

# Leprosy: An Early Exemplar of the Transformation of 20th Century American Medicine

 See also Necochea López, p. 196.

Although leprosy (Hansen's disease [HD]) has a unique millennia-long history of religious significance and stigmatization, Necochea López's account (p. 196) says much about the general history of 20th-century medicine. Most obviously, it reminds us how much science has reframed our understanding of diseases and transformed patients' experiences. It has also contributed to changing cultural attitudes. The story of HD mirrors the new optimism that suffused US medicine during the early decades of the 20th century. Buoyed by the successes and promises of bacteriology and the laboratory more generally; by developing fields including occupational and rehabilitation medicine, endocrinology, and reconstructive surgery; and by military victory in the First World War, minus the devastation that afflicted Europe, US medical reformers believed that most problems could be solved with enough money and science. In Henry Biggs's famous phrase, "public health is purchasable."<sup>1</sup>

On a much larger scale than HD, chronic diseases such as cancer and heart disease—long thought of as incurable and thus a nuisance for hospitals increasingly devoted to acute care—came to be seen as treatable: cure or improvement in many cases, stabilization in others. As health care came to be seen as a human right, even truly incurable conditions were thought to deserve, at the very least, adequate custodial care.<sup>2</sup> The provision of

such care as populations aged created a new set of problems for health authorities.

## CURE

This account of HD also underscores the fluidity and even fragility of many medical categories that we take for granted. With only a few exceptions, cure was defined symptomatically until the last decades of the 19th century, leading to considerable variation in usage. Since the early 20th century, the term has been increasingly linked to biological signs either viewed directly through new technologies or produced by laboratory procedures. Even so, such signs are not immutable. The possibility of reversal has led to such terms as "remission," "control," or, in the case of HD, "arrest." More fundamentally, despite our reliance on objective signs or numbers, interpretation remains necessary to decide what constitutes illness, cure, or risk of recurrence. And criteria frequently change because such judgments are often based on probabilities and incomplete, evolving evidence.

## INDIVIDUAL'S CONSTITUTION

A second lesson is that cure has, in many cases, not been the most frequent result of medical intervention. The experience of most physicians during the 19th century was that an intervention sometimes succeeded and

sometimes failed to cure or ameliorate a condition. Everything depended on the variability of individual constitutions and of each disease, and on the ability of physicians to design treatment appropriate to the case. Things have not changed all that much despite increased biological knowledge and more standardized treatments that are supposed to be "evidence-based." Uncertainties have certainly been reduced and we can now attach numbers to them, which is no insignificant achievement, but uncertainty remains fundamental to medicine. Part of the problem is that we currently rely on population data (clinical trials) to make judgments about best practice for individuals, something that troubles many. That is why the dream of personalized medicine based on individual biology evokes so much hope and attracts so much attention and funding.

## SURVIVORSHIP CARE

Quite apart from this uncertainty, cure has in some ways become an even less central category, even as the *promise* of cure continues to attract research funding and donor support. It may be coincidental, but mention of the word in the many thousands of works digitalized by Google and

plotted in Ngrams shows a steady decline (Figure 1). Whether one takes this source seriously or not, something clearly has changed as physicians increasingly deal with chronic diseases that by definition can only be controlled or managed.

Many remain doubtful that five years of complete cancer remission truly constitutes a cure, and in recent years a new term has emerged: "cancer survivor." No matter how long the period of remission, cancer survivors, expected to reach 18 million by 2022, are considered to be fragile and at risk for numerous conditions, and thus require "high-quality survivorship care."<sup>4</sup> The parallels with HD in the early 20th century are striking. Diabetes has long required continuing management. More recently, HIV/AIDS has become a chronic infectious disease that can be controlled by antiretroviral drugs, which generate their own complications, risks, and forms of "survivorship care." And all such conditions demand significant behavior modification from the individual. These developments have profoundly affected demands made on health systems in the developed world and are now being felt in low-income countries where noncommunicable diseases have joined infectious diseases as major health problems.

