Principles of Population Health Science
Population Health 795
Fall 2016

Professor Dave Vanness
785 WARF
608-265-6800
dvanness@wisc.edu

Department of Population Health Sciences
University of Wisconsin
School of Medicine & Public Health
Syllabus: November 28, 2016

Overview

Despite innovations in medical technology that would have been considered science fiction just 50 years ago and despite allocating about one-fifth of our nation's annual economic activity to health services and related activities, population health in the United States is far below its potential and lags behind much of the developed world. This course introduces students to the field of "Population Health Science" – the multidisciplinary study of why populations are healthy (or not), and perhaps more importantly, how we can allocate our limited resources across the multiple determinants of health to best improve population health. Central to the definition of population health is the understanding that measures of "average" health outcomes in a population only tell part of the story. Two populations that are equally healthy "on average" may have very different levels of variation within each. When variation in health within a population is explained by race and/or socioeconomic status over and above differences in biological predisposing factors (such as genetics or age), such differences are considered to be health disparities.

This course will begin with basic conceptual and empirical frameworks for population health and understanding its multiple determinants. We will not spend much time discussing the etiology of specific diseases. Rather, this course is meant to complement other offerings in Population Health Sciences (e.g., PHS 794: Biological Basis of Population Health and PHS 797: Introduction to Epidemiology) that cover those topics. Instead, we will focus on socioeconomic, behavioral, cultural, community and health care-related determinants of population health.

For students continuing in the 3-credit PHS 795 course, we then introduce a "Population Health Economics" framework, which aims to provide a useful extension to the traditional "Health Field" conceptual framework (Evans and Stoddart, 1990). By introducing students to the basic microeconomic concepts of utility, opportunity cost, optimization and social welfare analysis, the course aims to help students to not only begin understanding the relationship among the multiple determinants of health (as if that weren't hard enough!) and to begin thinking of how to evaluate policies and practices to improve population health.

Students in the three-credit offering will then examine perhaps the most direct (and expensive) determinant of health: health care. We will discuss how health care is financed and delivered in the United States, emphasizing its impact on the elderly, disabled, low-income and uninsured individuals. We will then introduce several concepts behind initiatives to improve health outcomes by improving effectiveness, quality, coordination and patient engagement in health care. This material aims to introduce students to concepts they can pursue in more depth through future courses (e.g., PHS 796: Introduction to Health Services Research, PHS 703: Quality of Health Care – Evaluation and Assurance, PHS 875: Assessment of Medical Technologies and PHS 709: Translational and Outcomes Research in Health and Health Care). We will conclude by examining the health policy process and how stakeholders (including policy-makers, public health officials, community organizations and health care providers) are engaged in improving population health at the ground level.

Course Objectives

By the end of this course, students should be able to:

1. Demonstrate basic understanding and application of principles of Population Health Sciences in characterizing the multiple determinants of health and the optimal allocation of resources across those determinants for the improvement of health and reduction of disparities;
2. Demonstrate basic understanding and application, at a basic level, of the principles of microeconomic theory relating to human and institutional decisions in the allocation of scarce resources for the production of health at individual, system and population levels; (3 credit section only)
3. Demonstrate basic understanding of the role of socioeconomic status, behavior, culture and community on the production of health at individual and population levels;
4. Demonstrate basic understanding and application of the principles of population health measurement and its role in the design of health services, policy, intervention and evaluation;
5. Demonstrate basic understanding of the historical and current financing and provision of health care services in the United States and its shaping by the policy process. (3 credit section only)

Evaluation of Students

Exams

There will be three written examinations (weighted as follows for 3-credit students):

- 25% In-class exam (10/25)*
- 35% Take-home exam (Assigned 12/1 and due 12/8 before 11:00pm)**
- 40% Comprehensive take-home exam (Assigned 12/15 and due 12/20 before 11:00pm)**

*Counts 100% for one-credit students; **Three-credit students only

Take-home exams may be discussed among students, but work submitted should be your own. Take-home exams received after the deadline will be penalized 10% (up to 8 hours late) plus 20% per day thereafter. Except in case of emergency, requests for accommodation must be made 24 hours prior to the exam deadline.

If you require accommodation for the in-class exams, please let me know as soon as possible, and I will be happy make arrangements following the recommendations of the McBurney Disabilty Resource Center.

