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## **Social Meanings of Mortality: The Language of Death and Disease in 19th Century Massachusetts**

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SOCIAL MEANINGS OF MORTALITY:  
THE LANGUAGE OF DEATH AND DISEASE IN 19TH CENTURY MASSACHUSETTS

A Dissertation Presented

by

JEFFREY KEITH BEEMER

Submitted to the Graduate School of the  
University of Massachusetts Amherst in partial fulfillment  
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Department of Sociology

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JEFFREY KEITH BEEMER

Approved as to style and content by:

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Douglas L. Anderton, Chair

---

N. J. Demerath III, Member

---

Michael Lewis, Member

---

Gerald Platt, Member

---

Alan Swedlund, Member

---

Don Tomaskovic-Devey, Department Head  
Department of Sociology

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ABSTRACT

SOCIAL MEANINGS OF MORTALITY:  
THE LANGUAGE OF DEATH AND DISEASE IN 19TH CENTURY MASSACHUSETTS

SEPTEMBER 2011

JEFFREY BEEMER, B.A., MANKATO STATE UNIVERSITY

M.Div., PRINCETON THEOLOGICAL SEMINARY

Ph.D., UNIVERSITY OF MASSACHUSETTS AMHERST

Directed by: Professor Douglas L. Anderton

This dissertation investigates the emergence and development of cause-of-death registration in nineteenth-century Massachusetts. I examine the historical, demographic, sociopolitical, and theoretical conditions that gave rise to the first state-implemented cause-of-death registration system in the United States, Massachusetts's vital registration system. Developments in almost every arena of social life during the nineteenth century were shaped in some fashion through disease. The disease ecology changed dramatically during this period shifting from acute infectious to chronic degenerative diseases, which marked the beginning of the epidemiological transition. Registration systems were key components in this transitional period, providing the raw data on which nineteenth-century public health policy emerged. The greatest challenge that public-health reformers faced in implementing and

regulating cause-of-death registration was standardizing the language and practice of disease and cause-of-death reporting. I look closely at issues of implementation and regulation and examine the relative impact that standardized nomenclature and reporting practices had on cause-of-death registration in Massachusetts from 1850 through 1912.

Efforts to standardize disease and cause-of-death terminology in the United States and internationally did not, however, successfully emerge until the late nineteenth century. While many disease terms were in common, their diagnostic applications were not. I argue that certain constitutive and regulative features of death registration did not match up with the institutional mandate of Massachusetts's vital registration system until forty years after its implementation. The institution-building process required the alignment of these features as normative practices, culminating in the organized efforts of European and American medical professionals to instruct physicians in proper nomenclature through explicit references and sanctions in the 1900 International Classification of Diseases. The pragmatic conditions out of which both Massachusetts' cause-of-death registration system and the International Classification of Diseases emerged did not consist of special circumstances or unique cultural practices. The social meanings of mortality in nineteenth-century Massachusetts reflected the public commitments of a diverse set of communities and practices that shared similar resources in working out the struggles and triumphs of communicating the language of death and disease.

## TABLE OF CONTENTS

	PAGE
ACKNOWLEDGEMENTS .....	iv
ABSTRACT .....	viii
LIST OF TABLES .....	xii
LIST OF FIGURES .....	xiii
CHAPTER	
1. INTRODUCTION.....	1
Humors, Miasmas, and Germs .....	5
Professional Health Structures and Perspectives .....	8
Changing Medical Perspectives .....	11
Emerging Public Health Perspectives.....	17
American Epidemiological Transition .....	19
2. THE PRAGMATIC IMPERATIVES OF PUBLIC ACCOUNTABILITY .....	24
Theoretical Underpinnings of Private and Public Action .....	25
Rules, Structures, and the Felicity of Social Action.....	37
Constitutive and Regulative Normativity.....	39
3. CLASSIFICATION AND THE CHANGING GRAMMARS OF DEATH .....	44
Massachusetts Death Registration .....	46
Reliability and Accuracy .....	56
Analysis of Massachusetts's Death Registration System .....	63
4. THE EPIDEMIOLOGICAL TRANSITION IN PRACTICE .....	68
Nineteenth Century Northampton and Holyoke .....	71
Analyzing the Grammars of Death .....	79
Reporting, Public Health, or Therapeutics .....	89
5. DIAGNOSTIC PRESCRIPTIONS .....	91
Nomenclature and Classification .....	95
Developing the ICD.....	100

Analysis of Proscriptions and Prescriptions .....	104
Puerperal Fever .....	108
Puerperal Fever in Holyoke and Northampton.....	114
Inanition .....	118
Professional and Organizational Development of the ICD .....	126
 6. CONCLUSION .....	 130
Institutional Mandates and Their Accountability Conditions .....	130
Institution-Building in the Rise of the ICD Community.....	134
 APPENDIX: 1877 STATE BOARD OF HEALTH SURVEY OF PHYSICIANS AND CLERKS ....	 139
 REFERENCES .....	 164

## LIST OF TABLES

Table	Page
1: Replies from 196 Physicians Regarding the Adequacy of Deaths and Causes of Death Registered in Their City or Town .....	61
2: Replies from 262 Town Clerks Regarding the Adequacy of Deaths and Causes of Death Registered in Their City or Town .....	62
3: Ten Leading, Parsed-literal and ICD-coded Causes of Death, Holyoke and Northampton, Massachusetts, 1850 – 1912 .....	80
4: Massachusetts' State Nosology, 1850 – 1900.....	102
5: Puerperal Fever Deaths as a Percentage of Total Maternal Deaths, Northampton & Holyoke, 1850-1912 .....	116

## LIST OF FIGURES

Figure	Page
1: Massachusetts' Registration Blank, 1842.....	51
2: Letter of Instructions for Massachusetts' Registration Blank, 1842 .....	52
3: Alternative Registration Blank Suggested by Secretary John A. Bolles, 1842 .....	52
4: Northampton and Holyoke Population Growth, 1850-1910 .....	72
5: Northampton Standardized Mortality Rates, 1850-1912 .....	78
6: Holyoke Standardized Mortality Rates, 1850-1912 .....	78
7: Disease-specific Mortality Rates (Consumption, TB, Phthisis): All Ages by Year, Northampton & Holyoke, 1850-1912 .....	83
8: Disease-specific Mortality Rates (Tuberculosis ICD 28): All Ages by Year, Northampton & Holyoke, 1850-1912 .....	83
9: Disease-specific Mortality Rates (Consumption, TB-ICD, TB-literal, Phthisis): All Ages by Year, Northampton & Holyoke, 1850-1912 .....	84
10: Mortality Rates for Degenerative Diseases: All Ages by Year, Northampton and Holyoke, 1850-1912 .....	86
11: Mortality Rates: All Ages by Year, Northampton and Holyoke, 1850-1912 (Cholera, Diphtheria, Malaria, Small Pox, Typhoid) .....	87
12: Mortality Rates: All Ages by Year, Northampton and Holyoke, 1850-1912 (Ill-defined and Unknown Diseases) .....	87
13: Maternal and Puerperal Fever Mortality Rates, Holyoke & Northampton, 1850–1912 .....	115
14: Maternal and Puerperal Fever Mortality Rates, Holyoke & Northampton, 1880–1910 .....	117
15: Inanition and Malnutrition Mortality Rates, Children Ages 0 to 5, Holyoke & Northampton, 1850–1912 .....	123

## CHAPTER 1

### INTRODUCTION

Language exhibits its social significance by drawing distinctions that divide the world into manageable pieces. It reduces complexity by distinguishing one thing from another, it provides a shared framework for meaningful discourse, and it regulates our interactions in predictable and acceptable ways. We use language to identify objects and events against a backdrop of other objects and events, to coherently express ourselves under presumptions of mutual understanding, and to coordinate everyday interactions through shared expectations. Language also functions as a means for expressing difference, disagreement, and for generating conflict. But even within such divergent or oppositional modes, language never abandons its integrative role because it can never do so. Using language to mark difference or shatter boundaries can only be accomplished by conversely denoting sameness and establishing limits – to exclude on the one hand is to include on the other. Language *use*, whether integrative or oppositional in practice, inherently imposes order on our experiences. It is the means by which we classify ordinary interactions, objects and events as self-evident, invisible configurations. Pierre Bourdieu (1984, 470) speaks of our "*sense of limits*" and "*principles of division*" as internalized cognitions that are forgotten but nevertheless reproduced in our everyday experiences.

In whatever fashion we use language, we use it from within communities of language practitioners where meaning and identities emerge as a result of such

communicative, self-evident practices. Medicine like any other profession defines itself through its communicative practices. The professionals who carry out those practices use language to distinguish their activities from other professionals and non-professionals alike. Professional identities depend on carving out proprietary boundaries that mark distinctions which extend beyond the practitioners themselves, e.g., teacher/student, priest/parishioner, doctor/patient, and so on. Consequently, all professions are understandably jealous of their distinctions. As Paul Starr notes, "Doctors and other professionals have a distinctive basis of legitimacy that lends strength to their authority. They claim authority, not as individuals, but as members of a community that has objectively validated their competence" (Starr 1985, 12). Competency is a feature of collective recognition and validity. I will return to this idea in more detail in a later chapter, but for now I want to highlight Starr's point that professional authority rests not on an individual's demonstrated competency per se but on the professional community's validation of competency as a collective practice. Language functions in the same manner. Its authority as a medium for communication rests not on an individual's demonstrated competency to successfully use it but on a community's validation of competency as a collective practice. Language does its work by tying individual experiences, events, and thoughts together into a broader set of collective practices.

For physicians and other health practitioners, using language in a professional capacity defines and redefines the authoritative boundaries that demarcate medicine as a unique set of practices. For centuries, the language that has done medicine's

work is the language of disease. Physicians determine their patient's physical or mental health by means of diagnostic judgments. Almost everything that a physician does, pre and post diagnosis, is predicated on that diagnostic moment. Therapeutic practice can only begin after a diagnosis has taken place; therapeutic choices are dependent on effectively identifying patient ill-health; and if all therapeutic measures fail, that diagnostic moment follows the patient in death. The diagnostic role acts as the centerpiece of all medical practice and uniquely defines that activity. And while disease language has always played a defining role in medical practice, how that language was used has differed significantly from what we take for granted today. Death and disease were intimately tied together up through the nineteenth century. The language of disease was effectively synonymous with the language used to describe causes of death. Only recently have we been able to think of death and disease as relatively independent of one another. Even in the early twentieth century the close connection between death and disease was not all that removed from the therapeutic environment of late-nineteenth-century medicine. Nevertheless, many of the developments in public health and medicine that allow us to increasingly make distinctions between death and disease today began in the nineteenth century (see e.g., Duffy 1993; Grob 2002; Porter 2003; Preston and Haines 1991; Rosenberg 1987[1962], 1992; Starr 1982; Szreter 2005; Tomes 1998; Worboys 2000).

This dissertation examines the institutional challenges of implementing cause-of-death reporting as a professional practice in nineteenth-century Massachusetts and the subsequent shifts in cause-of-death nomenclature during this period. It looks at

the historical, demographic, sociopolitical, and theoretical conditions that gave rise to the first state-implemented cause-of-death reporting system in the United States, Massachusetts's vital registration system. Developments in public health, medicine, science, industry, immigration, in almost every arena of social life during the nineteenth century, were shaped in some fashion through disease. The disease ecology changed dramatically during this period shifting from acute infectious to chronic degenerative diseases, which marked the beginning of the epidemiological transition (Omran, 1971). A key component of the epidemiological transition was the registration systems that provided the raw data on which nineteenth-century public health policy emerged. The greatest challenge that public-health reformers faced in implementing and regulating cause-of-death registration was standardizing the language and practice of disease and cause-of-death reporting. I look closely at issues of implementation, regulation, and standardization in cause-of-death registration. Efforts to standardize disease and cause-of-death terminology in the United States and internationally did not successfully emerge until the late nineteenth century. While many disease terms were in common, their diagnostic applications were not. I examine the relative impact that standardized nomenclature had on cause-of-death reporting in western Massachusetts from 1850 through 1912. I analyze the effects of one specific international influence on late-nineteenth and early twentieth-century grammars of death, namely, the organized efforts of European and American medical professionals to instruct physicians in proper nomenclature through explicit references and sanctions in the 1900 International Classification of Diseases (ICD).

My objective is to reconstruct the institutional parameters around which Massachusetts's vital registration system evolved and within which individual actors participated. I argue that these parameters reveal certain normative configurations that were necessary in the institutional development of cause-of-death registration in Massachusetts. Most accounts that describe the institutional rise of public health and medicine in the nineteenth century focus on specific social, political, and historical developments that brought about modern health regimes (see e.g., Kett 1968; Foucault 1973; Starr 1982; Rothstein 1985[1972]; Cassedy 1986; Haber 1991; King 1991; Porter 1997; Bonner 2000; Weisz 2006). My approach is different in that I examine this institution-building process at a more fundamental level by targeting those processes that allow for the very possibility of social, political, and cultural developments to take shape. I begin this chapter by providing the historical context that informed the developments in cause-of-death registration in Massachusetts.

### Humors, Miasmas, and Germs

For the better part of medical history, diseases were not thought of as having unique causal properties as we typically think of them today. Diseases were contingent upon the idiosyncrasies of the patient in demonstrating their pathology (Bynum, 1993). In the Hippocratic tradition, health was defined as the natural balance of the body's essential fluids, or the four humors – yellow bile, black bile, phlegm, and blood. Disease was an imbalance or disturbance of one or more of these humors. The therapeutic objective was to bring the humors back into balance and restore the

patient's vital energies (Nutton, 1997). Prior to the nineteenth century, the prevailing therapeutic approach drew directly upon this idea of restoring balance to the person as a whole. The Hippocratic tradition had little use for classifying causes of death and disease in a taxonomic fashion because disease was not conceived of as a distinct phenomenon with its own natural history. Disease was understood as a deviation from the normal function of mind, body, and spirit with little meaning outside the dysfunction of an individual's normal state of being (Cohen 1953; Bynum 1993). Against the backdrop of such long-held medical traditions it was understandable that this new idea of germ theory in the late nineteenth century would meet with resistance.

Most nineteenth-century physicians in the U.S. were hesitant to adopt the idea that single microscopic entities (germs) could prove sufficient in explaining disease causation (Pelling 1993; Bynum 1994; Carter 2003). The skepticism rested not so much on the size of the causal entities being proposed but on their causal specificity. The conventional understanding during this period was referred to as the zymotic theory of disease. It located disease causation in a plurality of conditions consisting of environmental conditions, heredity, individual predispositions, behavioral characteristics, including physical contact with those who carried disease (Olby 1993; Pelling 1993; Bynum 1994; Carter 2003). Seasonal changes were often cited as contributing factors for a wide variety of diseases, most notably Cholera (Pelling 1978, 1993; Rosenberg 1987[1962]; Vinten-Johansen et al. 2003). An individual's constitutional or hereditary makeup also provided one of several explanatory

candidates for such diseases as tuberculosis, scrofula<sup>1</sup> or any disease thought to be uniquely characteristic of a particular individual (Olby 1993; Ryan 1993; Dubos 1996[1952]; Ott 1996). The span of causal factors responsible for any given disease were not only wide but could also be dissimilar in kind depending on conditions and circumstances. For instance, a contributing cause for a particular disease in one individual did not ensure that its presence in someone else would produce a similar outcome. Geographical location, seasonal change, atmospheric conditions, individual predispositions, and behavioral tendencies, all provided an array of possibilities from which physicians diagnosed their patients. To suggest, therefore, that for each infectious disease there was a single corresponding microbial agent as its unique cause was completely counter to conventional views (Olby 1993; Pelling 1993; Bynum 1994; Carter 2003). While the idea of a single causal agent responsible for particular diseases was not new per se, it was nevertheless an idea that turned prevailing notions of disease causation upside down.

The resistance to a germ theory of disease rested not only on theoretical grounds but on professional grounds as well. Germs as causal agents had implications for clinical practice. Most therapeutic approaches, as varied as they were during this period, were steeped in holistic theories of health and disease (Warner 1986). As noted earlier, a patient's mind, body, spirit, emotions, moral behavior, and environment were all part of an interconnected whole that made up the causal matrix responsible for wellbeing (Rosenberg 1992, 74-89). The experienced physician would

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1. Scrofula is one of several types of tuberculous infections that affects the lymph nodes in the neck.

have attended to each of these factors in sussing out the sources for a patient's ill health. As Samuel Tissot (1769, 13-15) noted in his book on ailments of the literary and sedentary lifestyle:

The diseases to which the learned are particularly exposed arise from two principal causes, the perpetual labours of the mind, and the constant inaction of the body.... Metaphysical speculation enquires into the causes of the influence of the mind on the body, and that of the body on the mind: medicine is engaged in less abstruse, but perhaps in less uncertain researches; it does not attempt to display the first causes of this reciprocal power in the two distinct parts of which man consists, but confines itself to an attentive observation of the phenomena that result from it. Experience instructs the physician, that such a peculiar state of the body must necessarily produce a certain correspondent exertion of the soul; that such emotions of the soul must unavoidably be attended with reciprocal alteration in the body; and that, while the soul is absorbed in thought, a part of the brain is kept in a state of tension, which becomes fatiguing to it. Thus far only physicians extend their enquiries; and this indeed is all that is required for them to know.

### Professional Health Structures and Perspectives

Historians and demographers have long noted the relative unreliability of nineteenth-century death records in mapping out disease and cause-of-death trends. Some point to the conceptual shortcomings of a pre-germ-theoretic understanding in establishing any sort of diagnostic validity. Others cite inherent inconsistencies within death records due to the ways in which death events were reported, recorded, and collected. Many of the problems surrounding cause-of-death data focus in one way or another on diagnostic issues. Can we trust the historical record to provide us with a *true* account of disease events during this period given the rather rudimentary science that was in place? Can we trust death records from registration systems that were in

their infancy, often functioning with little authority or regulatory oversight? Anne Hardy (1994, 472-73) expresses such concerns for nineteenth-century cause-of-death data in England and Wales, noting that "...registered causes of death often bear only an approximation to the truth. ...those who wish to make use of this material cannot afford to take the data at face value if they wish to establish historically valid conclusions." Hardy surveys the potential pitfalls of using GRO (General Register Office) cause-of-death statistics, lays out the problems and deficiencies in great detail, and rightly cautions against simply assuming their reliability and validity.

Nineteenth-century recorded causes of death were created against a theoretical backdrop that differed significantly from contemporary notions of disease. In most cases, we lack the requisite physical or archival data needed to *accurately* determine or verify particular nineteenth-century causes of death in light of twenty-first century standards. A recorded cause of death is an historical account, one of several possible accounts of a particular event. This is especially true of nineteenth-century causes of death given the etiological (causal) understanding of the period. Any number of causes could have been, and often were, attributed to a particular ailment based upon such factors as an individual's constitution, seasonal variations, heredity, age, and so on. In other words, causation meant something quite different for nineteenth-century physicians than it does for physicians today. A late nineteenth-century physician would have had a significantly different notion of disease causation than a physician practicing only fifty years earlier. In fact, the late nineteenth-century

physician had more in common conceptually speaking with physicians today than with their mid-century colleagues.

The problem here is one of conventional identification. What are the limits necessarily imposed upon us when attempting to historically identify a cause of death or disease? Is it meaningful to construct disease histories that interpret the historical record from a contemporary etiological basis or does it make more sense to use the categories, nomenclature, and theoretical backdrop of nineteenth-century medical science? Does it make sense to reconstruct past disease histories from a conceptual basis rooted in contemporary systems of understanding? Such questions naturally arise due to several historical factors pertaining to 1) the manner in which causes of death were recorded, 2) the absence of standardized protocols for what was recorded (i.e., what counts as a valid cause of death), 3) irregularities and inconsistencies among the recording instruments themselves, and 4) the qualifications of those who reported and recorded causes of death. Günter Risse (1997, 175) speaks of a shifting disease ecology, which "...presupposes complex interactions between both biological and non-biological factors which are ultimately responsible for different and changing patterns of sickness in time and space." Historical accuracy plays off all of these types of interactions, and rather than reduce the question to particular biological factors, important as they are, the focus of this chapter is on the competing institutional influences on health, disease, medicine and the emerging scientific discourse on causes of death.

## Changing Medical Perspectives

Nineteenth-century medicine in the United States did not bestow physicians with high professional stature. Medical practitioners of all stripes were considered more as tradesmen than professionals. American medical culture had yet to fully avail itself of the growing "cultural prestige of science" in both theory and practice (Gelfand 1997, 1139). The revolutionary changes that Western society experienced during this industrializing period extended very little of its celebrated progress to medicine (Duffy 1993; Starr 1984). Physicians stumbled along as they had for centuries, burdened with a physiological and etiological understanding that only furthered their association with a bygone era. The continued practice of purging, blistering, blood-letting, sweating among other methods of expelling "great morbid actions" (purgation) stood in stark contrast to the spectacles of a modern, industrializing society. The promises of the Enlightenment were still fresh in the minds of those who ushered in the nineteenth century. Underwritten with the precepts of science and reason, progress on all levels of human endeavor were eagerly pursued and anticipated. The state of medicine in the United States as well as Europe during this early period simply failed to meet the expectations of a modern scientific era (Bonner 2000; King 1991; Rothstein 1985[1972]; Starr 1984; Weisz 2006).

These perceptions quickly changed during the last quarter of the nineteenth century. A little more than a generation later, the institutional, theoretical, social and political developments transformed American medicine from an unassuming trade to a respected and powerful profession at home and abroad. One of the more important

corollaries associated with this shift concerned changes in the way death and disease were understood, not simply in etiological terms but in the social location of sickness and health more generally.

For a better part of this period the province of sickness and health was confined to the privacy of the home. The bedside was literally the setting from which physicians conducted their business. Physicians were entrepreneurs operating primarily on contract, seeking and gaining clients primarily through their reputations rather than exploiting medical credentials as a sign of their competency. The privacy of the patient's home served as the physician's work environment. What properly constituted private versus public was unambiguously marked along gender lines. The private sphere was associated with domestic affairs and functions and assigned feminine qualities as a matter of course. To have one's vocation located primarily in the context of the home was to reduce its status almost by definition. Insofar as one's work environment determined stature, physicians struggled with the verities of a culture mired in highly gendered spheres of influence. As Steve Sturdy (2002, 5) points out, "Though they aspired to be regarded as learned gentlemen, their role as attendants of the sick located them in what was still a residual and deprived sphere of domestic privacy, remote from the structures of rank and status that centered on the public world of court and state, and uncomfortably close to women and servants." Consequently, health and medical care were not regarded as a public good but as a private good, a personal matter between doctor, patient, and family.

Given the domestic locale of sickness and health, it is not surprising that the focus on home healthcare and the individual practice of sound health habits was commonly advocated. In the eighteenth and early nineteenth century, the popularity of health pamphlets and manuals, often referred to as "catechisms of health" or "guides to domestic medicine," demonstrated the degree to which medicine remained a private and personal matter (Starr 1982; Swedlund 2010). The most well-known of these health pamphlets were Bernhard Faust's *Catechism of Health* and William Buchan's *Domestic Medicine*. These and other health publications had a relatively wide circulation in both Europe and the United States. They were targeted toward lay audiences and offered both moral and practical advice on personal health and well-being.

Popular medical advice as a commercial enterprise, coupled with physician entrepreneurialism, gave rise to a competitive environment in which various medical philosophies contended for a share of the healthcare market. This was particularly salient in the United States. In the first quarter of the nineteenth century many states had licensing requirements for physicians but quickly began rescinding these laws in the interest of self-governance and for leveling the medical playing field (ibid.). European countries, on the other hand, were far more likely to implement comprehensive certification systems and regulate medical practice. Great Britain ratified the 1858 Medical Act, which allowed for the certification of certain types of medical practice to the exclusion of others. This did not mean that only certified practitioners could practice medicine. Homeopaths, naturopaths and others excluded

by the Medical Act were allowed to continue practicing but not under the guise of official certification (Bynum 1994). The variety of approaches to medicine in Europe and the United States were similar, but American medicine was far less regulated and did not have the type of official oversight that many European nations enjoyed. Healthcare practices in the United States, as a result, remained more divided in terms of distinct schools of thought.

In the United States, the two most common approaches to medicine were Allopathic and Homeopathic practices. Allopathic medicine consisted of various purging techniques and therapies, such as bloodletting, induced vomiting, and the use of a wide array of purgatives to restore the body's natural balance. Allopathic medicine operated on a principle of opposites. If, for example, a patient suffered from diarrhea the allopathic treatment would be to introduce a substance that caused constipation. Whatever symptomatic ailment the patient suffered, the opposite was prescribed to counter the ill-effects and restore balance. Homeopathic medicine, on the other hand, operated on a principle of similitude or "like cures like." In an attempted to alleviate a patient's symptoms, the Homeopath would introduce small doses of a remedy that in large doses would produce the very symptoms it was attempting to alleviate. If such remedies were given in small enough doses, the body's "vital energy" would be able to fight off the disease by attacking the "weaker dynamic," thus allowing the body to restore itself to harmony and balance. Homeopathy began gaining ground during the latter half of nineteenth century but faded away by the turn of the twentieth century. Within each of these approaches,

among many others including Thomsonianism, Eclecticism, Hydropathy, the practitioner relied upon a loyal and informed constituency. Establishing a following in terms of "brand loyalty" became a professional necessity. The rise of popular healthcare through the dissemination of health pamphlets provided the perfect means for establishing a following while at the same time exposing potential clients to competing medical philosophies. Buchan's *Domestic Medicine* advocated a do-it-yourself approach, which emphasized the common sense capacity of individuals to care for themselves (Starr 1982).

Practicing medicine within a competitive, commercially-driven environment fit well within American culture during this period. Paul Starr suggests that a deeper impulse of anti-professionalism and faith in the principle of natural reason motivated much of the popular resistance to a single, unified medical authority. The move to deregulate medical licensure in the early nineteenth century drew largely upon popular sentiment. The political debates surrounding the licensure issue made strong appeals to both public autonomy and reason as well as the public good. The focus here was not so much on the good of the public's health per se as it was on the good of maintaining autonomy and ensuring individual freedoms. The marketplace acted as the best arbiter for the public's health in the minds of many. Ultimately the natural rights position won the day, and the level of health consciousness during this period nevertheless remained within the domain of private and domestic concerns.

Prevailing notions of health, sickness, and disease were largely confined to the individual. Personal health and well-being stemmed from a behavioral model, which

deferred responsibility to the individual. This provided the basis for an individuated conception of disease, best expressed in terms of constitutional predispositions. The constitutional view of disease located mitigating health factors according to certain features of an individual's moral, spiritual and physical makeup. It tended to follow a tautological formulation by assuming that a poor constitution increased one's susceptibility to sickness, while one's susceptibility to sickness was often a de facto indicator of a poor constitution. This understanding of disease was long standing and followed Enlightenment ideals of the individual and the state. For many Enlightenment thinkers, the solution to health related problems lay not at the doorstep of society but at the feet of free, self-determined individuals exercising their God-given rational capacities. Human progress depended on certain corrective measures that focused on reforming individual behaviors through education. The role of government was not envisioned paternalistically but as a facilitator of individual liberties. The means to well-being depended on various legal guarantees for securing individual rights and freedoms, with minimal state intervention. Individuals were given charge of securing their own health and well-being as independent agents but from within a context that guaranteed individual autonomy. The following statement by John Locke provides a good example of these sentiments (Some Thoughts Concerning Education 1996[1693], p. 10):

A sound mind in a sound body, is a short but full description of a happy state in this world: he that has these two, has little more to wish for; and he that wants either of them, will be but little the better for anything else. Men's happiness or misery is most part of their own making. He whose mind directs not wisely, will never take the right

way; and he whose body is crazy and feeble will never be able to advance in it. I confess there are some men's constitutions of body and mind so vigorous and well framed by nature that they need not much assistance from others but by the strength of their natural genius they are from their cradles carried towards what is excellent and by the privilege of their happy constitutions are able to do wonders. But examples of these are but few; and I think I may say that, of all the men we meet with, nine parts of ten are what they are, good or evil, useful or not, by their education. 'Tis that which makes the great difference in mankind.

### Emerging Public Health Perspectives

Individuated perspectives on health and disease began to change during the nineteenth century with the emergence of statistical methods that allowed for more systematic investigations of health trends across entire populations. The formation of a public health consciousness proved to be an important step in shifting health concerns away from the domestic sphere to a broader public good. The work of Edwin Chadwick and William Farr in England and Lemuel Shattuck in Massachusetts lead the way in advocating for public health and the need for more proactive and preventative health measures (Swedlund 2010). These and other developments coincided with the rise of the sanitation movement, enlisting the voluntary support and cooperation of local communities in battling public-health hazards. While communities were concerned with the public health, they were nevertheless concerned with maintaining their local sovereignty and preferred to address public health issues locally (Beemer et al 2005; Swedlund 2010). Much of what motivated the rise of public health during this period surrounded the social anxieties that accompanied rising industrialization and urbanization. The material conditions for the nineteenth-century public health crisis

were forged locally as communities all across the state experience a period of rapid economic expansion. At the same time, we also see state intervention come into play fairly quickly with public health regulations and initiatives, which frequently came under fire due to the perception that such public health interventions would have a negative impact on local economies (Beemer et al, 2005).

The demographic shift that accompanied industrialization also brought about corresponding changes in health practices. The way the medical community, public health officials, and the general public understood disease played a central role in this broader health transition. Preventative and therapeutic responses to rising incidents of infectious disease were also governed by broader sociopolitical factors (Alter and Carmichael 1996; Beemer et al 2005; Bowker and Star 2000; Meslé and Vallin 1996; Porter 1997; Risse 1997; Slater 1993; Starr 1984). The conventional story attributes a heroic role to the discoveries of medical science. The adoption of diagnostic measures based on germ theories of disease, however, did not begin to take hold particularly in the United States until the turn of the twentieth century, nearly three decades after its establishment in the scientific community. Advances in bacteriology also took considerable time before they filtered into medical and public health practices. For the most part, scientific discoveries in medicine throughout the nineteenth century reveal a rather episodic development and did not begin to coalesce in any systematic fashion until long after initial discoveries were made (Szreter 1988; Hamlin 1992; Barnes 1997). Consequently, the role of nineteenth-century medical science in curbing epidemic diseases, often portrayed triumphantly, is not as obvious as some have

suggested. Indeed, factors other than advances in medical science are now generally accepted as playing a more significant role in changing epidemiological patterns during this period. This does not suggest, however, that medical science played only a minimal role in improving nineteenth-century health. What it does suggest is that the history of health and medicine during this period is multifaceted, requiring a more complex approach (Alter and Carmichael 1996; Barnes 1997; Beemer et al 2005; Bowker and Star 2000; Hamlin 1992, 1994, 2002; Meslé and Vallin 1996; Porter 1997; Risse 1997; Slater 1993; Starr 1984; Szreter 1988).

#### American Epidemiological Transition

The nineteenth-century American epidemiological transition provides the backdrop for how prevailing notions of death and disease were diagnostically employed. Assigning a specific cause on a death record entailed a whole host of factors, from the recording instrument itself to the individual responsible for recording the cause of death. A long-standing problem in the history of cause-of-death classification is identifying the etiological grounds for changes in diagnostic terminology. For some diseases, classification and social bias were tightly intertwined. For instance, moral failings were associated with many diseases which were poorly understood during the onset of the epidemiological transition and yet were prevalently associated with lower classes, e.g., cholera, while positive attributions were asserted to others whose impact was more visible in upper classes, e.g., pulmonary tuberculosis (Yaukey and Anderton 2001; Dormandy 1999). The concept of

a natural death itself had been challenged by the pathological paradigm, and the notion that infant deaths were an acceptable "culling" of the lower classes was only gradually replaced over the century with a notion that such diseases were a preventable social problem and a quantifiable one as well (Foucault 1973; Swedlund 1990; Armstrong 1986; Bartley et al. 1997; Hamlin 1995; Anderton 2003, 2004).

