The Narrow Approach of Acute Medicine: Diabetes as a Public Health Problem, 1930-1960

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On the basis of this thesis
and of written and oral examinations
taken by the candidate on 4-15-2005
and on 5-4-2005, we, the undersigned,
recommend that the candidate be
awarded HIGH HONORS in History.

RAMSEY

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## *Introduction*

*The incidence of diabetes increased markedly in the United States from 1990-1998...researchers are reporting today, and they warn that the disease will take a harsh toll in disability, death, and medical expenses in decades to come... "We're having enough trouble taking care of people with diabetes today," said Dr. Frank Vinicor, director of the diabetes division at the Center for Disease Control and Prevention... "It's going to get considerably worse in the future."...Severe complications make diabetes a substantial public health problem... "Expensive as we think health care is today, with these chronic conditions coming on it's going to be very threatening to quality of life as well as cost issues," Dr. Vinicor said. "If we saw a 33 percent increase in infectious diseases like tuberculosis or AIDS, I believe there would be an understandable demand for action. We can't just view inactivity and overweight as purely a kind of cosmetic thing. It's got to be viewed as a public health issue."*[1]

In recent years, statements such as the ones made above have become commonplace in the United States, leading to an explosion of interest in diabetes, which has come to be viewed as a new epidemic disease. Today, diabetes ranks as the sixth-leading cause of death among Americans. From 1980 to 2002, the number of Americans with the disease more than doubled from 5.8 million diagnosed cases to 13.3 million diagnosed cases. According to the CDC, a total of 18.2 million people (6.3% of the population) have diabetes, because of an additional 5.2 million undiagnosed cases. Diabetes is associated with a wide range of preventable complications, including heart disease, stroke, high blood pressure, blindness, kidney disease, nervous system disorders, and amputations. In addition, it is highly co-morbid with obesity.[2] This is not, however, the first time in history that health care professionals conceptualized diabetes as a public health problem.

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[1] Denise Grady. "Diabetes Rises: Doctors Foresee a Harsh Impact." The New York Times. August 24, 2000.
[2] http://www.cdc.gov/diabetes/pubs/estimates.htm#prev (viewed Dec. 20, 2004)

Beginning in the 1930s, many physicians and public health officials expressed concerns about the increasing prevalence of the disease within the population.[3] This occurred in the aftermath of Frederick Banting's 1922 discovery of insulin, at a time when health professionals began to realize that this therapeutic wonder did not cure the disease but rather transformed it from a short-term, likely fatal health problem, into an illness of long-duration. "Before the discovery of insulin," wrote Dr. Hugh Wilkerson, "the average life expectancy of a child with diabetes was about 2 years. A diabetic adult lived for an average of 8 years...Public health procedures could not be adapted to the diabetes problem."[4] It is evident from Dr. Wilkerson's statements that the discovery of insulin changed the prognosis for diabetics. But with the increase in life expectancy, came a host of new problems that seriously affected the quality of life diabetics could enjoy.

Following the discovery of insulin and the subsequent recognition that it indeed was not a cure, the medical community nevertheless believed that a public health approach to the problem would enable health professionals more effectively to prevent it and in the process further prolong the lives of diabetics.[5] Public health measures proposed in the 1930s amounted to an effort to study the disease, to devise measures for control, to assist in the formation of clinics to deal with diabetes, to encourage cooperation between hospitals and clinics for treatment

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[3] The increased prevalence is indicative of both more people being diagnosed and more people living with the disease, as insulin provided a means to manage the disease and thus prolonged the lives of those with diabetes. Ironically, seventy years later, healthcare professionals continue to be frustrated by the staggering increase in diabetes prevalence and the lack of public awareness about the serious nature of the disease and its complications.

[4] Dr. Hugh Wilkerson. "Chronic Disease: Diabetes Control in a Local Health Dept." American Journal of Public Health. Vol. 39, May 1949, 607.

[5] Dr. Chris Feudtner. Bittersweet: Diabetes, Insulin, and the Transformation of Illness. Chapel Hill: University of North Carolina Press, 2003, 8-9. In fact, a May 1923 *New York Times* article titled "Diabetes, Dread, Disease, Yields to New Gland Cure," provides an account of the hope that scientific medicine would provide cures for all the diseases of mankind. The "technological ethos" of medical science, as Feudtner calls it, became popularized during the early 20th century and led to the belief that science would master all human diseases.

purposes, to improve medical school education, and to provide public education.[6] Health professionals hoped to contribute in three distinct ways: through preventing complications, through improving the quality of life for diabetics, and more generally, through prolonging the lives of patients. In the words of an editorialist, writing in the American Journal of Public Health in 1937, a public health approach to diabetes would "bring about a distinct prolongation of life and a marked reduction of invalidism."[7] Health professionals feared a tremendous increase in disease prevalence and mortality if they did not follow these measures. This thesis explores the reasons why such optimism did not pan out, that is, why the conception of diabetes as a public health problem failed to thwart what many perceived to be an impending epidemic.

In examining this perplexing history of diabetes, it became evident to me that the inability to deal successfully with this medical condition illustrates a larger pattern in the history of disease. Following the epidemiological transition (when chronic diseases began to overtake infectious health problems as the major causes of death) the United States' medical system failed significantly in its attempts to deal with the newer health burdens on society, the chronic diseases. It is important to understand that the nature of chronic diseases differs tremendously from that of infectious diseases(with the exception of TB and syphilis) as the chronic diseases are characteristically of slow onset, cause disability, and are degenerative. In general, these diseases gradually weaken bodily systems, impair functioning, and eventually lead to acute complications, which often result in death.[8] Understandings of such diseases are incomplete, as they are usually the result of a complex interplay between biology and the environment. With this all in mind, the goal of this thesis is not to provide a microanalysis of the history of diabetes,

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[6] In the next decade, the public health approach to diabetes would take on emphasizing early detection and treatment.
[7] Editorial. "Attacking Diabetes as a Health Problem." American Journal of Public Health. Vol. 27, Jan. 1937, 75.
[8] Daniel Fox. Power and Illness: The Failure and Future of American Health Policy. Berkeley: University of California Press, 1995, 22.

but rather to place the history of diabetes as a public health problem in the years 1930-1960, in the larger context of the history of disease. The case of diabetes demonstrates that our efforts to deal with chronic diseases have failed because of the persistence of what several scholars and I call the acute framework. The medical community inappropriately attempted to deal with diabetes as if it were no different than the infectious diseases of the past. By studying the history of this health problem, we learn that the strategies that worked in the combat of acute infectious diseases have been largely ineffective in tackling the chronic diseases.[9]

In developing this argument, I build on the work of historians of medicine and public health, including Elizabeth Fee and Gerald Grob, who have studied the epidemiological transition and assessed the medical community's difficulties in managing and controlling chronic diseases. My definition of the acute framework draws directly on their work and that of Daniel Fox, a historian of health policy, who argues that the acute framework is a model of disease that grew out of the paradigm established to prevent outbreaks of infectious diseases, during the late nineteenth and early twentieth century. It emphasizes laboratory research focused on identifying specific disease causes and their cures, as well as diagnosing cases in patients and then treating them. This framework is grounded in modern laboratory science, supports the tenets of the biomedicine, and emphasizes the diagnosis and treatment of individual cases of disease, rather than wide scale disease prevention. It is also a model that specializes in treating health problems that are short-term, emergency in status, and often require brief periods of hospitalization.[10]

That is not to say that the boundary between an acute approach and a non-acute approach is cut and dry. In fact, in many cases with the story of diabetes, the acute framework took on

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[9] While this is widely recognized, Americans have had trouble ridding themselves of their inherent desire to cure all disease. This desire was a direct result of the therapeutic success against infectious diseases. See Roy Porter. The Greatest Benefit to Mankind. Great Britain: Harper Collins Publishers, 1997, 595.

[10] In a way, the hospital has become a symbol of acute medicine, as patients are generally hospitalized for short-term periods or technological procedures.

some characteristics that could be perceived on the surface to be a non-acute approach to disease. This thesis argues that the acute framework, developed to deal with acute health problems, especially the infectious diseases of the past, supports treatment and curative medicine over future prevention, as well as individualized care over a community-wide approach to handling disease. I recognize that there are cases when my definition may not be so accurate. One example would be the preventive approach to diabetes taken by health professionals. As stated above, general disease prevention fits a non-acute approach to disease. In the case of diabetes, however, physicians emphasized that they try to delay or completely prevent disease complications in their patients, instead of preventing the onset of disease altogether. These efforts took on an individualized approach, and enabled health professionals to deal with the issues of patients within the clinic. In this case, prevention illustrated an acute approach to disease because this it occurred only after patients were struck by disease and fits well into the realm of a treatment-based approach to medicine. For the purposes of this thesis, therefore, when I argue that disease prevention was needed, I mean future disease prevention and not the acute model type that was emphasized by doctors.

I have also been influenced by scholarship downplaying the impact of the acute model on the decline in infectious diseases. Much of the work in the history of disease poses the claim that the acute model was not actually responsible for the decline of infectious diseases and therefore, its supposed success and application to chronic diseases ought to be questioned. Thomas McKeown, in addition to John and Sonja McKinlay, argue that actual medical interventions were not primarily responsible for the decline in infectious disease mortality.[11] Instead, they give

[11] John B. McKinlay and Sonja M. McKinlay. "The Questionable Contribution of Medical Measures to the Decline of Mortality in the United States in the Twentieth Century." Health and Society.. Millbank Memorial Fund Quarterly: Summer 1977, 405-428. For more information on this topic, Thomas McKeown wrote about the decline

credit rising standards of living, improvements in hygiene and nutrition, and a reduction in exposure to infectious diseases, for the decline in mortality in the second half of the nineteenth century and early twentieth century.[12] The fundamental practices of sanitary public health that emphasized a community-wide focus on improving poor social conditions, including dirty streets, a contaminated water supply, and the consequences of crowded living conditions, deserved the credit, and not medical immunizations and therapies. While the early twentieth century saw tremendous advances in biomedicine, these developments only led to increased knowledge of diseases and a greater ability to diagnose them.[13] For these reasons, the persistence of the acute disease model seems ironic.

My thesis also draws on the work of historians of public health who have brought attention to how the acute model reshaped and narrowed public health in a way that severely limited its ability to deal with chronic disease and, to some extent, even the infectious diseases. These scholars emphasize the importance of sanitary measures for the decline in infectious diseases and add that public health narrowed considerably with the bacteriological revolution. What do they mean by a narrowing of public health? Historians emphasize that the methods of public health changed tremendously due to the discoveries of the specific bacterial causes of diseases. Public health became laboratory based and grounded in the notions of modern scientific inquiry. The new techniques for identifying the causes of infectious diseases drew attention away from the problems posed by the filthy environment and poor living conditions. Health workers emphasized locating, identifying, and isolating bacteria and the human hosts they preyed on,

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in British mortality due to infectious diseases. See Thomas McKeown. The Role of Medicine: Dream, Mirage, or Nemesis. London: Nuffield Provincials Hospitals Trust, 1976.

[12] McKinlay's, "The Questionable Contribution of Medical Measures...."408.

[13] Ibid, 406. Besides diphtheria antitoxin and smallpox vaccination, it was not until the mid-twentieth century that medical science provided cures that actually worked. While many experimental therapies were tested, very few proved to be effective until the post WWII period.

believing these methods to be more efficient and logical for dealing with diseases than the earlier sanitary methods that attempted to clean up and improve societal conditions. The public health laboratory became the central trademark of the new public health as it produced definable progress and illustrated the power of the scientific and diagnostic capabilities of bacteriology.[14] This narrowing affected the response to chronic diseases, as attempts to deal with such problems were limited by the constraints of the shortsighted notions of acute medicine. While the acute model has affected the methods of public health, the new public health further cemented the acute framework in place as well. Health concerns about the detection and cure of disease replaced notions of prevention that were prevalent in post-Bellum America.[15]

Past scholarship, therefore, has emphasized the inappropriateness of applying acute medicine to chronic diseases. Historians have argued that our past failures were not in failing to recognize the growing prevalence of chronic illnesses, but rather in forming a response to them. While the differential nature of chronic diseases from infectious diseases was recognized, those making decisions about the direction of healthcare incorrectly assumed that the methods used successfully to eradicate infectious diseases (following the initial decline due to sanitary public health methods), could be used successfully in the battle against chronic degenerative diseases. These scholars argue that current health reform efforts ought to focus on how we deal with diseases and changing the framework that fundamentally deals with them.[16]

While criticism of the acute model is important for future reform efforts, it is also necessary to note that this framework has had success. The acute model did successfully develop

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[14] Elizabeth Fee. "Public Health and the State: The United States" in Dorothy Porter. The History of Public Health and the Modern State. Amsterdam: Editions Rodopi B.V., 1994, 237.
[15] For references on this historiographic aspect see Fee's essay in Porter's The History of Public Health and the Modern State, as well as Fox's description of the accommodation of chronic disease in Power and Illness.
[16] See Fox, Power and Illness, and Gerald Grob, The Deadly Truth. Cambridge, Massachusetts: Harvard University Press, 2002, 274. for a discussion on the inappropriate application of the acute framework to the chronic diseases.

diagnostic methods in the late 1800s that enabled health professionals to accurately diagnose patients with diseases. It also brought many patients under treatments that prolong life in cases when their diseases would otherwise fatal. However, it is necessary to realize that while lives have been prolonged, the principal goal of the acute model has been to cure health problems. Following the discoveries of vaccinations and antibiotics for the infectious diseases, especially during the 1940s, researchers have attempted to find cures for the chronic diseases, but have thus far been unsuccessful in doing so. In addition medical researchers are yet to provide a clear sense of etiology, as they continue to be baffled by the interaction of lifestyle and behaviors with biology. We continue to dream about eradicating all diseases, when we know well that this hope is quite unlikely. According to Rene Dubos, "Complete and lasting freedom from disease is but a dream remembered from imaginings of a Garden of Eden designed for the welfare of man."[17] In fact, more people are now suffering from disease than ever before.

Building on past scholarship, I explore how the medical community proved unable to deal adequately with the threat posed by one of the chronic diseases, diabetes. During the 1930s, diabetes was one of several chronic diseases that began to receive increased attention. While scholars have mentioned specific chronic diseases in their assessments of acute medicine, no one has used the detailed account of one specific disease to provide evidence for his or her claims. Daniel Fox argues that chronic diseases were *accommodated* into the acute framework.[18] He argues that since 1920, interest groups concerned with health policy have continued to

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[17] Rene Dubos. Mirage of Health: Utopias, Progress, and Biological Change. New York: Harper and Brothers, 1959, pg. 84-85 cited in Grob, The Deadly Truth, 274.

[18] In Daniel Fox's Power and Illness, he states, "But for more than half a century after 1920, health policy was made as if its central problem still was and would remain the conquest of infectious disease and the acute episodes that were common to both raging infections and particular, usually advanced, stages of chronic illness...The institutions would accommodate to patients with chronic illness mainly by taking care of them when their afflictions most closely resembled infections; that is, in their acute episodes and end stages. Patient education, rehabilitation, and the accommodation of homes and workplaces to the functional limitations of persons with disabling conditions received lower priority."(Fox Power and Illness, 20) This description of accommodation will be the one used for this thesis.

support the objectives established to deal with acute health problems. despite recognition that the prevalence of chronic diseases has been on the rise. Fox argues that those making health policy decisions assumed that the institutions and methods believed to be successful in the combat of infectious diseases could be used to deal with chronic illnesses.[19] He acknowledges that accommodation occurred on a variety of levels including policy, research, patient care, education, and finance. His assessment, however, is mostly concerned with accommodation in relation to policy and finance, paying particular attention to payment plans, insurance companies, and interest groups, all who were concerned with the allocation of funding for health care. Given his field of interest in health policy, he discusses very little about how it occurred on the medical care level. In doing this, he does not spell out how health professionals participated in accommodation and how they perpetuated the acute model in their handling of chronic illnesses. This thesis, therefore, further completes and details the accommodation process, making the argument that medical professionals participated with their handling of chronic diseases. By focusing on how medical professionals attempted to deal with a specific disease, in this case diabetes, we can gain a more complete understanding of the *accommodation* of chronic diseases into the acute framework. We can see in detail how the methods used and concerns of health professionals were very much in line with the fundamental notions of acute medicine.