Grade Ranges

- 90-100 A
- 85-89 AB
- 80-84 B
- Below 80 BC
- Missed evaluation F

Course Blog

Regular participation in the course blog fantasyequation.wordpress.com will allow you to earn up to 5 bonus percentage points on your final grade: one point per main page post suggestion or comment thread in which you are meaningfully engaged. To suggest a main page post, identify a news item or recently published journal article and write a 4-6 sentence lead-in relating the item to the principles of population health science; send the suggestion to me at dvanness@wisc.edu. If you engage in commenting, you MAY CHOOSE TO POST ANONYMOUSLY. Students are responsible for emailing me a summary report identifying main page post suggestions and comments for which they expect to receive credit (due November 1 for one-credit students; 12/22 for three-credit students).

Logistics

- Lectures will be held on Tuesdays and Thursdays from 11:00am to 12:15am in HSLC 1345.
- Lecture capture will be available at: http://videos.med.wisc.edu under the LECTURES tab.
- Office hours by appointment.
- No textbook is required. All readings will be available online, through Ebling Library electronic reserves and/or Canvas.

Accommodations

The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform me of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. I will work either directly with you or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA.

Date	Lecture Topic and Readings	Lecturer
9/6/2016	What is Population Health? Kindig D, Stoddart G. What Is Population Health? Am J Public Health. 2003;93(3):380-383. Evans R, Stoddart G. Producing health, consuming health care. Social Science & Medicine. 1990;31(12):1347-1363. Diez Roux AV. On the Distinction—or Lack of Distinction—Between Population Health and Public Health. American journal of public health. 2016 Apr; 106(4):619-20. Remington PL, Booske BC. Measuring the Health of Communities—How and Why? Journal of Public Health Management and Practice. 2011;17(5):397-400. Parrish RG. Measuring Population Health Outcomes. Prev Chronic Dis. 2010;7(4). Available at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2901569/.	Vanness

Date	Lecture Topic and Readings	Lecturer
9/8/2016	Socioecological Models of Population Health *NOTE: This lecture will be in a "flipped" format. You will be expected to read all readings and watch a pre-recorded lecture by Prof. Martinez-Donate prior to coming to class. We will then use class time for in-depth discussion.* Smith KP, Christakis NA. Social Networks and Health. Annual Review of Sociology 2008;34(1):405-429. Stokols D. Translating Social Ecological Theory into Guidelines for Community Health Promotion. American Journal of Health Promotion 1996;10(4):282-298. Hruschka DJ. Culture as an explanation in population health. Ann Hum Biol 2009;36(3):235-247.	Martinez-Donate /Vanness
9/13/2016	Place as a Determinant of Health and Disparities *NOTE: This lecture will be in a "flipped" format. You will be expected to read all readings and watch a pre-recorded lecture by Prof. Robert prior to coming to class. We will then use class time for in-depth discussion.* Gustafsson, San Sebastian, Janiert et al. 2014. "Life-course accumulation of neighborhood disadvantage and allostatic load: Empirical integration of three social determinants of health frameworks." AJPH 104 (5): 904-910 Acevedo-Garcia et al. 2008. "Toward a policy-relevant analysis of geographic and racial/ethnic disparities in child health." Health Affairs 27(2): 321-333. Desmond 2016. *Evicted.* Chapter 7 "The Sick"	Robert /Vanness
9/15/2016	Socioeconomic Status, Poverty and Health Disparities Wolfe B, Evans W, Seeman TE. Biological Consequences of Socioeconomic Inequalities, Russell Sage Foundation; 2012. Hanson JL, Hair N, Shen DG, Shi F, Gilmore JH, Wolfe BL, et al. (2013) Family Poverty Affects the Rate of Human Infant Brain Growth. PLoS ONE 8(12): e80954. doi:10.1371/journal.pone.0080954 *Case A, Lubotsky D, Paxson C. Economic Status and Health in Childhood: The Origins of the Gradient. National Bureau of Economic Research; 2001. (SKIM ONLY)*	Wolfe

