and Values*. 2<sup>nd</sup> edition. Cambridge University Press, 2014, Chapter 12, pp. 356-391.

Briggs AH, Goeree R, Blackhouse G, O'Brien BJ. Probabilistic analysis of cost-effectiveness models: choosing between treatment strategies for gastroesophageal reflux disease. *Medical Decision Making* 2002;22:290-308. <http://mdm.sagepub.com.ezp-prod1.hul.harvard.edu/content/22/4/290.full.pdf+html>

\*\* This paper describes an applied example of PSA and provides candidate distributions used for various types of model parameters (e.g., transition probabilities, costs).

### Supplemental Readings:

Briggs AH, O'Brien BJ, Blackhouse G. Thinking outside the box: recent advances in the analysis and presentation of uncertainty in cost-effectiveness studies. *Annual Reviews Public Health* 2002;23:377-401. <http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=6533373&site=ehost-live&scope=site>

Fenwick E, Claxton K, Sculpher M. Representing uncertainty: The role of cost-effectiveness acceptability curves. *Health Economics* 2001;10:779-787. <http://onlinelibrary.wiley.com.ezp-prod1.hul.harvard.edu/doi/10.1002/hec.635/pdf>

|                   |                    |  |
|-------------------|--------------------|--|
| <b>Session 11</b> | <b>March 2 (W)</b> | <b>Value of Information<br/>Analysis</b> |
|-------------------|--------------------|--|

### Readings:

Claxton KP, Sculpher MJ. Using value of information analysis to prioritise health research: some lessons from recent UK experience. *Pharmacoeconomics* 2006;24:1055-68. <http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=23159598&site=ehost-live&scope=site>

Groot Koerkamp B, Hunink MGM, Stijnen T, Weinstein MC. Identifying key parameters in cost-effectiveness analysis using value of information; a comparison of methods. *Health Economics* 2006;15:383-392. <http://onlinelibrary.wiley.com.ezp-prod1.hul.harvard.edu/doi/10.1002/hec.1064/pdf>

**Assignment:** Read "The Case of a New Drug" (posted online)

**Supplemental Readings:**

Ades AE, Lu G, Claxton K. Expected value of sample information calculations in medical decision making. *Medical Decision Making* 2004;24:211-227.

<http://mdm.sagepub.com.ezp-prod1.hul.harvard.edu/content/24/2/207.full.pdf+html>

|                            |                        |  |
|----------------------------|------------------------|--|
| <b>Lab #5</b>              | <b>March 3 &amp; 4</b> | <b>1<sup>st</sup> and 2<sup>nd</sup> Order Monte Carlo</b> |
| <b>Session 12</b>          | <b>March 7 (M)</b>     | <b>Alternative Models:</b>                                 |
| Guest: Djora Soeteman, PhD |                        | <b>Discrete-Event, Dynamic, LP</b>                         |

**Readings:**

Soeteman DI, Miller M, Kim JJ. Modeling the risks and benefits of depression treatment for children and young adults. *Value in Health* 2012;15:724-29. <http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=78284758&site=ehost-live&scope=site>

Soeteman DI, Stout NK, Ozanne EM, Greenberg C, Hassett MJ, Schrag D, Punglia RS. Modeling the effectiveness of initial management strategies for ductal carcinoma in situ. *Journal of the National Cancer Institute* 2013;10(11):774-81. <http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=87988269&site=ehost-live&scope=site>

Standfield L, Comans T, Scuffham P. Markov modeling and discrete event simulation in health care: a systematic comparison. *International Journal of Technology Assessment in Health Care* 2014;30(2):165-72. <http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/1532186151?accountid=11311>

Edmunds WJ, Medley GF, Nokes DJ. Evaluating the cost-effectiveness of vaccination programmes: a dynamic perspective. *Statistics in Medicine* 1999;18:3263-3282. <http://onlinelibrary.wiley.com.ezp-prod1.hul.harvard.edu/doi/10.1002/%28SICI%291097-0258%2819991215%2918:23%3C3263::AID-SIM315%3E3.0.CO;2-3/pdf>

Kim JJ, Salomon JA, Weinstein MC, Goldie SJ. Packaging health care services when resources are limited: The example of a cervical cancer screening visit. *PLoS Med* 2006;3(11):e434. <http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=25451371&site=ehost-live&scope=site>

**Supplemental Readings:**

Anderson R, Nokes DJ. Mathematical models of transmission and control. In *Oxford Textbook of Public Health*, eds. Detels R et al., Oxford University Press, 1997, Chapter 18, pp. 689-710.

Brisson M, Edmunds WJ. Impact of model, methodological, and parameter uncertainty in the economic analysis of vaccination programs. *Medical Decision Making* 2006;26:434-446. <http://mdm.sagepub.com.ezp-prod1.hul.harvard.edu/content/26/5/434.full.pdf+html>

|                                       |                    |                     |
|---------------------------------------|--------------------|---------------------|
| <b>Session 13</b><br>Teaching Fellows | <b>March 9 (W)</b> | <b>Final Review</b> |
|---------------------------------------|--------------------|---------------------|

### No Readings

**Assignment:** Go through practice exam questions (in Exams folder on course website)

**\*\*\* EXAM #2 (TAKE-HOME) POSTED AT END OF CLASS \*\*\***

**DUE BY FRIDAY, MARCH 11 at 12:00PM at**  
Center for Health Decision Science  
718 Huntington Avenue, 2<sup>nd</sup> Floor

|               |                          |
|---------------|--------------------------|
| <b>No Lab</b> | <b>March 10 &amp; 11</b> |
|---------------|--------------------------|



**RDS 286**  
**Decision Analysis in Clinical Research**  
**Summer 2015**



**Instructor:**

**Uwe Siebert, M.D., M.P.H., M.Sc., Sc.D.**

Professor of Public Health (UMIT)  
Adjunct Professor of Health Policy and Management (Harvard T.H. Chan School of Public Health)  
Center for Health Decision Science, Department of Health Policy and Management  
Harvard T.H. Chan School of Public Health,  
718 Huntington Avenue, 2<sup>nd</sup> floor, room 202, Boston, MA 02115-5924  
Phone: (617) 432-6586  
Email: [usiebert@hsph.harvard.edu](mailto:usiebert@hsph.harvard.edu)  
Web: <http://chds.hsph.harvard.edu/People/Uwe-Siebert>

**Co-Instructor:**

**Milton C. Weinstein, Ph.D.**

Henry J. Kaiser Professor of Health Policy and Management (Harvard T.H. Chan School of Public Health)  
Professor of Medicine (Harvard Medical School)  
Center for Health Decision Science, Department of Health Policy and Management  
Harvard T.H. Chan School of Public Health  
718 Huntington Avenue, Boston, MA 02115-5924  
Email: [mcw@hsph.harvard.edu](mailto:mcw@hsph.harvard.edu)  
Web: <http://www.hsph.harvard.edu/milton-weinstein/>

**Guest Lecturer:**

**Eve Wittenberg, MPP, PhD**

Senior Research Scientist  
Center for Health Decision Science, Department of Health Policy and Management  
Harvard T.H. Chan School of Public Health  
718 Huntington Avenue, Boston, MA 02115-5924  
Phone: (617) 432-6933  
Email: [ewittenb@hsph.harvard.edu](mailto:ewittenb@hsph.harvard.edu)  
Web: <http://chds.hsph.harvard.edu/People/Eve-Wittenberg>

**Teaching Fellows (TF):**

There are five Teaching Fellows for the course:

|                               |   |
|-------------------------------|---|
| <b>Vidit Munshi (Head TF)</b> | Email: <a href="mailto:vmunshi@g.harvard.edu">vmunshi@g.harvard.edu</a>     |
| <b>Calvin Blake Bannister</b> | Email: <a href="mailto:cbb268@mail.harvard.edu">cbb268@mail.harvard.edu</a> |
| <b>Marieke A. Langhout</b>    | Email: <a href="mailto:m.langhout@erasmusmc.nl">m.langhout@erasmusmc.nl</a> |
| <b>Liem Binh Luong Nguyen</b> | Email: <a href="mailto:luong@mail.harvard.edu">luong@mail.harvard.edu</a>   |
| <b>Lina Song</b>              | Email: <a href="mailto:dsong@fas.harvard.edu">dsong@fas.harvard.edu</a>     |

## Course Objectives

This course is designed to provide an introduction to the methods and growing range of applications of decision analysis and cost-effectiveness analysis in medical decision making, comparative effectiveness research, health resource allocation, and health technology assessment. The aims of the course are:

- (1) to provide the student with basic technical understanding of the methods,
- (2) to give the student an appreciation of the practical problems of applying these methods in the evaluation of medical procedures and health technologies, and
- (3) to give the student an appreciation of the uses and limitations of these methods in decision making at the levels of national policy, managed care organizations, health care provider organizations, health technology assessment agencies and individual patient care.

