

No single effort by the social work profession in the general domain of prevention has paralleled, in scope or popular support, the campaign to reduce infant mortality undertaken by the United States Children's Bureau between 1912 and 1930. This small federal agency, staffed and lead primarily by women, was in the vanguard of Progressive Era efforts to safeguard the welfare of women and children. Its visionary program of empirical field research, multi-level preventive intervention, and legislative change provides an integrative model for social work practice that has rarely been surpassed.<sup>1</sup> Among its many exemplary activities, the bureau's pioneering work in the area of infant mortality is particularly salient, not least because of its relevance to contemporary struggles to design, implement, and evaluate effective social work prevention models in maternal and child health and welfare.

During the years in which the Children's Bureau focused on infant mortality, the national infant mortality rate was cut in half. A substantial yearly decline prevailed for decades thereafter. Empirical assessment of the actual contributions of the Children's Bureau to this remarkable reduction in infant mortality has, however, been elusive. Many developments during this period indisputably influenced the nation's health, and arguably may have played a larger role in reducing infant mortality than the efforts of the Children's Bureau. In the early decades of this century, improvements in national transportation and agricultural technology fostered better nutrition; well-documented progress in the science and practice of medicine and the training of doctors led to improved patient care and the development of vaccines; and public health programs addressed the problems of safe water and milk supplies, improved sewage disposal, and instituted mass inoculation programs against such deadly communicable diseases as diphtheria.<sup>2</sup> It is a formidable (if not

impossible) task to document the extent to which these coexisting factors account for the declining infant mortality rate, and to arrive at an acceptable quantitative estimation of their effects. A further obstacle to a rigorous appraisal of the unique contributions of the Children's Bureau to the American infant mortality decline is the lack of a reliable baseline estimate of infant mortality rates by locality, since most states did not maintain birth and death registration systems until the early 1920s.

Despite these difficulties, there are compelling reasons for social work scholars to pursue new ways of assessing the Children's Bureau's historical contribution to fundamental improvements in maternal and child health. In addition to the role of such work in promoting an enriched sense of social work's professional history and identity, scholarship in other fields offers fresh insights and evidence that can be brought to the task of re-evaluating the bureau and its activities. In recent years, for example, scholars in women's history and historical demography have fostered new understandings of the profound legacies of the Children's Bureau and its early leadership. In this paper, we use these different literatures, methods and sources of data as the basis for an analytical framework that offers an enhanced understanding and appreciation of the work of the Children's Bureau. Our specific focus is an examination of the accomplishments and failures of the bureau's efforts to transform the national calculus of infant mortality. We begin with a review of theoretical approaches to the mortality transition that occurred between 1900 and 1930, followed by a broad assessment of the philosophy, science, and methods of the Children's Bureau's infant mortality reduction campaign. We conclude with an analysis of newly available data from the 1910 and 1920 census micro sample surveys that yields a more complete appraisal of the bureau's role in promoting infant

survival.

### **Theories of the American Mortality Transition**

Mortality transition is generally described as a social process through which a society moves from a regime of high mortality and limited life expectancy to one of substantially lower mortality and prolonged life expectancy. Pre-transition societies typically have rates of infant mortality in excess of 100 deaths per thousand births, high rates of death due to infectious disease in childhood and adulthood, high rates of fertility, and a young age distribution. Because infant mortality is a dominant component of average life expectancy, the process of demographic transition typically begins with a dramatic decline in infant mortality.<sup>3</sup>

In the United States, the major decline in infant mortality occurred between 1910 and 1930, although limitations in the available information on infant death rates at the turn of the century have thus far precluded the assignment of the beginning of the decline to an exact year or region within the United States. We use 1910 as the beginning point of the mortality transition for two reasons. First, there is very little difference between Preston and Haines' scientifically rigorous estimates of early childhood mortality in 1900 and our own estimates (using similar data and techniques) of early childhood mortality in 1910.<sup>4</sup> By 1915, data from newly implemented birth and death registration programs in several states yielded significantly lower estimates of infant mortality, which suggests that 1910 is a reasonable estimate of the starting point of the decline. In addition, 1910 serves as very useful baseline for an analysis of the Children's Bureau's role in infant mortality reduction, since the bureau began its infant mortality reduction campaign immediately upon its creation in 1912.

