providers—capitation, reimbursement schemes for specific types of treatments, performance-based contracting).

- Quality improvements (reorganization and redeployment of health personnel, changing the way in which medicines and other health-system inputs are purchased and distributed).
- Stewardship and accountability: introducing norms and reporting mechanisms for private providers, creating channels through which consumers and civil-society institutions can exercise oversight over health care.

Reforms are potentially beneficial but also contain risks. The effects of reform measures on reproductive health services, in particular, warrant close attention. Measures such as cost recovery may help to mobilize more resources for health care, but may also reduce access to needed reproductive health services by poor and vulnerable groups. Insurance schemes may lower the risks of being impoverished by most kinds of health emergency, but may not cover a life-threatening obstetric emergency. Integration into broader health programs of family planning and other priority services that previously had been funded as categorical programs may result in erosion of their priority status. Reproductive health advocates are active participants in the design and oversight of the reform process.

See also: *Disease, Burden of; Health Transition; Mortality Decline.*

BIBLIOGRAPHY

Hurst, Jeremy. 1992. *The Reform of Health Care: a Comparative Analysis of Seven OECD Countries.* Paris: Organization for Economic Cooperation and Development.

Murray, Christopher, and Alan Lopez, eds. 1996. *The Global Burden of Disease: a Comprehensive Assessment of Mortality and Disability from Diseases, Injuries, and Risk Factors in 1990 and Projected to 2020.* Cambridge, MA: Harvard University Press for World Health Organization and World Bank.

The World Development Report 1993: Investing in Health. New York: Oxford University Press for World Bank.

The World Health Report 2000, Health Systems: Improving Performance. Geneva: World Health Organization.

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HEALTH TRANSITION

The health transition is the latest in a series of secular transitions that demographers and other social scientists are expected to describe and explain. Its relative conceptual novelty means that its implications for demographic research, both historical and contemporary, remain unclear. John Caldwell, who introduced the concept of a "health transition" in 1990, hoped that that concept would encourage demographers to pay more attention to how people stay healthy while alive instead of focusing narrowly on how long they live. Of particular importance to him was how ordinary individuals in developing countries use knowledge to preserve or restore health and extend life at the household level. In this case data on education are central to tracking the health transition.

The Importance of the Health Transition

The idea of a health transition became very popular very quickly, partly because so many different fields of research are concerned with health trends and their implications for health policy. From an epidemiological perspective the idea of a global transition to better health involves tracking the courses of specific diseases. As long as infectious diseases (new and resurgent) are out of control, no global transition to better health will be possible. When health and general human welfare are equated, the growing number of refugees produced by wars and famines can make the idea of a global transition to better health seem premature. Different frameworks for conducting research invariably produce inconsistent and even contradictory perspectives on change and thus on the implications of a health transition for health policy.

Explicitly or implicitly, demographers generally assume that healthier individuals live longer than do sick ones, and thus populations with high life expectancy are healthier than those with low life expectancy. To the extent that mortality data track the health status of a population, the mortality transition effectively proxies any separate health transition. Caldwell's earliest demographic critics argued in this vein. At most, all that was needed was more specialized measures of mortality, such as infant mortality or maternal mortality, to highlight the importance of knowledge in the production of health during development.

However, demographers specializing in developed countries with high life expectancy were more receptive to the idea that there is more to health than death, especially at older ages. For several decades they have worked with epidemiologists and public health planners to develop measures that can be used to track the health status of a population without relying on mortality data but can be linked to those data (Manton and Land 2000). Measures such as active life expectancy (ALE) estimate the length of the average life lived free from disabilities and diseases that interfere with the activities of daily living (ADL). Disability-free life expectancy (DFLE) deals with the same problem. Other related measures include disability-adjusted life years (DALY) and quality-adjusted life years (QALY). Among the many implications of this research is that the health of the elderly can deteriorate even if life expectancy is stable or rising at older ages.

Criticisms of the New Approaches

Despite the potential utility of these new approaches to the measurement of a population's health status, they all have been criticized for being subjective and value-laden. For example, the way in which disabilities are perceived and measured differs from context to context, and in every context judgments must be made about various degrees of disability (mild, moderate, severe) before policy can become relevant. All these judgments reflect the interests of those who make them, especially when substantial monetary or other entitlements are involved. In contrast to disability, death is a relatively simple biological state. Its measurement is virtually free of economic and political influences, assuming that deaths are reported accurately.

