

# **EPI/HIST 805**

## **Readings in the Historical Roots of Epidemiological Thought**

**Fall Semester 2021 (3-credits)**

### **Instructors, Email, and Affiliations:**

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**Room** Zoom  
**Day & Time** Monday (12:40-3:30 p.m.)

**Offices:** Via Email/Zoom

**Office Hours** By appointment

### **OFFICIAL COURSE LISTING:**

**"FS21-EPI-805-001 – Historical Roots of Epidemiological Thought"**

### **READINGS**

No textbook is required. All required readings will be readily available on-line. From time-to-time we may distribute less accessible readings. Please check your course web site regularly as we will update readings from time-to-time as we find timely/provocative materials.

### **OBJECTIVES**

Understand the historical evolution of models of disease from biological and cultural perspectives. Critical thinking skills acquired in this class will help you contextualize and evaluate the rich societal backdrop that has formed, and continues to influence, key thought processes in modern epidemiology and public health.

### **GRADING**

Grades will be determined as follows:

- (1) Weekly class participation (25%)
- (2) Weekly writing assignments (25%)
- (3) Discussion Leader -- DL (25%)
- (4) Final writing assignment (25%)

All students are expected to come to class ready to participate in a vigorous discussion concerning the weekly reading assignments.

Time permitting, we will also review instructor comments on your writing assignments as a group activity.

Students will be responsible for being the Presenter/Discussion Leader (DL) for one weekly (~ half the class time) discussion on a topic chosen by you but approved by instructor(s). These are not fly-by-the-seat-of-one's-pants efforts. Your presentation is expected to be a professional-level effort that attests to your preparation, presentation, and discussion skills. Think professional conference-level presentation in quality, and if possible, draft a manuscript suitable for preprint repository distribution.

### **MISSED CLASSES**

Please advise instructors ahead of time that you will be missing class. Please DO NOT miss the class where you are the assigned DL.

### **RELIGIOUS OBSERVANCE**

Students are able to miss class to observe ANY religious occasion. However, it is your responsibility to catch up the notes on those days you are not in class. Instructors are happy to assist you under these circumstances.

### **ETIQUETTE**

The focus in each lecture is on active learning, critical thinking, and classroom participation. Please ensure your cell phone and/or pager is switched to the 'quiet' mode during class, and distractions are avoided as much as possible.

### **ACADEMIC HONESTY**

The Department of Epidemiology adheres to the policies on academic honesty as specified in *General Student Regulations 1.0, Protection of Scholarship and Grades*, and in the *all-University Policy on Integrity of Scholarship and Grades*, which are included in *Spartan Life: 1998 Student and Handbook and Resource Guide*, and on the MSU Web site.

### **PLAGIARISM**

Plagiarism is defined as presenting another person's work or ideas as one's own. You are expected to do your work on all assignments. Students who plagiarize will receive a 0.0 grade on the assignment or test, or perhaps fail the entire course.

### **ACCOMMODATIONS FOR DISABILITIES**

If you are a student with a disability who requires reasonable accommodations, please call the OPHS Disability Resource center at 353-9642 (voice) or 355-1293 (TTY). In addition, if a professional has diagnosed you to have a learning disability, please submit your diagnosis and the type of assistance you require *in writing* to both instructors before the end of the second week of class.

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## EPI/HIST 805

# THE HISTORICAL ROOTS OF THE DISCIPLINE OF EPIDEMIOLOGY

Fall Semester 2020

### AN ARRAY OF OUR POTENTIAL TOPICS and READINGS

These potential topics and readings are offered as illustrations. The actual topics and readings will be discussed and assigned in the first two sessions of the course after enrollees master the overall concept of the course.

### EVOLUTION of THOUGHT IN EPIDEMIOLOGY and PUBLIC HEALTH

Here we will examine several of the macro-level concepts and ‘disciplinary trajectories’ that have guided epidemiological thought within theoretical and ‘applied’ domains. We want to examine where we have been as a discipline, and how we have evolved to see the world through the lens of contemporary epidemiological thought processes. The discussion that emerges from this week should lay the groundwork for understanding the ‘historiography’ of epidemiology, as a stand-alone discipline, and as one informing methodological approaches to health and disease. We will read from the historical roots of our discipline and tackle many of the works that represent ‘true classics’ in the history of epidemiological thought.