Our estimates of child mortality, from which we derive estimates of infant mortality, are based on a representative sample of 80,551 household surveys collected during the 1910 census -- surveys which included questions on fertility and child survival. To estimate the decline in infant mortality between 1910 and 1930, we take from that national sample of household surveys those collected within the 44 states that by 1928 had been admitted to the U.S. Census Birth Registration Area. As shown in Figure 1, we estimate the 1910 state infant mortality rates to average approximately 120 deaths per thousand.<sup>5</sup> To place this in perspective, this average state rate is about 15 times the current national infant mortality rate and comparable in magnitude to that found today in the world's most desperately poor countries. Despite some spikes and fluctuations (most notably the one that occurred at the time of the 1918 flu epidemic), the decline in the infant mortality rate between 1910 and 1930 was remarkable, dropping from approximately 122 infant deaths per thousand births to 66 per thousand.

Until recently, theories of the decline in U.S. infant mortality have emphasized macro-level factors such as broad improvements in living standards (particularly nutrition and housing quality), in medical practice, and in public health programs and the basic infrastructures critical to public health.<sup>6</sup> These factors make intuitive sense, particularly given the developments in national transportation and agricultural technology, and the revolutionary advances in medical technology and training that occurred over this period. Analyses of contemporary mortality transitions in developing countries, however, have caused leading demographers to rethink past assumptions about the earlier processes that occurred in the U.S. and in other Western nations. It is well known, for example, that large variations in the speed of mortality improvements have occurred among countries

and regions sharing the same basic level of economic development and public health infrastructure, suggesting the importance of cultural and educational context. Indeed, some studies have found more variation in mortality by religion and education than by the state of economic development. Ewbank and Preston argue, moreover, that benefits from advances in U.S. medicine during this period were limited to those groups that could afford medical care. They also point out that these medical advances were not particularly targeted at the two leading causes of infant death in the early decades of the twentieth century, diarrheal disease and pneumonia, conditions that medicine of the day could not cure.<sup>7</sup> For diarrheal disease, conventional medicine offered the often-fatal treatment of purging.<sup>8</sup> While vaccinations for smallpox and diphtheria were two important medical advances, these diseases were however statistically trivial causes of infant death.<sup>9</sup>

An alternative perspective on the U.S. infant mortality decline places considerably more emphasis on the role of changes in maternal parenting behaviors that can be linked to the dominant causes of infant mortality. This domain includes such factors as home cleanliness, careful attention to infant nutrition, avoidance of excessive exposure for infants to potential disease vectors, within-home quarantine of the sick, hand washing, and the boiling of milk. Ewbank and Preston argue, for example, that the diffusion of germ theory in the early 1900s placed a new emphasis on the mother as the first line of defense against childhood disease.<sup>10</sup> The “maternal parenting” hypothesis thus suggests that infant mortality declined as mothers learned to adapt their child care and household management strategies to new knowledge about the unique nutritional needs of infants and the transmission of disease.

Despite the strong logical appeal of the maternal parenting argument, no

longitudinal representative surveys were conducted on turn-of-the-century household management and parenting practices. Until recently, the strongest archival evidence in favor of this hypothesis has been data from the series of ten community-level studies of infant mortality undertaken by the Children's Bureau between 1913 and 1923. Even by contemporary standards these studies, which were intended to provide basic epidemiological information as a foundation for effective infant mortality interventions, are remarkable in their scope and rigor. In keeping with the assumption of the day that higher rates of infant mortality were more prevalent among low-income immigrant families, the communities selected were primarily mid-sized industrial cities with large immigrant populations. For comparative purposes, three communities with dissimilar characteristics (Baltimore, Maryland, Montclair, New Jersey, and Saginaw, Michigan) were also included.<sup>11</sup> Taken together these studies indicated that, in addition to public health measures (such as ensuring sanitary water and milk supplies, and sewage and garbage disposal), household-level factors and maternal practices were vitally important predictors of infant survival. In particular race, ethnicity, maternal health and reproductive history, type of birthing attendance, methods of infant care and feeding, household size and living conditions, household income, maternal employment outside the home, and the burden of maternal domestic labor were identified as contributing to infant survival or death.<sup>12</sup>

