

Glossary of Selected Health Terms

Blood pressure is a measure of the force that circulating blood exerts on the wall of the main arteries. The pressure wave transmitted along the arteries with each heartbeat is easily heard with a stethoscope. The highest (systolic) pressure is created by the contraction of the heart when it expulses blood and the lowest (diastolic) pressure is measured as the heart receives blood. Blood pressure is measured in millimeters of mercury. Despite being asymptomatic, elevated blood pressure (hypertension) produces structural changes in the arteries, which in turn affect the blood supply to vital organs, the more frequent consequences of which can be seen in the brain (stroke), the heart (myocardial infarction [heart attack]), and the kidneys (renal failure).

Cancers or **malignant neoplasms** originate through the mutation of critical genes in a cell, which leads to progressive loss of differentiation of the cell. Cancer cells lose the ability to balance cell division by cell death (apoptosis) and to interact with one another. Thus,

tumors exhibit uncontrolled growth and acquire progressively different characteristics than the cell of origin. They eventually invade neighboring tissues, and via the blood stream or lymphatic nodes also invade other organs (metastasis). This is a multistep process that usually takes several years. It can be initiated by a virus or by environmental damage to an organ, such as that caused by radiation or tobacco smoke, yet only a few of the mutated cells progress to a fully developed cancer. The understanding of how cancer originates has opened the opportunity to improve prevention, including by means of vaccines, detection methods, and therapy for several cancers that if detected at early stages and treated in a timely fashion can lead to disease-free survival for most of those diagnosed.

Cardiovascular disease refers to a group of health conditions that affect the circulatory system and include acute rheumatic fever; chronic rheumatic heart disease; hypertensive diseases; ischemic heart disease; pulmonary heart disease; cerebrovascular disease; diseases of the arteries, arterioles, and capillaries; and diseases of the veins, lymphatic vessels, and lymph nodes. The most frequent diseases are **ischemic heart disease** with and without hypertension and **stroke**.

Ischemic heart disease is characterized by insufficient blood flow to the heart muscle. Its clinical manifestations include myocardial infarction, angina pectoris, and chronic ischemic heart disease. Myocardial infarction (colloquially known as a heart attack) is the death of some portion of the heart muscle when it loses its blood supply. The symptoms, characterized by chest pain, that occur because of a decreased blood supply to the cardiac muscle are known as angina pectoris. The possibility of recovery or death depends on the extent of the affected area.

Stroke occurs when an artery that supplies blood to the brain bursts or is blocked by a blood clot. Within minutes, the nerve cells in that area of the brain are damaged and the part of the body controlled by the damaged section of the brain cannot function properly. The degree of disability and death depend on the extent and location of the damage.

Disability-adjusted life years are a summary measure of health that takes into account the years of life lost because of a particular illness and those years spent living with the resulting disability. The disability life years component is estimated by multiplying the number of incident cases in a given period by the duration of the disease and a weight factor that reflects the severity of the resulting health state on a scale from 0 (perfect health state) to 1 (dead). A 3 percent time

discounting is applied. The original estimates of disability-adjusted life years used nonuniform age weights whereby weights were lower for younger and older ages, giving more value to the years lived as a young adult. Currently, some estimates do not use age weights, hence the notation requires a subscript—DALY(r,K)—where r is the time discount rate, $K = 1$ is the use of weights, and $K = 0$ is the nonuse of weights.

Demographic transition is a term used to describe the population changes that occur when fertility rates fall, which in turn leads to a fall in crude mortality rates. A woman would have had fewer children at the end of her reproductive years than older cohorts and her children would be more likely to survive to at least one year of age. The consequence is an increased life expectancy and an increase in the median age of the population. Over time, the adult population experiences faster growth than the population as a whole. During the second half of the 20th century, the decrease in fertility was achieved through the direct application of new technology, and hence a faster decline in fertility than historically observed occurred in many countries that had high fertility rates.

Epidemiological transition refers to changes in the relative importance of various diseases in a population's mortality profile. Most of the mortality decline that follows a reduction in fertility rates occurs in infancy and is attributable to a reduction in infectious diseases. In addition, economic, social, and technological changes have permitted an accelerated decrease in mortality from infectious diseases in all age groups, increasing the proportion of deaths attributed to noncommunicable diseases. Other terms used include "**health transition**," which includes changes in exposure to various risk factors, such as those that accompany urbanization; industrialization; lifestyle changes; and risk-averting interventions, such as improved water and sanitation and improved transportation. "**Nutrition transition**" refers to the changing pattern in a population's nutritional status whereby rates of undernutrition decrease and rates of overnutrition increase through stages in which undernutrition and overnutrition can be found in the same household.

Early diagnosis is the recognition of early signs and symptoms of disease that lead to diagnosis.

Human papillomavirus is a common virus that invades the epithelium, which is the protective layer of tissue that includes the skin and mucous membranes of the body, and can also be found in the mouth

and elsewhere. It is also associated with the development of warts. The virus is extremely resistant and stable and can be viable outside a cell for up to a week. It is also resistant to organic solvents and moderate heat (56°C). Infection rates are high, with nearly 70 percent of women infected during their lifetime, but nonetheless, the virus is usually cleared by natural immunological mechanisms. Of the more than 100 human papillomavirus types known, 15 have been found to have the capacity to induce cancer. The rest cause asymptomatic infections that last, on average, 5 months, compared with 8 to 13 months for high-risk types of the virus. The persistence of the virus for longer periods of time is indicative of higher potential to develop cervical cancer.

Lipids. There are two lipids of major clinical importance: cholesterol and triglycerides. Cholesterol has three primary functions: it plays a role in the structure of cell membranes, in the synthesis of steroid hormones, and in the formation of bile acids. The major functions of triglycerides are energy storage (in fat) and energy use (by muscles). Because fat cannot readily dissolve in the blood, cholesterol and triglycerides are transported by lipoproteins. Very low-density lipoproteins transport mainly triglycerides, low-density lipoproteins account for the majority of cholesterol circulating in the blood and play a major role in creating fat deposits in blood vessels, and high-density lipoproteins mediate the return of lipoprotein and tissue cholesterol to the liver for excretion in a process referred to as reverse cholesterol transport. Cholesterol levels are determined by measuring these lipoproteins, of which the most critical for cardiovascular risk are low-density lipoproteins.

Metabolic syndrome is a set of signs and symptoms that include elevated triglycerides, reduced high-density lipoproteins, elevated blood pressure, elevated glucose, and abdominal obesity. The International Diabetes Federation and the U.S. National Institutes of Health have developed criteria for diagnosing metabolic syndrome and both require that at least three of the five conditions described be present, the only difference being that the International Diabetes Federation considers abdominal obesity to be a necessary condition whereas the National Institutes of Health does not. The reason for this discrepancy is that abdominal obesity as measured by waist circumference varies across ethnic groups. According to the World Health Organization, for individuals of European origin the level of abdominal obesity at which there is an increased cardiovascular risk is found at

94 centimeters or more in men and 80 centimeters or more in women. For Asian populations, particularly South Asians, who appear to have a higher risk of metabolic syndrome, waist circumference to determine abdominal obesity has been estimated at 78 centimeters and over for men and 73 centimeters and over for women.

Negative predictive value is the probability of not having a disease among those who test negative on the screening test.

Obesity can be defined as body fat accumulated in the abdomen, measured by waist circumference or by body mass index (weight in kilograms/height in centimeters squared). In relation to abdominal obesity, see the definition of **metabolic syndrome**. Overweight is equivalent to a body mass index greater than or equal to 25 to a body mass index under 30 and obesity is equivalent to a body mass index equal to or greater than 30. Although body mass index is a weaker predictor of cardiovascular disease events and deaths than waist circumference, it has been collected in many surveys, and is therefore likely to be available.

Population impact: when an intervention leads to changes in the total population as opposed to changes in individuals. For example, a therapy for a disease may lead to full recovery from that disease in individuals who had therapy; yet that does not mean that the mortality rate from the disease is necessarily expected to change.

Positive predictive value is the probability of having a disease among those that test positive on a screening test.

Primary prevention is aimed at reducing the level of one or more identified risk factors to reduce the probability of the initial occurrence of a disease.

Risk factor is any condition or feature that increases the probability of an adverse health outcome. It is generally accepted that a causality relationship exists between a risk factor and the adverse health outcome or disease if the following conditions are met: (a) temporality, where the cause must precede the effect; (b) strength of the association; (c) consistency over repeated observations; (d) biological gradient, either through a dose response or through a threshold; (e) biological plausibility; and (f) experimental evidence if possible.

Secondary prevention consists of ongoing interventions aimed at decreasing the severity and frequency of recurrent events of chronic or episodic diseases. The rationale for secondary prevention is that if disease can be identified at an early stage, intervention measures will be more effective.

Screening is the presumptive identification of unrecognized disease or defects by means of tests, examinations, or other procedures that can be applied rapidly. Screening does not imply diagnosis, just an increased likelihood of disease.

Sensitivity is the efficacy of a test to detect a disease among those who do have the disease. The counterfactual would be a false negative test.

Specificity is the efficacy of a test to provide a negative result among those who do not have the disease. The counterfactual would be a false positive test.

Years of life lost is a measure calculated by the number of cause-specific deaths multiplied by a loss function specifying the years lost as a function of the age at which death would have occurred. In this report it is estimated using standard life tables, with life expectancy at birth fixed at 82.5 years for females and 80.0 years for males.

References

- Adioetomo, S. M., T. Djutaharta, and Hendratno. 2005. "Cigarette Consumption, Taxation, and Household Income: Indonesia Case Study." Health, Nutrition, and Population Discussion Paper, Economics of Tobacco Control, Paper 26, World Bank, Washington, DC.
- Alcaraz, V. O. 2005. *Bolivia: Economía del Control del Tabaco en los Países del Mercosur y Estados Asociados*. Washington, DC: Pan American Health Organization.
- Ali, Z., A. Rahman, and T. Rahman. 2003. "Appetite for Nicotine: An Economic Analysis of Tobacco Control in Bangladesh." Health, Nutrition, and Population Discussion Paper, Economics of Tobacco Control, Paper 16, World Bank, Washington, DC.
- Aloui, O. 2003. "Analysis of the Economics of Tobacco in Morocco." Health, Nutrition, and Population Discussion Paper, Economics of Tobacco Control, Paper 7, World Bank, Washington, DC.
- American Heart Association. 2006. "Heart Disease and Stroke Statistics—2006 Update: A Report from the American Heart Association Statistics Committee and Stroke Statistics Committee." *Journal of the American Heart Association* 113 (6): 85–151.
- Ammerman, A. S., C. H. Lindquist, K. N. Lohr, and J. Hersey. 2002. "The Efficacy of Behavioral Interventions to Modify Dietary Fat and Fruit and Vegetable Intake: A Review of the Evidence." *Preventive Medicine* 35 (1): 25–41.

