

Sweet Blood: An Environmental History of Diabetes and Chronic Disease in America

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Introduction

Every day, millions of Americans prick their fingertips, feed blood into a glucose meter, and adjust their diet in a ritual to stay healthy. This is the diabetic way of life, what many older diabetics call having the “sweet blood.”¹ And it has become an American way of life, affecting about one in ten people with rates among minorities and the poor in double-digit percentages. The complications are serious and deadly—neuropathy, blindness, cardiovascular disease, and renal failure—with total costs around \$245 billion for 2014 alone. Dr. Frank Vinicor, former American Diabetes Association president, has called diabetes “the Rodney Dangerfield of diseases”: expensive to treat, hard to manage, and easy to ridicule.²

Sweet Blood explores how today’s scourge stems from how Americans have defined, studied, shaped, and been reshaped in turn by their environment. From the Gilded Age to the present day, diabetes has embodied fears over controlling and mastering our bodies and our surroundings. It has altered relationships between farm and table, influenced diets and nutritional guidelines, intensified obsessions to quantify our bodies, bolstered reliance upon technology to prolong life, and reinforced differences between one another and the natural world that enfolds us.

To unravel the tangled history of diabetes, *Sweet Blood* draws from scholarship in four distinct but interrelated fields to advance an expanded role for the environment in human history. First, environmental historians have shown how microbes, animals, weather, and other forces of nature act upon history by reinforcing or limiting human agency. Second, historians of medicine have connected race, gender, class, and place to rethink how illness and social inequities connect. Third, science and technology studies scholars emphasize how scientific knowledge emerges from physical engagement with physical nature in particular spaces. Finally, social epidemiologists have pooled methodologies from the humanities, social sciences, and biomedicine to locate the historical origins and

geographic distribution of health inequalities. To paraphrase historian Gregg Mitman, diabetes, as with other ailments, is “not a thing but a relation...a way of being in the world that changes in both place and time.”³

Building upon this scholarship, *Sweet Blood* examines how ideas and practices about health entwine with material changes to shape entire landscapes and individual bodies. It traces how concepts of risk and environment have created ambient dread over perpetual threats to our wellbeing. Yet despite their ubiquity, chronic illnesses are scarce in historical literature when compared to studies on communicable diseases. Moreover, many humanities scholars still overlook the vital role of physical nature in shaping diseases as cultural phenomena. *Sweet Blood* reframes chronic disease as environmental history.

One note: while physicians have classified two major types of diabetes—type 1, also called “insulin-dependent” or “juvenile onset” diabetes, often diagnosed in the young, and type 2 or “adult onset” or “insulin resistant,” the more common variant associated with advancing age or obesity—my book focuses mostly but not fully on type 2 diabetes. Indeed, as the book reveals, these typologies are cultural and environmental artifacts for a common disease that alters how the body produces and uses insulin, the hormone that helps cells to metabolize glucose, a main source of fuel. Given these broad similarities as well as common therapies, *Sweet Blood* chronicles both variants in one narrative.

The goal of my research at the Rockefeller Archive Center in March 2017 was to explore the role of private philanthropy in shaping political and scientific responses to the growing problem of diabetes in twentieth-century North America. Three broad questions directed my research: 1.) what role did the early Rockefeller Foundation play in making insulin widely available and affordable in the interwar period; 2.) how did the Rockefeller family, through its foundations and the Rockefeller Institute for Medical Research (later Rockefeller University), support as well as reshape biomedical research diabetes etiology of; and 3.) how did the

Rockefeller Foundation, Commonwealth Fund, and other private philanthropies help to raise awareness of chronic diseases as a major public health threat in postwar North America?

My one-week research trip to the Rockefeller Archive Center revealed the important roles that the Rockefeller organizations and other private philanthropies played in shaping the political, scientific, and cultural landscapes of chronic disease. What follows are some preliminary assessments of how my research at the RAC will shape my larger book-in-progress.

The “Miracle” of Insulin and Early Research on Diabetes

In late 1921, a group of scientist-physicians at the University of Toronto discovered what historian Michael Bliss has called “one of the genuine miracles of modern medicine”—the discovery of insulin.⁴ Before insulin, juvenile diabetics, living with what we now call *type 1 diabetes, died young*. Insulin converted a once fatal disease into a manageable condition.⁵ As news of the breakthrough in Toronto spread across the world, physicians and their diabetic patients clamored to receive the new therapy quickly and at affordable prices.