This course prepares students for more advanced and in-depth courses on clinical decision analysis (RDS 285, Decision Analysis Methods; RDS 288, Medical Decision Making; and RDS 282, Cost-Effectiveness/Cost-Benefit Analysis).

This course will meet in 14 sessions, according to the attached schedule. In addition, an optional computer lab will be scheduled for students who want to learn TreeAge, a software program for decision analysis. Additional tutoring sessions and review sessions will be scheduled as needed.

## Course Requirements

Requirements for the course consist of the following:

1. a series of cases (to be prepared as assigned and to be discussed in class or office hours, but not turned in);
2. a take-home midterm examination (to be **distributed on Friday, July 10, and due Tuesday, July 14, at 1:30 pm**); and
3. a take-home final examination (to be **distributed on Tuesday, July 21, and due Friday, July 24, at 12:00 noon**).

Final grades will be based 50% on the exam receiving the higher score, 40% on the other exam, and 10% on class participation.

If you would like your graded final exam returned to you, please submit a self-addressed, 9"x12" envelope with your final exam. If you are unable to pick it up from your HSPH mailbox, please submit a stamped, self-addressed envelope, and be sure to include adequate postage.

## Collaboration

Students are encouraged to work on cases in groups, but – **with no exception** - the midterm and final exams must be done independently. It is expected that all students will keep up with the required readings, and be prepared for class discussion on the application(s) or methodological issue of the day.

## Course Materials

### Readings

The main textbook for the course is:

*Decision Making in Health and Medicine: Integrating Evidence and Values*, 2<sup>nd</sup> Edition, by Hunink MG, Weinstein MC, Wittenberg E, Drummond MF, Pliskin JS, Wong JB and Glasziou PP. Cambridge: Cambridge University Press, 2014. ISBN: 978-1-107-69047-9.

This textbook is available for purchase at the Harvard COOP, 1400 Mass. Ave., Cambridge, or online from the Harvard COOP.

(<http://harvardcoopbooks.bncollege.com/webapp/wcs/stores/servlet/BNCBTBListView>).

The other required readings will be available for download from the course website or Harvard library system.

### Office Hours

Professor Siebert will have regular office hours from 3:30 to 5:00pm on Tuesdays, Wednesdays, and Thursdays. I can be reached by e-mail ([usiebert@hsph.harvard.edu](mailto:usiebert@hsph.harvard.edu)) or by phone (617-432-6586), at the School of Public Health. My office is at 718 Huntington Avenue (across the tracks), 2<sup>nd</sup> floor, room 202. Please send an e-mail if you are unable to come at office hours or if you would like to arrange an appointment during the morning. I would welcome the opportunity to speak to each of you individually, to hear of your objectives in taking the course, and to get to know you more personally than is possible in a large classroom.

## A NOTE ON RELATED COURSES IN HEALTH DECISION SCIENCES

Students who complete this course may wish to take one or more of the following, more advanced courses in the Health Decision Sciences program:

- **Decision Analysis Methods in Public Health and Medicine**  
(RDS 285, Spring Term 1, Prof. Jane Kim).
- **Methods for Decision Making in Medicine**  
(RDS 288, Summer Term 2, Prof. Myriam Hunink).
- **Economic Evaluation of Health Policy and Program Management**  
(RDS 282, Spring Term 2, Dr. Stephen Resch)
- **Decision Theory**  
(RDS 284, Fall Term, Prof. James Hammitt)

**RDS 285 and RDS 288** develop skills in methods for decision modeling, including: Markov models, simulation modeling, and value of information. Students gain facility with decision-analytic software. Both courses cover similar topics. RDS 288 includes an independent student project, whereas RDS 285 gives relatively more time to problem sets and skill development in decision modeling.

**RDS 282** gives students practical skills for conducting cost-effectiveness analysis. It is aimed at students desiring practical skills and is not a substitute for the more rigorous methodological background provided in RDS 285.

**RDS 284** presents the theory of choice, including the subjective expected utility model, multi-attribute utility theory, and the expected value of information -- with applications to health and environmental policy. The focus is the standard model of individual decision making under uncertainty with extensions to social choice, benefit-cost and cost-effectiveness analysis.

In addition, there are **several research seminars** that feature health decision science, on topics of methodological and applied interest, including speakers from outside as well as inside Harvard University. For more information, visit the web site of the Center for Health Decision Science (<http://chds.hsph.harvard.edu>).



**Class Schedule of RDS 286 Decision Analysis in Clinical Research: At a Glance (Summer 2015)**

| Date      | No. | Time                                | Topic   | Lecturer         | Room                          |
|-----------|-----|-------------------------------------|---|------------------|-------------------------------|
| Thur 7/2  | 1   | 1:30-3:20                           | Overview  | US               | FXB G12                       |
| Fri 7/3   | --  | --                                  | <i>HOLIDAY</i>  |                  |                               |
| Mon 7/6   | 2   | 1:30-3:20                           | Clinical Decision Trees   | US               | FXB G12                       |
| Tues 7/7  | 3   | 1:30-3:20                           | Evaluating Test Information   | US               | FXB G12                       |
| Wed 7/8   | 4   | 1:30-3:20                           | Diagnostic Testing Strategies   | US               | FXB G12                       |
| Thur 7/9  | 5   | 1:30-3:20                           | Choosing a Positivity Criterion   | US               | FXB G12                       |
| Fri 7/10  | 6   | 1:30-3:20<br>3:30-5:30              | Preferences in Medical Decision Making<br>Midterm Review Session<br><i>MIDTERM EXAM DISTRIBUTED AFTER REVIEW SESSION</i>  | US<br>TFs        | FXB G12<br>KRSB G1            |
| Mon 7/13  | --  | --                                  | <i>NO CLASS</i>   |                  | FXB G12                       |
| Tues 7/14 | 7   | 1:30-3:20                           | Quality-Adjusted Life Years<br><i>MIDTERM EXAM DUE AT 1:30 PM</i>   | US               | FXB G12                       |
| Wed 7/15  | 8   | 1:30-3:20<br>3:30-5:30<br>5:30-7:30 | Basics of Cost-Effectiveness Analysis<br>Optional Software Tutorial (Group 1)<br>Optional Software Tutorial (Group 2)   | US<br>TFs<br>TFs | FXB G12<br>FXB G11<br>FXB G11 |
| Thur 7/16 | 9   | 1:30-3:20                           | Incremental Cost-Effectiveness Analysis   | MCW              | FXB G12                       |
| Fri 7/17  | 10  | 1:30-3:20                           | Cost-Effectiveness Workshop,<br>Time Preference and Discounting   | US               | FXB G12                       |
| Mon 7/20  | 11  | 1:30-3:20                           | Markov Models   | US               | FXB G12                       |
| Tues 7/21 | 12  | 1:30-3:20<br>3:30-5:30              | Decision Analysis in Comparative<br>Effectiveness Research and Health<br>Technology Assessment<br>Final Exam Review Session<br><i>FINAL EXAM DISTRIBUTED AFTER REVIEW SESSION</i> | US<br>TFs        | FXB G12<br>KRSB G1            |
| Wed 7/22  | 13  | 1:30-3:20                           | Biases and Framing Effects  | EW               | FXB G12                       |
| Thur 7/23 | 14  | 1:30-3:20                           | Ethical Issues in Decision Analysis   | US               | FXB G12                       |
| Fri 7/24  |     |                                     | <i>FINAL EXAM DUE AT 12:00 NOON</i>   |                  |                               |

EW: Eve Wittenberg; MCW: Milton C. Weinstein; TF: Teaching Fellow; US: Uwe Siebert