Date	Lecture Topic and Readings	Lecturer
9/20/2016	Biopsychosocial Determinants of Health and Disparities	Creswell
	Jenkins R, Bhugra D, Bebbington P, et al. Debt, income and mental disorder in the general population. Psychological Medicine 2008;38(10).	
	Mani A, Mullainathan S, Shafir E, Zhao J. Poverty Impedes Cognitive Function. Science 2013;341(6149):976-980. doi:10.1126/science.1238041.	
	Sapolsky R. Sick of Poverty. Scientific American 2005;293(6):92-99.	
	Seery MD, Holman EA, Silver RC. Whatever does not kill us: Cumulative lifetime adversity, vulnerability, and resilience. Journal of Personality and Social Psychology 2010;99(6):1025-1041.	
	Skim Only:	
	Miller G, Chen E, Cole SW. Health Psychology: Developing Biologically Plausible Models Linking the Social World and Physical Health. Annual Review of Psychology 2009;60(1):501-524.	
	Sterling P. Principles of allostasis: optimal design, predictive regulation, pathophysiology, and rational therapeutics. Allostasis 2004.	
9/22/2016	Aging and Cognitive Health: Determinants and Disparities	Zuelsdorff
	Lyu J and Burr JA. Socioeconomic Status Across the Life Course and Cognitive Function Among Older Adults: An Examination of the Latency, Pathways, and Accumulation Hypotheses. *J Aging Health* 2016; 28(1): 40-67	
	Zajacova A, Montez JK and Herd P. Socioeconomic Disparities in Health Among Older Adults and the Implications for the Retirement Age Debate: A Brief Report. *J Gerontol B* 2014; doi: 10.1093/geronb/gbu41	
9/27/2016	Determinants of Health Across the Lifecourse	Ehrenthal
	Barker, D. J., and C. Osmond. 1986. 'Infant mortality, childhood nutrition, and ischaemic heart disease in England and Wales', *Lancet*, 1: 1077-81.	
	Kuh, D., Y. Ben-Shlomo, J. Lynch, J. Hallqvist, and C. Power. 2003. 'Life course epidemiology', *J Epidemiol Community Health*, 57: 778-83.	
	Power, C., D. Kuh, and S. Morton. 2013. 'From developmental origins of adult disease to life course research on adult disease and aging: insights from birth cohort studies', *Annu Rev Public Health*, 34: 7-28.	
9/29/2016	Determinants of Sexual & Reproductive Health	Higgins
	Higgins JA, and Smith NK. The Sexual Acceptability of Contraception: Reviewing the Literature and Building a New Concept	

Date	Lecture Topic and Readings	Lecturer
10/4/2016	Economic Theories of Health Behavior	Mullahy
	Grossman M. 'A Theory of the Allocation of Time' Turns Fifty: Its Impact on the Field of Health Economics.	
	Leibowitz AA. The demand for health and health concerns after 30 years. Journal of Health Economics 2004;23(4):663-671.	
	Rice T. The Behavioral Economics of Health and Health Care. Annual Review of Public Health 2013;34(1):431-447.	
	Cawley J, Ruhm CJ. The Economics of Risky Health Behaviors. In: Handbook of Health Economics.Vol 2. Elsevier; 2011:95-199. (SKIM ONLY)	
10/6/2016	Stakeholder Engagement for Population Health Improvement	Kindig
	RWJF Culture of Health Prize Criteria	
	Kindig DA and Isham G. Population Health Improvement: A Community Health Business Model that Engages Partiners in All Sectors. Frontiers of Health Services Management 2014; 30(4): 3-18	
10/11/2016	Population Health Management in the Era of Health Reform	Jaffery
	McClellan M, McKethan AN, Lewis JL, Roski J, Fisher ES. A national strategy to put accountable care into practice. Health Affairs. 2010 May 1;29(5):982-90.	
10/13/2016	Health Care Disparities and Culturally Competent Care Delivery	Jacobs
	Tanjala S. Purnell, Elizabeth A. Calhoun, Sherita H. Golden, Jacqueline R. Halladay, Jessica L. Krok-Schoen, Bradley M. Appelhans, and Lisa A. Cooper. Achieving Health Equity: Closing The Gaps In Health Care Disparities, Interventions, And Research. Health Affairs 35, no.8 (2016):1410-1415	
10/18/2016	Measuring and Incentivizing Health Care Quality	DuGoff
	Institute of Medicine (U.S.), Committee on Quality of Health Care in America. Crossing the Quality Chasm a New Health System for the 21st Century. Washington, D.C.: National Academy Press; 2001.	
	McGlynn EA, Asch SM, Adams J, et al. The quality of health care delivered to adults in the United States. New England journal of medicine 2003;348(26):2635–2645.	
	Provonost PJ, Goeschel CA, Wachter RM. The wisdom and justice of not paying for "preventable complications." JAMA 2008;299(18):2197–2199.	