- Anderson, K. M., P. W. Wilson, P. M. Odell, and W. B. Kannel. 1991. "An Updated Coronary Risk Profile: A Statement for Health Professionals." *Circulation* 83 (1): 356–62.
- Andrieu, E., N. Darmon, and A. Drewnowski. 2006. "Low-Cost Diets: More Energy, Fewer Nutrients." *European Journal of Clinical Nutrition* 60 (3): 434–36.
- Aristizabal, N., C. Cuello, P. Correa, T. Collazos, and W. Haenszel. 1984. "The Impact of Vaginal Cytology on Cervical Cancer Risks in Cali, Colombia." *International Journal of Cancer* 34 (1): 5–9.
- Arunatilake, N., and M. Opatha. 2003. "The Economics of Tobacco in Sri Lanka." Health, Nutrition, and Population Discussion Paper, Economics of Tobacco Control, Paper 12, World Bank, Washington, DC.
- Asia Pacific Cohort Studies Collaboration. 2006. "The Impact of Cardiovascular Risk Factors on the Age-Related Excess Risk of Coronary Heart Disease." *International Journal of Epidemiology* 35 (4): 1025–33.
- Babor, T. F., and R. Caetano. 2005. "Evidence-Based Alcohol Policy in the Americas: Strengths, Weaknesses, and Future Challenges." *Revista Pan Americana de Salud Pública* 18 (4–5): 327–37.
- Baigent, C., A. Keech, P. M. Kearney, L. Blackwell, G. Buck, C. Pollicino, A. Kirby, and others. 2005. "Efficacy and Safety of Cholesterol-Lowering Treatment: Prospective Meta-Analysis of Data from 90,056 Participants in 14 Randomised Trials of Statins." *Lancet* 366 (9493): 1267–78.
- Baines, J., and S. Lata. 2004. "Consumer Understanding and Use of Nutrition Information Panels." *Asia Pacific Journal of Clinical Nutrition* 13 (Suppl): S160.
- Balabanova, D., M. McKee, and N. Koroleva. 2006. "Systemic Constraints on Service Delivery for Noncommunicable Diseases." Unpublished background report, London School of Hygiene and Tropical Medicine.
- Banta, D. 2003. "The Development of Health Technology Assessment." *Health Policy* 63 (2): 121–32.
- Barcelo, A., C. Aedo, S. Rajpathak, and S. Robles. 2003. "The Cost of Diabetes in Latin America and the Caribbean." *Bulletin of the World Health Organization* 81 (1): 19–27.
- Barro, R. J. 1991. "Economic Growth in a Cross-Section of Countries." *Quarterly Journal of Economics* 106 (2): 407–43.
- . 1996. *Health and Economic Growth*. Washington, DC: Pan American Health Organization.
- Barro, R. J., and J. W. Lee. 1994. "Sources of Economic Growth." *Carnegie Rochester Conferences Series on Public Policy* 40 (June): 1–46.
- Barro, R. J., and X. Sala-I-Martin. 1995. *Economic Growth*. New York: McGraw-Hill.

- Bartosch, W. J., and G. C. Pope. 2002. "Economic Effect of Restaurant Smoking Restrictions on Restaurant Business in Massachusetts, 1992 to 1998." *Tobacco Control* 11 (Suppl 2): ii38–ii42.
- Bennett, K., Z. Kabir, B. Unal, E. Shelley, J. Critchley, I. Perry, J. Feely, and S. Capewell. 2006. "Explaining the Recent Decrease in Coronary Heart Disease Mortality Rates in Ireland, 1985–2000." *Journal of Epidemiology and Community Health* 60 (4): 322–27.
- Berry, L. L., A. M. Mirabito, and D. M. Berwick. 2004. "A Health Care Agenda for Business." *MIT Sloan Management Review* 45 (4): 56–64.
- Bhopal, R., C. Fischbacher, E. Vartianen, N. Unwin, M. White, and G. Alberti. 2005. "Predicted and Observed Cardiovascular Disease in South Asians: Application of FINRISK, Framingham, and SCORE Models to Newcastle Heart Project Data." *Journal of Public Health* 27 (1): 93–100.
- Birdsall, N., and E. James. 1993. "Health, Government, and the Poor: The Case for the Private Sector." In *Policy and Planning Implications of the Epidemiological Transition*, ed. James Gribble and Samuel Preston, 229–51. Washington, DC: National Academies Press.
- Blakely, T., S. Hales, C. Kieft, N. Wilson, and A. Woodward. 2005. "The Global Distribution of Risk Factors by Poverty Level." *Bulletin of the World Health Organization* 83 (2): 118–26.
- Bleil, L. D., J. Kalamas, and R. K. Mathoda. 2004. "How to Control Health Benefit Costs." *McKinsey Quarterly* (1): 104–13.
- Bodenheimer, T., E. H. Wagner, and K. Grumbach. 2002a. "Improving Primary Care for Patients with Chronic Illnesses." *Journal of the American Medical Association* 288 (14): 1775–79.
- . 2002b. "Improving Primary Care for Patients with Chronic Illness: The Chronic Care Model, Part 2." *Journal of the American Medical Association* 288 (15): 1909–14.
- Bonu, S., M. Rani, P. Jha, D. H. Peters, and S. N. Nguyen. 2004. "Household Tobacco and Alcohol Use and Child Health: An Exploratory Study from India." *Health Policy* 70 (1): 67–83.
- Bonu, S., M. Rani, D. Peters, P. Jha, and S. N. Nguyen. 2005. "Does Use of Tobacco or Alcohol Contribute to Impoverishment from Hospitalization Costs in India?" *Health Policy and Planning* 20 (1): 41–49.
- Brett, S. E., J. M. Ritter, and P. J. Chowienczyk. 2000. "Diastolic Blood Pressure Changes during Exercise Positively Correlate with Serum Cholesterol and Insulin Resistance." *Circulation* 101 (6): 611–15.
- Brindle, P., J. Emberson, F. Lampe, M. Walker, P. Whincup, T. Fahey, and S. Ebrahim. 2003. "Predictive Accuracy of the Framingham Coronary Risk

- Score in British Men: Prospective Cohort Study." *British Medical Journal* 327 (7426): 1267–70.
- Brown, M. D., G. E. Moore, M. T. Korytkowski, S. D. McCole, and J. M. Hagberg. 1997. "Improvement of Insulin Sensitivity by Short-Term Exercise Training in Hypertensive African American Women." *Hypertension* 30 (6): 1549–53.
- Brown, M. L., S. J. Goldie, G. Draisma, J. Harford, and J. Lipscomb. 2006. "Health Services Interventions for Cancer Control in Developing Countries." In *Disease Control Priorities in Developing Countries*, 2nd ed., ed. D. Jamison, J. Breman, A. Measham, G. Alleyne, M. Claeson, D. Evans, P. Jha, A. Mills, and P. Musgrove, 569–89. New York: Oxford University Press.
- Cacho, J. 2003. "The Supermarket 'Market' Phenomenon in Developing Countries: Implications for Smallholder Farmers and Investment." *American Journal of Agricultural Economics* 85 (5): 1162–63.
- Capewell, S., R. Beaglehole, M. Seddon, and J. McMurray. 2000. "Explanation for the Decline in Coronary Heart Disease Mortality Rates in Auckland, New Zealand, between 1982 and 1993." *Circulation* 102 (13): 1511–16.
- Capewell, S., C. E. Morrison, and J. J. McMurray. 1999. "Contribution of Modern Cardiovascular Treatment and Risk Factor Changes to the Decline in Coronary Heart Disease Mortality in Scotland between 1975 and 1994." *Heart* 81 (4): 380–86.
- Centers for Disease Control and Prevention. 2001. "Updated Guidelines for Evaluating Public Health Surveillance Systems: Recommendations from the Guidelines Working Group." *MMWR* 50 (RR13): 1–35.
- . 2005. "Annual Smoking-Attributable Mortality, Years of Potential Life Lost, and Productivity Losses: United States, 1997–2001." *MMWR* 54 (25): 625–28.
- Chale, S. S., A. B. Swai, P. G. Mujinja, and D. G. McLarty. 1992. "Must Diabetes Be a Fatal Disease in Africa? Study of Cost of Treatment." *British Medical Journal* 304 (6836): 1215–18.
- Chaloupka, F., and P. Jha. 2000. *Tobacco Control in Developing Countries*. New York: Oxford University Press.
- Chaudhury, N., J. Hammer, M. Kremer, K. Muralidharan, and F. H. Rogers. 2006. "Missing in Action: Teacher and Health Worker Absence in Developing Countries." *Journal of Economic Perspectives* 20 (1): 91–116.
- Chinese Academy of Preventive Medicine. 1997. *Smoking and Health in China: 1996 National Prevalence Survey of Smoking Patterns*. Beijing: China Science and Technology Press.
- Chisholm, D., J. Rehm, M. Van Ommeren, and M. Monteiro. 2004. "Reducing the Global Burden of Hazardous Alcohol Use: A Comparative Cost-Effectiveness Analysis." *Journal of Studies on Alcohol* 65 (6): 782–93.

- Choi, Y., J. Friedman, P. Heywood, and S. Kosen. Forthcoming. "Forecasting Health Care Demand in a Middle-Income Country: Disease Transitions in East and Central Java, Indonesia." Research Working Paper, World Bank, Washington, DC.
- Chou, S.-Y., M. Grossman, and H. Saffer. 2004. "An Economic Analysis of Adult Obesity: Results from the Behavioral Risk Factor Surveillance System." *Journal of Health Economics* 23 (3): 565–87.
- Clark, D. B., D. S. Wood, C. S. Martin, J. R. Cornelius, K. G. Lynch, and S. Shiffman. 2005. "Multidimensional Assessment of Nicotine Dependence in Adolescents." *Drug and Alcohol Dependence* 77 (3): 235–42.
- Cochrane, A. L. 1999. "Effectiveness and Efficiency: Random Reflections on Health Services." Royal Society of Medicine Press, London, U.K.
- Coleman, M. P., G. Gatta, A. Verdecchia, J. Esteve, M. Sant, H. Storm, C. Allemani, and others. 2003. "EUROCORE-3 Summary: Cancer Survival in Europe at the End of the 20th Century." *Annals of Oncology* 14 (Suppl 5): v128–v149.
- Collins, D. J., and H. M. Lapsley. 1996. *The Social Costs of Drug Abuse in Australia in 1988 and 1992*. National Drug Strategy Monograph Series 30. Prepared for the Commonwealth Department of Human Services and Health. Canberra: Australian Government Printing Service.
- Committee on Food Marketing and the Diets of Children and Youth, J. M. McGinnis, J. A. Gootman, and V. I. Kraak, eds. 2006. *Food Marketing to Children and Youth: Threat or Opportunity?* Washington, DC: National Academies Press.
- Conroy, R. M., K. Pyörälä, A. P. Fitzgerald, S. Sans, A. Menotti, G. De Backer, D. De Bacquer, and others. 2003. "Estimation of Ten-Year Risk of Fatal Cardiovascular Disease in Europe: The SCORE Project." *European Heart Journal* 24 (11): 987–1003.
- Cook, P. J., and M. J. Moore. 2002. "The Economics of Alcohol Abuse and Alcohol-Control Policies." *Health Affairs (Millwood)* 21 (2): 120–33.
- Corber, S., S. C. Robles, P. Orduñez, and P. Rodriguez. 2003. "Non-Communicable Disease Surveillance in Latin America and the Caribbean: Advances Supported by the Pan American Health Organization." In *Global Behavioral Risk Factor Surveillance*, ed. P. McQueen and P. Pekka. New York: Kluwer Academic and Plenum Publishers, 227–32.
- Cowburn, G., and L. Stockley. 2005. "Consumer Understanding and Use of Nutrition Labelling: A Systematic Review." *Public Health Nutrition* 8 (1): 21–28.
- Cowling, D. W., and P. Bond. 2005. "Smoke-Free Laws and Bar Revenues in California: The Last Call." *Health Economics* 14 (12): 1273–81.
- Crimmins, E. M., Y. Saito, and S. L. Reynolds. 1997. "Further Evidence on Recent Trends in the Prevalence and Incidence of Disability among Older Americans from Two Sources: The LSOA and the NHIS." *Journal of Gerontology* 52B: S59–S71.