### Schedule of Teaching Fellow Office Hours

Office Hours will be held at 3:30-5:00pm every day, except when there is some other course event scheduled at the same time. Additional office hours will be held from 12:00 or 12:30-1:30pm for those who cannot make the later times. The specific dates, times and rooms are shown below:

| Date  |         | Time  | Room                                     |
|-------|---------|---|--|
| Mon   | July 6  | 12:00 – 1:30pm<br>3:30 – 5:00pm   | KRSG 200<br>KRSG G3                      |
| Tue   | July 7  | 12:00 – 1:30pm<br>3:30 – 5:00pm   | KRSG 200<br>FXB G11                      |
| Wed   | July 8  | 12:00 – 1:30pm<br>3:30 – 5:00pm   | KRSG 200<br>KRSG G3                      |
| Thurs | July 9  | 12:00 – 1:30pm<br>3:30 – 5:00pm   | KRSG 200<br>FXB G10                      |
| Fri   | July 10 | <i>Review Session: 3:30 – 5:00pm</i>  | KRSG G1                                  |
| Wed   | July 15 | 12:30 – 1:20pm<br><i>Software Tutorial:</i><br>3:30 – 5:30pm (Group1)<br>5:30 – 7:30pm (Group2) | <b>FXB G12</b><br><br>FXB G11<br>FXB G11 |
| Thurs | July 16 | 12:00 – 1:30pm<br>3:30 – 5:00pm   | KRSG 200<br>FXB G10                      |
| Fri   | July 17 | 12:00 – 1:30pm<br>3:30 – 5:00pm   | KRSG 200<br>KRSG 200                     |
| Mon   | July 20 | 12:00 – 1:30pm<br>3:30 – 5:00pm   | KRSG 200<br>KRSG G3                      |
| Tue   | July 21 | 12:00 – 1:30pm<br><i>Review Session: 3:30 – 5:00pm</i>  | KRSG 200<br>KRSG G1                      |

## Biosketches Teaching Fellows

Blake Bannister, SM

[cbb268@mail.harvard.edu](mailto:cbb268@mail.harvard.edu)

Blake Bannister is a recent graduate of the Chan School of Public Health with a Master of Science in Environmental Health. His research interests include the fate and transport of chemicals in the environment, human exposure and risk assessments, and the implementation of cost-effective solutions to reduce harmful environmental exposures. He recently worked with Jim Shine to evaluate water quality parameters as predictors of methylmercury in fish to enhance fish consumption advisories issued by the Alabama Department of Environmental Management. He is currently conducting an exposure assessment to evaluate the body burden of mercury among residents of Lawrence, Massachusetts. Blake is an avid runner and has competed twice at USATF Cross Country Club Nationals.

Marieke A. Langhout

[m.langhout@erasmusmc.nl](mailto:m.langhout@erasmusmc.nl)

Marieke Langhout is a master student Medicine and Health Science from the Netherlands. She is interested in simulation models in Decision Analysis with a focus on cost-effectiveness analysis. Her current combined research project in both Medicine and Health Science comprises a cost-effectiveness analysis to evaluate optimal strategies in diagnosing Coronary Artery Disease using Monte Carlo simulations. Marieke was a Teaching Fellow for RDS280 and currently finishing her research project at the Department of Professor Myriam Hunink.

Liem Binh Luong Nguyen, MD, Msc

[luong@mail.harvard.edu](mailto:luong@mail.harvard.edu)

Liem Binh Luong Nguyen is an infectious disease resident in Paris, France; and a MPH candidate at HSPH in Clinical Effectiveness. His research interests are cost effectiveness, modeling and health technology assessment. As post-doctoral research fellow in Massachusetts General Hospital at the Medical Practice Evaluation Center, he works with Médecins sans Frontières on cost effectiveness of HIV prevention strategies in Kenya by using a dynamic micro-simulation model and with INSERM on a testing and treatment micro-simulation model for Ebola virus disease. In France, he is the vice-president of the Multidisciplinary Biomedical Research Group. He earned his MD from Pierre et Marie Curie University and his MSc from Ecole Normale Supérieure in Paris.

Vidit Munshi

[vmunshi@g.harvard.edu](mailto:vmunshi@g.harvard.edu)

Vidit Munshi is a rising second year student in the Harvard PhD Program in Health Policy. His current interests and research include comparative and cost effectiveness of cancer screening technologies, and improvement of health care disparities using facets of decision analysis, mathematical modeling, and outcomes research. Prior to Harvard, Vidit worked at the Institute for Technology Assessment at Massachusetts General Hospital, where he was involved in comparative modeling projects as part of the National Cancer Institute's Cancer Intervention and Surveillance Modeling Network (CISNET) to inform the 2013 guidelines by the USPSTF recommending screening for lung cancer. He graduated from Boston University with a BA in economics in 2008 and returned to complete an MA in economics in 2010.

Lina Song

[dsong@fas.harvard.edu](mailto:dsong@fas.harvard.edu)

Lina Song is a third year PhD student studying Decision Science/Health Policy at Harvard Graduate School of Arts and Sciences. She is currently a research fellow at the Morgan Institute for Health Policy, working on the econometric analyses of clinical and economic ramifications of ACA-mandated preventive care benefits. She is also interested in decision-analytic modelling for economic evaluation of medical interventions for infectious diseases. Lina graduated from Caltech in 2010 with a BS in Applied and Computational Mathematics and received her MA in Statistics at Yale University. Prior to Harvard, she worked at the AIDS Center at Yale School of Medicine on building a dynamic model to evaluate the cost-effectiveness of HIV risk reduction interventions. She also participated in developing an inventory of HIV/AIDS resource allocation tools at the World Bank.

# RDS 286 Decision Analysis in Clinical Research

## Summer 2015

### Required Course Textbook:

Hunink MG, Weinstein MC, Wittenberg E, Drummond MF, Pliskin JS, Wong JB, Glasziou PP:  
*Decision Making in Health and Medicine: Integrating Evidence and Values*. 2nd Edition.  
Cambridge: Cambridge University Press, 2014. ISBN:978-1-107-69047-9

Exercises and additional material can be downloaded at  
<http://www.cambridge.org/gb/academic/textbooks/dmhm/>

## I. CLINICAL DECISION ANALYSIS

**Session 1**

**Thursday, July 2**

**Overview**

### **Advance Reading (to get a head start):**

Hunink, Weinstein, et al.: *Decision Making in Health and Medicine*, Chapters 1, 2, and 3.

**Session 2**

**Monday, July 6**

**Clinical Decision Trees**

### **Reading:**

Hunink, Weinstein, et al.: *Decision Making in Health and Medicine*, Chapters 1, 2, 3, and 5.

### **Assignment:**

1. Read the text chapters on probabilities and expected value, decision trees, and diagnostic test interpretation.
2. Do Case #1 (Hodgkins Disease).
3. Do Exercise 3.1 in *Decision Making in Health and Medicine*  
(<http://www.cambridge.org/gb/academic/textbooks/dmhm/exercises/>)

**📖 Reading:**

Hunink, Weinstein, et al.: *Decision Making in Health and Medicine*, Chapter 6.

**✍️ Assignment:**

1. Review Case #2 (Giant Cell Arteritis), to be sure you can reproduce the analyses done in class.
2. Do Exercise 5.2 at the end of Chapter 5 in *Decision Making in Health and Medicine*.
3. Read the text assignment on weighing the benefits and risks of diagnostic tests.
4. Begin thinking about Case #3 (Lung Nodule).

**📖 Reading:**

Hunink, Weinstein, et al.: *Decision Making in Health and Medicine*, Chapter 7: Sections 7.1, 7.2, and 7.5.

**✍️ Assignment:**

1. Finish working on Case #3 (Lung Nodule).
2. Read the text assignment on multiple tests.
3. Begin thinking about Case #4 (HIV).

**📖 Readings:**

Hunink, Weinstein, et al.: *Decision Making in Health and Medicine*, Chapter 7: Sections 7.3, 7.6, and 7.7

Neutra RR: Indications for the surgical treatment of suspected acute appendicitis: a cost-effectiveness approach. In: *Costs, Risks, and Benefits of Surgery* (Bunker JP, et. al., eds.), New York: Oxford University Press, 1997, pp. 277-307.

**✍️ Assignment:**

1. Finish working on Case #4 (HIV).
2. Read the text sections on choosing an optimal positivity criterion for a test.
3. The Neutra analysis provides an excellent review of the concepts we have covered thus far in the course. Use the study questions to prepare for class discussion.

