

HEALTH POLICY & CLINICAL PRACTICE
MWF SPRING 2010

H. Gilbert Welch MD, MPH

Professor of Medicine and Community & Family Medicine
Dartmouth Institute for Health Policy & Clinical Practice
Dartmouth Medical School

Course Description:

This course provides an overview of medical care in the United States. Students will receive an introduction to the common health problems facing Americans as well as the problems of the complex (and haphazard) system that has evolved to address them. In addition to the standard health policy concerns of access, cost and quality, the course will explore the question of how we know whether medical care improves health. After being provided some basic knowledge on study design and simple statistics (as well as some facility with spreadsheet software), students will develop their quantitative reasoning skills through the critical assessment of clinical data. Doing so will help prepare students to become both informed citizens -- and discerning consumers -- for the largest sector of the nation's economy.

10 weeks: 28 classes

Target Audience:

This is an introductory course on a topic not commonly taught to undergraduates -- how to critically evaluate U.S. medical care. While I believe the material is relevant to any undergraduate (as most all are destined to use the system), the course is targeted to those likely to be directly engaged in the system: either in a managerial role (business), political role (government) or clinical role (medicine or other health profession).

Objectives:

Knowledge-based – Students will become familiar with:

- common health problems and the common medical interventions used to address them
- the basic structure of the system, its financing and its incentives
- how inferences are made about cause and effect (how we know what we know), basic study designs and their limitations
- the distinction between treatment of the sick, identification of risks to health, and preventive services
- future policy options

Skills-based – Students will develop their ability:

- to think critically about measurement (both in terms of the construct being measured and how it is operationalized algebraically)
- to reason based on quantitative information
- to perform simple data analyses using spreadsheet software

Policy & Procedures:

This is an introductory course; there are no prerequisites. With a fairly large class size, most of the presentation of course material will occur in a lecture format. The course is quantitative – we will use numbers a great deal. But there is no need for higher math, a facility with basic arithmetic and simple algebra is all that is required. I will expect student to develop their spreadsheet skills and to foster this will be in the classroom each **X hour** to hold workshops and answer questions. While the readings are central to the course, it will be very difficult to do well in this course without attending class. The Dartmouth College Honor Code is in effect – I will not tolerate cheating/plagiarism of any kind.

Required Texts

Relman A. **A Second Opinion: Rescuing America's Health Care**. Public Affairs 2007

Bodenheimer TS, Grumbach K. **Understanding Health Policy**. McGraw-Hill 2007

Fletcher RH, Fletcher SW. **Clinical Epidemiology**. Lippincott William & Wilkins 2005

Welch HG. **Should I be tested for cancer?** University of California Press 2006

(journal articles and other readings provided)

Student Assessments

8 brief assignments/exercises – 15%

Op-ed assignment: <1000 words on some aspect of medical care you argue is wasteful or harmful – 10%

Evaluations of the performance of 5 peers in above exercise – 5%

2 in class exams (some questions will require either a calculator or spreadsheet) – 30%

Final exam – 40%

Course Outline

I. HEALTH PROBLEMS, MONEY & THE US MEDICAL CARE SYSTEM (4 CLASSES)

Overview: The first module will introduce students to the common health problems facing Americans and some of the most common medical interventions used to treat them (some of which we will come back to later in the course). This module will also be devoted to the medical system that evolved – not simply in response to these problems – but also in response to the interests of those providing medical care. Students will get an overview of how the medical system is organized, how it is financed, how providers are paid and how the federal government came to be a major player. They will also understand the largest problem facing policymakers – the relentless escalation of cost.

Date	Class Topic	Assignments/Additional Reading
Monday March 29	What is health care for? (common diseases & treatments)	US Department of Health and Human Services. Health, United States , 2008 (selected tables)
Wednesday March 31	How much does health care cost? Who pays?	Office of Management and Budget. Budget of the United States Government 2008 (selected tables) National Association of State Budget Officers. State Expenditure Report 2008 (selected tables) Due: 1-page Cost Assignment
Friday April 2	How did we get here? A thumbnail history.	
Monday April 5	Incentives Matter: Health care payment options	

Readings from required texts:

Relman A. **A Second Opinion: Rescuing America's Health Care**. Public Affairs 2007 (Chapters 1-4)
Bodenheimer TS, Grumbach K. **Understanding Health Policy**. McGraw-Hill 2007 (Chapter 1, 2, 4, 5, 6)

II. OTHER PROBLEMS WITH THE SYSTEM (4 CLASSES)

Overview: The current conventional wisdom is that health care suffers from “triad” of problems: rising costs, impaired access and low quality. The second module will explore the second two and students will be exposed to the challenges of measuring these problems. But the module will also go beyond this conventional framework to explore Dartmouth’s unique contribution to the medical care debate: the problem of missing information – namely, we doctors are not sure what works or what patients want.