- Taubes, Gary. Do We Really Know What Makes Us Healthy? *The New York Times Magazine*. September 16, 2007. 14 pages. Web site: <http://www.nytimes.com/2007/09/16/magazine/16epidemiology-t.html?pagewanted=1&r=2>
- Susser, Ezra and Bresnahan, Michaeline. Origins of Epidemiology. *Annals of the New York Academy of Sciences*. 2006; 954(1):6-18. <http://onlinelibrary.wiley.com/doi/10.1111/j.1749-6632.2001.tb02743.x/abstract>
- Pearce, Neil. Traditional Epidemiology, Modern Epidemiology, and Public Health. *American Journal of Public Health*. 1996; 86(5):678-682. <http://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.86.5.678>
- Andersen, Hanne. History and Philosophy of Modern Epidemiology. 2007. *HPS Conference*, Pittsburgh, PA. 24 pgs. [http://philsci-archive.pitt.edu/4159/1/Andersen\\_Modern\\_Epidemiology.pdf](http://philsci-archive.pitt.edu/4159/1/Andersen_Modern_Epidemiology.pdf)
- Stallones, Reuel A. To Advance Epidemiology. *Annual Reviews of Public Health*. 1980; 1:69-82. <http://www.annualreviews.org/doi/pdf/10.1146/annurev.pu.01.050180.000441>
- Smith, George Davey and Ebrahim, Shah. Epidemiology – Is It Time to Call it a Day? *International Journal of Epidemiology*. 2001; 30:1-11. **(non-required, supplemental reading)** <http://ije.oxfordjournals.org/content/30/1/1.full>

## EARLY CONCEPTS OF CONTAGION

Germ theory is one of the great breakthroughs in disease understanding. But how did people think of diseases that appeared to be communicable before then. Insights into this question will emerge from reading the work of figures such as John Hunter (1728-1793), Edward Jenner (1749-1823), the discoverer of vaccination against smallpox, Jacob Henle (1809-1885), Joseph Lister (1827-1912), and Robert Koch (1843-1910).

- Carter, Richard. Surgical Sketches: John Hunter, 1728-1793. *World Journal of Surgery*. 1993. 17:563-565.
- Hunter, John. On the Digestion of the Stomach after Death. *Philosophical Transactions* (1683-1775). 1772. 62(1772): 447-454.
- Henle, Jacob, Zymotic Theory, fr. Report on the Mortality from Cholera in England, 1848-49, HMSO, London, 1852. Also by Henle: On Miasmata and Contagia, pp. 5-34.
- Riedel, Stefan. Edward Jenner and the History of Smallpox and Vaccination. *BUMC Proceedings*. 2005. 18:21-25. <https://doi.org/10.1080/08998280.2005.11928028>
- Geddes, Alasdair M. The History of Smallpox. *Clinics in Dermatology*. 2006; 24:152-157. <https://doi.org/10.1016/j.clindermatol.2005.11.009>
- Koch, R. Methods for the Study of Pathogenic Organisms. Zur Untersuchung von pathogenen Organismen. *Mittheilungen aus dem Kaiserlichen Gesundheitsamte*. Vol. 1, pp. 1-48.
- Lister, J. The Croonian Lecture: On the Coagulation of the Blood. *Proceedings of the Royal Society of London*. Vol. 12 (1862-1863), pp. 580-611.
- Lister, J. Antiseptic Principle in the Practice of Surgery. *British Medical Journal*. 1867; (Sept. 21): 246-248.
- Lister, J. Effects of the Antiseptic System of Treatment Upon the Salubrity of a Surgical Hospital. *The Lancet*. 1870; (Jan. 1): 4-6.
- Wisner, I., Balicer, R.D., and Cohen, D. An Update on Smallpox Vaccine Candidates and Their Role in Bioterrorism Related Vaccination Strategies. *Vaccine*. 2007; 25:976-984.
- Li, Y., Carroll, D.S., *et al*. On the Origin of Smallpox: Correlating Variola Phylogenics with Historical Smallpox Records. *PNAS*. 2007; 104(40):15787-15792. **(non-required, supplemental reading)**

## MIASMA THEORY

Miasma theory was a very influential view of the origins of disease from the days of Sydenham well into the germ era. It was the force behind many sanitary improvements. We will read the work of three of the most important British sanitary reformers of the 19<sup>th</sup> century Thomas Southwood Smith (1788-1861), John Simon (1816-1904) and Edwin Chadwick (1800-1890).