The approach of the Children's Bureau to infant mortality was multi-dimensional. Consistent with the findings of the community studies and wider public interest in the "science" of motherhood, however, maternal education was the centerpiece of the bureau's infant mortality campaign. As the Bureau's second director, Grace Abbott, wrote in 1922, "[a]ny public-health work is, shall we say, at least three-fourths

educational.”<sup>13</sup> This emphasis prevailed until the latter part of the 1920s, when the medical profession actively sought to assert its authority in the domain of preventive health.

The legislative defeat of the bureau’s national maternal education campaign in 1929 (part and parcel of the campaign by the American Medical Association to medicalize all aspects of maternal and child health) is an important marker of this shift away from constructing mothers as the principal protective agents in infant survival.<sup>14</sup> To the extent that it was suborned by medicine under the auspices of “prenatal and postnatal care,” maternal education became in essence another form of medical intervention -- extremely difficult to distinguish empirically from other coincident sources of infant care wisdom, such as grandmothers, books, and popular magazines.<sup>15</sup> The “maternal parenting hypothesis” thus waned in favor of explanations for the infant mortality decline that placed more emphasis on macro level factors, such as improvements in medical technology and access to medical care, and on the central role of medical expertise in preventive as well as remedial health care.

More recent analyses suggest, however, that it may be premature to dismiss maternal behaviors, and thus the fundamental strategies of the Children’s Bureau, as primary contributing factors in the infant mortality decline. Contemporary empirical support for the role of maternal parenting in the U.S. mortality transitions comes from a variety of sources, most notably in our view through the work of Douglas Ewbank and Samuel Preston.<sup>16</sup> The basic premise of their approach is based on information diffusion theory, which suggests that if changes in parental health behaviors are a significant component of the decline in infant and child mortality, changes in mortality should have

occurred by social class and large city residence, with upper-class occupations and urban dwellers implementing these changes earlier than other groups. It is important to note that Ewbank and Preston distinguish carefully between occupational status and the income effects of social class. In their view, if the contribution of changes in parenting behavior to the decline in infant mortality were more important than the basic living conditions and access to medical care that can be acquired through income, occupational status effects should be apparent after controlling for income.

Using occupation and child survivorship data from the 1856 and 1910 census micro samples of households and published birth registration area reports available from the U.S. Census, Ewbank and Preston found that child mortality declined more rapidly among higher status occupations, even after controlling for income, regional context, urbanization, and ethnicity. They concluded, therefore, that the decline in infant mortality between 1900 and 1930 was in large part a function of information dissemination and related behavior change at the household level rather than being exclusively a function of improved standards of living, vertically-organized public works projects, and medical technologies such as mass vaccination.<sup>17</sup> Ewbank and Preston also make the point that the infant and child health reformers of the day considered household-level health behaviors to be critical factors in infant and child mortality and enacted their strategies accordingly. This observation, in conjunction with similar evidence from demographers, medical historians, and feminist social welfare historians, suggests that there is value in taking a closer look at the preventive health activities of the Children's Bureau, particularly at the household level.<sup>18</sup>

### **The Children's Bureau and Infant Mortality: Philosophy, Science and Methods**

Both the Children's Bureau and the Sheppard-Towner Act (the radical maternal and child health legislation that became the Bureau's magnum opus) had their origins in the remarkable flowering of women's civic participation and reformist activities that took place in America at the turn of the century. Two primary strands can be identified in this movement of middle-class women into the public sphere, both of them critical to the philosophical underpinnings, social agenda, and prevention strategies of the early Children's Bureau.