Historical trends in recorded literal causes of death are intertwined with the social history of disease classifications, or nosologies. These trends reflect the longitudinal cause-specific history of the epidemiological transition. Apart from a handful of studies that examine cause-of-death reporting among North America populations, the history of changing disease conceptions in the United States has not been adequately investigated, and systematic attempts at providing a detailed mapping of the changes in literal cause-of-death reporting and subsequent nosologies are virtually absent in the literature (Howard-Jones 1974; Gittelsohn 1982; Anderton and Hautaniemi Leonard 2004). Until recently, most studies of North American mortality trends were limited to aggregate-level Census data. With an increased availability of individual-level data, more detailed assessments of morbidity and mortality trends are now possible. Moreover, the presence of corresponding archival sources satisfies the need for contextualizing the changing etiological landscape in terms of examining the institutional conditions in which disease conceptions were embedded (Condran et al 1982; Condran et al 1984; Crimmins and Condran 1983; Meckel 1985). A clear and accurate accounting of the early American epidemiological

transition is fundamentally incomplete without understanding the changing nomenclature as reflected in reported causes of death.

We are left with the question of how specifically did prevailing notions of sickness and health change over this period, and what were the parameters and processes by which cause-of-death descriptions and disease classifications evolved? What evidence is available showing that particular diseases followed certain conceptual, or perhaps etiological, trajectories and what factors contributed to these changing perspective-salient causes? For example, if we look at early recorded cases of consumption or phthisis, we find that such diagnoses were later identified as pulmonary tuberculosis. What are the contributing factors that lead to these diagnostic changes? Perhaps it is premature to suggest that a change took place at all and what we are dealing with here are diagnostic standards that point to entirely different diseases? Is it plausible to suggest that what was recorded as consumption or phthisis in the early to mid-nineteenth century was not referring to the same disease as what was recorded as pulmonary tuberculosis in the later nineteenth century? As Anderton and Hautaniemi Leonard (2004, 119) note, "...the literal cause "tuberculosis" does not appear until after Koch's discovery of the tuberculosis bacterium and availability of a swab test." In hindsight, the temptation is to automatically attribute the development of more precise diagnostics techniques and understandings in such cases but it is not entirely clear that such attributions are always justified. Anderton and Hautaniemi Leonard continue (Ibid.), "...cases diagnosed as consumption and phthisis are prevalently, but not always, examples of

pulmonary tuberculosis in these early periods. Some of these cases would likely not have been diagnosed as tuberculosis in more recent periods." The important thing to note is that classifying particular diseases and tracing their historical trajectories involves more than just a retrospective identification with contemporary classification schemes.

Given the more immediate physiological nature of death and disease, it is not surprising that considerable attention is given to risk factors more closely associated with disease events themselves. Medical and epidemiological histories tend to focus heavily on more proximate causal factors in identifying shifting disease trends in conjunction with individual health practices and their therapeutic responses. As such, etiological accounts have been closely tied with contemporaneous developments in medical science. The shift in the disease ecology during the latter part of the nineteenth century has understandably been skewed toward the medical side of the equation. The picture as stated earlier is more complex than that. Parallel to these etiological shifts was the rise of modern systems of disease classification in development alongside the first distinctly modern systems for reporting mortality. Understanding the complexities that lay beneath these parallel changes requires an account that extends beyond the shifting advances of nineteenth-century medicine. Massachusetts provides a unique locale for studying the historical processes that underlie these shifting trends in mortality and disease. As Alter and Carmichael (1996), Preston and Haines (1991), Anderton and Hautaniemi (2004) and others have pointed out, sufficient individual-level data is lacking for studying mortality in North America

during this period. In the following chapters, I provide a more detailed analysis of specific diseases, beginning with consumption, phthisis and tuberculosis. I lay out the historical context of Massachusetts's developing registration system and its expanding authority and scope as a fundamental component for fully understanding the shifting etiological context throughout this period.

## CHAPTER 2

### THE PRAGMATIC IMPERATIVES OF PUBLIC ACCOUNTABILITY

Social theorists have long used some version of what I call public accountability to explain social order and conflict. Public accountability serves a basic normative role in how we constitute and regulate our interactions with one another. It provides us with the practical resources necessary to navigate through the mundane and extraordinary complexities of everyday life. The idea of *publically accountable action*, while not necessarily expressed in those terms, nevertheless does much of the theoretical and conceptual work in sociological theory. Whether the focus is on a collective conscience, an integrative subsystem, a generalized other, communicative action, intersectional complexity or any number of non-idiosyncratic social processes, each of these mechanisms relies on some accountability structure that cannot be meaningfully defined outside of public practices. That any action is regarded as meaningful and justifiable presupposes a wider social context that extends beyond particular instances of any action. Public accountability is that extended social context. It furnishes the pragmatic, pre-theoretical suppositions of what I refer to as *constitutive and regulative normativity*. I will define these terms in more detail later in this chapter, but for now, constitutive normativity refers to practices that are necessary in bringing about certain kinds of defining actions or outcomes. For example, the act of making a promise requires sincerity on the part of the promise maker to follow through with certain stipulated actions. To make an insincere promise

is by definition not a promise because it violates the constitutive norms of what it means to make a promise. Regulative normativity refers to rules or directives that regulate pre-existing practices or actions, thus, requiring an established set of actions or practices to do its regulative work (Searle 1997[1969], 33ff.).

Engaging in publically accountable actions simply means that we interact with the world through taken-for-granted knowledge and abilities that define and justify the actions we take. The "know-hows" and "know-thats" of daily life are never enacted in cognitive isolation, or as privately understood actions. If we think of private actions as carrying a fundamentally different sort of accountability than their public counterpart, at least theoretically speaking, we situate those actions outside the realm of public scrutiny and social configuration. They become uniquely private insofar as any appeal to a private action's meaningfulness and justifiability must be found outside a publicly accountable framework. For instance, if I were to act in such a way that the meaning of my actions could only be understood by me the actor and no one else, we would describe those actions as uniquely private. Access to such actions would be restricted to a set of individual practices that could not extend beyond the conceptual space of private accountability. As we will see, uniquely private actions and their accountability conditions are not possible if they are to be meaningful.

### Theoretical Underpinnings of Private and Public Action

The import of these seemingly oblique set of ideas will be clarified and extended in this chapter. They provide the theoretical basis for explaining the

constitutive and regulative features of nineteenth-century cause-of-death registration in Massachusetts. In the following chapters, I develop a more general proposition stating that successful institution-building requires practices that institute both constitutive and regulative normativity as a singular process. I then apply this proposition to the historical cases of Massachusetts' emerging cause-of-death registration system and the early development of the International Classification of Diseases. Massachusetts' early struggles with compliance and implementation issues in their new registration system illustrate this singular process, or lack thereof, quite well. In order to get to that point I need to clear a theoretical space on which to build my case. I begin at the most fundamental analytical level building the groundwork for constitutive and regulative normativity and then gradually move toward the institutional level where the practices of cause-of-death reporting in nineteenth-century Massachusetts developed over this entire period.

The Issue of public action and meaning has its counterpart in private action and meaning. To better understand the analytic parameters around which public accountability rests, it is necessary to delve into its opposite, namely, actions that purport to be accountable only with the context of private meaning. This is familiar territory for those engaged in philosophical discussions about the possibility of a private language, commonly called the private language argument. In his work, *Philosophical Investigations*, Wittgenstein famously set forth the parameters for this thought experiment when he stated, "The individual words of this language are to refer to what can only be known to the person speaking; to his immediate private

sensations. So another person cannot understand the language" (Wittgenstein 1954, § 243). Wittgenstein's private language user was a philosophical Robinson Crusoe whose linguistic and conceptual resources were confined to the judgments and meanings of that individual alone. The only person capable of understanding this private language was the individual who created it. The question Wittgenstein wanted to explore was, is such a private language possible? He argued that such a private language was, in fact, not possible because there was no way of independently checking whether the private language user was using the language correctly. Given the parameters, the only person able to make that determination was the private language user. Wittgenstein's argument rested on the idea that if meaning in any language is determined through its use, as he argued in the *Philosophical Investigations*, then using a language meaningfully required some way of checking for its correct usage independently of any particular instance of its use. The problem with the idea of a private language is that correct usage cannot be determined independently of the speaker or hearer. It was not enough for the private language user to claim that in any particular instance she was correctly using the language because that was the way she had always used it. Establishing how she could know this without begging the question was the crux of the problem.

Wittgenstein elaborates this point further by focusing on the practice of rule following. He demonstrated that simply obeying an instruction to follow a particular rule was not sufficient for *properly following* a rule because whatever the rule follower deemed correct – the proper next step – could be justified on any grounds as being in

accord with that rule. A rule by itself cannot provide the necessary resources for its own application. Something more is needed beyond the ostensive rule itself to provide for its unambiguous following, that is, knowing *how* to follow a rule depends not on the rule itself but on the shared customs and practices of a particular community. On this view, a standard is only a standard against a backdrop of agreement and practice, not against another standard. For Wittgenstein the key to understanding the pragmatic significance of rule following was key to disentangling how language and action can be meaningful. Language finds its meaning in the shared social practices of a community of language users. Those same practices are meaningful because of the ways in which community members use language in defining those practices.

At first glance, it appears we are being lead into a tautology, or at least into a never ending series of justifications. If on the basis of collective practices we find individual actions meaningful because we can collectively recognize them as such, then on what basis does such collective recognition find its roots? It would seem we have fallen into the same dilemma that plagued Wittgenstein's private language user. The dilemma has the flavor of a child asking a parent a set of never-ending 'why' questions. The child understands all too well that using the word 'why' elicits a response that can be met with another use of the word 'why,' which in turn requires further justification and so on until the parent finally says something to the effect, "because that's just the way things are." Despite this seemingly unsatisfying response, the parent has provided a perfectly sound answer. As Wittgenstein points out, justifications must come to an

end because that is what justifications do. (Wittgenstein 1954, § 485; 1969, § 204).

The principle at work here is more intuitive than deliberate. Competency to use language or follow a rule is a demonstrated capacity to follow requisite customs and practices. We become part of a community when we have demonstrated our capacity to competently follow community practices. Fluency in a native language is marked by one's ability to freely use it without effort in the company of other native language users. Professional baseball players intuitively exhibit their command of the rules and objectives of the game by seamlessly performing within those boundaries.

Wittgenstein captures this issue of competency when he speaks about the distinction between grasping a rule versus interpreting a rule (Wittgenstein 1954, § 201):

It can be seen that there is a misunderstanding here from the mere fact that in the course of our argument we give one interpretation after another; as if each one contented us at least for a moment, until we thought of yet another one standing behind it. What this shews is that there is a way of grasping a rule which is *not* an *interpretation*, but which is exhibited in what we call "obeying the rule" and "going against it" in actual cases.

The way out of the above dilemma is not to fall into it in the first place. So how does one fall into the dilemma? According to Wittgenstein, we misunderstand the salience of practices *qua* practices when we force them out of the pragmatic contexts in which they have meaning. In other words, rule following is not simply the application of a set of instructions, which presumably stand outside their particular application. On the contrary, their particular application is what constitutes following a rule. By analogy, we can think of it in terms of riding a bicycle. To successfully ride a bicycle requires a

certain level of demonstrated competency that fits within the practice of bicycle riding. There are constitutive features to actions, like bicycle riding, that shape their meaning and practice. When those constitutive features are removed, like attempting to *ride* a bicycle while lying on your back, the action loses its meaning as identified and can no longer be deemed a practice as such. Actions are meaningful because we can identify them within a repertoire of shared practices – their pragmatic contexts – that meet certain expectations of what meaningful actions ought to look like.

Without going into greater detail,<sup>2</sup> the analytical principles underlying Wittgenstein's private language argument are identical to those insights suggesting that meaningful social action, whether conducted privately or publicly, is always publicly accountable action. Like the private language user, meaningful private actions are not possible. To engage in meaningful behavior is something that can only be understood and practiced within a normative framework that is applicable only from a publically accountable perspective. Given that social action is dictated within the broader realm of public accountability, social theorists have looked to norm-governed actions as a direct resource for solving the problem of social order (Habermas 1998, 215-55; Heath 2001). Public sanctions, rules and regulations, shared cultural expectations, traditions, values, beliefs, and so on have all served the task of explaining the orderliness of social interaction in one form or another. Talcott Parsons's confrontation with the Hobbesian problem of order represents the clearest expression of this type of normative solution. Social actors are integrated into a social

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2. For further discussion of the private language argument, see Wittgenstein 1953; Kripke 1982; Hacker 1990; Baker 1998.

system through internalizing culturally-specific norms and values that serve to internally regulate behavior in a constitutive fashion, that is, behavioral expectations provide a compositional basis for stable and mutually beneficial interactions. For Parsons and others who sought to explain social order as a function of shared beliefs and values, the role of public accountability was a substantive one. That is, specific accountability orientations (values, beliefs, traditions, etc.) served an integrative function that constituted a shared set of interactive practices and expectations.

A significant shortcoming with this approach, however, was in its utilization of public accountability orientations as a *direct* resource in addressing the problem of social order (Heath 2001, 18ff.). The plurality of such orientations presents an inherent instability due in part to the differentiated interests and values from which they derive; the very thing that is supposed to provide social stability (integration) is also the very thing that engenders social conflict. As such relying on cultural values as a resource for explaining social stability, at least within modern social contexts, requires their radical simplification and reduction in order to retain any explanatory power, but in doing so explanatory power is significantly reduced. Specific types of accountability orientations, therefore, become weak candidates for explaining large-scale social stability. Of course, what is problematic for some is paradigmatic for others. Ethnographic research, for instance, approaches social interaction on a smaller scale, emphasizing the unique characteristics of particular social groups without directly appealing to broader social processes. The complexities and disjunctions of modern cultural orientations are what provide their richness and appeal. Those same

complexities and disjunctions are also what severely restrict their validity beyond their local contexts. Nevertheless, despite the complexities that give voice to local configurations, the extension of social order beyond the local persists.

One way of dealing with such variegated contexts and constraints without losing the accountability conditions that allow for meaning and justification is to examine the pragmatic conditions that give rise to public accountability. In *Truth and Justification*, Jürgen Habermas (2003, 220) sets up the problem in the following way:

The role of the first-person plural can be taken on only by concrete communities who carry on existing discourses of justification and initiate new ones. Only in these forums is it possible to see which arguments are able to withstand criticism in the long run. This raises the question, however, of whether transcendental consciousness, having evolved into so many historical forms, splinters into just as many fragments of reason or whether the cultural manifold of its public employment manifests *the same* communicative reason.

Simply put, given the plurality of cultural norms and the communities in which they reside, does it make sense to speak about normativity, justification, and reason beyond their local expressions? Can we speak about justificatory practices in a way that transcends the local without ignoring the local? Habermas answers the dilemma by appealing to, "the pragmatic constraint of taking the perspective of the other" (ibid., 221).<sup>3</sup> The analytical context here is local insofar as justification is always worked out within particular communities and normative frameworks, but the act of taking on the other-centered perspective is not confined to the local. It is necessary

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3. Habermas is using Mead's notion of the 'generalized other' to elaborate the communicative dependency that exists between speakers and hearers. See Mead 1967[1934].

for any justificatory practice regardless of the normative framework in play. As Mead (1967[1934]) has taught us, we take on the perspective of the other in configuring our actions, expectations, and self-understandings and anticipate the same sort of configuring from those with whom we interact – the classical problem of double contingency. The pragmatic constraint, in slightly different terms, is the ever-present expectation that our interactions with one another are met with mutual consideration; regardless of the cultural barriers that may be present, we nevertheless presuppose that those with whom we are interacting have taken a similar other-centered perspective. The crux of the pragmatic constraint lies, therefore, with a presumption of symmetry between actors and the resulting reciprocity that constitutes the interactive event. It decenters the 'I' perspective (ego) as a necessary condition for mutual understanding (Habermas 2003, 234-35). We engage one another in a series of performative commitments without which meaningful interaction would be impossible.

So what are the performative commitments that make actions meaningful? Specifically, what sort of pragmatic presuppositions must we commit to in order for our actions to have any meaning whatsoever? One way to answer the question is to think of it counterfactually. In the course of our everyday activities, we assume that the world around us is unproblematic. We go to work, eat our meals, walk the dog, pay our bills, among countless other routines without worrying about the ways in which these activities can be frustrated (Bernstein 2010, 181-85; Habermas 1998, 217-55). There are very good practical/functional reasons why this is the case. Simply

getting through the day would be impossible without uncritically acting upon taken-for-granted assumptions. Habermas (2003, 253) refers to these taken-for-granted assumptions as "performative certainties." If our routine activities do become frustrated, as they often do, we don't abandon our assumptions of certainty. Rather, we actively look for solutions that will restore, or repair, our performative certainties in those particular cases, which may or may not be the same certainties we assumed before we sought a solution. We nevertheless actively seek out a stable base from which to conduct our daily-to-day activities. The point here is that in performing our everyday activities we do not take a hypothetical point of view. The world around us and our interactions with that world are assumed to be unproblematic until events dictate otherwise. We presuppose that an objective world exists not simply for us but for other people as well, that we share this objective world with others, and that our interactions with those around us are dependent upon a level of agreement that allows for mutual understanding within both an objective and subjective world. The pragmatic perspective takes this practical stance as the point from which it begins and to which it ends.

What then does this tell us about the role that public accountability plays in the pragmatic imperatives of everyday life? From an ordinary language perspective as put forth by Wittgenstein, public accountability is an imminent feature of how we use language in our communicative, justificatory, and intersubjective practices. It is not a take it or leave it option that may or may not be present in meaningful action. Rather, it is foundational for the constitutive and regulative norms that govern institutional

practices because it serves the pre-theoretic suppositions of everyday life. The taken-for-granted background knowledge and competencies that get us through our daily routines are predicated on a broader set of accountability conditions that transcend those routines. If asked why we acted in a certain manner, the question assumes that we can give reasons for our behavior on the assumption that others will understand those reasons. Even if others disagree with our reasons or find them odd or unreasonable, they are nevertheless identifiable in a public sense. Reasons are considered *reasons* because they derive their justifiability independent of the person giving them, which applies equally to actions that contravene given social norms however radically distinct they may be. In syllogistic form:

1. Actions are meaningful because they can be justified.
2. To justify an action is to give reasons for that action.
3. Giving reasons for an action presupposes public accountability.
4. Public accountability entails the presence of norm-governed practices that provide specific accountability frameworks.
5. Consequently, all meaningful actions are performed within specific accountability frameworks that facilitate the normative conditions for justifying particular actions.

Again, it should be noted that this approach brackets the possible meanings that can be associated with particular actions. Winking at an individual across the room, for instance, can be interpreted in any number of ways. That a particular meaning is associated with a specific action is dependent on the historical, cultural, and situational contexts in which they were received. Yet the conditions that *allow us to*

associate actions with meaning are what provide the lattice work upon which possible meanings are constructed.<sup>4</sup> As such, reconstructing publicly accountable actions is nothing more than examining the *conditions of possibility* that must exist in order for actions to be meaningful (Heath 2001, 283ff.).

The analytical task here is to begin unpacking the accountability conditions of Massachusetts's cause-of-death registration system as they evolved in an effort to understand the rather dramatic institutional changes that took place in the last quarter of the nineteenth century. As we will see, these accountability conditions reveal the normative configurations that were necessary in the institutional development of vital registration in Massachusetts. Standard accounts for the institutional rise of public health and medicine in the nineteenth century often center on specific social, political, and historical developments such as educational and regulatory reforms, advances in our scientific understanding, broad public health appeals and surveillance, the powerful political and economic influence of professional organizations, and the many sectarian struggles in both public health and medicine that helped forge the triumphs of modern health regimes (see e.g., Kett 1968; Foucault 1973; Starr 1982; Rothstein 1985[1972]; Cassedy 1986; Haber 1991; King 1991; Porter 1997; Bonner 2000; Weisz 2006). The common thread in all of these accounts is their appeal to social, political, and cultural variants as *direct* resources in explaining the institutional parameters

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4. This point is often misunderstood. Examining the conditions necessary for meaningful action does not offer any commitments on the meaning or validity of any particular act or set of actions. What is deemed meaningful is, as Wittgenstein argues, a matter entirely contingent upon the agreement and practices of a community of language users. Community agreement and practice are, nevertheless, necessary for meaning and validity to take place.

under which public health and medicine emerged. I approach the institutional question at a more fundamental level by focusing on what provides for the conditions of possibility that would allow such social, political, and cultural resources to take root.

### Rules, Structures, and the Felicity of Social Action

Rules provide structure by demarcating limits and boundaries. Social structures are often portrayed in this sense as rules writ large, the rails on which actions are directed and redirected. Whether considered at the micro or macro levels, structures represent enduring patterns of behavior that remain stable insofar as those behavioral patterns are reproduced. This definition does a poor job, however, of getting us where we want to go in understanding social structure. The question we want answered is why some behavioral patterns emerge and endure over time and others do not. What provides the glue that turns behaviors into patterned behavior and allows those patterns to stick?

We are now in a position to extend the above principles more directly in the direction of institutional contexts and the actions that define those contexts. As I have argued, all social actions are publically accountable actions and thereby normative. The conventional way of speaking about normativity is through regulative concepts, those explicit and implicit rules, customs, beliefs, values, expectations and so on that instruct, guide, persuade and force behavior. Often overlooked in discussions of

normativity are the constitutive features that meaningful actions require.<sup>5</sup> As we have seen, explicit instructions to follow a rule, a cultural norm, etc., are not enough to satisfy all the normative conditions needed for actions to be felicitous. Again, we can look at this from a counterfactual perspective. What sort of counterfactual conditions can we imagine that would reduce otherwise felicitous acts into their infelicitous counterparts? For example, If while mowing your lawn a police officer pulls you over on your riding lawnmower and cites you for not properly signaling your right-hand turns, you would consider such an act to be more than just a little odd; it would be an infelicitous act. Likewise, If your therapist attempted to hand you a speeding ticket at the end of your session because you admitted that you were driving over the speed limit, you would likely look for a new therapist. In the first example, the police officer's act of handing out a citation for speeding is not in-and-of-itself infelicitous; this is what police officers do. What made the act infelicitous was the context in which that act took place. There are no regulations that require people who mow their lawns to signal their turns. In the second example, the infelicity was less of a regulatory issue and more constitutive in nature. The role of a therapist is not to enforce traffic laws but to provide therapy. In this case, expectations of what it means to be a therapist were violated. Actions that make sense do so in terms of context, constituency, and competency. They fit within certain normative expectations as defined through their contextual settings, the persons who make up the interactive exchange, and the know-how that is demonstrated.

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5. In *Speech Acts An Essay in the Philosophy of Language*, John Searle provides one of the clearest critiques of the distinction between constitutive and regulative rules.

## Constitutive and Regulative Normativity

In subsequent chapters, I show how context, constituency, and competency played a central role in Massachusetts' emergent death registration system. The system's normative expectations, however, split along constitutive and regulative lines, which prevented the full implementation of death registration in Massachusetts for nearly forty years after the system first came into effect. As I point out, the constitutive and regulative features of death registration did not match up with its institutional mandate – the complete and accurate recording of causes of death. I have discussed constitutive and regulative normativity in previous sections but only briefly. The concepts themselves are rather simple to understand. Fitting them within a theoretical framework and empirical setting is not a simple task. In this last section, I flesh out these two concepts more systematically, drawing on the pragmatic imperatives that situate their theoretical import.

Constitutive and regulative normativity are analytic distinctions that describe two distinct properties of social practices. Constitutive normativity refers to practices that are necessary in bringing about certain kinds of defining actions or outcomes. For example, the act of making a promise requires sincerity on the part of the promise maker to follow through with certain stipulated actions. To make an insincere promise is by definition not a promise because it violates the constitutive norms of what it means to make a promise. Regulative normativity refers to rules or directives that regulate pre-existing practices or actions, thus, requiring pre-existing actions or practices in order to do its regulative work (Searle 1997[1969], 33ff.). Engaging in a

practice means that one is acting in a specified manner, under specified expectations, which is to say that any norm-governed behavior can be construed as a practice. Constitutive and regulative normativity are conceptual tools that provide a way of unpacking norm-governed behaviors into distinct analytic objects. This distinction is artificial insofar as normative actions are never bifurcated as such in everyday interactions. We experience and perform them as cohesive units, that is, they come as a package. Why then would we need to make this distinction? Not all intended practices are successfully implemented. To better understand why some practices become institutionalized and other do not, it is useful to examine the relationship between what defines a set of practices as normative – their constitutive features – and what governs those practices – their regulative features. Social norms of course are not isolated phenomena but are situated in historical, cultural, political, economic and various other social *contexts*. They are defined in terms of the roles they play within these contexts, what I refer to as *constituency*. And finally, social norms are procedural in that there are correct and incorrect ways of carrying them out, what I refer to as *competency*.

The challenge here is in elucidating constitutive and regulative normativity within the broader outlines of an institutional framework. The task is made a bit easier if we remember that institutions are defined through their practices. The diagnostic moment, as we saw in Chapter 1, defines the physician's role as a medical practitioner. Taking diagnostic practices as our point of departure, we see a picture that represents both stable and dynamic features. On the one hand, the dyadic relationship between

physician and patient in nineteenth-century medicine is not that much different than it is today. The examination still takes place between physician and patient, the physician attempts to get a sense of patient health by asking questions that target symptoms, and the diagnosis remains the central event of the visit. We could extend the timeframe back even further and the results would be similar. On the other hand, the level of detail or the degree to which one digs deeper can and will change the picture. Today, examinations rarely take place in the home as they did in the nineteenth century, assessing patient health is no longer confined to a battery of questions that rely entirely on symptomatic information, and while the diagnosis is still the central event it is far more complex and differentiated today than it was in the nineteenth century. Many of the constitutive features of diagnostic practice have changed quite dramatically over the past two-hundred years. The context has shifted from the privacy of the patient's home to an examination room in a clinic or hospital. Constituency is no longer confined simply between doctor and patient. The personnel who are tied to the diagnostic process has dramatically increased. Everyone from nurse practitioners to laboratory technicians to insurance representatives have a hand in the diagnostic process on some level.

The procedural constraints (competency) are perhaps the most dramatic of all the constitutive changes that have taken place since the nineteenth century. To adequately capture this aspect we must speak in terms of competencies rather than competency. Specialization and the emergence of new technologies has been not abated since their beginnings in the nineteenth century (Weisz 2006). The diffusion of

medical expertise allowing physicians to competently diagnose patient health is quite staggering when compared to the nineteenth-century. The constitutive features that defined diagnostic practice throughout most of the nineteenth century were largely confined to the physician. Even with the rise of new medical technologies, hospitals, medical specialization, etc., during the latter half of the nineteenth century, most physicians were still by and large self-contained in their diagnostic practices. Toward the end of the century that began to change more rapidly (*ibid.*). Today, those features are spread across a wide array of medical technologies, clinical and scientific practices, reporting technologies, public health agencies (e.g., Centers for Disease Control), etc.

The regulative features that governed diagnostic practices in the nineteenth century did not take shape until the end of the century with the introduction of the International Classification of Diseases in 1901. Regulatory statutes governing medical practices in Massachusetts were very limited during this period. The Massachusetts Medical Society provided the only *potential* avenue for regulating their own members, but like most medical societies in the United States during this period the only sanctions that the Massachusetts Medical Society had at their disposal was expulsion from the Society. The American Medical Association adopted a code of ethics in 1847, which was based largely on Thomas Percival's code published in 1803. State medical societies were quick to follow suit and issue their own codes of conduct, but these efforts were for the most part negligible as physicians failed to see the need. Their professional status rested on their reputations and their own informal practice of

ethical conduct. Many of the formal codes of conduct circulating during this period focused more on etiquette than anything else, which only added to physicians skepticism and reluctance to recognize them (Rothstein 1985[1972], 80ff.).

The regulative norms that governed medical practice during this period closely followed the constitutive norms. There were few institutional systems in place to regulate physician conduct. As a community, physicians were still by and large a very independent class of professionals, which was reflected in the constitutive and regulative norms that guided their everyday practices. Medicine in Massachusetts was still very much practiced as a private profession. State intervention into this domain was treaded lightly. As we will see in the following chapter, it was not until 1878 that physicians finally found themselves under state regulation. As a community of medical practitioners, physicians were not regulated until the 1890s. The 1878 regulation was not a medical statute regulating medical practice. It was a statute regulating cause-of-death registration. The distinction will be important in understanding the regulative role that the 1878 legislation played in turning cause-of-death registration into a viable set of public health practices. The net effect of this legislation was the emergence of a new community of practitioners whose practices provided the necessary conditions for constitutive and regulative normativity to come together at the institutional level.

## CHAPTER 3

### CLASSIFICATION AND THE CHANGING GRAMMARS OF DEATH

The general shift from acute infectious to chronic degenerative diseases during late nineteenth and early twentieth centuries marked the beginning of what Abdel Omran described in 1971 as the "epidemiological transition." Subsequent declines in mortality over this same period ushered in an era of rising life expectancies that continue to define health trends today. The developments that gave rise to this transitional period are often obscured by the lack of common historical criteria during this period for diagnosing disease and identifying causes of death. Our understanding of the American epidemiological transition lacks precision and scope due in large part to the equivocal nature of the available data. With an ever shifting etiological landscape and lack of uniform standards for recording nineteenth-century causes of death, persistent doubts remain vis-à-vis our ability to provide more comprehensive conclusions about the mortality transition over this period (Woods 1991; Alter and Carmichael 1996, 1999; Risse 1997; Arrizabalaga 1999; and Haines 2003).

Thomas McKeown's (1976) nutritional/standard-of-living explanation for declining mortality in the late eighteenth and nineteenth centuries provided an earlier generation of historians a compelling basis for rejecting explanations that posited medical and public health interventions exclusively. McKeown's thesis, nevertheless, has come under considerable doubt due to a number of critical reexaminations, not the least of which were further historical and demographic studies since the mid-

seventies that employed more nuanced approaches to existing and new data sources. Simon Szreter (1988), for instance, offers an alternative to McKeown's argument, one that places the role of public health in a more substantial explanatory position and criticizes McKeown's method of parsing out nineteenth-century disease categories. What Szreter and others have shown is that the ways in which diseases and causes of death are identified, grouped, disaggregated, and interpreted plays a significant role in isolating the mitigating factors that emerge when telling the story of what is arguably the most important development in the history of human health.

I do not attempt to resolve the ongoing disputes surrounding this debate. Rather, I suggest that by examining more closely the everyday conditions that reporting personnel faced on the ground, we may be able to disentangle some of the broader issues of data reliability and the historical validity of cause-specific mortality trends. By focusing attention on the pragmatic underpinnings that accompanied Massachusetts's cause-of-death reporting, we can better understand the institution-building process. I do this by first concentrating on reporting issues at the State level, analyzing some of the perennial difficulties State officials faced in implementing the registration system through the first-half of this period. I then extend this analysis in the next chapter by taking a more localized view of the changing structure of cause-of-death reporting in Northampton and Holyoke given the broader challenges and developments discussed here. I argue that Massachusetts's new and evolving system for reporting deaths had an important impact on the changing death narratives through the turn of the century. This chapter begins by examining the registration

history of Massachusetts from the colonial period through the end of the nineteenth century. Much of the data comes from Massachusetts's annual vital registration reports (from 1843 through 1912) and Massachusetts's annual State Board of Health reports (from 1850 through 1900).