This thesis relies on primary source articles from various medical journals to tell the story of diabetes as a public health problem during the middle decades of the twentieth century. These articles demonstrate the methods and concerns of public health officials in combating the problem. By analyzing the case history of diabetes, within the context of why we have failed to combat chronic diseases in general, this thesis provides an analysis of why the calls for alarm concerning diabetes failed to thwart a serious impending health problem.

[19] Fox, Power and Illness, 26-31.

This thesis consists of an introduction, three chapters, a conclusion and an epilogue. Following the introduction, Chapter One provides a brief analysis of infectious disease history and the sanitary reform movement that was designed to combat these problems. It then moves on to a discussion of the bacteriological revolution and the implications it had for public health. This first chapter provides a foundation for the rest of this thesis in illustrating the narrowing of public health following the bacteriological revolution. Chapter Two describes the change in disease trends and gives a historical account of the conceptions of health professionals concerning the increase in chronic disease prevalence. With the change in disease trends described, the chapter concludes with a depiction of the history of diabetes up until 1945. This allows for a transition to Chapter Three, which explores diabetes as a public health problem during the post-World War II period. This chapter discusses the concerns among medical professionals and public health workers, in addition to the actions taken to combat the problems. In this chapter, the argument that acute medicine is responsible for our failures to deal with chronic diseases is applied to the case of diabetes. By returning to scholarship on the history of disease, I show why a successful campaign to combat diabetes was never launched. The conclusion cements contentions made in the third chapter and focuses on our continued struggle to handle diabetes. The epilogue discusses my interest in diabetes and why our future combat of chronic diseases should pay more attention to and learn from history.

## *Chapter I: The Origins of Modern Medical Science and the Acute Framework*

When physicians such as Dr. Charles Bolduan spoke of diabetes as a public health problem in the 1930s, he and his contemporaries meant a laboratory-based, epidemiological approach to handling diseases, emphasizing individual diagnosis, treatment, and the hopes of cure. [20] But that had not always been the role of public health. Indeed, during the late-nineteenth century when permanent public health boards first took form, public health consisted of a community-based approach to disease, in which sanitation and environmental clean-ups largely were responsible for preventing disease outbreaks. This chapter provides an overview of the sanitary based system of public health and the ways diseases were conceptualized during the mid nineteenth century. With this foundation in the history of public health established, this chapter then discusses the bacteriological revolution and its impact on the way health professionals dealt with disease. During this hyperbolic period in the history of medicine, public health evolved tremendously as it narrowed with the discoveries made in the laboratory. It was also in this era that the acute model was set in place.

Those living during the 1800s understood disease very differently from how we understand it today. The major killers of the time also differed tremendously from the major killers of present times. The nineteenth century saw two major societal shifts -- urbanization and industrialization –which brought on new threats to health. From 1800 to just after the Civil War, mortality rates due to infectious diseases continued to climb because of horrible urban living conditions.[21] At first, it was the east coast cities that showed concerns about the public's health, fearing that yellow fever, smallpox, cholera, and other epidemic diseases would be transmitted

[20] He was the first to make reference to diabetes as a public health problem.
[21] Gerald Grob. The Deadly Truth. Cambridge, Massachusetts: Harvard University Press, 2002, 96.

via boats carrying imported goods and immigrants from overseas. As a result, each city responded with its own set of quarantine regulations.[22] Endemic diseases such as typhoid, diphtheria, and TB, also plagued the city populations. However, little could be done in response to these diseases. For most of the nineteenth century, the dominating medical theory that explained the epidemic and endemic diseases that plagued populations was a paradigm known as the "miasma" theory of disease that saw city filth as the main threat to health. Many believed that poisonous particles in the air, which emanated from both organic and inorganic sources, induced illness episodes.[23] Therefore, it was common for large cities, with unsanitary streets and living areas, to be plagued by these fatal diseases. Attempts to deal with the unhygienic societal and environmental problems, brought on by overcrowded conditions caused by the influx of immigrants, dirty tenement housing and slums, poor water supplies, and lack of sewage systems led to a need for the growth of early modern public health.[24]

The major medical and health concerns, therefore, centered on understanding the etiology and transmission of such diseases and how they could best be avoided. The various bouts with epidemics of cholera throughout the nineteenth century can be used to illustrate how knowledge of diseases, their causes, and the ways to handle them evolved in the 1800s. In 1832, Americans feared that cholera would invade their country, as it had in Europe. As a result, medical professionals suggested strict quarantines on ships coming from various ports in Europe that had been known to be infested by cholera. Adding to this, city dwellers were fearful of a potential epidemic because they saw how other diseases such as malaria and yellow fever tended to thrive in filth, something commonly found in cities. Physicians therefore recommended that streets be

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[22] See Fee's article in Porter's The History of Public Health and the Modern State, 228.
[23] John Waller. The Discovery of the Germ: Twenty Years that Transformed the Way We Think About Disease. New York: Columbia University Press, 2002, 26-27.
[24] Ibid. 231.

cleaned and that individuals practice good personal hygiene. Such measures were never effectively carried out because no centralized public health boards existed at the time. Cholera would hit America during the summer months of 1832 and many across the United States did in fact die; by Christmas however, the disease disappeared.[25]

In 1848, however, the powder keg known as cholera blew up once again in Europe.[26] Americans, remembering 1832, realized that the Atlantic Ocean could only protect them for so long. City governments were attacked for their inactivity concerning the tremendous amount of filth that lined the streets and polluted the air. In addition, health professionals understood quite well that cholera thrived in filth. Despite the increased concern, during December 1848, southern cities were the first to be hit by the wrath of cholera and it would strike the nation increasingly during the summer months. Yet, even as more people died, little was done to clean the streets infested by the wastes of animals, dead bodies, and other garbage. Despite their lack of action, physicians did have more knowledge about the disease in 1849, than they did seventeen years earlier. The idea that there were specific disease causes began to become more popular. In fact, Charles Rosenberg argued that by 1849 most physicians considered cholera to be a "specific disease caused by a specific poison."[27] The specific poison though, was still believed to be from the atmosphere and was attributed to a "ferment."[28] This epidemic of cholera would last until 1854, when it disappeared once again.

Twelve years later, though, cholera would once again appear in Europe. This time however, Americans would be spared cholera's wrath as a result of increased scientific knowledge about how it could be prevented. During the winter of 1866, the city of New York

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[25] For a more detailed depiction of the 1832 cholera epidemic and how it was perceived see Charles Rosenberg. The Cholera Years. Chicago: The University of Chicago Press, 1987. See chapters 1 and 4.
[26] Rosenberg, The Cholera Years, 101.
[27] Ibid, 165-168.
[28] Ibid, 172.

passed a bill calling for the formation of a Metropolitan Board of Health to oversee sanitation efforts. By this time, it was well established that the poison that caused cholera was in the diarrhoeal and vomit fluids of those infected and that these substances were most easily spread via the water supply. As a result of this knowledge, the New York City Board of Health created programs to perform street cleanings and in addition suggested that water be boiled and the clothing and bedding of those who got cholera be disinfected. Cholera would cross the Atlantic in April; however, with the increased knowledge of the disease and activity on the behalf of those concerned with sanitary measures, the impending epidemic was prevented.[29]

The battle with cholera throughout the nineteenth century provides evidence for the growth of the sanitary movement of public health, a movement whose full force would be felt the most during and following the Civil War. It was during the war that those involved in healthcare became extremely concerned with communicable diseases as two-thirds of Union soldiers and three-quarters of Confederate soldiers did not actually die from bullets, but rather from infectious diseases. These types of diseases ran rampant in the unsanitary conditions of army camps.[30] Therefore, health officials, impressed by and scared of such health problems, saw sanitary measures as the basic principal to guide public health reform in the post Civil War period.

Public health and the sanitary movement were crucial in bringing about the decline in mortality from infectious and communicable diseases. Organized public health efforts during the post-bellum period can best be illustrated by quarantines, sanitary reform, street paving, and the construction of sewage systems. The importance of clean air, clean water, and sanitary living

[29] See Rosenberg's The Cholera Years, chapters 10 and 11 for a more detailed account of the 1866 bout with cholera.
[30] Fee's article in Porter's The History of Public Health and the Modern State, 230.

environments became paramount in promoting the health of the community.[31] Broad sanitation efforts, such as those used to deal with cholera, were useful for preventing most infectious diseases. Following the Civil War, city health organizations began to respond to the problems created by the increased industrialization and urbanization, with the creation of permanent public health boards. As city populations grew chaotically and cities became increasingly industrialized, these types of health problems became only more common, as the already unhygienic environment became only filthier. Reform groups devoted tremendous amounts of time and resources to social problems and societal improvements. A range of professionals, including physicians, health reformers, engineers, nurses, lawyers, and statisticians urged this initial sanitary public health effort. All these professionals complemented one another and provided necessary services for the sanitary reform movement.[32]

All of this changed, however, in the late nineteenth century, as the bacteriological revolution provided advances in medical science that led to new understandings of disease, which in effect altered the beliefs and methods of public health. It was the next logical step for health professionals to take from believing that filth caused disease to identifying the specific agents causing disease and then removing them from the environment. The last few decades of the nineteenth century saw groundbreaking discoveries made in modern medical science, with the recognition of the specific bacteria responsible for infectious diseases. Through the discoveries of bacteriologists, diseases became linked to specific pathogens and the germ theory

[31] As opposed to earlier eras when poor individuals were blamed for their health misfortunes, the efforts to clean-up the unsanitary conditions that brought on disease outbreaks took on a greater community focus for disease prevention. Ill health was no longer completely an individual problem, as poor sanitary conditions were environmental factors that contributed to poor health. (See Fee's article in Porter's The History of Public Health and the Modern State, 228-229 for further explanation of the link between poverty, morality, and disease)

[32] Fee's article in Porter's The History of Public Health and the Modern State, 230.

of disease "decisively altered the relations of humans and infectious disease."[33] Scientists used the microscope and other laboratory instruments to look at the minute organisms causing illnesses and for the first time doctors understood that the microorganisms they saw were responsible for illness episodes. In 1883, for example, Robert Koch, a leading German bacteriologist, isolated *Vibrio comma*, the bacteria responsible for causing cholera.[34] Through this discovery, scientists recognized that a bout with cholera occurred when the bacteria moved into the human intestinal tract and that if untreated, it killed roughly half of those who contracted it.[35] They also understood that a dirty water supply and unsanitary conditions could cause a bout with the disease, by being the breeding ground for bacterial growth and the vector necessary for transmission of the illness. With knowledge like this, health professionals learned a great deal about preventing infectious disease outbreaks. They now understood why unwashed hands, uncooked vegetables, and contaminated water supplies were frequently responsible for the transmission of infectious diseases.[36] These discoveries not only showed that unsanitary conditions promoted bacterial growth, but that these germs could attack anywhere and anyone.[37]

Prevention efforts could have continued to emphasize a clean and sanitary environment. However, with the discoveries of bacteriology, a field grounded in laboratory research, this new disease paradigm, though criticized at the time, created a testable and provable method for medical research and care and also provided the means to diagnose disease. In response,

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[33] J.N. Hays. The Burdens of Disease: Epidemics and Human Response in Western History. New Jersey: Rutgers University Press, 1998, 232.
[34] Rosenberg. The Cholera Years, 3.
[35] Ibid, 3.
[36] Ibid, 3-4.
[37] The recognition that unseen germs posed a deadly threat had an enormous impact on the public's views of disease prevention. Studies showed that lethal bacteria were prevalent not only in unsanitary environments, but also in foods, household objects, toys, clothes, etc. This sparked a radical paranoia amongst individuals to have good personal hygiene and to avoid bodily contact with sick people, other's coughing, sneezing, etc. All in all the germ theory provided greatest in the field of disease prevention, as bacteriologists not only gained understandings of the etiology of diseases, but also were able to track disease spread and influence the behaviors of people (See Nancy Tomes. The Gospel of Germs. Cambridge, Massachusetts: Harvard University Press, 1998. See chapter 4.)

scientists, public health workers, and doctors began to explain and combat diseases using their newly acquired scientific knowledge.[38] It was during the years following the bacteriological discoveries of Louis Pasteur and Robert Koch, that the laboratory became the symbol of the "new, scientific public health."[39] As a result, public health went through an enormous transformation. Developments in bacteriology made sense of the environmental problems, but in doing so, moved the focus away from the filth and unsanitary conditions that transmitted bacteria to their human hosts. Instead of focusing on community problems at large, medicine and public health professionals turned their attention to the individual.[40] Diagnosis of individual episodes of disease became the primary goal of public health. In addition, the continued development of epidemiological research became paramount.[41] This evolution was practical, as science seemed to make sense of the centuries of confusion concerning disease etiology. By locating, identifying, and isolating bacteria in humans, the new public health seemed to be more efficient than prior environmental clean-up methods, which took a lot of time and resources. According to epidemiologist Hibbert Winslow Hill, who, in 1910, was interested in new methods for controlling tuberculosis, it was no longer necessary to use sanitary measures to improve living conditions for all Americans, if the 200,000 active cases of TB could be identified and supervised through the principles provided by the public health laboratory.[42] As a result, the new public health, which continues to influence our views of disease today, turned its back on the

[38] See Tomes, The Gospel of Germs, Chapter 4.
[39] Fee's article in Porter's The History of Public Health and the Modern State, 236.
[40] Between 1880-1920, Americans became increasingly affected by more aggressive public health campaigns, spurred on by the lessons learned in the laboratory. (See Tomes, The Gospel of Germs, 7.)
[41] Fee's article in Porter's The History of Public Health and the Modern State, 237.
[42] Hibbert Winslow Hill, The New Public Health, cited in Fee's article in Porter's The History of Public Health and the Modern State, 237.

communal and larger socio-environmental problems that brought on disease.[43] Disease detection and the search for cures became prioritized over prevention.

We learn from analyzing this history that during the early twentieth century, there was a considerable "narrowing" of the scope of public health. The new methods of bacteriology, in combination with developments in medical science helped shape the acute framework of medicine. What this framework set in place was a system, through its foundation in modern medical science, deals extremely well with short-term problems using technologically based diagnostic procedures and treatment methods. However, this system has proven to be deficient in its ability to deal with long-term illnesses, that are neither fully understood, nor capable of being cured by simple and quick procedures. It is important to remember that no scholar gives credit to scientific medicine solely or even largely, for the conquering of infectious diseases. Instead, scholarship on the issue tends to focus on the earlier sanitary methods of public health for the initial eradication of communicable diseases.[44] Medical advances that came with bacteriology clarified the modes of transmission and provided diagnostic tools. Only after WWII did medical science provide effective therapies, antibiotics, and vaccines to eradicate infectious diseases. The medical advances of bacteriology came at a time when communicable diseases were already on the decline.[45] As we will see in the next chapter, the establishment of the acute model, which

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[43] Fee's article in Porter's The History of Public Health and the Modern State, 239.