The first, which gathered momentum across the 19th century, consisted largely of married, white, middle-class women, who used their "feminine virtues" as the basis for an expansion of women's sphere of influence from the home to the community and ultimately to the nation. Through powerful national women's organizations such as the General Federation of Women's Clubs, the Women's Christian Temperance Union, and the National Congress of Mothers, these women established a strong presence in activism around such issues as prostitution, the abolition of child labor, temperance, and the needs and rights of women as mothers. Although often framed as an urban phenomenon, this growth in women's activism in fact spread quickly to rural America as both the literacy and aspirations of farm women rose in concert with improvements in agricultural productivity.<sup>19</sup>

A second strand, which emerged towards the end of the 19th century, centered around a growing number of highly educated, mostly single, upper middle class women, with sophisticated knowledge and skills, strong political commitments, and only limited pathways for civic participation in either the male-dominated professions or in political life. An influential core of these reformist women lived in the urban settlement houses, the

most famous of which, Hull House, was in many ways a command post for women's social activism in the period from 1890 to the late 1920s.<sup>20</sup>

These apparently dissimilar elements in the Progressive Era women's movement found common ground in a set of philosophical precepts that in concert provided the foundation for a vigorous program of women's activism. Primary among these was the belief that not only were marriage and family of central importance in women's lives, but that women, by virtue of their particular experiences and responsibilities, were uniquely fitted for the work of helping others and reforming social conditions.<sup>21</sup> Both the women's clubs and the settlement women, for example, supported a national welfare strategy predicated on the capacity of men to earn a family wage so that women (and children) could occupy their rightful domain in the home, unfettered by the demands of participation in the labor force. At the same time, they self-consciously appropriated the rhetoric of mothering to support the movement of women into the public sphere. Historian Carroll Smith-Rosenberg describes the settlement house women, for example, as "public mothers" -- women who despite the fact that their own lives were very often at a distance from prevailing norms of marriage, and child-bearing, made strategic use of their "maternal" skills in the public sphere to advocate on behalf of women and children<sup>22</sup> In a remarkable example of cross-over politics, women with very different agendas thus forged powerful political and personal connections grounded in their shared interest in using women's particular skills and energies to promote social justice.

The maternalist reform agenda of these Progressive women also reflected a strong belief in science and in the value of authoritative, empirical knowledge to social change and progress. This commitment, which we will here term *progressive positivism*, held that

the tools of social science existed for one principal purpose: to generate knowledge of social conditions and their causal relationships so that proper strategies for improving the human condition could be developed and applied. Hull House and its environs, for example, served as a fruitful laboratory for the development of Chicago school sociology until the early 1920s, when American sociology largely abandoned its reformist roots in the quest for academic legitimacy. Faced with the choice between “advocacy and objectivity,” the women of Hull House retained their commitment to using empirical knowledge in the service of social change.<sup>23</sup>

A primary focus of the Progressive Era women’s movement was on educating women for motherhood. Women’s expanding access to and investment in higher education, a growing understanding of the special needs and vulnerability of children, and the Progressive emphasis on the value of scientific knowledge and expertise came together in the belief that motherhood should not be left to women’s natural instincts. Education, rather than intuition, was promoted as the route to good mothering and to successful children. In their own lives, through the work of the women’s clubs and organizations such as the National Congress of Mothers, and then in their reform work with poor, rural, and immigrant women, middle-class women thus put their considerable energies into a wide-ranging program of maternal education and child welfare activities.<sup>24</sup>

These various aspects of the Progressive Era women’s movement came to fruition in the Children’s Bureau. Many settlement women were active both in the fight to establish the bureau and as members of its staff; indeed, the structure, agenda, and methods of the bureau mirrored the work of the settlement houses so closely that it has been described as “something like a national settlement with a specialty in children.”<sup>25</sup> The

development of this national platform for maternal and child welfare was equally reliant, however, on the energies and perspectives of locally organized women.

