Cultural Demography: New England Deaths and the Puritan Perception of Risk  Perception of risk has a connection to actuality but does not mirror it. For example, recent news reports would not lead travelers to think that they would have to take a round-trip on a United States commuter airline everyday for 5,000 years before dying in a fatal crash. This investigation examines how New Englanders of the seventeenth and eighteenth centuries perceived the risks of death. The rich and suggestive language of printed funeral sermons provides the main body of source material. We situate the ministerial discourse on mortality risk in these documents in two theoretical contexts: First, the discipline of demography provides a useful metric for the notion of actuality, principally in its construct of the life table—a device that generates averages from data on death rates by age and other characteristics. Second, a multidisciplinary literature on risk provides suggestive interpretive insights. In response to public policies and controversies about environmental hazards, psychologists and other social scientists have explored the relationship between actual and perceived risks.¹

In recent years, cultural historians have made mortality a major topic for study. Scholars of death in early New England have featured, in particular, the role of Puritanism in enhancing


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¹ Arnold Barnett supplied the figure for mortality risk on commuter flights.
the terrors of death by promoting uncertainty of salvation. This article seeks to bridge the gap between these cultural studies and studies of mortality patterns by historical demographers. Central to the original formulation of the theory of demographic transition was the tenet that fertility decline resulted from a prior or concomitant decrease in mortality, as well as from economic modernization. The logic underlying the former relationship is simple: If mortality decreases, fewer births are needed to attain a desired number of surviving children.²

Decades of empirical research have left the fact of demographic transition in place; in many societies, low birth and death rates now prevail where once they were high. However, the theory of demographic transition has not fared as well, and the American case provides a striking instance of apparent perversity in the relationship between mortality and fertility indices. Although child-to-woman ratios in the United States declined from the early nineteenth century onward, mortality does not appear to have decreased substantially until after 1880, and it may even have risen during the first half of the nineteenth century.³

One reason for the absence of a stronger relationship between mortality and the decline of fertility is that the impression of typical mortality risk, rather than its numerical incidence, informs the behavior of people. In response to this possible cultural filter, one demographer has formulated propositions relating perceptions of average mortality risk to fertility behavior. Put in another, more historic context, we are interested in the relationship between perceptions of mortality and the larger mental framework within which an emphasis on such concepts as “average level” and “typical risk” of mortality attain meaning. Cognitive numeracy in mortality might be defined as a stress on the order provided

CULTURAL DEMOGRAPHY

by the quantified magnitudes of death rates. The life table is a perfect illustration of such an ideal/typical model of numeracy in mortality.4

Problems of Mortality Perception In the traditional regime of high (and highly variable) mortality, it is not all that surprising that perception of the risk of death diverges from measured realities. By showing the separate impact of fertility and mortality levels on both period and cohort age patterns of death, model life tables and stable populations provide a succinct overview of the range of situations relevant to perceptions of death risk in populations. Figure 1 outlines, and Table 1 elaborates, the sources of the difficulty in perception. They display indicators of the central tendency and variation in mortality at three divergent expectations of life at birth in model life tables: 25, 50, and 75 years, respectively. These values are shown for three rates of natural increase—0, 10, and 25 per 1,000 per annum—in stable populations.

When mortality is high, the impact of death is strongly bimodal by age—very high in infancy, high in early childhood (ages one through four), declining to a minimum at the beginning of the teenage years, and then increasing gradually before finally accelerating rapidly after middle age. Hence, few people die at ages in the vicinity of the average age at death. With life expectancy at birth ($e_0$) of twenty-five or fifty years, under one-sixth die between ages fifteen and thirty-four and forty and fifty-nine, respectively. However, with the low mortality shown in the third column of Table 1 ($e_0 = 75$), more than half of the deaths occur to those dying within ten years of the expectation of life at birth.

In a population closed to migration, the level of fertility overwhelmingly determines the degree of youthfulness in the age distribution. Since higher fertility makes the population younger, the average age at death is lower in a rapidly growing population than in a stationary one. The high rate of natural increase in early American populations would have made inference especially tricky. Of the demographic regimes portrayed in Table 1, that of colonial New England most closely approximates that shown in

Fig. 1  Median Age at Death in Stable Populations by Life Expectancy at Birth ($e_o$) and Growth Rate

Panel A, $e_o = 25$

Panel B, $e_o = 50$

Panel C, $e_o = 75$

SOURCE  Model WEST figures from Ansley J. Coale and Paul Demeny, Regional Life Tables and Stable Populations (New York, 1983; 2d ed.).
Table 1  Indicators of Central Tendency and Distribution of Deaths for Females at Different Expectations of Life and Rates of Natural Increase