- Critchley, J. A., and S. Capewell. 2002. "Why Model Coronary Heart Disease?" *European Heart Journal* 23 (2): 110–16.
- Cutler, D. M. 2001. "The Economics of Better Health: The Case of Cardiovascular Disease." Draft, Harvard University and the National Bureau of Economic Research, Cambridge, MA.
- Cutler, D. M., E. L. Glaeser, and J. Shapiro. 2003. "Why Have Americans Become More Obese?" *Journal of Economic Perspectives* 17 (3): 93–118.
- Cutler, D. M., M. B. Landrum, and K. A. Stewart. 2006. "Intensive Medical Care and Cardiovascular Disease Disability Conditions." Working Paper 12184, National Bureau of Economic Research, Cambridge, MA.
- Cutler, D. M., and L. Sheiner. 1998. "Demographics and Medical Care Spending: Standard and Non-Standard Effects." Working Paper 6866, National Bureau of Economic Research, Cambridge, MA.
- Das, J., and J. Hammer, 2006. "Chronically Misinformed: Chronic Illnesses, Information, and Income in Delhi, India." Unpublished draft, World Bank, Washington, DC.
- . Forthcoming. "Money for Nothing: The Dire Straits of Medical Practice in Delhi, India." *Journal of Development Economics*.
- Daviglus, M. L., K. Liu, P. Greenland, A. R. Dyer, D. B. Garside, L. Manheim, L. P. Lowe, M. Rodin, J. Lubitz, and J. Stamler. 1998. "Benefit of a Favorable Cardiovascular Risk-Factor Profile in Middle Age with Respect to Medicare Costs." *New England Journal of Medicine* 339 (16): 1122–29.
- Daviglus, M. L., K. Liu, A. Pirzada, L. L. Yan, D. B. Garside, P. Greenland, L. M. Manheim, A. R. Dyer, R. Wang, J. Lubitz, W. G. Manning, J. F. Fries, and J. Stamler. 2005. "Cardiovascular Risk Profile Earlier in Life and Medicare Costs in the Last Year of Life." *Archives of Internal Medicine* 165 (9): 1028–34.
- de Beyer, J., and L. W. Brigden, eds. 2003. *Tobacco Control Policy: Strategies, Successes, and Setbacks*. Washington, DC: World Bank.
- Debrott Sanchez, D. 2005. *Chile: Economía del control del tabaco en los países del Mercosur y estados asociados*. Washington, DC: Pan American Health Organization.
- Department of Health and Human Services. 1996. *Physical Activity and Health: A Report of the Surgeon General*. Atlanta: Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. <http://www.cdc.gov/nccdphp/sgr/pdf/sgrfull.pdf>.
- . 2001. *The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity 2001*. Rockville, MD: Department of Health and Human Services, Office of the Surgeon General.

- . 2006. *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General*. Atlanta: Department of Health and Human Services, Centers for Disease Control and Prevention, Coordinating Center for Health Promotion, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health. <http://www.surgeongeneral.gov/library/secondhandsmoke>.
- Department of Health and Human Services; National Institutes of Health; and National Heart, Lung, and Blood Institute. 2003. *The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure*. Bethesda, MD: National Institutes of Health.
- Dishman, R. K., B. Oldenburg, H. O'Neal, and R. J. Shephard. 1998. "Worksite Physical Activity Interventions." *American Journal of Preventive Medicine* 15 (4): 344–61.
- Doak, C. M., L. S. Adair, C. Monteiro, and B. M. Popkin. 2000. "Overweight and Underweight Coexist within Households in Brazil, China, and Russia." *Journal of Nutrition* 130 (12): 2965–71.
- Doll, R., and A. B. Hill. 1954. "The Mortality of Doctors in Relation to Their Smoking Habits: A Preliminary Report." *British Medical Journal* 4877 (1): 1451–55.
- Drewnowski, A., and N. Darmon. 2005. "The Economics of Obesity: Dietary Energy Density and Energy Cost." *American Journal of Clinical Nutrition* 82 (Suppl 1): 265S–273S.
- Efroymsen, D., S. Ahmed, J. Townsend, S. M. Alam, A. R. Dey, R. Saha, B. Dhar, A. I. Sujon, K. U. Ahmed, and O. Rahman. 2001. "Hungry for Tobacco: An Analysis of the Economic Impact of Tobacco Consumption on the Poor in Bangladesh." *Tobacco Control* 10 (3): 212–17.
- Emberson, J., P. Whincup, R. Morris, M. Walker, and S. Ebrahim. 2004. "Evaluating the Impact of Population and High-Risk Strategies for the Primary Prevention of Cardiovascular Disease." *European Heart Journal* 25 (6): 484–91.
- Emmons, K. M. 2000. "Behavioral and Social Sciences Contribution to the Health of the Adults in the United States." In *Promoting Health: Intervention Strategies from Social and Behavioral Research*, ed. B. D. Smedley and S. Leonard, 254–320. Washington, DC: National Academy Press.
- Esson, K., and S. R. Leeder. 2004. *The Millennium Development Goals and Tobacco Control: An Opportunity for Global Partnership*. Geneva: World Health Organization.
- European Diabetes Policy Group. 1999a. "A Desktop Guide to Type 1 (Insulin-Dependent) Diabetes Mellitus." *Diabetes Medicine* 16 (3): 253–66.
- . 1999b. "A Desktop Guide to Type 2 Diabetes Mellitus." *Diabetes Medicine* 16 (9): 716–30.

- Ezzati, M., S. Vander Hoorn, A. Rogers, A. D. Lopez, C. D. Mathers, C. J. Murray, and the Comparative Risk Assessment Collaborating Group. 2003. "Estimates of Global and Regional Potential Health Gains from Reducing Multiple Risk Factors." *Lancet* 362 (9380): 271–80.
- Farrelly, M. C., W. N. Evans, and A. E. S. Sfeakas. 1999. "The Impact of Workplace Smoking Bans: Results from a National Survey." *Tobacco Control* 8 (3): 272–77.
- Farrelly, M. C., J. Niederdeppe, and J. Yarsevich. 2003. "Youth Tobacco Prevention Mass Media Campaigns: Past, Present, and Future Directions." *Tobacco Control* 12 (Suppl 1): i35–i47.
- Feachem, R., T. Kjellstrom, C. Murray, M. Over, and M. Phillips, eds. 1992. *The Health of Adults in the Developing World*. Oxford, U.K.: Oxford University Press.
- Fenoglio, P., V. Parel, and P. Kopp. 2003. "The Social Cost of Alcohol, Tobacco, and Illicit Drugs in France, 1997." *European Addiction Research* 9 (1): 18–28.
- Fernández Garrote, L., J. J. Lence Anta, E. Cabezas Cruz, T. Romero, and R. Camacho. 1996. "Evaluation of the Cervical Cancer Control Program in Cuba." *Bulletin of the Pan American Health Organization* 30 (4): 387–91.
- Fichtenberg, C. M., and S. A. Glantz. 2002. "Effect of Smoke-Free Workplaces on Smoking Behaviour: Systematic Review." *British Medical Journal* 325 (7357): 188–91.
- Filmer, D. 2003. "The Incidence of Public Expenditures on Health and Education." Draft background paper for the *World Development Report 2004: Making Services Work for Poor People*, World Bank, Washington, DC.
- Filmer, D., J. Hammer, and L. Pritchett. 2000. "Weak Links in the Chain: A Diagnosis of Health Policy in Poor Countries." *World Bank Research Observer* 15 (2): 199–224.
- . 2002. "Weak Links in the Chain II: A Prescription for Health Policy in Poor Countries." *World Bank Research Observer* 17 (1): 47–66.
- Filmer, D., and L. Pritchett. 1999. "The Impact of Public Spending on Health: Does Money Matter?" *Social Science and Medicine* 49 (10): 1309–23.
- Fisher, E. S., D. E. Wennberg, T. A. Stukel, D. J. Gottlieb, F. L. Lucas, and E. L. Pinder. 2003a. "The Implications of Regional Variations in Medicare Spending. Part 1: The Content, Quality, and Accessibility of Care." *Annals of Internal Medicine* 138 (4): 273–87.
- . 2003b. "The Implications of Regional Variations in Medicare Spending. Part 2: Health Outcomes and Satisfaction with Care." *Annals of Internal Medicine* 138 (4): 288–98.
- Frei, A. 2001. *Kostenanalyse des alkoholkonsums in der Schweiz: teilbericht direkte kosten*. Basel, Switzerland: Healthecon.
- French, S. A. 2003. "Pricing Effects on Food Choices." *Journal of Nutrition* 133 (3): 841S–843S.

- Fries, J. 1980. "Aging, Natural Death, and the Compression of Morbidity." *New England Journal of Medicine* 303 (3): 130–35.
- Gage, J. C., C. Ferreccio, M. Gonzales, R. Arroyo, M. Huivin, and S. C. Robles. 2003. "Follow-Up Care of Women with an Abnormal Cytology in a Low-Resource Setting." *Cancer Detection and Prevention* 27 (6): 466–71.
- Gallus, S., A. Schiaffino, C. La Vecchia, J. Townsend, and E. Fernandez. 2006. "Price and Cigarette Consumption in Europe." *Tobacco Control* 15 (2): 114–19.
- Garrett, J., and M. T. Ruel. 2005. "The Coexistence of Child Undernutrition and Maternal Overweight: Prevalence, Hypotheses, and Programme and Policy Implications." *Maternal and Child Nutrition* 1 (3): 185–96.
- Gatta, G., R. Capocaccia, C. Stiller, P. Kaatsch, F. Berrino, M. Terenziani, and the EURO CARE Working Group. 2005. "Childhood Cancer Survival Trends in Europe: A EURO CARE Working Group Study." *Journal of Clinical Oncology* 23 (16): 3742–51.
- Gelders, S., M. Ewen, N. Noguchi, and R. Laing. 2006. *Price, Availability, and Affordability: An International Comparison of Chronic Disease Medicines*. Cairo: World Health Organization and Health Action International.
- Gertler, P., and J. Gruber. 2002. "Insuring Consumption against Illness." *American Economic Review* 92 (1): 51–70.
- Gertler, P., D. Levine, and M. Ames. 2004. "Schooling and Parental Death." *Review of Economics and Statistics* 6 (1): 211–25.
- Ghaffar, A., K. Srinath Reddy, and M. Singhi. 2004. "Burden of Noncommunicable Diseases in South Asia." *British Medical Journal* 328 (April 3): 807–10.
- Giampaoli, S., L. Palmieri, A. Mattiello, and S. Panico. 2005. "Definition of High-Risk Individuals to Optimise Strategies for Primary Prevention of Cardiovascular Diseases." *Nutrition Metabolism and Cardiovascular Disease* 15 (1): 79–85.
- Giles, T. D., B. C. Berk, H. R. Black, J. N. Cohn, J. B. Kostis, J. L. Izzo Jr., and M. A. Weber. 2005. "Expanding the Definition and Classification of Hypertension." *Journal of Clinical Hypertension* (Greenwich, CT) 7 (9): 505–12.
- GKI Economic Research Institute. 2004. *Economic Impact of Smoking and Tobacco Control in Hungary*. Budapest: GKI Economic Research Institute.
- Glanz, K., M. Basil, E. Maibach, J. Goldberg, and D. Snyder. 1998. "Why Americans Eat What They Do: Taste, Nutrition, Cost, Convenience, and Weight Control Concerns as Influences on Food Consumption." *Journal of the American Dietetic Association* 98 (10): 1118–26.
- Goldie, S. J., L. Gaffikin, J. D. Goldhaber-Fiebert, A. Gordillo-Tobar, C. Levin, C. Mahé, T. C. Wright, for the Alliance for Cervical Cancer Prevention Cost Working Group. 2005. "Cost-Effectiveness of Cervical-Cancer Screening in Five Developing Countries." *New England Journal of Medicine* 353 (20): 2158–68.