Date	Lecture Topic and Readings	Lecturer
10/20/2016	Community Health Interventions	Remington
	Koepsell TD, Wagner EH, Cheadle AC, et al. Selected methodological issues in evaluating community-based health promotion and disease prevention programs. Annual review of public health 1992;13(1):31–57.	
	Merzel C, D'Afflitti J. Reconsidering Community-Based Health Promotion: Promise, Performance, and Potential. Am J Public Health 2003;93(4):557-574.	
10/25/2016	IN-CLASS MIDTERM	
10/27/2016	Basic Economic Concepts: Utility	Vanness
	Read D. Utility theory from Jeremy Bentham to Daniel Kahneman. 2004. Available at: http://eprints.lse.ac.uk/22750/1/04064.pdf.	
	Bergemann D. Intermediate Micro Lecture Notes. Yale University, Spring 2010. Section 2 (Choice) and 2.1 (Utility Functions)	
11/1/2016	Utility and the Valuation of Health	Vanness
	Wilson IB, Cleary PD. Linking clinical variables with health-related quality of life. A conceptual model of patient outcomes. JAMA. 1995;273(1):59-65.	
	Bennett KJ, Torrance GW. Measuring health preferences and utilities: Rating scale, time trade-off and standard gamble methods. In: Spliker B, ed. Quality of life and pharmacoeconomics in clinical trials. Philadelphia: Lippincott-Raven Publishers; 1996, p. 235-265.	
	Gold MR, Stevenson D, Fryback DG. HALYS AND QALYS AND DALYS, OH MY: Similarities and Differences in Summary Measures of Population Health. Annual Review of Public Health. 2002;23(1):115-134.	
	Dolan P. Developing methods that really do value the "Q"in the QALY. Health economics, policy and law. 2008;3(01):69–77.	
11/3/2016	Basic Economic Concepts: Scarcity, Opportunity Cost and Optimization	Vanness
	Bergemann D. Intermediate Micro Lecture Notes. Yale University, Spring 2010. Section 2.2 (Budget Constraints) , 3 (Utility Maximization) and 3.1 (Optimization by Substitution)	
11/8/2016	Basic Economic Concepts: Expected Utility and Social Welfare	Vanness
	Elwyn G, Edwards A, Eccles M, Rovner D. Decision analysis in patient care. The Lancet. 2001;358(9281):571-574.	
	Olsen JA. Theories of justice and their implications for priority setting in health care. Journal of Health Economics. 1997;16(6):625-639.	
	Harsanyi JC. Cardinal utility in welfare economics and in the theory of risk-taking. The Journal of Political Economy. 1953;61(5):434-5.	

Date	Lecture Topic and Readings	Lecturer
11/10/2016	Putting it All Together – Population Health Economics Torrance GW, Thomas WH, Sackett DL. A Utility Maximization Model for Evaluation of Health Care Programs. Health Serv Res. 1972;7(2):118-133. Persad G, Wertheimer A, Emanuel EJ. Principles for allocation of scarce medical interventions. The Lancet. 2009;373(9661):423-431. Sox HC. Resolving the tension between population health and individual health care. JAMA. 2013;310(18):1933-1934.	Vanness
11/15/2016	Catch-Up Date *No readings*	Vanness
11/17/2016	Health Insurance: Basic Economic Concepts Jha S, Baker T. The Economics of Health Insurance. Journal of the American College of Radiology 2012;9(12):866-870. doi:10.1016/j.jacr.2012.09.007. Bergemann D. Intermediate Micro Lecture Notes. Yale University, Spring 2010. Section 2 (Choice), 2.1 (Utility Functions)	Vanness
11/22/2016	Health Insurance, Access and Utilization of Health Services Andersen RM; McCutcheon A; Aday LA; Chiu GY; Bell R. Exploring dimensions of access to medical care. Health Services Research. 1983;18(1):49-74. (Figure 1 only) Andersen RM. National Health Surveys and the Behavioral Model of Health Services Use. Medical Care. 2008;46(7):647-653 ("Behavioral Model of Health Services Use" section only) Ellis RP, McGuire TG. Supply-side and demand-side cost sharing in health care. Jrnl of Economic Perspectives. 1993;7(4):135-151 Manning WG, Newhouse JP, Duan N, Keeler EB, Leibowitz A, Marquis MS. Health insurance and the demand for medical care: Evidence from a randomized experiment. American Economic Review. 1987;77(3):251-277. (Skip statistical methods section) Tye S, Phillips KA, Su-Ying L, Haas JS. Moving beyond the typologies of managed care: The example of health plan predictors of screening mammography. Health Services Research. 2004;39(1):179-206.	Burns/Vanness
11/24/2016	THANKSGIVING BREAK	