### Massachusetts Death Registration

During the early part of this period, health officials were just beginning to use cause-of-death statistics to systematically monitor and report on disease trends and epidemic outbreaks. Acquiring a uniform set of aggregate measures for causes of death was not feasible in the early part of the nineteenth century due to the absence of civil registration systems in much of Europe and the United States.<sup>6</sup> Even after establishing Britain's General Register Office (GRO) in 1837 and Massachusetts's state registration system in 1842 (the first in the U.S.), maintaining a reliable system of registration remained an ongoing struggle for registration and public health officials throughout much of this period.

Death registration in North America began with the early settlement of Massachusetts. The practice of recording deaths in Europe began in the sixteenth century, when Thomas Cromwell introduced the Parish Registers in 1538 and the Council of Trent made the registration of births and marriages a part of ecclesiastical law in 1563 (Edge 1928, 355). It was in the early seventeenth century, however, that

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6. Sweden is an exception, which implemented a registration system in 1749. For a thorough overview of Sweden's registration system, see John Rogers, "Reporting Cause of Death in Sweden, 1750-1950." *Journal of the History of Medicine*.

marked the first time in either Europe or North America that an official governing body enacted a law requiring town officials to register deaths as a function of secular rather than ecclesiastical authority. On September 9, 1639 the General Court of the Massachusetts Bay Colony ruled that the registration of births, deaths and marriages were a matter of public record to be administered through local town officials (Gutman, 60-61).

Whereas many judgments have been given in our Courts, whereof no records are kept of the evidence and reasons whereupon the verdict and judgment did pass,... it is therefore by this Court ordered and decreed that hence forward every judgment, with all the evidence, be recorded in a book, to be kept to posterity... that there be records kept of all wills, administrations, and inventories, as also of every marriage, birth, and death of every person within this jurisdiction.

Prior to this statute, the responsibility of recording marriages, births, and deaths was a function of ecclesiastical authority. This new delegation of authority and responsibility was unique in its administrative scope and intent. Secular authority in England and elsewhere did not officially assume this responsibility in any sustained sense until the early 19th century.<sup>7</sup> This difference between colonial America and England was significant in terms of the public and civil character that the early colonists accorded to vital events. Deaths, Births, and Marriages were not simply matters of ecclesiastical record as in England and elsewhere but also matters of civil record between individuals and governing authorities. The role that civil registration played became an

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7. During the mid to late seventeenth century, England implemented a non-ecclesiastical system of registration as a substitute for the Parish Registers but returned to the old system by the eighteenth century. See Edge 1928, 354ff.

important first step in establishing the systematic recording of vital events for statistical purposes. Nevertheless, such statistical objectives did not surface for another two hundred years. For the colonists, vital registration was a matter of legal record alone, designed primarily for "the just administration of law and the protection of individuals rights" (Hetzl 1997 ,45). As Kuczynski (1900) notes, "Massachusetts was the first state in the world which recorded the dates of the actual facts of births, deaths, and marriages rather than the subsequent ecclesiastical ceremonies of baptisms, burials, and weddings; and Massachusetts was the first state in the world which imposed on the citizen the duty of giving notice to the government of all births, beaths [sic], and marriages occurring in his family" (Kuczynski 1900, 9 [73]).

For over two centuries, this system of vital registration remained relatively unchanged in terms of its legal function. Those changes that were enacted throughout this period concerned minor provisions to compensate town clerks for their recording duties, penalties for failing to provide such information on the part of informants, and expanding the responsibility for reporting births and deaths to include family members. Massachusetts' early registration system throughout the seventeenth and eighteenth centuries functioned as a proto-census. The impulse for gathering vital statistics, however, waned considerably during the 18th century with very little change in the existing laws. Massachusetts' registration laws were intended less with the public's health in mind than for cases of probate (Gutman 1956). It wasn't until the 1840s when Lemuel Shattuck took it upon himself to reform the ways in which vital statistics were gathered and applied, that death registration became more than just a

legal matter of public record but one that specifically focused on the public's health (Swedlund 2010 61ff.).

Massachusetts was unique for being the first state to provide vital registration in 1842 and led the way in public health and sanitation reform in the United States throughout this period (Beemer et al, 2005). Without the use of statistical data, the substantive basis for public health reports would not have been possible. These and other measures provided the necessary information to combat growing epidemics and create public health initiatives in a more systematic way. Here, the role of medical science in conjunction with state authority opened the door for increased regulatory initiatives. This is but one layer in a multi-layered social, political, and historical context, which highlights the need for a more complex approach in understanding the changing conceptual landscape of nineteenth-century disease. Isolating the complexities that lay beneath these layers requires an account that extends beyond the shifting *advances* of nineteenth-century medicine. As Alter and Carmichael (1996) note, "[t]he history of cause of death registration cannot be viewed as simply a part of the development of medicine; rather it reflects a much more complex interaction between the state, the medical community, and the public."

The Registration Act of March 3, 1842 established the requirements and guidelines for implementing a modern system of vital statistic in Massachusetts. Prior to the 1842 Registration Act, the Massachusetts State Legislature in 1835 adopted and confirmed without revision an earlier 1796 registration law, which included the

following provisions (Massachusetts: The Laws...Passed from the Year 1780 to the End of the Year 1800, p. 725; quoted in Gutman 1959, 22 - [page 73 Milbank]):

It shall be the duty of parents to give notice to the clerk of the town or district in which they dwell, of all the births and deaths of their children; and it shall be the duty of every householder to give notice of every birth and death which may happen in his house; and of the eldest person next of kin to give such notice of the death of his kindred; and it shall be the duty of the master or keeper of any almshouse, workhouse, or prison, and of the master or commander of any ship or vessel to give notice of every birth or death which may happen in the house or vessel under his care or charge, to the clerk of the town or district in which such event shall happen.

The responsibility for reporting deaths once again expanded in scope but became more specific in detail. More significantly, however, was the added provision that each town rather than parents or kin would be required to pay the registration fee (Gutman 1959, 23). The shift from a private to a more public focus began to take shape. Rather than focusing exclusively on issues of probate, vital registration was moving away from the domain of private, legal interests and toward the realm of public goods. Four decades later, the registration system of the Commonwealth of Massachusetts effected a more permanent shift toward the public good with the Registration Act of 1842.

The practical significance of the 1842 Act, according to Gutman (1956), was negligible as its provisions were already addressed in the 1796 legislation.

Nevertheless, it established the consolidation of registration requirements into a single centralized system, stating that clerks of "several towns and cities in the Commonwealth" were required to submit annual reports (in the month of May) of

births, marriages, and deaths to the Secretary of the Commonwealth, under a penalty of \$10.00 for noncompliance. This systematic centralization of information is what Gutman identifies as the beginning of a modern vital statistical regime. The 1842 Act also added the requirement that the Secretary of the Commonwealth "furnish blank forms of return" (blanks), with "suitable instructions and explanations; to receive said returns; to prepare therefrom such tabular results as will render them of practical utility; and make report thereof annually to the Legislature" (Annual Report of Registry and Returns of Births, Marriages, and Deaths 1843, 1). The 1842 Act stipulated that the Secretary of the Commonwealth send a blank (see figure 1) and a letter of instruction (see figure 2) to every town and city clerk in Massachusetts.<sup>8</sup>

1. FORM OF RETURN					
<i>Return of the Births, Marriages and Deaths which have taken place in the town of</i>					
<i>For the year ending May 1, 1842</i>					
[N.B.—if this blank should not be found sufficient for the purpose, the Town Clerk is requested to lengthen it by the addition of blank paper, ruled to correspond with the columns. The Town Clerk is also requested to sign the Return.]					
Whole number of Births in the town, for the year ending May 1, 1842, .....					
Whole number of Marriages in the town during the same period, .....					
DEATHS IN THE TOWNS DURING THE ABOVE PERIOD					
Date of Death.	Name of deceased.	Age.	Sex.	Occupation of adult males.	Disease, or cause of Death.

Figure 1. Massachusetts' registration blank, 1842.

8. The surviving death records do not include these blanks for Northampton and Holyoke.

"The Secretary of the Commonwealth herewith transmits a copy of an act passed at the recent Session of the Legislature, and a blank form of return drawn up in accordance with its provisions.

"The objects of the act are presumed to be, in substance, to call attention of towns to the importance of ample and accurate records in reference to the increase, longevity and health of their population, and to secure such returns, concerning the same, to the government of the State, as shall furnish means for useful comparisons and suggestions, and tend to the promotion of science. It can hardly be expected that the records in all the towns have, hitherto, been kept in such a manner as shall enable the clerks to comply, at the *present* time, with every requirement of the Act; and allowance for incompleteness of returns will be made accordingly. In cases, however, where the records are thus inadequate to furnishing the desired information, the secretary will esteem it a great favor if the clerks will endeavor to obtain it from other sources, in order that the answers to the questions in the blank may be as full as circumstances will conveniently permit. It is of course expected that the records of the towns will, from this time, be kept with such reference to the act, that a compliance with its provisions will, in future years, be comparatively convenient and easy.

"The act, upon first inspection, would seem to require a formal and literal copy of the records, distinct from the more particular statement referred to in the second clause of the first section. The secretary, however, feels authorized to say to the clerks of the towns and cities, that the blank, when properly filled, and signed by the clerk, as being 'true, according to the best of his knowledge and belief,' will be deemed a sufficient copy of the record within the meaning of the law. It is respectfully requested that the blank, so filled and signed, may be returned to this office punctually within the time prescribed by the act.

*"Secretary's Office, Boston, April 20, 1842."*

Figure 2. Letter of instructions for Massachusetts' registration blank, 1842.

**C.**

18—. Deaths in the town of \_\_\_\_\_, from \_\_\_\_\_, to \_\_\_\_\_.

No.	When died.	Name and surname.	Age.			Sex.	Color.	Occupation.	Cause of death.	Signature of informant.	Date of registry.	Signature of Registrar.	Names of parents of the deceased.
			Years.	Months.	Days.								

Figure 3. Alternative registration blank suggested by Secretary John A. Bolles, 1842.

These blanks were changed several times over the years for clarification and in response to pressures from the Secretary himself for a more uniform method of registration. For example, Secretary John A. Bolles, in the first annual report, appealed to the Legislature to adopt a more rigorous system of collecting vital statistics similar to that of the "French Code of Registration" (*ibid.*, 37). Bolles suggested an alternative blank providing more detailed information (see figure 3) compared to the official form (see figure 1). These appeals continued throughout the years and were marked with relative success in making changes to the official registration forms. The 1842 law was repeatedly amended over the years, eventually leading to the realization of modern death registration in Massachusetts by 1878. The first amendment of this law in 1844 added sextons or other persons having charge of burial grounds or burials to those required to make returns of facts connected with a death to the town clerk. In 1849, the law was revised to include a proviso requiring towns with a population of 10,000 or more to appoint a "registrar," whose exclusive duty was to supervise registrations. The shift in responsibility from town clerks to registrars as towns grew in size was a less radical change than one might have supposed. Several of the legislative revisions over this period were primarily efforts to equalize the compensation and incentives provided to different authorities for recording deaths and to maintain equivalent quality in smaller towns and rural areas. Both types of reporting authorities were required to report the same information to the Commonwealth for review. In fact, differences in the number and quality of undertakers and physicians in different communities were often cited as reasons for

differences between submitted reports from clerks and registrars. Gutman notes that many of the revisions between 1842 and 1855 followed changing practices rather than vice versa and were due in large part to pressure from town clerks and registrars.

In 1860 the law was revised again, requiring undertakers to certify all burials and give notice to the city clerk. This amendment also required all physicians to record and provide a cause of death certificate but only "if a request was made of him within fifteen days after the death occurred" (Eighteenth Report... Related to the Registry and Returns of Births, Marriages, and Deaths. cited in Gutman, 170). Following the Civil War in 1866, a fiscal revision raised the compensation for clerks in smaller towns, who often had to collect death information personally rather than simply record what was reported by physicians and undertakers. Within a decade after this legislation, however, both Northampton and Holyoke reached a size where a registrar was required. In 1872 town boards of health were empowered to license undertakers and limit private burials. In 1873, a revision again raised fees paid to town clerks for recording of deaths.

It wasn't until 1878 that death certification moved toward full compliance when legislation provided that no body could be buried until the town clerk issued a burial certificate indicating the clerk had received all details of the death including a record of the cause of death prepared by a physician. The full language of Public Statute 32, section 3, as reported in the 1899 Massachusetts State Board of Health Manuals of Statutes Relating to the Public Health reads as follows:

A physician who has attended a person during his last illness shall, when requested, forthwith furnish for registration, a certificate stating, to the best of his knowledge and belief, the name of the deceased, his age, the disease of which he died, the duration of his last sickness, and the date of his decease; and a physician who has attended at a birth of a child dying immediately thereafter, or at the birth of a stillborn child, shall, when requested, forthwith furnish for registration a certificate, stating to the best of his knowledge and belief the fact that such a child died after birth or was born dead. If a physician neglects or refuses to make a certificate as aforesaid, or makes a false statement therein, he shall be punished by a fine not exceeding fifty dollars.

The onus nevertheless remained with town clerks and registrars to ensure that requests were made of physicians to certify all deaths. The new law differed from the 1860 statute in that issuing a permit for legal burial required a physician-certified death certificate stating the cause of death, including demographic information and length of morbidity, if any. The latter, interestingly enough, was not included on the registration schedules that city and town clerks prepared.

The last significant change in the registration laws took place in 1889 requiring physicians to list a primary and secondary cause of death but only required for Civil War veterans. "A physician... shall, in case the deceased was a soldier or a sailor who served in the war of the rebellion, give both the primary and the secondary or immediate cause of death as nearly as he can state the same. If a physician refuses or neglects to make such a certificate he shall forfeit to the treasurer the sum of ten dollars for the use of the town in which he resides" (Acts of 1889, 224). The penalty proviso was a regular feature of almost every public statute on death registration since its enactment in 1842. Such penalties applied to almost everyone along the reporting chain – clerks, registrars, superintendents of almshouses, undertakers, and even

parents. For example, the 1796 and 1842 registration laws stated that, "Parents shall give notice to the clerk of their city or town of the births and deaths of their children... Whoever neglects to give such notice for the space of six months after birth or death shall forfeit a sum not exceeding five dollars" (Public Statute 32, section 2.) The full statute, however, only required giving notice to the town clerk with no requirements to provide cause of death.

### Reliability and Accuracy

Although Gutman (1959) does not fully address the quality of Massachusetts's cause-of-death reporting, gradual improvement in the general quality of death statistics did take place over this period. The 1860 law not only encouraged registrars and clerks to consult physicians as to cause of death but empowered them to obtain such reports from physicians if needed. The problem in implementing this provision, however, stemmed largely from its voluntary nature and the reporting practices to which clerks had been accustomed. "Clerks and undertakers did not use the powers granted them under the law of 1860, to request physicians to provide a certificate of the cause of death of persons to whom they had attended" (ibid. 85). Town clerks and registrars had little incentive to verify the accuracy of reported causes of death because verifying reported causes, whatever the source, was not mandated by the law. As they saw it, their primary responsibility in the reporting chain was to record causes-of-death details as they received them. Undertakers were often the first link in the reporting chain and were notoriously unreliable in properly certifying deaths. For

their part, town clerks often consolidated their efforts by gathering much of the vital registration information on a periodic basis, which involved canvassing their communities annually to record births, marriages, and deaths in one fell swoop.

The lack of complete and accurate reporting was regularly cited in both the Massachusetts's annual vital registration reports and the annual State Board of Health reports. Earlier registration reports from 1843 through the 1850s acknowledged the insufficiency of their data to allow for specific conclusions about the health of the State's population but that the data was, nevertheless, improving and exhibited sufficiency with regard to elucidating "general truths" and principles of the "general laws of mortality." The tone during this period was optimistic. The reports expressed confidence that the information they were receiving on the ground, while lacking in completeness and accuracy, was nevertheless moving toward that goal.

The protracted labor which has necessarily arisen from the heterogeneous intermingling of the whole twenty months, in every conceivable combination, in the returns, has prevented the elucidation of some interesting principles and facts, deducible from the records of registration, inasmuch as it would prolong the undesirable delay already incurred, concerning this Report. It is confidently believed, however, that herein will be found sufficient ground covered, and with sufficient faithfulness, to exhibit very reliable and highly important general truths.

By the 1870s, however, the tone had changed. Concerns surrounding the accuracy of death records were by no means confined to Massachusetts. In 1876, the Secretary of Michigan's State Board of Health, Henry B. Baker, commented on the issue of accuracy as he believed it stood across the country, "No method has yet been found, or at least acted upon, whereby the actual death-rate can be positively

ascertained for the United States, or so far as I know, for any single State"

(Massachusetts 8th Annual Report of the State Board of Health 1877, 233). In response to Baker's rather dim observation, Charles F. Folsom, Secretary of Massachusetts's State Board of Health, was not eager to offer a vigorous defense of Massachusetts's vital registration system – "It has seemed desirable to ascertain how we stand in reference to so sweeping a criticism, and the result of the inquiry has been that we can only say that we are a little better than some of our neighbors" (ibid.). The inquiry to which Folsom referred was a survey that the Board of Health sent out to "medical correspondents of the Board" (physicians) and town clerks throughout the State. The following questions were asked of the physicians and clerks, respectively (ibid.).

I. Is the registration of deaths and causes of death complete and satisfactory in your town? If not, please suggest any deficiencies of which you are aware, whether *all* deaths are returned to the undertakers, whether the undertakers themselves return them promptly and accurately to the clerks, whether causes of death are reported by the physicians in all cases, etc., etc.?

II. Will you be so kind enough to inform us whether the registration of deaths and causes of death is complete and satisfactory in your town? If not, please suggest any deficiencies of which you are aware, whether *all* deaths are returned to the undertakers, whether the undertakers themselves return them promptly and accurately to the clerks, in what proportion of cases the *causes of death* are reported by physicians, etc., etc.?

The State Board of health had regularly included correspondence from physicians and clerks in their annual reports in years past, but such notes from the field were typically unsolicited letters they had received on a wide variety of health-related issues. The

difference with the 1877 report was the Board's systematic effort to solicit physicians and clerks from across the State on the specific issue of accuracy and completeness in cause-of-death registration. The responses were overwhelmingly unflattering and demonstrated well the central problem with the current system – the lack of physician input and participation.

Before examining the reported aggregate numbers of those who responded to the survey, it will be useful to look at a few examples of the actual responses that both physicians and clerks returned to the Board. Not all of the returned responses were included in 1877 report but a sizable selection were nevertheless published. In selecting the responses, the State Board of Health endeavored to highlight those that articulated the problems associated with the registration system but to the exclusion of those who thought the system was working well. Here are just a few of the statements from physicians and town clerks in response to the State Board of Health survey.<sup>9</sup>

*Replies of Medical Correspondents:*

7. The cause of death is invariably returned on the undertaker's certificate and is given by the friends of the deceased. I am never asked to make out a physician's certificate. (ibid., 235).

39. Many times the physician never sees the return at all. The statement of some member of the family is all the authority. I don't think, during my practice, that fifty per cent. of the deaths were returned in a proper manner. (ibid., 237).

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9. See Appendix A for the entire set of responses that the Massachusetts State Board of Health published in their 1877 annual report. Please note that the published responses were selected by the Board of Health from the total survey responses received and were not necessarily a representative sample.

57. I am not called upon in half my cases to give the certificate. I understand that undertakers get them filled by the family, and I know that many certificates are wholly false as to cause of death. Almost any cough is reported either "consumption" or "lung fever," and so in other diseases. (ibid., 239).

*Replies of City and Town Clerks:*

8. The custom has been to return the deaths at the end of the year, except when the body is carried out of town for burial; then I get a return near the date of death. I seldom get the physician's certificate with the return; the cause of death is usually named, also the name of the physician; but all in the handwriting of the undertaker, and I think it is obtained from some member of the family of the deceased. I think the disease or cause of death is in many cases guessed at, so that my return to the department is not accurate as to the prevailing disease. (ibid., 250).

31. The law is in no case complied with, either as regards the undertaker, physician, or by the families themselves. At the close of the year, the births and deaths of the year past are collected by going from house to house throughout the town, making the result very unsatisfactory and expensive. (ibid., 251).

90. I have been clerk of the town for six years in succession, and have employed a man to gather all the information in regard to births and deaths called for in the blanks sent to me for that purpose. I have never received any information from physicians or undertakers. (ibid., 252).

The above responses were just a few of the nearly one hundred and fifty responses included in the 1877 report (see Appendix A). They provide a good representation of the general sentiment expressed by both physicians and clerks across the State. Overall, around twenty-five percent of physicians and twenty-nine percent of clerks who responded felt that registration system was adequate. Table 1 shows how physicians responded to the survey questions. On the question of accuracy in

registered causes of death, over sixty percent of the physicians who responded thought that causes of death were not competently reported.<sup>10</sup> The completeness of registered deaths, that is, without regard to cause, fared only slightly better in their estimation. Twenty-seven percent reported that the number of deaths recorded was satisfactory compared with twenty-three percent who reported that the number was unsatisfactory. The majority of responses, approximately fifty percent, were deemed

Table 1. Replies from 196 physicians regarding the adequacy of deaths and causes of death registered in their city or town.

	Number of Deaths Registered	Causes of Deaths Registered	Row Totals
Satisfactory	54	44	98
Unsatisfactory	45	118	163
Indefinite	97	34	131

indefinite, which meant "...they [did] not answer that particular question, they [had] no suggestions, they [did] not know, or the reply [was] so worded as not to convey a definite statement" (ibid., 234). Table 2 shows how clerks responded to the questions. On the question of cause-of-death accuracy, the ratio of satisfactory to unsatisfactory was similar to that reported by the physicians. Roughly, two out of every five physicians and two out of every four clerks thought that causes of death were adequately reported. When comparing the two groups on the question of completeness (number of deaths registered), it is not surprising that the clerks were

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10. A response rate cannot be given because the report did not indicate the total number of surveys sent out, either to physicians or clerks.

more optimistic in that regard. Accuracy in terms of recorded numbers of deaths would have been more reflective of their responsibilities and capabilities as town clerks than the actual causes themselves.

Table 2. Replies from 262 town clerks regarding the adequacy of deaths and causes of death registered in their city or town.

	Number of Deaths Registered	Causes of Deaths Registered	Row Totals
Satisfactory	102	50	152
Unsatisfactory	43	113	156
Indefinite	117	99	216

From the time that the registration system was initiated in 1842, the architects who implemented the system envisioned physicians' participation to be more extensive than it was. It soon became clear that such participation would not be forthcoming. Public health officials were not naïve, however, and attempted to hedge their bets. Shattuck (1850) among others wanted physician participation in the new registration system to be mandatory. The legislature, however, resisted any move toward compulsory participation on the part of physicians and did so for over thirty years. The unsuccessful attempt to maintain legislation supporting licensed physicians in the 1830s was still fresh in their minds. The State's interest to not interfere with the free flow of economic opportunity overrode any public health interests.

Beyond the political obstacles against mandatory physician certification of causes of death, there were more mundane obstacles with which to contend. Physicians were not always available to determine a cause of death or given adequate

notice that a death had occurred. There were few legal requirements during this period for physicians to document patient morbidity, and patient confidentiality was a professional necessity. Nevertheless, had these obstacles not stood in the way of accurate and reliable cause of death reporting, the lack of compensation from the State provided an additional disincentive for physicians to actively participate in a system they felt had no demonstrable benefit to their practice. The broader public health initiative of gathering aggregate statistical data for analyzing state-wide health trends was not one that occupied the professional interests of the average physician. As such, most physicians were not inclined to actively provide the necessary information to properly certify causes of death.

#### Analysis of Massachusetts's Death Registration System

The solution to the reporting problems that persisted for over thirty years seems obvious retrospectively. It certainly did not escape those who were intimately involved with the reporting practices. Calls requiring physicians to certify all deaths before a body could be interred were common, even among physicians themselves. At the same time, physician's professional interests often stood in the way of legislation requiring cause-of-death certification. Some of those reasons have already been discussed in Chapter 1. The more pressing reason for this resistance, however, had to do with the question of who should be given the authority *as a physician* to certify a cause of death. Because there were no licensing requirements in the State of Massachusetts at the time, the State had no direct legal involvement in legitimizing or

de-legitimizing a physician's professional status. Unlike Great Britain where licensure laws made professional distinctions between medical practitioners, in Massachusetts physicians operated entirely in an open market, relying on reputation and education as a mark of one's medical *bona fides*. There were of course two sides to that sword.

What worried most *mainstream* physicians, referred to as "regulars," was the possibility that homeopaths, eclectics, hydropaths et al, referred to as "irregulars," would be granted an undue level of legitimacy by the State through a certification law. The Massachusetts Medical Society objected that such a law would provide a backdoor for recognizing irregular practitioners as legitimate physicians in the eyes of the State. The Massachusetts Medical Society had petitioned the legislature for decades to enact a medical licensure law (see chapter 2). That, however, did not come to pass until 1894. Again, professional and economic interests took center stage. In hindsight, the fears associated with mandatory cause-of-death certification were overplayed. In fact, it could be argued that the 1878 certification law ultimately proved useful in helping establish the professional distinction that regular physicians had sought after much in the same way that physician certification in Great Britain created a two-tiered system of medical practitioners.

What had not taken place during the previous three decades was the establishment of a set of normative practices consistent with the institutional mandate over which public health officials were given charge. The process of institution-building stagnated along the lines of implementation. The central objective for implementing a state-wide system for cause-of-death registration was to gather

*accurate* data on *causes* of death and not simply record those deaths. Shattuck and other public health reformers were keenly aware of the need for physician participation for the system to work as intended. The authority behind the registration system, however, did not rest with the public health officials who oversaw it. The State Board of Health had no direct authority to implement policy or enforce compliance. They were simply an advisory board to the Secretary of the Commonwealth and the State legislature. Efforts to enlist physician participation over the years included, among other things, regular appeals by the Board for physician cooperation and legislative appeals to require cause-of-death certification, neither of which proved to be effective.

The problems that plagued the early registration system and their solutions were fairly clear. Physician participation in cause-of-death registration was necessary for the system to succeed. But why? Could it not have been possible for a modern cause-of-death registration system to accomplish its goals without physician participation? What unique skills or competencies do physicians bring to the table that others do not and are those skills necessary for implementing a modern cause-of-death registration system? Finding reasons supporting the necessity for physician participation seems fairly straight forward. Physicians are uniquely qualified to diagnose diseases and determine causes of death, and they have the professional authority to carry out requisite diagnostic tasks. But as we have seen, the *practice* of causes-of-death reporting was not at all unique to physicians. If the results from the State Board of Health survey accurately represented reporting practices across the

State, physicians were not all that well represented. This of course ignores the crucial reasons why cause-of-death registration in Massachusetts did not initially serve its mandate, namely, the need for accuracy. This brings us to the broader theoretical issue of constitutive and regulative practice in institution-building and the necessary interaction between the two.

In chapter 1, I briefly highlighted Paul Starr's observation about how authority and legitimacy operate within a professional community. According to Starr, professional authority is not predicated on individual competency but on a professional community's validation of competency as a collective practice. The legitimacy that ensue from one's professional status is not a property of the that professional practitioner. Authority is not simply a matter of individually demonstrated competency to do the job but is dependent on the broader recognition of competency as a member of a professional community. Nevertheless, as we have seen, collective practices must also be demonstrated and that can only be accomplished through individual practitioners. The State had instituted regulative statutes that incrementally moved cause-of-death registration toward the 1878 law requiring physician certified cause-of-death reporting, but without diagnostic practices functioning as the constitutive basis for cause-of-death reporting, the system languished. That the State enacted legislation requiring physicians to certify causes of death did not diminish the constitutive nature of their participation. On the contrary, it was a necessary step in solidifying cause-of-death reporting as a practice under constitutive and regulative norms. Physicians were already part of an existing

community with constitutive practices that defined who they were as medical practitioners. The practice of cause-of-death reporting did not develop into a community of practitioners with a sense of public accountability because it was distinct from the constitutive practice of diagnosing disease. The latter was necessary for the former to emerge as set of normative practices consistent with the institutional mandate. Constitutive and regulative normativity was present in the practices of city and town clerks regarding the registration of births and marriages because the requisite competency for registering births and marriages was purely administrative. The requisite competency for registering causes of death consistent with the institutional mandate was not purely administrative. As we will see in the next chapter, mandatory physician certification had a demonstrable impact on cause-of-death reporting not only in Northampton and Holyoke but across the State.

## CHAPTER 4

### THE EPIDEMIOLOGICAL TRANSITION IN PRACTICE

In this chapter, I take a more localized view of the changing structure of cause-of-death reporting as it developed in Northampton and Holyoke from 1850 to 1912. I analyze the cause-specific trends of consumption, phthisis and tuberculosis. By the end of the nineteenth century consumption and phthisis as diagnostic terms were generally replaced with "pulmonary tuberculosis" as the preferred term. When considered either independently or in conjunction with one another, they nevertheless represented the leading cause of death in Northampton and Holyoke throughout this period. The advantage of focusing on these disease terms is that they provide us with a comparative window into the changing nomenclature of a disease whose etiology narrowed in scope over time. Additionally, we find that the overall shifts in cause-of-death reporting for other diseases and disease categories followed a similar pattern. The dominant pattern during this period for Northampton and Holyoke was a mortality plateau, which began around 1880 and lasted through the first decade of the twentieth century. The reasons for this plateau are not entirely clear and present something of an anomaly when compared to declining mortality trends in other regions, both nationally and internationally. By drawing on the registration history laid out in chapter three, I connect the developments in Massachusetts's registration

system to shifts in Northampton and Holyoke's mortality composition leading up and subsequent to the first International Classification of Diseases (ICD) in 1900.<sup>11</sup>

Both communities are significant for their comparative advantage in assessing the economic, political, and legal impact on health and well-being during this period. Both towns experienced the full effects of nineteenth-century industrialization. The stresses of urbanization, rapid population growth, immigration, lagging infrastructures, rising mortality, and so on, all contributed to similar sets of circumstances. While both Northampton and Holyoke shared in these stresses, the degree to which these changes took place were quite different. The historical and demographic similarities and differences between the two communities allow for a fairly robust comparative analysis of changing health trends throughout this period.

Unlike earlier analyses that relied on a limited sample of death records (Anderton and Hautaniemi Leonard 2004; Beemer et al. 2005; Leonard et al. 2006), I use the complete set of death records for Northampton and Holyoke along with regionally focused archival sources on medical practice and public health discussions over the same period. The death data consist of recorded, literal causes of death<sup>12</sup> made available through the complete set of death records for Holyoke and

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11. The Bertillon Classification of Causes of Death was the forerunner to the 1900 International Classification of Diseases, released in the United States at the International Statistical Institute in Chicago in 1893. The American Public Health Association recommended the adoption of the Bertillon Classification five years later, in 1898, along with suggested decennial revisions, which (under a variety of titles) were published by the U.S. federal government soon after discussions at the international Bertillon Commission.