## SURVEILLANCE OF THE HEALTHY

Treatment of illness and continued surveillance of those successfully treated has gradually become difficult to differentiate

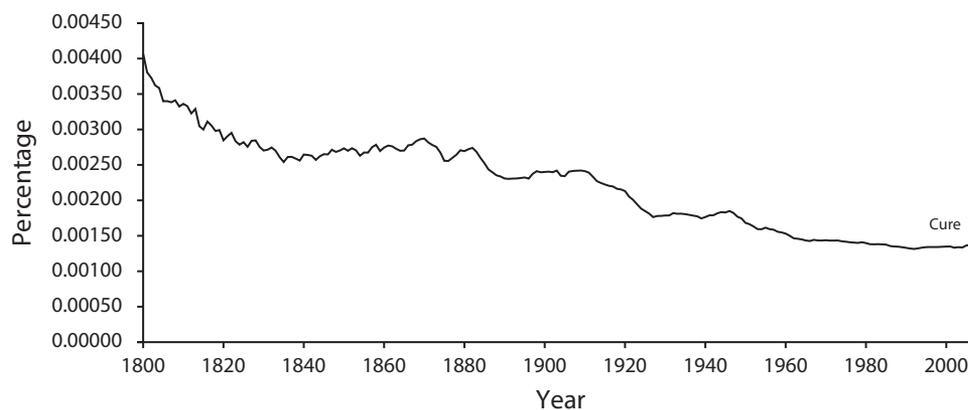
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Source: Google Ngrams.<sup>3</sup>

**FIGURE 1—Occurrences of the Word “Cure” in Digitalized Books**

from surveillance of the healthy. If many in the early 20th century worried that urban life and “civilization” were making more people increasingly ill, Americans were optimistic that science and money could compensate. Throughout the 1920s, leading public health figures energetically advocated annual physical examinations to find and fix defects and problems before they became serious illnesses. During the 1950s and 1960s, Americans experimented, mostly unsuccessfully, with multiphasic screening techniques using automated

technology to identify multiple conditions, much to the amazement of European observers who could only envy the funds being deployed on unproven technologies. The notion of secondary prevention, treating diseases that might lead to more serious consequences for the individual or the collective if left untreated, further blurred the distinction between prevention and treatment. While the cultural and institutional distance between clinical medicine and public health remains significant, the overlap in functions is striking.

A final distinction that is becoming fuzzier is that between infectious and chronic diseases. The emergence of infectious diseases that require long-term care and management, combined with growing evidence that diseases long considered noncommunicable are caused by microorganisms, have somewhat effaced the differentiation between the two disease categories. It is thus not surprising that we now hear calls for ending the divide.<sup>5</sup> This divide, however, is based on deep and long-standing institutional divisions, and is not likely to disappear soon.

## The Challenges of Monitoring Illicit Trade Should Not Obscure the Success of Tobacco Tax Policy

 See also Szklo et al., p. 265.

Increasing taxes to reduce tobacco consumption has been an established strategy ever since the World Bank’s 1999 report *Curbing the Epidemic* ([bit.ly/2yOxXOu](http://bit.ly/2yOxXOu)) demonstrated that increasing taxes reduces tobacco consumption while increasing government revenues,

particularly in low- and middle-income countries. This evidence is embodied in the World Health Organization Framework Convention on Tobacco Control (FCTC) Article 6 and its guidelines ([bit.ly/2csDM5b](http://bit.ly/2csDM5b)) and supported by dozens of studies from high- and

low-income countries ([bit.ly/2hqTQf1](http://bit.ly/2hqTQf1)). Increasing taxes and

### EARLY EXEMPLAR

While not a major disease problem in 20th-century North America, and historically unique in many respects, HD is nonetheless an early exemplar of some of the major developments that have transformed US medicine during the past century. *AJPH*

George Weisz, PhD

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price is a “best buy” to achieve the United Nations’ Non-communicable Diseases Targets and Sustainable Development Goals.<sup>1</sup>

The tobacco industry, to keep its products available and affordable to maximize sales and profits, argues that taxes and

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