

**Introduction to Epidemiology and Pharmacoepidemiology**  
**PHR 384S, Unique # 63637**

Fall 2008

**DRAFT** 8/23/08

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Class: Old Pharmacy Building, PHR 2.208

Office: Old Pharmacy Building PHR 3.210A

Twice weekly: Monday and Wednesday  
10:00-11:30

August 27 Text: Clinical Epidemiology, The Essentials, 4th ed. Robert H. Fletcher, and Suzanne W. Fletcher; Lippincott, Williams & Wilkins, 2005

Handouts: Course schedule/syllabus (to be revised (weekly?) as we go along)

Basic Epidemiological Methods and Biostatistics - Chapter 1 - Introduction to Epidemiology; and glossary

Power Points from Clinical Epidemiology

Pharmacoepidemiology, and Therapeutic Risk Management - Chapter 1 - The Contribution of Pharmacoepidemiology to the Study of Drug Uses and Effects, and Risk Management

Problem set, for chapter 1, Basic Epi. Methods & Biostat

WHO Policy Perspectives on Medicines — Pharmacovigilance: ensuring the safe use of medicines, 2004

Homework: read: chapter 1 - Clinical Epidemiology (be ready to discuss); chapter 1 - Basic Epidemiological Methods and Biostatistics (be ready to discuss, eventually – may take a few (or many) weeks to cover)

"The University of Texas at Austin provides upon request appropriate academic accommodations for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471-6259, 471-4641 TTY."

September 3 Introduction

Discuss in class:

Chapter 1 - Clinical Epidemiology – Introduction. Start discussion of: -Chapter 1 - Basic Epidemiological Methods and Biostatistics: Introduction to Epidemiology  
Bras and breast cancer  
Articles you bring in to class

Homework: read: Chapter 2 - Clinical Epidemiology – Abnormality; answer problem set, for chapter 1, Basic Epi. Methods & Biostat., after we finish going over the chapter (or as you read the chapter)

September 8 Introduction (continued) and Abnormality

Discuss in class:

Complete chapter 1 - Clinical Epidemiology – Introduction. Start chapter 2 - Clinical Epidemiology – Abnormality. Continue discussion: - Basic Epidemiological Methods and Biostatistics; Chapter 1 - Introduction to Epidemiology (if/when we have time – may take a few weeks)

Start class research project: possibly blood pressure readings

Handouts: Users' guides to use the Medical Literature III. How to Use an Article About a Diagnostic test. B. What Are the Results and Will They Help Me in Caring for My Patients? R Jaeschke, GH Guyatt, DL Sackett. JAMA 1994; 271(9):703-707

Homework: re-read: chapter 2 - Clinical Epidemiology – Abnormality. Users' guides to use the Medical Literature III. How to Use an Article About a Diagnostic test. B. What Are the Results and Will They Help Me in Caring for My Patients? R Jaeschke, GH Guyatt, DL Sackett. JAMA 1994; 271(9):703-707

September 10 Abnormality (continued)

Discuss in class:

Complete chapter 2 - Clinical Epidemiology – Abnormality

Handouts: What do we mean by usually? JH Toogood, Lancet 1980 (May17):1094  
Expressions of probability: words and numbers. GD Bryant and GR Norman, NEJM 1980;302(7):411

An empirical demonstration of Berkson's Bias. RS Roberts et al. J. Chron Disease 1978; 31:119-128

Medical usage and abuse: Prevalence and Incidence. GD Friedman, Ann Intern Med 1976; 84:502-504

Pharmacoepidemiology I: A Review of Pharmacoepidemiologic Study Designs. M Etminan and A Samii. Pharmacotherapy 2004;24(8):964-969

Pharmacoepidemiology II: The Nested Case-Control Study – A novel Approach in Pharmacoepidemiologic Research. M Etminan. Pharmacotherapy 2004;24(9):1105-1109

Homework: Re-read chapter 2 - Clinical Epidemiology - Abnormality. Read chapter 3- Clinical Epidemiology – Diagnosis. Read articles handed out.