12. A literal cause of death refers to a recorded cause of death as it literally appeared in the death records.

Northampton from 1850 through 1912. The number of recorded deaths for both towns during this period totaled 48,947, with 15,641 deaths for Northampton and 33,306 for Holyoke. I specifically use a method of formal decomposition in which recorded literal causes of death are compared and identified through a parsing routine, which resolves component parts of principle and secondary causes into a classification schema. The results were then cross-validated to the International Classification of Diseases in accordance with ICD cause-of-death coding rules. The overall aim of this formal decomposition and analysis is to document changes in the leading causes of death over the study period and provide quantifiable data from which to analyze evolving nineteenth-century conceptions of disease (Anderton and Leonard, 2004). The scope of the data allow for more comprehensive comparisons of ICD classifications and common cause-of-death terminology over an entire half century of the epidemiological transition. After providing a brief histories of the two towns of Northampton and Holyoke, I compare the ten leading, literal causes of death with the ten leading, ICD-coded causes of death for both towns.<sup>13</sup> In doing so, I consider the following questions: Do we find different or similar pictures of tuberculosis given these two distinct ways of organizing causes of death? What do the differences or similarities suggest with regard to Massachusetts' evolving and increasingly complex death registration system? And finally, what effects did changing nineteenth-century nomenclature have on the reporting of tuberculosis during the early part of the North American epidemiological transition?

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13. An ICD-coded cause of death refers to a literal cause of death as coded according to the standards of the International Classification of Diseases (1909).

## Nineteenth Century Northampton and Holyoke

The towns of Northampton and Holyoke exemplified the struggles that many urban, industrial centers experienced during the late nineteenth century. Over the course of the early mortality transition, both towns changed dramatically with the rise of industrial growth and the influx of immigrant populations from their neighbors to the north in Canada and across the Atlantic in Europe. Both communities experienced the full impact of industrialization but in different degrees. Northampton was the older of the two communities, having established itself as a permanent settlement nearly two centuries before Holyoke. Northampton transitioned from a rural market economy to a robust mix of industry, agriculture and commerce, quadrupling its population, from 5,278 in 1850 to 19,431 in 1910 (see Figure 4) (Hautaniemi 2002, 43).

Industries began developing in neighborhoods along the Mill River with associated enclaves of worker housing in areas known as Bay State, Paper Mill Village, and Florence. Northampton's infrastructure was slow to develop, with severe housing shortages and the lack of adequate public works contributing to poor health conditions. The housing shortage quickly became a leading concern for city officials. As late as 1881 the local newspaper reported, "Tenements of all descriptions are difficult to obtain, and rents will be firm at present prices, if not higher, in the spring" (*The Hampshire Gazette and Northampton Courier*, 22 February 1881). Housing shortages were one of several indicators of Northampton's strained capacity to respond to the demands of local industry during this period of economic expansion. There were a small number of industrial mills of moderate size in Northampton, which

in 1855 employed approximately 10 percent of the labor force for the surrounding region (Hankins 1954).<sup>14</sup> Although Northampton never fully recovered to emerge as a major industrial center, it did continue to flourish with a mix of farming and commercial trade as part of a diverse economy (Hautaniemi 2002). Like other industrializing cities of this period, Northampton experienced the pressures of urban growth, lagging infrastructure, and poor sanitation.

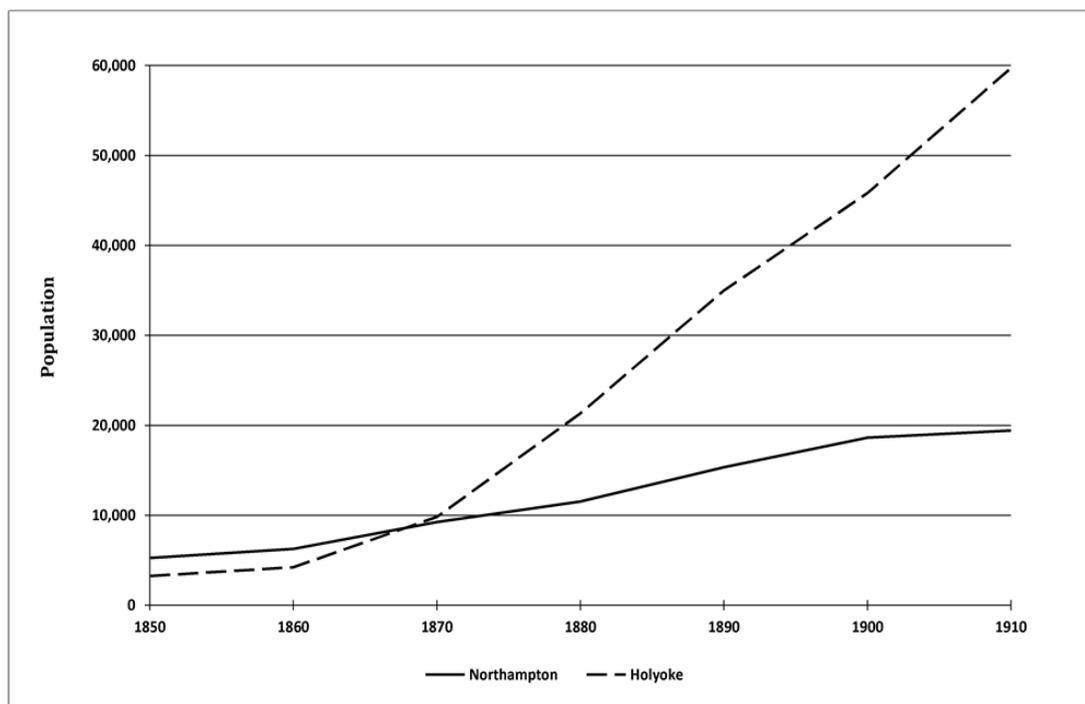


Figure 4. Northampton and Holyoke Population Growth, 1850-1910.

Over this same period, Holyoke residents faced similar conditions but on a much larger scale. Holyoke experienced a far greater industrial expansion and demographic shift than Northampton. By comparison, Holyoke's population grew far

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14. A number of these firms were destroyed by the 1874 Mill River Flood, which forced many of the larger companies to move their operations to nearby Holyoke (Benson 1954; Jacob 1999; Green 1939).

more rapidly, from 3,249 in 1850 to 59,732 in 1910 (see Figure 4 above) (Hautaniemi 2002, 54). Like Northampton, economic opportunity was the driving force underlying this growth, but unlike Northampton, Holyoke's industrial emergence followed a more deliberate and focused path. Holyoke was one of several planned communities in the region due to the enterprising vision of the Boston Associates. This group of venture capitalists sought to expand the textile industry at various sites along the Merrimack and Connecticut Rivers in Western Massachusetts. Earlier ventures in Lowell and Lawrence, Massachusetts proved lucrative for the Boston Associates, and with the natural resources of the Connecticut River, Holyoke held even greater potential as an industrial mill town. The cotton textile industry became Holyoke's first principal economy as a result, serving as a catalyst for its exploding immigrant population. Much of Holyoke's history emerged out of this expanding textile industry which exploited the hydraulic power provided by the Connecticut River (Hautaniemi et al. 1999). Similarly, the influx of foreign immigrants, which consisted of the Irish, the French Canadians and Eastern Europeans, provided local industry with the requisite supply of cheap labor. Immigration peaked during this period of expansion in the 1870s with the foreign born constituting 52% of Holyoke's residents (Hautaniemi 2002, 53). Two groups in particular comprised the bulk of Holyoke's labor force, the Irish and French Canadians.

Despite the historical and demographic differences, there were many parallels between these two towns. Both communities experienced intense population pressures. The ensuing strains of urban growth and resulting high mortality

environments were ameliorated only by the later development of public works and a sanitary infrastructure (Hautaniemi et al. 1999; Beemer et al. 2005). Waves of immigration were transnational in scale and affected the composition of the two towns similarly over time. Moreover, the constant influx of poor immigrant labor, fueled by these transnational population movements, sustained remarkable levels of inequality in these developing urban-industrial areas. In such settings of high mortality and dramatic inequality, one would expect to find the full impact of misery and poverty among the working poor.

Not surprisingly, Holyoke's identity as a community in the late 19th century owed much to its immigration history. The first large scale immigrant population were the Irish, who began arriving in Holyoke in the late 1840s following the Irish Famine of 1846. The Irish were, in large part, responsible for building the infrastructure of Holyoke, of which construction of the dam and canals proved to be the most crucial for Holyoke's emerging industrial economy (Hautaniemi 2002, 46). Given the circumstances of their immigration, the Irish were more likely to establish permanent roots in the community. Like Northampton, housing was a major issue for newly arriving mill workers as many families were forced to take residence in shanties along the Connecticut River. Holyoke's population density in 1880 was the third highest in the country (ibid., 57). Not surprisingly, such concentration among Holyoke's working poor conversely reflected a parallel concentration of real and personal wealth among the local elite.

The second largest immigrant population in Holyoke were the French-Canadians, who began arriving in large numbers around 1859, shortly after the economic crisis ("Panic") of 1857. The influx of French-Canadians during this period was an orchestrated endeavor, as was the case with much of Holyoke's economic designs. As Hautaniemi (2002) notes, the French-Canadians were "directly recruited into Holyoke's work force" due to the efforts of Nicholas Prue, an agent for the Lyman Mills who went to "Quebec with a specially-built wagon resembling a prairie schooner to recruit workers, for which he was paid four dollars a head" (47). Rather than hire skilled men as he was instructed, however, Prue hired mostly girls and young women. The apparent motivation behind this recruiting effort was the assumption that most of the workers would be temporary or seasonal laborers (Ibid.). This was also the intent of many of the newly recruited French-Canadians themselves. Again, the recruitment effort factored into the idea of supplemental employment for Canadian families. Green (1939, 69) notes that "Prue went from village to village in Quebec and spoke of the prospect of money wages which could be sent home or brought back in a few years' time to set up whole families of business in Canada." The women who were hired in this first migration phase via direct recruitment had year-long contracts and whether they actually returned to Canada after their contracts ended or simply remitted their earnings is unclear.

The migration patterns of the French-Canadians, nevertheless, followed the economic fluctuations that occurred in Holyoke throughout this period. Holyoke underwent a series of economic crises beginning in the 1850s with periodic Panics

occurring through the end of the 19th century. In 1879, following the Panic of 1873, another influx of French-Canadians began arriving in Holyoke (Hautaniemi 2002). This was the largest influx of French-Canadian immigrants into Holyoke up to that point. The major difference with this second migration phase was that the immigrants consisted primarily of families. One of the significant contributing factors to this massive influx were the depressed economic conditions in Quebec. As conditions became untenable in Quebec, French-Canadians emigrated to the United States, New England in particular, looking for economic opportunity and most likely represented more of an abandonment of homeland than the earlier recruitment migration in 1859.

The initial rapid population growth of these towns was fueled by younger factory labor immigrants seeking new opportunities in developing sectors. As immigration became a smaller segment of the growing population and population growth stabilized, these urban centers began experiencing an aging population. For some ethnic groups, migration also changed from predominantly younger factory workers to families. This combination of trends accelerated the aging of the population, generated age differences among social groups, and presumably accentuated age-sex-specific changes in mortality over the course of the transition. The shifting composition of the population, particularly in Holyoke, brought with it changing public health concerns and initiatives. Other cities in Massachusetts were undergoing similar changes due to the same dynamics of industrialization, immigration, high population densities, economic opportunity, rising inequality, poor living conditions, all of which changed the disease ecology in a relatively short period

of time. State and local officials in Massachusetts responded with a system of surveillance capable of monitoring epidemic and endemic diseases, without which the charge of public health would not have moved forward.

New England as a whole had higher child mortality levels than other regions of the country, and experienced a mortality plateau throughout the latter half of the 19th century. By the time of sustained mortality decline at the turn of the 20th century, Northampton and Holyoke had matured into substantial urban-industrial centers, population growth had slowed, public health infrastructures had been initiated, and the population aged significantly as mortality and immigration of younger factory laborers declined. The mortality rates for both towns reflected these changes, particularly evident in Holyoke, which experienced a more dramatic set of demographic changes than Northampton. Nevertheless, beginning around 1880, both towns experienced a very similar shift in mortality (see Figures 5 and 6). In the earlier decades, Holyoke experienced rising mortality due primarily to compositional shifts in its population. This was less evident for Northampton, but for both towns compositional shifts coupled with specific disease outbreaks and high child mortality account for a large proportion of rising mortality up through the 1870s. At the end of this decade, however, both towns experienced dramatic declines in their overall mortality. It is at this stage that the mortality plateau becomes evident and we begin to see an overall stabilization of mortality develop across most disease categories.

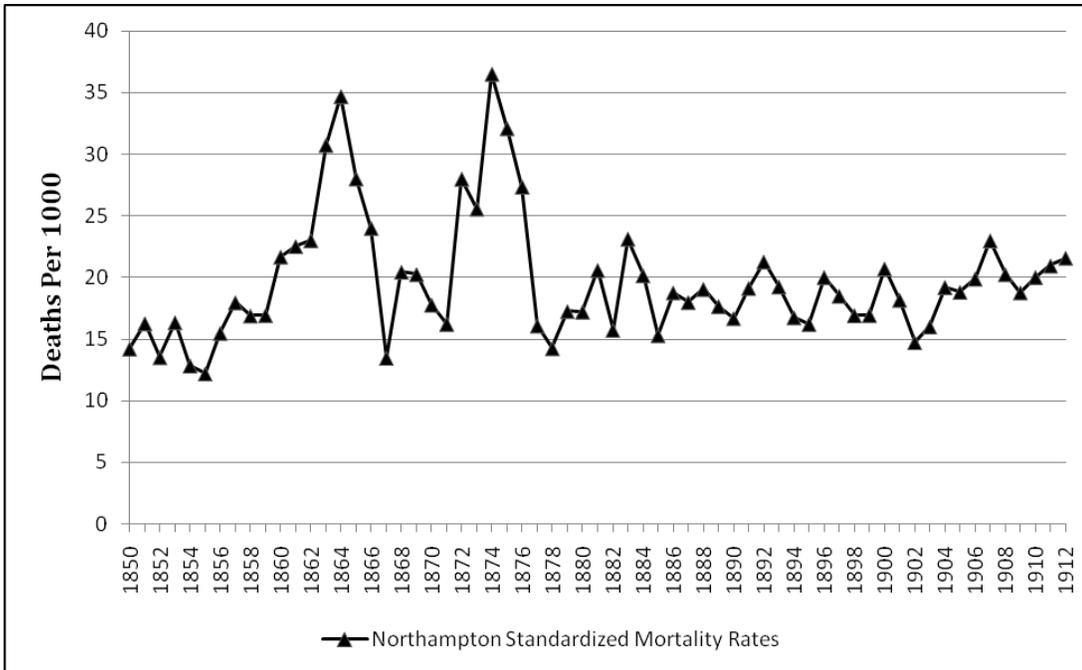


Figure 5. Northampton Standardized Mortality Rates, 1850-1912.

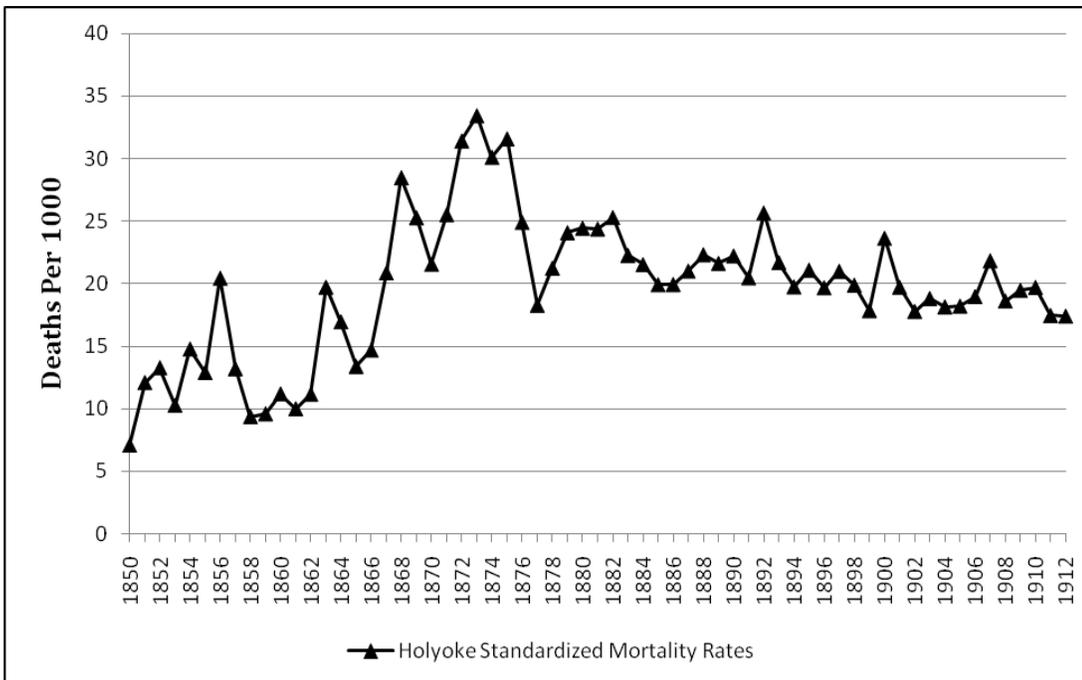


Figure 6. Holyoke Standardized Mortality Rates, 1850-1912.

### Analyzing the Grammars of Death

There are several ways of explaining the mortality plateau, none of which are mutually exclusive. Changes in immigration patterns, an aging population, the implementation of public health and sanitation infrastructures, and regulatory measures designed to improve accuracy in cause of death reporting were all players contributing to this period of mortality stabilization. Given the history of cause-of-death registration in Massachusetts, it is reasonable to expect a stabilization as the quality of reported causes of death improved. Again, these developments in conjunction with a changing disease ecology are not mutually exclusive.

To better understand the impact of the epidemiological transition on Northampton and Holyoke during this period, I compare the top ten leading, literal and ICD-coded causes of death and focus on three particular causes – consumption, phthisis and tuberculosis – noting shifts in nomenclature and frequency. Although it is not surprising that overall mortality trends in Northampton and Holyoke reflect similar trends among certain leading causes, understanding these trends in light of Massachusetts' history of death registration provides some insight into the reasons why these changes took place. Table 3 shows (see below) the frequency of the ten leading, literal and ICD-coded causes of death by decade from 1850 to 1912. For certain diseases we see an evolving nomenclature that highlights the consolidation of several causes into a single cause and the partitioning of others into several distinct causes. For example, consumption is the leading, literal cause of death and

tuberculosis is the leading, ICD-coded cause of death for three consecutive decades, 1850, 1860, and 1870.

Table 3. Ten leading, parsed-literal and ICD-coded causes of death, Holyoke and Northampton, Massachusetts, 1850 – 1912.

Decade	Frequency	Parsed literal cause	Frequency	ICD 1a-2 code/disease title
1850	312	Consumption	315	028 Tuberculosis of the lungs
N=	78	Dysentery	78	014 Dysentery
1,399	74	Fever	67	007 Scarlet fever
	63	Scarlet fever	66	154 Senility
	53	Old age	53	092 Pneumonia
	42	Lung fever	36	001 Typhoid fever
	36	Typhoid fever	35	064 Cerebral hemorrhage, apoplexy
	35	Dropsy	35	187 Ill-defined organic disease
	31	Fit	34	079 Organic diseases of the heart
	24	Croup	32	104 Diarrhea and enteritis (under 2 years)
1860	465	Consumption	570	028 Tuberculosis of the lungs
N=	138	Dysentery	205	104 Diarrhea and enteritis (under 2 years)
3,253	126	Typhoid fever	164	009 Diphtheria and croup
	120	Cholera Infantum	159	092 Pneumonia
	108	Croup	140	014 Dysentery
	108	Lung fever	132	001 Typhoid fever
	101	Old age	113	154 Senility
	88	Scarlet fever	97	007 Scarlet fever
	80	Phthisis	76	079 Organic diseases of the heart
	65	Heart disease	56	006 Measles
1870	658	Consumption	879	028 Tuberculosis of the lungs
N=	515	Cholera Infantum	665	104 Diarrhea and enteritis (under 2 years)
6,431	262	Diphtheria	480	009 Diphtheria and croup
	200	Typhoid fever	347	092 Pneumonia
	194	Old-age	234	001 Typhoid fever
	191	Smallpox	203	007 Scarlet fever
	189	Croup	194	154 Senility
	163	Pneumonia	192	005 Smallpox
	156	Scarlet fever	180	151 Congenital debility, icterus, sclerema
	147	Lung fever	153	079 Organic diseases of the heart
1880	640	Cholera Infantum	1153	028 Tuberculosis of the lungs
N=	457	Consumption	1001	104 Diarrhea and enteritis (under 2 years)
8,578	436	Phthisis Pulmonalis	513	092 Pneumonia
	430	Pneumonia	410	009 Diphtheria and croup
	264	Stillborn	352	001 Typhoid fever
	259	Typhoid fever	249	079 Organic diseases of the heart
	191	Bronchitis	230	061 Simple meningitis
	184	Enteritis	223	151 Congenital debility, icterus, sclerema
	177	Phthisis	214	154 Senility
	169	Convulsions	210	064 Cerebral hemorrhage, apoplexy

Table 3. Continued

Decade	Frequency	Parsed literal cause	Frequency	ICD 1a-2 code/disease title
1890	769	Cholera Infantum	1188	028 Tuberculosis of the lungs
N=	617	Pneumonia	1183	104 Diarrhea and enteritis (under 2 years)
11,330	490	Stillborn	731	092 Pneumonia
	359	Phthisis Pulmonalis	437	151 Congenital debility, icterus, sclerema
	317	Consumption	434	079 Organic diseases of the heart
	294	Bronchitis	430	061 Simple meningitis
	294	Meningitis	341	064 Cerebral hemorrhage, apoplexy
	278	Premature birth	338	009 Diphtheria and croup
	221	Apoplexy	336	089 Acute Bronchitis
	211	Convulsions	300	154 Senility
1900	700	Stillborn	1068	104 Diarrhea and enteritis (under 2 years)
N=	664	Pneumonia	1055	028 Tuberculosis of the lungs
13,516	629	Cholera Infantum	925	079 Organic diseases of the heart
	414	Pulmonary Tuberculosis	839	092 Pneumonia
	392	Premature birth	539	151 Congenital debility, icterus, sclerema
	369	Malnutrition	517	120 Bright's disease
	302	Meningitis	513	064 Cerebral hemorrhage, apoplexy
	275	Senility	471	061 Simple meningitis
	269	Bronchopneumonia	448	154 Senility
	267	Gastroenteritis	307	009 Diphtheria and croup
1910-12	216	Pulmonary Tuberculosis	387	104 Diarrhea and enteritis (under 2 years)
N=	213	Stillborn	322	028 Tuberculosis of the lungs
4,366	210	Gastroenteritis	312	079 Organic diseases of the heart
	201	Pneumonia	306	092 Pneumonia
	164	Bronchopneumonia	216	120 Bright's disease
	150	Premature birth	211	064 Cerebral hemorrhage, apoplexy
	132	Senility	180	151 Congenital debility, icterus, sclerema
	119	Cerebral Hemorrhage	165	091 Bronchopneumonia
	116	Cholera Infantum	161	154 Senility
	102	Nephritis	108	061 Simple meningitis

By the 1880s, however, consumption falls to the second leading, literal cause with 457 reported cases, the fifth leading, literal cause in the 1890s with 317 reported cases, and by the turn of the century, consumption drops off the list entirely as one of the top ten causes of death in Holyoke and Northampton. By contrast, tuberculosis is either the first or second leading, ICD-coded cause of death throughout the period. As a literal cause of death, tuberculosis does not appear in the death records until 1875 but quickly rises as one of the top ten causes by the 1900s, and becomes the leading, literal cause by 1910.

The differences between tuberculosis as a literal cause of death versus tuberculosis as an ICD-coded cause of death is due to the way the ICD consolidated causes. The ICD employed a classificatory system that lumped earlier cognates, such as phthisis and consumption, under the contemporary nomenclature, "pulmonary tuberculosis." Phthisis and consumption were terms used to identify tuberculosis in the earlier decades, with consumption as the more common term. As Anderton and Hautaniemi Leonard note, "even at this early time, consumption was a lay equivalent to the medically prevalent 'Phthisis,' or simply wasting... During the last half of the nineteenth century, such deaths were increasingly identified as phthisis in western Massachusetts" (Anderton & Hautaniemi Leonard 2004, 122). Figure 7 shows the decline of consumption, the rise and fall of phthisis, and the rise of tuberculosis over this period. Consumption began to lose its currency as a cause-of-death term in the mid-1870s, around the same time that tuberculosis began to be recorded as a cause of death. The dramatic decline of consumption, however, cannot be attributed entirely to the increasing use of "tuberculosis." As figure 7 shows, phthisis begins its ascendancy at nearly the same time that consumption begins its descent. Tuberculosis, while the leading cause of death throughout this period, was nevertheless on the decline (see Figure 8). If we compare all three of the literal causes of death (consumption, phthisis, and tuberculosis) with the ICD-coded tuberculosis, the picture we get of tuberculosis as the leading, nineteenth-century cause of death in Northampton and Holyoke becomes much more complex and nuanced (see Figure 9).

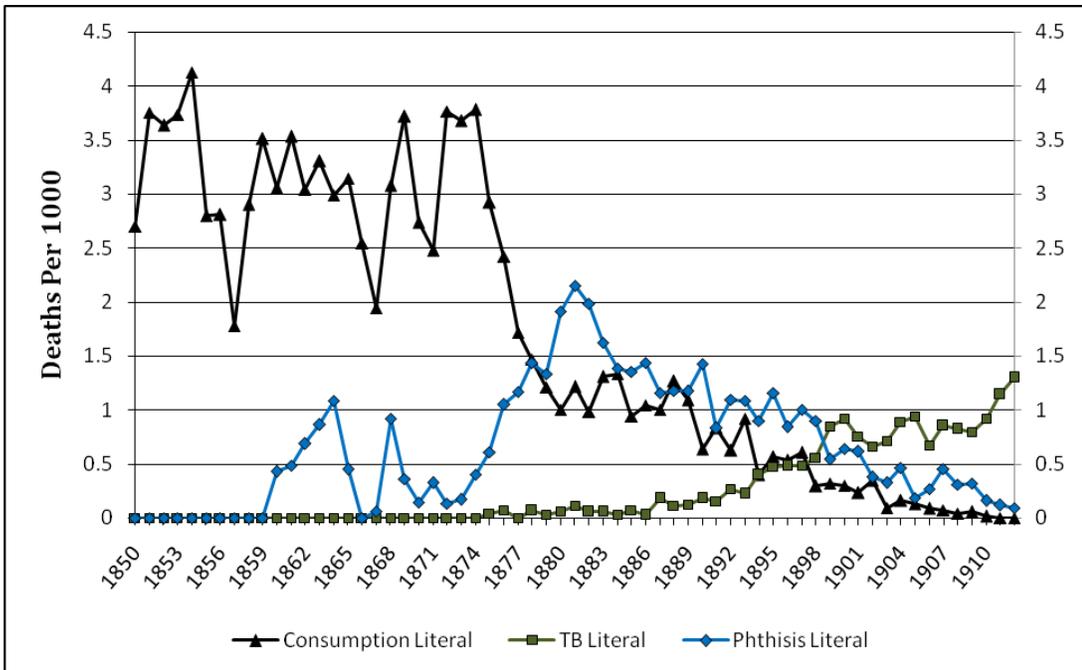


Figure 7. Disease-specific Mortality Rates: All Ages by Year, Northampton & Holyoke, 1850-1912.

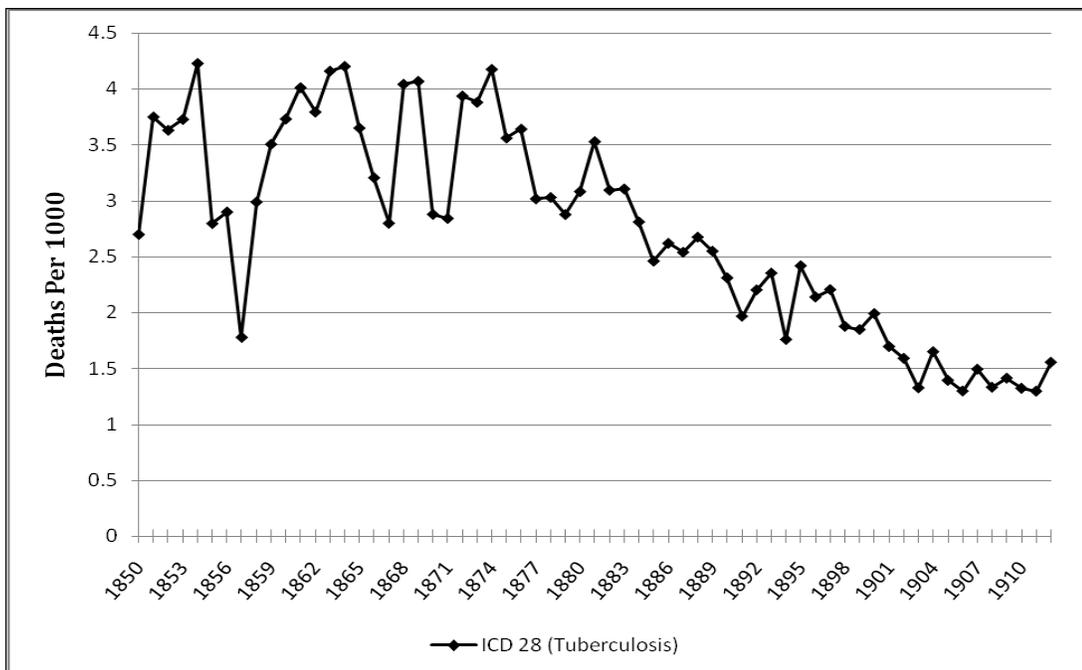


Figure 8. Disease-specific Mortality Rates: All Ages by Year, Northampton & Holyoke, 1850-1912.

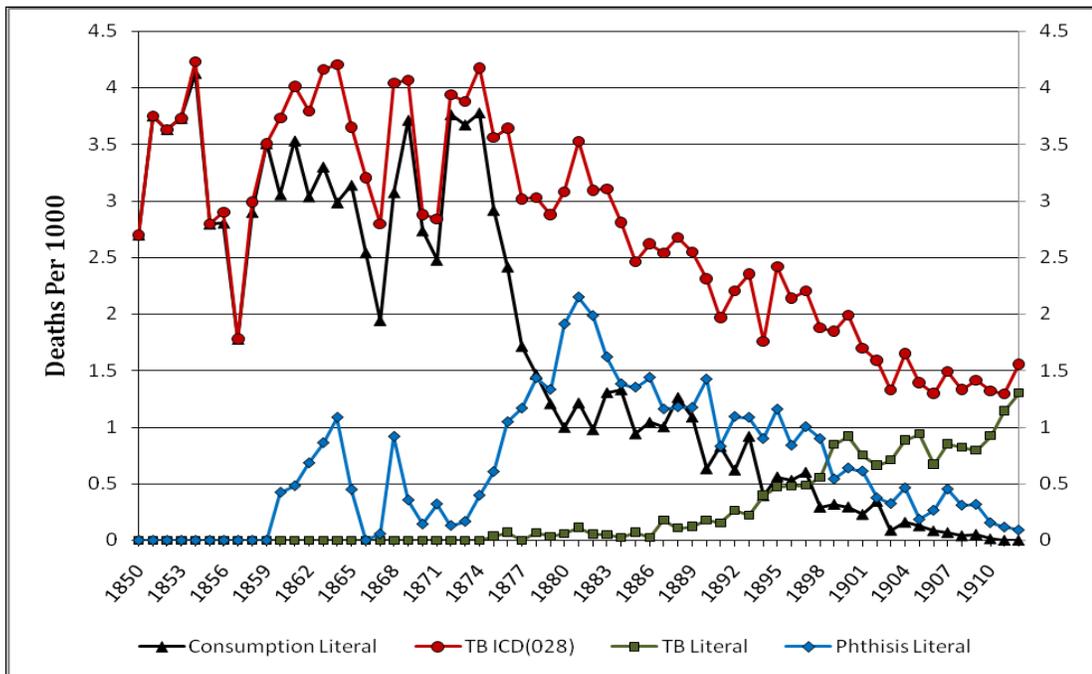


Figure 9. Disease-specific Mortality Rates: All Ages by Year, Northampton & Holyoke, 1850-1912.