Date	Class Topic	Assignments/Additional Reading
Wednesday April 7	Access - the weakness of the employer-based insurance model	U.S. Department of Health and Human Services; Office of the Assistant Secretary for Planning and Evaluation. Overview of the Uninsured in the United States: An analysis of the 2005 Current Population Survey , September 22, 2005 Due: 1-page Access Assignment
Friday April 9	Quality - how big a problem is it?	Sox Jr HC, Woloshin S. How many deaths are due to medical error? Getting the number right. Eff Clin Pract. 2000 Nov-Dec;3(6):277-83. Due: 1-page Quality Assignment
Monday April 12	Dartmouth’s take & contributions I (<i>Geographic variation/Patient preferences</i>)	Wennberg JE, Freeman JL, Shelton RM, Bubolz TA. Hospital use and mortality among Medicare beneficiaries in Boston and New Haven. N Engl J Med. 1989;321:1168-73. Wennberg JE. Improving the medical decision-making process. Health Aff. 1988;7:99-106.
Wednesday April 14	Dartmouth’s take & contributions II (<i>Medical Excess: Overtreatment & Overdiagnosis</i>)	Brownlee S. Overtreated. (Chapter 1) Welch HG, Schwartz LM, Woloshin S. What's Making Us Sick Is an Epidemic of Diagnoses. The New York Times, Tuesday, January 2, 2007; Science Times page D5.

Readings from required texts:

Bodenheimer TS, Grumbach K. **Understanding Health Policy.** McGraw-Hill 2007 (Chapter 3, 8-10)

• • • EXAM #1 • • •

Friday, April 16

III. INFERENCES ABOUT THE EFFECTIVENESS OF TREATMENT (5 CLASSES)

Overview: The third module will introduce a concept that will be central to the remainder of the course: inference – the process of making a conclusion based on a set of observations. The module will focus on inferences about the most familiar aspect of medical care – *Does treatment work?* Classically inference is thought of as simply a statistical issue, but it is much more than that. So in addition to introducing students to the 2 fundamental measures of the role of chance (p values & 95% confidence intervals), this module will also introduce the concept of effect size (integrating the importance of what is being measured with the magnitude of its change) – used to address the question of *How well does treatment work?*

The module will go on to put these concepts into practice using the “gold standard” study design of medical care – the randomized trial. We will review some of the major randomized trials for therapies directed at hypertension, heart disease, strokes and cancer and consider their limitations.

Date	Class Topic	Assignments/Additional Reading
Monday April 19	Numbers in Health Measuring effects	Primer on Absolute vs. Relative Differences. Eff Clin Pract. 1999;2:44.
Wednesday April 21	The Role of Chance p values/95% CIs	Primer on statistical significance and p values. Eff Clin Pract. 2001;4:183-4. Primer on 95% confidence intervals. Eff Clin Pract. 2001;4:229-33. Due: Numbers (AR/RR) Exercise
Friday April 23	How we know (<i>Randomized trials & the case of therapy for hypertension</i>)	Cochrane AL. Effectiveness and Efficiency. British Medical Journal 1971. (Chapter 1, 4) Due: Chance (p value/95% CI) Exercise
Monday April 26	What we know (<i>Randomized trials for heart disease, strokes and cancer</i>)	
Wednesday April 28	Things to watch out for (<i>small effects, intermediate endpoints, counterbalancing harms</i>)	

Readings from required texts:

Fletcher RH, Fletcher SW. **Clinical Epidemiology** Lippincott William & Wilkins 2005 (Chapters 1, 2, 4, 8, 10)

IV. INFERENCES ABOUT RISKS TO HEALTH (ENVIRONMENTAL, GENETIC) (4 CLASSES)

Overview: The fourth module will consider inferences in settings for which a randomized trial is not possible – either because it would be unethical (the exposure is suspected to pose a health risk) or impossible (the exposure is immutable – like an individual’s genetic make-up). Here observational study designs will be introduced: cohort and case-control studies. And we will do so in the context of the classic, and most powerful, example of a harmful environmental exposure – the role of cigarette smoking in causing lung cancer.