The relationship between health and death, or morbidity and mortality, is not a new problem in demography. Leading Victorian statisticians debated fundamental theoretical issues and their policy implications before national death rates began to fall in the 1870s. In 1837 Dr. William Farr argued that individuals born with less health (innate vitality) died earlier because they fell sick at earlier ages. Using this assumption, he surmised that the fall of infant and child mortality in England in the period 1755–1775 to 1813–1830, which he observed by using parish register data, meant that weaker infants were surviving to become relatively unhealthy, low-vitality adults. That is why England had higher adult death rates than Belgium or Sweden in the 1830s. As Farr matured, his theories of mortality began to emphasize the role harsh environments could play in artificially accelerating the loss of health, thus causing premature (preventable) deaths that public health reforms could prevent without increasing the national burden of ill health.

Darwinian Interpretations

Unfortunately, Charles Darwin's theories gave a new scientific legitimacy to the idea that individuals were differentially frail or robust from birth and that nothing much could be done about it. The influential statistician Karl Pearson assumed that the process of culling, in which the frail die young, kept surviving adults relatively healthy. The fact that child mortality (persons age one to five) had been falling in England for several decades before 1900 explained why so many young men were rejected for military service in the first decade of the twentieth century. Females also were surviving to adulthood in poorer heath and thus were less able to bear children. This explained why birth rates were falling. To Pearson the well-intentioned campaigns to reduce infant death rates in England that began after 1900 would only result in the production of more and more physiologically frail, unhealthy adults who would be a burden to the country.

Inherent in this line of reasoning is the idea of an inverse health transition: As national life expectancy rises, the health status of the population decreases. Alternatively, as mortality falls, morbidity increases. Although this assumption has never dominated mainstream demography, its core ideas continue to reappear in different guises. In the same year that Caldwell introduced the concept of the health transition James Riley pointed out that as life expectancy continued to rise in the developed countries, so did most measures of morbidity. Indeed, as populations aged and chronic diseases replaced acute quickly killing diseases as the leading causes of death, the time spent by the living in states of ill health was bound to increase.

It is true that populations with low (or lower) life expectancy report less morbidity than do those with high (or higher) life expectancy levels. For example, in India people who live in Kerala State, which has the highest level of life expectancy, report more sickness than do people who live in states with low life expectancy levels such as Bihar. The United States has a higher level of life expectancy than does Kerala, but Americans report even higher levels of morbidity (see Figure 1).

Evaluations of Health

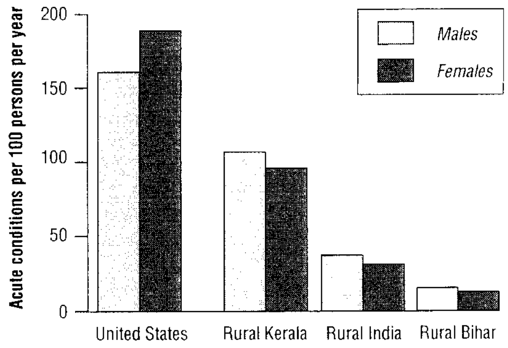
Fortunately, almost everyone who uses morbidity data from developed or developing countries recognizes that when people are asked to evaluate their own health, they draw on their knowledge of what good health means in the context in which they live. In some countries severe disabilities and certain diseases are consistent with reports of good health. In other countries any disease or disability, however mild, is equated with poor health.

Similar considerations affect comparisons of time off from work caused by sickness. In low-income countries the poor will work till they drop partly because taking time off from work is not subsidized in any way except by hard-pressed families that must pick up the slack or suffer the consequences. In high-income countries benefits are provided, and as they become more generous, workers take more time off from work. In general the inflation of morbidity as life expectancy rises is a form of cultural inflation, not a reflection of increasing frailty. In this case the term *cultural* includes how people have been taught to identify and respond to less than perfect states of health in conjunction with the amount of institutionalized support they receive for being sick.

Stressing the cultural inflation of morbidity (through its effects on reporting) does not mean denying the reality of adverse health trends. If people with diabetes are considered to live in a perpetually diseased state and diabetic persons live longer because insulin is available, saving their lives has increased the burden of illness. However, it can be argued that because of insulin they are not diseased, at least for many years. If Down's syndrome children are considered disabled, modern forms of care have greatly extended the life span of this disabled group. In the early twentieth century most Down's syndrome children died before the age of 20; a century later most live to old age. However, whether those surviving to old age should be considered intrinsically disabled or unhealthy during their extended lives, and thus a burden to society, is highly controversial.