The change in nomenclature was rather dramatic, with reported cases of consumption falling nearly 75% of its previous levels and Phthisis increasing twofold. This shift may reflect a move toward more diagnostic precision, which would closely correspond with the changes taking place in death registration during the mid to late 1870s, namely, the increased pressure on town clerks and registrars to certify all causes of death from a physician, or it may reflect real declines. As noted earlier, by 1878, town clerks and registrars were required by law to secure a detailed death report from a physician. The 1878 statute required town clerks and registrars to get a physician-certified death report before burial of the deceased could legally take place. Moreover, it is not until the early 1860s that phthisis began to be recorded as a cause

of death, which was the same period when the registration law was amended requiring "...all physicians to record and provide a cause of death certificate, but only *'if a request was made of him within fifteen days after the death occurred'*" (pg. 9 above). It is also important to note that both phthisis and consumption began to stabilize and decline at nearly the same time and rates in the early 1880s, which corresponds to the overall stabilization of mortality in Northampton and Holyoke during this same period (see Figure 7). Again, such stabilization is suggestive of a more uniform method of recording and certifying causes of death, but it could also simply be an etiological shift in the overall disease ecology. It is during this period that Northampton and Holyoke are implementing modern public health infrastructures that included water filtration and sewerage systems (Beemer et al. 2005).

This trend was not limited, however, to tuberculosis. In fact, we see it occur in almost all cases and in various disease groupings. While tuberculosis is an endemic disease, the same sorts of conditions responsible for reducing the risk factors for epidemic diseases, like cholera, typhoid, malaria, small pox, can be responsible for reducing risk for certain endemic diseases as well. But what about noninfectious diseases? In both Northampton and Holyoke, we begin to see an aging of the population. Epidemic mortality is declining toward the end of this period while mortality from degenerative diseases is on the rise. Figure 10 shows causes of death due to degenerative diseases or conditions,<sup>15</sup> and again, a similar pattern of stabilization emerges after 1880. As figure 11 shows, highly infectious diseases, such

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15. Degenerative diseases included all cancer related causes of death, senility, and heart disease.

as cholera, diphtheria, malaria, small pox, and typhoid begin to stabilize after 1880 as well. We would expect to see high variability across time with epidemic mortality but not necessarily with degenerative causes. The stabilization, while evident, is not as salient among degenerative causes as it is with infectious causes. This may suggest that shifts in the overall disease ecology were more likely etiologically based. In other words, noninfectious diseases should not be subject to the same stabilizing influences that affect infectious disease, if the stabilization is simply a result of changing etiological conditions. However, if we look at causes of death that were ill-defined, namely, those that did not fit with any other category, we see the same sort of pattern emerge here as well (see figure 12).

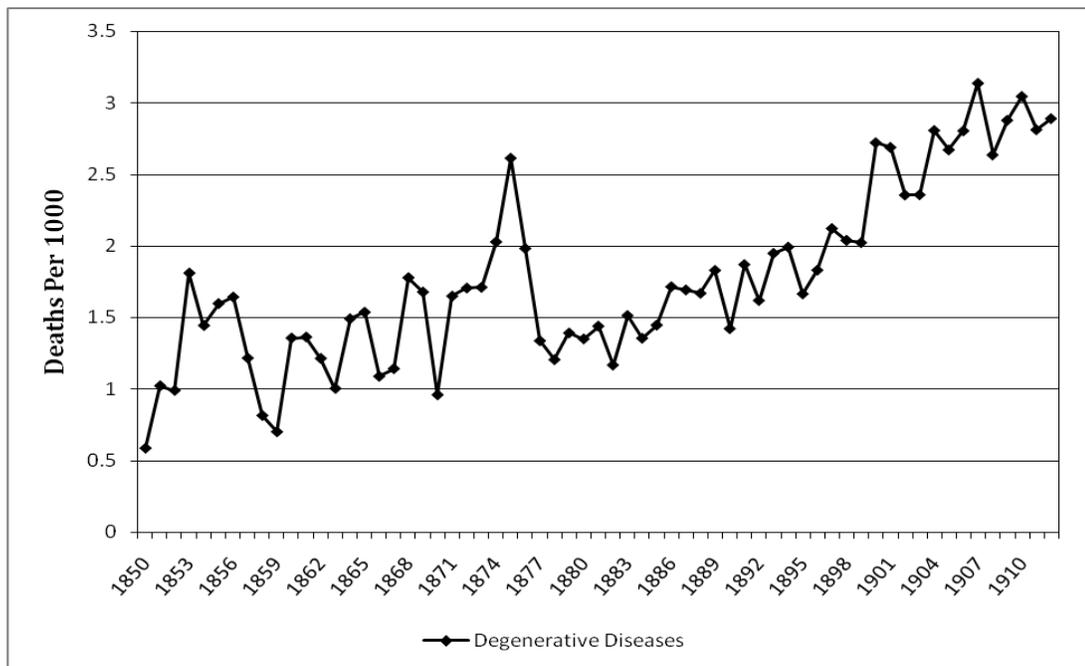


Figure 10. Mortality Rates for Degenerative Diseases: All Ages by Year, Northampton and Holyoke, 1850-1912.

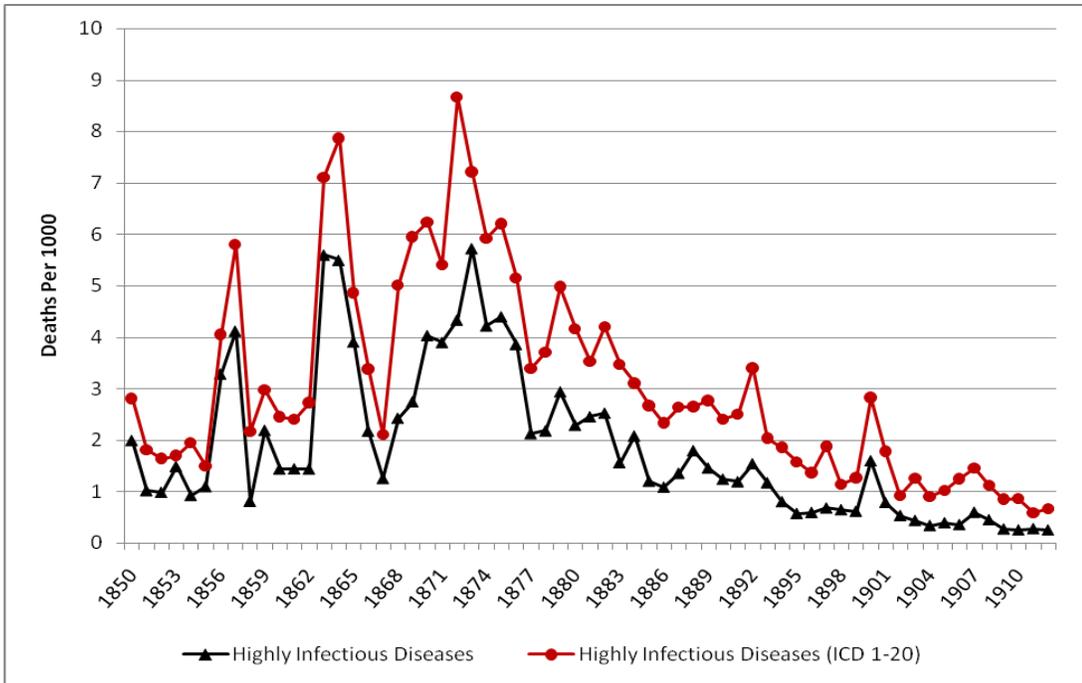


Figure 11. Mortality Rates: All Ages by Year, Northampton and Holyoke, 1850-1912 (Cholera, Diphtheria, Malaria, Small Pox, Typhoid).

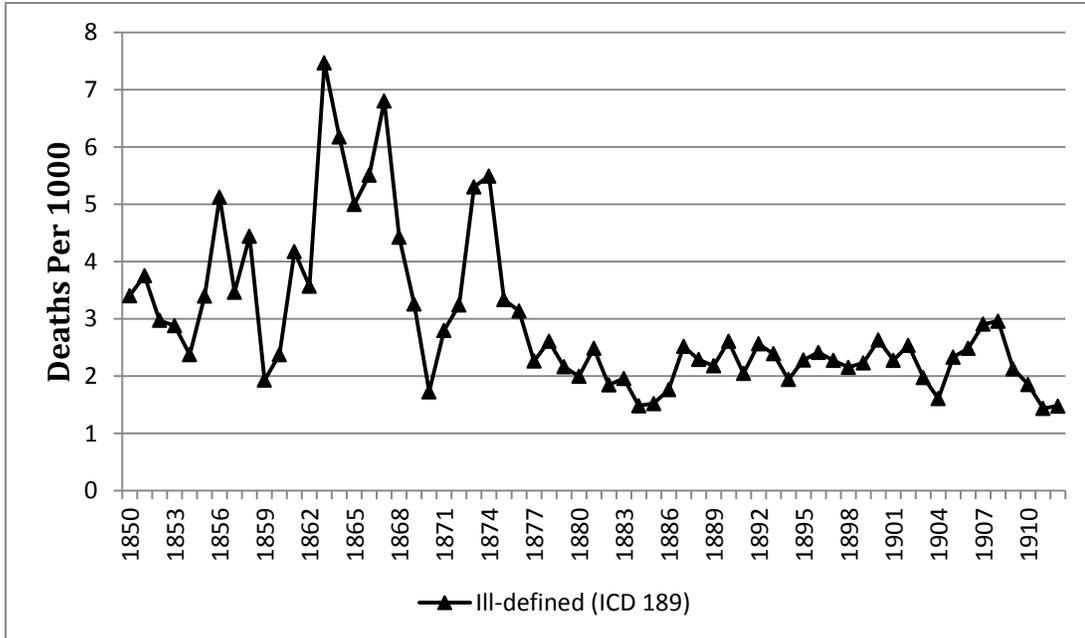


Figure 12. Mortality Rates: All Ages by Year, Northampton and Holyoke, 1850-1912 (Ill-defined and Unknown Diseases).

Answering the question of whether we find differences or similarities with tuberculosis given the distinct ways in which causes of death are organized seems clear. Grouping consumption, phthisis and their cognates under the ICD classification of tuberculosis (ICD 028), provides us with a picture of steady decline beginning in the mid-1870s. Disaggregating the causes reveals a much more complex development of nomenclature than is present under the ICD classification schema. Of course the utility of one approach over the other depends on what the research intends to accomplish. Using literal, recorded causes of death for historical analyses of nineteenth-century epidemiological trends can be problematic in several respects (Maudsley & Williams 1996 and Risse 1997). Some of these shortcomings have already been noted, but one of the limitations not mentioned concerns the qualitative value of simple cause-of-death descriptions. Diagnostic accounts throughout this period were often terse, lacking sufficient detail in identifying cases where cause-of-death descriptions (literals) were notoriously vague. The heterogeneous nature of cause-of-death reporting coupled with the minimalist style inherent in recorded causes of death certainly constrains the scope to which the information can be applied. Moreover, detailed death narratives can be less precise and more ambiguous when attempting to identify single or primary causes of death (Anderton & Hautaniemi Leonard 2004). When causes of death are coded in accordance with a particular classification system, like the ICD, loss of information is likely to be extensive but more useful for analyzing a population's health.

### Reporting, Public Health, or Therapeutics

The expanding authority and scope of Massachusetts's death registration system matured alongside Northampton and Holyoke's shifting epidemiological environment as it did in other communities all across the State. Moving from a reporting system that relied heavily on lay accounts of causes of death to a system that required physician certification of all causes of death will certainly have an impact on the quality of data gathered. How much of an impact relative to changing demographics, improvements in public health, as well as changing therapeutic practices and technologies, is still an open question. We have no way of definitively identifying the reporting agents, physician or otherwise to verify cause-of-death reports; the death records did not contain such information. We do, however, have evidence of the broader outlines influencing reporting trends throughout this period. As we saw in chapter 3, the regulatory requirements for reporting causes of death became more specific and restrictive in terms of who and what could be reported toward the last quarter of the nineteenth century. Public health initiatives were on the rise throughout the state, and the cultural impact of the sanitation movement was felt at the local and state levels. Nevertheless, certain cause-specific trends are difficult to explain on demographic or public health grounds alone. We would expect to see high variability across time with epidemic mortality, but not necessarily with ill-defined or degenerative causes. Holyoke did experience a small pox epidemic from 1870 to 1872. In that decade, small pox was the sixth leading cause of death in

Holyoke and the twenty-fourth in Northampton, while tuberculosis and ill-defined causes still remained at the top as leading causes of death.

It is difficult to say with complete certainty what accounts for this contrast between high variability in mortality during the earlier decades followed by a pattern of stabilization after 1880. Generally speaking, changes in adult mortality are seemingly amplified by patterns of development and population growth in emergent urban-industrial centers like Northampton and Holyoke. Mortality trends are also contingent upon sociopolitical and economic contexts in ways that may not directly reflect shifting disease ecologies. Whether improvements in recording and certifying causes of death offers a more compelling explanation for Northampton and Holyoke's stabilizing mortality over this period is for the moment undecided. The more likely scenario is one that takes into account a combination of the above factors working together to bring about these changes. In the next chapter, we move into a broader international context and specifically examine the mortality trends of puerperal fever and inanition in light of international developments in cause-of-death standardization. Here the nearly sixty years of development in standardizing Massachusetts's cause-of-death reporting is tied to similar developments on the international stage.

## CHAPTER 5

### DIAGNOSTIC PRESCRIPTIONS

The nineteenth-century epidemiological and mortality transitions developed out of a plurality of disease perspectives and evolving cause-of-death reporting systems. As we saw in chapter three, Massachusetts's fledgling public-health community faced challenges on several fronts in its efforts to secure both compliance and uniformity in cause-of-death reporting. Unlike their European counterparts, the United States adopted a more localized approach to death registration, one that relied on State and local municipalities to implement and regulate reporting practices. In Massachusetts, lawmakers resisted the more centralized and compulsory approach to cause-of-death reporting found in places like Great Britain and Germany. Massachusetts instituted a voluntary system of reporting in the late eighteenth century that eventually gave way to a more bureaucratic and centralized system during the latter half of the nineteenth century. The intended purpose of Massachusetts's modern registration system was ambitious and could not function without a State apparatus regulating the way in which information was gathered. This system did not implement the same degree of centralized bureaucracy as found in many Europe countries, but what eventually emerged was a system far more dependent on State regulatory oversight and control than anyone had originally anticipated.

The concern for the originators of the Massachusetts registration system and many public health reformers at the time was one of standardization. It became clear that simply recording causes-of-death would not be sufficient in carrying out the goals of a modern public health regime. The extended process of crafting a registration system that began in the early part of the century eventually resulted in a reasonably accurate and reliable basis for assessing the public's health. Such provincial goals were caught up in the broader desire to effect a more global foundation on which to identify and combat disease. Standardization was not only a matter of effective bureaucratic management but it was also a necessary requisite for demonstrating scientific, economic, and cultural progress. Efforts to standardize disease and cause-of-death terminology did not successfully take place on an international level until the late nineteenth century. While many disease terms were in common, their diagnostic applications were not. Conceptions of disease changed radically throughout this period, shifting from a miasmatic to a germ-theoretic understanding.

The lack of a standardized cause-of-death nomenclature poses certain challenges for historical and demographic research of nineteenth-century mortality. As some researchers have noted, our understanding of the mortality transition itself, including such key theories as McKeown's (1976) central thesis of limited medical and public health impacts, is hindered by a false precision in cause-of-death statistics (Woods 1991; Alter and Carmichael 1999; and Haines 2003). This limited understanding, particularly regarding the North American epidemiological transition, is due in large part to the uneven nature of the available data. Causes of death were not

systematically recorded as an official, governmental function until well into the nineteenth century. The development and use of cause-of-death statistics by public health officials and the medical community tended to be regionally determined at best, reflecting local variations in disease conceptions, therapeutic practices, diagnostic nomenclature, and systems for recording causes of death. As in Europe, such variations in perspective, practice, and procedure can be readily seen in the recorded causes of death in Massachusetts over the last half of the nineteenth century.

In this chapter, I examine the relative impact that standardized nomenclature had on cause-of-death reporting in Northampton and Holyoke during this period. Unlike earlier analyses that relied on a limited sample of death records (Anderton and Hautaniemi Leonard 2004; Beemer et al. 2005; Leonard et al. 2006), I make use of the complete set of death records for Northampton and Holyoke, Massachusetts, from 1850 through 1912, in addition to regionally focused archival sources on medical practice and public health discussions over the same period. To determine the impact of standardized nomenclature on cause-of-death reporting, I focus on one specific international influence on late nineteenth and early twentieth-century grammars of death, viz., the organized effort of European and American medical professionals to instruct physicians in proper nosological nomenclature through explicit references and sanctions (correctives) in the first International Classification of Diseases (ICD) in 1900.

I analyze specific trends in disease and cause-of-death classification during this period in three specific steps. First, I present an interpretive analysis of early

correctives in the initial publications from the first and second International Commissions, which are referred to as ICD-1 and ICD-1a/2 (Treasury Department, United States Marine-Hospital Service 1900; Bureau of the Census, 1910, respectively). Other alternative publications were used at this time in addition to the ICD-1 and ICD-1a/2, but the Treasury and Census Bureau documents were the most comprehensive. The comparative influence of these alternative publications on medical societies, state boards of health, registrars, physician training, etc., is outside the scope of this paper and needs further investigation. What is important for this paper is assessing the general diffusion of common shifts in disease terminology propagated by the ICD revisions (i.e., from ICD-1 to ICD-1a/2) and concurrent changes in medical, diagnostic, and nosological practice. This analysis attempts to characterize the general nature of the correctives, whether they reflected underlying differences in medical philosophies, theories or cultures, and the orientation toward specific audiences for the correctives. Second, I select two correctives from the first step that address contemporaneous cause-of-death reporting categories and have particular historical interest to evolving medical histories (e.g., changes in therapeutic and etiological perspectives). I provide a brief history of the diagnostic terms addressed by these correctives and then focus on their use in Western Massachusetts, viz., the towns of Northampton and Holyoke. Finally, I examine the trends in these targeted nomenclature before and after the ICD was effectively adopted, and evaluate the practical impact that ICD correctives may or may not have had on the application of prevailing terminology. My analysis will indicate the extent to which standardization affected major cause-of-death groupings

generally relevant to theories of the nineteenth-century epidemiological transition. I begin with a brief history of disease classification, showing both the continuity and discontinuity in the ways in which classification systems were created and used.<sup>16</sup>

### Nomenclature and Classification

The early development of the ICD followed a long line of disease and cause-of-death classification systems. Serious utilization of classification systems as a practical means for understanding the nature of disease did not find its place in medical science until the eighteenth century (Bynum 1993). The naming diseases under a particular etiological framework, however, is at least as old as Hippocrates, but a systematic grouping of diseases for public health reasons is a distinctly modern endeavor. To describe the history of nomenclature and classification as a lineage would be inaccurate, as one cannot trace all the nosological threads through a single line of descent. Nevertheless, to draw these multiple lines as distinct pathways independent of one another would be equally inaccurate. One can find commonalities running through the various strands, out of which a nosological patchwork emerged; those physicians and statisticians who developed nosologies were often well aware of one another's work and sometimes worked together. The ICD represented this legacy but

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16. Although social histories of American medicine acknowledge the influence of European medicine on nineteenth-century medical institutions, many of the most widely cited histories are surprisingly brief in their treatment of the European influence on American diagnostic nomenclature (e.g. Starr 1982; Cassedy 1986). In these general histories there is no discussion of the international efforts to explicitly guide and shape American medicine through such institutional efforts as the Bertillon conferences.

also extended it in new directions. The evolution of nineteenth century conceptions of disease owes much to this common if uneven heritage, which culminated in an international effort to systematically formulate a set of classification standards from which physicians and statisticians could study, report on, diagnose and identify pathologies on the one hand and morbidity and mortality trends on the other.

One of the earliest attempts to systematically classify disease began with John Graunt's mid-seventeenth-century examination of London's Bills of Mortality (1939[1662]). London's series of bubonic plague outbreaks in the first half of the seventeenth century served as the backdrop for Graunt's statistical analysis. His primary objective was to develop a more comprehensive picture of London's mortality in order to construct a disease-incident baseline from which to better understand the effects of plague, which tended to overshadow other causes of death. Essential to these objectives were the broader concerns for creating "population profiles through a study of causes of death" (Alter and Carmichael 1999, 121), which Graunt accomplished by estimating London's population through a geographical analysis, allowing him to calculate crude mortality rates.

Thomas Sydenham, a physician and contemporary of Graunt, is often described as the founder of nosology (Temkin 1974, 1987; Bynum 1993; Alter and Carmichael 1999). His own classification system employed an ontological rather than a functional framework, that is, one which specified diseases as distinct entities but not in a germ-theoretic sense (Taylor 1979; Bynum 1993; DeLacy 1999; Carter 2003). Sydenham rejected the traditional notion that disease simply manifested itself as an internal

dysfunction in the body and proposed the addition of external elements in combination with the internal workings of the body. For a particular disease to manifest itself, two separate but dependent conditions needed to be present: 1) a set of environmental and seasonal elements that provided a "constitution" common in scope but unique in time and location, and 2) a specific humoral response or modification in the body. The combination of these two conditions is what Sydenham believed produced particular diseases (ibid.). Sydenham designed his nosology with the needs of the physician rather than those of the statistician in mind. Accordingly, Sydenham and Graunt produced different classification systems based on the distinct purposes for which they were intended. This distinction (clinical vs. demographic) played a more significant role in the nineteenth century, foreshadowing some of the tensions and cross-purposes that informed the development of modern classification systems. As Alter and Carmichael (1999, 121) note: "The problematic relationship between causes of morbidity and causes of mortality thus presented an ideological barrier between the concerns of physicians and the interests of statisticians. ...one group were lumpers, the other splitters."

The eighteenth century saw further expansion of disease classification with the "help" of a series of smallpox epidemics and a renewed emphasis on the notion of contagion as a mode of transmission (DeLacy 1999). The most prominent nosologist of this period was William Cullen, whose nosology remained true to the pragmatic concerns of Sydenham by focusing on more detailed descriptions of symptoms rather than pursuing causes (ibid.). By arranging disease categories symptomatically, the

utility of such a classification offered itself more readily to the physician than to the statistician. Alter and Carmichael's distinction between lumpers and splitters is evident in Cullen's etiological understanding. Cullen criticized earlier disease classifications for employing a top-down approach rather than working from a more detailed set of descriptions, which provided the basis for developing broader "classes and orders" through a bottom-up approach (ibid.).

During the second quarter of the nineteenth century, demographic interest in disease and cause-of-death classification once again became the focus with William Farr's statistical nosology. Farr was clear about what he intended for his "uniform statistical nomenclature" in contrast to the deficiencies of past nosologies. Multiple terms for the same disease, vague and inconsistent usage of these terms, and a dearth of quantifiable precision in characterizing disease were some of the inadequacies that Farr observed in both past and present expressions of disease. In Farr's (Farr 1885 [1837]:214) estimation, Sydenham illustrated this vague usage with phrases such as "prevailed a little," "more prevalent," and "ragged with violence," all of which "admit[ted] of no strict comparison with each other," and made it "impossible to compare Sydenham's experience thus expressed with the experience of other writers in other places and other ages."<sup>17</sup> Farr articulated the need to devise a system of classification amenable to a uniform registration of causes of death, which required a

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17. Farr's approach was more similar to that of Graunt's in the seventeenth century than that of his contemporaries. The connection of Farr's undertaking with that of Graunt was observed by one of Farr's contemporaries Sir Arthur Newsholme. Commenting on Farr's 1837 essay "Vital Statistics," Newsholme described it "...as 'the foundation of a new science,' the alphabet of which had been framed in the commentaries of Captain John Graunt (1620-1674)" (cited in Donnelly 2005, 253).

broader and more generalized scheme than previously considered. He deemed Cullen's classification too detailed in its arrangement and thus unsuitable for statistical analysis (Farr 1885 [1837]; Pelling 1978). Farr (1885 [1837]: 232) also criticized Cullen's nosology for not presenting "diseases in their presumed natural relations." His own ideas concerning the natural relations of diseases assumed a statistical and law-like regularity that one could observe with aggregate population data (Donnelly 2005). Farr's purpose for creating his nosology was thus more universal in scope and designed to serve the needs of the statistician and the physician alike. As John Eyler (1979:54) notes: "Farr's aim was to create a simple and practical classification based on sources and authorities familiar to practicing medical men. The nosology also had to serve the administrative needs of the office."

Farr's influence, however, went beyond European medical and public health circles. In the United States, Lemuel Shattuck and Edward Jarvis, two of the founders of the American Statistical Association, were proponents for a systematic nosology for Massachusetts during the mid-1800s. They petitioned the Massachusetts Medical Society and other organizations to establish standardized codes for annual registration of births, deaths and marriages. Shattuck actively promoted this effort in the legislature, and successfully lobbied for the passage of the Registration Act of 1842 in Massachusetts. At the same time, he read related texts in the American Statistical Association's library in Boston and corresponded closely with Farr. Throughout the 1840s, Shattuck promoted Farr's classification system and, with Jarvis, introduced it to the first National Medical Convention, held in Philadelphia in 1847. This meeting

resulted in the creation of the American Medical Association, which held its first Annual Meeting in Baltimore in 1848, and its second meeting in Boston in 1849. The Medical Convention asked all physicians to adopt Shattuck's version of Farr's nosology and promoted it over the next two years. While England's classification system, as developed by Farr, was not adopted internationally, it became the basis for Massachusetts's nosology for the rest of the century (Rosenkrantz 1972, 22-25).

### Developing the ICD

During the second half of the nineteenth century, germ theoretic conceptions of disease were beginning to take shape. Public health initiatives were institutionalized within local and state boards of health, and the emerging science of bacteriology shifted attention away from miasmatic conceptions of disease to those that identified disease agents in terms of microbes rather than poisonous vapors or putrid atmospheres (Goubert 1984; Melosi 2000;). It was during this period that "nearly all major diseases underwent substantial changes in social conception, etiological understanding, and nomenclature" (Anderton and Hautaniemi Leonard 2004, 112). The conditions for developing a more consistent method and vocabulary for identifying disease and cause of death, whether viewed as opportune or necessary, proved favorable for Jacques Bertillon, a French statistician, who was commissioned by the International Statistical Institute in 1891 to prepare a "classification of causes of death" (World Health Organization 2006, 2). The Bertillon Classification marked the beginning of international efforts to formulate a systematic etiological grammar

designed to centralize and regulate common usage of terms. The forerunner to the 1900 ICD, it was first released in the United States at the International Statistical Institute in Chicago in 1893. As Eyer (1979: 59) notes, "Until 1893 no two continental nations used precisely the same methods of recording and registering the causes of death. In that year, however, Jacques Bertillon . . . drew up the system that became the International List of the Causes of Death." The United States joined the other international participants (26 countries) in shifting to the International Cause of Death classification. The American Public Health Association recommended the adoption of the Bertillon Classification in 1898, along with suggested decennial revisions, which (under various titles) were published by the U.S. federal government soon after the first International Conference for the Revision of the Bertillon or International List of Causes of Death in 1900 (e.g. ICD-1a/2; see U.D. Department of the Treasury, U.S. Marine-Hospital Service 1900; U.S Bureau of the Census 1902, 1908, 1910).

European medical practice and nomenclature dominated these classifications. They specifically excluded the variety of American therapeutic perspectives which remained in use by homeopathic, chiropractic, naturopathic, eclectic and hydropathic practitioners. The ICD was introduced as a monolithic nomenclature into a plurality of therapeutic perspectives that emerged in the decades surrounding the Civil War, resulting in a "cacophony of new-found diseases" (Leonard et al. 2006). The United States adopted these classifications largely due to the rising influence and authority of the early American Medical Association. They also provided the basis for Massachusetts' nosology as they developed. As Table 4 shows, Massachusetts'



As the ICD classification came into play, the document's framers began to address the cross purposes that a single, international classification system would require to satisfy the needs of the statistician and the physician alike. In the introduction to the American translation, the 1910 ICD-1a/2 specifically mentions the efforts to accommodate the purposes of both groups: "The revised Manual, it is expected, will be a work of far more useful and authoritative character for the purposes of American physicians and registration officials than the old one" (U.S. Bureau of the Census 1910: 7). Additionally, the 1909 International Commission addressed the question of whether the ICD should be regarded as a true nomenclature or a statistical classification only. The issue surrounded the "peculiar use of the word 'classification'" as it concerned the "practical work of a registration office" and the theoretical basis for grouping diseases under certain classes (ibid.: 9):

The process of "classifying" a cause of death under the International "Classification," relates only to its assignment to the specific title which includes it; it has nothing to do with the theoretical arrangement of these titles under the general classes... Such groups of diseases, coordinated upon a theoretical basis, are becoming of less and less practical importance... The sole purpose of the so-called "Classification" at present is to exhibit a list of uniform and comparable titles of diseases, or groups of diseases, and of other causes of death, each with a precise inclusion of individual terms as reported by physicians in different countries, so that the international statistics of morbidity and mortality will be as nearly comparable as possible. The word "nomenclature" will be employed in the translation only as indicating a statistical list or "classification" and not a true nomenclature in the English sense.

A nomenclature in the strict sense is different from a classification. The former is a system of naming through a list or catalogue of accepted terms, which follows a more

detailed and discriminating assignment of terms than a classification system. Disease nomenclatures per se were more commonly used by medical practitioners for their value in diagnosing a wide range of specific health conditions. With the ICD we see an effort to collapse this distinction, an effort that began with William Farr.<sup>18</sup>

### Analysis of Proscriptions and Prescriptions

American death records provide a salient test of the ICD's efficacy in revising the nosological conventions of physicians. The early ICD versions singled out several specific causes of death as imprecise and in need of correction. These proscriptions provide an intervention that can focus inquiry on specific causes of death, that is, those most likely to reflect the ICD's impact on prevailing nomenclature. U.S. physicians were singled out for such corrective advice regarding nomenclature. In some cases, the ICD suggested reporting abuses be addressed by returning death records to physicians for correction. The intervention of the ICD, with specific instructions to U.S. physicians on conventional usage, provides a unique opportunity to assess both the history of and basis for internationally divergent classifications. It also gives us a more precise view of the European and American medical community's corrective efforts, through the ICD, to correct physicians' errant ways and the longitudinal reporting of mortality.

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18. Histories of the early development of the ICD are lacking. The World Health Organization's "History of the development of the ICD" and the National Center for Health Statistics' "International Classification of Diseases – 9" provide further and more detailed information on the early history of the ICD.

All the prescriptions and proscriptions in the 1900 ICD-1 and the 1910 ICD-1a/2 were identified by examining specific instructions contained within the tabular lists. Each disease or disease category that included special remarks or other addenda were noted and recorded in a spreadsheet as they appeared in each document, and then each set of instructions were compared between the two documents. Forty diseases or disease categories had specific instructions indicating how these diseases were to be recorded and/or qualified. In most of the identified cases, the disease titles and codes did not change from the 1900 ICD-1 to the 1910 ICD-1a/2. The substantive content of the ICD-1a/2 instructions, however, typically changed in terms of expanding or clarifying the earlier instructions found in ICD-1: a few causes of death either added to or dropped in the later ICD-1a/2. For instance, the term *Inanition* was used and coded as a cause of death in ICD-1 but then was changed to *starvation* in ICD-1a/2 and given a more explicit set of instructions, namely, to refrain from using the earlier term (U.S. Bureau of the Census 1910: 25-26).