#### September 15 Diagnosis

Discuss in class: Chapter 3 - Clinical Epidemiology – Diagnosis

Handouts: Sensitivity, specificity, etc. Sensitivity & Specificity - additional information

Ten Great Public Health Achievements – United States, 1900-1999

Homework: Re-read chapter 3- Clinical Epidemiology – Diagnosis. Sensitivity, specificity, etc.

#### September 17 Diagnosis (continued)

Discuss in class: Complete Chapter 3 - Clinical Epidemiology – Diagnosis

Handouts: chapter 3 - A Study guide to Epidemiology and Biostatistics, 5 th ed. RF Morton et al, Aspen, 2001. Incidence & Prevalence

chapter 4 - A Study guide to Epidemiology and Biostatistics, 5 th ed. RF Morton et al, Aspen, 2001. Measures of Risk.

Answers to homework for chapters 3 and 4

Homework Re-read Chapter 3- Clinical Epidemiology- Diagnosis. Read: chapter 4 - Clinical Epidemiology – Frequency

Work problems in chapters 3 & 4 A Study guide to Epidemiology and Biostatistics

September 22 Frequency

Discuss in class: Chapter 4 - Clinical Epidemiology – Frequency

Handouts: Deeks JJ and Altman DG. Sensitivity and specificity and their confidence intervals cannot exceed 100%. BMJ 1999;318:193

Stell IM and Gransden WR. Simple tests for septic bursitis: comparative study. BMJ 1887; 316,1887

Frequency of adverse drug reactions, WHO

Homework: Re-read: Chapter 4 - Clinical Epidemiology – Frequency

September 24 Frequency

Discuss in class: Chapter 4- Clinical Epidemiology- Frequency

Handouts: Hofman A and Vandenbroucke JP. Geoffrey Rose's big idea. BMJ 1992;305:1519-1520

Homework: read: chapter 5 -Clinical Epidemiology – Risk: Looking Forward

September 29 Risk: Looking Forward

Discuss in class: chapter 5 -Clinical Epidemiology – Risk: Looking Forward

Handouts: McMahon AD, et al. Drug exposure risk windows and unexposed comparator groups for cohort studies in pharmcoepidemiology. Pharmacoepidemiology and Drug Safety 1998;7:275-280

Homework: re-read: chapter 5 -Clinical Epidemiology – Risk: Looking Forward

October 1 – Risk: Looking Forward

Discuss in class: chapter 5 -Clinical Epidemiology – Risk: Looking Forward; start discussion of 'Classics'

October 6 Risk: Looking Backward

Discuss in class: chapter 6 - Clinical Epidemiology – Risk: Looking Backward

October 8 Risk: Looking Backward

Discuss in class: chapter 6 - Clinical Epidemiology – Risk: Looking Backward

October 13 Prognosis

Discuss in class: chapter 7 - Clinical Epidemiology – Prognosis

October 15 Prognosis

Discuss in class: chapter 7 - Clinical Epidemiology – Prognosis

October 20 Treatment

Discuss in class: chapter 8 - Clinical Epidemiology – Treatment  
October 22 Treatment  
Discuss in class: chapter 8 - Clinical Epidemiology – Treatment  
October 27 Prevention  
Discuss in class: chapter 9 - Clinical Epidemiology – Prevention  
October 29 Prevention  
Discuss in class: chapter 9 - Clinical Epidemiology – Prevention  
November 3 Chance  
Discuss in class: chapter 10 -Clinical Epidemiology – Chance  
November 5 Chance  
Discuss in class: chapter 10 -Clinical Epidemiology – Chance  
November 10 Cause  
Discuss in class: chapter 11 -Clinical Epidemiology - Cause  
November 17 Cause  
Discuss in class: chapter 11 -Clinical Epidemiology - Cause  
November 19 Systematic Reviews and Knowledge Management  
Discuss in class: chapter 12 -Clinical Epidemiology – Systematic Reviews; chapter 13-  
Clinical Epidemiology – Knowledge Management.  
November 24 – catch up day  
November 26 – In class quiz; take home