[44] It is important to realize that while the techniques and methods of acute medicine do work, they only work for those who have adequate access to care. Much of the Third World and poverty stricken areas in the US, lack access to the various technologies provided by acute medicine. In the developed world today, those without antibiotics do suffer. However, infectious diseases no longer are the major killers in the industrialized world. They have been surpassed by chronic diseases. For this reason, it is crucial to realize the importance of nineteenth century public health measures for the decline in infectious disease mortality and that public health in the developing world should take this history into account..

[45] In John B. and Sonja M. McKinlay. "The Questionable Contribution of Medical Measures to the Decline of Mortality in the United States in the Twentieth Century," (Millbank Memorial Fund Quarterly, Vol. 55, 1977, 405-28), it is stated, "medical measures...appear to have contributed little to the overall decline in mortality in the United States since about 1900...it is estimated that at most 3.5 percent of the total decline in mortality since 1900 could be ascribed to medical measures introduced for the [infectious] diseases considered here." Also, see the McKinlays cited in Grob, The Deadly Truth, 201.

began with the developments of modern medical science, had particularly serious consequences, as the nature of the dominant diseases affecting our population changed. Chronic diseases overtook infectious diseases as the major causes of illness and death in the United States during the first few decades of the 20th century. We shall see that health professionals recognized how different these problems were from the problems of the past; however, they inappropriately dealt with them using the methods of acute medicine, techniques that history shows were not actually responsible for the decline in infectious disease mortality in the early twentieth century.

## *Chapter II: The Epidemiological Transition and Proliferation of Attention to Chronic Diseases*

Drastic epidemiological changes occurred in disease patterns during the first few decades of the twentieth century, resulting in a new set of health problems, the chronic diseases increasing in prevalence. The chronic illnesses differ tremendously from the infectious diseases of the past as they are long-term and cause degenerative health problems. Daniel Fox describes chronic diseases as "a descriptor for illnesses of slow onset and long course, for which a singular and specific cause had not yet been discovered."[46] During the past century, there has been a drastic increase in the burden of this set of health problems on our society. Statistical analysis of the 1880 census shows a disease picture in which eight of the ten leading causes of death were still due to infectious diseases.[47] By 1900, death rates due to these diseases were falling in all age groups. In 1914, the New York Academy of Medicine reported that more people were dying from chronic disease than from acute and communicable diseases. Following this report, the United States Census of 1920 showed that most recorded deaths had been the result of chronic degenerative diseases (cancer, diabetes, kidney disease, and lung disease).[48] With the success against infectious diseases, medical professionals began to pay increasingly more attention to the chronic diseases beginning in the 1930s.

Several early twentieth century health professionals attributed the increase in chronic diseases to the fact that people were living longer and therefore had a greater chance to suffer from a chronic illness; however, their explanation underestimated and ignored the complexity of chronic diseases. There were some who recognized that such an explanation was not sufficient. As early as 1933, in fact, Dr. Ernst Boas stated, "Problems resulting from chronic illness not only

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[46] Fox, Power and Illness, 23.
[47] Grob, The Deadly Truth 219.
[48] Fox, Power and Illness, 19-20

arise in all periods of life, but the conditions that eventually cause it may occur at any age."[49] This statement shows Boas' appreciation for the fact that people could predispose their bodies to getting chronic diseases through experiences and behaviors at any point in life. To further illustrate this point, only 20% of chronic disease deaths in New York City during 1933 were of people older than 70 years old. Adults from the ages of 16-40 seemed to have suffered the most from chronic illness.[50]

While some health professionals did recognize the changes in disease prevalence, in a 1933 report entitled "Chronic Illness in New York City," Mary Jarrett stated. "Nobody knew whether the care that these patients were receiving was appropriate to their condition or not. Only a few hospitals or institutions even classified or kept count of their chronic patients..."[51] As a result of the general lack of knowledge, attention to chronic diseases grew during the period when infectious diseases were on the decline. World War I screenings for potential draftees showed that 26% of those screened had chronic defects.[52] This led to a proliferation of studies on chronic diseases in the post-WWI era. In fact, for several renowned men involved in the field of health, including Alfred Cohn, Ernst Boas, and George Bigelow, chronic diseases became the major focus of their concern. These men, alongside others involved with health policy, formed a coalition advocating higher priority for chronic illnesses.[53] Cohn, a clinical scientist at the Rockefeller Institute for medical research, argued that the causes of chronic illnesses needed to be better understood. He believed that a better understanding could only come through studying the lifelong biological processes of the human body and how they worked when the body was

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[49]Dr. Ernst Boas. Foreword in Mary Jarrett's Chronic Illness in New York City. NYC: Columbia University Press, 1933, xi-xv.
[50] Grob, The Deadly Truth, 228-229.
[51]William Hodson and Neva Deardorff in Jarrett. Chronic Illness in New York City, preface vii.
[52] Grob, The Deadly Truth, 225-226.
[53] Fox, Power and Illness, 42-47.

diseased.[54] Boas, the chief physician at Montefiore Hospital in NY and a faculty member at the College of Physicians and Surgeons of Columbia University, focused his efforts on the implications that chronic diseases had for medical practice. He argued that the medical care required for these diseases is "much more complex than [for] the acute infectious disease."[55] Most importantly, though, and a theme that will be addressed in the subsequent chapter, Boas argued that the "practicing physician will become the chief agent of preventive medicine in the field of chronic diseases."[56] Finally, George Bigelow, along with Herbert Lombard, executed one of the most demonstrative studies of chronic disease, as they organized the first public health program for the diagnosis, treatment, and research on cancer. In 1933, they showed the severity of the chronic disease problem, using results from their cancer program. Bigelow and Lombard provided an alarming view into the increased prevalence of chronic diseases in Massachusetts, as the survey they conducted illustrated that 66% of deaths in that year were due to chronic illness. What is striking is that a half-century earlier, only 33% of recorded deaths were attributed to degenerative diseases.[57] Bigelow and Lombard stated, "The problem of chronic disease will not be downed. Health officers, legislators, and physicians may prefer to turn their backs on it, vaguely hoping that it will solve itself...Increasingly great numbers of people are ill, crippled and dying from chronic disease, and so the problem thus created will not be downed."[58] The potential severity of chronic illnesses was well-understood beginning in the 1930s. Yet, at the time, little was done in response to the calls for alarm.

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[54] Ibid, 43-44.
[55] Dr. Ernst Boas. Treatment of the Patient Past Fifty. Chicago: Yearbook Publishers, 1941, 5, in Fox, Power and Illness, 45.

[56] Dr. Boas. Treatment of the Patient Past Fifty, in Fox, Power and Illness, 45.
[57] Jarrett, Chronic Illness in New York City, 227-28.
[58] Dr. George Bigelow and Dr. Herbert Lombard. Cancer and Other Chronic Diseases in Massachusetts. Boston: Houghton Mifflin Company, 1933, 1.

More alarming evidence about the prevalence of chronic illness was provided during the mid to late1930s, in the context of the Great Depression. The National Health Survey performed by the Public Health Service during the winter of 1935-36, offered perhaps the most relevant study of the problem.[59] This survey consisted of a "house to house canvass of some 800,000 families including 2,800,000 persons in 83 cites and 23 rural areas in 19 states."[60] The goal of the survey was two-fold. Surveyors hoped to paint a clearer disease picture by illustrating the tremendous prevalence of chronic diseases in society. Secondly, they hoped to influence health policy. What the researchers found was mind-boggling. The Public Health Service reported that one in six people had some sort of chronic disabling health problem. In addition, health workers began to categorize chronic diseases according to prevalence, disability, and mortality. Thirdly, the survey substantiated the point that chronic diseases were more than an issue of old age, which supported Boas' earlier claim. The survey illustrated that over 70% of chronic disease cases were of those under age 55. Lastly, the problem of chronic disease was most prevalent in the lowest income brackets. These findings led the Public Health Service to make policy recommendations. US Public Health Service official George St. J. Perrott reported that the "...total volume of chronic disease is growing...[If] the greatest need for action in the field of public health is where the greatest saving of life and prevention of suffering can be made—then, without doubt, the chronic diseases deserve the attention they are getting."[61]

Although health professionals recognized the changing disease trends and argued that more attention should be paid to the chronic diseases, data from surveys and general attention to

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[59] The National Health Surveys were designed as part of the federal government's desire to take an active role in relief policies. Grob, The Deadly Truth, 230.

[60] "The National Health Surveys: 1935-1936: The Magnitude of the Chronic Disease Problem in the United States." preliminary reports, Sickness and Medical Care Series. Bulletin No. 6. Washington D.C.: Division of Public Health Methods. National Institutes of Health, U.S. Public Health Service, 1938, 1-19. in Fox, Power and Illness, 34.

[61] Fox, Power and Illness, 35. Perrott's conception of public health consisted of the notions presented in the introduction. Quotations cited in Daniel M. Fox, "Financing Health Services for the Chronically Ill and Disabled: A History of Political Accommodation," *Milbank Quarterly* 67, supp. 2, part 2 (1989): 257-89.

the problem, were not enough to propel action to combat them as significant health problems. This was because the chronic diseases were accommodated into the acute framework. Perrott and his colleagues made broad policy recommendations that were not heeded. They believed that major chronic diseases, such as cancer, diabetes, stroke, and heart disease "could be prevented, postponed, or treated at early enough stages to enable people who had them, or early signs of them, to live longer and more productive lives."[62] The current situation in 2005 proves that the optimistic words of health professionals during the 1930s were ill-advised.

In addition to accumulating statistics on chronic diseases, public health professionals more generally recognized the changing disease trends and their duty to prevent disease outbreaks and to save lives. In recognizing that the health needs of society had changed, Dr. Thomas Parran, President of the American Public Health Association, in his 1936 presidential address, argued that just as the nature of the health burdens on society were changing, health professionals needed to adapt to the changing times. He believed that public health should be concerned with all factors concerning healthy living, including the prevention, treatment, and cure of disease, through the methods provided by medical science. Dr. Parran stated, "...health departments should be particularly interested in the control of any disease which is a burden to the community...because of its wide prevalence or the excessive cost of treatment to the individual."[63] In discussing the issue of chronic disease and the need to adapt to the changing epidemiological disease trends he continued. "Mass attack upon these and similar diseases is relatively new, however, in a majority of states. We have been looking at them through a microscope for so long that it is difficult to refocus for a telescopic view. Yet both views are necessary if we are to see them in their entirety, and both the individual and mass attacks are

[62] Fox, Power and Illness, 35-36.
[63] Dr. Thomas Parran. "Reporting Progress." American Journal of Public Health. Vol. 26. Nov. 1936, 1072.

necessary, if we are to gain ground against our modern plagues."[64] Parran's statements exhibited the importance for public health to deal with *all* threats to community health, including the chronic diseases, which had become the major killers by 1936. He also shows appreciation for the fact that the scientific study of and gaining of knowledge about disease (i.e. the microscopic view) and a wider approach focusing on disease prevention (i.e. the telescopic view) were both important for the control of chronic diseases, as he realized that these were the modern health plagues. Parran understood quite well that public health had changed from a sanitary approach to community health to an approach based on scientific knowledge that emphasized "all factors which make for healthful living-the prevention, alleviation, and cure of disease by all methods known to science."[65] He encouraged health professionals to direct their attention to "where the greatest saving of life can be made."[66]

A year later, public health engineer. Abel Wolman, continued to emphasize this theme. In discussing the changing character of disease he stated that the new leading causes of death "...present a public health problem radically different from those which the public health profession attacked in the past...They do not lend themselves to the simple mass community attack..."[67] While the problems of the past responded well to mass attacks and sanitary measures, the chronic diseases, Wolman believed, required methods which were entirely different because these health problems reflected diseases of adult life, which were impacted by biological factors, the environment, and experience. He believed the chronic diseases required "new technics, a wider base, more money, and more intensive activity on all fronts."[68] Wolman

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[64] Ibid, 1073.
[65] Ibid, 1072.
[66] Ibid, 1076.
[67] Dr. Abel Wolman. "Changing Public Health Practice" American Journal of Public Health. Vol.27, Oct.1937, 1031.
[68] Ibid. 1034.

also saw a great need in terms of facilities for hospitalization and medical care of all types, as well as preventive measures to educate citizens so they could understand how to maintain their optimal health.[69]

Public health officials were not the only set of professionals in the 1930s to be concerned about chronic diseases. Many prominent physicians also showed increasing alarm during this period. In fact, physicians in private practice embraced the services of other public health professionals as being necessary for the prevention of disease. Chicago physician, Dr. Morris Fishbein stated, "It would be apparent to anyone that the individual physician cannot in every community undertake to make available for disease prevention and its control all the services that have been mentioned."[70] However, physicians did show some resistance to a complete alliance with public health. Following the bacteriological revolution and the association of public health with modern laboratory science, private physicians became somewhat cautious of forming a collaborative alliance with other public health officials(laboratory scientists, engineers, educators, etc.). They resisted a tight association because physicians believed they, not laboratory specialists, held the power in the diagnosis of disease.[71] In addition, they refused to accept such a union because they feared that a community approach to disease, while still much narrower than in the late 1800s, would encourage the "mass handling of man."[72] Physicians such as Fishbein associated such a system with the application of state medicine, something private practitioners opposed tremendously, because they did not want the state to regulate medical practice.[73]

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[69] Ibid, 1035.
[70] Dr. Morris Fishbein, "The Physician and Public Health Officialdom," American Journal of Public Health, Vol.23, Dec. 1933, 1225.
[71] Fee's article in Porter's The History of Public Health and the Modern State, 244.
[72] Dr. Fishbein, "The Physician and Public Health Officialdom," 1225.
[73] Fee's article in Porter's The History of Public Health and the Modern State, 244.

Despite the tenuous relationship of private practitioners and their public health counterparts, the two groups of health professionals joined in an effort to deal with chronic diseases. Yet, even these advocates, from a wide range of fields, could not change health policy objectives. To some extent, this can be blamed on the nature of the new health problems. Chronic diseases presented doctors with issues that they had had little experience with in the past. Physicians were also misinformed about the nature of chronic disease as they attributed it largely to aging processes. In addition, chronic diseases could not be ascribed to one specific etiological cause and were therefore difficult to control. Finally, these long-duration illnesses were seen as incurable.[74] Bigelow and Lombard reported, "For the population as a whole we know nothing of the medical babel as to whether or not we know for each of the diseases anything that can be used effectively for prevention, early diagnosis, cure or even alleviation."[75] Chronic diseases presented an enigma to physicians.

One of the diseases that saw an increase in attention paid to it during the 1930s was diabetes. The 1922 discovery of insulin changed the nature of diabetes as it transformed from a fatal short-term problem, into a chronic disease. Scholars have termed this process the "transmutation of disease."[76] With recognition of the changes in morbidity and mortality due to chronic diseases, health professionals expressed some concern about diabetes. In 1933, Dr. Charles Bolduan suggested that diabetes be viewed as a public health problem because he believed that if cases were found, the disease could be sufficiently attacked and treated with

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[74] Ibid, 244 and 249-50.

[75] Dr. Bigelow and Dr. Lombard. Cancer and Other Chronic Diseases in Massachusetts, 3. By "medical babel," Bigelow and Lombard were referring to the lack of substantial medical knowledge about chronic diseases and their causes that would allow health professionals to go about controlling them.