In both the ICD-1 and the ICD-1a/2 we find several formulaic sets of instructions, which span across many of the disease categories. The most common was the instruction to use certain disease titles for mortality statistics only and others (usually subdivisions of these titles) for morbidity statistics only. For example, "syphilis" (ICD-1a/2 code 37) included five different subdivisions:

- A. Chancre: indurated, or infecting, or of the mouth, or of the face. — Primary lesion.
- B. Secondary lesions. — Mucous patches.— Amygdalitis, or angina; or laryngitis, or coryza, or iritis: syphilitic. — Syphilides.

C. Tertiary lesions. — Specific symptoms. — Gummas. — Ulcerations, exostosis, etc., syphilitic. All other diseases defined as "syphilitic."

D. Congenital syphilis. — Syphilis in children, unless otherwise defined.

E. Period not indicated. — Syphilis or pox (unqualified). (In case of death classify according to age under titles 37 C or 37 D.) (U.S. Bureau of the Census 1910: 34)

Physicians were instructed to record and use each of these subdivisions for morbidity statistics only and the general title of "syphilis" for mortality statistics only. In the ICD-1 the instructions for syphilis did not make an explicit distinction between morbidity and mortality reporting. Rather, physicians were instructed to record these same subdivisions for "mortality statistics alone."<sup>19</sup>

Long-standing problems with the underreporting of syphilis may have played a role in these distinctions. The stigma associated with contracting a venereal disease invited the practice of not reporting syphilis for a variety of reasons. For the physician it was an economic issue; for the patient it was an issue of humiliation and public sanction. The struggle between public health concerns and physician-patient confidentiality created the conditions for increased legislative measures to ensure full and accurate reporting during this period. The effectiveness, however, of such compulsory reporting is doubtful (Baldwin 1999, 355-523). With physicians strongly opposed to including venereal disease in local regulations and national laws on disease notification, syphilis remained an underreported disease. As Peter Baldwin (ibid.: 440)

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19. There is no direct evidence from the ICD itself to suggest why the later ICD-1a/2 reversed the instructions to record these subdivisions only for morbidity and not mortality.

points out: "In Britain, after objections from physicians, VD was not included in the 1889 Notification of Diseases Act. The Royal Commission on VD, debating the issue once again against the background of resistance from medical circles, concluded in 1916 that the advantages of notification were outweighed by the need for strict confidentiality."

The distinction between morbidity and mortality was not confined to syphilis. It also encompassed many other diseases, such as "neuralgia and neuritis," "diseases of the eyes and annexa," "diseases of the uterus," and various intestinal disorders (ibid.: 42, 48, 56). These sets of instructions nearly doubled in the 1910 ICD-1a/2, suggesting a need for more refined distinctions of certain diseases in terms of mortality and morbidity qualifiers. Such correctives reflected changing medical standards. The most frequent correctives in the ICD-1a/2, for example, was to return cause-of-death certificates for certain diseases to the physician for clarification of whether the cause was puerperal. Some correctives were clear that common symptomatic terms in use by U.S. physicians should be abandoned in favor of more precise etiological classifications. For example, the ICD-1a/2 offers the following advice for *inanition* as a diagnostic term: "When the word is used, as it frequently is in the United States, to denote exhaustion from defective nourishment, due to disease or congenital or senile debility ... [t]he term is indefinite and otherwise objectionable, and the disease causing inanition should be given" (ibid.:66). The following analysis examines both select general correctives, such as encouraging the use of "puerperal"

as a qualifier for a number of maternal conditions, and specific correctives to change core nomenclative usage, such as discouraging the general use of the term *inanimation*."

### Puerperal Fever

Nineteenth century conceptions of childbirth were closely tied to broader conceptions of what constituted a woman's natural state and the cultural expectations that women's pain, frailty, and suffering were signs of high status and civilization's progress. Although the expression of pain and frailty carried with it an aura of advancement, it also signified the unnatural state in which "civilized women" found themselves. Civilization took on a dual meaning of corrupter and liberator; it removed the drudgeries and indignities of primitive life while foisting corruption upon the weak and the immoral. Not surprisingly, in light of such cultural meanings, childbirth played a rather paradoxical role for nineteenth-century women. To be civilized meant bearing the obligatory costs that accompanied the advances of a modern world, but doing so placed women in childbirth outside the natural course of normal labor, romanticized by a short, easy, and painless birth. The exemplar of natural childbirth was the fabled Indian squaw whose delivery was little more than a momentary diversion in an otherwise normal day of work, "When she realizes that the hour of delivery is at hand, she enters her cabin or betakes herself to some stream or spring, gives birth, washes the young 'injun' in cold water, straps it on her back, and before she has been scarcely missed has returned a full-fledged mother, and resumes her labors" (John H. Dye, *Painless Childbirth* (Buffalo, 1884), pp. 53-54, cited in Wertz and Wertz 1977, 113.).

The Indian squaw represented an apocryphal figure, a return to a more natural state from which civilized women had apparently strayed (Loudon 1992, 340-50; Wertz and Wertz 1977, 109-28). This of course added to an already stressful set of expectations placed upon women in general, but for women in childbirth the very real threat of a long and painful death only added to these pressures. Nineteenth-century women were caught between the demands of a society in the midst of industrialization, where progress meant advancing beyond the primitive conditions and practices of savagery, and the refined sensibilities of Victorian culture, where the feminine ideal endeavored to follow a path of genteel domesticity (Wertz and Wertz 1977, 109-28). Moral precepts found their "proper expression" within this domain of domesticity and were embodied, by extension, in the Victorian ideal of womanhood. At the same time, the pain and suffering of childbirth represented a moral failing, often attributed to a woman's aggressiveness, pursuit of masculine roles, and the abandonment of domestic submission.<sup>20</sup>

Until the late eighteenth and early nineteenth centuries, delivering babies was for the most part the provenance of midwives, female relatives, friends or neighbors. Giving birth was an occasion that men seldom attended. In the late 1700s male physicians and "man-midwives" began to assert themselves more readily in the birthing process, in what is commonly described as the medicalization of childbirth (Ettinger 2006). This shift, while gradual, was nonetheless dramatic in both technique

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20. Loudon (1992, 343) suggests that the idea of civilization's adverse effects on women in childbirth was a belief held primarily in the United States, Britain and Australia. The widespread and systematic use of analgesics during childbirth was one of the consequences of this idea, particularly in the United States.

and consequences. During this period that deaths among childbearing women increased significantly. The most alarming trend in childbirth-related deaths was the precipitous rise in puerperal fever. A streptococcal infection, it spread quickly throughout the body, claiming its victims after days and sometimes weeks of excruciating pain. Such unusually high rates of death due to puerperal fever caught physicians off guard. Leaving the medical community unable to employ effective therapeutic and preventive measures.

Puerperal fever was not a new or unknown disease. It was identified as a cause of death at least as far back as 1500 BCE, when an ancient set of Hindu books, called the *Ayur-Vedas*, warned midwives of the dangers of childbed fever (Speert 2004, 289-96). In the Western Hemisphere, the first recorded epidemic of puerperal fever was at the Hôtel Dieu in Paris, in 1646 (ibid., 289). By the early nineteenth century, such localized epidemics were becoming more common and of significant concern for the medical community. The correspondence between the rise in incidents of puerperal fever and the medicalization of childbirth was not merely coincidental. The proposed connection between the two, suggested by only a handful of physicians at the time, launched a long series of high contested debates lasting nearly through the entire nineteenth century.

Moreover, while the patient suffering from puerperal fever felt shame similar to that experienced by the syphilitic, the physician feared public sanction. As Irving Loudon (1999:325) notes, "Hidden deaths were almost always deaths from puerperal fever for the simple reason that a doctor (or midwife) whose patient died of puerperal

fever was liable to be blamed for the death whether justified or not". In the mid-1870s, two British midwives were charged and prosecuted for "manslaughter by infection" after the women they had attended died of puerperal fever (Worboys 2000, 104). It was not unusual, therefore, for physicians to report deaths from puerperal infection with more generic terms, like peritonitis or *septicemia* (Louden 1992, 1999). Deaths caused by peritonitis or septicemia did not by themselves suggest the physician's role in spreading the infection; deaths caused by puerperal fever did.

Another strategy was to "invoke multiple causes and relegate puerperal fever to a secondary position... If a mother had a slight postpartum hemorrhage and died a week later of puerperal fever, 'hemorrhage' could be put as the primary cause on the death certificate, and 'puerperal fever' as the secondary cause" (Louden 1999: 325). Richard W. Wertz and Dorothy C. Wertz (1977: 125-26) also note this practice: "A Philadelphia doctor said in 1873 that doctors naturally shrank from reporting their fatal midwifery cases as such and resorted to calling death from puerperal fever by many other, obscuring names." Grace L. Meigs (1917: 18), examining the data on maternal mortality in the United States, stated that any marked decrease in the actual death rate from childbirth during the last 13 years could not have been masked by the improvement in reporting deaths from childbirth." Meigs was referring in part to the underreporting of puerperal fever. The apparent decrease in deaths from "peritonitis of unstated origins"—23,000 in the 1890s, only 3,800 in the 1920s—was due not to any marked decrease in peritonitis but the availability of two other categories, "appendicitis" in 1902 and "duodenal ulcer" in 1911 (Louden 1999, 327).

The early history of identifying puerperal fever as a contagious disease goes back at least to the late eighteenth century. In the United States, one of the first and most renowned nineteenth-century figures to address the contagiousness of puerperal fever was Oliver Wendell Holmes, a Boston-area resident. . His essay "The Contagiousness of Puerperal Fever" launched a long-running debate on whether physicians, nurses and midwives were responsible for spreading the infection to their patients. As Holmes (1843: 503) noted, "The disease known as Puerperal Fever is so far contagious as to be frequently carried from patient to patient by physicians and nurses." Holme's suggestion that physicians were responsible for transmitting disease was not well received by the medical community. De Costa (2002: 669) notes that "Charles Meigs, a well-known obstetrician, was incensed at the suggestion he may himself be transmitting disease. 'Doctors,' he said, 'are gentlemen, and gentlemen's hands are clean'" In Europe, a similar set of reactions were expressed when the Viennese physician Ignaz Semmelweis, independently came to the same conclusions as Holmes. The resistance on both continents to accepting that health care personnel acted as carriers of such a deadly infection persisted until the late nineteenth century. Even with Louis Pasteur's 1879 discovery of the *Streptococcus* bacterium caused puerperal fever and Joseph Lister's success in preventing postoperative infections through antiseptic procedures, the medical community was nevertheless loath to acknowledge the infectious nature of puerperal fever (ibid.).

Nevertheless, puerperal fever began to decline in the late 1870s and early 1880s. In 1897, H. B. Brennecke, a German physician, showed that childbirth related

mortality rates in Prussia had dropped sharply beginning in the mid-1870s. Samuel Abbott, secretary of the Massachusetts State Board of Health, did a comparative study of childbirth deaths in Massachusetts over the same period and found an almost identical pattern of decline. Brennecke credited a change in the Prussian registration system with "the sudden and surprising fall of the puerperal mortality curve in 1874" and dismissed the idea that the decline was "due to the influence of antiseptics (which were not employed at that time in the country districts)" (Abbott 1898: 807). Abbott (ibid.) claimed that that explanation did not hold for the Massachusetts' decline in mortality "since while the Massachusetts column [of data in his study] shows precisely the same sudden fall three years later, it is not true that any change in the methods or the authorities collecting the statistics have here taken place, since they have from the very outset, in 1842, been collected by the city registrars and the town clerks throughout the State."<sup>21</sup> But Abbott was mistaken. As we saw in chapter 3, a significant change in the reporting methods and authorities had taken place with the passing of the 1878 certification law requiring all deaths in Massachusetts to be certified by physicians, producing a de facto standardization. Disease-specific rates stabilized significantly from c.1880 through the end of the study period, which also marked the beginning of the mortality plateau.

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21. Abbott did not speculate on the Massachusetts decline but rather addressed the importance of standardizing the reporting for comparative study.

### Puerperal Fever in Holyoke and Northampton

Death rates from puerperal fever in both towns show a pattern of decline very similar to that found by Brennecke and Abbott. The peak incidents occurred in the early 1880s but then sharply declined, followed by a plateau beginning in 1890s (see Figure 13). The overall maternal mortality rate began to decline in the 1870s, followed by a plateau similar to that of puerperal fever. The rise in puerperal fever, which began in the early 1860s, was probably due to demographic and socioeconomic shifts in both towns, for example, high population density, poor living conditions, rapid population growth, lagging sanitary and health infrastructures (Hautaniemi et al. 1999; Beemer et al. 2005). The pattern of decline in later decades, however, can be more precisely explained given certain historical developments. During this period antiseptic procedures began to be employed in both Europe and the United States. The successes of Lister and his colleagues demonstrated the efficacy of antisepsis in reducing the incidence of postoperative infections. These successes were most pronounced among lying-in hospitals where death rates from puerperal fever dropped as much as 80 percent. Given the increased attention to antiseptic practices, it is reasonable to suggest that declines in puerperal fever were due to real reductions.

Yet the fear of liability and legal sanctions on the part of physicians were on the rise. The reluctance of nineteenth-century physicians to report puerperal fever as a cause of death is as likely an explanation as is real reductions. These two explanations are not, however, mutually exclusive. With the growing recognition that puerperal fever was preventable via hand washing and other antiseptic practices, the means for

preventing the infection and an environment of liability emerged together. Once the responsibility of prevention had been laid at the feet of physicians and other caretakers, reported cases of infection and death could be more carefully scrutinized.<sup>22</sup> As Loudon and others have shown, the prevalence of underreporting puerperal fever was a persistent problem and one specifically addressed in both the ICD-1 and the ICD-1a/2. Instructions for qualifying deaths in childbirth addressed concerns for whether a particular disease was puerperal-related. The standard instruction was to return the

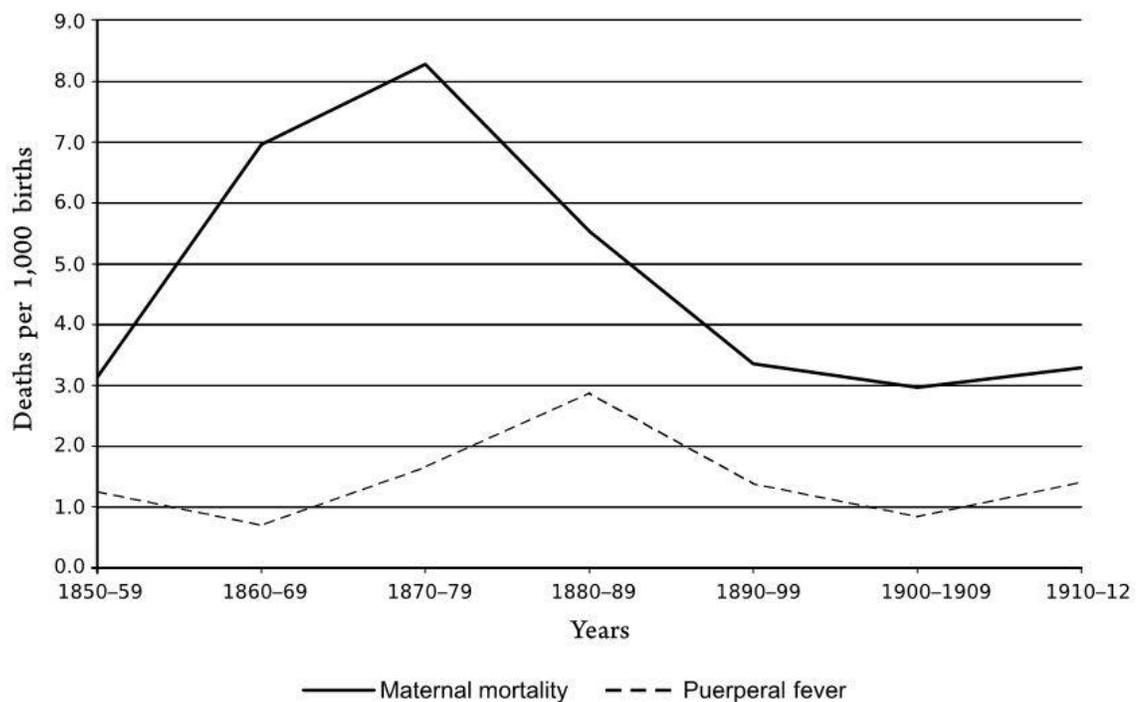


Figure 13. Maternal and Puerperal Fever Mortality Rates, Holyoke & Northampton, 1850–1912.<sup>23</sup>

22. Many physicians throughout this period, nevertheless, continued to reject the claim that they could be responsible for spreading this horrible infection.

23 Maternal mortality rates are exclusive of puerperal fever.

certificate to the attending physician with a request to clarify whether or not the disease was puerperal for cases involving women who had suffered *septichæmia*, *eclampsia*, *peritonitis*, or some other putative condition (U.S. Bureau of the Census 1910: 31, 41, 53, 57-59).<sup>24</sup> The very recognition that such terms needed clarification when the deaths of women were attributed to those causes is an important consideration when we examine the problem of underreported cases of puerperal fever.

The impact of the ICD-1 on the reporting of puerperal fever, however, appears to be fairly modest. Table 5 shows the percentage of all maternal deaths caused by puerperal fever from 1850 to 1912. The 1880s mark the most active period, with puerperal fever representing over half of all maternal deaths in Northampton and Holyoke. From the 1890s through the first decade of the twentieth century, the death rate from puerperal fever dropped by nearly half to about a quarter of all cases of maternal mortality.

Table 5. Puerperal fever deaths as a percentage of total maternal deaths, Northampton & Holyoke, 1850-1912.

Period	Maternal deaths	Puerperal fever deaths	% of total
1850-59	10	4	40%
1860-69	30	3	10%
1870-79	65	13	20%
1880-89	77	40	52%
1890-99	68	28	41%
1900-09	60	17	28%
1910-12	21	9	43%

24. As to the precise reasons for this specific instruction, there is no discussion in either ICD-1 or ICD-1a/2.

From 1910 through 1912, however, puerperal fever rebounded to account for 43 percent of all maternal deaths. The qualifying instructions for puerperal fever in both the ICD-1 and the ICD-1a/2 were meant for clarification purposes and did not represent a change in nomenclature per se. The instructions asked for more precision in identifying unqualified causes of death for women of childbearing age. Again, the qualifying instructions for puerperal fever, as well as for syphilis, sought clarification on otherwise ambiguous usage. The reported cases of puerperal fever toward the end of this period may have increased in response to requests that physicians better identify

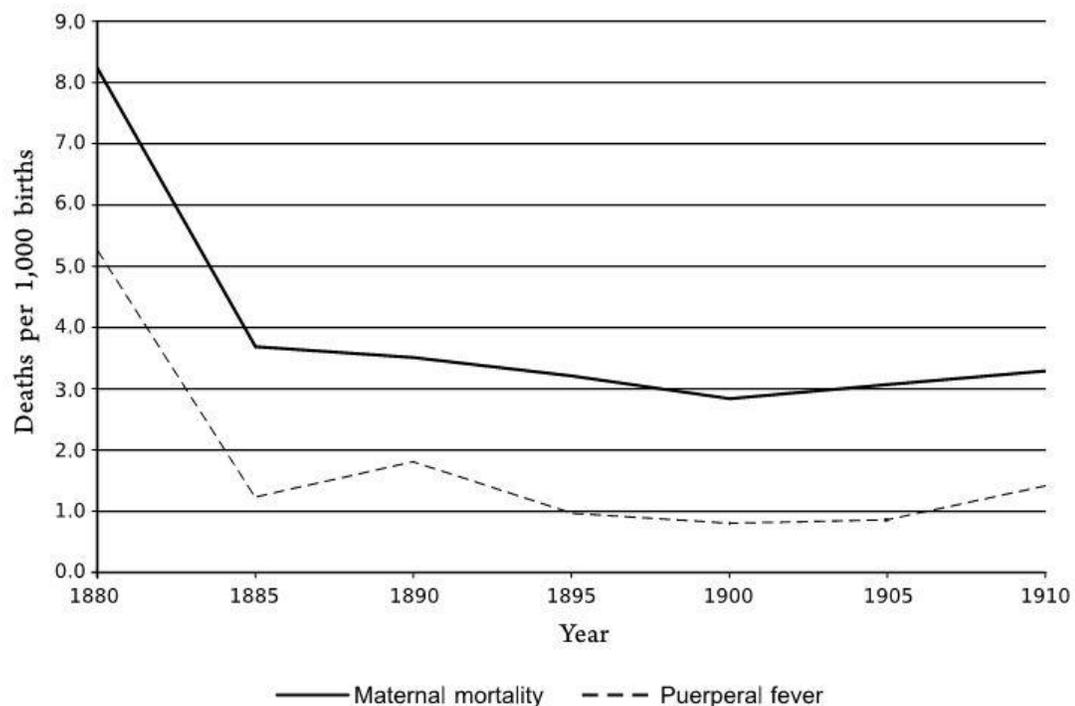


Figure 14. Maternal and Puerperal Fever Mortality Rates, Holyoke & Northampton, 1880–1910.<sup>25</sup>

25. Maternal mortality rates are exclusive of puerperal fever.

them. Figure 14 clarifies these trends by giving us a closer look at maternal and puerperal fever mortality rates from 1880 to 1910 using five-year intervals. In this figure we see a sharp decline in puerperal fever as a reported cause of death beginning around 1880, followed by a pattern of relative stability. Despite the modest effects on reporting over this period, the ICD's qualifying instructions reflected the struggles that officials faced in securing accurate cause-of-death reporting. From the sharp decline and stabilization of deaths from puerperal fever following the 1878 Massachusetts certification law, coupled with the potential liabilities associated with puerperal fever, it is reasonable to suggest that physicians in Holyoke and Northampton, like medical practitioners in England, Pennsylvania, and elsewhere, concealed puerperal fever in other cause-of-death categories. Again, the effectual role of antiseptic procedures is probably a contributing factor as well. Without further evidence, however, it remains unclear what direct impact the ICD's qualifying instructions had on the reporting of puerperal fever in Holyoke and Northampton.

#### Inanition

The ICD instructions for inanition, unlike those for puerperal fever, represented a unequivocal change in nomenclature. This particular cause-of-death category was employed quite extensively by U.S. physicians, and the language used in the ICD-1a/2 to admonish them to stop reporting inanition as a cause of death was the strongest among all the correctives. In the first version of the ICD, "inanition" was listed under "affections produced by external causes." Newborns receiving insufficient food were

specifically exempted from this cause and were to be classified under "early infancy: lack of care" (U.S. Department of the Treasury, U.S. Marine-hospital Service 1900: 9). This cause received no elaboration in the 1900 pamphlet (ICD-1). However, inanition was eventually listed as one of "the most objectionable returns:"

In some localities, this term covers a multitude of imperfect diagnoses. What was the *cause* of the 'inanition'? The *name of the disease* should be given that lead to this condition. The title 'Inanition' (173), as given in the Report of the International Commission and in English translations among 'external causes,' does not at all correspond to our usage of the term, which does not usually refer to actual deprivation or starvation, but to the wasting resulting from certain diseases. It is thus merely an indefinite expression, like 'debility' or 'marasmus'. (U.S. Bureau of the Census 1902: 15-16)

It was not until the second revision of the ICD in 1909 (ICD-1a/2) that the term *inanition* was changed to *starvation*. Again newborn infants were exempted and were to be returned under "lack of care," which had been elaborated to include "Cold. Lack of clothing. Uncleanliness. Bad treatment. Desertion" (U.S. Bureau of the Census 1910: 63). The title, which applied only to children through the third month of life, included a note that "inanition – nonmilk diet" had been moved to "starvation." The footnote for the "Starvation" title further clarified the wishes of the Committee:

A death from "inanition" should be included here only when it implies actual starvation by deprivation of food. When the word is used, as it frequently is in the United States, to denote exhaustion from defective nourishment, due to disease or congenital or senile debility, it should not be compiled under title 177B "[Starvation]". The term is indefinite and otherwise objectionable, and the disease causing inanition should be given (*ibid.*).

Austin Flint, a nineteenth-century professor of medicine at Bellevue Hospital Medical College and Fellow of the New York Academy of Medicine, illustrates well the American position *A Treatise on the Principles and Practice of Medicine*. For Flint (1867 417-18), not only was the pathology of inanition implicated in "all diseases which interfere with the ingestion or assimilation of aliment," but the inability to absorb nutrition set up a downward spiral with any disease:

The immediate cause of death in many cases of disease proving fatal by slow asthenia is inanition; that is to say, starvation. These are facts of great practical importance, and they are not sufficiently appreciated by many practitioners of medicine. ...it is a maxim of conservative medicine that under all circumstances a chronic affection is less likely to be prolonged, serious lesions of structure are less liable to take place, and a fatal termination is postponed, in proportion as the vital powers are maintained by a nutritious diet.

Additionally, Flint maintained that "innutrition" was frequently a cause for other diseases, like typhus, tuberculosis and scorbutus (ibid., 418). This interaction between nutrition and disease was recognized for children as well, but infant and childhood malnutrition tended to be attributed to feeding regimens. In his manual for beginning pediatricians, George M. Tuttle, attending physician at Bethesda Foundling Asylum in St. Louis, offered a typical discussion of infant nutrition. After mentioning prematurity, low birth weight, and "inheritance" from unhealthy or neurotic parents as possible sources of malnutrition, he stated, "But commoner yet, it is seen in children who in early infancy have been fed on diet entirely unsuitable to their age" (Tuttle 1899: 161). In his address on infant mortality to the American Medical Association,

Edwin E. Graham (1908: 1046) declared, "Breast-feeding is surely a powerful measure with which to combat death."

Proper nutrition was deemed crucial in preventing disease both specifically and more generally. Under the category "Privation of the Class Zymotic, Order Dietic" (a new Order introduced in 1855), the Massachusetts state nosology added "want of breast milk" in 1863 (Secretary of the Commonwealth 1863: cixii). Previously, in 1858, want of breast milk was excluded from "privation", and prior to the 1855 general reorganization of the Massachusetts nosology, "atrophy," "debility" and "infantile" were separate diseases listed under the heading "Uncertain Seat," while starvation was classed under "Violence." Even want of breast milk as a specific cause can be read ambiguously: the mother may not have had sufficient milk, or the infant may have been deprived of breast milk by death, desertion or artificial feedings. While much of the organization in Massachusetts' nosology is reflected in the early ICD classifications, the "Order Dietic" is not. Rather, the terms contained in that order, *Privation, purpura and scurvy*," "*delirium tremens (alcoholism)*," and *intemperance (alcoholism)*, are absent or spread throughout other categories. For American doctors, the term *inanition* did not necessarily imply starvation in the sense of having food withheld. Rather, it encompassed the morally ambiguous area of neglect as well as poor care in the form of artificial feeding.

The admonition to refrain from using *inanition* was certainly apropos for Holyoke physicians. Inanition, though not infrequently given as a cause of death through the 1880s, was applied exclusively to children. Of 34 inanition deaths during

that decade, only 4 decedents were over one year of age, and none was over the age of five. In Northampton inanition was given as the sole cause of death for both adults and children, with the term *infantile debility* used for the youngest. (This term does not show up in the Holyoke records for that decade.) During the following decade, the use of the term *inanition* increased (in frequency and scope) in Holyoke, particularly after 1894, and from 1895 through the end of the decade, 22 adults, 25 infants and 7 children were recorded with inanition as the *secondary cause* of death, which is in keeping with the ICD 1909 footnote. Among infant deaths, the most frequent primary cause was gastro-enteritis or premature birth. However, for infants and children, inanition continued to be given as the primary or sole cause of death. In the 1890s no adults in Holyoke died chiefly from inanition, but 79 children did, overwhelmingly in the first or second year of life. Eleven of these children were more than three months old, the cutoff for early infancy causes in the ICD intended to capture congenital defects. In addition, beginning in 1898 the twin causes of marasmus and inanition began to appear for infants, a trend that increased through the 1910s. Marasmus was simply defined as wasting of flesh. Inanition—in the American sense of exhaustion from defective nourishment—must then be understood as the underlying cause, the opposite of what the international community was urging by 1909. Beginning in 1900, the term *malnutrition* began to replace inanition both in terms of frequency—there were twice as many deaths from malnutrition as from inanition—and in terms of being coupled with marasmus, prematurity and gastro-enteritis. Inanition as the sole cause of death for children under five years peaked in the late

1890s, but had begun to decline by 1900. Malnutrition as a cause of death for children under five years, however, rose sharply in the first decade of the 1900s (see figure 15).

As with puerperal fever, a number of factors could explain malnutrition's dramatic rise and inanition's decline. It is reasonable to infer that the physicians in western Massachusetts declared some infant deaths the results of starvation, from either outright or implied neglect (one 10-week-old infant's death was recorded as "1. bottle-fed baby 2. inanition"). The shift to malnutrition may have been more precise

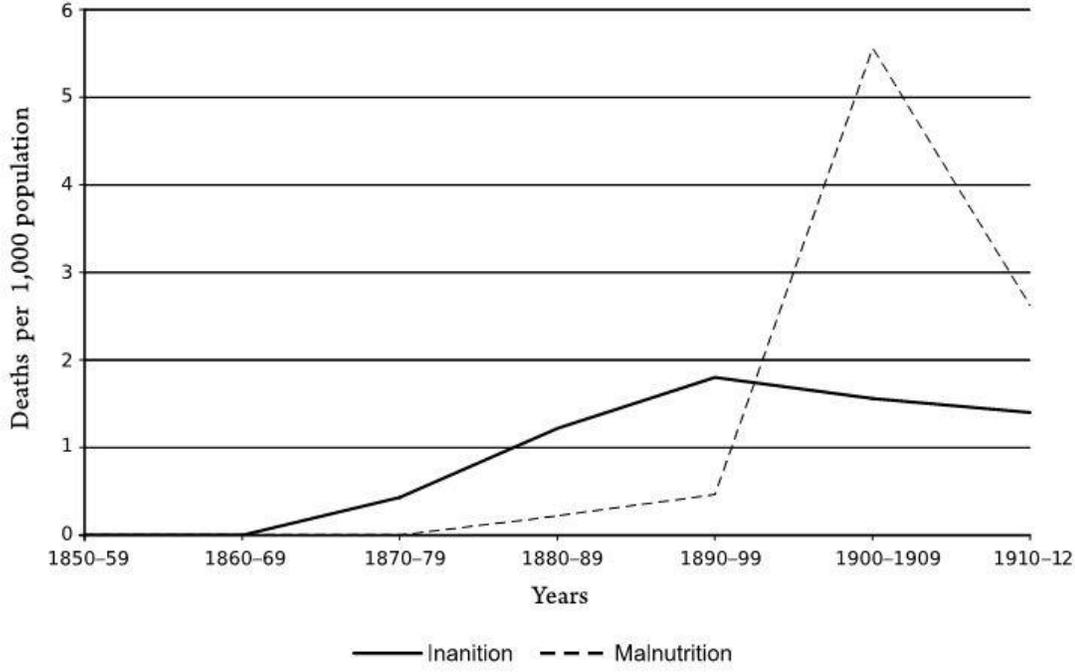


Figure 15. Inanition and Malnutrition Mortality Rates, Children Ages 0 to 5, Holyoke & Northampton, 1850-1912.

in physicians' minds. Deaths from these coupled causes were particularly troublesome in Holyoke in the early twentieth century. They were not only numerous, but also concentrated in the newly opened Bethlehem Asylum for infants at the Sisters of

Providence's Brightside Institute. The dangers of foundling homes were well recognized in Europe and the United States, yet the problems of classifying deaths of foundling infants was not directly addressed in the ICD. The note to "Other diseases of early infancy" provides at least part of the explanation: "No provision was formerly made under the International Classification for deaths of this kind [injuries at birth], owing, probably, to the fact that deaths of infants are, in France and some other European countries, returned as stillbirths if they occur prior to the date of registration" (Bureau of the Census 1910, 63). In Europe, foundlings were put out to wet nurses if at all possible, where they had much better chances of survival than institutionalized infants (Kertzer et al. 1999; Levene 2006). It was not uncommon for virtually all infants who were not placed by six months of age to die (Kertzer et al. 1999). Placing infants out, or compelling their unmarried mothers to stay and nurse them, was recommended in the United States as well (Graham 1908).