<table>
<thead>
<tr>
<th>GROWTH RATE AND INDICATOR</th>
<th>MEAN EXPECTATION OF LIFE AT BIRTH (MEAN AGE AT DEATH FOR BIRTH COHORT)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MEAN YEARS</td>
</tr>
<tr>
<td>(A) ( r = 0 ) (life-table stationary population)</td>
<td></td>
</tr>
<tr>
<td>Birth rate per 1,000</td>
<td>40</td>
</tr>
<tr>
<td>Death rate per 1,000</td>
<td>40</td>
</tr>
<tr>
<td>Mean age at death in population</td>
<td>25</td>
</tr>
<tr>
<td>Median age at death</td>
<td>12</td>
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<tr>
<td>Percentage of deaths within +/- 10 years of mean</td>
<td>14%</td>
</tr>
<tr>
<td>Percentage of deaths in modal 5-years</td>
<td>46%</td>
</tr>
<tr>
<td>(Modal 5-years)</td>
<td>(0-4)</td>
</tr>
<tr>
<td>(B) ( r = .01 ) (stable population)</td>
<td></td>
</tr>
<tr>
<td>Birth rate per 1,000</td>
<td>52</td>
</tr>
<tr>
<td>Death rate per 1,000</td>
<td>42</td>
</tr>
<tr>
<td>Mean age at death in population</td>
<td>18</td>
</tr>
<tr>
<td>Median age at death</td>
<td>3</td>
</tr>
<tr>
<td>Percentage of deaths within +/- 10 years of mean</td>
<td>13%</td>
</tr>
<tr>
<td>Percentage of deaths in modal 5-years</td>
<td>56%</td>
</tr>
<tr>
<td>(Modal 5-years)</td>
<td>(0-4)</td>
</tr>
<tr>
<td>(C) ( r = .025 ) (stable population)</td>
<td></td>
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<tr>
<td>Birth rate per 1,000</td>
<td>71</td>
</tr>
<tr>
<td>Death rate per 1,000</td>
<td>46</td>
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<tr>
<td>Mean age at death in population</td>
<td>11</td>
</tr>
<tr>
<td>Median age at death</td>
<td>2</td>
</tr>
<tr>
<td>Percentage of deaths within +/- 10 years of mean</td>
<td>12%</td>
</tr>
<tr>
<td>Percentage of deaths in modal 5-years</td>
<td>68%</td>
</tr>
<tr>
<td>(Modal 5-years)</td>
<td>(0-4)</td>
</tr>
</tbody>
</table>

Source: Model WEST figures from Ansley J. Coale and Paul Demeny, Regional Model Life Tables and Stable Populations (New York, 1983; 2d ed.).
the middle column of the bottom panel \((e_0 = 50, r = .025)\). In that stable population, the mean age at death for any given time period is 26.5 years, and half of those dying are under age 12 (the median being 11.2 years), even though the expectation of life at birth (the average age at death) was far higher.\(^5\)

There is, unfortunately, no reliable body of empirical evidence from seventeenth- and eighteenth-century New England about the age patterns of death as experienced from year to year. Historical demographers have not resolved the extent of underregistration of deaths, either overall or by age. The median age of death in the first American life table—based on late eighteenth-century bills of mortality from long-settled communities in which fertility was lower and age structure older than average—was only 18.1 years. For most of New England throughout most of the colonial period, the median of 11.2 years is probably closer to the mark.\(^6\)

The findings of psychologists concerning the framing of risk have important implications for the history of the perception of mortality. For example, the assessment of risks, even by experts today, lacks logical consistency. In one study, both lay persons and physicians changed their preferred type of treatment for hypothetical cases of lung cancer when the outcomes were framed in terms of substantively identical proportions surviving rather than fractions dying.\(^7\)

Psychometric studies indicate that the criteria underlying the evaluation of risk may be grouped into two main classes. The more important factor is the extent to which risk is feared because it is uncontrollable, catastrophic, involuntary, etc. The second is the element of concern that depends on the degree to which risk is unknown because it is not directly observable, is novel, or has delayed effects.\(^8\)

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Both psychometric and cultural analyses of risk strongly indicate that there is no “attitude toward death” in the historical record that can be isolated atomistically. Rather, we can expect to find variable perceptions of mortality risk that depend on how the hazard is embedded in situations and in the cultural norms and expectations that people bring to it. In law, the definition of homicide ignores the age of the victim; yet this neglect does not contradict sentiments that the death of a ten-year-old is more regrettable than that of an eighty-year-old. Motive and circumstances shape the definition of murder rather than the number of potential years of life foreshortened. The approach of cultural demography is to attempt to explore how a group that dealt with death—in this case, New England ministers of the seventeenth and eighteenth century—defined its subject matter.

The Funeral Sermon as Source and Genre Like other sources for that much-studied group in that much-studied society, the published funeral sermons of early New England ministers have attracted the attention of historians and literary scholars. These sermons followed the standard tripartite format of text, explication or development, and application. The final section often included a discussion of the meaning of death from the ministers’ perspective on the life and death of the saint. Expounding on a particular death, a minister could admonish his parishioners to “get ye ready also.” Since the purpose of the sermons was didactic, the historian learns mainly what ministers wanted their listeners to think about death. However formulaic these passages may be, they were the precepts of an established religious culture. Moreover, careful readers can find, between the lines, hints of what ministers’ listeners and readers believed, or wanted to believe, beyond what was theologically correct.


New England funeral sermons—of which fewer than fifteen were printed in the seventeenth century—numbered c. 600 by the year 1800. Of these, we sampled fifty in each of three time periods delineated by the bibliographical volumes compiled by Evans. Since some ministers were more prolific than others, our study includes the works of 110 separate authors.11

Funeral sermons were not intended to provide reflections on a random sample of deaths or lives in seventeenth- and eighteenth-century New England. Despite their high death rates, no infants or very young children were memorialized in sermons. Nearly 70 percent of the sermons were for men, and the average age of death of those so honored was about 55. Among the men, ministers (43 percent) and political leaders or merchants (43 percent) were the principal subjects. Some fourteen of the forty-seven women were ministers’ wives.12

The social or pious status of 12 of the 150 subjects is not clear from the sermons themselves. Doubt about status applies especially to those too young at death to have attained significant social rank—cases of interest because of the demographic questions. For example, the status of Elisha Lyon—a Woodstock, Connecticut, youth killed by a musket accident in 1768—and Michael Griswold, Jr., of North Killingsworth, Connecticut—“suddenly kill’d, by a stick of Timber which fell on him”—is not clear. Possibly, the unusual circumstances of an obscure person’s death led to the

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11 In his bibliography of 39,161 surviving items published in all of mainland British America and the United States before 1801, Charles Evans (American Bibliography [Chicago, 1903–1955], 14v.) lists 789 funeral sermons, half of which appeared after 1785. Of the 19,448 items published before 1786, 501 were funeral sermons. Using the sequence numbers provided by Evans as indicators of the dates of publication, the first 50 relevant cases were taken from vol. I, which covers 1639–1729, vol. IV (1765–1773), and vol. XIII (1799–1800). However, since the final volume lacked a sufficient number of sermons, we also drew 18 cases from the end of vol. XII (1798–1799). We excluded sermons with places of publication outside of New England and those that were originally preached elsewhere but reprinted in that region. We also rejected execution sermons, broadsides announcing the death of an eminent person, and the numerous short eulogies given after the death of George Washington in 1799.