FIGURE 1

Incidence of Reported Morbidity: Rural India (1973–1974) and United States (1985)



SOURCE: Murray and Chen (1992) p. 486.

Obesity continues to increase in the developed countries, and the individuals affected are at risk of developing various chronic diseases and/or disabilities in old age without dying earlier (above a certain threshold obese individuals do have an higher than average age-specific risk of dying). Even if national life expectancy is rising, it makes sense to argue that an increasingly overweight population is becoming a less healthy population.

However, weight is only one dimension of health, and the idea of a heath transition implicitly averages the many dimensions of health, some of which may be improving while others deteriorate. In the face of irreducible complexity, there are three strategies that can be adopted with respect to measuring health and thus reaching conclusions about the course of the health transition, including its relationship to mortality trends both in the past and in the present.

Three Strategies for Measuring Health

The first strategy is to continue assuming that for most research purposes health trends are adequately proxied by mortality data. In this case as long as life expectancy keeps rising, health is improving. This solution keeps demographic data at the center of health research but suggests that rising life expectancy is all that matters. Currently this strategy dominates the growing body of research on "health inequality" during economic development, in which measuring health inequalities between countries becomes little more than a matter of comparing life expectancy levels.

The second strategy is to observe health by measuring its loss in the form of sickness and disability by using data that are relatively culture-free. In this case the health transition becomes a doctor's transition; it is based on tracking forms of biological suboptimality that ordinary people may not perceive directly. Blood pressure is an obvious example. From this medicalized perspective on health, tracking the health transition would be done by doctors who were trained in the same medical tradition (Western scientific, or biomedicine) and examined otherwise comparable age cohorts at different points in time during the rise of life expectancy.

One study that approximates this ideal is Dora Costa's comparison of medical measures provided by doctors for the first generation of American men to reach age 65 in the twentieth century, with data for later cohorts over 65 at the end of the century. Based on some standard indicators relating to respiratory problems, valvular heart disease, arteriosclerosis, and joint and back problems, the prevalence of unhealthy chronic conditions seemed to decline by 66 percent (averaged over the selected indicators) over the course of the twentieth century. These data are reassuring in that they suggest that when cultural influences can be minimized, it is possible to observe health improving despite the fact that reported morbidity may be increasing as well.

The third strategy is to embrace the health transition in all its implicit complexity. This involves accepting the idea that data on both perceived change and physiological change are equally real and equally relevant to health policy. It also accords equality to micro-level and macro-level research. Micro-level, localized research is best for understanding how ordinary people acquire the knowledge necessary to produce health on a daily basis at any level of income (given that their knowledge is applied in contexts that support or discourage certain attitudes and practices). Macro-level research involves all the impersonal forms of change that influence sickness and disease in all contexts. For example, public health can save lives without changing the knowledge and health-related behavior of ordinary people. Similarly, wars and famines can take lives that no amount of personal knowledge can save.

Conclusion

Doing justice to the health transition in its full complexity requires interdisciplinary research, but attempts at cooperation often are frustrated by the inability of experts from different fields to agree on conceptualization, research strategies, and measurement issues. Since demographers are not comfortable when research moves too far away from quantitative data and analysis, in all probability most will continue to use mortality data as a proxy for health trends and to treat the health transition as just another name for the mortality transition.

See also: *Caldwell, John C.; Disease, Burden of; Epidemiological Transition; Farr, William; Mortality Decline.*

BIBLIOGRAPHY

Caldwell, John. 1990. "Introductory Thoughts on Health Transition." In *What We Know about Health Transition: The Cultural, Social and Behavioral Determinants of Health,* ed. John Caldwall, Sally Findley, Pat Caldwell, Gigi Santow, Wendy Crawford, Jennifer Brand, and Daphne Broers-Freeman. Canberra: Australian National University Printing Service.

Cleland, John. 1990. "The Idea of the Health Transition." In *What We Know about Health Transition: The Cultural, Social and Behavioral Determinants of Health,* ed. John Caldwell, Sally Findley, Pat Caldwell, Gigi Santow, Wendy Crawford, Jennifer Brand, and Daphne Broers-Freeman. Canberra: Australian National University Printing Service.