This was not the practice at Bethlehem Asylum, where parents were requested to pay \$6 per month but often could not (Liptak and Bennett 1999, 60). The nuns were not able to feed their charges proper food, that is, breast milk, and they faced severe financial difficulties (Liptak and Bennett 1999). They also ran orphanages for both boys and girls, so that infants who survived their care could remain with them. Blaming working-class mothers for killing their infants through artificial feeding was common (Swedlund and Ball 1998), but institutional deaths were more problematic. To name these deaths as due to "lack of care" or "insufficient nourishment" would have implicated the nuns devoted to caring for abandoned and orphaned children, but

classifying them under outright starvation would have been worse. Some physicians may also have sympathized with working-class families unable to provide their children with adequate breast milk. It was during this period that breast feeding, particularly among the poor, declined sharply and artificial feeding with cow's milk increased. In Holyoke, as in many cities across the Northeastern United States, milk stations opened as an affordable and safe alternative for low income families, whose mothers worked outside the home and could not breast-feed. The evidence suggests that improvements in nutrition for infants and children did not play a factor in the decline of reported cases of inanition for Holyoke or Northampton; in fact just the opposite appears to be the case.

Again, the reasons for this shift in nomenclature are not entirely clear. The admonition to refrain from using the term *inanition* as a cause of death in the 1902 census manual provides a plausible explanation. This same proscription did not appear in the ICD until its second revision in 1909 (ICD-1a/2), thus precluding its direct influence prior to 1910, when it was first published in the United States. Like puerperal fever, inanition underwent a decline well before the ICD's instruction to refrain from using the term. Indeed, the 1902 census manual referred to the existing inadequacies of the 1900 ICD. *Inanition* was one among several terms used in the ICD that the manual deemed "inadequate and unsatisfactory" (U.S. Bureau of the Census 1902: 15):

All users of this manual, including physicians and registrars of local and state offices, will notice certain irregularities and inconsistencies inherent in the classification, and many terms will occur that are not even yet provided for in the tabular list and index... Provision is made for the regular decennial revision of the international classification, and

it is not too early to begin to collect data for this purpose. ...desirable changes may be noted for the next revision, and any suggestions which may be made to this office for this purpose will be... transmitted to the international commission of revision (ibid.:18).

Delegates of 23 different countries were present at the Second Decennial Revision in 1909. The United States was represented by six delegates, the largest contingent of all the participating countries. Many of the U.S. delegation's recommended revisions were approved for the 1909 Decennial Revision (ICD-1a/2), most notably, many identified in the 1902 Manual as indefinite and unsatisfactory (U.S. Bureau of the Census 1902: Gehlke 1910: 564). While the list of U.S. recommended revisions is not available, it is highly likely that the ICD-1a/2 corrective to refrain from using the term *inanition* as a cause of death originated with the U.S. delegation, and was formally adopted into the Second Decennial Revision as a result.

#### Professional and Organizational Development of the ICD

The early development of the ICD represented both a beginning and an end in the classification of diseases and causes of death. The Bertillon conferences emerged out of a context of diverse and often diverging nomenclatures. The medical community in both the United States and Europe recognized the need to formulate a systematic classification of diseases and causes of death as an international endeavor, an effort explicitly designed to centralize and regulate common usage of terms. Emerging germ theories of disease, the advent of bacteriology, the rise of public health regimes and the subsequent changes in medical practices, particularly in Europe,

provided the material and conceptual conditions necessary to shift the epidemiological landscape during this period. The ICD represents a benchmark of sorts in the transition from pre-germ theoretic understandings of disease to what we now consider as modern germ theory.

Late nineteenth-century medicine and medical science struggled to transform themselves from the provincial impulses that had localized its practices and perspectives for centuries. Changes in medical science, in conjunction with developments in public health and sanitation, changed the context in which physicians practiced in a relatively short period of time. Resistance to this ever-shifting ground, as well as simply not having access to new developments in medical science, created a need to pull the various strands together in some systematic fashion. The constitutive and regulative features that emerged out the ICD consisted of a collaboration of several different communities and practices, centering on a convergence of clinical and scientific practices. With the publication of ICD-1 in 1900, we see the combined efforts of both physicians and statisticians to standardize disease and cause-of-death reporting come to fruition. The broad international character of the ICD illustrates the professional and organizational development that was necessary for the implementation and success of these collaborative efforts. European influence clearly dominated the early attempts at developing a standard classification system. By the Second Decennial Revision in 1909, the U.S. representation on the International Commission was significant enough that it hosted the Third Decennial Revision in Washington DC in 1919. This influence was due in large part to the ongoing efforts of

the American Medical Association, the American Statistical Association, and the American Public Health Association to effect standardization in the United States.

The call for an international standard for disease and cause-of-death classification began in the mid-nineteenth century with the work of Farr and his successor, Bertillon. The Bertillon International Commission extended beyond simply classifying diseases and causes of death. It provided a window into emerging medical and public health professions. During the early stages of the North American epidemiological transition, the medical community as an organized professional body was in its infancy. Physician training lacked a clear, uniform standard of instruction; systems for recording causes of death and diagnostic measures tended to follow local or regional criterion; and broad public health concerns were just beginning to take shape. These and other factors influenced conceptions of disease throughout this period and are readily seen in the recorded causes of death in Massachusetts over the second half of the nineteenth century.

In Massachusetts, Holyoke and Northampton illustrate some of the more dramatic shifts in the social and epidemiological landscape during the late nineteenth century. "Puerperal fever" and "Inanition" are two examples of how the international community attempted to regulate the underlying grammars of death at the local level. This was only possible given the earlier developments in Massachusetts's registration system. The ICD was not simply a set of unilateral injunctions from European medical professionals to instruct physicians in proper nomenclature. The document was truly a collaborative effort from all participating countries, and it provided a mechanism for

implementing provincial concerns. In the United States this entailed the ongoing efforts to expand the death registration area to include all the states by means of an internationally recognized standard nomenclature. Unlike most European countries, the United States did not have a national death registration system in place but relied upon the voluntary reporting of individual states for gathering mortality statistics on a national scale, which continues to be the case today.

## CHAPTER 6

### CONCLUSION

#### Institutional Mandates and Their Accountability Conditions

Institutionalizing cause-of-death reporting in Massachusetts required more than a reporting system with dedicated professionals, or standardized reporting procedures and nomenclature, or State regulatory measures. Cause-of-death reporting required a set of practices that corresponded with its institutional mandate and a requisite set of professional practitioners to carry out that mandate. The purposes for which Shattuck envisioned a death registration system was twofold, 1) to collect complete and accurate statistical data, and 2) to use that data for understanding the public's health. Massachusetts' Registration Act of March 3, 1842 established the requirements and guidelines for implementing a modern system of vital registration. Establishing these requirements and guidelines put the statistical and public health mandates in motion, but implementing that modern system of vital registration took nearly forty years to fulfill. The regulatory development of death registration was a slow, incremental process that tinkered with legal mandates to help bring about a more accurate system of reporting. Most of the statutes missed their mark, however, and the system stagnated on several fronts.

Vital registration in Massachusetts as elsewhere included the recording of births, marriages, and deaths. The old system that had existed since the seventeenth century was predicated on a legal and economic basis. Gathering public-health

statistics was not part of its mandate. The system that went into effect in 1842 was operationally an extension of the earlier system. As Gutman points out (p.47 above), the practical significance of the 1842 Registration Act was negligible because most of the provision had not change from the 1792 law. The key difference distinguishing the new system from the earlier system was the public health mandate. The reporting practices in place prior to 1842 essentially remained the same after 1842 because the practitioners given charge of executing vital registration had not changed. Granted, the new system had become centralized, it was implemented under state authority, a fledgling bureaucracy was put into place, and the expectations and scope were significantly expanded. The operational side was, nevertheless, still under the guise of town clerks and the administrative practices that served that community of professionals for decades. The constitutive and regulative norms under which town clerks practiced their profession fit relatively well with the administrative task of collecting registration data for births and marriages. Simply recording births and marriages did not require any additional expertise for ensuring accuracy. For the task of accurately recording causes-of-death as an extension of diagnostic practice, town clerks did not possess the constitutive competency necessary for establishing this duty as normative basis for practice. The only professionals for which that practice had constituent meaning were physicians.

The public health mandate that launched the 1842 Registration Act required a new set of practices. The constitutive and regulative norms that governed the administrative practices of town clerks were insufficient for carrying out that task. The

constitutive and regulative norms that governed the diagnostic practices of physicians were also insufficient for carrying out that task. The assumption that the mere conjunction of two very different types of practices could sufficiently produce and sustain an institutional mandate effectively halted the institution-building that was necessary in developing cause-of-death reporting as a public health institution in its own right. The constitutive norms that governed physicians' diagnostic practices were contextual features of practices with unique accountability conditions. The shared customs and practices that provided physicians their basis for diagnosing disease were forged against the backdrop of a community of language users who demonstrated their agreement through their professional use of diagnostic language (see chapter 2, p. 27ff). The same was true for the administrative practices of town clerks. The constituencies and competencies in both cases were different, however. The specific practices that defined the communities for which they belonged and served were *locally unique* in terms of their meanings and accountability conditions. As such, the respective practices of physicians and clerks emerged, developed, and existed independently and with their own unique accountability conditions. For cause-of-death registration to be successful as a public health institution a set of practices with its own accountability conditions needed to emerge, develop, and exist independently as something more than what physicians or clerks brought to the table in their respective professional capacities. Put differently, a new language game needed to emerge that drew upon a unique set of practices developed through the professional practices of physicians and clerks.

While practices themselves are locally unique as defining outcomes of particular communities, the broader social processes by which these practices find life transcend their local configurations. The pragmatic mechanisms of public accountability most certainly find their expression within the context of local practices, that is, all communities develop accountability configurations that are distinctive to their practices, but the processes through which accountability configurations are created extend across these local expressions. The pragmatic path that provides the conditions allowing for the emergence of distinct accountability configurations is the same regardless of the unique outcomes. As we saw in chapter 2, the conditions that allow for these distinct accountability configurations is the expectation or presumption of symmetry between actors in their publically accountable interactions. This is the pragmatic constraint – the ever-present expectation that those with whom we are interacting are doing so under a mutual set of expectations from a third-person perspective. In other words, we approach interactions from the perspective of *the other* and expect those with whom we are interacting to do the same. We draw upon an assumption of public accountability before engaging in any particular configuration that accountability conditions provide (see above, p.32ff). This in a nutshell is what public accountability is all about. While it is presupposed in all interactive contexts, public accountability must nevertheless be expressed through shared – normatively governed – practices that are configured locally by means of their constitutive and regulative features. The broader extension of these pragmatic mechanisms is the

working out of the constitutive and regulative norms that identify the unique practices of particular communities.

Establishing constitutive and regulative normativity in conjunction with an evolving set of accountability conditions is a necessary step in defining any community practice. This is an emergent process that draws upon existing institutional resources and practices. The accountability conditions of Massachusetts's cause-of-death registration system reveal the normative configurations that were necessary in the institutional development of vital registration in Massachusetts. That new practices can emerge from existing practices speaks to the transcendental nature of these pragmatic mechanisms. We see this institution-building process in the early and continuing development of the ICD.

#### Institution-Building in the Rise of the ICD Community

Since the turn of the twentieth century, physicians in the United States have been required to record causes of death in accordance with the International Classification of Diseases (ICD). This system of classification has been part of the medical profession's diagnostic language for over a hundred years. It has undergone periodic changes since its inception in 1901, and is now in its tenth revision. The diagnostic practices of physicians and other medical personnel are intertwined with this classification system. The ICD guidelines govern the ways in which physicians and reporting agents are permitted to report causes of death. Categorical constraints and boundaries are imposed, limiting the number of options available to the reporting

agent. Causes of death are coded according to the rules and guidelines set forth through the World Health Organization. To be qualified to record causes of death, one must go through a certification process that begins with taking approved courses in ICD coding. Inclusion into this group of ICD coders requires one to engage in practices that demonstrate the requisite knowledge and skills necessary to be considered a member of this community. The ICD receives its marching orders from the collective practices and shared meanings that have developed and continue to develop within an ever-widening community of health practitioners. The periodic changes in the ICD are the result of changes in the way the ICD was and continues to be used, its practical usefulness for the communities it serves, and the general agreement that its practitioners demonstrate in its use. As such, the ICD is an expression of the shared practices that define the ICD community.

Classifying diseases obviously did not begin with the ICD nor will it end with the ICD. The practice of disease classification has been around for centuries. Nosologies were commonly used and referred to long before the ICD emerged. These were by and large theoretical instruments created by individual physicians designed for clinical purposes. The context and constituency of this practice are important in understanding why classifications looked as they did. For most of its history, the practice of medicine took place in the private sphere and existed as a very isolating trade from a professional perspective. Identifying oneself with a broader professional community did not enter into the minds of most physician prior to the mid-nineteenth century. Medical practice was neither a public endeavor nor viewed necessarily as a

public good. The need to standardize was first driven by a public health agenda. The value of standardizing disease terms was lost to physicians because it had no conceivable clinical value. Farr's nosology was too broad of a classification schema to be of much practical use. At the same time, Farr's intent in developing his "uniform statistical nomenclature" was quite different from the everyday concerns of nineteenth-century physicians. His purpose was to redress what he saw as significant deficiencies in past nosologies, Sydenham's in particular. While it may have been of no concern or by design for earlier nosologists to use multiple terms for the same disease or ignore the need for precision in characterizing these diseases, such practices were fundamentally at odds with what Farr was attempting to accomplish with his nosology. Farr, Shattuck, and the growing international group of public health reformers were at work establishing their own practices during this period. Context, constituency, and competency were integral in the developing and moving the public-health movement into a professional community with their own unique practices.

The stepwise developments of Massachusetts vital registration system were not unique. The same reporting challenges were present in states all across the country. Without the presence of these reporting regimes, the international developments in standardizing disease and cause-of-death nomenclature could not have occurred. The international character of the ICD represented the professional and organizational interests of local and regional communities in the medical and public-health sectors. As an international institution, the ICD emerged out of these local and regional interests. The success of these collaborative efforts, however,

rested on creating a new set of practices designed to serve its international constituency. The journey was certainly not a smooth one. Like Massachusetts' cause-of-death registration system, the task of establishing practices and practitioners required the development of accountability conditions that corresponded with the institutional mandates that defined the ICD community. Much of the story of that struggle took place and continues to take place after our period. Those struggles, however, were seeded in the latter half of the nineteenth century in both Europe and the United States. At the same time, the institutional successes of the ICD were equally seeded during this period.

The pragmatic conditions out of which both Massachusetts' cause-of-death registration system and the International Classification of Diseases emerged do not consist of special circumstances or settings. The same pragmatic constraints that we confront in our everyday lives are the same pragmatic constraints from which these two institutions emerged. The central objects for which both systems were given charge were disease and cause-of-death terms. How that language was used in each context provided the constitutive and regulative medium that governed their institutional practices. Language is not a free-floating system. It requires the actions of real people who act in very tangible and consequential ways. As I have argued, public accountability is an imminent feature of how we use language. The public nature of our language games, whether played in a professional, ordinary, consensual, or conflictual capacity is what allows for our communicative, justificatory, and intersubjective practices to be meaningful. The social meanings of mortality in

nineteenth-century Massachusetts reflect the public commitments of a diverse set of communities and practices that shared similar resources in working out the struggles and triumphs of communicating the language of death and disease.

## APPENDIX

### 1877 STATE BOARD OF HEALTH SURVEY OF PHYSICIANS AND CLERKS

Note: The following contains the survey responses of Medical Correspondents and City and Town Clerks to the Massachusetts State Board of Health, as published in the 1877 Annual Report of the Massachusetts's State Board of Health, regarding the accuracy and compliance of cause-of-death registration in the State of Massachusetts. The published responses were selected by the Board of Health for illustrative purpose and did not contain all survey responses. Each response retains its original numbering as recorded in the survey results.

#### Page 235

##### *Replies of Medical Correspondents*

1. The registration of deaths in this town is quite complete and satisfactory, with perhaps the exception that the *cause of death* is reported in too general terms, a matter that can be easily remedied by physicians making the report, which is not done in all cases now. The deaths are returned by the undertaker to the clerk once a year; this, perhaps, is not as often as it should be done, but such matters, I think, cannot be attended to conveniently with that promptness in country places as in cities.
2. I presume that our town authorities are not remiss in reporting all cases of death, but are certainly not over-particular in the minutiae of the subject, -in fact, have not in a single case referred to me for such particulars.
5. Undoubtedly the number of deaths is given the clerk with sufficient accuracy, but the causes of death in many cases must be quite imaginary, as the physicians are not consulted about this.
7. The cause of death is invariably returned on the undertaker's certificate and is given by the friends of the deceased. I am never asked to make a physician's certificate.
9. In a few instances, decedents are taken to other places for burial without the town clerk's license (and probably escape registration).

#### Page 236

17. I think all deaths are returned, but I think that the value of registration is essentially impaired by wrong causes being reported, usually through ignorance; there is evidently no intentional misrepresentation. Perhaps the physician's signature accompanies about two per cent of all certificates.

18. It has been the custom for the undertaker to take around, *once or twice a year*, to physicians, their blanks, filled out in other respects, and get the attending physician to certify. If not disposed, they have filled them out themselves.

19. The registration of deaths and their causes in this town is very *incomplete* and *unsatisfactory*, and I am aware *all* the deaths are not recorded. The custom has been for the town clerk to go through the town once a year and "collect the births and deaths" - while during the year many births and deaths have occurred in families who have removed from town; consequently no record can be made of them. There being no particular undertaker, I think no one ever makes any return to the clerk, and I think the cause of death is never reported by any of our physicians. I have long been aware of the unsatisfactory manner and incompleteness of the registration of deaths and causes of death, not only in this town, but in many other towns.

24. Since I received your circular I have had an interview with the town clerk. He says the registration is all a farce. I inquired how he procured his information, and he said it was supposed he would send to every house, but I think he takes the neighborhood reports.

24-1/2. The undertaker usually puts down the *cause* from hearsay oftener than he ascertains from the attending physician the real cause.

25. I think the registration of deaths is generally made quite promptly, but the undertakers are not careful enough to inquire of the physicians as to the causes of death, and one often sees names given which are altogether outside of medical nomenclature. The physicians are equally careless in the same thing, and one would often be in doubt to know what the true cause of death was, unless they had attended the cases themselves, as our yearly death-list will testify. The law does not oblige a physician to give the cause, unless applied to for it, and then he is liable of a fine of ten dollars if he does not make the return in fifteen days. I think an improvement can be made by obliging the physicians to fill blanks in a scientific manner and return them to the clerk without having the undertaker as a medium.

28. I would suggest an amendment to the statutes on this subject, that no interment be allowed to take place, under a severe penalty, in any town or city, without the certificate of the clerk of the town or city in which the death occurred (or the deceased resided) *having been first obtained*. There seems to me to be no necessity for any exceptions.

34. In a full practice in this town for more than *forty-four years*, I have never been asked for the causes of death, nor have I ever so reported. We do not have, in the country towns, "undertakers," and of course no returns of such persons have been made to clerks.

35. There are a considerable number of cases of death among the foreign population who die without any regular attendance. I have supposed they were reported by the sexton as *deaths*, but the *cause* of death would often be random *guessing* on the part of relatives.

36. I have never been called upon to give the causes of deaths, and therefore cannot say whether they are accurate or not.

37. The registration of deaths, and the causes of death, in this town, has been very imperfect; and, as far as sanitary purposes are concerned, worse than useless. Last year I made a formal protest to our selectman, the registration was so incorrect, especially as to the *cause* of death, more than one-tenth having been recorded incorrectly. The undertaker has been in the habit of asking the friends the "cause," and once in two or three months reporting to the town clerk. Of course such statistics are worse than useless. Statistics, to be of any value, should be themselves correct. This year I have been asked in a few cases to certify as the cause of death; for several years past, not once. There ought to be a law compelling the sexton to require of the physician in charge to certify to the cause of every death, *before* interment, with a penalty attached for non-performance. No respectable physician would ever object to doing this. The law now is, I believe, that the physician shall give a certificate when required to do so; but no one is compelled to make the request. No body should be removed from town, or interred, without a proper certificate of the cause of death from the attending physician.

39. Many times the physician never sees the return at all. The statement of some member of the family is all the authority. I don't think, during my practice, that fifty per cent. of the deaths were returned in a proper manner.

43. The registration of deaths in our town is done after a poor fashion. Near the end of the year, or rather, near the time to make the annual returns, the town clerk himself, or someone for him, goes around and "picks up" all the deaths he or she can hear of; the cause of death is learned from friends or neighbors. I do not, nor does any other physician, make any returns to the clerk, in our town.

44. The registration of deaths here is not satisfactory. There is one undertaker, and he is negligent in this matter, frequently letting the half-filled blanks remain on his hands and accumulate till the end of the year, then getting the physicians to certify to the causes of death from memory, which in many cases involves inaccuracy. I do not know but all cases may be returned, but I do know, that by reason of the slack way in which it is attended to, there is much guesswork in the final report when it is made up.

47. Before burial in our cemeteries, it is of course necessary to secure a permit from the city authorities, and so far the registration is complete. Whatever return there is of the *cause* of death comes from the undertakers, and from them alone. I do not remember to have been asked the cause of death in more than two or three instances for many years. The undertakers prepare the statement from reports of friends. The city clerk informs me that there is much delay in the sending in of these reports, generally requiring his personal attention to obtain them, and then not very satisfactory in every case.

Page 238

48. The registration of deaths in this city is complete, in so far that the total number is correctly returned. It is not satisfactory, in that there is some confusion in the important item, "cause of death." It has been customary for the undertaker to fill up the blanks, generally without consultation with the attending physician, relying upon friends for his information. In cases which he considered doubtful, the physician is sometimes called upon for his opinion, and to fill the blank. In the cases which the cause of death is given to the satisfaction of the undertaker by friends of the deceased, he inserts the name of the physician, though he has not seen the certificate. I have to-day examined the certificates returned to the clerk's office for a couple of months past, perhaps fifty in number. The name of the attending physician has been inserted in all, but in only two or three instances by himself.

50. The registration of deaths and causes of death is, I think, very unsatisfactory, so far as our city is concerned. I think, however, that but few deaths escape registration. So far as "causes of death" are concerned, the record is comparatively little value. The undertakers almost never take the certificate of return to the physician who attended the deceased for his signature of cause of death, but put down as cause of death whatever the family say the doctor said was the cause. I got the returns of the last year from the city clerk to look through, to find out about some of these things I have mentioned. We have a yearly mortality of about two hundred or more at present. I think there were obtained, last year, three certificates of death with signatures of physicians, out of two hundred.

A case of "chronic rheumatism" was cirrhotic kidney; a case of "ulceration of the bowels" was cancer of rectum; a case of "heart-disease" was septicæmia or pyæmia, following amputation for old disease of knee-joint; a case of "tumor" was aneurism of the aorta. "Infancy" is down for twelve deaths, etc., etc.

I have been trying to do something to make our registration better, and the city clerk has seen the undertakers, and they agree to take their certificates of return to the physicians for their signatures. I brought up the subject in our local society, but I did not succeed in getting the members interested apparently; nobody, with one, perhaps two exceptions, seemed to care anything about it.

51. If the law provided that no burial could take place without the possession by the proper authority, of a certificate of the cause of death from the attending physician, it would seem that some of the faulty and unsatisfactory "causes of death" might be avoided.

55. As far as I can learn, both from my own experience and from inquiry of the clerk of the town, I think it (registration) has been done in an imperfect manner, and necessarily, from the fact that the returns have been made once a year.

Page 239

56. So far as my experience and knowledge of registration of deaths extend, it is far from satisfactory; and this, I believe, is mainly due to neglect on the part of the undertakers in complying with the requirements of the law. Certificates of death are generally sent in some weeks and sometimes months after burial. I always attend immediately to the filling out of certificates on receiving them. I have now upon my desk two that have been there several weeks awaiting the call of the undertaker.

57. I am not called upon in half my cases to give the certificate. I understand that undertakers get them filled by the family, and I know that many certificates are wholly false as to cause of death. Almost any cough is reported either "consumption" or "lung fever," and so in other diseases.

61. The method of registration for this town is as follows: Two persons dig the graves and drive the hearses. These persons, at the end of the year, go about town and visit every house in which they learn of a death or birth having taken place during the year. The name, age, disease of which the person dies, etc., are put down, and all are returned to the town clerk. The record is, therefore, made up wholly of the statements of the families in which the person died. Physicians make no return whatever. In a few instances, families, if uncertain of the causes of death, refer the sexton to the physician. More commonly they are better satisfied to give their own opinions than those of the physician, if they do not happen to coincide. Hence the record cannot be very accurate. In looking over the records for various purposes, I have been very much dissatisfied at what I found in many instances assigned as the cause of death in cases that I had treated.

66. The undertaker fills out the blanks relating to causes of death, according to the dictation of the family. When the disease is obscure or peculiar, the physician is consulted to give the name of the disease, but this is often loosely done. I am not able to report as to the promptness of returns to the city clerk.

67. So far as I can learn, all the deaths in this city are reported except *still-births*, of which I find no record. The city clerk informs me that the undertakers are generally prompt in their returns. Physicians do not make out certificates of the causes of death

at all, that I can learn of, though on half a dozen returns rendered this year, I find the physician has filled out the cause-of-death blank (on the undertaker's return), and signed his name in the space left for the name of the attending physician. In 60 of this year's returns the name of the physician is given, but his signature is not attached. In 134 of this year's returns the name of the physician is omitted. The cause of death in many cases is obscurely or incorrectly given, as "weakness," "cut with a knife," "accidental," "inward spasm," "cold," "troubled in the brain," "dropsy," "debility," "teething," etc. One return has the honest record of "don't know," for which indeed causes many deaths. I would suggest that it be required for the physician to fill out and sign, in every case, the cause-of-death blank on the undertaker's return before it is handed in to the clerk.

71. Causes of death are never, or rarely, reported by the physicians of this town. The clerk makes up his report upon hearsay testimony, never asking information of the physician in charge of the case. I have known "puerperal fever" returned as "typhoid," or, in another case, as "lung fever." So far as my observation extends, in this and many other country towns in Western Massachusetts, very little dependence can be placed upon the statistics of causes of deaths as returned by town clerks. Undertakers never require any certificate from attending physicians. I would suggest that it be made a penal offence for an interment to occur without the undertaker having a certificate from some respectable physician, and that a further penalty be added if the undertaker fails to return this certificate to the town clerk.

#### Page 240

74. As I have been town clerk for the last twenty years, I can speak from personal observation, and, when I say that the death-returns are incomplete and unsatisfactory, I only say what I know to be truth. In fact, in some forty deaths returned the past year, I did not find five certificates from physicians, notwithstanding I had been careful to furnish them with a full supply of blanks for the purpose. As a matter of course, the great object in view is, to a great extent, lost. The number of deaths is promptly returned according to an understanding with the sexton, and, if physicians would only meet the requirements of law, our returns would become reliable. The only remedy which suggests itself to me at this moment, is, that a certificate from the clerk to the sexton, that all the requirements of law had been complied with, should be furnished *previous* to burial, and that the sexton shall be *prohibited* from making burials without such certificate, under penalty. Some efficient remedy should be applied soon in order to render the returns valuable.

75 I think the registration of deaths in this city has improved since I referred to it in a communication to you a year or two since. I have taken occasion to urge upon the undertakers the importance of obtaining the written statement of physicians in relation to the causes of death. Formerly it was customary, and it is practiced, I fear, to some extent now, for the undertakers to take the statement of the friends of the

deceased in regard to the cause of death, without consulting the attending physician. Most of the undertakers, however, submit the proper blanks to the attending physicians to be filled by them. It often happens, particularly among the poorer classes, who are not able to employ, or do not choose to employ, a physician through the course of a disease, that a physician is called, perhaps once, to prescribe for a patient, and, after that, his services are not requested, and the patient, after the lapse of an indefinite period of time, one, two, or more weeks, dies. When the return is made out by the undertaker, he may apply to the physician for the nature of the disease, but it is often quite impossible for the physician to state accurately the immediate and sometimes even the remote cause of death. In consequence of the great diversity of skill among those who have the title of "Doctor," in this land of medical liberty or license, the nomenclature employed in reporting deaths is sometimes very inaccurate and indefinite. I note the following causes of death in the city clerk's register for the present year: "Teething," "worm fever," "pharalithic rheumatism," "canker," "jaundice," "pelvis malformation." There are, however, fewer of such indefinite terms employed, than might be expected. I have reason to believe that all deaths are reported to the undertakers, and by them promptly returned to the city clerk.

78. I am never called upon in any way to report upon the causes of death- at least have not been in late years.

Page 241

78-1/2. Our undertaker is a man of thirty years' experience; in early life a carpenter by trade; does not belong to any temperance society; he often has the difficult duty of deciding the *cause* of death from viewing the *cadaver*, and he makes his returns in conformity with his own inquest.

81. Could the public mind be educated up to the point of compulsory autopsies in all cases of death, such autopsies to be performed by duly qualified, legally appointed medical officers, would not both the science of medicine and the art of healing make large advances in our midst during the next half century? What accomplished diagnosticians would arise as one result of such a measure! But this is a Utopian idea; a thing to dream of, but never to be practically realized in this country. I may say, in conclusion, that the registrations of *death* is "complete and satisfactory," at least very much so in my town. But the registration of the "*causes of death*" is not satisfactory; that is, much less satisfactory.

83. I have practised in town five years, and have *never* been called upon for certificates of death during that time. The reports of the deaths in the town appear yearly in the clerk's report, but his information is derived from other sources than through physicians.

84. During the past two years, of all deaths returned, not one in three was signed by any physician.

88. The undertakers make prompt returns, but the physicians are not prompt with the *cause*, and the town clerk is obliged to hunt up the cause before the end of the year. In regard to still-born children, if any undertaker is called, he makes a return; if, however, the friends bury the child, no return is made.

89. Cases have occurred in the past, where the body has been taken just across the line into Lawrence, and no return made to the clerk here.

91. All deaths are supposed to be returned; but the causes of deaths, *as returned*, are frequently very unsatisfactory; about one-half are judged to be misnamed.

93. The clerk said, further, that he found it very difficult, in many cases, to obtain the facts and information necessary for him to make the records on the town books complete. Some would be attended by physicians out of town; other families would move out of town soon after a death, without making or leaving any record of the death or cause of death for the clerk. Transient persons, shop hands, etc., would sicken and die suddenly, their friends would come and take their remains to some distant place for interment, without making any returns of the death to the clerk.

94. I had a talk with the town clerk this morning, and he informs me that returns of deaths are not made promptly by the undertakers to him, and that only myself and one other physician make out certificates of causes of death. There are four practising medical men here, and no one but myself appears to be in the practice of making out a certificate immediately after the occurrence of death. The principal undertaker seldom calls for a certificate, and, the doctors only being required by law to give a certificate when it is called for, the whole matter is neglected in a majority of the deaths. The present town clerk appears to have tried to get his returns in promptly, but the undertakers and the medical attendants have been careless and remiss.