- On Continuous Molecular Changes, More Particularly in their Relation to Epidemic Diseases: Oration delivered at 80<sup>th</sup> Anniversary of Medical Society of London by John Snow; London: John Churchill, Princes Street, Soho. 1853, pp. 146-175.
- Smith, Thomas Southwood. A Treatise on Fever, Longman, Rees, Orme, Brown and Green, Pater-Noster Row, London, 1830, pp. 348-375.
- Arnott, N., Baly, W., Farr, W., Owen, R., Simon, J. Report of the Committee for Scientific Inquiries in Relation to the Cholera-Epidemic of 1854, pp. 31-52; and subheading (iii.) "Local Differences of Cholera Mortality," pp. 11-16.
- Chadwick, Edwin, On an Inquiry into the Sanitary Condition of the Labouring Population of Great Britain, Clowes and Sons, Stamford Street London, 1842, pp. 368– 372.
- Hamlin, C. Edwin Chadwick, "Mutton Medicine," and the Fever Question. *Bull. of the History of Medicine*. 1996; 70(2):233-265.
- Susser, M., and Susser, E. Choosing a Future for Epidemiology: I. Eras and Paradigms. *Amer J Pub Health* 1996; 86(5):668-673.  
<https://doi.org/10.2105/AJPH.86.5.668>

## PATHOLOGY AND THE NUMERICAL METHOD

Epidemiology is very dependent upon accurate definition of cases and types of disease. It was not until pathologic changes in tissues and organs were studied systematically that a useful way of organizing disease came about. Early figures in this effort were PCA Louis and William Gerhard. Louis was also notable for the practice of assembling cases of the same disease into series and studying their characteristics, including their response to different treatments. The work of Von Reyn and colleagues will bring us to a discussion of the construction of strict case definitions (via use of infective endocarditis diagnoses) in the context of defining ‘caseness’ and in comparing clinical studies.

- Ackerknecht, Erwin H. *A Short History of Medicine, Chapter 12, “The Clinical Schools of the First Half of the Nineteenth Century*. The Johns Hopkins University Press, Baltimore and London, 1982, pp. 145-156.
- Louis, P.C.A. *Researches on Phthisis* (Translator’s Note, Advertisement[s] to the Second Edition, Advertisement to the First Edition, respectively, pp. vii-xxx), Part I: Pathological Anatomy, pp. 1-10; Chapter V: Etiology, pp. 477-508.
- Gerhard, William W. *Selected Papers on the Pathogenic Rickettsiae*. Edited by N. Hahon. Harvard University Press, Cambridge MA, 1968, pp. 4-26.

## WATER SUPPLIES IN ENTERIC DISEASES

Among the best known historical work in epidemiology is that of John Snow (1813-1858) in working out the mode of transmission of cholera, and the efforts of William Budd to explicate the way in which typhoid fever is transmitted. Both turned out to be importantly related to water supplies.

- Smith, GD. Beyond the Broad Street Pump: Aetiology, epidemiology and prevention of cholera in mid-19<sup>th</sup> century Britain. *International Journal of Epidemiology*. 2002; 31(5):920-932.
- Snow, John, M.D., *On the Mode of Communication of Cholera*, John Churchill, 2<sup>nd</sup> Edition, New Burlington Street, London. 1855, pp. 14-31, 68-93.
- Paneth, N., Vinten-Johansen, P., *et al*. Public Health Then and Now. A Rivalry of Fondness: Official and Unofficial Investigations of the London Cholera Epidemic of 1854. *Amer J Public Health*. 1998; 88(10):1545-1553.
- Vandenbroucke, J.P., Rooda, H.M. Eelkman, Beukers, H. Who Made John Snow a Hero? *Amer. J Epidemiol*. 1991; 133(10):967-973.
- Budd, W. Typhoid Fever, Its Nature, Mode of Spreading, and Prevention. Longmans, Green and Co., London. 1873, pp. 1-62. **(non-required, supplemental reading)**

## THE ROLE OF OCCUPATION

This session addresses the perceived role of the kind of work in leading to disease. The readings are from Bernardini Ramazzini on occupational diseases in general (1633-1714), Louis Villerme on factory work (1782-1863), and the first important 20<sup>th</sup> century industrial physician, Alice Hamilton (1869-1970). We will examine Hamilton's contributions to understanding lead and benzene as environmental poisons. From this perspective we tackle the role of occupation and SES in disease risk.