The Rockefeller Foundation played a pivotal role in helping to meet demand for insulin. Indeed, the Rockefeller organizations had already taken an interest in basic biomedical research. Diabetes was one of many ailments that attracted attention, thanks in large part to the work of the first director of the Rockefeller Institute for Medical Research, Simon Flexner. Prior to the discovery of insulin, the RIMR, at Flexner’s urging, had supported the research of Dr. Frederick Madison Allen, who had been appointed to a position in 1914 based on his research linking caloric-restricted diets and diabetes treatment. With RIMR support, Allen published the summary of his dietary guidelines in a 1919 report.⁶ Allen’s often-

brutal treatment, which limited patients to as little as 400 calories per day, was accepted as the most effective way to extend the life of juvenile (or type 1) diabetics until the widespread availability of injectable insulin. It was also a controversial treatment, leaving patients emaciated and weakened, often only extending their lives by a few short, starved years.⁷ Allen would eventually leave the RIMR in 1921 to open the Physiiatric Institute in Morristown, New Jersey, but relied upon support, at first, from the Rockefeller organizations to keep his clinic open for the first six years of operation.⁸

But it was the Rockefeller's "Insulin Gift" that put the stamp of private philanthropic approval on the revolutionary new therapy to treat diabetes. One of Allen's own patients, Elizabeth Hughes, daughter of U.S. Secretary of State Charles Evans Hughes, was one of the first to be treated with insulin by one of the co-discoverers in Toronto, Frederick Banting. When Allen visited Hughes in Toronto three months after her treatment, he was amazed by the change in her health.⁹ Before Hughes visited Toronto, however, her well-connected and worried father had already written to Rockefeller about the miraculous new therapy.¹⁰ As director of the RIMR, Flexner had also taken notice of insulin and its healing powers. So, too, had Frederick T. Gates, the Baptist clergyman who in 1891 had become the principal business and philanthropic advisor to John D. Rockefeller, Sr. As many observers have noted, without Gates, the many Rockefeller philanthropies may have never succeeded. Gates was himself a diabetic. Together with Flexner, they encouraged Rockefeller family to throw their financial and political weight behind making insulin the new standard of diabetic care.¹¹

On June 20, 1923, the Rockefeller Institute announced a \$150,000 gift to distribute insulin to fifteen hospitals in the United States and Canada. In addition to funding insulin supplies, the gift also provided for educating physicians and patients on how to use insulin properly and safely. As Flexner noted, the Rockefeller gift was based on sound evidence. "There are no two minds about it," he said, "it works."¹² Elliott P. Joslin, who was the leading specialist in diabetes

clinical treatment, noted that “a most liberal portion was donated to Boston” where it was invaluable in preventing “needless deaths from diabetic coma.”¹³ He and other physicians, including Frederick Allen, congratulated the Rockefellers on using their immense wealth to distribute insulin as widely, quickly, and inexpensively as possible.¹⁴

While the Rockefeller “insulin gift” was a one-time only contribution, the archival evidence, when coupled with further research in newspapers and medical periodicals, underscores its significance in the history of chronic disease treatment. In terms of simple monetary value, the gift was enormous. But if measured in terms of political and cultural capital, it helped to bolster the importance of insulin as a new and reliable therapy. As many scholars have argued, insulin was far from a panacea. As diabetics lived longer, they faced more complications over time.¹⁵ Nevertheless, the Rockefeller “insulin gift” helped to make the miracle of Toronto an everyday blessing for millions.

Biomedical Research on Diabetes, Metabolism, and Endocrinology After the “Insulin Gift”

In a 1933 article, Elliott Joslin, together with his co-authors, Louis Dublin, a former statistician and current vice president at the Metropolitan Life Insurance Company, and Herbert H. Marks, a new statistician at Met Life, argued that diabetes was had “become a disease of major importance” that was on the increase. Ten years after the Rockefeller insulin gift, the “amazing progress that has been made in its diagnosis and treatment has not stemmed the rising mortality from diabetes.”¹⁶ In subsequent years, the threat of diabetes to public wellbeing would only become more pronounced. Research at the Rockefeller Archive Center revealed that private philanthropic support for basic biomedical research on

diabetes etiology, pathogenesis, treatment and prevention took several directions in the era after insulin.