[76] Dr. Feudtner. Bittersweet, 21. What he means by this is that the diabetes seen by medical professionals today differs tremendously from the diabetes seen in the pre-insulin era. Insulin, in effect, provoked this transmutation. For the complete story on the discovery of insulin and the long-term effects it had, see Michael Bliss. The Discovery of Insulin. Chicago: The University of Chicago Press, 1982.

insulin. Bolduan was largely concerned with prolonging the lives of diabetics. He believed that the disease was far more prevalent than any statistics indicated. Bolduan characterized diabetes as being more common in females, more common in people over 45, and as having a high prevalence in Jews.[77] Another physician who led the campaign to deal with diabetes as a public health problem was Dr. Elliott Joslin. In 1937, he estimated that the total number of diagnosed diabetics to be approximately 500,000 and that an equal number of undiagnosed cases existed as well. Following his report, the Public Health Service's National Health Survey showed the situation to be even more serious. In its report, the PHS estimated the diabetes prevalence to be approximately 660,000. In addition, it showed that deaths due to diabetes had more than doubled from 1900 to 1938.[78] Finally, in 1941 Dr. Henry Clay Long of the Tennessee State Medical Association expressed significant concern about the fact that more people were dying from diabetes than at any time previously. He believed that the control of diabetes through public health measures should include an extensive public education program concerning preventive measures. Long believed that people born with a predisposition for diabetes could delay or prevent being struck by the disease by avoiding risk factors of being overweight and sedentary.[79] In suggesting that patients and physicians be educated with the most up to date knowledge on diabetes, Long introduced the importance of diabetes management, including the testing of blood sugar, exercise, and good dietary habits, in an effort to prevent diabetic complications. Long and his colleagues emphasized this factor because as people lived longer and benefited from the therapeutic effectiveness of insulin, diabetes became associated with a wide range of long-term

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[77] Dr. Charles Bolduan. "Diabetes- An Important Public Health Problem." American Journal of Public Health Vol. 28, Jan. 1938. 21-27.

[78] Dr. Henry Long. "Diabetes Mellitus: Low Index of Suspicion, Methods of Control." Journal of the Tennessee Medical Association. Vol.34, Sept. 1941, 358.

[79] Dr. Long, "Diabetes Mellitus...," 359. By this time it was widely accepted that genetics and obesity were linked to diabetes.

complications including blindness, kidney failure, heart disease, stroke, and neurological problems.

What is learned from this brief history before WWII is that public health officials showed concern about the increased prevalence of the disease and believed that a public health approach could help to delay or prevent these complications. They felt that morbidity and mortality could be greatly reduced by diet, exercise, and the control of blood glucose levels. What is also learned is that little was actually accomplished in response to the increased attention for two reasons. As stated earlier, health professionals lacked sufficient understandings of these diseases to deal with them. But even had this understanding been there, the resources were not. The growing awareness of the problems posed by the chronic diseases occurred during two periods of great societal flux- the Great Depression and World War II. Although the creation of New Deal programs during the Depression, included increased governmental funding of public health services, the demands of handling short-term issues such as infectious diseases, poverty, and hunger, overshadowed concerns about chronic illnesses.

The wartime demands of the Second World War placed an even greater burden on the public's health for two reasons. The first was concern about the health of the armed forces; the second was that those living on the home front had a serious job to do in providing needed supplies for the war effort. Assistant Surgeon General Joseph W. Mountin urgently stated, "If a machine is idle because the worker who should tend it is sick, that machine is doing a job for Hitler."[80] It was crucial for the home front population to be healthy, because average citizens served important duties during the war. Wartime industrial production was crucial to the war

[80] Dr. Joseph W. Mountin. "Evaluation of Health Services in a National Emergency." American Journal of Public Health, Vol. 32, 1942, 1128. Cited by Fee in Porter's The History of Public Health and the Modern State, 248.

effort and required the general population to be healthy. Public health, therefore, had a duty to protect the health of both the armed forces and those on the home front.

While the war demanded that the public be in good health, it also served to illuminate the poor overall health status of Americans. In the largest health survey ever performed, the Selective Service Board screened 16 million men and found that forty percent were unfit for duty. The causes of their health problems were largely degenerative and chronic impairments.[81] However, as stated earlier, the chronic diseases were not dealt with because of the catastrophic problems caused by the war and problems due to the existing infrastructure. Some of the immediate health problems were an insufficient water supply, poor sewage systems, and army training camps being located in swampy areas that often bred mosquitoes and led to problems with malaria. These issues brought infectious diseases back to the surface and clouded the vision of health professionals.

Adding to the reemergence of concern about infectious diseases and other short-term health issues, research efforts in the field of antibiosis took off tremendously. During the war, the American pharmaceutical industry became aligned with the War Production Board. The Board, seeing recent developments in research on penicillin, hoped to boost productivity in hopes of providing the armed forces with an adequate supply of the drug prior to the planned invasion of Europe in 1944.[82] During the war, United States researchers, supported by governmental funding, helped to launch a tremendous supply increase, as they knew that penicillin had proved effective against a number of pathological conditions including a wide variety of infections.[83] It

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[81] Fee's article in Porter's The History of Public Health and the Modern State, 248-249.
[82] Research in the field of antibiosis began with the discovery of penicillin in 1928. In 1935, William Dunn at Oxford, performed the first therapeutic research on the drug.
[83] During the early years of research, the biggest limiting factor was supply. This issue was of paramount importance during WWII.

was particularly important to the armed forces because it could be used in the treatment of surgical and wound infections.[84]

The war propelled vital health research that continued to focus on eradicating the acute problems of the past. The early 1940s did see advances made in the field of therapeutics. Penicillin, in particular, boosted the hopes that other antibiotics could be found and that diseases could finally be cured. These hopes further cemented the acute framework as the disease model for American medicine. In fact, the discovery of such treatments set medical science's agenda for the rest of the century. Americans became enamored with the prospects of eradicating diseases. As a result, the focus of the research was not on chronic illness. In performing such research, medical professionals continued to focus on infectious disease, despite the fact that the mortality for such diseases was at an all-time low. All in all, the war prevented public health professionals from adequately focusing their efforts on the health status of Americans.

Following the war, health professionals finally had the opportunity to come to terms with the epidemiological transition that had occurred and could finally begin to deal with the increased burden of chronic diseases on the American population. The next chapter provides the story of diabetes during the post-war era to show that indeed a great deal more attention was paid to chronic diseases, as public health officials realized following the war that it was time to focus on the newer health problems.[85] Warnings about chronic diseases became more prevalent and serious following WWII, yet still the medical community responded unsuccessfully. The case of diabetes illustrates this claim and shows that because diabetes was gradually accommodated into

[84] John Parascondola. "The Introduction of Antibiotics into Therapeutics," in Judith Walzer Leavitt and Ronald L. Numbers. Sickness and Health in America: Readings in the History of Medicine and Public Health. Madison, Wisconsin: The University of Wisconsin Press, 1997. pg. 106-107.
[85] Fee's article in Porter's The History of Public Health and the Modern State. 248-250.

the acute framework, health professionals failed to thwart what many considered to be an impending epidemic.

## *Chapter III: The Accommodation of Diabetes into the Acute Framework, 1945-1960*

> *Scott has said that if and when all the means of prevention and treatment now known are applied, diabetics will no longer die of diabetes. While medical science has not unraveled all the things we need to know, we do know the facts about the disease that make it amenable to control. We have the instruments with which to work, and a vast amount of knowledge awaits a widespread application.*[86]
>
> *-Dr. Hugh Wilkerson, 1947*

We can only think what might have been had the optimistic message of Scott and Wilkerson been fully heard. For their message to be heard and for the morbidity and mortality rates of diabetes to have decreased, however, doctors and health workers would have had to think outside of the box and expand their vision in their conceptualization of diabetes as a public health problem. It is fascinating to wonder about what a more comprehensive medical approach might have entailed for diabetes. It still would have been critical for physicians to deal with the acute issues of diabetes, specifically diagnosis and treatment of patients stricken with the disease; but it might have also entailed greater community-wide efforts that emphasized general disease prevention. After all, it was after the war that the behaviors, infrastructure issues, and lifestyle choices that we commonly associate with chronic diseases today — especially poor diet and sedentary lifestyle — became more prevalent in American culture, with the mass production of cars, the growth of television, urban sprawl and the subsequent growth of the inner cities, and the development of processed foods and the fast food industry. A wider approach to chronic diseases might have provided health professionals with the foresight necessary to understand the potential damage that such societal changes might have in the future.

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[86] Dr. Hugh Wilkerson. "Problems of an Aging Population: Public Health Aspects of Diabetes." American Journal of Public Health. Vol. 37, Feb. 1947, 185.

Interestingly, some health professionals did understand that a wider approach was needed in dealing with the chronic diseases. Such an approach, they believed, dealt with understanding potential risk factors, as well as emphasizing how societal factors such as the developing poor infrastructure, could exacerbate already increasing chronic disease trends. Dr. Vlado Getting recognized that chronic diseases were insufficiently dealt with and that plans were needed for better hospital facilities, outpatient clinics, screening clinics, and better rehabilitation and educational programs.[87] In addition, he argued that greater attention needed to be paid to the emotional and economic issues posed by chronic illnesses. Fearing that rates for diabetes in 1980 would double what they were in 1940, Getting suggested that,

> "The most important method of preventing chronic illness is the promotion of optimal health. All public health programs need to be strengthened through the further development of such programs as nutrition, mental health, and housing; through the provision of more adequate preschool and school health programs...and finally more comprehensive education programs to motivate people to seek assistance early."[88]

While Getting also saw the importance of screening clinics, his approach was wider and more comprehensive than just the acute methods of detection and treatment, as he emphasized that health professionals also pay attention to environmental factors and potentially damaging behaviors. His approach can therefore be viewed as an early hybrid alternative that included aspects of both the acute model for handling disease and a non-acute line of attack. Such an approach took into account the acute issues of individual patients, as well as the larger issues of community health.

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[87] Dr. Vlado Getting. "A Coordinated State Program for Chronic Illness." American Journal of Public Health. Vol. 40, Oct. 1950, 1251.
[88] Ibid. 1252-1253.

Some doctors also showed recognition of the risk factors that put people in danger of developing diabetes. In 1947, Dr. Wilkerson argued that heredity and obesity were the chief predisposing factors. However, he realized that even people with a genetic predisposition could avoid developing the disease because "they avoid precipitating causes, such as obesity."[89] Such information could have been highlighted more as it may have broadened the public's knowledge base of the disease, which is one of many steps needed for disease prevention. Unfortunately, because health professionals did not have the foresight to see that growing gaps between the rich and poor, as well as an increase in people performing risky behaviors and living unhealthy lifestyles, we have seen a tremendous growth in prevalence of the disease in our population. While Wilkerson showed concern about future disease prevention, for the most part, physicians preferred to only use the methods of acute medicine and dealt with diseases in a curative manner.

History shows us that instead of widening their approach, as some doctors were suggesting, health professionals dealt with diabetes and other chronic diseases within the narrowing confines of acute medicine. Why did this happen? Elizabeth Fee argues that those involved in medicine realized that long-term diseases such as heart disease, cancer, and diabetes "could neither be prevented nor cured on the older public health and medical models; at best they could be controlled through screening, education, and medical supervision."[90] Realizing that the potential for cure was slim, health professionals, however, turned to the methods they thought would at least help control the chronic diseases - the acute framework's methods of disease screening and treatment.[91] These techniques are in themselves important for dealing with

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[89] Dr. Wilkerson. "Problems of an Aging Population...," 183-184.
[90] Fee's article in Porter's The History of Public Health and the Modern State, 250.
[91] This approach was based on the model established in the second decade of the twentieth century to deal with cancer. Some doctors believed that early diagnosis followed by surgery were crucial for beating cancer. Dr. Samuel Hopkins Adams argued in 1913, "No cancer is hopeless when discovered early. Most cancer, discovered early, is curable. The only cure is the knife." While not widely accepted at the time, by mid century, early detection and surgery(i.e. treatment) would become the dominant methods for dealing with chronic diseases. See James Patterson.

diseases: but standing as the lone methods for disease combat, they were not enough to bring health problems gradually raging in prevalence, under control. Dr. C.E.A. Winslow of the Yale Medical University recognized the changing health needs of the population when he stated in 1945, "Today 27 percent of all deaths are due to diseases of the heart, 16 percent to other conditions associated with the cardiovascular-renal complex...This is the challenge of today. How shall we meet it?...only with a bold approach to meet the new demands of the time shall we earn the sense of real achievement..."[92] In Winslow's statements, it is evident that he recognized the differential character of the chronic diseases from the problems of the past.[93] Yet, the optimism that physicians and health workers expressed, did not lead to a successful intervention against the chronic diseases. This chapter examines the period from 1945-1960 and argues that such optimism did not lead to success in the attempts to deal with diabetes. Instead of dealing with chronic diseases as true community health problems, health professionals only turned to detection and treatment, methods that dealt successfully with already existing individual cases, but did little in terms of future disease prevention.

Earlier in this thesis, we saw that until 1945, health professionals did not have the resources to pay the necessary attention to chronic diseases. They could not respond to the calls for alarm. During the post WWII period, however, medical professionals finally had the opportunity to deal with the everyday problems posed by diabetes and grappled with the difficult issues of disease management and control. They recognized that the prevalence of the disease was increasing at a rapid rate, yet little was being done to change the trend. It was increasing for two reasons- more cases were being diagnosed and more people were living with the disease

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The Dread Disease: Cancer and Modern American Culture. Cambridge, MA: Harvard University Press, 1981. See pages 66-69 for a more in depth history of how the model of detection and treatment came to dominate.

[92] Dr. C.E.A. Winslow. "Changing Challenges of Public Health." American Journal of Public Health. Vol. 35, March 1945, 194-198.

[93] Ibid,194-95.

because of the long-term benefits of insulin. In line with these developments, health professionals made increasingly serious claims about diabetes, referring to it as a "neglected disease."[94] Health workers observed that diseases with lower morbidity and mortality rates received greater public attention and funding than did diabetes.[95] While physicians hoped to use the methods they knew to battle diabetes, particularly the established techniques of acute medicine, they were in no position to do so because, according to Dr. Hugh Wilkerson, of the U.S. Public Health Service, hospitals were ill equipped to deal with the long-term nature of this illness. In addition, physicians and patients both required a great deal of education concerning diabetes and its management.[96]

Estimates of the prevalence of diabetes continually increased in the post-war era and were as high as one million by the last few years of the 1940s. In addition and more concerning was that health professionals believed there to be an equal or greater number of undetected cases. Dr. Wilkerson stated, "Diabetes is a major public health problem which is increasing in importance...diabetes appears as a relatively neglected disease...diabetes is amenable to definite methods of control by using the presently accepted knowledge of its cause, diagnosis, treatment, and complications..."[97] Unlike many of the other chronic diseases, health professionals thought that at the very least, diabetics could benefit from the established methods of control. Physicians did have some knowledge of the disease's cause and did have in their repertoire good methods for diagnosis and treatment. In fact, health professionals had so much control over actual cases of diabetes that as Dr. Cecil Striker stated, "...somewhere between fifty and sixty percent of all

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[94] Editorial. "Diabetes- A Neglected Disease – And What Should Be Done About It." New England Journal of Medicine, Vol. 232, Feb. 1945, 237.
[95] Some of those diseases were infectious diseases, which had largely been eradicated as major causes of death.
[96] Dr. Wilkerson. "Problems of an Aging Population...," 177-188. Prior to the proliferation of detection units in the late 1940s, health professionals believed that upon diagnosis, diabetics needed to be hospitalized for a good deal of time, to receive instruction into the management of the disease. In addition, the hospital was commonly the place where diabetes complications were handled.
[97] Ibid, 177.

diabetics can be controlled without insulin."[98] These cases could be managed by some prescribed form of dietary control. According to Dr. Striker, the majority of those dependent on insulin only required one dose per day. This was quite an improvement in the few decades following the discovery of insulin.