- Ramazzini, Bernardini, *Diseases of Workers*. *University of Chicago Press*, Chicago, IL, 1940, pp. 15-33, 141-151.
- Villerme, Louis R., *A Description of the Physical and Moral State of Workers Employed in Cotton, Wool, and Silk Mills*. Excerpted and translated fr. *Tableau de L'Etat Physique et Moral des Ouvriers Employes dans les Manufactures de Coton, de Laine et de Soie*. Jules Renouard et Cie, Libraires, Paris, 1840, pp. 33-36.
- Merkel, H. Exploring the Dangerous Trades with Alice Hamilton. *JAMA*. 2007; 298(23):2802-2804. (Reprinted)
- Hamilton, Alice, and Hardy, H. *Industrial Toxicology*, Medical Book Dept. of Harper & Brothers, New York. 2<sup>nd</sup> Edition, pp. 1-25.

## PELLAGRA INVESTIGATIONS

We will first focus on the seminal investigations of Casal and Goldberger, and then extend the discussion to a broader view of dietary deficiency by examining in detail the role of social identity (e.g., ethnicity, poverty, gender) within the construct of the diseased "Other."

- Casal, Gaspar, "About the Disease Commonly called "Mal De La Rosa" in this Province" *Memorias de la Historia Natural y Medica de Asturias*, 1762, pp. 24-26.
- Goldberger, Joseph, Waring, C.H., Willets, David G. The Prevention of Pellagra. A Test of Diet Among Institutional Inmates. *Public Health Reports*, 1918, pp. 29-44.
- Sydenstricker, E. The Prevalence of Pellagra: Its Possible Relation to the Rise in the Cost of Food. *Public Health Reports* (1896-1970), 30(43):3132-3148.
- Mooney, S.J., Knox J., Morabia A. The Thompson-McFadden Commission and Joseph Goldberger: Contrasting 2 Historical Investigations of Pellagra in Cotton Mill Villages in South Carolina. *Amer J Epidemiol.*, 2014, 180(3): 235-244
- Chacko, Elizabeth. Understanding the Geography of Pellagra in the United States: The Role of Social and Place-Based Identities. *J Feminist Geog.* 2005; 12(2):197-212.

## STUDIES OF PUERPERAL SEPSIS

Death of a mother in childbirth was once very much more common than now, and still causes substantial mortality in some parts of the world. In the 19<sup>th</sup> century, a remarkable number of women died in labor of a form of disseminated infection called puerperal sepsis. The ideas of Oliver Wendell Holmes and the investigations of Ignaz Semmelweis led to understanding and control of this disease. But their views were controversial, and often led to heated disagreements among physicians.

- Holmes, Oliver Wendell. The Contagiousness of Puerperal Fever (and Introduction), Essay Written for Boston Society for Medical Improvement, 1855, pp. 211-243; and *Puerperal Fever as a Private Pestilence*, 1855, pp. 247-265.
- Semmelweis, Ignac. The Etiology, the Concept, and the Prophylaxis of Childbed Fever, 1861. Translated in 1941 in *Medical Classics*, 5, pp. 429-463, pp. 553-557, pp. 712-715, pp. 719-724.
- Semmelweis, Ignac. The Etiology, The Concept, and the Prophylaxis of Childbed Fever, Excerpted from treatise on puerperal fever presented to American Association of Obstetricians, Gynecologists & Abdominal Surgeons, Hot Springs, VA, 1947, pp. 5-18.
- Dunn, P.M. Ignac Semmelweis (1818-1865) of Budapest and the Prevention of Puerperal Fever. *Arch Dis Child Fetal Neonatal Ed.* 2005; 90: F345-F348.
- Lane, Hilary J., Blum, Nava, Fee, Elizabeth. Oliver Wendell Holmes (1809-1894) and Ignaz Semmelweis (1818-1865): Preventing the Transmission of Puerperal Fever. *Amer J Publ Health.* 2010; 100(6):1008-1009.