#### Page 242

95. Empirics, often grossly ignorant, report causes in a large proportion of deaths; these reports are received on a par with those of the educated physician.

96. To my mind the registration of deaths and causes of death in this city is not at all satisfactory or complete, when viewed from a medical stand-point. In fact, as far as statistics or the use of such registration in matters affecting the public health are concerned, the matter is a mere farce. I have no means of knowing whether *all* deaths are returned to the undertakers or not. Upon inquiry of the undertakers, I find that they make their return to the city clerk once a month, and that, as a rule, they obtain their knowledge of causes of death from inquiring of the family. Certificates of the

causes of death are not given in this city by any physician, they never being requested to do so.

98. In regard to the registration of the *causes* of deaths, there is room and good reason for making a radical change. In a majority of instances, the undertaker makes his return, giving the cause of death and the name of the attending physician from information obtained from the parents or relatives of the deceased. I have in mind an instance which as occurred within ten days, where the cause of death was reported as "pneumonia," and I know, from personal examination, that the party died from "phthisis." It seems to me that in order to obtain a correct registration as to causes of death, and have a report that would be reliable on which to base a statistical report, that it should be made obligatory on the part of the physician in attendance at the time of death of the patient, to sign, in his own handwriting, the undertaker's return, as to the cause of death. Some way should be devised to prevent the undertakers from making their returns, without first obtaining their information as to causes of death from the physician in attendance. As the returns are now made, there is no responsibility on the part of the physician; it is left entirely in the hands of irresponsible parties, and, of course, the attending physician is the only one qualified to make a correct return.

99. I think the attending physician is very seldom interrogated in relation to the matter, and do not know that I ever was. A nearer approximation (I think) would be made to the truth, if every physician were obliged to furnish a certificate to the undertaker or to the clerk of the town, for a record of each death that may occur in his practice, with a penalty, should an undertaker officiate without such certificate.

100. The town clerk informs me that the registration of deaths and the causes of death is *incomplete*; that at least one corpse a month, on the average, is removed from town without any return being made, either of the death itself or of the causes of it.

101. I called upon our undertaker. He informs me that all deaths are returned to him, and he returns them to the clerk. It is not his custom to call upon the physicians in all cases for the cause of death, but takes the statement of the family unless they refer him to the physician. I have no suggestions to offer, but it seems to me the statistics would be much more valuable, if, in every instance, the cause of death was certified by the attending physician.

Page 243

103. The registration of deaths and causes thereof is satisfactory and correct, so far as I can find out, except that the undertaker or friends of the deceased often neglect to present the return of death to the attending physician for his opinion of cause of death and signature, but fill it in themselves, so that omissions and mistakes are frequent. I

do not think that I have signed more than half the returns of deaths which have occurred in my own practice for the last eight years.

105. I am seldom asked to fill out a blank, and know but little of the reports.

108. The town clerk's record is well kept, so far as he can be expected to keep it; yet even in the record are evidences that the neglect of the law relating to physician's certificates occasions much looseness in the record of the causes of death. The law in relation to physician's certificates, I am informed, has never been enforced here. The town clerk also states, that in his yearly round for obtaining the births for registration, he has occasionally heard of a death which has not been reported to him. Another irregularity has been permitted in allowing undertakers of the neighboring city of Salem and those of the adjoining towns to make their returns of deaths at which they have officiated, semi-annually.

109. I have never been asked to make a certificate of death and the cause of death for any one who has died in this town.

113. It would be an important improvement in the present law if the physician's certificate of cause of death were required *in all cases, without exception*, previous to interment, and cemetery authorities were forbidden to permit any interment except on presentation of an order or certificate from the town clerk. I cannot ascertain that any unrecorded interments have been made here in the past two years; but such an occurrence is not at all impossible under existing regulations.

122. The causes of death are at present registered with commendable painstaking by our municipal officers. Only a very small percentage of deaths are registered without a statement of the cause certified to by some medical attendant. But the provisions of the law last enacted to secure a registration are not strictly observed. From the nature of the work, I think the registration of causes of death should be at least subject to the supervision of a medical officer. In our cities this could be made one of the duties of the city physician. Moreover, tables should be furnished to the recording officer and to physicians, indicating the general classification to be followed. I think that for the purposes sought through this registration, only a general classification should be attempted. A minute classification is likely to prove useless from the mixture of inaccurate diagnoses from ignorant practitioners, with the opinions of careful observers.

Page 244

123. The town clerk employs a man to canvass the town every year to collect all the statistics and report to him at the beginning of the year.

125. The town clerk informs me that there are a few returns which are not adequately filled. I cannot control returns of deaths of cases under the care of other physicians, but I am in the habit of calling at the office of the town clerk every year before he forwards his returns, and of assisting him, as far as possible, in making them complete in my department.

131. The registration may be complete, yet I think not wholly satisfactory - the physician's certificate frequently not being called for until several months have elapsed since a death, and then the circumstances not fully in mind. To decide whether such registration is satisfactory or not, I would first know the object of any registration. If for the basis of statistical tables of causes of death, prevalent diseases, etc., I should say not; if to satisfy the public whether the death was from disease or violence, I should say yes.

133. The registration of deaths and the causes of death in this town is very incomplete; beyond the fact that the person is dead, it is of no utility at all. My impression is, that to be of any use, some uniform method should be established throughout the Commonwealth, making it the duty of the attending physician to make and return to some proper officer, within a certain time, a certificate of the death, its immediate cause, etc. As long as every case of diarrhea in children is called "cholera infantum," and every case attended with cough "consumption," every sudden death "heart disease," what sensible man can peruse the record with confidence?

136. I see but *one* way to make the "returns of death" complete and satisfactory: viz., forbid by law, under penalty, the interment of any body in any cemetery, or transportation in any public conveyance, without a *certificate of death* signed by a physician, countersigned by the town clerk or some other responsible officer; this certificate to be retained by the person in charge of the cemetery or public conveyance, and returned to the officer issuing the same. The person issuing the certificate to be forbidden to give it unless he has in his possession a certificate of death of approved form, and signed by a physician. I have tried all other means, and am convinced that in this city no other plan as feasible will succeed. Many certificates of death have been signed by the undertakers, or not signed at all, and are returned in a lump at the end of the month. Notably is this the case with certain undertakers. The objection that has been urged against enforcing this law, or in fact any reasonable regulation, is that it is difficult to find the doctor to sign, etc. Pass a law requiring every physician to send to the clerk or other official a certificate of the cause of death within twenty-four hours of death; the city physician or health officer to furnish a certificate, if no physician is in immediate attendance. I am glad that some investigation is being started in this matter.

137-1/2. The same idea (of requiring certificates from physicians) would lead us to prefer that all practitioners should be compelled to have diplomas or certificates of competency before being allowed to follow their profession.

141-1/2. The town clerk thinks some undertakers fail to get and return the required reports, so that some deaths fail of any registration whatever; others return promptly. Generally, the causes of death are not reported by physicians, but are obtained, as best they may be, from friends' or neighbors' reports of physician's opinions; often, of course, ill understood and improperly reported. In some cases, the attending physician's name appears as having certified the cause of death, when he has really certified nothing, and only because he was known to have attended the case. Thus my own name appeared as certifying as cause of one death, "fall at Purgatory"!

Page 245

142. Out-of-town physicians, as well as resident physicians, have never returned any deaths, nor causes of death, except when the body was to be buried away from this place. For a period of sixteen years I have never been asked nor required to sign a certificate as to the cause of death, except as above stated.

142-1/2. I believe that the nature of the disease or the cause of death is in seventy per cent. of cases mere guesswork. These returns form in many instances the bases of theories from which sanitarians deduce the most positive conclusions.

143. For two years I have neither filled out one [death-certificate] nor even seen one. For aught that I now they may be now obsolete.

147. I have thought that our high death-rate from consumption, as shown by statistics, might perhaps be accounted for in a measure by the fact that the undertaker sometimes, in what he considers a clear case, fills out the blank.

148. The registration of deaths and causes of death here is more satisfactory now than it was a few years ago, and it is intended by the present clerk to make it complete and satisfactory. I think the deaths here have all been recorded. The criticism I make is, that probably the former clerks have sometimes listened to common report as to the cause of death, and so, many of the deaths are recorded "consumption" which are due to other causes. On examining the records for sixteen years ending with 1870, the deaths recorded number 563. Of these, 153 are recorded as caused by consumption, making 27 per cent. of the whole. Comparing this with the years 1871 to 1876, inclusive, to the present time, the deaths recorded number 187. Of these, 27 are reported as caused by consumption (14-1/2 per cent.).

150. The registration is inefficient and unsatisfactory; and principally because of the loose and indefinite way in which the physicians of the town and vicinity record their deaths, the nosology being defective and the cause often omitted as a trivial affair after all. I do not think *all* deaths get recorded, but most do. The undertakers are very prompt to ask for the certificates, but do not always readily get them.

152. I think the value of the returns is much diminished by the certificates of irregular and ignorant practitioners being received, but as such attend quite a large proportion of the sick everywhere I see no present remedy.

153. From inquiries, I judge that all deaths are returned to the undertakers, and quite promptly by them to the town clerk. The certificates are fully made out, but I find that the undertakers seldom obtain the names of the diseases and their causes from attending physicians, and no doubt they are not unfrequently incorrectly stated. On this I would make a suggestion. The law does not oblige the attending physician to return the name and sex of the deceased, the disease and its causes, except when *requested*. My suggestion is to have the law changed so as to make it obligatory on the part of the attending physician to return the name and sex of the deceased, the name of the disease and its cause, to the town or city clerk; and on the part of the undertaker to obtain the name of the disease and its cause from the attending physician, the certificates retaining their present form.

154. I think they [deaths] are all returned to the town clerk, but I see by examination to-day, of those for 1876 to date, that the disease is not stated by the attending physician in more than one-half of the certificates.

156. I doubt if in every case of death the cause is certified by a medical man, for the reason that a certain number die every year without medical attendance, and under such circumstances that no physician could make an unconditional return without a post-mortem examination. In such cases, one can give a medical certificate to be used by parties known and supposed to be honest, with a declaration that is based upon the representations of parents or friends. Such a document may be absolutely necessary to facilitate interment.

157. I have reason to believe that the causes of death are very indifferently reported. Physicians' certificates are not always required.

157-1/2. The deficiencies in the first place are with the undertakers, or those having the care of the funeral, or of the body of the deceased, to ascertain the facts in regard to the cause of death. In many cases the medical attendant is not even asked for the cause of death, or not even what ailed the patient; and when the return is made up there is some cause assigned in the certificate which does or does not represent the true cause of the death, and therefore not reliable for accurate statistical information. For an example, which occurred in my own practice: A gentleman died from cancer of the bladder and prostate gland, of several years' duration; it was returned as kidney disease, or complaint. The undertaker was informed by myself of the true cause of the disease, while, as he says, the family said it was kidney disease, and he thought they

ought to know best, and so he made his return as kidney disease; and I find in my examination of the register very many errors of a like kind. It is my impression, in fact I know, that the cause of death is not very generally reported by physicians in this town unless called for; perhaps more so now than formerly, for I have been urging the undertakers to be more particular in regard to the matter of ascertaining the true cause of death, and fulfilling all the requirements of the laws of registration. Another fault is, the returns are not promptly made at the time of death and burial. The return is often delayed for one or two months, and even longer, and has even been delayed until after the annual return has been made to the secretary of the Commonwealth. This fact came under my own observation, for the returns were handed to me by the undertaker, saying that he forgot to hand them in before, and supposed that it would make no difference, as he was in the habit of making his returns but once a year.

Page 247

161. The town sexton reports all deaths to the town clerk once a year, bringing the *blank forms* to the physicians for them to fill out, guessing, as near can be done, when, from any cause, physicians are unable to certify advisedly. My belief is, that if the sextons were required to report *every month at least*, in country towns, the business would be performed more satisfactorily and with more exactness. Copies of the statutes relating to the matter should be posted up in some conspicuous place in town, -in the post office, for instance, - so that all parties desiring to know what is law and usage, can thus be informed.

162. The returns are hardly ever filled and given to the registrar until the close of the year, which might, in some cases, make a little jar in the correct filling of the blanks. The sexton usually brings his blank to me at the close of the year to be revised and filled as to points he is unable to do himself; in some cases, the death is so far back, that I am unable to be as correct as I would like. I do not say this to find fault with the sexton, for I think him to be a very careful man; it has been the custom for years, and he has only followed the custom.

163. The causes of death are sometimes certified to by a physician, if he is handy; if not, any one considers himself competent to assign the cause. In reply to the question, "Are three out of five certified to by physicians?" he (the town clerk) said, "No, not so many."

164. When undertakers are employed, they generally obtain certificates of causes of death from the physician in charge; but there are quite a number of burials by the family, where no undertaker is called upon, and in these cases no record is returned, unless the physician makes a point of returning the case himself, which few do.

170. I think the registration, as far as the name of the person is concerned, is complete and accurate, but of the causes of death, very inaccurate and deficient. The

returns are made by the undertakers to the city clerk every week, and, so far as I know, they make returns of *all* the deaths, excepting in some cases of still-birth. But the causes assigned by the undertakers, in many cases, are very inaccurate and ridiculous, and in some instances with intentional deception. It is rare for the physicians to report the causes of the deaths.

171. Deaths are returned by the undertakers to the clerks, they inserting the cause of death, and simply guessing at it. No certificate has ever been presented to me for signature or filling by undertakers.

172. While perhaps all *cases* of death may be reported by the undertakers to the clerks, the causes are provokingly inaccurate, for the reason that physicians are not required to return causes of death, and the undertakers make returns of what they may be able to gather from the family.

Page 248

179. For many years I have been so disgusted with the manner of conducting this business, that I have lost all interest in the matter.

180. Judging from returns of deaths coming under my own observation, I should say that undertakers are careful to make the returns. In looking over the returns of *causes* of death in the clerk's office, I should give my opinion that tables made from them would be of little value.

182. I do not think all deaths are reported to the clerks - certainly not promptly. They are not returned by the physicians, but by the undertaker, who reports the cause of death as received from the friends. I have corrected the returns for the town clerk, as well as I could, for the past four or five years, but, of course, was not always sure of giving the accurate cause of death in every case, except where I have been the attendant.

185. In the main, I have long regarded the returns of deaths very imperfect. For instance, there were some 40 deaths returned by the clerk last year, and on my private list of deaths, which I keep from year to year, I had recorded 60.

190. The returns are made pretty promptly every week. As to the causes of death, the returns are as unreliable as is popular rumor in general, for that is all they amount to. The cause of death *very* rarely comes direct from any physician. I wish you would suggest the best way of remedying this matter; of making these comparatively worthless records what they might be - a valuable store of facts. For we shall probably have an available mayor next year.

191. I am glad you are going to present the subject of registration. It is one which has interested me for a long time. I have resolutely tried to have the system changed here, but to no purpose, as the city government has been changed every year; and I have not been able to get the mayor interested until the end of the year, when he has been turned out for a new man.

Page 250

*Replies of City and Town Clerks*

8. The custom has been to return the deaths at the end of the year, except when the body is carried out of town for burial; then I get a return near the date of death. I seldom get the physician's certificate with the return; the cause of death is usually named, also the name of the physician; but all in the handwriting of the undertaker, and I think it is obtained from some member of the family of the deceased. I think the disease or cause of death is in many cases guessed at, so that my return to the department is not accurate as to the prevailing disease.

10. I find that about six-sevenths of the returns are made by the undertakers; the other one-seventh seem to have been made by friends of the deceased, rather than by physicians. The undertakers may have received their information from physicians for aught I know.

15. In answer to your inquiries, I would say that our undertaker makes full returns of all deaths where he officiates, but that is not in one-half of the cases. There are undertakers who come into this town and remove the dead and make no returns; but when I go through the town for the births, and find a death, I get the best information I can.

Page 251

17. The undertaker is furnished with blanks to fill, and he gets the best information he can from the family of the deceased, when making preparations for the funeral. These certificates are returned to the town clerk for registration at the close of each year. They usually contain some kind of a statement of the causes of death, sometimes attested by a physician and sometimes not. A section of our town always go to P---- for an undertaker, and the town clerk never gets any returns except such as he can gather when canvassing for the particulars concerning births. From this section, information as to the causes of deaths is very unsatisfactory.

19. I fear that in some towns not one-half the *causes* of death are obtained.

20. In small towns like this, where there is no undertaker, we do not get all the returns, and, if the clerk goes after them, it is very doubtful if he gets the cause of death correct.

24. A great many causes of death are returned as "heart disease," and nothing more. That disease assumes so many forms I have thought whether to medical men that was satisfactory.

27. I have never had reason to suspect any inaccuracy except in one instance, returned as "inflammation of stomach," where the death was probably caused by an attempt at abortion.

29. It has become unfashionable to comply with the requisitions of the statutes, and, if any officer points out this neglect of duty, he is answered that other town clerks are not so particular, and that no one lives up to the laws.

31. The law is in no case complied with, either as regards the undertaker, physician, or by the families themselves. At the close of the year, the births and deaths of the year past are collected by going from house to house throughout the town, making the result very unsatisfactory and expensive.

36. I think all the deaths substantially are reported to the undertakers, and most of these return the *deaths* promptly and accurately, but not the *causes* of deaths. In the case of private cemeteries, some of the undertakers make no attempt to obtain certificates. One undertaker in this city has always been in arrears, more than all other undertakers together. I showed him this circular, and he has since brought in all the certificates that were wanting, to date. In some cases no physician is employed, and we have no "city physician" to investigate the cause of death. Incompetent persons, quacks of both sexes, midwives, professional or non-professional, are employed in some cases, and their certificates are incorrect or worthless. Some of the regular physicians give a great deal of unnecessary trouble to get the undertakers, who are often obliged to go many times before they can get a certificate. If the attention of physicians could be called to this matter, and if undertakers could know that they were liable to removal for not making full returns, most of the present difficulties would be removed.

#### Page 252

38. There are not more than one-eighth of the causes of death certified to by physicians.

40. Returns are sometimes made with the cause of death omitted, or inserted by the person making the return, and too often stated in a vague or general way. Unless a

permit for removal of a body is required, undertakers do not make their returns, as a rule, until the close of the year.

43. The certificates of physicians as to causes of death are rarely received at this office, and the record is dependent on the undertaker's certificate.

54. We have not any undertaker, but we usually employ those from the city of New Bedford, and they do not take the pains to make any returns in one-half the cases or more, and I seldom get the cause of death reported by a physician.

68. I should say that all the facts I report in about fifty per cent. of the deaths, I obtain as best I can.

74. During the present year, I have furnished the physicians and undertakers with all the proper blanks, together with pamphlet of instructions, but up to the present time not a single death has been returned to this office.

76. I think our registration of deaths is about as complete as you could have it. Whether we get the *causes* of deaths as accurate as possible, is a matter the physicians know best about. I don't think we do, in each and every case.

79. It has been my practice for quite a number of years past, when clerk, to visit or send some competent person to visit the families where births and deaths have occurred, and to ascertain the facts and particulars before making returns to Boston.

88. Physicians do not report any cases at all.

90. I have been clerk of the town for six years in succession, and have employed a man to gather all the information in regard to births and deaths called for in the blanks sent to me for that purpose. I have never received any information from physicians or undertakers.

93. If I were to make any suggestion, it would be that the people, especially in the small towns like ours, be in some way reminded by the state authorities of *their* duty in the matter of returning deaths, and other vital statistics, to the town clerk. As before stated, it now seems to remain with the clerk, in our town at least, to collect the facts concerning such deaths as may come to his knowledge, and it is only by keeping a close watch that he can be at all confident of accuracy.

94. The physicians' reports do not come so easily. The reason, I think, is, that the friends do not know that such a thing is required, so come unprepared, then of course forget to see the "Medicus," and the matter slips over. We have but one physician here. I see him occasionally, and fill up cases that he knows about, but many people employ doctors from the neighboring villages, and so I sometimes lose one.

95. I also am quite sure that the undertaker obtains his information in regard to the cause of death, in a majority of cases, from some member of the family, rather than from the physician. The reports of causes of deaths are incomplete.

97. Never until this year, has the returning of deaths been made in a proper manner; and I determined that I would have it properly done if the law was good for anything. I accordingly sent to or saw every physician and undertaker in the city and told them what I wanted to do, and that I must have their cooperation and assistance. I have had it, and must say that I am very well satisfied. It is only in the cases of those who are too poor to employ medical services, that the cause of death is not reported.

108. I have been in the custom of getting the cause of death indirectly from the undertakers through the superintendent of burials, who is a physician, and can give the technical name, which we would fail to get if we relied on the undertaker's return, especially in cases where there was no physician in attendance. The undertakers complain that they have difficulty in obtaining the cause of death from the physician in attendance, in time to make the return to the city clerk within the time required by law. The registration in this city has been very complete and satisfactory, especially for the last three or four years.

115. The causes of death, as returned by the undertakers, are not always correct, as they do not obtain the certificate of the attending physician. I therefore get the doctor's statement myself, and often find that it does not agree with the undertaker's return, which is made up from statements by the family of the deceased.

119. The causes of deaths are not generally made known, except in an incomplete and unsatisfactory way.

122. I have experienced some difficulty in obtaining the physician's certificates as to the cause, etc., that is to say, they delay the matter, and will not fill them out until solicited to do so by some one. I have always obtained or received them after a time. if they were required to fill them out *immediately*, the returns would be more accurate, and it would certainly assist matters.

123. I have physicians' reports of causes of death in 60 per cent. of the number of deaths.

126. There being no resident physician in active practice here, the people are obliged to employ physicians from other towns, rendering it impracticable, in many cases, to obtain the physician's certificate of the cause of death. Somewhat less than one-half of the deaths are so certified. All deaths are promptly returned by the undertaker,

with a statement in each case of the cause of death, as correctly as it can be ascertained from the friends of the deceased.

127. In this town I think all the deaths are registered - the facts being returned to the clerk by the undertakers, each week, they are surer to be right than if returned monthly; this I know by experience; for, when returned monthly, as required by the statutes, it would often happen that some would be delayed for two or three months, and I found more difficulty in having them corrected. No certificates of the cause of death are ever given in this town by the physicians; hence the cause of death, as returned to me, is very imperfect, in my opinion.

Page 254

129. The cause of death is not returned in more than one-fourth the cases, and I have been obliged to ascertain it and, in many instances, to fill the returns myself. I think there should be some method by which the returns of deaths may be made more complete.

131. The only difficulty that I have experienced from the undertaker (for it is usually the same person from year to year )is, that he will insist upon keeping his returns until the end of the year, and making them in a body.

132. In answer to your circular of the 1st inst., I have to say that since my connection with this office I have found it almost impossible to get the complete returns of deaths from the undertaker. I have taken it upon myself to obtain them, and believe that, for the past nine months, the registration has been complete, except in a comparatively few cases, where physicians have neglected to make returns of "causes of death," when frequent applications have been made for them. How to remedy this neglect on the part of physicians and undertakers in small towns, is, in my opinion, a difficult matter to solve, unless, perhaps the whole duty of obtaining all the facts relating to a death be assigned to one person.

135. In answer to your inquiries, I will state my impressions. I have kept the records since the year 1870, and have endeavored to have them correct. The rules and regulations of the board of health, in this city, are so well observed that every death is recorded, and the cause of death, as returned, is usually correct. If I have any doubt, I immediately send a blank to the physician, and leave the filling of the record until I have it returned.

136. To my knowledge, physicians' certificates of causes of deaths have never been called for or reported by them, with, perhaps, one or two exceptions, occurring some years ago.

139. I consider the registration very nearly complete in this town; the only deficiency being now and then a body removed from town for burial elsewhere, without application for a permit. I think there may be twelve such cases in a year; the number registered being from two to three hundred. The causes of death are given in all cases. In this town the returns are made to the clerk by the sexton who has charge of the burial, so that we are sure of returns of every interment. The sextons make these returns on the proper blanks, once in six months.

142. It is quite too common that the cause is not certified by a physician, especially in cases where no physician is in attendance; and I have heard the sexton say frequently that the doctors were rather indifferent as to the performance of the duty.

146. I think the present system of registration in case of deaths works well in this town of about nine hundred inhabitants. Our undertaker is very careful to make *full* returns of *all* deaths; in nearly every instance the cause of death is reported and recorded. I presume more difficulty would be experienced in securing full returns in larger towns, especially among the foreign element.

Page 255

147. Strangers sometimes die and are removed to a distance for burial. Such are liable to be overlooked, as they rarely call on the town clerk for a license to remove the body, probably through ignorance that the law required it. It might be well to prohibit railroad employees from passing such over the road without having a license pasted on the top of the box.

158. In towns over ten thousand inhabitants, it would seem that undertakers should make their returns at once, as soon as they are employed, and not be allowed a grace of seven days. The physician should make this certificate and leave it with the family or persons having care of the deceased at once after death, and not have fifteen days of grace. If the physician attends to his duty, then the undertaker has most of the information required; and it would be only a moment's work to fill up the necessary return complete, and the town clerk, with limited means for information, would not be obliged to supply all deficiencies, which is almost impossible in a town so large as this.

We have two large cemeteries here, and the smaller towns send during the year a great many bodies to be buried here. In such case, we have to be without any "permit to remove" or a physician's original certificate, and have to take the word of the undertaker, who fills the blank according to what he may have remembered being told or heard. In many cases, corrections have been made at my own expense, but I have not been and am not able to give my whole attention to this particular branch of my duties. In most of these out-of-town cases, the undertaker waits ten days, and oftener two or three weeks, before making any return; the record is then, at best, very meagre, and there is no way to make a full return. Everybody has shirked the matter or been careless, and all the town clerk has to do is to supply deficiencies and give the

undertaker a permit, because the cemetery corporation has allowed the burial without a permit and the undertakers has really done the best he could(?). If the railroad and express companies would not receive a body unless there is the proper certificate of removal accompanying it, and if the cemeteries would not allow a body to be buried without a "permit to bury," I think the difficulty would be overcome. This might not be easy to carry out in small towns at first, but in large towns of ten thousand inhabitants and over, there would be no trouble after a few weeks, if the physician and undertaker would make their certificates as suggested.

We rarely use the "physician's certificate," but, instead, use the one on the return blank. I have tried my best to have the first used, but have given it up. There are so many "holes" in the statute that all we can do is "the best we can." I do not know that I can suggest anything in regard to registration, but can give you information regarding the work in this town and hope that we are not behind our neighbors.

The average of time between decease and registration is about ten days. Permits to bury are granted in all our cases, but always after interment. In removal from town, our undertakers always get a "permit." We rarely use a physician's certificate-blank. In most cases, we are able to get a physician's certificate to the return; in case there is no doctor in attendance, we do without. We rarely receive permits to remove, with bodies coming from other towns in the State, excepting, always, the large cities.

Page 256

159. In a town of this size, there is not much danger that *any death* will escape registration. People seldom die here except from *old age*.

165. Causes are not reported by the physicians as they should be, but, in more than half the deaths, causes are obtained from physicians before any record is made.

168. As we are situated near the state line of Rhode Island, undertakers come from Providence, take charge of funerals and do not make any returns to me. For the last two years, since I have been town clerk, I remember of but one instance, in about twenty such cases, where they have made the returns that our law requires.

169. The deaths are not all returned by the undertakers, but the fault seems to be with physicians, who are very negligent in the performance of that duty. At least twenty-five per cent. of deaths, in this town, are reported from other sources.

172. Probably the causes of about one-quarter of the deaths are certified to by a physician. The town is so small that the physician's certificate is not necessary, as the cause is known generally.

179. The registration of deaths in this town is all correct, so far as we can obtain returns, but the returns are not as prompt and certain as they should be. There were two or three deaths in town last year that were not reported, I have since learned, and they are not all returned in the manner the law directs.

180. In reply to your circular received a short time since, I will say that neither the undertakers nor the physicians make any report whatever in regard to deaths or the causes thereof. I have, at my own expense, sent a man over the town each year since I have been town clerk, with instructions to get all the facts and every name of persons who have died during said year. As to the accuracy of what he was able to gather respecting the "causes of death," you can judge better than I. The friends report what they have understood the physician to say was the disease or cause of death.

182. The registration of the number of deaths is probably complete; causes, perhaps, not fully satisfactory, blanks for "return of deaths" being seldom filled by the attendant physician, but by the acting undertaker or some individual chosen by the family of the deceased to take charge of the funeral ceremonies.

186. The cause of death gives me most trouble. When families are not able to state it, I make a point of ascertaining from the attending physician, and do not always get it then.

195. Of the 64 deaths registered here in 1875, 46 were certified by physicians, and that proportion is probably not very different from that in past years.

Page 257

196. Of all returns made, from fifty to sixty per cent. are certified by physicians.

216. The great deficiency is in regard to causes of death; very few physicians' certificates are furnished, and the information of the undertakers, obtained from the family, is often partial and inaccurate.

219. Nearly all the returns of the fact of death are promptly reported. There are some cases omitted where a sexton from out of town is employed, and in them I endeavor to supply the deficiency, as far as possible, when looking up the births.

225. I think the registration is quite complete, and that all the deaths are very fully registered. The causes of death are not nearly so satisfactory, the undertaker getting the information for the family, and, I think, quite rarely from the physician. I remedy this as much as possible by taking them to the physician myself at the end of the year and getting him to revise them. I send you a few causes of death, by which you will see the necessity for revisions. If sextons were obliged, in all cases where there is an

attending physician, to get the information from them, it would improve the character of the returns.

230. The undertaker has generally left a blank at the time of the interment, which, in some cases, has been retained to nearly the close of the year, and I have been obliged to hunt them up myself. Of thirteen returned to me the present year, six were without the cause of death certified by any physician.

237. About half of the deaths are returned. The remainder are obtained by the clerk as he collects the births. Only in a few cases are the causes of death accurately and specifically given, the clerk being obliged to supplement that part of the work. Very few, if any, of the regular blanks are used, although there have always been plenty in the office here for that purpose.

242. But very few of the causes of death are returned by physicians. *None* of our leading physicians have made any returns for some years, and never did so except in a very few cases. Some eight years since, I furnished all the physicians in this city with blank certificates for them to make returns of the cause of death, and only received a limited number of them.

243. The causes of deaths are not returned generally as they should be.

244. The returns by undertakers are made promptly, and I think I get them all except in case of foreigners who remove for burial. Sometimes they are not returned. The causes of deaths returned are not perhaps always satisfactory.

245. In many cases, the causes of death are reported according to the received belief of the family and neighborhood. I get such returns as "died by the visitation of God," or "by the hand of God," quite often; and "heart disease" and "old age" constantly. When I know little or nothing about the cases, I make the record according to the undertaker's return. In other cases, although I am no physician, scientific or otherwise, I exercise some little discrimination of my own.

#### Page 258

246. I would say that for six years that I have been clerk of this town, but one death has been returned to me by the parties required by law to do so.

247. Probably three-fourths of the death-reports are accompanied by a statement of causes. I usually call upon the physicians a second time; i.e., after the undertaker. In this way, I get most of them complete, but not any too accurate, I fear.

250. I cannot recall a single instance, during the nine years I have been clerk of this town, of having received a physician's certificate of cause of death; and the causes, as reported by undertakers' returns, are in many instances inaccurate and incomplete.

254. Three or four years ago, when cerebro-spinal meningitis was prevalent, I had from this class (irregular practitioners) one or two deaths returned from that disease, when I thought I knew absolutely that the cause of death was entirely different. In such case, has not the town clerk the power to alter and correct the returns? *I do.*

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