Yet, the evidence provided by a 1946 case finding survey sponsored by the American Diabetes Association, in Oxford, Massachusetts, added to the fear health professionals showed about the need for attention to be paid to the disease.[99] This survey provided alarming insight into the prevalence of undetected diabetes. Dr. Elliott Joslin, pioneer physician in diabetes medicine, led the constituency concerned about the prevalence of undetected cases of diabetes and the complications associated with undiagnosed diabetes. This study, the first of its kind, sought to obtain epidemiological data, while also being a pilot study for discovering cases of undetected diabetes. In addition, the Oxford Survey provided the impetus for all future detection campaigns. Dr. Frank Allan of the ADA's Committee on Education reported, "For every four cases of known diabetes, there may be found 3 cases previously undiagnosed."[100] The concerns about undetected cases spurred on a movement to find individuals who had diabetes, but did not know it.

The methods used to accomplish this goal further spell out and back up claims made earlier in this chapter- that a comprehensive program for community disease prevention was not considered important compared to dealing with actual cases of disease. The approach taken to handle diabetes in the post WWII era was narrow from the start and as we shall see later, would

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[98]Dr. Cecil Striker. "Diabetes Mellitus: An Orientation." Illinois Medical Journal. Vol. 102, Oct. 1952, 237-38. What is clear from Dr. Striker's words is an early differentiation between the two types of diabetes- insulin dependent and non-insulin dependent.

[99] The ADA was established in 1940 to advocate and provide funds for scientific research into the prevention and cure of diabetes, to improve the lives of diabetics, and to provide the public with information concerning the disease.

[100]Dr. Frank Allan. "Report of the Committee on Education." Proceedings of the American Diabetes Association. Vol.7, 1947, 120.

further narrow over time. Following the alarming evidence provided by the Oxford Survey, the only response of physicians was the initiation of diabetes detection units, in order to discover unknown diabetics and get them under a treatment regiment. Such an approach was in line with the fundamental ideals of the acute model. While dealing only with individual cases of diabetes, it did provide significant ways to address the disease. Undiagnosed cases were patients in the most immediate danger because cases of untreated diabetes historically were fatal. Dr. Joslin saw how dire the situation was, knowing well that unknown cases characteristically were early and mild and had a great potential for treatment and control as he stated, "We know that the aim of treatment is to control the disease. We know that we can abolish all the symptoms and signs of the disease...Therefore today may I leave with you one million patients. one million more diabetics, and I beg you to treat them vigorously, to treat them as to control the disease, because that is your opportunity and that is your duty."[101] Physicians and public health workers argued that if the methods of early detection and treatment were not used, they would be contributing to a premature death for their patients. While this approach was quite significant in the attack on diabetes as a public health problem, hindsight provides us the luxury of knowing that it was the lone approach taken and that this line of attack ultimately failed. It also allows us to suggest that a more comprehensive approach that addressed the issue of future disease prevention might have been more effective in thwarting the tremendous increase in the number of people with diabetes.

As a result of the perceived success of the Oxford Study and because of the words of proponents such as Joslin, detection units proliferated during the late 1940s and 1950s. Dr. Wilkerson stated, "Early detection improves the clinical prognosis and offers encouragement for the prevention of complications. Prompt and aggressive therapy by a competent physician

[101] Dr. Elliott Joslin. "The Unknown Diabetic." Postgraduate Medicine, Vol. 4. Oct. 1948, 304-06.

usually presages a successful treatment regimen and a happy life."[102] Following the study, the medical community believed that a focus on these two aspects of diabetes would promote better control of the disease in individuals and in the community at-large. In 1948, the local health departments in Jacksonville, Florida and Brookline, Massachusetts established the first detection units. In demonstrating the role and procedures of the Jacksonville Unit, Wilkerson described. "Personnel specially trained in diabetes mellitus were furnished as an intact unit by the Public Health Service...The Public Health Service personnel assigned to the Jacksonville demonstration unit includes 1 public health physician, 1 public health nurse, 1 nutritionist, 2 laboratory technicians, and a secretary."[103] The short-term goal of this program consisted of finding cases of diabetes in relatives of patients already diagnosed with the disease. In the long-term, the Unit hoped to work out a program for controlling the complications of diabetes and to provide the necessary tools for early diagnosis.

How did the Jacksonville program go about achieving its goals? Local hospitals and physicians were asked to compile a list of known diabetics. This list ended up totaling 675. With this list, public health nurses contacted blood relatives of those patients who lived in the Jacksonville area, to see if they could compile another list of known cases. 2,019 names were acquired in this manner. Finally, relatives who did not know if they had the disease were invited to attend clinics specially designed to find cases of diabetes. 670 people were tested.[104] The Jacksonville program was quite successful in what it aimed to do. It led to the detection of unknown cases, and, as a result, the programs in Jacksonville and Brookline spearheaded similar programs around the nation. In December 1948, the American Diabetes Association sponsored

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[102] Dr. Hugh Wilkerson. "Chronic Disease: Diabetes Control in a Local Health Department." American Journal of Public Health. Vol. 39, May 1949. 607-613.
[103] Ibid, 609.
[104] Dr. Malcolm Ford. "Program of the Diabetes Demonstration Unit in Jacksonville and Duval County." Journal of the Florida Medical Association. Vol. 35, Jan. 1949, 426-27.

the first annual National Diabetes Week. In its second year of existence, Diabetes Week was held in 37 states around the nation. In emphasizing the problem of unknown cases and the role of early detection in postponing or preventing complications, Dr. Howard Root, president of the American Diabetes Association, described the national detection drive as bringing information to the public, providing urine tests in detection centers, and playing a role in emphasizing new methods of self-testing.[105]

Following the successes of early detection drives, the methods used to detect unknown diabetics were refined and elaborated. Techniques for self-testing were established in response to the needs for efficient and practical methods for identifying the undiscovered cases.[106] Developments such as this provide an example of how diabetes was further accommodated into the acute framework. While diabetes is a chronic disease, the methods used and research done to combat it were very much in line with the principles of acute medicine.[107] In 1951, a study was performed in Gloucester, Massachusetts, to test whether or not methods for self-testing could be successfully used to identify unknown cases and bring them to treatment. The study was an "evaluation of a community's ability to perform a specific procedure, i.e., the self test for urine sugar."[108] Following a publicity campaign to announce the study, local drugstores were provided with self-testing kits. Included with the kits were instructions for what to do if a suspicious finding was obtained, specifically telling participants to report any such findings to their

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[105] Dr. Howard Root. "Diabetes Detection Today." Trained Nurse. Vol.123, Oct. 1949, 169.
[106] Dr. Vlado Getting, Dr. Howard Root, Dr. Hugh Wilkerson, Dr. Herbert Lombard, and Dr. Victoria Cass. "Evaluation of a Method of Self-Testing for Diabetes." Diabetes. Vol. 1, May/June 1952, 194.
[107] The acute framework tended to take a more therapeutic than preventive approach. In addition, it emphasized that individual cases of diseases be dealt with, rather than dealing with diseases on a community-wide basis. As one can see, the boundaries of these dichotomies do get messy, as it is sometimes difficult to label approaches as acute or as more comprehensive and non-acute.
[108] Ibid, 195. The self-test method relied on the urine test, although methods for identifying diabetes via blood test were in existence.

physician.[109] Approximately 3252 kits were obtained at drugstores. Twenty percent of the town's population between the ages of twenty and sixty-five reportedly picked up testing kits. Of those who got the kits, however, only 1730 of the total 3252 actually performed the tests and reported results. Following data collection, nearly six percent of the participants reported suspicious findings. What is notable, however, is that of this group only twenty-three percent visited their physicians.[110]

Health professionals were at least trying to do something in order to get the undiagnosed cases under control. Some of their methods can be criticized for wasting resources because their approaches were narrow and did not do enough in the realm of prevention. However, strides were made. Physicians spent a great deal of time and resources testing the reliability of their diagnostic methods, as they wondered if they were detecting as many cases as possible. In 1953, Dr. Hugo Engelhardt, Dr. James Greene, and Dr. V.C. Baird of the Baylor University School of Medicine argued that simple urine testing did not suffice for diagnostic purposes. They stated, "It is generally accepted that the presence of glycosuria alone does not warrant diagnosis of diabetes mellitus. On the other hand, persons with diabetes do not necessarily show glycosuria. That an individual with mild diabetes mellitus may be overlooked in a preliminary screening by testing the urine, is therefore, a good possibility."[111] This group of physicians feared that prior detection units may have failed to recognize a significant number of diabetic cases, simply because their methods were unreliable and did not lead to abnormal test results. They continued, "If our group of subjects is an indication of the number of cases of diabetes mellitus that will be overlooked in routine surveys, then the incidence of diabetes will be approximately 2 per cent greater than

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[109] Ibid, 195.
[110] Ibid, 196-197. See article for a more thorough description of the methods used and analysis of results.
[111] Dr. Hugo Engelhardt, Dr. James Greene, and Dr. V.C. Baird, "A New Technic for the Detection of Hidden Diabetes." Diabetes, Vol. 2, July/August 1953, 299.

those discovered by the usual methods of large surveys."[112] As a result of concerns similar to these, many physicians started using the more reliable blood tests in order to test blood sugar levels. Several detection programs picked up on this research and emphasized the use of more accurate and efficient methods, to detect for the presence of diabetes.[113]

Another positive development in the early years of detection units was that the disease was more commonly screened for, as health workers frequently tested for it in multiphasic screening programs. Such programs were designed to test for diabetes, along with other chronic diseases like syphilis, anemia, obesity, and lung pathologies, including TB. The Greater Atlanta Screening Survey, a program established to test nearly a quarter of a million individuals for a variety of diseases, was a unit that employed such methods. In terms of diabetes detection, approximately seven thousand or three percent of the population screened, showed abnormal test results.[114] These developments were all part of an emphasis among health professionals to obtain a better epidemiological understanding of disease. They believed that in order for chronic diseases to be better controlled, they had to grasp how seriously the various diseases affected populations.

While detection campaigns were successful in some ways, it is crucial to look at such programs with a critical view. What these programs illustrate is the extremely narrow vision of acute medicine. Health professionals preferred to use detection methods similar to those established following the bacteriological revolution. At the time, such narrow methods seemed to work because infectious diseases were easily detected, were mostly short-term in nature, and could be largely eradicated by reducing people's exposure to them. However, what is important

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[112] Ibid. 300.
[113] Dr. Christopher McLoughlin. "Diabetes Detection in Georgia." Journal of the Medical Association of Georgia. Vol. 40, July 1951, 285.
[114] Ibid. 285.

to remember is the different nature of chronic diseases from infectious diseases and that in actuality, the acute framework was not responsible for the decline in infectious diseases. In fact, even with the proliferation of antibiotics during the 1940s, the acute framework still could not fully eradicate infectious diseases, especially sexually transmitted or venereal diseases. The application of penicillin to venereal diseases such as syphilis and gonorrhea provides evidence for this claim. Initially, penicillin caused a tremendous decline in these two sexually transmitted diseases. Over the long term, however, the decline of venereal diseases proved short-lived. By the late 1950s, these diseases were growing in prevalence once again due largely to the failure of public health in providing sexual education, community-wide tracing of partners, and diagnostic work, as it had been so successful in doing prior to penicillin's discovery.[115] What this teaches us is that disease diagnosis and treatment, the trademarks of acute medicine, cannot alone keep a disease in check. This is the case especially with chronic illnesses and is evidenced by the increase in the prevalence of diabetes in the post-war era.[116]

While the acute approach to diabetes had both strengths and weaknesses, the effectiveness of the detection units was further limited by battles that existed within the field of health. As we have seen, a wedge had begun to form between those involved in public health and those in private practice beginning in the 1930s. In the post WWII era, this relationship became even more tenuous. Public health physicians argued for community detection campaigns, but were counteracted by their nervous counterparts in private practice, who wanted to maintain their

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[115] See Allan Brandt. No Magic Bullet. New York: Oxford University Press, 1987. Chapter 5, entitled "Venereal Diseases in the Age of Antibiotics" tells the story of syphilis and gonorrhea and how they were not adequately handled by penicillin.

[116] Diabetes provides an interesting case for the limited success of acute medicine. In 1900, diabetes was the 27th leading cause of death and the only method of control was diet and exercise. By 1945, it was the eighth leading cause of death. Interestingly, insulin was introduced in 1922. The change in mortality was largely due to the fact that insulin extended life, but with its discovery, there was less emphasis on behaviors that could help control diabetes. See Dr. Harry Blotner and Dr. Alexander Marble. "Diabetes Control: Detection, Control, and Community Aspects." New England Journal of Medicine. Vol. 245, Oct. 1951, 567.

power to deal with diseases on an individual basis. In addition, private practitioners grew increasingly wary of any form of community-based medicine because they associated it with state control of their field or a form of socialism. Such ideas were not popular in Cold War America. Public health physicians thought they should at least have some power in dealing with diseases and believed they should be performing community-wide detection of chronic diseases. Only then would they turn over patients to private practitioners, who were more suited to treat diseases individually.[117] A description of the way some physicians envisioned these separate roles was provided by Dr. Reed Hardwood, who was crucial in organizing diabetes detection drives in Boston, Massachusetts. He stated, "Whenever a positive test was found, either glycosuria or hyperglycemia, the subject was urged to consult his own physician..."[118] Private practitioners, while supportive of detection drives, were tentative to align with public health departments and feared their powers for providing medical care would be taken from under their feet.

As a result of this escalating tension, public health practitioners pondered their responsibilities for providing medical care and how the medical system ought to be organized. Some public health officers argued for complete state control of medicine. Such a system, known as socialized medicine, gives the government control over medical facilities and the payment for care. Others argued for a nationalized health plan, which would enable all people to receive health care, but limited the state's involvement. At the other end of the spectrum, were the private practitioners, who wanted to keep the state out of medicine completely. A middle ground suggestion was a system known as *social medicine* that proposed controlling chronic diseases

[117] Fee's article in Porter's The History of Public Health and the Modern State, 250-251.
[118] Dr. Reed Hardwood, "Results of a Screening Program for Diabetes Mellitus." Diabetes, Vol. 2, Jan/Feb 1953, 44.

through the unification of preventive and curative medicine, and in doing so embraced the health of both the community and the individual.[119]

Private practitioners, staunch in their resistance to any state involvement and community-wide medicine, won this battle. This group of doctors, the emerging dominant force in medicine, would push for individualized care, and, in doing so, continued to focus only on individualized detection and treatment of diseases, rather than dealing with diseases in the community at large.[120] This was what they were trained to do, what paid them the most, and what acute medicine emphasized. Realizing that preventive approaches to disease might be important, though, they created the field known as preventive medicine, exhibiting the private clinician's belief that prevention ought to occur at the individual level. Its advocates were those who resisted state involvement in health issues, but believed that prevention was necessary, stressing that there could be two arenas of prevention, one focusing on mass measures to minimize the harmful effects of the environment, the other focusing on actual individual patients and their health problems. Private physicians believed public health should focus on the first type of prevention and that they should focus on the individuals.[121] While private doctors offered public health some role in prevention, public health had narrowed too much and become to reliant on the methods of modern science to focus on environmental issues.