**📖 Reading:**

Hunink, Weinstein, et al.: *Decision Making in Health and Medicine*, Chapter 4: Sections 4.1-4.3.

Weinstein MC, Fineberg HV, et al.: "Utility Analysis: Clinical Decisions Involving Many Possible Outcomes". Chapter 7 in *Clinical Decision Analysis*, Philadelphia: W.B. Saunders (1980), pp.184-211.

**✍️ Assignment:**

1. Read the text sections on valuing outcomes and utility analysis.
2. Work on Case #5A (Utility Assessment).

**📖 Reading:**

Hunink, Weinstein, et al.: *Decision Making in Health and Medicine*, Chapter 4: Sections 4.4-4.16.

📍 MIDTERM REVIEW SESSION AT 3:30PM, Kresge G1

📅 MIDTERM EXAM DISTRIBUTED AFTER REVIEW SESSION

🚫 NO CLASS ON MONDAY, JULY 13

**✍️ Assignment:**

1. Finish working on Case #5A (Utility Assessment).
2. Read the text chapter on utilities and quality-adjusted life years.
3. Begin thinking about Case #5B (Kidney Dialysis and Transplantation).

**☆ Optional Reading:**

McNeil BJ, Weichselbaum R, Pauker SG: Fallacy of the five-year survival in lung cancer. *N Engl J Med* 1978; 299:1397-1401. <http://www.nejm.org.ezp-prod1.hul.harvard.edu/doi/full/10.1056/NEJM197812212992506#t=articleTop>

Weinstein MC, Torrance G, McGuire A. QALYs: the basics. *Value Health*. 2009;12 Suppl 1:S5-9.

<http://www.sciencedirect.com.ezp-prod1.hul.harvard.edu/science/article/pii/S1098301510600460>

📅 MIDTERM DUE AT 1:30 PM ON TUESDAY, JULY 14, 2015.

## II. COST-EFFECTIVENESS ANALYSIS

Session 8

Wednesday, July 15

Basics of Cost-Effectiveness Analysis

### Reading:

Hunink, Weinstein, et al.: *Decision Making in Health and Medicine*, Chapter 9.

Siebert U. When should decision-analytic modeling be used in the economic evaluation of health care? *European Journal of Health Economics* 2003; 4; 143-150. <http://www.jstor.org.ezp-prod1.hul.harvard.edu/stable/3570079>

### Assignment:

1. Finish working on Case #5B (Kidney Dialysis and Transplantation)
2. Read the text chapter on cost-effectiveness analysis (CEA).
3. Skim one or two of the following examples of cost-effectiveness analysis to get a sense of what goes into a CEA, how clinical trial results are integrated with decision models, and how results are interpreted:

Sanders GD, Hlatky MA, Owens DK: Cost-effectiveness of implantable cardioverter-defibrillators. *N Engl J Med* 2005; 353:1471-80.

<http://content.nejm.org/cgi/content/full/353/14/1471>

Rinfret S, Cohen DJ, Lamas GA, Fleischmann KE, Weinstein MC, Orav J, Schron E, Lee KL, Goldman L: Cost-effectiveness of dual-chamber pacing as compared with ventricular pacing for sinus-node dysfunction. *Circulation* 2005; 111: 165-72.

<http://circ.ahajournals.org.ezp-prod1.hul.harvard.edu/cgi/content/full/111/2/165>

Paltiel AD, Walensky RP, Schackman BR, Seage GR III, Mercinacavage LM, Weinstein MC, Freedberg KA: Expanded HIV screening in the United States: effect on clinical outcomes, HIV transmission, and costs. *Annals of Internal Medicine* 2006; 145: 797-806.

<http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=23335105&site=ehost-live&scope=site>

Kim JJ, Wright TC, Goldie SJ: Cost-effectiveness of alternative triage strategies for atypical squamous cells of undetermined significance. *JAMA* 2002; 287:2382-2390.

<http://jama.jamanetwork.com.ezp-prod1.hul.harvard.edu/article.aspx?articleid=194903>

Fowler RA et al. Cost-effectiveness of defending against bioterrorism: a comparison of vaccination and antibiotic prophylaxis against anthrax. *Ann Intern Med* (2005); 142: 601-610.

<http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=16913766&site=ehost-live&scope=site>



McMahon PM, Araki SS, Sandberg EA, Neumann PJ, Gazelle GS: Cost-effectiveness of PET in the diagnosis of Alzheimer disease. *Radiology* 2003; 228:515-522.

<http://radiology.rsna.org/content/228/2/515.full>

Siebert U, Sroczynski G, German Hepatitis C Model (GEHMO) Group, HTA Expert Panel on Hepatitis C. Effectiveness and cost-effectiveness of initial combination therapy with interferon/peginterferon plus ribavirin in patients with chronic hepatitis C in Germany: a health technology assessment commissioned by the German Federal Ministry of Health and Social Security. *Int J Tech Assess Health Care* 2005;21:55-65.

<http://journals.cambridge.org.ezp->

[prod1.hul.harvard.edu/action/displayFulltext?type=6&fid=285799&jid=THC&volumeId=21&issueId=01&aid=285798&fulltextType=RA&fileId=S0266462305050075](http://prod1.hul.harvard.edu/action/displayFulltext?type=6&fid=285799&jid=THC&volumeId=21&issueId=01&aid=285798&fulltextType=RA&fileId=S0266462305050075)

Fearon WF, Bornschein B, Tonino PA, Gothe RM, Bruyne BD, Pijls NH, Siebert U. Economic evaluation of fractional flow reserve-guided percutaneous coronary intervention in patients with multivessel disease. *Circulation* 2010;122:2545-50.

<http://circ.ahajournals.org.ezp-prod1.hul.harvard.edu/content/122/24/2545>

 **OPTIONAL TREEAGE TUTORIAL AT 3:30PM or 5:30PM, FXB FXB-G11 COMPUTING LAB**

**Session 9**

**Thursday, July 16**

**Incremental Cost-Effectiveness Analysis**

 **Reading:**

Doubilet P, Weinstein MC, McNeil BJ: Use and misuse of the term 'cost-effective' in medicine.

*N Engl J Med* 1986; 314:253-256. <http://www.nejm.org.ezp->

[prod1.hul.harvard.edu/doi/full/10.1056/NEJM198601233140421](http://prod1.hul.harvard.edu/doi/full/10.1056/NEJM198601233140421)

 **Assignment:**

1. Review *Decision Making in Health and Medicine*, Section 9.6, and read the Doubilet paper.
2. Skim the Results presented in one or two cost-effectiveness analyses examples you reviewed from last session and determine if *incremental* cost-effectiveness analysis was used correctly.
3. Do Case #6 (Resource Allocation).

**📖 Reading:**

Hunink, Weinstein, et al.: *Decision Making in Health and Medicine*, Chapter 9: Sections 9.8-9.12.  
Review Hunink, Weinstein, et al.: *Decision Making in Health and Medicine*, Section 9.5.

Weinstein MC, Stason WB: Foundations of cost-effectiveness analysis for health and medical practices. *New England Journal of Medicine* 1977; 296:716-721. <http://www.nejm.org.ezp-prod1.hul.harvard.edu/doi/full/10.1056/NEJM197703312961304#t=articleTop>

Russell LB, Gold MR, Siegel JE, Daniels N, Weinstein MC: The role of cost-effectiveness analysis in health and medicine. *JAMA* 1996; 276:1172-1177. <http://jama.jamanetwork.com.ezp-prod1.hul.harvard.edu/article.aspx?articleid=409182>

Weinstein MC, Siegel JE, Gold MR, Kamlet MS, Russell LB: Recommendations of the Panel on Cost-Effectiveness in Health and Medicine. *JAMA* 1996; 276:1253-1258. <http://jama.jamanetwork.com.ezp-prod1.hul.harvard.edu/article.aspx?articleid=409634>

Siegel JE, Weinstein MC, Russell LB, Gold MR: Recommendations for reporting cost-effectiveness analyses. *JAMA* 1996; 276:1339-1341. <http://jama.jamanetwork.com.ezp-prod1.hul.harvard.edu/article.aspx?articleid=410035>

**✍ Assignment:**

1. Do Case #7A (Blastoblitocosis) and Case #7B (Diagnostic Tests).
2. Review the argument for discounting health benefits, as presented in the Weinstein-Stason article. How does discounting affect the cost-effectiveness ratios for preventive and acute care programs?
3. Read the recommendations of the Panel on Cost-Effectiveness in Health and Medicine, and come to class with questions and reactions.

