

Syllabus: Medical Discoveries that Changed the World

Wednesday afternoons 1:00-3:00 Temple Beth-El
Sep 14 – November 30 (no class Oct 12, Nov 23) 10 weeks
Coordinators: Sue Pakula and Martha Cussler

The modern practice of medicine owes its roots to several significant discoveries, which we will explore in depth during this course. Beginning in ancient Greece, India and China the trip will carry us through germs and X-rays and DNA and back to the holistic approach of the ancients. We will look at each discovery and consider its ramifications in the current world of medicine and world health. There is also room to explore any other discoveries that you think are equally as important as the ones we have chosen. In our exploration we will consider these questions

1. What makes a milestone in medicine?
2. What factors hindered or accelerated progress?
3. When do ethical considerations influence application of medical advances?

Course Format/Expectations:

Presentations: Each class member may choose to (1) summarize highlights of an assigned chapter and to elaborate on a topic of particular interest in that chapter and/or (2) make a presentation based on a topic/question listed for each chapter heading. Participants may choose to work in pairs. Participants will be expected to complete assigned reading, to raise questions and participate actively in discussion.

Resources: *Breakthrough* by Jon Queijo and handouts distributed in class

Chapter 1 9/14	Hippocrates and the Discovery of medicine	
Hour 1	<ul style="list-style-type: none"> • Introduction, review of syllabus • Highlights of Chapter 1: Hippocrates 	Martha Cussler
Hour 2	<ul style="list-style-type: none"> • How has the doctor/ patient relationship changed since the time of Hippocrates? (Modern medical ethics ---Being Mortal) • How does a patient know what good care is? • What is the "business" of medicine? • How much testing? How many meds? 	Sue Pakula

Chapter 2 9/21	The Discovery of Sanitation	
Hour 1	<ul style="list-style-type: none"> • The story of cholera and how sanitation diminished the problem • Relationship between poverty and sanitation 	
Hour 2	<ul style="list-style-type: none"> • Clean water challenges today: in US? In developing countries? • Global Sewage disposal issues and the threat of disease? <p>Resources: <i>The Deadly River: Cholera and the Cover-up in Post Earthquake Haiti</i>, Author Ralph Frerichs. 2016 New England Journal of Medicine. <i>Responding to Cholera</i> 2011, The Nation. <i>Haiti Earthquakes: Cholera Epidemic</i>, 10/16, 2015</p>	

Chapter 3 9/28	The Discovery of Germs and How They Cause Disease	
Hour 1	Review history and expand upon on the story of one of these men: <ul style="list-style-type: none"> • Ignaz Semmelweis, Louis Pasteur, Joseph Lister and Robert Koch. • Ethical issues regarding ID... Tuskegee study. Hepatitis B. Ebola. • What were the first vaccines developed? 	
Hour 2	<ul style="list-style-type: none"> • New / old infectious diseases. SARS. HIV. Ebola. Zicka, Lyme. 	

Chapter 4 10/5	The Discovery of Anesthesia	
Hour 1	<ul style="list-style-type: none"> • Pre modern anesthesia: earlier “methods” • Stories of discovery 	
Hour 2	<ul style="list-style-type: none"> • Issues/parallels between surgical/chronic pain control and the current opioid addiction crisis. <p>Resources 21st century Pain control and its consequences Review articles www.drug abuse.gov</p> <ul style="list-style-type: none"> • America's addiction to opioids, heroin and prescription drug abuse. May 14, 2014 • What is the federal government doing to combat opioid abuse? May 01, 2015 <p><i>Dreamland</i>, Author Sam Quinones. 2015 (NIH reports National Institute of Drug Abuse May 2014, 2015)</p>	