The appointment in 1912 of Julia Lathrop as Children's Bureau's first director assured that the agency's reform efforts would be informed by sound empirical data. Lathrop and her staff used methodologies which hewed closely to those Lathrop had learned and applied in her long tenure at Hull House, including as the first director of the department of social investigation at the Chicago School of Civics and Philanthropy (precursor to the School of Social Administration). The fledgling bureau thus embarked on a dual program of applied research and maternal education: pursuing new knowledge about the extent and causes of infant mortality, and engaging in prevention and health promotion activities which built on knowledge already gained through the public health work of settlement houses such as Henry Street and Hull House.<sup>26</sup>

The choice of infant mortality as the initial focus of the Children's Bureau's was a careful and strategic decision by the bureau's female leadership. Although many in the women's movement (notably Florence Kelley) were deeply committed to child labor reforms, Lathrop and her colleagues were concerned about the political costs of taking on an issue so closely tied to vested economic interests. They also understood that questions about the well-being of mothers and infants would inevitably lead to larger questions of labor conditions, employment, wages, and women's political rights. Indeed, in their writing as well as in their publicity materials, the women of the Children's Bureau frequently made use of an expansionist version of maternalist ideology that illustrated the links between infant mortality and other social conditions. "Baby saving" itself was relatively non-controversial. Furthermore, no other federal agency was directly

responsible for addressing it. As an organizing focus for the work of the bureau, infant mortality was thus the perfect choice: a compelling issue for the thousands of women who had supported the development of the bureau, a social problem that was intrinsically connected to others of equal concern to Progressive reformers, and a topic that could be addressed without invoking the wrath of neighboring bureaucracies.<sup>27</sup>

Historical accounts of the bureau's infant mortality prevention efforts typically identify four distinct domains of activity: 1) the twenty-year-long national birth registration campaign that began with the bureau's creation in 1912; 2) the maternal education activities that occurred between 1912 and 1922 prior to the Sheppard-Towner Act; 3) the 10 community studies of infant mortality conducted between 1913 and 1923; and 4) those activities that occurred under the auspices of the Sheppard-Towner Act between its implementation in 1922 and the legislation's repeal in 1929.<sup>28</sup>

### **National Birth Registration**

When the Children's Bureau was first established only eight states had birth and death registration laws in place that were adequate to meet the minimum standards of coverage and accuracy set by the Census Bureau. There were many reasons for this, not least of which was indifference on the part of local officials and most physicians. Few physicians appreciated the scientific rationale behind accurate birth and death registration so clearly laid out in Julia Lathrop's 1913 monograph on the state of national birth registration.<sup>29</sup> Medicine at that time was largely unregulated and a matter of autonomous private enterprise, and midwifery was the usual mode of birth attendance. In addition, infant mortality was a common and medically uninteresting event. Little was known about why some infants lived and others did not, and medicine was far more concerned with the

potentially curable (and fee-generating) afflictions of adulthood.<sup>30</sup> Prior to the founding of the Children's Bureau, federal statisticians had few allies, aside from the public health officers of major cities, who shared their commitment to a national system of birth and death registration.

The Children's Bureau's national birth registration campaign is perhaps the hallmark of the convergence between grassroots maternalism and progressive positivism. Lathrop and her closest colleagues agreed that accurate data from national vital registration were essential to tackling the problems of infant and child mortality, and would also provide the foundation for addressing other child welfare concerns (including the restriction of child labor).<sup>31</sup> Such an extensive undertaking was possible only thanks to the connections of Lathrop and other Children's Bureau founders to diverse networks of women's groups across the country. Upon learning of her appointment as head of the Children's Bureau, for example, Lathrop boarded a train to San Francisco, where she spoke to the biennial convention of the General Federation of Women's Clubs and enlisted members' support of this effort.<sup>32</sup> At Lathrop's urging, women's clubs all across the country engaged their members in the task of recording every birth in their home communities and reconciling their findings with those of (often embarrassed and sometimes angry) local officials.