**★ Optional Reading:**

Lipscomb JL, Weinstein MC, Torrance GW: Time preference. In (Gold MR, et al., Eds.) *Cost-Effectiveness in Health and Medicine*, New York, Oxford University Press, 1997.

**📖 Reading:**

Hunink, Weinstein, et al.: *Decision Making in Health and Medicine*, Chapter 10. (This material is covered in depth in RDS 288 (Summer 2) and RDS 285 (Spring).)

☆ **Optional Reading:**

Briggs A, Sculpher M: An introduction to Markov modelling for economic evaluation.

*Pharmacoeconomics* 1998; 13:397-409. <http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=heh&AN=9526695&site=ehost-live&scope=site>

Roberts M, Russell LB, Paltiel AD, Chambers M, McEwan P, Krahn M; ISPOR-SMDM Modeling Good Research Practices Task Force: Conceptualizing a model: a report of the ISPOR-SMDM Modeling Good Research Practices Task Force-2. *Med Decis Making* 2012; 32:678-89. <http://mdm.sagepub.com.ezp-prod1.hul.harvard.edu/content/32/5/678>

Siebert U, Alagoz O, Bayoumi AM, Jahn B, Owens DK, Cohen DJ, Kuntz KM: State-transition modeling: a report of the ISPOR-SMDM Modeling Good Research Practices Task Force-3. *Med Decis Making* 2012; 32:690-700. <http://mdm.sagepub.com.ezp-prod1.hul.harvard.edu/content/32/5/690>

**Session 12**

**Tuesday, July 21**

**Decision Analysis in CER and HTA**

 **Reading:**

Drummond MF, Schwartz JS, Jönsson B, Luce BR, Neumann PJ, Siebert U, Sullivan SD.: Key principles for the improved conduct of health technology assessments for resource allocation decisions. *Int J Technol Assess Health Care* 2008; 24:244-58. <http://dx.doi.org.ezp-prod1.hul.harvard.edu/10.1017/S0266462308080343>

☆ **Optional Reading:**

Shepherd J, Brodin H, Cave C, Waugh N, Price A, Gabbay J. Clinical and cost-effectiveness of pegylated interferon alfa in the treatment of chronic hepatitis C: a systematic review and economic evaluation. *International Journal of Technology Assessment in Health Care* 2005;21:47-54. <http://dx.doi.org.ezp-prod1.hul.harvard.edu/10.1017/S0266462305050063>

Siebert U, Sroczynski G, German Hepatitis C Model (GEHMO) Group, HTA Expert Panel on Hepatitis C. Effectiveness and cost-effectiveness of initial combination therapy with interferon/peginterferon plus ribavirin in patients with chronic hepatitis C in Germany: a health technology assessment commissioned by the German Federal Ministry of Health and Social Security. *Int J Tech Assess Health Care* 2005; 21:55-65. <http://dx.doi.org.ezp-prod1.hul.harvard.edu/10.1017/S0266462305050075>

 **FINAL REVIEW SESSION AT 3:30PM, Kresge G1**

 **FINAL EXAM DISTRIBUTED AFTER REVIEW SESSION**

 **Assignment:**

Be ready for a class in which you will be subjects in some classic experiments in human judgment.

☆ **Optional Readings:**

Tversky A, Kahneman D: Judgment under uncertainty: heuristics and biases. *Science* 1974; 185:1124-1131. <http://www.jstor.org.ezp-prod1.hul.harvard.edu/stable/1738360>

Tversky A, Kahneman D: The Framing of Decisions and the Psychology of Choice. *Science* 1981; 211:453-458. <http://www.jstor.org.ezp-prod1.hul.harvard.edu/stable/1685855>

Hunink, Weinstein, et al.: *Decision Making in Health and Medicine*, Chapter 13.

 **Reading:**

Hunink, Weinstein, et al.: *Decision Making in Health and Medicine*, Chapter 12.

Brett AS: Hidden ethical issues in clinical decision analysis. *N Engl J Med* 1981; 305:1150-1152.

<http://www.nejm.org.ezp-prod1.hul.harvard.edu/doi/full/10.1056/NEJM198111053051911>

Hadorn DC: Setting health care priorities in Oregon: cost-effectiveness meets the rule of rescue.

*JAMA* 1991; 265:2218-2225. <http://jama.jamanetwork.com.ezp-prod1.hul.harvard.edu/article.aspx?articleid=385789>

 **Assignment:**

Prepare for a class discussion of ethical issues in decision analysis and cost-effectiveness analysis.

 **FINAL EXAMINATION DUE AT 12:00 NOON ON FRIDAY, JULY 24, 2015.**

**GOOD LUCK!!!**

**RDS 288s**

**METHODS FOR DECISION MAKING IN MEDICINE**

**An intermediate level course**

Summer Program, second session

Instructor:

M.G. Myriam Hunink, MD, PhD

Professor of Clinical Epidemiology and Radiology, Erasmus University Medical Center,

Rotterdam and Adjunct Professor of Health Decision Sciences, Harvard University, Boston

email: [mhunink@hsph.harvard.edu](mailto:mhunink@hsph.harvard.edu)

Brief course description:

This course deals with intermediate-level topics in the field of medical decision making. Topics that will be addressed include building decision models, evaluation of diagnostic tests, utility assessment, multi-attribute utility theory, Markov cohort models, microsimulation state-transition models, calibration and validation of models, probabilistic sensitivity analysis, value of information analysis, and behavioral decision making. The course will focus on the practical application of techniques and will include published examples and a computer practicum. During the course you will have the opportunity to work on a decision problem which you select yourself.

**This is not an introductory course. Prerequisites are an introductory course in Decision Analysis (RDS280 or RDS286s or faculty approval of equivalent course) and basic knowledge of probability and statistics. The course has limited enrollment.**

It is an intensive course. The course will consist of 11 2-hour lectures and 4 computer tutorials with assignments. Requirements are active participation in class, doing the computer assignments and handing them in, homework reading assignments, and work on your own case example during and outside of class. The teaching assistants can be consulted for help.

Book:

Hunink MGM, Weinstein MC, Wittenberg E, Drummond MF, Pliskin JS, Wong JB, Glasziou PP. Decision Making in Health and Medicine: Integrating Evidence and Values. Cambridge University Press, Cambridge, UK, 2014. ISBN 978-1-107-69047-9.

I will be assuming that students are familiar with the material covered in chapters 1, 2, 3, 5, 6, and 9 and have some understanding of the basic parts of chapters 4 and 7. In addition, readings from the literature will be provided in this syllabus with links to the pdf's.

## Software

Students will be required to purchase an academic student course license of the decision analysis software, TreeAge Pro Suite for Healthcare with Excel add-in (\$45). The software is available for direct purchase at [www.treeage.com/shop/](http://www.treeage.com/shop/) and should be downloaded directly to your laptop. Indicate that you are taking RDS288 and enter my email address under course instructor's email: [mhunink@hsph.harvard.edu](mailto:mhunink@hsph.harvard.edu)

**Please bring your laptop for the computer practicums and also when you ask help from the TA's on your model during office hours.**

### **COURSE ASSIGNMENT: your own case example**

Think of a decision problem that you are currently involved in or were recently confronted with. It may be a clinical decision problem involving a patient you care for, a management decision problem you are struggling with, a public health policy problem you are involved with, or a personal (preferably medical) decision problem. If you have trouble choosing a problem you may pick an example from class or from the book and work on updating it, improving it, and elaborating on it. You can also ask me for a case – I have a number of cases that could be of interest. This will be your own case example.

As we go through the material, try to think of your decision problem. Whenever it is applicable, try to apply the methods we discuss and what you learn to your case example. The more specific you are, the better. Try to model the problem, find appropriate data, and do calculations using the Treeage software. Use guestimates for data that are not readily available to get an idea of how the methods work. Please do not get hung up on the data inputs: try to get a sense of how the methods work – you can be precise about the data inputs if you pursue the project at a later stage.

You may work in pairs or individually but make sure you work on a decision problem that is of interest to you in some way or other. I encourage you to work together and help each other (you probably learn more from each other than from me!).