One direction was to fund research at various institutes and clinics to investigate the physiological and biochemical aspects of diabetes. In the early 1970s, the Rockefeller Brothers Fund gave a \$15,000 grant to explore creating artificial beta cells, the portion of the pancreas responsible for the production of insulin.¹⁷ Likewise, at the Rockefeller University (formerly the Rockefeller Institute for Medical Research), scientists investigated the utility of biosynthetic human insulin produced from genetically-engineered *E. coli* bacteria. This type of insulin, first synthesized in the early 1980s, has all but replaced insulin derived from cattle and pig pancreases.¹⁸ Research on the physiology of the pancreas had antecedents, stretching back to the work by Eugene L. Opie, another former Rockefeller University researcher, who was credited for identifying the cause of diabetes as linked to damaging the part of the pancreas called the Islands of Langerhans, where insulin-producing beta cells reside.

A second direction examined the interplay between human neurophysiology, endocrinology, and chronic diseases including diabetes. Again, the Rockefeller University played a principal role in this research project, led by faculty member Bruce S. McEwen, who earned his Ph.D. at Rockefeller in 1964 under the direction of molecular biologist Alfred Ezra Mirsky. Although much of McEwen's papers remain in his possession—he currently directs the Harold and Margaret Milliken Hatch Laboratory of Neuroendocrinology at Rockefeller University—available materials point to how his early investigations into stress and human health have helped to redefine understandings of behavior and hormonal regulation. In particular, McEwen's research into allostatic load—the accumulation of chronic or repeated stress that triggers increased neuroendocrine responses—suggests that diabetes may not be caused entirely by excessive caloric intake or insufficient exercise. Put another way, certain environmental stressors over time could literally

get under the skin to produce ill health: cardiovascular disease, immune disorders, and diabetes, to name just three.¹⁹

A final direction was more diffuse but also more intriguing in light of my own project on the environmental history of diabetes—the connections between large-scale environmental change and definitions of human and ecological health. The leading scientist in this vein was René Jules Dubos, the French-born microbiologist and pathologist who spent his entire career at the Rockefeller University. Although Dubos spent his scientific career focused on microbial diseases, particularly developing effective antibiotics and solutions to the mounting problem of antibiotic resistance, he was also interested in the relationship between human wellbeing and environmental change. As Dubos wrote in his well-known *The Mirage of Health*, first published in 1961, “complete freedom from disease and from struggle is almost incompatible with the process of living.”²⁰ The archival materials at the Rockefeller Archive Center suggest an even more complex view of the interplay between individual health and ecological context. As he wrote in an undated draft of notes for a possible talk or article, modern humans “have to learn to trust in the resiliency of our physical and psychological nature.”²¹ Dubos suggested that the boundaries between human bodies and their environments, between nature as material and human nature as psychological, are more malleable than modern medicine might assume.

Dubos’s observations emphasize that health is less of a static state of being than a continuum—an important insight for reinterpreting chronic diseases within the framework of environmental history.

Public Health and Chronic Disease: Surveillance and Prevention

In a 1946 address to the American Public Health Association annual meeting in Cleveland, Hugh L.C. Wilkerson, a surgeon for the U.S. Public Health Service, gave a dire warning. In 1900, diabetes was the twenty-fifth ranked cause of death in the nation; by 1940, it had jumped to ninth place. With an aging population freed of war or economic depression, he expected diabetes to climb higher on the grim list. Given that diabetes was “amenable to definite methods of control” based upon prevailing science, he called for “concerted action” to address this public health menace before it became an epidemic.²²

As with infectious and vector-borne diseases in the United States and abroad, the Rockefeller organizations and other private philanthropies helped to fund and shape public health efforts to track and prevent chronic disease. According to historian George Weisz, an expanding awareness of chronic disease during the twentieth century coevolved with expanding state capacity and authority to define and address health on a national scale.²³ Yet central to this expanding state authority and capacity were private foundations who funded many of the early efforts at surveillance as well as publicizing efforts at prevention. As early as the 1930s, the Rockefeller Foundation and the Commonwealth Fund co-funded chronic disease surveys in New York City, which had one of the nation’s most vigorous programs.²⁴