Wondrously productive, Cotton Mather published 67 of the sermons on those who perished from a total of 76 for New England between 1721 and 1730; he authored nearly half (23) of the sermons in our first period, which concludes in 1716 (Gordon E. Geddes, Welcome Joy: Death in Puritan New England [Ann Arbor, 1981], 161). Mather’s most frequent dream, which occurred from early in his life, was of his own death (Robert Middlekauff, The Mathers: Three Generations of Puritan Intellectuals, 1596–1728 [New York, 1971], 320).

12 In her more comprehensive survey (“New England Funeral Sermons,” 32) Malmheimer estimates that 75% of the sermons were on men, 25% on women, and 5% on children (those not financially independent of parents). Perhaps as many as 65% of those on men were on ministers, and half of those on women were on the wives and daughters of ministers.
publication of a funeral sermon. Supporting this inference is the existence of the related, and considerably more popular, genre of the execution sermon. Just as the lives and deaths of saints could be advanced as role models, those of notorious sinners served even more compellingly as negative examples, especially as the minister traced the horrendous sin meriting capital punishment back to minor transgressions committed earlier in life.13

THE THEMES OF MORTALITY RISK Puritan ministerial thought about the risks of mortality may be summarized briefly in two statements: (1) Death is certain. (2) Its timing is uncertain. These basic principles encompassed or generated other themes: that life was bounded by the upper limit of a fixed life span, and was, in any case, short; that the capricious timing of death made preparation for it necessary at all stages of life, even though ministers and their audiences discerned simultaneously that the average risk of death varied by age; and that variance of all sorts in the phenomenon of death was more impressive than what might be considered average or typical.

From their reading of the Garden of Eden story in the Old Testament book of Genesis, orthodox Puritans believed that both disease and death were punishments for the original sin of Adam. The first clause of 1 Corinthians 15:22 made the point succinctly: “All mankind is involved in Adam’s sin, and therefore all must dy.” With the corpse as proof, the funeral sermon was the ideal occasion to stress the theme of death’s certainty. Though supportive of hierarchy on this earth, ministers used the death of the high and mighty to portray death as the great leveler. “All, high and low, rich and poor,” one minister proclaimed at the funeral of a Connecticut governor, “are alike subject, to the common laws of mortality. It is appointed for all once to die.”14

14 Eliphalet Williams, The Ruler’s Duty and Honor, In Serving His Generation (Hartford, 1770), 21; see also Cotton Mather, The Glorious Throne (Boston, 1714), 30–31; John Mellen, The Merit of doing good (Boston, 1765), 21.
As with the principle of death’s certainty, the Bible was also the authority for the corollary that life was short. Ministers repeatedly invoked passages depicting the brevity of life. References to life as a “vapour,” a “shadow,” as “altogether vanity” and as “withering grass and flowers” were common throughout the period. Compared with biblical instances of extreme longevity—such as that of the antediluvian Methuselah, who was said to have lived 969 years—as well as to present experience, life was short. Although young people perceived a life of many years as long in prospect, the old knew just how rapidly the years flew by. “Now ask any man that may be Seventy years old; my Father, How long does the Time of your past Life now seem to you? He will say, ‘Indeed, when I look’d forward, it seem’d long; but now I look backward, Oh! how swiftly is it passed; how quickly ended!’”

The Life Span and Stages of Life The concepts of life span and stages of life provided the framework that nearly forced a recognition that mortality risks varied with age. The biblical “three-score and ten years” was the normal life span if a man was “to live out all his Days.” For someone of unusually uncommon strength, as the Psalmist first claimed, the life span could be extended to eighty years of age. Fixing the maximum length of life in this range implicitly demonstrates an awareness that death rates at these older ages were much higher than at younger adult ages. In seventeenth-century England, old age was regarded as the final stage of the life span—a phase certainly to be terminated by death. Ministers in New England concurred with this assessment: “Elder People are so near their End, so soon to dye, and to give up their Account, that surely they above any shou’d be very careful about their Behaviour.”

15 The biblical texts are, respectively, James 4:14, 1 Chronicles 29:15, Psalms 39:4–5, Job 14:1–2, and Psalms 90:5–6; Cotton Mather, Life Swiftly Passing and Quickly Ending (Boston 1716), 7.

16 Psalm 90:10; Mather, Life Swiftly Passing, 7; Charles Chauncy, A Discourse Occasioned by the Death of the Reverend Thomas Foxcroft (Boston, 1796), 19–20; Mather, Life Swiftly Passing, 7; James Dana, Illustrations on Human Frailty and Vanity (New Haven, 1765), 5; Chauncy, Discourse Occasioned, 18. For a cohort, the expectation of life at a given age is identical to the reciprocal of the death rate after that age. Steven R. Smith, “Death, Dying, and the Elderly in Seventeenth-Century England,” in Stuart F. Spicker, Kathleen M. Woodward, and David D. Van Tassel (eds.), Aging and the Elderly: Humanistic Perspectives in Gerontology (Atlantic Highlands, N.J., 1978), 211; Benjamin Colman, The Duty and Honour of Aged Women (Boston, 1711), 31; Chauncy, Discourse Occasioned, 18.
Drawing on both folk and Enlightenment culture, ministerial writings on old age underlined the point. According to a common saying, “the young may, the old must die.” By the end of the eighteenth century, the idea was being couched in statistical terms: “There is a probability that they who are in the prime or morning of their days may continue many years; but there is no probability that the aged should.” Hence, death in old age was not as regrettable as death in youth.17