December 1 Continued discussion ‘Classics’-  
Discuss in class: as time permits: and/or others

MacMahon B, Yen S, Trichopoulos D, Warren K, Nardi G. Coffee and cancer of the pancreas. *New England Journal of Medicine* 1981;304:630-633.  
Feinstein AR, Horwitz RI, Spitzer WO, Battista RN. Coffee and pancreatic cancer. *JAMA* 1981;246(9):957-961.  
Jick J, Miettinen OS, Neff RK, Shapiro S, Heinonen OP, Slone D. Coffee and myocardial infarction. *New England Journal of Medicine* 1973;289:63-67.  
Vessey MP. Coffee drinking and acute myocardial infarction. *Lancet* 1972; December 16;1278-1281.  
Cole, P. Coffee-drinking and cancer of the lower urinary tract. *Lancet* 1971;June 26:1335-1337.

Mellin GW, Katzenstein. The saga of thalidomide (concluded). *New England Journal of Medicine* 1962;267(24):1238-1244.  
Taussig HB. A study of the German outbreak of phocomelia, The thalidomide syndrome. *JAMA* 1962;180(13);1106-1114.

Merck Proscar: Two cases of gynecomastia-related breast cancer. *F-D-C Reports - A The Pink Sheet.* @ September 16, 1996; T&G-14.  
Green L, Wysowski DK, Fourcroy JL. Gynecomastia and breast cancer during finasteride therapy. *New England Journal of Medicine* 1996; 335(11):823.

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- Thomas DB. Breast cancer in men. *Epidemiologic Review* 1993; 15(1):220-231.
- Kaplan NM. The CARE study: A postmarketing evaluation of Ramipril in 11,000 patients. *Clinical Therapeutics* 1996;18(4):658-670.
- Bowman L, Carlstedt BC, Miller ME, McDonald CJ. Evaluation of ACE inhibitor (ACE-I) associated cough using modified prescription sequence analysis (PSA). *Pharmacoepidemiology and Drug Safety* 1995;4:17-22.
- Annon. DES Action USA attacks Lilly. *Script* 1996;2139 (June 21st):12.
- Herbst AL, Ulfelder H, Poskanzer DC. Adenocarcinoma of the vagina. *New England Journal of Medicine* 1971;284(16):878-881.
- Rossi AC and Knapp DE. Tolmentin-induced anaphylactoid reactions. *New England Journal of Medicine* 1982;307(8):499-500.
- Martin-Bouyer GM, Lebreton R, Toga M, Stolley PD. Outbreak of accidental hexachlorophene poisoning in France. *Lancet* 1982; January 9:91-95.
- Goyan Jere E. Withdrawal of a drug from the market. What should the prescriber do? *JAMA* 1993;270(16):1976-1977.
- Spielberg TE, Hills W. Examining product risk in context: the case of zomepirac. *JAMA* 1994;272(16):1252.
- Musa BU. Examining product risk in context: the case of zomepirac. *JAMA* 1994;272(16):1252
- Ross-Degnan D, Soumerai SB, Fortess E, Gurwitz JH. Examining product risk in context: the case of zomepirac. *JAMA* 1994;272(16):1252
- Gibson TP. Examining product risk in context: the case of zomepirac. *JAMA* 1994;272(16):1252-3.
- Ross-Degnan D, Soumerai SB, Fortess E, Gurwitz JH. Withdrawal of a drug from market: What should the prescriber do? *JAMA* 1994;272(16):1253.
- Goyan JE. Withdrawal of a drug from market: What should the prescriber do? *JAMA* 1994;272(16):1253
- Ross-Degnan D, Soumerai SB, Fortess EE, Gurwitz JH. Examining product risk in context. Market withdrawal of zomepirac as a case study. *JAMA* 1993;270(16):1937-1942.
- Strom BL, Carson JL, Morse ML, West SL, Soper KA. The effect of indication on hypersensitivity reactions associated with zomepirac sodium and other nonsteroidal antiinflammatory drugs. *Arthritis and Rheumatism* 1987;30(10):1142-1148.
- Lewis JR. Zomepirac sodium. A new nonaddicting analgesic. *JAMA* 1981;246(4):377-379.
- Corre KA, and Spielberg TE. Adverse drug reaction processing in the United

States and its dependence on physician reporting: Zomepirac (Zomax®) as a case in point. *Annals of Emergency Medicine* 1988;17:145-149.