- Goldie, S. J., M. Kohli, D. Grima, M. C. Weinstein, T. C. Wright, F. X. Bosch, and E. Franco. 2004. "Projected Clinical Benefits and Cost-Effectiveness of a Human Papillomavirus 16/18 Vaccine." *Journal of the National Cancer Institute* 96 (8): 604–15.
- Goldman, D. P., G. F. Joyce, J. J. Escarce, J. E. Pace, M. D. Solomon, M. Laouri, P. B. Landsman, and S. M. Teutsch. 2004. "Pharmacy Benefits and the Use of Drugs by the Chronically Ill." *Journal of the American Medical Association* 291 (19): 2344–50.
- Goldman, L. 2004. "The Decline in Coronary Heart Disease: Determining the Paternity of Success." *American Journal of Medicine* 117 (4): 274–76.
- Gonzales-Rozada, M. 2005. *Argentina: Economía del Control del Tabaco en los Países del Mercosur y Estados Asociados*. Washington, DC: Pan American Health Organization.
- Goodman, C., and A. Anise. 2006. *What Is Known about the Effectiveness of Economic Instruments to Reduce Consumption of Foods High in Saturated Fats and Other Energy-Dense Foods for Preventing and Treating Obesity?* Health Evidence Network report. Copenhagen: World Health Organization Regional Office for Europe. <http://www.euro.who.int/document/e88909.pdf>.
- Gostin, L. O. 2000. "Legal and Public Policy: Interventions to Advance the Population's Health." In *Promoting Health: Intervention Strategies from Social and Behavioral Research*, ed. B. D. Smedley and S. L. Syme, 390–416. Washington, DC: National Academies Press.
- Gotsadze, G., D. Gzirishvili, S. Bennett, and K. Ranson. 2001. *Health Service Utilisation and Expenditures in Tbilisi—2000: Report of a Household Survey*. Tbilisi: Curatio International Foundation.
- Greenberg, P. E., R. C. Kessler, H. G. Birnbaum, S. A. Leong, S. W. Lowe, P. A. Berglund, and P. K. Corey-Lisle. 2003. "The Economic Burden of Depression in the United States: How Did It Change between 1990 and 2000?" *Journal of Clinical Psychiatry* 64 (12): 1465–75.
- Gruber, J., A. Sen, and M. Stabile. 2003. "Estimating Price Elasticities When There Is Smuggling: The Sensitivity of Smoking to Price in Canada." *Journal of Health Economics* 22 (5): 821–42.
- Grundy, S. M., J. I. Cleeman, S. R. Daniels, K. A. Donato, R. H. Eckel, B. A. Franklin, D. J. Gordon, and others. 2005. "Diagnosis and Management of the Metabolic Syndrome: An American Heart Association/National Heart, Lung, and Blood Institute Scientific Statement." *Circulation* 112 (17): 2735–52.
- Gu, D., K. Reynolds, X. Wu, J. Chen, X. Duan, P. Muntner, G. Huang, and others. 2002. "Prevalence, Awareness, Treatment, and Control of Hypertension in China." *Hypertension* 40 (6): 920–27.
- Guindon, G. E., and D. Boisclair. 2003. "Past, Current, and Future Trends in Tobacco Use: The Economics of Tobacco Control." *Health, Nutrition, and*

- Population Discussion Paper, Economics of Tobacco Control, Paper 6. World Bank, Washington, DC.
- Guo, X., B. M. Popkin, T. A. Mroz, and F. Zhai. 1999. "Food Price Policy Can Favorably Alter Macronutrient Intake in China." *Journal of Nutrition* 129 (5): 994–1001.
- Gwatkin, D. R., and M. Guillot. 2000. *The Burden of Disease among the Global Poor: Current Situation, Future Trends, and Implications for Strategy*. Washington, DC: World Bank.
- Gwatkin, D. R., M. Guillot, and P. Heuveline. 1999. "The Burden of Disease among the Global Poor." *Lancet* 354 (9178): 586–89.
- Hajjar, I., and T. A. Kotchen. 2003. "Trends in Prevalence, Awareness, Treatment, and Control of Hypertension in the United States, 1988–2000." *Journal of the American Medical Association* 290 (2): 199–206.
- Hamilton, V. H., C. Levinton, Y. St.-Pierre, and F. Grimard. 1997. "The Effect of Tobacco Tax Cuts on Cigarette Smoking in Canada." *Canadian Medical Association Journal* 156 (2): 187–91.
- Hammond, D., G. T. Fong, P. W. McDonald, R. Cameron, and K. S. Brown. 2003. "Impact of the Graphic Canadian Warning Labels on Adult Smoking Behaviour." *Tobacco Control* 12 (4): 391–95.
- Hawkes, C. 2004. *Marketing Food to Children: The Global Regulatory Environment*. Geneva: World Health Organization.
- . 2006. "Uneven Dietary Development: Linking the Policies and Processes of Globalization with the Nutrition Transition, Obesity, and Diet-Related Chronic Diseases." Review. *Globalization and Health* 2: 4.
- Heller, P. S. 2006. "The Prospects of Creating 'Fiscal Space' for the Health Sector." *Health Policy and Planning* 21 (2): 75–79.
- Hense, H. W., H. Schulte, H. Löwel, G. Assmann, and U. Keil. 2003. "Framingham Risk Function Overestimates Risk of Coronary Heart Disease in Men and Women from Germany: Results from the MONICA Augsburg and the PRO-CAM Cohorts." *European Heart Journal* 24 (10): 937–45.
- Herrero, R., L. A. Brinton, W. C. Reeves, M. M. Brenes, R. C. de Britton, E. Gaitan, and F. Tenorio. 1992. "Screening for Cervical Cancer in Latin America: A Case-Control Study." *International Journal of Epidemiology* 21 (6): 1050–56.
- Hillsdon, M., C. Foster, and M. Thorogood. 2005. "Interventions for Promoting Physical Activity." *Cochrane Database of Systematic Reviews* (1): CD003180.
- Hopkins, D. P., P. A. Briss, C. J. Ricard, C. G. Husten, V. G. Carande-Kulis, J. E. Fielding, M. O. Alao, and others. 2001. "Reviews of Evidence Regarding Interventions to Reduce Tobacco Use and Exposure to Environmental Tobacco Smoke." *American Journal of Preventive Medicine* 20 (Suppl 2): 16–66.

- Hopkinson, B., D. Balabanova, M. McKee, and J. Kutzin. 2004. "The Human Perspective on Health Care Reform: Coping with Diabetes in Kyrgyzstan." *International Journal of Health Planning and Management* 19 (1): 43–61.
- Horch, K., and E. Bergemann. 2003. "Berechnung der Kosten alkoholassoziierter Krankheiten Bundesgesundheitsblatt." *Gesundheitsforschung—Gesundheitschutz* 46 (8): 625–35.
- Hsu, J., M. Price, J. Huang, R. Brand, V. Fung, R. Hui, B. Fireman, J. P. Newhouse, and J. V. Selby. 2006. "Unintended Consequences of Caps on Medicare Drug Benefits." *New England Journal of Medicine* 354 (22): 2349–59.
- Hu, T.-W., and Z. Mao. 2002. "Economics Analysis of Tobacco and Options for Tobacco Control: China Case Study." Health, Nutrition, and Population Discussion Paper, Economics of Tobacco Control, Paper 3, World Bank, Washington, DC.
- Hu, T.-W., Z. Mao, Y. Liu, J. de Beyer, and M. Ong. 2005. "Smoking, Standard of Living, and Poverty in China." *Tobacco Control* 14 (4): 247–50.
- Hu, T.-W., Z. Mao, M. Ong, E. Tong, M. Tao, H. Jiang, K. Hammond, K. R. Smith, J. de Beyer, and A. Yureki. 2006. "China at the Crossroads: The Economics of Tobacco and Health." *Tobacco Control* 15 (Suppl 1): i37–i41.
- Hughes, J. R., S. Shiffman, P. Callas, and J. Zhang. 2003. "A Meta-Analysis of the Efficacy of Over-the-Counter Nicotine Replacement." *Tobacco Control* 12 (1): 21–27.
- Hughes, J. R., L. F. Stead, and T. Lancaster. 2004. "Antidepressants for Smoking Cessation." *Cochrane Database of Systematic Reviews* (4): CD000031.
- Hunink, M. G., L. Goldman, A. N. Tosteson, M. A. Mittleman, P. A. Goldman, L. W. Williams, J. Tsevat, and M. C. Weinstein. 1997. "The Recent Decline in Mortality from Coronary Heart Disease, 1980–1990: The Effect of Secular Trends in Risk Factors and Treatment." *Journal of the American Medical Association* 277 (7): 535–42.
- IDF (International Diabetes Federation). 2003. *Diabetes Atlas*. Second Edition. Brussels: International Diabetes Federation.
- Iglesias, R., and J. Nicolau. 2005. *Brasil: A economia do controle do tabaco nos países do Mercosur e associados*. Washington, DC: Pan American Health Organization.
- International Agency for Research on Cancer. 2002a. *Breast Cancer Screening*. Lyon, France: International Agency for Research on Cancer Handbooks of Cancer Prevention, vol. 7. Lyon, France: International Agency for Research on Cancer Press and World Health Organization.
- . 2002b. *Fruits and Vegetables*. International Agency for Research on Cancer Handbooks of Cancer Prevention, vol. 8. Lyon, France: International Agency for Research on Cancer Press and World Health Organization.

- . 2005. *Cervix Cancer Screening*. International Agency for Research on Cancer Handbooks of Cancer Prevention, vol. 10. Lyon, France: International Agency for Research on Cancer Press and World Health Organization.
- Jamison, D., J. Breman, A. Measham, G. Alleyne, M. Claeson, D. Evans, P. Jha, A. Mills, and P. Musgrove, eds. 2006a. *Disease Control Priorities in Developing Countries*, 2nd ed. New York: Oxford University Press.
- . eds. 2006b. *Priorities in Health*. Washington, DC: World Bank.
- Jernigan, D. H., M. Monteiro, R. Room, and S. Saxena. 2000. "Towards a Global Alcohol Policy: Alcohol, Public Health, and the Role of WHO." *Bulletin of the World Health Organization* 78 (4): 491–99.
- Jha, P., and F. Chaloupka, eds. 2000. *Tobacco Control in Developing Countries*. New York: Oxford University Press.
- Joossens, L., and M. Raw. 2000. "How Can Cigarette Smuggling Be Reduced?" *British Medical Journal* 321 (7266): 947–50.
- Jossens, L. 2005. "The Economic Impact of a Smoking Ban in Bars and Restaurants." In *The Smoke-Free Europe Partnership: Smoke-Free Europe Makes Economic Sense*. A Report on the Economic Aspects of Smoke-Free Policies. Brussels: Smoke-Free Europe Partnership.
- Kahn, E. B., L. T. Ramsey, R. C. Brownson, G. W. Heath, E. H. Howze, K. E. Powell, E. J. Stone, M. W. Rajab, and P. Corso. 2002. "The Effectiveness of Interventions to Increase Physical Activity: A Systematic Review." *American Journal of Preventive Medicine* 22 (Suppl 4): 73–107.
- Kaiserman, M. J. 1997. "The Cost of Smoking in Canada, 1991." *Chronic Diseases in Canada* 18 (1): 13–19.
- Kang, H. Y., H. J. Kim, T. K. Park, S. H. Jee, C. M. Nam, and H. W. Park. 2003. "Economic Burden of Smoking in Korea." *Tobacco Control* 12 (1): 37–44.
- Karki, Y. B., K. D. Pant, and B. R. Pande. 2003. "A Study on the Economics of Tobacco in Nepal." Health, Nutrition, and Population Discussion Paper, Economics of Tobacco Control, Paper 13, World Bank, Washington, DC.
- Katzmarzyk, P. T., and I. Janssen. 2004. "The Economic Costs Associated with Physical Inactivity and Obesity in Canada: An Update." *Canadian Journal of Applied Physiology* 29 (1): 90–115.
- Kenkel, D. S., and W. G. Manning. 1996. "Perspectives on Alcohol Taxation." *Alcohol Health and Research World* 20 (4): 230–39.
- Khan, I., V. Dekou, M. Hanson, L. Poston, and P. Taylor. 2004. "Predictive Adaptive Responses to Maternal High-Fat Diet Prevent Endothelial Dysfunction but Not Hypertension in Adult Rat Offspring." *Circulation* 110 (9): 1097–1102.
- Kibriya, M. G., L. Ali, N. G. Banik, and A. K. Azad Khan. 1999. "Home Monitoring of Blood Glucose (HMBG) in Type 2 Diabetes Mellitus in a Developing Country." *Diabetes Research and Clinical Practice* 46 (3): 253–57.