In their sermons, ministers clearly showed that they understood the differing risks of mortality at each stage of life. Using the death of Elizabeth Wainwright—the youngest decedent in our study—to survey the successive stages of life, Reverend Benjamin Colman referred to “brittle and tender” babes, “blooming” childhood, “verdant, budding” youth, and “the prime of strength” of manhood. Elsewhere, youth is described as “hale, strong, and vigorous,” and as a stage of “vigour,” “blooming vigour,” or “vigor and strength.” Nevertheless, ministers also argued that vigor and health were no security against early or sudden death, for as Wadsworth insisted in 1715, they “are often almost as Changeable as the Weather.”18

Ministers could still emphasize the cumulative impact of “high” stage-of-life-specific death rates. As a well-read scientist, Cotton Mather sometimes made his points quantitatively. In two separate sermons, Mather drew upon the work of Graunt, the English political arithmetician, to assert that “computation [has] found that more than half of the children of men Dy before they come to be Seventeen Years of Age.” In his sermon on the schoolmaster Ezekiel Cheever, who died at age ninety-four, Mather warned,


"Children, 'tis your Dawning time. It may be your Dying time. . . . Go unto the Burying-place; There you will see many a Grave shorter than yourselves."19

The high cumulative incidence of death since birth depended on the "multitudes" who died in infancy and early childhood—distinct stages of life. Children hearing Mather's words would have already survived through these most dangerous ages. If they or young adults chose to recognize the better chances of current survival, they might well have ignored admonitions to "Dy daily" in preparation for death that in the long run was inevitable. Alternatively, as the example of a nineteenth-century diarist, Samuel Rodman, suggests, they may have felt guilty or fearful that they survived longer than others did.20

Despite the normal life span and variations in risk with age, ministers relentlessly contended that God determined the timing of death: "The lives of all men are in God's hands: He lengthens them out, or cuts them short, as he pleases. . . ." In his poetic and popular rendering of Calvinist theology, The Day of Doom, which was reprinted ten times before 1800, Wigglesworth directly addressed the sense of false security from death in the present and near future:

How many thousands have this strong delusion  
Already brought to ruin and confusion  
..................................................  
They thought of many years, as thou dost now,  
But were deceived quite, and so may'st thou."21

To refute this naive, arrogant presumption, some ministers came close to contending that all, regardless of age, faced similar,

19 Cotton Mather, Corderius Americanus (Boston, 1708), 17; Mather, Life Swiftly Passing, 7. John Graunt, Natural and Political Observations Mentioned in a following Index, and made upon the Bills of Mortality (New York, 1975; orig. pub. 1662), 69. Since the bills of mortality did not record age, Graunt inferred mortality before age 6 from information on cause of death. Ian Hacking, The Emergence of Probability: A Philosophical Study of Early Ideas about Probability, Induction and Statistical Inference (Cambridge, 1984), 107–110; Mather, Corderius Americanus, 17.
21 Joseph Perry, The Character of Moses Illustrated and Improved (Hartford, 1767), 16; Michael Wigglesworth (ed. Kenneth B. Murdock), The Day of Doom: On a Poetical Description of the Great and Last Judgment with other poems (New York, 1966; orig. pub. 1662), 81.
high death rates in the short run. This sentiment was convenient computationally for Graunt, who assumed a constant death rate per decade of life (about three-eighths) between the ages of six and seventy-six. Citing what he called an old saying, Mather remarked that “If an old Man has Death before his Face, a Young Man has Death behind his Back; the Deadly Blow may be as near to one, as it is t’other.” In a Boston sermon of 1713, an Anglican assistant minister of King’s Chapel noted that those “in the midst of their Youthful follies . . . may be soon snatched away as the Hoary Head, which bends to the Grave. Yet, the conditional “may be” in these two passages suggests what was possible rather than what was likely. At least one sermon, from 1771, contains a recognition that people, foolish as they were, felt secure from imminent death. Referring to experience, Bisset found it strange and incredible “that mankind, who in the midst of life are in death, and who are daily surrounded by a thousand diseases and accidents, should stand in need of so many exhortations, in order to awaken them from the sleep of sin into seriousness and attention.”

The more common response eschewed the inchoate framework within which notions of average or relative risks flickered and occasionally grew stronger. The traditional view of each life as an individual pilgrimage terminated by death was a powerful one within the Christian—especially the Protestant—tradition. Instead of perceiving the individual as one among many with a common mortality risk, ministers focused their funeral sermons on the individual journeying alone through life. For example, a twenty-year-old man reasoning on that basis would not conclude that he had 97 chances out of 100 to survive to age twenty-five but that after five years, his “chances” of death had been, retrospectively and definitively, either zero or one.

Variance in death was important for reasons beyond its divinely arbitrary timing. Indeed, the hand of God was revealed more in the unusual than in the ordinary, particularly in the earliest period of intense Puritanism. Accidents and other unusual

22 Hacking, The Emergence of Probability, 108–109; Mather, Life Swiftly Passing, 16; Henry Harris, A Sermon Preach’d at the Queen’s Chapel (Boston, 1713), 16; George Bisset, A Sermon Preached in Trinity Church (Newport, R.I., 1771), 5.
23 Thomas R. Cole, The Journey of Life: A Cultural History of Aging in America (New York, 1992), 10–47. Some 969 out of 1,000 20–year-olds would survive the next five years, according to Model WEST, Level 13 mortality. See Table 1.
causes of death were subsumed under the category of “Remarkable Providences.” “That God is pleased to call off some by a sudden and unexpected death,” argued Bisset on the death of Abigail Wanton, age thirty-six, serves “to awaken us from this fatal sleep of security, and to teach us the awful importance of improving our time.” Rev. William Steward of New Haven even claimed that sudden death was common, for “it is the portion of great numbers of mankind to be snatch’d away suddenly by death.”