## YELLOW FEVER AND THE ROLE OF VECTORS

Yellow fever is the best example of a disease controlled very quickly, not by understanding its agent, but by understanding its insect vector. The works of Carlos Finlay, Walter Reed (1850-1906) and William Gorgas were central in this effort. Barnett provides a more contemporary view of the problem, especially as relates to Yellow Fever vaccine-induced adverse events.

- Finlay, Carlos. The Mosquito Hypothetically Considered as the Agent of Transmission of Yellow Fever, excerpted from Carlos J. Finlay – *Obras Completas*, Havana, Academia de Ciencias de Cuba, 1965, pp. 60-66.
- Reed, Walter. Annual Address: *The Propagation of Yellow Fever Based on Recent Researches*. April, 1901, pp. 1-31.
- Gorgas, William C. *Sanitation in Panama*, New York and London, D. Appleton and Company, 1915, pp. 32-85.
- Whipple: 1 page Graph of Transmission of Typhoid Fever. Circa 1910.
- Barnett, Elizabeth D. Yellow Fever: Epidemiology and Prevention. *Emerging Infections.* 2007; 44:850-856.



## EVOLUTION OF THE COHORT STUDY

The cohort study is viewed by Kenneth Rothman as “the archetype for all epidemiologic studies.” How did it evolve? Who first used this method? We will examine several early cohort studies, particularly focusing on the transition in epidemiology from the study of infectious diseases to chronic non-infectious diseases, and the role of chronic infectious disease (e.g., syphilis, tuberculosis) in the evolution of the new methodology.

- Doll, Sir Richard. Cohort Studies: History of the Method. I. Prospective Cohort Studies. *Preventative Med.* 2001; 46:75-86.
- Doll, Sir Richard. Cohort Studies: History of the Method. II. Retrospective Cohort Studies. *Preventative Med.* 2001; 46:152-160.
- Dawber, Thomas R., Meadors, Gilcin, Moore, Felix E. Epidemiological Approaches to Heart Disease: The Framingham Study. *Amer J Pub Health.* 1951; 41:279-286.
- Samet, Jonathan M, Muõz, Alvaro. Evolution of the Cohort Study. *Epidemiol Rev.* 1998; 20(1):1-14.
- Weiss, H.A., Thomas, S.L., *et al.* Male Circumcision and Risk of Syphilis, Chancroid, and Genital Herpes: A Systematic Review and Meta-Analysis. *Sex Transm Infect.* 2006; 82:101-110.

## SMOKING & LUNG CANCER: CASE CONTROL STUDIES

One of the most important discoveries of 20<sup>th</sup> century epidemiology was that cigarette smoking causes lung cancer. This observation was initially made by case-control studies, four of which appeared in 1950. We will read all four of them to appreciate the subtle distinctions in emphasis among them. The works of Risch and Peto (with colleagues) provide contemporary insights into the smoking/lung cancer dynamic via case-control research strategies that focus on gender and behavioral cessation as a modifiable risk factor, respectively.

- Wynder, Ernest L., and Graham, Evarts A. Tobacco Smoking as a Possible Etiologic Factor in Bronchiogenic Carcinoma: A Study of Six Hundred and Eighty-Four Proved Cases. *JAMA.* 1950; 143(4):329-336.
- Levin, Morton L., Hyman Goldstein, and Gerhardt, Paul, R. Cancer and Tobacco Smoking: A Preliminary Report. *JAMA.* 1950; 143(4):336-338.
- Doll, Richard, and Hill, Bradford. Smoking and Carcinoma of the Lung: Preliminary Report. *British Medical Journal.* 1950; 739-748.
- Schrek, Robert, Baker, Lyle, *et al.* Tobacco Smoking as an Etiologic Factor in Disease. I. Cancer. *Cancer Research.* 1950; 10(1):49-58.
- Risch, Harvey A., Howe, Geoffrey, R., *et al.* Are Female Smokers at Higher Risk for Lung Cancer Than Male Smokers?: A Case-Control Analysis by Histologic Type. *Amer J Epidemiol.* 1993; 138(5):281-293.