But as my research at the Rockefeller Archive Center revealed, while New York City may have been one pacesetter, Gotham was far from the only place innovating in the study and prevention of chronic diseases such as diabetes. During the 1950s, the Rockefeller Foundation gave grants and other assistance to statewide programs in California. Led by Lester Breslow, a physician and public health scientist who

led the Bureau of Chronic Diseases of the California Department of Public Health from 1945 to 1960, the campaign to track and prevent chronic diseases relied upon “multiphasic screening” to test for numerous chronic diseases, including diabetes. Researchers fanned out across what was becoming the nation’s most populous state, conducting interviews and administering tests in small rural communities and large urban neighborhoods alike. John B. Grant, the associate director for the Public Health Division at the Rockefeller Foundation, spent several months in the field with Breslow and his team during the mid-1950s, writing reports lauding the California approach.²⁵

By this time, chronic disease had become an issue of national importance. The Commission on Chronic Illness (CCI), initially launched as an interim committee in November 1948, received “small sums” the following year from the Rockefeller Foundation as well as several insurance companies, the pharmaceutical company Eli Lilly and Company, and The Johns Hopkins University. Larger donors include the Commonwealth Fund, the U.S. Public Health Service, and the American Medical Association.²⁶ As the first national initiative to investigate chronic disease, the CCI convened experts from a wide slate of medical and public health specialties to address both prevention and long-term care. Dissolved in 1956, the CCI during its lifetime produced a four-volume report as well as a monthly newsletter. Archival documents from the Rockefeller Archive Center illuminate how the Commonwealth Fund in particular supported two CCI community-based surveys in Baltimore, Maryland and Hunterdon, New Jersey.²⁷

Materials from the Rockefeller Archive Center suggest that private philanthropic support elevated the importance of chronic disease as a public health concern in the early postwar era. While local, state, and federal agencies played essential roles in defining, tracking, and addressing chronic diseases, they often received substantial financial and logistical support from private foundations. The health concerns of the state often mirrored the health concerns of the philanthropic sector. This union of shared interests may have helped to sculpt the terrain in

subsequent years for later public-private partnerships in the quest to improve the health of the nation.

Conclusion

Research at the Rockefeller Archive Center provided critical documentation on the role that private philanthropy played in addressing diabetes as a major public health problem in the twentieth century. Beginning with the dramatic discovery of insulin through the slow but steady increase of diabetes as a leading cause of death, private foundations provided needed financial and administrative support. As I argue in the larger book project, diabetes is a mirror of modernity, reflecting how changing economic, social, and most importantly environmental relationships have generated conditions for chronic illnesses to thrive and spread. Records from private philanthropic organizations and research centers—the Rockefeller Foundation, the Commonwealth Fund, the Rockefeller Institute for Medical Research and the Rockefeller University—support my argument that philanthropic institutions are part of this story.

Sweet Blood is a history of our modern world. It is a story that connects the personal to the public through our connections to the environment and one another. It asks us to rethink the connection between human nature and nature. It compels us to confront a major health problem anew. “Acting like a sponge,” writes physician-anthropologist Arthur Kleinman, diabetes, like other chronic ailments, “soaks up personal and social significance from the world.”²⁸ In diabetes lies the modern nature of health.

¹ Since receiving my RAC Grant-in-Aid, my book project is now under contract with Yale University Press as “Sweet Blood: Diabetes and the Nature of Modern Health.” This report is based, in part, on elements of my Yale book proposal. My many thanks to Norine Hochman and James Allen Smith, who allowed me to defer my original 2016 Grant-in-Aid to address personal health concerns; Margaret Hogan and Michele Hiltzik Beckerman, who helped me navigate the RAC collections and indulged my confusing or off-beat queries; and the RAC staff, who ably assisted me during my productive (if snow-filled) visit in March 2017.

² Jane Brody, “Personal Health,” *New York Times*, November 15, 1995, <http://www.nytimes.com/1995/11/15/us/personal-health-038482.html> [accessed August 28, 2017].