We will go on to consider to consider the role other environmental exposures in human health and highlight the additional limitation associated with observational research – the role of bias, in particular, confounding. The module concludes by examining the predictive power of genetic information.

Date	Class Topic	Assignments/Additional Reading
Friday April 30	How we know Observational studies & the case of cigarette smoking	
Monday May 3	What we know (passive smoking, radon, obesity, coffee)	Arnett JC, Tuteur PG. Point/Counterpoint: Is the public health message on secondhand smoke based on science? Internal Medicine News 2007;40(4):5. Due: Association (OR/RR) Exercise
Wednesday May 5	Things to watch out for (confounding - especially treatment, HRT, multiple comparisons)	Petitti DB. Hormone replacement therapy and heart disease prevention: experimentation trumps observation. JAMA. 1998;280:650-2. Welch HG, Mogielnicki J. Presumed benefit: lessons from the American experience with marrow transplantation for breast cancer. BMJ. 2002;324:1088-92.
Friday May 7	What we know about genetic testing (Cystic fibrosis, BRCA1/2, prostate cancer)	Welch HG, Burke W. Uncertainties in genetic testing for chronic disease. JAMA. 1998;280:1525-7. Due: Confounding Exercise

Readings from required texts:

Fletcher RH, Fletcher SW. **Clinical Epidemiology** Lippincott William & Wilkins 2005 (Chapters 5, 6, 11)

• • • EXAM #2 • • •
Monday, May 10

V. INFERENCES ABOUT PREVENTION (HEALTH PROMOTION, EARLY DETECTION) (5 CLASSES)

Overview: The fifth module will consider inferences about the value of prevention. We will distinguish between efforts to help people lead healthier lives (health promotion) and those to find disease early (early detection). While the conventional wisdom is that all preventive efforts are good, the reality is more nuanced and inference more complicated. Early detection, in particular, can be a double-edged sword: while some may be helped, others are diagnosed and treated needlessly. This module will introduce this problem in the clinical setting where it has become most evident – screening for prostate cancer.

While randomized trials of prevention are possible, they are often not done. And observational studies on the value early detection are terribly misleading because of two problems: lead-time and overdiagnosis. In reviewing the data on early detection for a number of cancers in the module, students will understand why the decision of whether or not to be screened is such a close call.

Date	Class Topic	Assignments/Additional Reading
Wednesday May 12	What we know <i>(smoking cessation, exercise, cancer screening)</i>	
Friday May 14	Benefits & Harms of Prostate Cancer Screening	
Monday May 17	Limits on the benefits possible from screening healthy populations and the misleading effects of lead time and overdiagnosis	
Wednesday May 19	Benefits & Harms of Breast Cancer Screening	Due: Lead time/Overdiagnosis Exercise
Friday May 21	Early detection and overdiagnosis <i>(Lung, Thyroid, and Skin cancer)</i>	

Readings from required texts:

Fletcher RH, Fletcher SW. **Clinical Epidemiology** Lippincott William & Wilkins 2005 (Chapters 9)
Welch HG. **Should I be tested for cancer?** University of California Press 2006 (entire book)

VI. OPTIONS FOR THE FUTURE (3 CLASSES)

Overview: The final module examines the path forward. It will begin by placing the US health care system in the context of those in other developed countries. It will go on to consider policy options that are currently contemplated by federal and state governments. And it will conclude with those prescriptions that should now be more evident in the context of what the students have learned this course: the need for better information, a better informed public, more balanced incentives and a more balanced view of value of medicine in general.

Date	Class Topic	Assignments/Additional Reading
Monday May 24	How does US health care stack up against those in other countries?	
Wednesday May 26	What are the policy options on the domestic table? <i>(Medicare expansion, mandates, HSAs, efficiencies increasing volume, performance measures, quality improvement, preventive care)</i>	
Friday May 28	What are the Dartmouth options? <i>(supply, incentives, and an informed public)</i>	Wennberg JE, Fisher ES, Skinner JS. Geography and the debate over Medicare reform. Health Aff 2002 Web Exclusives:W96-114. Welch HG, Woloshin S. Healthy skepticism. The Boston Globe, January 1, 2008: Opinion page A13.
Wednesday June 2	Open Review	

Readings from required texts:

Relman A. **A Second Opinion: Rescuing America's Health Care.** Public Affairs 2007 (Chapters 5-8)
Bodenheimer TS, Grumbach K. **Understanding Health Policy.** McGraw-Hill 2007 (Chapter 14-17)

• • • **FINAL EXAM** • • •
Exam Period