- Kuchler, F., A. Tegene, and J. M. Harris. 2004. "Taxing Snack Foods: What to Expect for Diet and Tax Revenues." *Current Issues in Economics of Food Markets, Agriculture Information Bulletin* (U.S. Department of Agriculture, Economic Research Service): No. 747–48.
- Kuulasmaa, K., H. Tunstall-Pedoe, A. Dobson, S. Fortmann, S. Sans, H. Tolonen, A. Evans, M. Ferrario, and J. Tuomilehto for the WHO MONICA Project. 2000. "Estimation of Contribution of Changes in Classic Risk Factors to Trends in Coronary-Event Rates across the WHO MONICA Project Populations." *Lancet* 355 (9205): 675–87.
- Kyaing, N. N. 2003. "Tobacco Economics in Myanmar." Health, Nutrition, and Population Discussion Paper, Economics of Tobacco Control, Paper 14, World Bank, Washington, DC.
- Laatikainen, T., J. Critchley, E. Vartiainen, V. Salomaa, M. Ketonen, and S. Capewell. 2005. "Explaining the Decline in Coronary Heart Disease Mortality in Finland between 1982 and 1997." *American Journal of Epidemiology* 162 (8): 764–73.
- Lanjouw, P., and M. Ravallion. 1999. "Benefit Incidence, Public Spending Reforms, and the Timing of Program Capture." *World Bank Economic Review* 13 (2): 257–73.
- Last, J. M. 2001. *A Dictionary of Epidemiology*. Oxford, U.K.: Oxford University Press.
- Laxminarayan, R., J. Chow, and S. A. Shahid-Salles, 2006. "Intervention Cost-Effectiveness: Overview of Main Messages." In *Disease Control Priorities in Developing Countries*, 2nd ed., ed. D. Jamison, J. Breman, A. Measham, G. Alleyne, M. Claeson, D. Evans, P. Jha, A. Mills, and P. Musgrove, 35–86. New York: Oxford University Press.
- Laxminarayan, R., A. J. Mills, J. G. Breman, A. R. Measham, G. Alleyne, M. Claeson, P. Jha, and others. 2006. "Advancement of Global Health: Key Messages from the Disease Control Priorities Project." *Lancet* 367 (9517): 1193–1208.
- Leeder, S., S. Raymond, H. Greenberg, H. Liu, and K. Esson. 2004. *A Race against Time: The Challenge of Cardiovascular Disease in Developing Economies*. New York: Earth Institute at Columbia University.
- Leonard, K., and Masatu, M. C. 2005. "Variation in the Quality of Care Accessible to Rural Communities in Tanzania." University of Maryland.
- Lewis, M. 2002. "Informal Health Payments in Central and Eastern Europe and the Former Soviet Union: Issues, Trends, and Policy Implications." In *Funding Health Care: Options for Europe*, ed. E. Mossialos, A. Dixon, J. Figueras, and J. Kutzin, 184–206. Buckingham, PA: Open University Press.
- Lewit, E. M., A. Hyland, N. Kerrebrock, and K. M. Cummings. 1997. "Price, Public Policy, and Smoking in Young People." *Tobacco Control* 6 (Suppl 2): S17–S24.

- Li, W., X. Jiang, H. Ma, T.-S. I. Yu, L. Ma, J. G. Puente, Y. Tang, and others. 2003. "Awareness, Treatment, and Control of Hypertension in Patients Attending Hospital Clinics in China." *Journal of Hypertension* 21 (6): 1191–97.
- Liang, L., and F. J. Chaloupka. 2002. "Differential Effects of Cigarette Price on Youth Smoking Intensity." *Nicotine and Tobacco Research* 4 (1): 109–14.
- Liu, J., Y. Hong, R. B. D'Agostino Sr., Z. Wu, W. Wang, J. Sun, P. W. F. Wilson, W. B. Kannel, and D. Zhao. 2004. "Predictive Value for the Chinese Population of the Framingham CHD Risk Assessment Tool Compared with the Chinese Multi-Provincial Cohort Study." *Journal of the American Medical Association* 291 (21): 2591–99.
- Liu, J. L. Y., M. Maniadakis, A. Gray, and M. Rayner. 2002. "The Economic Burden of Coronary Heart Disease in the UK." *Heart* 88 (6): 597–603.
- Lopez, A. D., C. D. Mathers, M. Ezzati, D. T. Jamison, and C. J. L. Murray, eds. 2006. *Global Burden of Disease and Risk Factors*. New York: Oxford University Press. <http://files.dcp2.org/pdf/GBD/GBDFM.pdf>. Data also available on World Health Organization. "Burden of Disease Project." World Health Organization. <http://www.who.int/healthinfo/bodproject/en/index.html>.
- Lubitz, J., L. Cai, E. Kramarow, and H. Lentzner. 2003. "Health, Life Expectancy, and Health Care Spending among the Elderly." *New England Journal of Medicine* 349 (11): 1048–55.
- Macedo, M. E., M. J. Lima, A. O. Silva, P. Alcantara, V. Ramalhinho, and J. Carmona. 2005. "Prevalence, Awareness, Treatment, and Control of Hypertension in Portugal: The PAP Study." *Journal of Hypertension* 23 (9): 1661–66.
- Mackay, J., and M. Eriksen. 2002. *The Tobacco Atlas*. Geneva: World Health Organization.
- Mancino, L. 2003. "Americans' Food Choices: The Interaction of Information, Intentions, and Convenience." Ph.D. dissertation, University of Minnesota.
- Manning, W. G., E. B. Keeler, J. P. Newhouse, E. M. Sloss, and J. Wasserman. 1989. "The Taxes of Sin: Do Smokers and Drinkers Pay Their Way." *Journal of the American Medical Association* 261 (11): 1604–9.
- Manton, K. G., E. Stallard, and L. S. Corder. 1995. "Estimates of Change in Chronic Disability and Institutional Incidence and Prevalence Rates in the U.S. Elderly Population from the 1982, 1984, and 1989 National Long-Term Care Surveys." *Journals of Gerontology* 48 (4): S153–S166.
- Mao, C., L. A. Koutsky, K. A. Ault, C. M. Wheeler, D. R. Brown, D. J. Wiley, F. B. Alvarez, O. M. Bautista, K. U. Jansen, and E. Barr. 2006. "Efficacy of Human Papillomavirus-16 Vaccine to Prevent Cervical Intraepithelial Neoplasia: A Randomized Controlled Trial." *Obstetrics and Gynecology* 107 (1): 18–27.
- Marks, J. S., and D. V. McQueen. 2002. "Chronic Disease." In *Critical Issues in Global Health*, ed. C. E. Koop, C. E. Pearson, and M. R. Schwarz, 117–26. San Francisco: Jossey-Bass.

- Mathers, C. D., and D. Loncar. 2005. "Updated Projections of Global Mortality and Burden of Disease, 2002–2030: Data Sources, Methods, and Results." Working paper, World Health Organization, Geneva.
- Mathers, C. D., R. Sadana, J. Salomon, C. J. L. Murray, and A. Lopez. 2001. "Healthy Life Expectancy in 191 Countries, 1999." *Lancet* 357 (9269): 1685–91.
- Matson-Koffman, D. M., J. N. Brownstein, J. A. Neiner, and M. L. Greaney. 2005. "A Site-Specific Literature Review of Policy and Environmental Interventions That Promote Physical Activity and Nutrition for Cardiovascular Health: What Works?" *American Journal of Health Promotion* 19 (3): 167–93.
- Maynard, A., and D. McDaid. 2003. "Evaluating Health Interventions: Exploiting the Potential." *Health Policy* 63 (2): 215–26.
- McMullen, K. M., R. C. Brownson, D. Luke, and J. Chiqui. 2005. "Strength of Clean Indoor Air Laws and Smoking-Related Outcomes in the USA." *Tobacco Control* 14 (1): 43–48.
- Merriman, D., A. Yurekli, and F. J. Chaloupka. 2000. "How Big Is the Worldwide Cigarette Smuggling Problem?" In *Tobacco Control in Developing Countries*, ed. P. Jha and F. Chaloupka, 365–92. New York: Oxford University Press.
- Michel, J.-P., and J.-M. Robine. 2004. "A 'New' General Theory of Population Ageing." *Geneva Papers on Risk and Insurance* 29 (4): 667–78.
- Miller, D. S., and A. Ryskulova. 2004. *Epidemiologic Surveillance Systems in Eastern Europe and Central Asia*. Vol. 1. Washington, DC: World Bank.
- Monteiro, C. A., W. L. Conde, and B. M. Popkin. 2004. "The Burden of Disease from Undernutrition and Overnutrition in Countries Undergoing Rapid Nutrition Transition: A View from Brazil." *American Journal of Public Health* 94 (3): 433–34.
- Monteiro, C. A., E. C. Moura, W. L. Conde, and B. M. Popkin. 2004. "Socioeconomic Status and Obesity in Adult Populations of Developing Countries: A Review." *Bulletin of the World Health Organization* 82 (12): 940–46.
- Morland, K., A. V. Diez Roux, and S. Wing. 2006. "Supermarkets, Other Food Stores, and Obesity: The Atherosclerosis Risk in Communities Study." *American Journal of Preventive Medicine* 30 (4): 333–39.
- Mortensen, J. 2005. *Ageing, Health, and Retirement in Europe: The AGIR Project: Final Report on Scientific Achievements*. Research Report 11. Brussels: European Network of Economic Policy Research Institutes.
- Muñoz, N., F. X. Bosch, X. Castellsagué, M. Diaz, S. de Sanjose, D. Hammouda, K. V. Shah, and C. J. L. M. Meijer. 2004. "Against Which Human Papillomavirus Types Shall We Vaccinate and Screen? The International Perspective." *International Journal of Cancer* 111 (2): 278–85.
- Murray, C. J. L., J. A. Lauer, R. C. W. Hutubessy, L. Niessen, N. Tomijima, A. Rodgers, C. M. Lawes, and D. B. Evans. 2003. "Effectiveness and Costs of