³ Gregg Mitman, *Breathing Space: How Allergies Shape our Lives and Landscapes* (New Haven: Yale University Press, 2007), 252. For a summary of the neo-Hippocratic tradition, which animates Mitman’s analysis, see Charles E. Rosenberg, “Epilogue: *Airs, Waters, Places*. A Status Report,” *Bulletin of the History of Medicine* 86, no 4 (Winter 2012): 661-70. For a recent report that defines environment as as I do here, see *Breast Cancer and the Environment: Prioritizing Prevention*, Report of the Interagency Breast Cancer and Environmental Research Coordinating Committee (Research Triangle Park, NC: National Institute of Environmental Health Sciences, National Institutes of Health, U.S. Department of Health and Human Services, 2013) and <http://www.niehs.nih.gov/about/boards/ibcercc/> [accessed February 12, 2013]. As the IBCERCC report states, “the environment includes lifestyle and behavioral factors, chemical and physical agents, and social and cultural influences” in addition to the material and cultural worlds humans call “nature.”

⁴ Michael Bliss, *The Discovery of Insulin* 25th ann. ed. (Chicago: University of Chicago Press, 2007), 11.

⁵ The definitive account of the discovery remains Bliss, *The Discovery of Insulin*; see also Thea Cooper and Arthur Ainsberg, *Breakthrough: Elizabeth Hughes, the Discovery of Insulin, and the Making of a Medical Miracle* (New York: St. Martin’s Press, 2010).

⁶ Frederick M. Allen, Edgar Stillman, and Fitz Reginald, *Total Dietary Regulation in the Treatment of Diabetes*, Monographs of the Rockefeller Institute for Medical Research, no. 11 (New York: Rockefeller Institute for Medical Research, 1919) copy in Folders 20-21, FA 951, File: Rockefeller Institute for Medical Research Monographs, Box 4, Rockefeller University Records, Rockefeller University Press-Monographs, Rockefeller Archive Center (hereafter abbreviated RAC).

⁷ For an overview of Allen’s treatment and research, see Bliss, *The Discovery of Insulin*, 33-38.

⁸ For examples of support and concerns over the Physiatrie Institute’s financial wellbeing, see Simon Flexner to John D. Rockefeller, Jr., February 8, 1922 and R.M. Pearce to Physiatrie Institute, December 12, 1927, Folder 229, Box 29, FA 320, Office of the Messrs. Rockefeller Records, Medical Interests, Series K-Hospitals, RAC.

⁹ Bliss, *The Discovery of Insulin*, 151-63.

¹⁰ Charles E. Hughes to John D. Rockefeller, Jr., August 1, 1921 and W.S. Richardson to Rockefeller, August 2, 1921, Folder 229, Box 29, FA 320, Office of the Messrs. Rockefeller Records, Medical Interests, Series K-Hospitals, RAC.

¹¹ Frederick T. Gates to John D. Rockefeller, Jr., April 28, 1923 and Simon Flexner to Gates, June 14, 1923, Folder 23, Box 2, FA 028, Frederick T. Gates Papers-Insulin Gift, RAC.

¹² “Rockefeller Gives \$150,000 for Insulin,” *New York Times*, June 20, 1923.

¹³ Eugene R. Kelly, "The Distribution of Insulin," *Boston Medical and Surgical Journal* 192 (May 14, 1925), 965.

¹⁴ Allen to John D. Rockefeller, Jr., June 15, 1923, Folder 229, Box 29, FA 320, Office of the Messrs. Rockefeller Records, Medical Interests, Series K-Hospitals, RAC; Elliott P. Joslin to Flexner, June 21, 1923 and February 15, 1924, Folder 456, Box 45, FA 324, Office of the Messrs. Rockefeller Records, Rockefeller Boards, Series O, RAC.

¹⁵ For example, see Chris Feudtner, *Bittersweet: Diabetes, Insulin, and the Transformation of Illness* (Chapel Hill: University of North Carolina Press, 2003).

¹⁶ Elliott P. Joslin, Louis I. Dublin, and Herbert H. Marks, "Studies in Diabetes Mellitus-I. Characteristics and Trends of Diabetes Mortality Throughout the World," *American Journal of the Medical Sciences* 186, no. 6 (December 1933), 754.

¹⁷ J. Stuart Soeldner, Associate Director, Elliot P. Joslin Research Laboratory, "A New Approach to the Treatment of Diabetes Mellitus," October 21, 1971; Thomas W. Wahman to Dana S. Creel, Memorandum, Joslin Diabetes Foundation, Inc., January 11, 1972; Alexander Marble to Thomas W. Wahman, December 29, 1971; and Joseph C. Wilson to Nelson Rockefeller, November 22, 1971, Box 489, Folder 2971, Joslin Diabetes Foundation, Inc., FA 005, Rockefeller Brothers Fund Records, Group 3: Projects (Grants), Series 1: Projects (Grants), RAC.