- Peto, Richard, Darby, Sarah, *et al.* Smoking, Smoking Cessation, and Lung Cancer in the UK Since 1950: Combination of National Statistics with Two Case-Control Studies. *BMJ*. 2000; 321:323-329.

## DEVELOPMENT OF THE RANDOMIZED TRIAL

Randomized trials had to overcome a great deal of resistance before their acceptance as the last word in evaluation of therapy and prevention. We will read the famous trial of streptomycin treatment of pulmonary tuberculosis developed by Austin Bradford Hill (1897-1991) and the U.S. Salk vaccine polio trial of 1953-54, one of the largest prevention trials ever undertaken. We will discuss the urgency with which the research community marshalled resources to confront the seasonal nature of the polio epidemic, examine the controversy surrounding the research design, delve into the statistical approach used to analyze/stratify the study groups, and finally, attempt to understand the potential biases introduced as a consequence of volunteers from different socio-economic strata voluntarily participating in the vaccine trials.

- Hill, Bradford. The Clinical Trial. *NJEM*. 1952; 247(4):113-119.
- Medical Research Council. Streptomycin Treatment of Pulmonary Tuberculosis: A Medical Research Council Investigation. *BMJ*. 1948; 769-782.
- Francis, Thomas, Napier, John, *et al.* Evaluation of the 1954 Field Trial of Poliomyelitis Vaccine: Final Report. *The Challenge of Epidemiology: Issues and Selected Readings*. Pan American Health Organization, pp. 838-854.
- Brownlee, K.A. Statistics of the 1954 Polio Vaccine Trials. *J Amer Stat Assoc*. 1955; 50(272):1005-1013.
- Deasy, Leila C. Socio-economic Status and Participation in the Poliomyelitis Vaccine Trial. *Amer Sociol Assoc*. 1956; 21(2):185-191.
- Tambini, Gina, Andrus, Jon, K., *et al.* Direct Detection of Wild Poliovirus Circulation by Stool Surveys of Healthy Children and Analysis of Community Wastewater. *J Infect Dis*. 1993; 168:1510-1514.

## SKELETAL HEALTH EPIDEMIOLOGY

In-depth, historically-focused, case study highlighting many of the oft-confronted challenges in epidemiology and public health practice: definitional insufficiencies, complexity of appropriate case definitions, sample stratification, measures of exposure, risks, outcome measures, incorporation of evolving diagnostic modalities into therapeutic approaches, primary prevention strategies and cost containment issues.

- Fausto-Sterling, Anne. The Bare Bones of Race. *Social Studies of Science*, 2008; 38(5): 657-694.  
<https://doi.org/10.1177%2F0306312708091925>
- Santora, Lidia and Skolbekken, John-Anne. From Brittle Bones to Standard Deviations: The Historical Development of Osteoporosis in the Late Twentieth Century. *Science Technology and Human Values*, 2011; 36:497-521.  
<http://sth.sagepub.com/content/36/4/497.short>
- Steckel, R.H., Rose, J.C., *et al.* Skeletal Health in the Western Hemisphere from 4000 B.C. to the Present. *Evolutionary Anthropology*. 2002; 11:142-155.  
<http://onlinelibrary.wiley.com/doi/10.1002/evan.10030/epdf>
- Johnell, O, and Kanis, J.A. An Estimate of the Worldwide Prevalence and Disability Associated with Osteoporotic Fracture. *Osteoporosis International*. 2006; 17:1726-1733.  
<http://link.springer.com/article/10.1007/s00198-006-0172-4>
- Amarnath, Anna Lee D, Franks, Peter, *et al.* Underuse and Overuse of Osteoporosis Screening in a Regional Health System: A Retrospective Cohort Study. *J Gen Inter Med*. 2015; 1-8.  
<http://link.springer.com/article/10.1007/s11606-015-3349-8>

**Related Literature for Those Interested in Reading Beyond the Course Requirements**  
**You may find these provocative while in pursuit of your graduate degree**

Bloomfield, S.A., and Yingling, V.R. American College of Sports Medicine Position stand: Physical Activity and Bone Health. *Medicine & Science in Sports and Exercise*. 2004; 1985-1996. **(non-required, supplemental reading)**

<http://za2uf4ps7f.scholar.serialssolutions.com/?sid=google&auinit=WM&aulast=Kohrt&atitle=Physical+activity+and+bone+health&id=pmid:15514517>

Brownson, R.C. et al. [Charting a future for epidemiologic training](#). *Annals Epidemiol.* 2015;25:458-465.