Date	Lecture Topic and Readings	Lecturer
11/29/2016	Public Insurance for the Elderly and Disabled: the Medicare System Kaiser Family Foundation. Medicare: A Primer. Henry J. Kaiser Family Foundation; 2010. Available at: http://kff.org/medicare/issue-brief/medicare-a-primer/. Accessed November 8, 2014. Read Executive Summary and Skim Remainder: Report to Congress: Medicare and the Health Care Delivery System. Medicare Payment Advisory Commission; 2016. http://www.medpac.gov/docs/default-source/reports/june-2016-report-to-the-congress-medicare-and-the-health-care-delivery-system.pdf?sfvrsn=0	Vanness
12/1/2016	Public Insurance for the Poor: the Medicaid System Paradise J. Medicaid Moving Forward. Kaiser Family Foundation. March 9, 2015 http://kff.org/health-reform/issue-brief/medicaid-moving-forward/ Pollack H, Garner B, Jost T. Valuing Medicaid. The American Prospect. July 15, 2015 http://prospect.org/article/valuing-medicaid Rosenbaum S., et al. What Would Block Grants or Limits on Per Capita Spending Mean for Medicaid? Commonwealth Fund. November 16, 2016 http://www.commonwealthfund.org/publications/issue-briefs/2016/nov/medicaid-block-grants Gibson M. Exploring Claims That Medicaid Doesn't Improve Health. Issue Brief. Milbank Memorial Fund. July 2014. http://www.milbank.org/publications/exploring-claims-that-medicaid-doesnt-improve-health/	Friedsam
12/1/2016	EXAM 2 ASSIGNED (TAKE-HOME Covering material from 10/27/2016 through 12/1/2016)	
12/6/2016	Public Insurance Exchanges: the Patient Protection and Affordable Care Act *NOTE: This lecture will be in a "flipped" format. You will be expected to read all readings and watch a pre-recorded lecture by Prof. Burns prior to coming to class. We will then use class time for in-depth discussion.* Frank RG, Zeckhauser RJ. Health insurance exchanges—making the markets work. New England Journal of Medicine. 2009 Sep 17;361(12):1135-7. CMS. Overview: Final Rule for Health Insurance Market Reforms. https://www.cms.gov/CCIIO/Resources/Files/Downloads/market-rules-technical-summary-2-27-2013.pdf Crowley RA, Tape TG. Health policy basics: health insurance marketplaces. Annals of internal medicine. 2013 Dec 3;159(11):784-6. Kaiser Family Foundation. Explaining Health Care Reform: Questions about Health Insurance Subsidies. Issue Brief. 2014 October.	Burns/Vanness

Date	Lecture Topic and Readings	Lecturer
12/8/2016	Comparative Effectiveness Research and Health Technology Assessment	Vanness
	Garber AM, Sox HC. The Role Of Costs In Comparative Effectiveness Research. Health Affairs 2010;29(10):1805-1811. doi:10.1377/hlthaff.2010.0647.	
	Weinstein MC, Skinner JA. Comparative Effectiveness and Health Care Spending — Implications for Reform. New England Journal of Medicine 2010;362(5):460-465. doi:10.1056/NEJMsb0911104.	
12/8/2016	EXAM 2 DUE Before 11:00pm	
12/13/2016	Health Care Coordination	Dugoff
	McDonald K., et al. Chapter 3. Care Coordination Measurement Framework. 2014. Available at: http://www.ahrq.gov/professionals/prevention-chronic-care/improve/coordination/atlas2014/chapter3.html.	
	Pham HH. Dismantling Rube Goldberg: Cutting through chaos to achieve coordinated care. Journal of Hospital Medicine 2009;4(4):259-260.	
12/15/2016	The Health Policy Process	Oliver
	Mayes R, Oliver TR. Chronic Disease and the Shifting Focus of Public Health: Is Prevention Still a Political Lightweight? Journal of Health Politics, Policy and Law. 2012;37:181–200.	
	Oliver TR. The Politics of Public Health Policy. Annual Review of Public Health. 2006;27:195–233.	
	FINAL COMPREHENSIVE TAKE-HOME EXAM ASSIGNED	
12/20/2016	FINAL COMPREHENSIVE TAKE-HOME EXAM DUE BEFORE 11:00pm	