- Interventions to Lower Systolic Blood Pressure and Cholesterol: A Global and Regional Analysis on Reduction of Cardiovascular-Disease Risk." *Lancet* 361 (9359): 717–25.
- Murray, C. J. L., and A. D. Lopez. 1997. "Alternative Projections of Mortality and Disability by Cause 1990–2020: Global Burden of Disease Study." *Lancet* 349 (9064): 1498–1504.
- Musgrove, P. 1996. "Public and Private Roles in Health: Theory and Financing Patterns." Health, Nutrition, and Population Discussion Paper 339, World Bank, Washington, DC.
- Narayan, K. M. V., P. Zhang, A. M. Kanaya, D. E. Williams, M. M. Engelgau, G. Imperatore, and A. Ramachandran. 2006. "Diabetes: The Pandemic and Potential Solutions." In *Disease Control Priorities in Developing Countries*, 2nd ed., ed. D. Jamison, J. Breman, A. Measham, G. Alleyne, M. Claeson, D. Evans, P. Jha, A. Mills, and P. Musgrove, 591–604. New York: Oxford University Press.
- Nassar, H. 2003. "Economics of Tobacco in Egypt: A New Analysis of Demand." Health, Nutrition, and Population Discussion Paper, Economics of Tobacco Control, Paper 8, World Bank, Washington, DC.
- Neal, B., S. MacMahon, N. Chapman, and Blood Pressure Lowering Treatment Trialists' Collaboration. 2000. "Effects of ACE Inhibitors, Calcium Antagonists, and Other Blood-Pressure-Lowering Drugs: Results of Prospectively Designed Overviews of Randomised Trials; Blood Pressure Lowering Treatment Trialists' Collaboration." *Lancet* 356 (9246): 1955–64.
- Nestle, M., and M. F. Jacobson. 2000. "Halting the Obesity Epidemic: A Public Health Policy Approach." *Public Health Reports* 115 (1): 12–24.
- Neuhann, H. F., C. Warter-Neuhann, I. Lyaruu, and L. Msuya. 2001. "Diabetes Care in Kilimanjaro Region: Clinical Presentation and Problems of Patients of the Diabetes Clinic at the Regional Referral Hospital; an Inventory before Structured Intervention." *Diabetic Medicine* 19 (6): 509–13.
- Nicholson, A., M. Bobak, M. Murphy, R. Rose, and M. Marmot. 2005. "Alcohol Consumption and Increased Mortality in Russian Men and Women: A Cohort Study Based on the Mortality of Relatives." *Bulletin of the World Health Organization* 83 (11): 812–19.
- Nielsen, S. J., and B. M. Popkin. 2004. "Changes in Beverage Intake between 1977 and 2001." *American Journal of Preventive Medicine* 27 (3): 205–10.
- Norstrom, T., and O.-J. Skog. 2005. "Saturday Opening of Alcohol Retail Shops in Sweden: An Experiment in Two Phases." *Addiction* 100 (6): 767–76(10).
- Nugent, R., and F. Knaul. 2006. "Fiscal Policies for Health Promotion and Disease Prevention." In *Disease Control Priorities in Developing Countries*, 2nd ed., ed. D. Jamison, J. Breman, A. Measham, G. Alleyne, M. Claeson, D. Evans, P. Jha, A. Mills, and P. Musgrove, 211–23. New York: Oxford University Press.

- O'Donnell, O., E. van Doorslaer, R. P. Rannan-Eliya, A. Somanathan, S. R. Adhikari, D. Harbianto, C. C. Garg, and others. 2005. "Who Benefits from Public Spending on Health Care in Asia?" Working Paper 3, Equity in Asia-Pacific Health Systems. http://www.equitap.org/publications/wps/EquitapWP3_2005.09.21.pdf.
- Onder, Z. 2002. "The Economics of Tobacco in Turkey: New Evidence and Demand Estimates." Health, Nutrition, and Population Discussion Paper, Economics of Tobacco Control, Paper 2, World Bank, Washington, DC.
- Ordúñez, P., L. C. Silva, M. P. Rodriguez, and S. Robles. 2001. "Prevalence Estimates for Hypertension in Latin America and the Caribbean: Are They Useful for Surveillance?" *Rev Panam Salud Pública* 10 (4): 226–31.
- Osterberg, E. 2004. *What Are the Most Effective and Cost-Effective Interventions in Alcohol Control?* Health Evidence Network Report. Copenhagen: World Health Organization, Regional Office for Europe. <http://www.euro.who.int/document/E82969.pdf>.
- Packer, C., S. Simpson, A. Stevens, and EuroScan: the European Information Network on New and Changing Health Technologies. 2006. "International Diffusion of New Health Technologies: A Ten-Country Analysis of Six Health Technologies." *International Journal of Technology Assessment in Health Care* 22 (4): 419–28.
- Panagiotakos, D. B., C. H. Pitsavos, C. Chrysohoou, J. Skoumas, L. Papadimitriou, C. Stefanadis, and P. K. Toutouzas. 2003. "Status and Management of Hypertension in Greece: Role of the Adoption of a Mediterranean Diet: The Attica Study." *Journal of Hypertension* 21 (8): 1483–89.
- Pan American Health Organization. 2006. "The Preliminary Report of the Global Survey on Assessing the Progress in National Chronic Diseases Prevention and Control." Draft of March 19, Pan American Health Organization, Washington, DC.
- Pan American Sanitary Bureau. 1998. *Cost-Benefit Analysis of Smoking*. Caracas: Pan American Health Organization.
- Park, H., N. Safdar, and H. Schmidt. 2002. "Decline in Mortality of Coronary Heart Disease among Whites and Blacks in Wisconsin, 1979–1998." *Wisconsin Medical Journal* 101 (3): 23–27.
- Parry, I. W. H., R. Laxminarayan, and S. E. West. 2006a. "Fiscal and Externality Rationales for Alcohol Taxes." Working paper, Resources for the Future, Washington, DC. <http://www.rff.org/rff/Documents/RFF-DP-06-51.pdf>.
- . 2006b. "How Much Should Cigarettes Be Taxed and How Much Should Be Spent on Tobacco Control Programs?" Unpublished report, Resources for the Future, Washington, DC.
- Peeters, A., L. Bonneux, J. J. Barendregt, and J. P. Mackenbach. 2003. "Improvements in Treatment of Coronary Heart Disease and Cessation of Stroke Mortality Rate Decline." *Stroke* 34 (7): 1610–14.

- Pekurinen, M. 1999. *The Economic Consequences of Smoking in Finland 1987–1995*. Helsinki: Health Services Research.
- Piat, G. A., T. J. Orchard, S. Emerson, D. Simmons, T. J. Songer, M. M. Brooks, M. Korytowski, L. Simenerio, U. Ahmad, and J. Zgibor. 2006. “Translating the Chronic Care Model into the Community: Results from a Randomized, Controlled Trial of a Multifaceted Diabetes Care Intervention.” *Diabetes Care* 29 (4): 811–17.
- Pignone, M. P., A. Ammerman, L. Fernandez, C. T. Orleans, N. Pender, S. Woolf, K. N. Lohr, and S. Sutton. 2003. “Counseling to Promote a Healthy Diet in Adults: A Summary of the Evidence for the U.S. Preventive Services Task Force.” *American Journal of Preventive Medicine* 24 (1): 75–92.
- Pogue, T. F., and L. G. Sgontz. 1989. “Taxing to Control Social Costs: The Case of Alcohol.” *American Economic Review* 79 (1): 235–43.
- Pomerleau, J., K. Lock, C. Knai, and M. McKee. 2005. “Interventions Designed to Increase Adult Fruit and Vegetable Intake Can Be Effective: A Systematic Review of the Literature.” *Journal of Nutrition* 135 (10): 2486–95.
- Popkin, B. M. 2002. “The Shift in Stages of the Nutrition Transition in the Developing World Differs from Past Experiences.” *Public Health Nutrition* 5 (1A): 205–14.
- Popkin, B. M., and P. Gordon-Larsen. 2004. “The Nutrition Transition: Worldwide Obesity Dynamics and Their Determinants.” *International Journal of Obesity and Related Metabolic Disorders* 28 (Suppl 3): S2–S9.
- Popkin, B. M., S. Horton, S. Kim, A. Mahal, and J. Shuigao. 2001. “Trends in Diet, Nutritional Status, and Diet-Related Noncommunicable Diseases in China and India: The Economic Costs of the Nutrition Transition.” *Nutrition Reviews* 59 (12): 379–90.
- Port, S., L. Demer, R. Jennrich, D. Walter, and A. Garfinkel. 2000. “Systolic Blood Pressure and Mortality.” *Lancet* 355 (9199): 175–80.
- Pratt, M., C. A. Macera, J. F. Sallis, M. O’Donnell, and L. D. Frank. 2004. “Economic Interventions to Promote Physical Activity: Application of the SLOTH Model.” *American Journal of Preventive Medicine* 27 (Suppl 3): 136–45.
- Preker, A., M. Jakab, and M. Shneider. 2002. “Health Financing Reforms in Central and Eastern Europe and the Former Soviet Union.” In *Funding Health Care: Options for Europe*, ed. E. Mossialos, A. Dixon, J. Figueras, and J. Kutzin, 80–109. Buckingham, PA: Open University Press.
- Pritchett, L. 2006. “The Quest Continues.” *Finance and Development* 43 (1): 18–22.
- Psaty, B. M., T. Lumley, C. D. Furberg, G. Schellenbaum, M. Pahor, M. H. Alderman, and N. S. Weiss. 2003. “Health Outcomes Associated with Various Antihypertensive Therapies Used as First-Line Agents: A Network Meta-Analysis.” *Journal of the American Medical Association* 289 (19): 2534–44.

- Ramos, A., and D. Curti. 2005. *Uruguay: Economía del Control del Tabaco en los Países del Mercosur y Estados Asociados*. Washington, DC: Pan American Health Organization.
- Ranson, K. P., J. Prabhat, F. J. Chaloupka, and S. Nguyen. 2000. "The Effectiveness and Cost-Effectiveness of Price Increases and Other Tobacco-Control Policies." In *Tobacco Control in Developing Countries*, ed. P. Jha and F. J. Chaloupka, 427–47. New York: Oxford University Press.
- Rath, G. K., and K. Chaudry. 1995. "Cost of Management of Tobacco-Related Cancers in India." In *Tobacco and Health*, ed. K. Slama, 559–64. New York: Plenum.
- Ravnskov, U. 2005. "Europe in Transition: Dietary Fat Is Not the Villain." Letter. *British Medical Journal* 331 (7521): 906–7.
- Reardon, T., and J. A. Berdegué. 2002. "The Rapid Rise of Supermarkets in Latin America: Challenges and Opportunities for Development." *Development Policy Review* 20 (4): 371–88.
- Reardon, T., C. P. Timmer, C. B. Barrett, and J. Berdegué. 2003. "The Rise of Supermarkets in Africa, Asia, and Latin America." *American Journal of Agricultural Economics* 85 (5): 1140–46.
- Renders, C. M., G. D. Valk, S. Griffin, E. H. Wagner, J. Th. M. van Eijk, and W. J. J. Assendelft. 2001. "Interventions to Improve the Management of Diabetes Mellitus in Primary Care, Outpatient, and Community Settings." *Cochrane Database of Systematic Reviews* (1): CD001481.
- Rese, A., D. Balabanova, K. Danishevski, M. McKee, and R. Sheaff. 2005. "Implementing General Practice in Russia: Getting beyond the First Steps." *British Medical Journal* 331 (7510): 204–7.
- Rex, D., and A. Blair. 2003. "Unjust Des(s)erts: Food Retailing and Neighborhood Health." *International Journal of Retail and Distribution Management* 31 (9): 459–65.
- Reynolds, K., D. Gu, P. Muntner, X. Wu, J. Chen, G. Huang, X. Duan, P. K. Whelton, J. He, and InterASIA Collaborative Group. 2003. "Geographic Variations in the Prevalence, Awareness, Treatment, and Control of Hypertension in China." *Journal of Hypertension* 21 (7): 1273–81.
- Robles, S. C., F. White, and A. Peruga. 1996. "Trends in Cervical Cancer Mortality in the Americas." *Bulletin of the Pan American Health Organization* 30 (4): 290–301.
- Room, R., T. Babor, and J. Rehm. 2005. "Alcohol and Public Health." *Lancet* 365 (9458): 519–30.
- Rothman, A. A., and E. H. Wagner. 2003. "Chronic Illness Management: What Is the Role of Primary Care?" *Annals of Internal Medicine* 138 (3): 256–61.
- Russell, L. B. 1998. "Prevention and Medicare Costs." Editorial. *New England Journal of Medicine* 339 (16): 1158–60.