What made the uncertain timing of death especially important religiously was the need for individuals to be prepared to face judgment. Reflecting on the death of Elisha Lyon, approximately twenty years of age, who was killed by the accidental discharge of a musket while on a military exercise in 1768, the Rev. Stiles of Woodstock, Connecticut, stated the point and its implication precisely: “It is not for us to fore know the time, the occasion, the manner of our Death; but surely it is for us to know the necessity of being prepared.”

Sudden deaths to younger persons provided doubly ideal opportunities to emphasize the need for preparation now. Altogether, there were twenty-two sermons in which the decedent was under thirty years of age. In all of these but one or two, a main theme in the discussion was the uncertainty of life and, as a consequence, the need to prepare for death immediately. Although this theme also appeared in sermons for those dying at ages above thirty, its ubiquity in the texts for those who died young indicates that ministers implicitly recognized the biblical life span of seventy years and the surprising feature of early death.

Maternal Mortality, Actual and Perceived During the last three centuries, political arithmeticians, demographers, and historians have pointed out how the mortality risk of childbearing has been exaggerated. In the index of contents to his Observations

24 Franklin caustically advised, “For the Subject of your Elegy. Take one of your Neighbours who has lately departed this Life; it is no great matter at what Age the party dy’d, but it will be best if went away suddenly, being Kill’d, drown’d, or Froze to Death” (“Silence Do-Good, No. 7,” 26); Bisset, Sermon Preached, 8; Seward, Due Consideration, 14.
25 Stiles, Death God’s Monitor, 27.
26 Patricia Cline Cohen argues that the Puritans did “not share our notion that a young’s person death is untimely or premature,” but explains in a footnote that they did not view such early deaths as unnecessary or preventable (A Calculating People: The Spread of Numeracy in Early America [Chicago, 1982], 93, 241).
(1662), Graunt implicitly emphasized its rarity, demonstrating from bills of mortality that “not one woman in a hundred dies in Child-bed.” In the text, taking note of competing causes of death, Graunt reduced his estimate of the risk of dying a month after birth to approximately one in two hundred. Relying on modern family reconstitution data, Schofield calculated estimates for English parishes that are roughly similar to those of Graunt. Echoing his predecessor’s skepticism about the threat of deaths from causes related to childbirth, he concludes that “Childbearing in ‘the world we have lost’ turns out to have been a rather less mortal occasion than we may have been inclined to believe.” In the practice of Martha Ballard, a Maine midwife, in the period between 1785 and 1812, only 0.6 percent of mothers died per confinement. Ballard, however, routinely referred to delivery as a “sickness” and thanked God for its successful outcome.27

Only two of the forty-eight women whose funeral sermons appear in our sample died of maternal causes—a ratio, coincidentally, of the same order of magnitude as the cumulative figure based on the empirical observations of maternal mortality. Ministers connected their deaths in childbirth to “the Curse pronounc’d upon our first Mother Eve” from Genesis 2:16. They also referred to the risks of maternal mortality in other sermons. The extended duration of pregnancy before the perilous event of travail served more effectively than shorter episodes of sickness (“which do more surprise & terrify for the time, but are usually soon over and their Impressions vanish”) to bring women to a seriously pious state. Increase Mather quoted from the private papers of Maria—Cotton’s mother—“I went thro’ many Deaths in the bearing of children.”28

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28 Cotton Mather, Eureka the Vertuous Woman Found (Boston, 1704); idem, Memorials of Early Piety (Boston, 1711); Colman, The Duty and Honour of Aged Women (Boston, 1711), ii; Cotton Mather, An Essay to Describe the Good Works of A Vertuous Woman (Boston, 1713); Colman, Duty and Honour of Aged Women; Increase Mather, A Sermon Concerning Obedience and Resignation To the Will of God (Boston, 1714), iv.
Can the discrepancy between the facts of maternal mortality and perception of the risk of death in childbirth be reconciled? Historians argue that women in early modern Anglo-America sided with the ministers rather than with the political arithmeticians and later demographers. The apparent emphasis placed on the dangers of maternal mortality seems to contradict a central finding of the risk-perception literature. Unlike accidents, maternal deaths were not sudden—being anticipated during the long months of pregnancy; the proximate cause of mortality risk was not unknown, novel, or unobservable. Moreover, unlike in epidemics, deaths in or after childbirth occurred singularly rather than in large numbers within a short period.29

Psychologists emphasize that strong prior belief makes it difficult for subsequent information to alter the perception of risk. The apparent disjunction between the incidence and perception of maternal mortality is, at present, the most substantial evidence that religion purveyed, or at least reinforced, among ordinary people an interpretive framework that overestimated the risks of death. Given the authority provided by the first book in the Bible, the difficulties of pregnancy and childbirth could be ascribed clearly to acts of God.30

As in the case of the simultaneous recognition and denial that mortality varied with age, we should contemplate the possibility that women both believed and doubted these messages of danger concerning childbirth. The paradigm of sickness and providential assistance that midwife Ballard repeated after each delivery was indeed formulaic. Its use does not necessarily indicate that she or the mother were greatly in fear of death. Similarly, the closeness of death was not the only theme of childbirth available to ministers. Mather incorporated an earlier sermon about pregnancy and labor into his unpublished treatise on medicine. Although Mather’s chapter—the second longest of some sixty-six sections in the manuscript—focuses mainly on religious matters, it also provides nearly three pages of remedies at the end to ease various

problems associated with labor. The activist/fatalist and instrumental/fatalist labels that Fischer uses to summarize Puritan theological practice with respect to death also are relevant to Puritan social practice.31