Costa, Dora. 2000. "Understanding the Twentieth-Century Decline in Chronic Conditions among Older Men." *Demography* 37(2): 53–72.

Crimmons, E., Y. Saito, and D. Ingegneri. 1989. "Changes in Life Expectancy and Disability-Free Life Expectancy in the United States." *Population and Development Review* 15: 235–267.

Himes, Christine. 2000. "Obesity, Disease and Functional Limitation in Later Life." *Demography* 37: 73–82.

Horton, Richard. 1995. "Infection: The Global Threat." *New York Review of Books* April 6.

Johansson, Sheila R. 1991. "The Health Transition: The Cultural Inflation of Morbidity during the Decline of Mortality." *Health Transition Review* 1: 39–68.

———. 1991. "Measuring the Cultural Inflation of Morbidity during the Decline in Mortality." *Health Transition Review* 2: 78–89.

———. 1996. "Doing 'Health' Research in an Unhealthy Research Environment." *Health Transition Review,* Supplement, 6: 371–384.

———. 2000. "Before the Health Transition: 'Health' and Health Policy in Victorian England and After." *Annales de Demographie Historique* 2: 109–132.

Manton, Kenneth, and Kenneth Land. 2000. "Active Life Expectancy Estimates for the U.S. Elderly Population: A Multidimensional Continuous-Mixture Model of Functional Change Applied to Completed Cohorts, 1982–1996." *Demography* 37(3): 253–265.

Murray, C., and L. Chen. 1992. "Understanding Morbidity Change." *Population and Development Review* 18: 481–503.

Murray, J. 2001. "Incentives and Absenteeism in Early Government Sickness Insurance Programs." Working Paper, Department of Economics, University of Toledo, Ohio.

Palloni, Alberto. 1989. *Sickness, Recovery and Death: A History and Forecast of Ill Heath.* Iowa City: University of Iowa Press.

———. 1990. "The Meaning of the Health Transition." In *What We Know about Health Transition: The Cultural, Social and Behavioral Determinants of Health,* ed. John Caldwall, Sally Findley, Pat Caldwell, Gigi Santow, Wendy Crawford, Jennifer Brand, and Daphne Broers-Freeman. Canberra: Australian National University Printing Service.

Riley, James. 1990. "Long Term Morbidity and Mortality Trends: Inverse Health Transitions." In *What We Know about Health Transition: The Cultural, Social and Behavioral Determinants of Health,* ed. John Caldwall, Sally Findley, Pat Caldwell, Gigi Santow, Wendy Crawford, Jennifer Brand, and Daphne Broers-Freeman. Canberra: Australian National University Printing Service.

Van de Walle, Etienne. 1990. "How do We Define Health Transition?" In *What We Know about Health Transition: The Cultural, Social and Behavioral Determinants of Health,* ed. John Caldwall, Sally Findley, Pat Caldwell, Gigi Santow, Wendy Crawford, Jennifer Brand, and Daphne Broers-Freeman. Canberra: Australian National University Printing Service.

Wilkinson, Richard. 1996. *Unhealthy Societies: The Affliction of Inequality.* London: Routledge.

S. Ryan Johansson

HENRY, LOUIS

(1911–1991)

Louis Henry was a French demographer who is considered the father of historical demography. Henry graduated from the Ecole Polytechnique in Paris in 1934 and served in the French army until 1945. In 1946 he joined the Institut National d'Études Démographiques (INED), which had been founded not long before that time by Alfred Sauvy (1898–1990), where he worked until his retirement in 1975. He also taught in many universities in France and abroad and was awarded a number of honorary doctorates.

Henry analyzed population trends in France and other European countries in the early postwar years for INED's journal *Population,* devising for that purpose improved tools of demographic analysis. That work led to an important treatment of interacting demographic phenomena ("D'un Problème Fondamental de l'Analyse Démographique," 1953) and to a book on marital fertility, *Fécondité des Marriages* (1953), in which he developed, in parallel with Norman Ryder in the United States, the concept of parity progression ratios, now a major tool of fertility analysis. Later his methodological innovations were brought together in *Démographie: Analyse et Modèles* (1972).

Henry also became interested in the level of fertility in populations in which birth control had not yet spread. He called such a regime "natural fertility." To find reliable evidence of such situations, he used data from the parish registers of pre-Revolutionary France (sixteenth through eighteenth centuries). The resulting analytical techniques, en-