- Leech PN. Elixir of sulfonilamide-Massengill, I. *JAMA* 1937;109(19) November 6:1531-1539.
- Leech PN. Elixir of sulfonilamide-Massengill, II. *JAMA* 1937;109(21) November 20:1724-25.
- Leech PN. Elixir of sulfonilamide-Massengill, IV. *JAMA* 1937;109(21) November 20:1727.
- Cannon PR, Geiling EMK. Pathologic effects of elixir of sulfanilamide (Diethylene Glycol) poisoning. *JAMA* 1938; 111(10) September 3:919-926.
- Woolf, AD. The Hatian Diethylene Glycol Poisoning Tragedy: A dark wood revisited. *JAMA* 1998;279:1215-16.
- O'Brien KL, et al. Epidemic of pediatric deaths from acute renal failure caused by diethylene glycol poisoning. *JAMA* 1998;279:1175-1180.
- Teicher MH, Glod C, Cole JO. Emergence of intense preoccupation during fluoxetine treatment. *Am. J. Psychiatry* 1990;147:202-207.
- Ahmad SR. Fluoxetine "not linked to suicide." *Lancet* 1991;338:875-876.
- Beasley Jr. CM, Dornseif BE, Bosomworth JC, Sayler ME, Rampey Jr. AH, Heiligenstein JH, Thompson VL, Murphy DJ, Masica DN. Fluoxetine and suicide: a meta-analysis of controlled trials of treatment for depression. *British Medical Journal* 1991;303:685-692.
- Warshaw MG and Keller MB. The relationship between fluoxetine use and suicidal behavior in 654 subjects with anxiety disorders. *J. Clin. Psychiatry* 1996;57:158-166.
- Boston Collaborative Drug Surveillance Program. Reserpine and breast cancer. *Lancet* 1974; 669-672.
- Armstrong B, Stevens N, Doll R. Retrospective study of the association between use of rauwolfia derivatives and breast cancer in English women. *Lancet* 1974;2(7882):672-675.
- Jick H. Berkson's fallacy and studies on reserpine and breast cancer. *Am J Dis Child* 1976;130:1164.
- Brown GW. Berkson's fallacy and studies on reserpine and breast cancer. *Am J Dis Child* 1976;130:1164-1165.
- Horwitz RI and Feinstein AR. Exclusion bias and the false relationship of reserpine and breast cancer. *Arch Intern Med* 1985;145:1873-1875.
- Heinonen OP, Shapiro S, Tuominen L, Turunen MI. Reserpine use in relation to breast cancer. *Lancet* 1974;2(7882):655-657.
- Taggart HM and Alderdice JM. Fatal cholestatic jaundice in elderly patients taking benoxaprofen. *British Medical Journal* 1982;284.