*Day 1 or 2: Case example, brief description:*

*Upload to Canvas a half-page summary of your case example describing the problem, the perspective, the strategies, the trade-off(s) involved, and the outcome(s) you want to optimize. Please add your background and expertise and a small recent photo of yourself. This will help us to give you advice and feedback during the course. If applicable, indicate who you are working with.*

We will be discussing the case examples during class and during the practicum. You are expected to work on your case during the entire course.

Case example, final project:

Finally, we expect a short paper and/or presentation with

1. Introduction: explain the decision problem with the trade-offs involved;
2. Methods: an explanation of your model, assumptions, and data sources you used;
3. Results: presentation of the results of the analysis; and
4. Discussion of your findings and limitations of the analysis.

The TA's will make a schedule for student presentations of the finalized case examples on the last day (Friday) of the course. We encourage you to present your work. Most students find this helpful in order to get feedback for future work on their project.

**To get a grade for this course you need to:**

- 1) upload to Canvas a half-page summary of your case example (with your background and expertise and a small recent photo of yourself) during the first 2 days of the course**
  - 2) upload your solutions for the computer assignments in a timely fashion**
  - 3) upload the presentation and/or paper of your case example on the last day (evening/night) of the course and upload your Treeage model.**
- (If you cannot make the deadline, please speak to Prof Hunink)**

**Grading**

*For the brief case description: 1 point*

*For participation in class: 1 point*

*For the 4 computer practicum sessions: per session 2 points, 8 points total.*

*For the final presentation and/or paper of the case example: 10 points*

Introduction of the problem, reframing, defining the objective: 2 points

Methods: consistent model, captured important tradeoffs, sensitivity analysis: 1 point

Methods: level of sophistication (Markov/ microsimulation/ probabilistic sensitivity analysis/ value of information analysis) and correctly implemented: 3 points

Results: correct presentation and interpretation of results: 2 points

Discussion: clinical implications, limitations, next steps: 2 points

*Final grade: take the sum of the points, then:*

18.0-20 = A

16.0-17.9 = A-

14.0-15.9 = B+

## Outline of sessions and readings

### Session 1: Review of basic concepts of decision modeling and cost-effectiveness

The steps of proactive decision making. Issues in developing decision models. Diagnostic models. Finding data. Introduction to decision modeling with DATA Treeage.

Cost-effectiveness and cost-benefit. Measures of effectiveness. Cost analysis. Discounting. Incremental cost-effectiveness. Net health benefits.

### Assignment: Upload a brief description of your own case example to Canvas

#### Required reading

1. Review course materials RDS286 or equivalent course or book chapters 1, 2, 3, 5, 6, and 9.

#### Optional reading

2. Groot Koerkamp B, Wang YC, Hunink MG. Cost-effectiveness analysis for surgeons. *Surgery*. 2009 Jun;145(6):616-22. doi:10.1016/j.surg.2009.03.006
3. Drummond MF, Schwartz JS, Jönsson B, Luce BR, Neumann PJ, Siebert U, Sullivan SD. Key principles for the improved conduct of health technology assessments for resource allocation decisions. *Int J Technol Assess Health Care*. 2008 Summer;24(3):244-58 <http://journals.cambridge.org.ezp-prod1.hul.harvard.edu/action/displayFulltext?type=6&fid=1923464&jid=THC&volumeId=24&issueId=03&aid=1923460&fulltextType=RA&fileId=S0266462308080343>; discussion 362-8 <http://journals.cambridge.org.ezp-prod1.hul.harvard.edu/action/displayFulltext?type=6&fid=1923644&jid=THC&volumeId=24&issueId=03&aid=1923640&fulltextType=AC&fileId=S0266462308081038>.
4. Roberts M, Russell LB, Paltiel AD, Chambers M, McEwan P, Krahn M, on behalf of the ISPOR-SMDM Modeling Good Research Practices Task Force. Conceptualizing a model: A report of the ISPOR-SMDM Modeling Good Research Practices Task Force-2. *Value in Health* 2012;15:804-811. <http://dx.doi.org.ezp-prod1.hul.harvard.edu/10.1016/j.jval.2012.06.016>
5. Fishman PA, Hornbrook MC. Assigning resources to health care use for health services research: options and consequences. *Medical Care* 2009;47:S70-S75. <http://ezp1.harvard.edu/login?url=http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CS=C=Y&NEWS=N&PAGE=fulltext&AN=00005650-200907001-00012&LSLINK=80&D=ovft>
6. Barnett PG. An improved set of standards for finding cost for cost-effectiveness analysis. *Medical Care* 2009;47:S82-S88. <http://ezp1.harvard.edu/login?url=http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CS=C=Y&NEWS=N&PAGE=fulltext&AN=00005650-200907001-00014&LSLINK=80&D=ovft>



7. Neumann PJ, Cohen JT, Weinstein MC. Updating cost-effectiveness – the curious resilience of the \$50,000 per QALY threshold. *New Engl J Med* 2014; 371;9 796-797.  
<http://www.nejm.org.ezp-prod1.hul.harvard.edu/doi/full/10.1056/NEJMp1405158>
8. Example: Mandelblatt JS, Cronin KA, Bailey S, et.al.; Breast Cancer Working Group of the Cancer Intervention and Surveillance Modeling Network. Effects of mammography screening under different screening schedules: model estimates of potential benefits and harms. *Ann Intern Med.* 2009 Nov 17;151(10):738-47. <http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=45306636&site=ehost-live&scope=site>
9. Example: Genders TS, Meijboom WB, Meijs MF, Schuijf JD, Mollet NR, Weustink AC, et al. CT coronary angiography in patients suspected of having coronary artery disease: decision making from various perspectives in the face of uncertainty. *Radiology* 2009 Dec;253(3):734-44. <http://radiology.rsna.org/content/253/3/734.abstract>
10. Example: Smits M, Dippel DW, Nederkoorn PJ, Dekker HM, Vos PE, Kool DR, van Rijssel DA, Hofman PA, Twijnstra A, Tanghe HL, Hunink MG. Minor head injury: CT-based strategies for management--a cost-effectiveness analysis. *Radiology* 2010 Feb;254(2):532-40 <http://radiology.rsna.org/content/254/2/532.full>.

## Session 2: Computer practicum

**Make sure you have downloaded and installed an academic student course license of Treeage ([www.treeage.com/shop](http://www.treeage.com/shop)) on your laptop and bring your laptop.** It is a fairly user-friendly program and is really fun to work with although initially it may be frustrating. Hang in there – you'll get the hang of it.... The TA's are there to help you.

(1) Tutorial Decision Making software See: TUTORIAL TreeAge Pro 2015.pdf

For a background information on building and analyzing a decision tree:

Chapter 4: A Decision Tree Tutorial.

Read the text and practice using the software as you read

Chapter 15: Introduction to Variables and Sensitivity analysis.

For manipulating and editing your trees:

Chapter 11: Selecting subtrees and multiple nodes, and

Chapter 12: Making changes to tree structure:

(2) **Assignment 1** "Pulmonary Embolism"

**Assignment 2** "Cost-effectiveness analysis and net health/monetary benefits"

**Upload your solutions on Canvas prior to the next computer practicum.**

## Session 3: Valuing outcomes and Multiattribute utility theory

Life expectancy as outcome. Survival curves. Measuring quality of life. Utility assessment: rating

scale, visual analogue scale, time trade off, standard gamble. Measuring patient preferences for short term states. Problems with utility assessment. Practical solutions. Risk aversion and risk seeking behavior. Multiattribute utility theory. Theoretical background of multiattribute utility theory.

Required reading

1. Book. Decision Making in Health and Medicine. Chapter 4: originally written by Jane Weeks and revised by Eve Wittenberg.