The Tangle of Folk, Religious, and Scientific Views

Religion was not the only framework for dealing with disease and death. Alternative traditional perspectives—both folk and medical—competed with the outlook offered by religion, but, in practice, alternative views coexisted with, complemented, and intertwined with the Puritan perspective. New England ministers served as physicians or collaborated with them in particular cases. Death—either of the individual interpreted in funeral sermons, or of many, the result of epidemics and other mass calamities—was amenable to the religious idea of providential retaliation against individual or collective sin. Fatalism was a plausible response to death after it occurred, and ministers made the most of it. Before death, behavior was not necessarily unrealistic or fatalistic. Patients tended to avoid treatment except for serious illness, and their acceptance of such heroic medical interventions as bloodletting suggests a will to survive, even though God supposedly had already determined the time of death.32

Nor did a conflict emerge between religion and the worldview provided by the Newtonian science of the Enlightenment. Ministers could adapt the new science to their traditional religious assertions without apparent contradiction, or, when necessary, elide it metaphorically. Ever eclectic, Mather, in his medical treatise, invoked a notion of religious quality time: “Three Sevens of years” of an awakened good life is longer than “Nine hundred and sixty nine” years for a “drowsy and thoughtless wretch.” Living in the constant expectation of death permits one to “Live Long in a Little Time.” Nonetheless, Mather argued for a tem-

perate approach in diet and for moderate exercise as strategies to extend longevity measured in years rather than metaphors.33

Mather’s use of Graunt’s figures to illustrate the shortness of life was ironically appropriate, for Graunt based his figures on a fixed mortality ratio during the seven decades of life after age six. So great was the emphasis on the orderly character of mortality among eighteenth-century statisticians that they often assumed—radically in conflict with what is now well known—fixed geographical death rates and nearly constant death rates over the life span. These quantitative assumptions, which ironically concur with the central precept in the funeral sermons, namely, that death is equally possible at each age, had little impact at the time, even in their direct application to the insurance business.34

Variance within Families and over Time There was an important difference between eighteenth-century religon and empirically oriented science with respect to regularities, especially the problem of an orderly relationship between age and mortality risk. For the mechanistic mind of the Enlightenment, order was found in the regularity in nature, but for the religious mind, order was to be revealed in the arbitrary workings of providence. Empirical investigations could serve to sustain the belief that order lay hidden in disorder. One minister gathered facts on an epidemic for just this purpose. In assessing the significance of the high childhood mortality of the throat distemper epidemic in New Hampshire in 1735, Fitch concluded that the “Grave is a Land of Darkness without any Order” with respect to age; “so many Younger ones have gone to the long Home before the Elder.” Divine order still persisted as each person died “in his own Order, in respect to God’s appointment who has determin’d the Time of every ones Death.” At the very end of the eighteenth century, another minister reiterated this exact point: “We shall fall before him [Death] indiscriminately, and go down to the grave without any apparent order.”35

33 Jones, Angel of Bethesda, 14–19. On Cotton Mather’s use of Newtonian science, see Middlekauff, The Mathers, 279–304.
35 Jabez Fitch, An Account of the Numbers that have died of the Distemper in the Throat, Within the Province of New Hampshire, With some Reflections thereon, July 26, 1736 (Boston, 1736), 7; reprinted in Rosenberg (ed.), Disease and Society in Provincial Massachusetts: Collected Accounts, 1736–1939 (New York, 1972). See also the general discussion in Cohen, Calculating People, 81–108; Eliphalet Porter, A Sermon Delivered to the First Religious Society (Boston, 1799), 9.
The emphasis on the uncertain timing of death—one of the central themes in the sermons—appears in a variety of contexts about death and the risks thereof throughout the seventeenth and eighteenth centuries. For example, mortality varied within families. In his analysis of the New Hampshire epidemic, Fitch not only tabulated deaths by age but also reported, for each town, the number of children lost per family and the number who had lost all of their children. In a sermon after the death of Rev. Samuel Checkley in 1769, Bowen noted that Checkley’s children were almost all “cut down in the flower and prime of life. . . . So that out of twelve, there is but one survives him.” Other sermons focused on clusterings of deaths within families.36

Variation in death rates due to disease provided the most obvious environmental support for the emphasis seen on the uncertainty of life in funeral sermons. Although historians have studied outbreaks of major epidemics—primarily smallpox—they have barely investigated such vital fluctuations in early New England. In Boston—the residence of many sermonizers—estimated crude death rates, which averaged 37.2 per 1,000 between 1701 and 1774, exceeded 50 per 1,000 only in 1702, 1721, 1730, and 1752. During the smallpox epidemic of 1721, the death rate reached a peak of 103 per 1,000. Although epidemics visited the city in the nineteenth century, never did the crude death rate after 1800 exceed 40 per 1,000.37

36 Fitch, Account of the Numbers, 1–7. Another ministerial study reported the differential impact within families. John Brown, The Number of Deaths in Haverhill, and Also Some Comfortable Instances Thereof Among the Children, under the Late Distemper in the Throat, with an Address to the Bereaved (Boston, 1738; 2d ed.), cited in Cohen, Calculating People, 90–91. What Fitch and Brown failed to report is the distribution by number of children in the families that lost no children in the epidemic; i.e., they offer no demographic concept of population at risk; Peniel Bowen, A Discourse Occasioned by the Death of the Reverend Samuel Checkley (Boston, 1770), 31. See William Lockwood, A Sermon Delivered at the Funeral of Mrs. Jerusha Woodbridge (Middletown, 1799), 18; Isaiah Parker, A Funeral Discourse Occasioned by the Death of Mr. Josiah Bowles (Boston, 1800), 17; Edward Dorr, A Discourse Occasioned by the Much Lamented Death, of the Honorable Daniel Edwards, Esq (Hartford, 1765), 19–20; Parsons, To Live is Christ, To Die is Gain (Portsmouth, 1770), 38; Cotton Mather, Nymphedes Evangelicum (Boston, 1713), 42; Increase Mather, A Sermon Concerning Obedience (Boston, 1714), iv; Samuel Moody, The Children of the Covenant (Boston, 1716), 52.