There was also debate among private practitioners about the future of preventive medicine. According to Dr. Ernest Strebbins, a former Commissioner of Health in NYC, some wished to broaden the scope of prevention to deal with "...knowledge of the status of the health

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[119] Fee's article in Porter's The History of Public Health and the Modern State, 250-251. Disease prevention would deal with community health. Curative medicine would treat individual cases of disease.
[120] Ibid, 251.
[121] Ibid, 251. Private practitioners historically resisted government intervention in medicine and felt that the combination of curative and preventive medicine would involve the creation of a new nationalized health program. Also see Edward Stieglitz. A Future for Preventive Medicine. New York: The Commonwealth Fund, 1946, 40-42.

of the individual and the internal and external influences which may affect his health..."[122] This type of prevention was known as primary disease prevention. Others, Strebbins stated, saw prevention as the "early recognition and treatment of non-infectious diseases such as cancer and diabetes."[123] This form of prevention was quite different from earlier public health preventive measures, in that it focused on patients who had diseases already, instead of preventing them from getting the onset in the first place. This type of prevention was known as secondary prevention and was the preferred method used to combat diabetes as a public health problem. It did not pan out to be successful in the combat and control of diseases, because it only focused on those affected by the disease already.[124]

In 1946, while the discussions and debates were taking place about the future of medicine, the American Hospital Association and American Medical Association lobbied for a bill called the Hill-Burton Act, which asked Congress to support the construction of hospitals, a project that would provide greater access to medical science and care.[125] The bill was eventually passed and with the building of more hospitals — the symbol of acute, curative medicine — policymakers prioritized the acute framework, during a time when calls existed for greater preventive efforts. In the construction of hospitals, the belief that medical care should only be individualistic and curative was cemented. Ironically, practitioners in private practice tolerated state involvement when it came to federal funding for the necessities of acute medicine. In addition, throughout the late 1940s and 1950s, private practitioners were given further power, with increased funding and prioritization being given to biomedical research and hospital

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[122] Ernest Strebbins, "Preface," in Stieglitz. A Future for Preventive Medicine, xiv.
[123] Ibid, xiv.
[124] Secondary prevention provides an example for which the boundaries between acute medicine and a non-acute approach become messy. This type of prevention deals with individual cases of disease and focuses on those struck with the disease already. It therefore, would be included under an acute approach to disease, unlike primary disease prevention.
[125] Fee's article in Porter's The History of Public Health and the Modern State, 252. This act asked the federal government to pay for one third of costs for building hospitals.

construction. Private practitioners, with their increased power, began to assume the role of disease detection as well, and as a result, general disease prevention efforts took the back seat to curative medicine.

Seeing the success of the various detection units, private physicians began to show some fear that their counterparts in public health were stripping away some of their power. As a result, some private practitioners, including Dr. Harry Blotner and Dr. Alexander Marble, claimed, "Consequently, more attention must be given by physicians to early detection and control. The recognition of this need is particularly important to the family physician and the medical student of today...The ideal detection center is the office of the family physician...The finding of these million unknown diabetics is primarily the task of physicians."[126] In making claims such as these, private physicians were trying to move the focus from community detection to individualized detection, which indicates a further narrowing of the approach taken to handle diabetes. Over time, mass surveys received less media attention, despite the continuation of National Diabetes Week, as various local diabetes associations emphasized that private physicians should carry out tests for diabetes. The Connecticut Diabetes Association, for example, in discussing the seventh annual Diabetes Drive stated, "It is hoped that during this period each doctor will cooperate by doing a routine urine examination for sugar on each patient who comes to his office."[127] Individualized detection became the preferred way for health professionals to deal with diabetes, as private physicians wanted to be the ones carrying out all the clinical aspects of diabetes' medicine.[128]

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[126] Dr. Harry Blotner and Dr. Alexander Marble. "Diabetes Control: Detection, Control, and Community Aspects." New England Journal of Medicine. Vol. 245, Oct. 1951, 567.

[127] "Diabetes Drive." Connecticut Medical Journal. Vol. 18, Oct. 1954, 847.

[128] This battle over the manner in which detection campaigns ought to be carried out is representative of two groups each pursuing the goals of acute medicine. In the nineteenth century, community-wide campaigns would have been considered outside the scope of acute framework, as in general they dealt with future disease prevention at the environmental level. In attempting to deal with diabetes, however, community detection campaigns took on the form

In addition to this development, private physicians began to emphasize how they had the most significant duties in dealing with diabetes, believing that teamwork between doctors and patients was needed for this to happen. They believed that they could perform all the duties needed for individualized disease control. According to Dr. Benjamin White, physicians could perform screening examinations, diagnostic interpretation, and treatment.[129] In earlier years, constraints on physicians prevented them from carrying out individualized screening. White believed that in the past physicians were incapable of handling these duties because of the traditional notion of the physician as a healer, economic factors, a general lack of interest in healthy patients, a low yield of findings, and a faulty educational system hindered physicians' capabilities to carry out such roles in the past. He believed that the time had come, citing evidence of a variety of screening programs and advances in creating simpler and far less technical diagnostic procedures, for private practitioners to incorporate screening for diseases into their physical examinations. He addressed the new role of screening for physicians stating, "Moreover, it is essential that the medical profession as a whole develop a new attitude toward each patient, (a) as an individual with a chief complaint, and (b) as a person to be 'screened' for unsuspected chronic diseases."[130] While able to diagnose and treat the disease, private doctors also had the ability to enable patients to live with their disease successfully. This, private practitioners saw as their leg up on public health physicians and provided the logic for physicians to continue emphasizing detection of cases or what Dr. White called "presymptomatic diagnosis."[131]

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of acute medicine, as the main goal was to diagnose cases of disease, clearly in line with the goals of curative medicine and not general disease prevention.

[129]Dr. Benjamin White. "Practical Diagnosis in Prevention." Geriatrics. Vol. 7-2, March/April 1952, 87-91

[130] Ibid, 89.

[131] Dr. Charles Mayo. "Developments in Diabetes Detection." Postgraduate Medicine. Vol. 12, Nov. 1952, 489. Also see White, "Practical Diagnosis in Prevention, 87.

As programs to deal with diabetes were placed under the jurisdiction of private practitioners, the acute approach taken to handle the disease narrowed even more. Although it certainly made sense to deal with the groups that most likely could have a predisposition for the disease, for the most part, doctors only focused on those they believed to be at risk. It was well-documented that diabetes was most common in people older than 40, in females, in overweight people, and in the Jewish population. In addition, the most commonly mentioned predisposing cause was a past family history, as there appeared to be a strong hereditary aspect to diabetes. In 1949, Dr. J. Shirley Sweeney argued,

> If heredity is the basis of diabetes, every person who gives a history of having diabetes in the family should be cautioned regarding possible development of diabetes...We physicians are derelict in our duty if we fail to do a urine examination and still more important an after breakfast blood sugar test in an obese patient presenting a family history of diabetes.[132]

Physicians were encouraged to test all blood relatives of diabetics and to teach them how to test their urine. With the exception of multiphasic screening programs, like the Greater Atlanta program discussed earlier, most health professionals did not believe that community-wide campaigns were necessary anymore, when they had the ability to test for diabetes in the office. Again, while community detection might be perceived as a wider campaign, it still would have been an application of acute medicine. Increasing numbers of diabetics might have been found, but in the long run, this would have done little in the way of general disease prevention. It still, however, would have been a wider approach than just focusing on those believed to be at risk. We can see from the approach taken by health professionals that individualized detection

[132] Dr. J. Shirley Sweeney. "Neglected Diabetic Patients." Texas State Medical Journal. Vol 45, Sept 1949, 623-24.

combined with a focus on only those at risk provided for a very narrow attack on diabetes as a public health problem.

While health professionals recognized the prevalence of diagnosed cases to be one million and those undiagnosed to be about the same number, according to Dr. Thomas Sharkey there were, "potential diabetics whose disease may become apparent as time goes on."[133] By making this claim, it seems that physicians realized a need for future disease prevention, fearing a greater increase in prevalence in the future. In making claims like these, they recognized that the public health vision needed to expand past testing those at risk and in doing so were suggesting a primary preventive approach to diabetes. In fact, Dr. Sharkey, a member of the National Committee for Diabetes Detection, proposed that approximately two million more individuals might fit this potential diabetic categorization.[134] While Sharkey briefly discussed this issue and seemed to show some grasp of a need for large-scale prevention efforts, for the most part he prioritized the efforts of physicians to diagnose and treat the disease. Evidence for this was provided by his lengthy discussion of the American Diabetes Association, an organization whose objectives were:

> "(1)To find the greatest number possible of yet undiscovered diabetics; (2) to assist diabetics in their efforts to lead normal lives; (3) to improve the treatment of diabetes; (4) to bring the newest information about the disease to all interested physicians; (5) to encourage and support research on diabetes; and (6)to promote public knowledge about diabetes and understanding of the individual diabetic's problems."[135]

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[133] Dr. Thomas Sharkey, "The National Diabetes Detection Drive, November 11-17, 1951." The Ohio State Medical Journal, Vol. 47, Nov. 1951, 1022. These individuals would fit neither the diagnosed nor undetected categories, since they would not show diabetes upon testing at the time.
[134] Ibid, 1022.
[135] Ibid, 1022.

The ADA, the only national organization in the field of diabetes, showed tremendous support for the goals of acute medicine and did not place comprehensive community issues such as future disease prevention on the agenda.

If Sharkey and his contemporaries had looked at how cancer, another major chronic illness was being handled, they might have taken a slightly wider approach, which still could have fit within the confines of acute medicine. While the battle to handle cancer was very much in line with the acute model, it still included greater public recognition and involvement than did the battle to deal with diabetes.[136] Interestingly, the emphasis on the detection and treatment of diabetes was framed after the methods originally used in the fight against cancer. In terms of dealing with cancer, physicians stressed early detection followed by surgery (i.e. treatment).[137] Yet, at the same time, cancer was receiving a tremendous amount of attention among medical professionals and greater knowledge about the disease and the risk factors associated with it were being disseminated to the public at large. However, these were not the only words preached to the public. People saw stories in every day newspapers and magazines, alerting them to the progress made in cancer research, providing them with examples of people surviving the disease, and presenting them with reasons for alarm. Analogies were made to penicillin and to the atomic bomb to make it seem that research was heading in the right direction and to get people to support the war on cancer.[138] Stories of both survival and death played on human emotions.[139] As a result of the wide and varied attention, cancer research became a business supported by

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[136] We can look at history and say that physicians could have handled diabetes better with a non-acute approach. While this is likely true, we too must recognize how embedded acute medicine was within their training and how policymakers prioritized and provided incentive for continuing to use this framework. History shows that diabetes was accommodated into the acute framework. Given the historical context, however, and that acute medicine was so dominant at the time, a fair criticism takes notice of this aspect. It is therefore fair to say that the approach taken was too narrow within the confines of the acute model, and that a wider acute approach might even have been better.
[137] James Patterson. The Dread Disease: Cancer and Modern American Culture. Cambridge, MA: Harvard University Press, 1987, 150.
[138] Ibid, 140-141.
[139] Ibid, 144.

philanthropists, the mass media, and politicians. The postwar history of cancer was more than just a group of doctors discussing methods to combat it. It was a societal movement that did indeed focus on risk factors and the larger issues of disease prevention. For example, the mass media reported the carcinogenic effects of cigarette smoking. Adding to this, while cancer received widespread attention constantly, via a variety of mediums, the only time diabetes received any attention was in the week or two before Diabetes Week. Dr. John Reed, Chairman of the Committee on Detection and Education for the ADA stated, "The impressive newspaper and radio space and time donated to our Diabetes Week activities is further confirmation of civic appreciation for our efforts."[140] Yes, media attention was paid to diabetes in newspapers, magazines, and on the radio. However, while cancer was made understandable to the general public, diabetes was discussed only in a medical manner, with the continual stressing of detection and treatment. This was much different from the various cancer stories that were told and the numerous cartoons and slogans that were made to excite people about the war on cancer. Physicians who were so optimistic about dealing with the problem of diabetes were complacent about the amount and type of attention that diabetes received.

In contrasting the approach taken to deal with cancer with the one taken to combat diabetes, it is evident that one of the narrower aspects taken by private practitioners was the prioritization of preventing complications of diabetes, rather than preventing future cases of the disease in general. As stated earlier in the chapter, physicians preferred secondary prevention over primary prevention. Doctors continued to emphasize that they could keep their patients in a mild state so long as their blood sugar levels were maintained at normal physiologic levels. They also felt that good control could delay, if not completely prevent complications. According

[140] Dr. John Reed. "Report of the Committee on Detection and Education." Diabetes. Vol. 2, March/April 1953, 165-166. Also see Sharkey, "The National Diabetes Detection Drive, 1025-1026, for similar comments on press involvement surrounding diabetes.

to an editorialist, "Treatment of the well established cases of diabetes can at best be palliative...If we are to prevent progression of the disease and development of complications we must seek out and treat the early, asymptomatic cases. Herein lies our great responsibility." In the 1950s, medical professionals saw their primary responsibility as finding undiagnosed cases before these people became crippled and destroyed by the disease. Influenced by the growing number of hospitals in the nation, following the passage of the Hill-Burton Act, doctors gave priority to treatment and curative medicine over general prevention.[141] According to Dr. John Knowles,

> The cost of sloth, gluttony, alcoholic intemperance, reckless driving, sexual frenzy, and smoking is now a national, and not an individual, responsibility....However, control of the present major health problems in the United States depends directly on modification of the individual's behaviors and habits of living...Attempts to prevent disease and improve and maintain health involve multifaceted strategies and expertise from many disciplines...It is a sad fact that of a total annual expenditure on health of $120 billion, only 2 to 2.5 percent is spent on disease prevention and control measures...[142]

Instead, acute medicine continued to receive prioritization. From studying the case of diabetes, we know that concerns with the larger issues of community-wide disease prevention were only secondary to the increased concerns with finding and treating the many unknown, asymptomatic cases.[143] The prevention of complications was not enough. The acute method of dealing with actual cases of disease was clearly important; however, other approaches were necessary as well.

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[141] Fox, Power and Illness, 61.
[142] See Dr. John Knowles. "The Responsibility of the Individual," in John Knowles. Doing Better Feeling Worse. New York: W.W. Norton and Company, 1977, 59-66.
[143] Two editorials in 1950 and 1951 produced similar claims for increased early detection. See Editorial. "Why Diabetes Detection." Nebraska Medical Journal. Vol. 35, Nov. 1950, 337-38. Also see Editorial. "Lost one-million." Arizona Medicine. Vol. 8, Oct 1951, 51-52.

Physicians misunderstood chronic diseases because they approached them with a curative bias, driven into them by their training in acute care medicine.

So the question is, why was the emphasis on secondary disease prevention? Medical professionals, while recognizing the change in disease trends, still lacked a good deal of knowledge about chronic diseases. Today, we are still lacking in our knowledge. Doctors believed that the only means they had to deal with chronic diseases was through the methods of acute medicine, and stressed secondary prevention efforts. While health professionals lacked and continue to lack knowledge of the exact biological cause of chronic diseases, physicians during the 1950s incorrectly assumed that because their knowledge of the diseases was scarce, that they had to turn to secondary prevention or dealing with actual disease cases, rather than potential disease cases. Public health physician Paul Peterson stated,

> The preventive medical concept on which chronic disease programs are built is basically that of secondary prevention. This does represent a departure from the traditional public health program objectives which, in general, have been primary prevention and the ultimate eradication of a disease as a public health problem...Secondary prevention without the hope of primary prevention then, is a new program concept...[144]

Peterson and his contemporaries badly underestimated how much they really knew about the chronic diseases. In fact, as we saw earlier, obesity was already being associated with diabetes when calls for alarm about diabetes initially became prevalent. The information was there for health professionals. They just did not realize it. Instead, it took fifty more years for physicians to come to terms with the fact that they should possibly perform primary prevention

[144] Dr. Paul Peterson. "The Health Department's Responsibility in Chronic Disease Programs." American Journal of Public Health. Vol. 50. Feb. 1960. 135.

efforts even if they lacked a complete knowledge base about the chronic diseases. Instead, health professionals who refused to recognize the need for a new program for public health, turned to the well-established and obsolete programs set up for acute infectious diseases believing that, "...programs concerned with chronic disease may be seen in many ways as extensions of older and well established forms of action."[145] Peterson and his fellow colleagues were wrong.