¹⁸ For example, see the following correspondence related to June 24, 1983 article on human insulin for *The Medical Letter*, the publication of Rockefeller University: Ronald A. Arky to Mark Abramowicz, Editor, *The Medical Letter*, March 28, 1983; Yuan-Yuan Chiu and Elizabeth B. Rappaport to Abramowicz, April 14, 1983; John R. Mellowes, Squibb-Novvo, to Abramowicz, April 19, 1983; and Irving S. Johnson, Lilly, to Abramowicz, April 14, 1983, Box 575, Folder 1433, Diabetes, Therapy: Human Insulin-ML Drafts, 25.63, RG 891, Rockefeller University Collection of *The Medical Letter* Publication, RAC.

¹⁹ For example, see "Good Stress, Bad Stress," *News and Notes-The Rockefeller University* 21:4 (March-April 1990): 3; "Biography of Bruce S. McEwen," February 1987; and "Messengers to the Brain," *Rockefeller University Research Reports* Spring 1984, Box 16, Folder 4-McEwen, Bruce S., RG 451, FA 239, Rockefeller University Records, Campus Office Biographical Files, RAC.

²⁰ René Jules Dubos, *Mirage of Health: Utopias, Progress, and Biological Change* (Garden City, NY: Doubleday, 1961), 1.

²¹ Dubos, "The Ecological View of Health - Self Healing" (notes), Box 29, Folder 7, FA112, René Jules Dubos papers, Rockefeller University Faculty, RAC.

²² Hugh L.C. Wilkerson, "Problems of an Aging Population: Public Health Aspects of Diabetes," *American Journal of Public Health* 37, no. 2 (February 1, 1947), 177.

²³ George Weisz, *Chronic Disease in the Twentieth Century: A History* (Baltimore: The Johns Hopkins University Press, 2014).

²⁴ M.C. Jarrett, *Chronic Disease in New York City*, 2 vols. (New York, 1933); Weisz, 69-71.

²⁵ For representative documents, see John B. Grant, Interviews, January 8, 1954; Lester Breslow, Chief, Bureau of Chronic Diseases, State of California, Department of Public Health, to Andrew J. Warren, Director, Division of Medicine and Public Health, Rockefeller Foundation, March 16, 1954; Arnold B. Kurlander, Medical Director and Chief, Chronic Disease Branch, Division of Special Health Services, Public Health Service, to John B. Grant, Associate Director, Division of Medicine and Public Health, Rockefeller Foundation, July 27, 1954; and John B. Grant, Interviews, January 20-21, 1955, Box 1, Folders 1 and 2, Health - Chronic Diseases – Epidemiology Centers, Series 205: California, FA387, Rockefeller Foundation records, projects, RG 1.2, RAC. For surveys of the California initiative, see Lester Breslow, "Multiphasic Screening in California," *Journal of Chronic Diseases* 2, no. 4 (October 1955): 375-383; Lester Breslow and H.

William Mooney, "The California Morbidity Survey: A Progress Report," *California Medicine* 84, no. 2 (February 1956): 95-97; Lester Breslow, "Chronic Illness in California," *California's Health* 13, no.18 (March 15, 1956): 137-140; and Lester Breslow, "Newer Concepts in Chronic Diseases," *Journal of the American Medical Association* 161, no. 14 (August 4, 1956): 1364-1368.

²⁶ Weisz, 109-111.

²⁷ For representative documents, see Dean W. Roberts, Director, Commission on Chronic Illness to Lester Evans, The Commonwealth Fund, February 10, 1953; Commission on Chronic Illness, Study of Prevalence of Chronic Illness and Needs for Care in an Urban Area—Plans, Progress, and Financial Requirements, February 16, 1953; Comment by Dr. Evans, February 19, 1953; Hunterdon Medical Center-Chronic Illness Survey, Visit to the Project by Dr. Evans, February 19, 1953, Box 83, Folder 760, Commission on Chronic Illness - Baltimore Chronic Illness Study (EHS), FA290, Commonwealth Fund records, Grants, SG 1, Series 18, RAC.

²⁸ Arthur Kleinman, *The Illness Narratives: Suffering, Healing, and the Human Condition* (New York: Basic Books, 1988), 31.