37 John Duffy, Epidemics in Colonial America (Baton Rouge, 1953). Deficiencies in sources or organization are mainly responsible for this gap in the literature. Nearly all of the published volumes of New England vital records are organized by surname rather than year; furthermore, the completeness of the records declines between the seventeenth and midnineteenth centuries. John B. Blake, Public Health in the Town of Boston, 1630–1822 (Cambridge, Mass., 1959), 247–249.
Compared with elsewhere in the Anglo-American world, eighteenth-century rural New England was distinctly characterized by a low level of mortality punctuated with episodes of severe epidemics that spread across a wide area. Not surprisingly, ministerial discourses on epidemics (which we examined separately from the 150 funeral sermons) took advantage of the surge in deaths to emphasize the uncertainty of life.38

From the beginning, collective events or phenomena—epidemics, droughts, Indian attacks, faltering piety, and the annual spring planting season—rather than the death of an individual, stimulated authorities to declare days of fast, prayer, and humiliation. Calamities and natural disasters allowed ministers to emphasize general themes of divine punishment for sin and the need for religious revival. The greater complexity of an epidemic compared with an individual death also elicited more diverse and elaborate responses from the ministers. Both the smallpox epidemic of 1721 and the diphtheria epidemic of 1735–1740 led them to statistical investigations. In addition to tabulating deaths by age, John Brown, following the model of James Janeway’s popular Token for Children (London, 1671), presented thirty-four short biographical sketches of youthful victims, including deathbed scenes and evidences of salvation. Although epidemics were unusual, their striking devastation merely exemplified, in magnified form, the familiar uncertainty of life. In a sermon for four young men who died of smallpox, Grafton—a Baptist preacher in Newtown—argued that these cases were not uncommon, for many youth also perished from consumption and from accidents.39

FROM PURITAN TO MODERN LIFE TABLES Metaphorically and statistically, the dominant ministerial tradition in early New England focused more on the variance than on the average death rate.

The successful propagation and general acceptance of Enlightenment and deistic notions in the eighteenth century could well have depended on the reduction of sudden and unexpected deaths due to epidemics. In Boston, as in Western Europe from the late seventeenth century onward, the diminution of mortality peaks associated with epidemics was central to the early phase of the mortality transition, though sensitivity to fearful upsurges in epidemic diseases seems to have persisted even after the frequency and magnitude of such crises lessened in the eighteenth and nineteenth centuries.40

Unlike other students of the cultural history of death in New England, we find relatively little change over time in the perception of mortality risks. No doubt, the unchanging circumstances of death that prompted a funeral sermon account substantially for the absence of any dramatic change. In addition, the emergence of the funeral sermon in late seventeenth-century New England was itself a mark of religious declension. Early Puritan divines eschewed the preaching of the funeral sermon, fearing its deterioration into false elegy and consolation; no funeral sermons were published before 1672. Changes were more subtle than dramatic between the first and last samples of our study. The increasing attention paid to aspects of the saints’ lives and to the manner of their deaths suggests a waning emphasis on warnings to the living based on death. Discussion of the good death became more extensive in the funeral sermons during our second and final

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periods. Paradoxically, the spare seventeenth-century Puritan approach to death seems to mesh easily into a quantifying mentality that does not pay attention to the particularity of death. A death is a death is a death.41

The certainty of death and the uncertainty of its timing remained prominent themes in funeral sermons at the end of the eighteenth century. The orientation of the late eighteenth and early nineteenth centuries combines a continuation of the religious view of death with a greater emphasis on the distinctiveness of the individual, alive or dead.42

These glacial changes cannot be said to constitute a transformation of conceptions of mortality risk from a Puritan life table to the one familiar to modern demographers. Some ministers after the middle of the eighteenth century started to keep mortality journals of a more modern character. They omitted deaths from other locations that previously entered into the eclectic category, “Remarkable Providences,” as well as deaths of other ministers in New England, concentrating instead on their own parishes and adding details about age at death and sometimes its cause.43

In retrospect, the perspective of the demographers’ life table seems radical, even bizarre, compared with that of tradition. In his ironic depiction of a midnineteenth-century British official in India, Farrell, the Australian novelist, captures effectively the vast cultural distance between today’s skepticism about quantitative social science and the Victorian passion for statistics: “At the thought of statistics, the Collector . . . felt his heart quicken with joy. . . . For what were statistics but the ordering of a chaotic universe?” The key to modern conceptualization and computation was a perception of the aggregate. Unlike the moral sciences of the Enlightenment, nineteenth-century social science made society its subject. Within an aggregate framework, analysts could see beyond the traditional scheme that placed death in relation to an

41 See especially Stannard, Puritan Way of Death.
individual aging through the stages of life. Nineteenth-century demographers employed a tripartite framework of deaths, population at risk, and time, with numerators being drawn from a death registration system and denominators from a census. In the new worldview, “while nothing is more uncertain than the duration of a single life, nothing is more certain than the average duration of a thousand lives.”

Indicating the extent of departure from traditional religious beliefs is the fact that most of the leaders of the burgeoning science of demography were liberal in religious belief and radical in politics. From Joseph Priestly and Richard Price in eighteenth-century England to William Farr and Lemuel Shattuck in the nineteenth century, Unitarianism—shockingly liberal by mainstream Protestant standards—was the conservative pole of those in the statistical movement. Unitarians promoted, both for themselves and for society, activist and rationalistic approaches to health. Although holding evangelical sentiments in his youth, Elizur Wright—the leading American actuary of the nineteenth century—became a prominent atheist. The modern life table, in sum, was a device well removed from the conventional religious context.