Some physicians did address how they could intervene in the pre-diabetic or pre-clinical state. They believed that their greatest chance to help patients was through understanding the pre-diabetic phase of the illness, and continued to refer to factors they believed were predisposing causes such as nutrition, diet, and body weight. Dr. W.B. Hunter, in discussing the success of a specialized diabetes clinic in North Carolina stated, "Although it is not communicable like tuberculosis and venereal diseases, diabetes offers an open field to the practice of preventive medicine...All that is necessary is slight restriction of diet...overeating, and periodic annual examination."[146] Hunter's words were in line with what we today consider preventive medicine, or primary prevention, but for the most part, they were rare and ignored. While the concept of a pre-diabetes state entered the minds of physicians, their efforts still were more concerned with making a conscientious effort to find the large numbers of undetected diabetics in the population(i.e. patients no longer considered pre-diabetic). It was much easier for them to deal with diabetes clinically, than to ponder preventive outreach programs. Because chronic diseases were accommodated into the acute framework, doctors only focused on dealing with patients struck by illness. They did not possess the vision to bring about a comprehensive and community wide effort to prevent the disease.

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[145] Ibid, 134.
[146] Dr. W.B. Hunter. "Diabetes as a Public Health Problem." North Carolina Medical Journal. Vol. 11, June 1950, 289.

With all the attention on detection and treatment, one important aspect of diabetes control was ignored for the most part, that of educating the public at large. When public health professionals spoke of education, they meant educating physicians and their diagnosed patients about the disease. While some attempts were made to educate the lay public, educational materials were aimed at those already with diabetes about the control and management of their disease. Compounding this issue, doctors themselves were still lacking in their knowledge about the disease. Physicians needed to learn about diabetes so they could adequately diagnose and treat patients with the disease. Patients with diabetes needed to be educated in terms of self-management.[147] In 1948, Dr. Edwin Winnett stated, "Unfortunately too many diabetics are discovered only after they have gone into coma. These persons should have been detected many months prior to coma because there must have been many symptoms and signs. A family who had some information...would be more apt to recognize the earlier symptoms."[148] Education was seen as important so that patients who might be predisposed would get tested for the disease. It was not seen as important for prevention of the disease in general. While doctors recognized that the public was lacking in its knowledge of diabetes, they did little to alleviate this problem.

Education was one of the major goals of National Diabetes Week. It was accomplished through a variety of measures, most notably and significantly, the annual Diabetes Fair. This kind of educational event was initiated by the New England Diabetes Association, in order to,

> ...make the public aware of the diabetes problem through education designed to demonstrate the value of early diagnosis and careful treatment of the disease; to present the problem of diabetes through exhibits and lectures to diabetics, relatives of diabetics.

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[147] Dr. Frank Allan. "Report of the Committee on Education." Proceedings of the American Diabetes Association. Vol. 7, 1947, 119-23.
[148] Dr. Edwin Winnett. "Finding the Undiagnosed Diabetic." Journal of the Iowa State Medical Society. Vol 38, Dec. 1948, 517.

> the general public and interested professional groups; and to demonstrate methods of testing the blood and urine for sugar and to furnish tests to discover previously unknown cases of diabetes.[149]

Dr. Harry Blotner estimated that 10,000 people attended the inaugural fair and observed that there was a public desire to learn about the disease and its treatment.[150] What is clear from the description provided by Blotner is that this event was successful in accomplishing what it sought to accomplish. It educated the public about symptoms, detection, treatment and disease management. While all this is quite important for actual diabetics, we must question why little or no attention was paid to predisposing risk factors and behaviors that would perhaps influence those who potentially could develop the disease. However, it is also crucial to realize that education alone would not have been enough. We know today that diabetes is widespread in low socioeconomic populations, groups that typically lack access to care and the ability to make healthy life choices. Infrastructure issues such as the use of cars, the fast food boom, the movement to the suburbs, and the growth of unsafe inner cities, all have contributed to the current epidemic. Leaders in healthcare needed to be the ones being concerned, but they lacked the vision to think about a wider and more comprehensive approach. Education alone could not have prevented these issues from taking effect.

Continuing with this discussion about education, the 1950s saw the publication of two journals – one for physicians, the other for the lay public – in order to provide up-to-date information about diabetes. These journals were *Diabetes* and the *ADA Forecast* respectively. What is learned from this piece of history is that attempts were made to provide medical professionals and the public with information. It is again important to note what was emphasized

[149] Dr. Marble and Dr. Blotner, "Diabetes Control: Detection, Control, and Community Aspects," 569.
[150] Ibid, 569.

in each journal. *Diabetes* focused on "...the latest clinical and research findings...articles concerning experience in treatment."[151] This journal was certainly in line with what medical professionals needed to know. Doctors need to know the best ways to detect and treat diseases. as well as about important research findings. However. what this journal failed to do was educate them about general prevention. Dr. Mayo described that the *ADA Forecast* "emphasizes the positive values of consistent diabetic control and furnishes a wide range of useful information for the diabetic patient and those who care for him."[152] Diabetic patients certainly needed knowledge because their disease was controllable. so long as they were meticulous about testing their blood sugar, taking insulin, and eating properly. It is understandable why the focus was on factors that were especially important for diabetic patients. Health professionals felt that their message was not getting through to diabetics. Dr. Morris Margolin, Chairman of the Nebraska State Medical Association, speaking to the ADA stated that patients had "neglectful and lackadaisical attitudes."[153] In addition, some physicians blamed insulin for the careless behaviors of patients because it kept them alive, but their disease not under control, as eventually patients were being plagued by the very complications they were seeking to prevent via the methods of early detection and treatment.[154] Health professionals did indeed show a need to rethink their methods because as time wore on. the numbers continued to increase. It would be logical to conclude that if they were not getting through to actual patients, that they were not getting through to the general public either. Compound this with the fact that the emphasis was on actual disease issues, most importantly detection and treatment, and not disease prevention, and it becomes apparent why the disease continued to skyrocket.

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[151] Dr. Mayo. "Developments in Diabetes Detection," 490.
[152] Ibid. 490.
[153] Dr. Morris Margolin. "The Diabetes Detection Drive as a Means of Patient Education." Diabetes. Vol. 2, Sept/Oct 1953. 424.
[154] Editorial. "The Responsibilities of the Diabetics' Physician." Diabetes. Vol.3, July/Aug 1954, 328.

The blame should not be placed on the shoulders of medical professionals. They were unfamiliar with diabetes and other chronic diseases. In addition, they were only doing what government officials and interest groups continued to push.[155] Instead of stressing community-wide disease prevention, they stressed a limited education program, disease detection and treatment, and prevention of complications. They had neither the time nor the resources to encourage a more comprehensive approach. It did not make sense for private physicians to spend their time doing this, when health policy provided incentive and priority for stressing individual care for disease. They would never receive funding for general disease prevention and widespread education, when political agendas stressed hospital construction and hospital care.[156] Acute medicine's methods are crucial for dealing with diseases; however, a multi-level approach was needed that focused on social issues and risk factors, aspects that the acute framework had little ability to ponder. Instead, physicians perpetuated the acute framework.

What we learn from this case history is that physicians showed a great deal of optimism following WWII. This optimism led to several surveys to study the problem of undetected cases. Health professionals realized from these surveys that the problem was quite serious and over time would become more serious if they did not step in and do something. As a result, physicians stressed early detection followed by treatment, setting up a variety of detection units in the early 1950s; by the late 1950s, private practitioners began to emphasize that they should be the ones carrying out disease detection in their offices. When this happened, disease detection shifted from a community focus to being individualized. The acute approach for handling diabetes and other chronic illnesses became even narrower. While the detection units had some success in detecting unknown cases and in upgrading the diagnostic techniques available for use

[155] Dr. Knowles. "The Responsibility of the Individual," in Dr. Knowles. Doing Better, Feeling Worse, 61.
[156] Fox, Power and Illness, 61.

in detecting diabetes, the vision of physicians was narrow in their emphasis on detecting only those they felt were at risk, in their focus on secondary prevention instead of primary prevention, and finally in their limited educational methods. Because of this limited approach due to the accommodation of diabetes into the acute framework, the disease has increased in prevalence and has currently spiraled out of control, doing just what health professionals predicted it would do, should they fail to combat it as a public health problem.

## *Conclusion: And So, the Battle Rages On...*

Since the 1960s, there have been several developments in the field of diabetes medicine that are worth noting. Until media attention exploded about the disease at the beginning of the 21st century however, most of these developments were in line with the goals of acute medicine. For one, we now distinguish between two types of diabetes, juvenile and adult onset. The juvenile type, Type I, is an autoimmune disease that seems to be genetic and results in a dysfunctional pancreas because the body attacks this vital organ. As a result, the pancreas cannot produce functional insulin, a hormone needed for controlling blood sugar levels. Therefore, people with this type require insulin, whether through injection or through the new insulin pump. This type of diabetes accounts for approximately five to ten percent of all cases. The more common type is Type II. It occurs commonly in adults over the age of forty-five and seems to be induced by the body's resistance to insulin. It is a degenerative disease that develops when the pancreas cannot produce enough insulin to handle blood sugar or when the body's tissues become resistant to insulin. When insulin is not available or is not used properly, blood sugar levels rise above what is physiologically normal. As a result, blood vessels and nerves throughout the body are damaged, gradually leading to increased risk for severe bodily complications.[157] Until the 1960s, treatment for this type relied on insulin, exercise, and dietary changes. However, in the last forty years of the 20th century, oral medications were produced that successfully are able to lower blood sugar levels. Many Type II patients today rely on pills to control their blood sugar; others simply need to lose weight to get their diabetes under control.

[157] http://my.webmd.com/hw/diabetes_1_2/hw135192.asp?lastselectedguid={5FE84E90-BC77-4056-A91C-9531713CA348} (viewed 3/15/05)

This type accounts for ninety to ninety-five percent of all diabetes cases.[158] In addition, it is responsible for over ninety percent of diabetes mortality.[159]

The large increase in diabetes prevalence was primarily cases of Type II. This type was and continues to be preventable, through a focus on predisposing factors, most notably people making poor lifestyle choices and living in an environment that is not conducive to healthy living. An appreciation of some of the potential risk factors was in the minds of medical professionals when they first made claims that diabetes was a public health problem. Health professionals realized the effects of a poor diet, sedentary lifestyle, and obesity, but claimed that they lacked the knowledge to practice primary prevention because they lacked a clear understanding of the disease's etiology. Because of this assumption, they spoke little of these potential risk factors when dealing with diabetes as a public health problem in the years following World War II. This thesis examined how health professionals neglected to deal with these issues, how their narrow acute vision emphasized secondary prevention over primary prevention, and ultimately, how this led to the epidemic we experience today.

In addition to gaining about diabetes through research efforts, during the last few decades of the 20th century, national institutions dealing with the health of Americans, got involved in the combat of chronic diseases. Chronic diseases began to receive greater priority at the federal policy level. One institution founded during this period was the Centers for Disease Control and Prevention (CDC). Originally established in 1946, the agency then named the Communicable Disease Center was the successor to the Office of Malaria Control in War Area. In 1970, the Communicable Disease Center was renamed the Center for Disease Control, which reflected a broader undertaking in the field of preventive health. In 1980, an "s" was added to "Center," to

[158] Adding to this, Type II diabetes is becoming more prevalent at earlier ages due to increased obesity.
[159] Grob, The Deadly Truth, 262.

reflect a reorganization of the agency. Then in 1988, a new unit was established and was named the Center for Chronic Disease Prevention and Health Promotion, reflecting a growing need to deal with the chronic diseases. Finally, in 1992, the agency was renamed once again, this time to the Centers for Disease Control and Prevention (although it is still abbreviated as CDC).[160] With regards to its program for diabetes, the center dealing with chronic diseases states its goals as: "To increase diabetes awareness; to promote early detection of diabetes and treatment of its complications; and finally, to improve the quality of and access to diabetes care."[161] Interestingly, today, during a time when primary disease prevention ought to be one of the goals of such organizations, as we know that risky behaviors, lifestyle choices, and an inadequate infrastructure are largely responsible for predisposing us to chronic diseases, the CDC continues to address mostly the acute issues of diabetes and continues to accommodate the disease into the acute model by continuing to focus on diagnosis, treatment, and broad programs for management.

History provides a story of how diabetes and other chronic diseases were and continually are being accommodated into the acute framework. However, this paradigm was not just put in place overnight. It was the result of medical developments over hundreds of years, that led to a system that was increasingly based on the notions of modern science and the discoveries of the laboratory. It is important to remember this when criticizing the way diseases were handled in the past. While it is conceivable that physicians could have thought outside the box, engrained in them and in the medical system itself was a paradigm that many believed was successful in conquering the diseases of the past. Therefore, it would have been revolutionary for health professionals to suggest a complete overhaul of a medical system that seemed to be working.

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[160] See http://www.cdc.gov/nchstp/dstd/cdc_historical_highlights.htm for a more in depth history (viewed 4/19/05).
[161] See http://www.cdc.gov/nccdphp/bb_diabetes/index.htm (viewed 4/19/05)

Today, historians of medicine and the public at large discredit modern medicine with the conquering of infectious diseases. However, physicians during the first few decades of the twentieth century failed to fully recognize this. Instead, they inappropriately turned to the acute system that they believed held the tools to battle the chronic diseases.

This was a logical turn to take considering the circumstances following World War II. It was during WWII that antibacterial drugs, surgeries, and other therapeutic measures were first introduced. These various innovations heightened the United States' postwar expectations for medicine. There was a renewed hope that progress in medicine and medical science could protect and prolong life. Dr. Julius Richmond stated, "The seemingly infinite productive capacity of the nation during the war, enhanced by the brilliant success of scientists in the application of their knowledge of atomic energy through the Manhattan Project fortified the expectation that no result was unattainable if the resources were adequate."[162] It was in this optimistic environment that Americans and their doctors dreamed of a health utopia, in which all diseases that plagued mankind would be cured.

As a result of this optimism, modern scientific medicine took off, with biomedical research revolutionizing medical practice and the way health professionals handled diseases. This trend influences our medical system today, with the human genome project, research into genetic therapies, and developments in surgical technologies being a major focal point of interest among medical professionals. We continue to be captivated by the perpetual hope of curative medicine and a faith that research will provide knowledge of the exact causes of diseases and how we can treat them. Health professionals, enthralled by this model, realized that while they could not yet cure the chronic diseases, that they could treat them and alleviate pain. This is how

[162] Dr. Julius Richmond. Currents in American Medicine: A Developmental View of Medical Care and Education. Cambridge: Harvard University Press, 1969. 27, in Grob, The Deadly Truth, 244.

acute medicine now deals with chronic illnesses. We justify this medical system because we are living longer than we ever have. However, it is important to note that while we live longer, we are suffering more from diseases. Has our system really made that much progress in the past fifty years? Our definition of what it means to be in good health may need some reconsideration.

Contrasting this medical system with the one that first dealt with infectious diseases is therefore a worthwhile endeavor. Just as we currently lack knowledge of the etiology of the chronic diseases, the medical profession of the nineteenth century struggled to understand the causes of acute infectious diseases. During this time, miasma theories of diseases were quite popular and led public health workers to believe that environmental filth and odors gave off particles that led to diseases. They therefore turned to sanitation and city clean-ups, methods of primary prevention, in order to deal with the dirty streets, air, and water supply, which they thought were the causes of diseases. In addition, they began to emphasize personal hygiene and nutrition, so that individuals would have a greater resistance to diseases. We now know that this system for handling diseases, a framework that emphasized community health and whose methods were largely carried out by a wide range of public health professionals, was responsible for the decline in infectious disease mortality.