Fausto-Sterling, Anne. The Bare Bones of Sex: Part 1-Sex and Gender. *Journal of Women in Culture and Society*, 2005; 30(2): 1491-1527. (Read in conjunction with the OP hx unit.)

Rothman, K.J. The Rise and Fall of Epidemiology, 1950-2000 A.D. *NJEM*. 1981(March 5): 600-602.

Haskell, W.L., Lee, I-M., et al. Physical Activity and Public Health: Updated Recommendations for Adults From the American College of Sports Medicine and the American Heart Association. *Circulation*, 2007; 116(9):1081-1093. **(non-required, supplemental reading)**

[http://scholarcommons.sc.edu/sph\\_physical\\_activity\\_public\\_health\\_facpub/119/?utmsource=scholarcommons.sc.edu/sph\\_physical\\_activity\\_public\\_health\\_facpub/119&utm\\_medium=PDF&utm\\_campaign=PDFCoverPages](http://scholarcommons.sc.edu/sph_physical_activity_public_health_facpub/119/?utmsource=scholarcommons.sc.edu/sph_physical_activity_public_health_facpub/119&utm_medium=PDF&utm_campaign=PDFCoverPages)

Hiatt, R.A. [Epidemiology: key to translational, team, and transdisciplinary science](#). *Ann Epidemiol.* 2008;18:859–861.

Keyes, K.M., and Galea, S. [Current practices in teaching introductory epidemiology: how we got here, where to go](#). *Amer J Epidemiol.* 2014;180:661–668.

Khoury, M.J. et al. [Transforming epidemiology for 21st century medicine and public health](#). *Cancer Epidemiol Biomarkers Prev.* 2013;22:508–516.

Koo, D., et al. [Competency-based epidemiologic training in public health practice](#). *Pub Health Rep.* 2008;123:1–3.

Krieger, N. [Epidemiology and the web of causation: has anyone seen the spider?](#) *Soc Sci Med.* 1994;39(7):887-903.

Lee, N.L., and Samet, J.M. [ACE forum report: the making of an epidemiologist—necessary components for doctoral education and training](#). *Ann Epidemiol.* 2003;13:552–556.

Lichtveld, M. et al. [From competencies to capacity: assessing the national epidemiology workforce](#). *Pub Health Rep.* 2008;123:128–135.

Maylahn, C. et al. [Strengthening epidemiologic competencies among local health professionals in New York: teaching evidence-based public health](#). *Pub Health Rep.* 2008;123:35–43.

- Nasca, P.C. [Current problems that are likely to affect the future of epidemiology.](#) *Amer J Epidemiol.*1997;146:907–911.
- Ness, R.B. [Tools for innovative thinking in epidemiology.](#) *Amer J Epidemiol.* 2012;175:733–738.
- Nye, R.A., [The evolution of the concept of medicalization in the late twentieth century.](#) *J Hist Behav Sci.* 2003;39(2):115-29.
- Pearce, N. [The globalization of epidemiology: introductory remarks.](#) *Int J Epidemiol.* 2004;33:1127–1131.
- Pearce, N. [Traditional epidemiology, modern epidemiology, and public health.](#) *Amer J Pub Health.*1996;86:678–683.
- Samet, J.M., and Ness, R.B. [Epidemiology, austerity, and innovation.](#) *Amer J Epidemiol.* 2012;175:975–978.
- Samet, J., and Brownson, R. [Epidemiology in a changing world.](#) *Amer J Prev Med.* 2014;47:S383–S385.
- Thacker, S.B., and Brownson, [R.C. Practicing epidemiology: how competent are we?](#) *Pub Health Rep.* 2008;123:4–5.