44 The quotation from Farrell continues as follows:

Statistics were the leg-irons to be clapped on the thugs of ignorance and superstition which strangled Truth in lonely byways. Nothing was able to resist statistics, not even Death itself, for the Collector, armed with statistics, could pick up Death, sniff it, dissect it, pour acid on it, or see if it was soluble. The Collector knew, for example, that in London during the second quarter of 1855 . . . that out of 10,157 tailors 108 had passed to a better world; that 139 shoemakers had gone to their reward out of 26,639 . . . and that was still only a fraction of what the Collector could have told you about Death. If mankind was ever to climb out of its present uncertainties, disputations and self-doubtings, it would only be on such a ladder of objective facts. (James Gordon Farrell, The Siege of Krishnapur [New York, 1973], 186).


45 Spencer Lavan and George Huntston Williams, “The Unitarian and Universalist Traditions,” in Ronald L. Numbers and Darrel W. Amundsen (eds.), Caring and Curing: Health and Medicine in the Western Religious Traditions (New York, 1986), 354–375; May, Enlightenment in America, 158–159; Eyler, Victorian Social Medicine, 14; Goodheart, Abolitionist, Actuary, Atheist; see also Thomas A. Kselman, Death and the Afterlife in Modern France (Princeton, 1993), 28–34. For an argument linking the decline of Calvinism to the flourishing of the life-insur-
What this shift from an emphasis on the variability and uncertainty of death to the average life span might mean for the demographic behavior of individuals can be illustrated by stylized strategies of fertility response to the death of children. Under a simple replacement strategy, couples attempt only to replace children who die. Under an insurance or hoarding strategy, however, couples continue to have children as a hedge against future losses, even if none has died. In order to adopt contraception, they have to be reasonably sure that their target family size will be achieved. The Puritan emphasis on the uncertainty of life militated against such security and, hence, against contraception. To the extent that it was reasonable to be uncertain, couples would overinsure against what objectively was an unlikely catastrophe.

For women who married in Hingham, Massachusetts, before 1800, there is no consistent evidence that the deaths of children before the mothers reached age thirty affected the number borne from that age until the end of the mothers' childbearing years. In marriage cohorts of the first forty years of the nineteenth century, however, such replacement occurred, even though overall mortality of children increased substantially for women married between 1821 and 1840. This contrast clearly cannot be accounted for by actuality, but it is consistent with a mentality focused on the predictability of averages rather than the uncertainty of particular cases.

Although one could quip that the Puritans conceived of a death table rather than a life table, there were several reasons why the modern life table was not established as a means of both calculation and perception of mortality until the nineteenth century. New England ministers saw life as a passage through stages over time. But ministers saw the individual, rather than an aggregate, to be inserted as the denominator of a “table”—an age group whose members were subject to the risks of death. For them,
deaths, too, were particularized, with the more sudden or dramatic being more remarkable than the routine. To be counted in a numerator required that their similarities be appreciated more than their differences. It would have helped the statistically minded among the clergy if colonial or local authorities had enumerated populations by age and reported the results. By the late eighteenth century, Wigglesworth, among others, saw the need to relate deaths by age to the age structure. But in their funeral sermons, ministers continued to advance their favored themes—the lives of the saints, the individual’s process of entry into death, and the religious implications of death itself for the living. The clustering of deaths, as in an epidemic or within a family, had collective implications through themes of divine punishment or generalized dread.

Puritan ministers failed to understand the life table because its grasp required comprehension of several distinct elements. An emphasis on the variance could even be considered more sophisticated statistically than the life table’s stress on averages; the mean is the first moment of a distribution and the variance the second. Nineteenth-century statisticians, such as Adolphe Quetelet, became fixated on the mean and such notions as the “average man.” Departures from the mean were called “errors,” as if a short person made a mistake in not being taller. Comprehending both mean and variance and seeing populations as aggregations of unique individuals is now the sophisticated position. However, there was enough variance in actual mortality experience to understand why the ministers exaggerated it. The professional need to promote religious concerns impelled them to deny what they and some of their hearers clearly recognized—namely, that the young and the healthy were less likely to die in the near future than the old and infirm.48

The triumph of the modern life table over the Puritan life table represents only a limited victory of science over religion in Western cultural history. The secular decline in mortality to its current low level has masked the partial nature of the achievement of rationalism. Today the chance of survival until old age is highly certain for nearly all groups of American society (see the last column in Table 1), and the modern demographic outlook is

virtually unchallenged within the domains of insurance, government, and academic science. Yet, to the irritation of some experts, public opinion hesitates to follow modern demography in certain areas. In response to the nuclear accident at Three Mile Island in Pennsylvania and a host of environmental hazards brought under the scope of public policy in the past two decades, scholars have contrasted the perception of risk by experts and by the public. Experts tend to assess risk in terms of the expected number of fatalities, whereas psychometric studies show that strong a priori perceptions about a given hazard and an absence of information about it affect the public’s assessment of risk. There is agreement between the two sides, however, in the evaluation of the elements underlying risk, such as dread and observability.49

The public’s current difficulty in assessing risk, when measured against the standards of modern science, recalls the assumptions underlying the Puritan life table. Labels used to describe “dread risk”—the type most feared by the public—include “uncontrollable,” “dreadful,” “globally catastrophic,” “not equitable,” and “of high risk to future generations.” In addition, the impact of a catastrophic event relates to what that event portends. Similarly, the response to the plight of an identified individual (for example, a child trapped in a well) is much greater than the response to a larger number of statistical lives estimated to be saved by the same expenditure of effort in public health.50

This modern perception of risk is reminiscent of the days when fasting and humiliation were the appropriate responses to epidemics and extended discussions of the life and death of saints were the grist of funeral sermons. It is not so much a return to the past as a public resurfacing of a perception that has always been present in the American psyche.