- Anonymous. Suspension of benoxaprofen (Opren). *British Medical Journal* 1982;285:519.
- Stewart IC. Gastrointestinal haemorrhage and benoxaprofen. *British Medical Journal* 1981;284:163-164.
- Brown WJ, Buist NR, Gipson HTC, Huston RT, Kennaway NG. Fatal benzyl alcohol poisoning in a neonatal intensive care unit. *Lancet* 1982;1250.
- Gershanik J, Boecler B, Ensley H, McCloskey S, George W. The gasping syndrome and benzyl alcohol poisoning. *New England Journal of Medicine* 1982;307(22):1384-1388.
- Committee on Fetus and Newborne Committee on Drugs. Benzyl alcohol: Toxic agent in neonatal units. *Pediatrics* 1983;72(3):356-358.
- Feinstein AR. Scientific standards in epidemiologic studies of the menace of daily life. *Science* 1988;24:1257-1263.
- Misc – potential classics of topics of interest
- Sandler DP, Burr R, Weinberg CR. Nonsteroidal anti-inflammatory drugs and the risk of chronic renal failure. *Annals of Internal Medicine* 1991;115(3):165-172.
- Mortel CG, et al. A clinical trial of amygdalin (Laetrile) in the treatment of human cancer. *New England Journal of Medicine* 1982;306:201-206.
- Bortnichak EA and Sachs RM. Piroxicam in recent epidemiology studies. *American Journal of Medicine* 1986;81(suppl 5B):44-48.
- Pahor M, Guralink JM, Salvie ME, Corti M, Carbonin P, Havlik RJ. Do calcium channel blockers increase the risk of cancer? *American Journal of Hypertension* 1996;9:695-699.
- Kernan WN, et al. Phenylpropanolamine and the risk of hemorrhagic stroke. *NEJM* 2000;343:
- Haller CA, and Benowitz NL. Adverse cardiovascular and central nervous system events associated with dietary supplements containing ephedra alkaloids. *NEJM* 2000;343:
- Smith GD, Shipley M, Leon DA. Height and mortality from cancer among men: prospective observational study. *British Medical Journal* 1998;317:1351-1352.
- Brasil R, Coelho HL, D'Avanzo B, LaVecchia C. Misoprostol and congenital anomalies. *Pharmacoepidemiology and Drug Safety* 2000;9:401-403.
- Rock A. The Lethal Dangers of the Billion-Dollar Vaccine Business. *Money* December 1996:148-164.
- Annon. Mental Health Effectiveness Trials Should Include No-Treatment Arm, CDER's Temple Suggests; Database Studies to Show Drug Effect are Problematic, He Says. *F-D-C Reports – "The pink Sheet"* October 28, 1996, p.9.
- Feinstein AR. Scientific standards in epidemiologic studies of the menace of daily life. *Science* 1988;24:1257-1263.

- Sachett DL and Gent M. Controversy in counting and attributing events in clinical trials. *New England Journal of Medicine* 1979;301(26):1410-1412.
- Fisher S. Patient self-monitoring: A challenging approach to pharmacoepidemiology. *Pharmacoepidemiology and Drug Safety* 1995;4:359-378.
- Grasela TH. Pharmacoepidemiology: A scientific basis for outcomes research. *Annals of Pharmacotherapy* 1996;30:188-190.
- Rosenberger WF. Dealing with multiplicities in pharmacoepidemiologic studies. *Pharmacoepidemiology and Drug Safety* 1996;5:95-100.
- Levine MAH. A guide for assessing pharmacoepidemiologic studies. *Pharmacotherapy* 1992;12(3):232-237.
- Sachett DL and Gent M. Controversy in counting and attributing events in clinical trials. *New England Journal of Medicine* 1979;301(26):1410-1412.

December 3 Discussions continued, proposal presentations, Research proposal due, cob 4:00 PM

**REQUIRED:**

Clinical Epidemiology, The Essentials, 4th edition  
 Robert H. Fletcher, Suzanne W. Fletcher  
 Lippincott, Williams & Wilkins, 2005  
 ISBN – 0-7817-5215-9

Just to know about:

Optional (expensive) references in Pharmacoepidemiology

*Pharmacoepidemiology*, 4th edition; B.L. Strom, editor; New York, John Wiley and Sons; 2005. hard cover, about \$256.00

*Pharmacoepidemiology and Therapeutic Risk Management*, Abraham G. Hartzema, Hugh H. Tilson, and K. Arnold Chan, eds., Cincinnati, OH, Harvey Whitney Books, 2008. soft cover, about \$305.00

*Textbook of Pharmacoepidemiology*, Brian L. Strom and Stephen E. Kimmel, eds., New York, John Wiley and Sons; 2005. soft cover, about \$72.00

*Basic Epidemiological Methods and Biostatistics: A Practical Guidebook*  
 Randy M. Page, Galen E. Cole, Thomas C. Timmreck

Jones & Bartlett Publishers, 1995