The late 1800s however, would forever change the way diseases were conceptualized and handled. It was during this time that the discoveries of bacteriologists were made and as a result both medical practice and public health narrowed to a modern scientific attack on diseases. The laboratory was discovering the specific pathogens responsible for infectious diseases and was also providing diagnostic tools to screen for them. While the lab specialists and researchers focused on this aspect of medicine, the chronic diseases were gradually overtaking the acute infectious diseases as the major causes of illness and death. Concerns about chronic diseases

became quite prevalent in the first four decades of the twentieth century. However, they were not dealt with, partially because of the acute disease focus of medical personnel, but also because of the historical constraints of the Great Depression and WWII.

With the war's end, came a renewed focus on the chronic diseases. Diabetes was one of the health problems that health professionals seriously considered in the post-war era, recognizing it as a public health problem in part because of the large numbers of diagnosed and undiagnosed cases. However, the approach taken to handle diabetes was one that only emphasized the methods of acute medicine. Private physicians, in battle with public health physicians, fought over who had the power to carry out detection of chronic diseases, both emphasizing that early detection was the key to controlling the disease. Private practitioners believed that screening should be individualized, should occur within the confines of the doctor's office and then should be followed by treatment. Public health physicians hoped to carry out community-wide detection units in hopes of finding the undiagnosed cases, after which they would refer patients to their private physicians. Private physicians eventually won this battle and the individualized focus on detection prevented any community-wide efforts from dealing with the disease. While detection and treatment are necessary methods for handling diseases, they further cemented a narrow approach to the disease as health professionals primarily targeted those they considered at risk, sought only to prevent complications, and did a poor job educating the public about predisposing factors. As a result, the disease continued to increase in prevalence, despite the attention paid to it. This trend still continues because our focus remains on the acute issues of the disease.

What was needed, in addition to detection and treatment, were greater primary prevention efforts that would have focused on the health of the community and attempted to protect people

from ever developing the disease. Such a focus required an attention to the risk factors that were becoming all the more prevalent during the 1950s. Health professionals did have a substantial amount of knowledge about these issues. Our current focus on risk factors such as obesity, diet, and sedentary lifestyle, brings up issues that physicians realized were predisposing factors fifty years ago. They just lacked the vision and foresight to perceive the damaging effects that contemporary societal trends would have because they did not understand how to best use their knowledge of disease prevention.

Ironically, even today we continue to stress acute medicine methods when we are certain of the effects of social and environmental risk factors and when we realize that in actuality the acute framework was not responsible for major historical mortality trends. We continue to struggle in our efforts to implement a formidable system for preventive medicine and focus much of our efforts in the realm of curative medicine. As a society, we continue to misunderstand the chronic diseases, as many still argue that these diseases are becoming more common only because the population is aging. This has never been the case, not fifty years ago, and definitely not today. Until the public at large has knowledge of these diseases and an infrastructure is put in place that is conducive to living healthy lifestyles, we will not make a dent in the chronic disease burden on our society.

This thesis focused on addressing the history of chronic diseases and the accommodation of them into the acute framework. Previous scholars have discussed the accommodation of chronic diseases, but this thesis provided the first in depth look at a specific disease and how it was forced into a system that could not handle it. Daniel Fox's discussion of accommodation mentioned that "A history [of accommodation] could be written about every area of health policy: research, patient care, education, and financing." While this is certainly true, past

scholarship has only briefly discussed the process on the level of care and instead has tended to highlight how leaders of public agencies, private institutions, and government dealt with chronic illness within the acute model. Most importantly, they argue that conflict over payment and finance for care, combined with biomedical breakthroughs following WWII, led to policies that prioritized acute medicine. In order to provide a fuller depiction of the story of accommodation, I paid attention to the role that health professionals played in perpetuating the acute model. Naturally, the best way to view the role of health professionals is to look at how they performed their duties or how they handled and conceptualized diseases. In this case, diabetes provided the means to show that health professionals contributed to the accommodation process through the continual emphasis on early detection and treatment, the perpetual hope for a cure, the use of secondary preventive measures, and finally, the focus on individualized care over a mass community effort to deal with the disease.

In examining the post-war period, we see that a lot was said, but in actuality, little was accomplished. Diabetes, while successfully controlled and treated in many cases, still has not been cured and the numbers keep growing. Yet, we continue to emphasize how important treatment is, when we know well that most cases of it are preventable. We as a society seem unwilling to give up our unreasonable hopes for a health utopia and thus are enamored with the supposed prospects that acute medicine has for the future. The growing fields of research in genomics and proteonomics that focus on finding the specific genes and molecules responsible for causing diseases, and then creating therapies that enable normal functioning continue, to show a great deal of support for acute medicine. Instead of emphasizing disease prevention at the community level, knowing well that many of our health problems are related to infrastructure issues, socioeconomic status, and lifestyle, we still pump more money into dealing with

individual cases of disease that only the privileged are able to afford. Overall, the focus of health professionals concerning diabetes has led to the proliferation of efforts to diagnose and treat the disease. This thesis therefore proposes that until preventive medicine joins curative medicine as a major focus of the medical community, we will only continue to accommodate diseases and not adequately handle them. Dr. Lewis Thomas, in discussing how we have reached the peak in terms of curative medicine, argues that we must approach future medicine in a different manner, as he stated,

> At the same time medicine is expected to do something for each of these illnesses, to do whatever can be done in the light of today's knowledge...This way of looking at contemporary medicine runs against the currently general public view that the discipline has by this time come almost its full distance, that we have had a long succession of 'breakthroughs' and 'major advances,' and that now we should go beyond our persistent concern with research on what is called 'curative' medicine and give more attention to the social aspects of illness and to preventive medicine.[163]

Unfortunately, Thomas' words are still largely falling on deaf ears.

[163] Dr. Lewis Thomas. "On the Science and Technology of Medicine." See in Dr. Knowles. Doing Better, Feeling Worse, 37-38.

## *Epilogue*

While diabetes represents a great example of the limits of acute medicine and the narrowness of our medical system, a narrowness that has existed since the early twentieth century, it is just one of many diseases that could have been used as evidence of the argument made in this thesis. In fact, many of our current leading causes of death would adequately address this issue. It is therefore crucial to realize the scope of the issue at hand and that until we as a society address the chronic diseases with history directing our vision, these health problems will continue to plague us. We must ask the question of why, if recognition existed about the seriousness of the chronic diseases during the mid twentieth century, have we failed to do anything about the continuously increasing prevalence of these problems.

Before discussing this, I would like to give a personal anecdote on how the thesis writing experience and, more generally, my experiences studying the social sciences and humanities as an undergraduate have provided me invaluable skills and knowledge for my future career in medicine. I am extremely grateful that I made the decision not to major in a science and instead chose to double-major in History and Medicine, Health, and Society. My eyes were opened to the various factors that affect our health, the reasons for the biomedical approach to disease, the need for a revolution in patient-doctor relations, and the great health disparities that exist among the very diverse populations we have in our nation. After interviewing at several medical schools this fall and considering each of their curricula, one thing that occurred to me was how little training occurs in the various social sciences. While basic medical science and clinical training are crucial, I believe that in order to be most accommodating to patients, we must understand the larger issue of why things are the way they are. For example, we cannot simply take for granted

that people are of low socioeconomic status and that their health outcomes are affected by this factor. We must understand the larger picture health disparities in our society, the individual repercussions they have for patients, and why historically this has occurred in our nation. I do not believe this can be accomplished by having a guest lecturer come in and talk about the history of medicine or medical sociology for one hour, for example. Luckily, I had the chance to major in the humanities and social sciences in my undergraduate career and while I may not be as advanced in terms of my scientific studies, I know that I will be able to apply the theories and knowledge I have obtained in clinical settings. In addition, through the thesis writing experience, I have learned to think more critically, to articulate my thoughts powerfully and clearly, and have learned the importance of being thorough in doing research. These skills will surely be of great help in my future pursuits.

I would also like to share why I chose to write about diabetes for this project. While writing this thesis, the significance of an experience I had two years ago, fully dawned on me. All along, I did know, however, that my initial interest in studying diabetes was related to this experience. Two summers ago, I was privileged to work at Jacobi Medical Center in the Bronx, NY, in an effort to gain clinical experience for my application to medical school. I was introduced by my camp friend's father, Dr. Jeff Gershel, the Chief of Service at the hospital, to a pediatrician, Dr. Jennifer Bass, who was in the early stages of starting a program called the *Family Weight Management Program*, in hopes of dealing with a growing population of obese children in the community. I remember very well when Dr. Gershel described to me what Jacobi was like. He told me that the patient population is very diverse and that many of the patients are foreign born and live at or below the poverty line. Many of the patients I saw that summer relied on Medicaid for their insurance, had parents who spoke little or no English, lived in

neighborhoods that were not safe, and lacked the basic knowledge necessary to live healthy lives. It was frightening to see how obese some of the children were at such young ages.

My experience at Jacobi provided me with the first realization of the connection between obesity and diabetes. I would like to share some statistics compiled after the first year of the program. A total of 109 patients entered the program during the summer of 2002. Of these patients, 34% were obese, only 9% had parents of normal weight, and 57% showed a family history of diabetes. In terms of the various tests performed on the patients: 90% showed acanthosis, dark skin spots, often indicative of early onset insulin resistance; 2.2% showed impaired glucose tolerance, with 1.1% actually diagnosed with diabetes: most scary however, was that 45% showed insulin resistance, early signs that they were on the verge of developing diabetes.[164] For these patients, this program was exceedingly important because the potential for their diabetes to be prevented was large, if they could get their weight under control.

While these statistics were certainly eye-opening to me at the time, it is only now that I have begun to appreciate the impact of this program. The approach taken by the staff to combat the problems of obesity and diabetes is particularly significant to me now that I have fully developed my thesis. The doctors believed that by using behavior modification therapy, through a focus on barriers to healthy living, that they could help to get their patients' weight under control, as well as any other significant health problems associated with obesity. Dr. Bass and Dr. Groisman thought that the key factors to focus on were: a lack of parental concern, a lack of knowledge, the high cost and low availability of healthy foods, the high fat and sugar content of school lunch, vending machines, inadequate physical activity, and excessive TV watching and

[164] Dr. Jennifer Bass and Dr. Adriana Groisman. "Jacobi Medical Center: Family Weight Management Program." Report on first year of program- Summer 2002-2003.

video game exposure.[165] As I discussed earlier in this thesis, all of these factors are infrastructure issues. The approach taken included a multidisciplinary, family-oriented plan that involved a comprehensive medical examination, an understanding of family risk factors, a psychological assessment, a lifestyle assessment, several sessions with a licensed dietitian, sessions with psychologists about the emotional and mental factors associated with obesity, an overall focus on eliminating unhealthy behaviors, and weekly sessions with a physical therapist. A team approach was taken to prevent obesity, to promote weight reduction, and to educate the community.

The problem of diabetes, while not the central focus of the program, certainly was addressed and hopefully was prevented by the efforts taken to control obesity. While those patients with diabetes often times first learned the news of their disease through this program, they too likely benefited because Type II patients often show a reversal of their disease when they lose weight. In writing this thesis, I mentally compared the wider focus of this program with the narrow approach taken by physicians during the mid twentieth century. It was through this thought process that I realized the true value of my experiences at Jacobi Medical Center. While the laboratory tests and diagnosis of obesity and diabetes were two of the most important tasks of the doctors, as they were during the 1950s, they were not the only tasks emphasized. Sure, there were people talking about public education and risk factors during the mid-twentieth century, but the lone overall focus and attention paid was to the medical interventions. The *Family Weight Management Program* represents a break from that tradition, with its focus on risk factors, physical therapy, behavior modification, and primary disease prevention. I also realize that while this program did significantly widen the approach taken to handle the

[165] Dr. Jennifer Bass and Dr. Adriana Groisman. *Jacobi Medical Center: Family Weight Management Program.* Report on first year of program- Summer 2002-2003.

connected diseases, great strides still need to be made. It is great to see that in recent years, we at least have begun to move in the direction that for so long medical professionals ignored. But more needs to be done. Only when the lay public has a sufficient understanding of the chronic diseases and how they can be prevented or delayed, will we really be on the way to dealing with these health problems. In addition, while the interventions taken by the program are only the first step in the battle to reverse diabetes and obesity trends, the lessons learned by the patients will do little unless the infrastructure that surrounds them is altered. Knowing how to live a healthy lifestyle only goes so far, if one lacks the ability to because they cannot afford it or because the environment they live is not conducive to doing so.

It was also through thinking about my experiences at Jacobi that I realized how valuable the history of disease is to our current attempts to handle chronic epidemics. I believe that we must understand that while very progressive and important, the acute disease methods were not responsible historically for our successes in handling the infectious diseases and today are not sufficiently dealing with the chronic diseases. It is time that we as a society accept the fact that environmental and social changes in the past have led to miraculous health benefits. In addition, I believe we must draw analogies to this past. No, I am not suggesting that our current focus to handling the chronic diseases ought to consider cleaning up the water supply or removing wastes from streets. And I also am not suggesting that we abandon the methods of acute medicine. What I do think though is that acute medicine is not enough. We need to widen our approach. What I am suggesting is that perhaps in addition to diagnosing and treating diseases, we need to also focus on the environmental and social infrastructure in place, the social context we live in, and our behaviors. All these factors have a significant affect on our health. Perhaps it is time that we realize the damaging effects of driving instead of walking two blocks. We need to not just

recognize that fast food is not good for us, but maybe we should stop eating it. It might be time that we focus on community safety so that safe parks can be built for children, in order for them to have a place to run around, instead of remaining inside watching TV or playing video games. Perhaps the ideas of social medicine, brought up following WWII, were indeed correct. Now more than ever, we need to unite curative medicine with preventive medicine. This, in retrospect, was the true value of my experiences at Jacobi Medical Center. This is what Dr. Bass and Dr. Groisman are attempting to accomplish in their battle with obesity at the community level.

It is strange to write a thesis criticizing the way diseases were handled in the past, when I myself am entering the field of medicine. I want to make it clear that in no way am I trying to belittle the past successes of doctors. It was significant that physicians realized the seriousness of the problem of diabetes during the 1940s. Their focus on detection and treatment was quite important for those cases that they found. While their attempts to combat it were limited, they are not to blame. They were only doing what they had incentive to do and what they were taught to do. Taking a step back, therefore, I want to say that this thesis discussed how the narrow vision of health professionals contributed to the lack of success in handling diabetes. While doctors perpetuated this narrow vision, they were not the ones who created it, nor were they the ones who dictated that it be practiced.

To conclude this thesis, I would like to make the argument that history provides us with important lessons that can lead us in evolving new ways to handle diseases. The community-wide focus of the past may enlighten us to ways to combat the epidemics of the present. In 1945, Dr. Winslow argued for a wider vision in the attack on chronic diseases. Winslow's words ring as true today as they did in 1945, when he stated, "It seems proper for us to go back to the glories

of the public health decade of the 1890s and to consider what we may learn from that experience for the years to come...The most important value we can derive from a study of the past is a better sense of direction in the future."[166] Strangely, it was a doctor making these claims and not a historian. Ironically, in 2005, we can still look at the late 1800s and learn the same important lessons.

[166] Dr. Winslow, "Changing Challenges of Public Health," 193.

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