Chapter 5 10/19	The Discovery of X-rays	
Hour 1	<ul style="list-style-type: none"> • Historical Review • Differences among other imaging modalities? Which is used for what? Do we have any other choices? 	
Hour 2	<ul style="list-style-type: none"> • What do we fear about Radiation Treatment? Spector of Hiroshima, Chernobyl, Three Mile Island • What is radiation and how much is unsafe? • When is a CAT scan not appropriate? • What do we fear about X-ray and radiation <p>Resources: www.nebi.nlm.nih.gov Fears feelings and facts Medical Radiation and patients Radiation: What it is, What you need to know. Author Gale and Lax 2013</p>	

Chapter 6 10/26	The Discovery of Vaccines	
Hour 1	<ul style="list-style-type: none"> • Stories of Smallpox, Anthrax and Rabies • Description of the different kinds of vaccines currently used 	
Hour 2	<p>Assignment: View. NOVA/vaccines-calling the shots. 1 hour PBS- you tube</p> <ul style="list-style-type: none"> • Controversies regarding vaccines, HPV vaccine <p>http://www.pbs.org/wgbh/nova/body/vaccines-calling-shots.html</p>	

<https://www.youtube.com/watch?v=wqbH40Y9XJw>

Chapter 7 11/2	The Discovery of Antibiotics	
Hour 1	<ul style="list-style-type: none"> • Stories of Penicillin, Sulfa, Streptomycin • Are we becoming too clean? Unintended consequences of a “sanitary environment?” • Are antibiotics necessary and appropriate for all infections 	
Hour 2	<ul style="list-style-type: none"> • History of TB: • The prevalence of TB today in US and globally • The story of multiple antibiotic resistance; • Emerging antibiotic resistance <p>Reading. Antibiotic/anti microbial resistance www.cdc.gov drug resistance June 2016</p> <p>Focus on Tuberculosis</p> <ul style="list-style-type: none"> • Spitting Blood The History of TB. Helen Bynum. 2012 • Mountains Beyond Mountains. Tracy Kidder 2004 	

Chapter 8 11/9	The Discovery of Heredity, Genetics and DNA	
Hour 1	<ul style="list-style-type: none"> • Mendel’s peas and Beyond <p>Expand on New techniques. Crisper piece Crisper and the Gene Hackers. The New Yorker Magazine 11/16/2015 Crisper inventor calls for pause in editing heritable genes. news.berkeley.edu We are this close to Designer Babies. Mother Jones 2/2016</p>	
Hour 2	<ul style="list-style-type: none"> • Ethical dilemmas in medical research <p>Resource:The Immortal Life of Henrietta Lacks. Rebecca Skloot. 2010</p>	

Chapter 9 11/16	The Discovery of Drugs for Madness, Sadness and Fear	
Hour 1	<ul style="list-style-type: none"> • Defining Mental illness, Creating a model of illness • Therapy vs drugs, How do these drugs work? Do we know? • The use of cognitive behavioral therapy as alternative or • Adjunct therapy particularly in anxiety and depression <p>Cognitive Behavioral Therapy. www.ncbi.nlm.nih.gov. August 2013</p>	
Hour 2	<p>Controversies in use of medications in children</p> <ul style="list-style-type: none"> • The Ritalin controversy <p>View. WGBH. The Medicated Child. January 2008 Perfect Madness. Judith Warner. 2005</p> <ul style="list-style-type: none"> • Ethical use of drugs used to treat mental differences /illness • ADD, ADHD: Are these conditions over diagnosed? • Why do some people refuse medication? <p><i>Driven to Distraction, ADHD Nation, Far From the Tree</i> Andrew Solomon</p>	

Chapter 10 11/30	The Rediscovery of Alternative Medicine	
Hour 1	Alternative Medicine. Review East meets West <ul style="list-style-type: none"> • Impact of specialization, Reaction to medical models Alternative Medicine. Review East meets West Andrew Weill: spontaneous healing does it stand the test of time? Homeopathy, Osteopathy	
Hour 2	Two points of view Resources: Andrew Weil, Spontaneous Healing 1995 Spontaneous Happiness. 2011 Paul Offit. Do You Believe in Magic. 2014	