Optional readings

2. Coons SJ, Rao S, Keininger DL, Hays RD. A comparative review of generic quality-of-life instruments. *Pharmacoeconomics* 2000; 17(1): 13-35. <http://ezp1.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=9526793&site=ehost-live&scope=site>
3. Ara R, Brazier J. Deriving an algorithm to convert the eight mean SF-36 dimension scores into a mean EQ-5D preference-based score from published studies (where patient level data are not available). *Value Health*. 2008 Dec;11(7):1131-43. <http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=34714975&site=ehost-live&scope=site>
4. Young TA, Mukuria C, Rowen D, Brazier JE, Longworth L. Mapping Functions in Health-Related Quality of Life: Mapping From Two Cancer-Specific Health-Related Quality-of-Life Instruments to EQ-5D-3L. *Med Decis Making* May 21, 2015 <http://mdm.sagepub.com.ezp-prod1.hul.harvard.edu/content/early/2015/05/20/0272989X15587497.abstract>
5. Hanmer J, Lawrence WF, Anderson JP, Kaplan RM, Fryback DG. Report of Nationally Representative Values for the Noninstitutionalized US Adult Population for 7 Health-Related Quality-of-Life Scores. *Med Decis Making* 2006;26:391–400. <http://mdm.sagepub.com.ezp1.harvard.edu/cgi/content/abstract/26/4/391>
6. Sullivan PW, Ghushchyan V. Mapping the EQ-5D Index from the SF-12: US General Population Preferences in a Nationally Representative Sample. *Med Decis Making* 2006; 26:401–409. <http://mdm.sagepub.com.ezp1.harvard.edu/cgi/content/abstract/26/4/401>
7. Sullivan PW, Ghushchyan V. Preference-Based EQ-5D index scores for chronic conditions in the United States. *Med Decis Making*. 2006 Jul-Aug;26(4):410-20. <http://mdm.sagepub.com.ezp1.harvard.edu/cgi/content/abstract/26/4/410>

Tip

Peter Neumann maintains a very extensive registry in which he lists cost-effectiveness and utility studies (with references) since 1976. The site provides several pdfs. Unfortunately for full access there is a license fee. <https://research.tufts-nemc.org/cear4/default.aspx>

#### **Session 4: Modeling recurring events**

The declining exponential approximation of life expectancy (DEALE).

Markov models. Practical applications of Markov models.

Issues in modeling survival and life expectancy. Estimating life expectancy gains.

##### Required reading

1. Book. Decision Making in Health and Medicine. Chapter 10: written by Joseph Pliskin.

##### Optional readings

2. Sonnenberg FA, Beck JR. Markov models in medical decision making: a practical guide. Medical Decision Making 1993;13:322-338.
3. Beck JR, Kassirer JP, Pauker SG. A convenient approximation of life expectancy (The "DEALE"). I. Validation of the method, and II. Use in medical decision making. American Journal of Medicine 1982;73:883-897. [http://ezp1.harvard.edu/login?url=http://dx.doi.org/10.1016/0002-9343\(82\)90786-0?nosfx=y](http://ezp1.harvard.edu/login?url=http://dx.doi.org/10.1016/0002-9343(82)90786-0?nosfx=y)

#### **Session 5: Computer practicum.**

##### **Assignment 3** "Constructing a Markov model in TreeAge Pro"

Upload your solutions on Canvas prior to the next computer practicum.

**Work on your own case example.** Consider whether your model should be a Markov model. Continue developing your decision model. Search for probability estimates and outcome values. If these are not readily available, estimate them based on your best judgment.

#### **Session 6: Estimating probabilities. Calibration and validation.**

Estimating probabilities from the literature. Calibrating the model. Validating results against known outcomes. Internal validation vs external validation.

##### Required reading

1. Book. Decision Making in Health and Medicine. Chapter 11: written by John Wong

##### Optional readings (examples)

2. Vanni T, Karnon J, Madan J, White RG, Edmunds WJ, Foss AM, et al. Calibrating models in economic evaluation: a seven-step approach. Pharmacoeconomics. 2011;29(1):35-49. <http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=heh&AN=70064068&site=ehost-live&scope=site>
3. Kim LG, Thompson SG. Uncertainty and validation of health economic decision models. Health Econ. 2010;19(1): 43–55. <http://onlinelibrary.wiley.com.ezp->

[prod1.hul.harvard.edu/doi/10.1002/hec.1444/abstract;jsessionid=E820DBC311984D1CE41641CD44FE1182.d03t02?systemMessage=Wiley+Online+Library+will+be+disrupted+21+May+from+10-12+BST+for+monthly+maintenance](http://prod1.hul.harvard.edu/doi/10.1002/hec.1444/abstract;jsessionid=E820DBC311984D1CE41641CD44FE1182.d03t02?systemMessage=Wiley+Online+Library+will+be+disrupted+21+May+from+10-12+BST+for+monthly+maintenance)

### **Session 7: Modeling patient heterogeneity and microsimulation**

Types of heterogeneity (=variability). Subgroup analysis. Expanding the number of health states. Modeling heterogeneity using tracker variables. Microsimulation, discrete event simulation, dynamic modeling.

#### *Required reading*

Book. Decision Making in Health and Medicine. Chapter 12: sections on heterogeneity.

#### *Optional reading*

Groot Koerkamp B, Stijnen T, Weinstein MC, Hunink MG. The Combined Analysis of Uncertainty and Patient Heterogeneity in Medical Decision Models. Med Decis Making 2011 Jul-Aug;31(4):650-61. <http://mdm.sagepub.com.ezp-prod1.hul.harvard.edu/content/early/2010/10/14/0272989X10381282.long>

### **Session 8: Computer practicum**

*Optional: Assignment 4* “Microsimulation”

**Assignment 5** “Tracker variables and heterogeneity”

Upload your solutions on Canvas prior to the next computer practicum.

Work on your own case example. Consider whether you need to add tracker variables. Maybe you want to re-structure your model to take heterogeneity into account.

### **Session 9: Evaluation of diagnostic tests and biomarkers**

Do's and don'ts when modeling diagnostic tests and biomarkers. Potential forms of bias in reports on diagnostic tests. Correction for verification bias and uninterpretability bias. Conditional independence. Combination tests. Multivariable prediction models. Diagnosis vs prognosis. Measures of diagnostic performance. Receiver operating characteristic curves.

#### *Required reading*

1. Book. Decision Making in Health and Medicine. Review chapters 5 and 6 (this material should be familiar). Study Chapter 7.

#### *Optional background readings*

2. Begg CB, Greenes RA. Assessment of diagnostic tests when disease verification is subject to selection bias. Biometrics 1983;39:207-215. <http://links.jstor.org.ezp1.harvard.edu/sici?sici=0006-341X%28198303%2939%3A1%3C207%3AAODTWD%3E2.0.CO%3B2-Y>

3. Hachamovitch R, Di Carli MF. Methods and limitations of assessing new noninvasive tests: Part II: Outcomes-based validation and reliability assessment of noninvasive testing. *Circulation*. 2008 May 27;117(21):2793-801. <http://circ.ahajournals.org.ezp-prod1.hul.harvard.edu/content/117/21/2793>
4. Hachamovitch R, Di Carli MF. Methods and limitations of assessing new noninvasive tests: part I: Anatomy-based validation of noninvasive testing. *Circulation*. 2008 May 20;117(20):2684-90. <http://circ.ahajournals.org.ezp-prod1.hul.harvard.edu/content/117/20/2684>
5. Hlatky MA, Greenland P, Arnett DK, Ballantyne CM, Criqui MH, Elkind MS, Go AS, Harrell FE Jr, Hong Y, Howard BV, Howard VJ, Hsue PY, Kramer CM, McConnell JP, Normand SL, O'Donnell CJ, Smith SC Jr, Wilson PW; American Heart Association Expert Panel on Subclinical Atherosclerotic Diseases and Emerging Risk Factors and the Stroke Council. Criteria for evaluation of novel markers of cardiovascular risk: a scientific statement from the American Heart Association. *Circulation*. 2009 May 5;119(17):2408-16. <http://circ.ahajournals.org.ezp-prod1.hul.harvard.edu/content/119/17/2408>
6. Example: Genders TS, Steyerberg EW, Hunink MG for the CAD consortium. Prediction model to estimate presence of coronary artery disease. *BMJ*. 2012;344:e3485. <http://www.bmj.com.ezp-prod1.hul.harvard.edu/content/344/bmj.e3485?view=long&pmid=22692650>

### **Session 10: Analyzing uncertainty**

Sensitivity analysis methods: One-way and multi-way sensitivity analysis, partial derivatives, probabilistic sensitivity analysis