- Russell, S. 2005. "Illuminating Cases: Understanding the Economic Burden of Illness through Case Study Household Research." *Health Policy and Planning* 20 (5): 277–89.
- Sachs, J. D., and A. Warner. 1995. "Economic Reform and the Process of Global Integration." *Brookings Papers on Economic Activity* 1: 1–118. Washington, DC: Brookings Institution.
- . 1997. "Sources of Slow Growth in African Economies." *Journal of African Economies* 6 (3): 335–76.
- Sackett, D. L., W. M. Rosenberg, J. A. M. Gray, R. B. Haynes, and W. S. Richardson. 1996. "Evidence-Based Medicine: What It Is and What It Isn't." Editorial. *British Medical Journal* 312 (7023): 71–72.
- Saffer, H., and F. Chaloupka. 1994. "Alcohol Tax Equalization and Social Costs." *Eastern Economic Journal* 20 (1): 33–44.
- . 2000. "The Effect of Tobacco Advertising Bans on Tobacco Consumption." *Journal of Health Economics* 19 (6): 1117–37.
- Sallis, J. F., A. Bauman, and M. Pratt. 1998. "Environmental and Policy Interventions to Promote Physical Activity." *American Journal of Preventive Medicine* 15 (4): 379–97.
- Sander, B., and R. Bergemann. 2003. "Economic Burden of Obesity and Its Complications in Germany." *European Journal of Health Economics* 4 (4): 248–53.
- Sandmo, A. 1975. "Optimal Taxation in the Presence of Externalities." *Swedish Journal of Economics* 77 (1): 86–98.
- Sayginsoy, O., A. A. Yurekli, and J. de Beyer. 2002. "Cigarette Demand, Taxation, and the Poor: A Case Study of Bulgaria." Health, Nutrition, and Population Discussion Paper, Economics of Tobacco Control, Paper 4, World Bank, Washington, DC.
- Sankaranarayanan, R., A. M. Budukh, and R. Rajkuma. 2001. "Effective Screening Programmes for Cervical Cancer in Low- and Middle-Income Developing Countries." *Bulletin of the World Health Organization* 79 (10): 954–62.
- Sant, M., T. Areleid, F. Berrino, M. Bielska Lasota, P. M. Carli, J. Faivre, P. Grosclaude, and others. 2003. "EUROCORE-3: Survival of Cancer Patients Diagnosed 1990–94: Results and Commentary." *Annals of Oncology* 14 (Suppl 5): v61–v118.
- Schmid, A., H. Schneider, A. Golay, and U. Keller. 2005. "Economic Burden of Obesity and Its Comorbidities in Switzerland." *Sozial-und Präventivmedizin* 50 (2): 87–94.
- Schmidhuber, J. 2004. "The Growing Global Obesity Problem: Some Policy Options to Address It." eJADE: *Electronic Journal of Agricultural and Development Economics* 1 (2): 272–90.

- Scollo, M., A. Lal, A. Hyland, and S. Glantz. 2003. "Review of the Quality of Studies on the Economic Effects of Smoke-Free Policies on the Hospitality Industry." *Tobacco Control* 12 (1): 13–20.
- Sepulveda, C., and R. Prado. 2005. "Effective Cervical Cytology Screening Programmes in Middle-Income Countries: The Chilean Experience." *Cancer Detection and Prevention* 29 (5): 405–11.
- Shenassa, E. D., A. Liebhaber, and A. Ezeamama. 2006. "Perceived Safety of Area of Residence and Exercise: A Pan-European Study." *American Journal of Epidemiology* 163 (11): 1012–17.
- Shibuya, K., C. Ciecierski, E. Guindon, D. W. Bettcher, D. B. Evans, and C. J. L. Murray. 2003. "WHO Framework Convention on Tobacco Control: Development of an Evidence-Based Global Public Health Treaty." *British Medical Journal* 327 (7407): 154–57.
- Shobhana, R., R. P. Rama, A. Lavanya, R. Williams, V. Vijay, and A. Ramachandran. 2000. "Expenditure on Health Care Incurred by Diabetic Subjects in a Developing Country: A Study from Southern India." *Diabetes Research and Clinical Practice* 48 (1): 37–42.
- Shults, R. A., R. W. Elder, D. A. Sleet, J. L. Nichols, M. O. Alao, V. G. Carande-Kulis, S. Zaza, D. M. Sosin, R. S. Thompson, and the Task Force on Community Preventive Services. 2001. "Reviews of Evidence Regarding Interventions to Reduce Alcohol-Impaired Driving." *American Journal of Preventive Medicine* 21 (Suppl 4): 66–88.
- Silagy, C., T. Lancaster, L. Stead, D. Mant, and G. Fowler. 2004. "Nicotine Replacement Therapy for Smoking Cessation." *Cochrane Database of Systematic Reviews* (3): CD000146.
- Singh, D. 2005. "Transforming Chronic Care: A Systematic Review of the Evidence." *Evidence-Based Cardiovascular Medicine* 9 (2): 91–94.
- Singh-Manoux, A., M. Hillsdon, E. Brunner, and M. Marmot. 2005. "Effects of Physical Activity on Cognitive Functioning in Middle Age: Evidence from the Whitehall II Prospective Cohort Study." *American Journal of Public Health* 95 (12): 2252–58.
- Slade, E. P., and G. F. Anderson. 2001. "The Relationship between Per Capita Income and Diffusion of Medical Technologies." *Health Policy* 58 (1): 1–14.
- Slovic, P., E. Peters, M. L. Finucane, and D. G. MacGregor. 2005. "Affect, Risk, and Decision Making." *Health Psychology* 24 (Suppl 4): S35–S40.
- Smith, O. 2006a. "NCDs and Health Financing." Draft, World Bank, Washington, DC.
- . 2006b. "NCDs and the Poor." Draft, World Bank, Washington, DC.
- Sowden, A. J., and L. Arblaster. 2000. "Mass Media Interventions for Preventing Smoking in Young People." *Cochrane Database of Systematic Reviews* (2): CD001006.

- Starfield, B., and L. Shi. 2002. "Policy Relevant Determinants of Health: An International Perspective." *Health Policy* 60 (3): 201–18.
- Starfield, B., L. Shi, and J. Macinko. 2005. "Contribution of Primary Care to Health Systems and Health." *Milbank Q* 83 (3): 457–502.
- Strahan, E. J., K. White, G. T. Fong, L. R. Fabrigar, M. P. Zanna, and R. Cameron. 2002. "Enhancing the Effectiveness of Tobacco Package Warning Labels: A Social Psychological Perspective." *Tobacco Control* 11 (3): 183–90.
- Strong, K., C. Mathers, S. Leeder, and R. Beaglehole. 2005. "Preventing Chronic Diseases: How Many Lives Can We Save?" *Lancet* 366 (9496): 1578–82.
- Suhrcke, M., R. A. Nugent, D. Stuckler, and L. Rocco. 2006. *Chronic Disease: An Economic Perspective*. London: Oxford Health Alliance.
- Suhrcke, M., D. Stuckler, S. Leeder, S. Raymond, D. Yach, L. Rocco, and D. Matthews. 2005. "Economic Consequences of Chronic Diseases and the Economic Rationale for Public and Private Intervention." Draft, Oxford Health Alliance Working Group, London.
- Suhrcke, M., S. Walters, S. Mazzucco, J. Pomerleau, and M. McKee. Forthcoming. *Socioeconomic Differences in Health, Health Behaviours, and Access to Health Care in 8 CIS Countries*. Copenhagen: World Health Organization Regional Office for Europe.
- Surveillance Epidemiology and End Results. 2002. *Cancer Statistics Review 1975–2001*. Bethesda, MD: National Cancer Institute.
- Szilagyi, T. 2004. *Tobacco Control in Hungary: Past, Present, Future*. Budapest: Hungarian Foundation. http://www.policy.hu/tszilagyi/BORITO_a.pdf
- Taal, A., R. Kiivet, and T.-W. Hu. 2004. "The Economics of Tobacco in Estonia." Health, Nutrition, and Population Discussion Paper, Economics of Tobacco Control, Paper 19, World Bank, Washington, DC.
- Taucher, E., C. Albala, and G. Icaza. 1994. "Adult Mortality from Chronic Diseases in Chile, 1968–1990." *Notas Poblacion* 22 (60): 141–70.
- Telishevka, M., L. Chenet, and M. McKee. 2001. "Towards an Understanding of the High Death Rate among Young People with Diabetes in Ukraine." *Diabetes Medicine* 18 (1): 3–9.
- Teutsch, S. M., and R. E. Churchill, ed. 2000. *Principles and Practice of Public Health Surveillance*. New York: Oxford University Press. 2nd ed.
- Thirumurthy, H., J. Graff-Zivin, and M. Goldstein. 2005. "The Economic Impact of AIDS Treatment: Labor Supply in Western Kenya." Working Paper 11871, National Bureau of Economic Research, Cambridge, MA. <http://papers.nber.org/papers/w11871.pdf>.
- Thomas, D. B., D. L. Gao, R. M. Ray, W. W. Wang, C. J. Allison, F. L. Chen, P. Porter, and others. 2002. "Randomized Trial of Breast Self-Examination in Shanghai: Final Results." *Journal of the National Cancer Institute* 94 (19): 1445–57.

- Thomsen, T. F., D. McGee, M. Davidsen, and T. Jørgensen. 2002. "A Cross-Validation of Risk-Scores for Coronary Heart Disease Mortality Based on Data from the Glostrup Population Studies and Framingham Heart Study." *International Journal of Epidemiology* 31 (4): 817–22.
- Townsend, J., P. Roderick, and J. Cooper. 1994. "Cigarette Smoking by Socioeconomic Group, Sex, and Age: Effects of Price, Income, and Health Publicity." *British Medical Journal* 309 (6959): 923–27.
- Travis, P., D. Egger, P. Davies, and A. Mechbal. 2003. "Towards Better Stewardship: Concepts and Critical Issues." In *Health Systems Performance Assessment: Debates, Methods, and Empiricism*, ed. C. J. L. Murray and D. B. Evans, 289–318. Geneva: World Health Organization.
- Tsai, A. C., S. C. Morton, C. M. Mangione, and E. B. Keeler. 2005. "A Meta-Analysis of Interventions to Improve Care for Chronic Illnesses." *American Journal of Managed Care*. 11 (8): 478–88.
- Tseng, C. W., R. H. Brook, E. Keeler, and C. M. Mangione. 2003. "Impact of an Annual Dollar Limit or 'Cap' on Prescription Drug Benefits for Medicare Patients." *Journal of the American Medical Association* 290 (2): 222–27.
- Tunstall-Pedoe, H., K. Kuulasmaa, M. Mahonen, H. Tolonen, E. Ruokokoski, and P. Amouyel. 1999. "Contribution of Trends in Survival and Coronary-Event Rates to Changes in Coronary Heart Disease Mortality: 10-Year Results from 37 WHO MONICA Project Populations; Monitoring Trends and Determinants in Cardiovascular Disease." *Lancet* 353 (9164): 1547–57.
- Tunstall-Pedoe, H., D. Vanuzzo, M. Hobbs, M. Mahonen, Z. Cepaitis, K. Kuulasmaa, and U. Keil. 2000. "Estimation of Contribution of Changes in Coronary Care to Improving Survival, Event Rates, and Coronary Heart Disease Mortality across the WHO MONICA Project Populations." *Lancet* 355 (9205): 688–700.
- Urban D., and M. Suhrcke. 2005. "The Role of Cardiovascular Disease in Economic Growth." Draft, World Health Organization European Office for Investment for Health and Development, Venice.
- U.S. Surgeon General's Advisory Committee on Smoking and Health. 1964. *Smoking and Health: Report of the Advisory Committee to the Surgeon General of the Public Health Service*. Washington, DC: Public Health Service, Office of the Surgeon General.
- Van Walbeek, C. 2005. "Tobacco Control in South Africa." *Promotion and Education* (Suppl 4): 25–28, 57.
- Villarreal-Rios, E., A. Mathew-Quiroz, M. E. Garza-Elizondo, G. Nunez-Rocha, A. M. Salinas-Martinez, and M. Gallegos-Handal. 2002. "Costo de la atención de la hipertensión arterial y su impacto en el presupuesto destinado a la salud en Mexico." *Salúd Pública México* 44: 7–13.

- Villarreal-Rios, E., A. M. Salinas-Martinez, A. Medina-Jauregui, M. E. Garza-Elizondo, G. Nunez-Rocha, and E. R. Chuy-Diaz. 2000. "The Cost of Diabetes Mellitus and Its Impact on Health Spending in Mexico." *Archives of Medical Research* 31 (5): 511–14.
- Viscusi, W. K. 1995. "Cigarette Taxation and the Social Consequences of Smoking." In *Tax Policy and the Economy*, vol. 9, ed. J. Poterba, 51–101. Cambridge, MA: MIT Press.
- Vita, A. J., R. B. Terry, H. B. Hubert, and J. F. Fries. 1998. "Aging, Health Risks, and Cumulative Disability." *New England Journal of Medicine* 338 (April 9): 1035–41.
- Wagner, E. H. 1998. "Chronic Disease Management: What Will It Take to Improve Care for Chronic Illness?" *Effective Clinical Practice* 1 (1): 2–4.
- Wagner, E. H., C. Davis, J. Schaefer, M. Von Korff, and B. Austin. 1999. "A Survey of Leading Chronic Disease Management Programs: Are They Consistent with the Literature?" *Managed Care Quarterly* 7 (3): 56–66.
- Wagner, E. H., and T. Groves. 2002. "Care for Chronic Diseases." *British Medical Journal* 325 (7370): 913–14.
- Wagstaff, A. 2005. "The Economic Consequences of Health Shocks. Policy Research Working Paper Series 3644, World Bank, Washington, DC.
- Wald, N. J., and M. R. Law. 2003. "A Strategy to Reduce Cardiovascular Disease by More Than 80%." *British Medical Journal* 326 (7404): 1419–23.
- Warner, K. E. 2000. "The Economics of Tobacco: Myths and Realities." *Tobacco Control* 9 (1): 78–89.
- Whelton, S. P., A. Chin, X. Xin, and J. He. 2002. "Effect of Aerobic Exercise on Blood Pressure: A Meta-Analysis of Randomized, Controlled Trials." *Annals of Internal Medicine* 136 (7): 493–503.
- WHO (World Health Organization). 2002a. *Innovative Care for Chronic Conditions: Building Blocks for Action*. Geneva: WHO.
- . 2002b. *World Health Report 2002: Reducing Risks, Promoting Healthy Life*. Geneva: WHO.
- . 2004. *World Health Report*. Geneva: WHO.
- . 2005a. *Preventing Chronic Disease: A Vital Investment*. Geneva: WHO.
- . 2005b. *The SuRF Report 2: Surveillance of Chronic Disease Risk Factors: Country-Level Data and Comparable Estimates*. Geneva: WHO.
- . 2006a. *World Health Statistics 2006*. Geneva: WHO. <http://www.who.int/whosis/whostat2006/en/index.html>.
- . 2006b. *World Health Report 2006: Working Together for Health*. Organization. Geneva.: WHO.

- WHO Expert Consultation. 2004. "Appropriate Body-Mass Index for Asian Populations and Its Implications for Policy and Intervention Strategies." *Lancet* 363 (9403): 157–63.
- WHO and World Bank. 2004. *World Report on Road Traffic Injury Prevention*. Geneva: WHO.
- Wilkins, N., A. Yurekli, and T.-W. Hu. 2003. *Economic Analysis of Tobacco Demand*. Economics of Tobacco Tool Kit, Tool 3, Demand Analysis. Washington, DC: World Bank. <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTHEALTHNUTRITIONANDPOPULATION/EXTETC/0,,contentMDK:20365047~menuPK:478898~pagePK:148956~piPK:216618~theSitePK:376601,00.html>.
- Willett, W. C., J. P. Kaplan, R. Nugent, C. Dusenbury, P. Puska, and T. A. Gaziano. 2006. "Prevention of Chronic Disease by Means of Diet and Lifestyle Changes." In *Disease Control Priorities in Developing Countries*, 2nd ed., ed. D. Jamison, J. Breman, A. Measham, G. Alleyne, M. Claeson, D. Evans, P. Jha, A. Mills, and P. Musgrove, 833–50. New York: Oxford University Press.
- Wolf-Maier, K., R. S. Cooper, J. R. Banegas, S. Giampaoli, H.-W. Hense, M. Joffres, M. Kastarinen, and others. 2003. "Hypertension Prevalence and Blood Pressure Levels in 6 European Countries, Canada, and the United States." *Journal of the American Medical Association* 289 (18): 2363–69.
- World Bank. 1993. *World Development Report 1993: Investing in Health*. New York: Oxford University Press.
- . 1999. *Curbing the Epidemic: Governments and the Economics of Tobacco Control*. Washington, DC: World Bank.
- . 2003. *World Development Report 2004: Making Services Work for Poor People*. New York: Oxford University Press.
- . 2004. *Rising to the Challenges: The Millennium Development Goals for Health*. Washington, DC: World Bank.
- . 2005a. "Addressing the Challenge of Noncommunicable Diseases in Brazil." Draft Report 32576-BR, World Bank, Latin America and the Caribbean Region, Human Development Sector Unit, Washington, DC.
- . 2005b. *Dying Too Young: Addressing Premature Mortality and Ill-Health Due to Noncommunicable Diseases and Injuries in the Russian Federation*. Washington, DC: World Bank, Europe and Central Asia Region, Human Development Department.
- . 2005c. *Health, Nutrition, and Population Portfolio FY05 Retrospective Review*. Washington, DC: World Bank.
- . 2005d. *Ten Steps to Monitoring and Evaluation*. Washington, DC: World Bank.
- . 2005e. "Tobacco Control and the World Bank Partnership with the Centers for Disease Control and Prevention (CDC/OSH), 1999–2004."

- Unpublished report, World Bank, Human Development Network, Health, Nutrition, and Population Department, Washington, DC.
- . 2005f. *World Development Report 2006: Equity and Development*. New York: Oxford University Press.
- . 2006a. *Health Financing Revisited*. Washington, DC: World Bank.
- . 2006b. “Multisectoral Bottlenecks Assessment for Health Outcomes.” Annex K of the World Bank Strategy for Health, Nutrition, and Population Results. Unpublished draft, World Bank, Human Development Network, Washington, DC.
- . 2006c. *Repositioning Nutrition as Central to Development: A Strategy for Large-Scale Action*. Washington, DC: World Bank.
- . 2006d. “A Review of Noncommunicable Disease Coverage in Country-Owned Poverty Reduction Strategy Papers and the World Bank’s Portfolio.” Unpublished background paper, World Bank, Human Development Network, Washington, DC.
- . 2006e. *Social Analysis in Transport Projects: Guidelines for Incorporating Social Dimensions into Bank-Supported Projects*. Social Analysis Sector Guidance Notes. Washington, DC: World Bank.
- . 2006f. *World Development Indicators 2006*. Washington, DC: World Bank. <http://web.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:20899413~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html>.
- . 2007. *Healthy Development: The World Bank Strategy for Health, Nutrition and Population Results*. Washington, D.C.: World Bank. <http://siteresources.worldbank.org/HEALTHNUTRITIONANDPOPULATION/Resources/281627-1154048816360/HNPStrategyFINALApril302007.pdf>. Accessed May 29.
- Xie, X., J. Rehm, E. Single, and L. Robson. 1996. *The Economic Costs of Alcohol, Tobacco, and Illicit Drug Abuse in Ontario: 1992*. Toronto: Addiction Research Foundation.
- Xu, K., D. B. Evans, K. Kawabata, R. Zeramdini, J. Klavus, and C. J. L. Murray. 2003. “Household Catastrophic Health Expenditure: A Multi-Country Analysis.” *Lancet* 362 (9378): 111–17.
- Yach, D., C. Hawkes, C. L. Gould, and K. J. Hofman. 2004. “The Global Burden of Chronic Diseases: Overcoming Impediments to Prevention and Control.” *Journal of the American Medical Association* 291 (21): 2616–22.
- Yach, D., D. Stuckler, and K. D. Brownell. 2006. “Epidemiologic and Economic Consequences of the Global Epidemics of Obesity and Diabetes.” Commentary. *Nature Medicine* 12 (1): 62–66.
- Yach, D., and H. Wipfli. 2006. “A Century of Smoke.” *Annals of Tropical Medicine and Parasitology* 100 (5–6): 465–79.

- Yang, M. C., C. Y. Fann, C. P. Wen, and T. Y. Cheng. 2005. "Smoking Attributable Medical Expenditures, Years of Potential Life Lost, and the Cost of Premature Death in Taiwan." *Tobacco Control* 14 (Suppl 1): 2–70.
- Zachariah, M. G., K. R. Thankappan, S. C. Alex, P. S. Sarma, and R. S. Vasan. 2003. "Prevalence, Correlates, Awareness, Treatment, and Control of Hypertension in a Middle-Aged Urban Population in Kerala." *Indian Heart Journal* 55 (3): 245–51.
- Zapka, J. G., S. H. Taplin, L. I. Solberg, and M. M. Manos. 2003. "A Framework for Improving the Quality of Cancer Care: The Case of Breast and Cervical Cancer Screening." *Cancer Epidemiology, Biomarkers and Prevention* 12 (1): 4–13.
- Zatonski, W. A., A. J. McMichael, and J. W. Powles. 1998. "Ecological Study of Reasons for Sharp Decline in Mortality from Ischaemic Heart Disease in Poland since 1991." *British Medical Journal* 316 (7137): 1047–51.
- Zatonski, W. A., and W. Willett. 2005. "Changes in Dietary Fat and Declining Coronary Heart Disease in Poland: Population-Based Study." *British Medical Journal* 331 (7510): 187–88.
- Zhou, Y., T. D. Baker, K. Rao, and G. Li. 2003. "Productivity Losses from Injury in China." *Injury Prevention* 9 (2): 124–27.

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