#### Required reading

1. Book. *Decision Making in Health and Medicine*. Chapter 12: sections on uncertainty.

#### Optional background reading

2. Groot Koerkamp B, Stijnen T, Weinstein MC, Hunink MG. The Combined Analysis of Uncertainty and Patient Heterogeneity in Medical Decision Models. *Med Decis Making*. 2011 Jul-Aug;31(4):650-61. <http://mdm.sagepub.com.ezp-prod1.hul.harvard.edu/content/early/2010/10/14/0272989X10381282.long>
3. Groot Koerkamp B, Weinstein MC, Stijnen T, Heijenbrok-Kal MH, Hunink MG. Uncertainty and Patient Heterogeneity in Medical Decision Models. *Med Decis Making* 2010 Mar-Apr;30(2):194-205. <http://mdm.sagepub.com.ezp-prod1.hul.harvard.edu/cgi/reprint/30/2/194>
4. Briggs AH, Goeree R, Blackhouse G, O'Brien BJ. Probabilistic analysis of cost-effectiveness models: choosing between treatment strategies for gastroesophageal reflux

- disease. Medical Decision Making 2002;22:290-308. <http://mdm.sagepub.com.ezp1.harvard.edu/cgi/content/abstract/22/4/290>
5. Duintjer Tebbens RJ, Thompson KM, Hunink MG, Mazzuchi TA, Lewandowski D, Kurowicka D, Cooke RM. Uncertainty and sensitivity analyses of a dynamic economic evaluation model for vaccination programs. Med Decis Making. 2008 Mar-Apr;28(2):182-200. <http://mdm.sagepub.com.ezp-prod1.hul.harvard.edu/cgi/reprint/28/2/182>

### **Session 11: Computer practicum**

**Assignment 6:** "Uncertainty" . Upload your solutions on Canvas within 2 days.

Optional (useful): Assignment 7 "A cost-effectiveness analysis of CT coronary angiography"

Work on your own case example. By the end of today I expect you have a working model.

That gives you a few days to perform calculations and write up the paper.

### **Session 12: Evaluating diagnostic tests: cost-effectiveness analyses and the optimal operating point. Focusing technology assessment.**

Specific issues related to evaluation of diagnostic tests. Example: Cost-effectiveness of CT coronary angiography in patients suspected of having coronary artery disease. Performance of prediction models and adjusting these models. Calibration, discrimination, reclassification. Determining the optimal operating point on the ROC curve. Clinical usefulness. Challenges in evaluating rapidly advancing technology. On being too early until you are too late: the tension between analyzing with insufficient data vs analyzing when the decision has already been made. Challenge ROC curves. Determining target values that new technology would need to meet to be cost-effective compared to existing technologies.

#### Required reading

1. Book. Decision Making in Health and Medicine. Revisit Chapter 7, second part
2. Steyerberg EW, Vickers AJ, Cook NR, Gerds T, Gonen M, Obuchowski N, Pencina MJ, Kattan MW. Assessing the performance of prediction models: a framework for traditional and novel measures. Epidemiology. 2010 Jan;21(1):128-38. [PMCID: PMC3575184](https://pubmed.ncbi.nlm.nih.gov/19852162/).
3. Phelps CE, Mushlin AI. Focusing technology assessment using medical decision theory. Medical Decision Making 1988;8:279-289.

#### Optional readings

4. Littenberg B and Moses LE. Estimating diagnostic accuracy from multiple conflicting reports: a new meta-analytic method. Med Decis Making. 1993;13(4):313-21.
5. Bivariate analysis of sensitivity and specificity produces informative summary measures in diagnostic reviews. Reitsma JB, Glas AS, Rutjes AW, Scholten RJ, Bossuyt PM, Zwinderman

AH. J Clin Epidemiol. 2005 Oct;58(10):982-90. Review. <http://www.sciencedirect.com.ezp-prod1.hul.harvard.edu/science/article/pii/S0895435605001629#>

6. Fitzgerald M, Saville BR, Lewis RJ. JAMA Guide to Statistics and Methods: Decision Curve Analysis. JAMA 2015; 313: 409-410.  
<http://jama.jamanetwork.com.ezp-prod1.hul.harvard.edu/article.aspx?articleid=2091968>
7. Example: Heijenbrok-Kal MH, Buskens E, Nederkoorn PJ, van der Graaf Y, Hunink MGM. The optimal peak systolic velocity threshold on duplex ultrasonography for the indication carotid endarterectomy: a decision analytic approach. Radiology 2006; 238(2):480-487.  
8. <http://radiology.rsna.org/cgi/content/full/238/2/480>
8. Example: Genders TS, Petersen SE, Pugliese F, Dastidar AG, Fleischmann KE, Nieman K, Hunink MG. The optimal imaging strategy for patients with stable chest pain: a cost-effectiveness analysis. Ann Intern Med. 2015 Apr 7;162(7):474-84.  
<http://annals.org.ezp-prod1.hul.harvard.edu/article.aspx?articleid=2214175&resultClick=3>

### **Session 13: Value of information**

Expected value of perfect information and sample information. Net value of sampling.

*Optional (very useful):* **Assignment 8** "Value of information analysis"

#### *Required reading*

1. Book. Decision Making in Health and Medicine. Chapter 12: section on value of information analysis.

#### *Optional background reading*

2. Claxton K, Sculpher M, Drummond M. A rational framework for decision making by the National Institute for clinical excellence (NICE). Lancet 2002; 360: 711-715.  
15. <http://ezp1.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=7250852&site=ehost-live&scope=site>
3. Groot Koerkamp B, Nikken JJ, Oei EH, Stijnen T, Ginai AZ, Hunink MG. Value of information analysis used to determine the necessity of additional research: MR imaging in acute knee trauma as an example. Radiology 2008 Feb; 246(2): 420-427.  
5. <http://radiology.rsna.org/cgi/content/full/246/2/420>
4. Groot Koerkamp B, Weinstein MC, Stijnen T, Heijenbrok-Kal MH, Hunink MG. Uncertainty and Patient Heterogeneity in Medical Decision Models. Med Decis Making 2010 Mar-Apr;30(2):194-205. <http://mdm.sagepub.com.ezp-prod1.hul.harvard.edu/cgi/reprint/30/2/194>

5. Ades, Lu, Claxton. Expected Value of Sample Information Calculations in Medical Decision Modeling. Med Decis Making 2004; 24: 207-227.

<http://mdm.sagepub.com.ezp1.harvard.edu/cgi/content/abstract/24/2/207>

#### **Session 14: Psychology of judgment and shared decision making**

Psychological aspects of decision making. Risk communication with patients and the public.

Shared decision making.

##### Required reading

Book. Decision Making in Health and Medicine. Chapter 13: written by Eve Wittenberg.

##### Optional background readings

1. Hammond JS, Keeney RL, Raiffa H. The Hidden Traps in Decision Making. Harvard Business Review. 1998;76(5):47-58. <https://cb.hbsp.harvard.edu/cb/pl/27773879/27773987/0777e05b42c7defe2aab4761928e923c>
2. Hayashi A. When to trust your gut. Harvard Business Review. 2001;79(2):59-65. <https://cb.hbsp.harvard.edu/cb/pl/27773879/27773881/f9fea81a4c752447a74d4245a0384130>
3. Tversky A, Kahneman D. Judgment under uncertainty: heuristics and biases. Science 1974;185:1124-1131. <http://links.jstor.org.ezp1.harvard.edu/sici?sici=0036-8075%2819740927%293%3A185%3A4157%3C1124%3AJUUHAB%3E2.0.CO%3B2-M>
4. Tversky A, Kahneman D. The framing of decisions and the psychology of choice. Science 1981;211:453-458. <http://links.jstor.org.ezp1.harvard.edu/sici?sici=0036-8075%2819810130%293%3A211%3A4481%3C453%3ATFODAT%3E2.0.CO%3B2-3>
5. Redelmeier DA, Rozin P, Kahneman D. Understanding patients' decisions: cognitive and emotional perspectives. Journal of the American Medical Association 1993;270:72-76. <http://jama.jamanetwork.com.ezp-prod1.hul.harvard.edu/article.aspx?articleid=407158>

#### **Session 15: No lecture**

##### **Whole day presentation and discussion of own case examples**

Schedule to be made and announced on Canvas

You are welcome to come and listen to each others' presentations

Conference room, Center for Health Decision Science,

718 Huntington Avenue 2<sup>nd</sup> floor (across the street!)

**Upload the paper/presentation of your case example and the (Treeage) model to Canvas**