The rationale for the importance of this baby-saving work was plainly set out in materials written by bureau staff to aid the registration efforts of the Kentucky Federation of Women's Clubs: "Birth registration links itself with every phase of the infant welfare program. A city cannot study a problem intelligently unless it knows what the problem is. You cannot find out why babies are dying unless you know what proportion of babies are

dying.”<sup>33</sup> As a result of these efforts, twenty-seven additional states were admitted to the Census Bureau’s birth and death registration coverage area between 1913 and 1921.<sup>34</sup>

Three effects of the birth registration efforts on the Children’s Bureau’s infant mortality reduction campaign can be argued from the standpoint of logic alone: 1) a rise in the level of public consciousness about the problem of infant mortality; 2) opportunities for women to exercise a new form of local political power, even without the vote; 3) better data on the scope and prevalence of infant mortality across different social contexts were made available to foster the development of scientifically informed prevention strategies.

#### **Maternal Education Activities (Prior to the Sheppard-Towner Act).**

The Children’s Bureau’s first community study on the problem of infant mortality (conducted in Johnstown, Pennsylvania in 1913) identified poverty as the common denominator to exceptionally high rates of infant mortality.<sup>35</sup> To address the issue of poverty directly was, however, beyond the small agency’s political and financial resources. Although the bureau never shrank from reporting in stark terms the effects of miserable structural conditions on the lives of women and children, its ventures into direct political action were generally limited to those instances when the agency’s own survival was threatened, or when the bureau leadership thought they had the necessary clout to win. As an alternative to espousing a central strategy of the elimination of poverty (a struggle which many of the women involved with the Children’s Bureau later successfully took up through the reforms of the New Deal), the bureau focused its prevention efforts on factors within the household which were believed to be under some maternal control. Its educational materials and campaigns emphasized home cleanliness, encouraged mothers to breast feed their babies and to boil children’s milk, and promoted adequate rest for

pregnant and nursing mothers. Children's Bureau publications and paid and volunteer educators also offered detailed instruction in the clothing and feeding of infants, care for the common ailments of childhood, and protection of infants from exposure to communicable diseases. The only key aspects of maternal health behavior that were left out of the maternal education curriculum -- high fertility and short birth intervals -- were deliberately avoided by the leadership of the Children's Bureau as political liabilities.<sup>36</sup>

In Lathrop's view, if one could not eliminate poverty, elimination of maternal ignorance was the next best thing: "Although it is not possible to gauge the relative ignorance of the care of children according to income, it is clear that poverty takes away the defenses by which the effects of ignorance may be evaded."<sup>37</sup> The Children's Bureau's approach to maternal education was, however, more than a matter of simply instructing poor women in parenting. Such individual-level efforts were part of a sophisticated and multi-level strategy, a "vast educational activity" which included training "educated" (i.e. middle class) women in the philosophy and practice of preventive health care so that they could then reach out to other, less educated, mothers through strategies that ranged from home-based services to community-wide campaigns.<sup>38</sup> Most methods of maternal education used by the bureau were adapted from the "baby saving campaigns" already underway in several large cities by the time the bureau was established. These campaigns, typically organized by municipal health departments, included in their activities the publication and distribution of printed materials (in various languages) on critical aspects of infant care and feeding, the creation of "Little Mothers' Leagues," and the use of visiting nurses for in-home pre- and post-natal instruction.<sup>39</sup>

Coordination of these campaigns occurred through multiple pathways, the most

essential of which was the national network of women's clubs. In addition to being at the heart of the national birth registration campaign, these women's associations were also the principal sponsors of the thousands of "baby week" maternal education campaigns that occurred in large and small towns all across the country between 1912 and 1922 (when the Sheppard-Towner Act was implemented). The following example is taken from the Children's Bureau's 1917 monograph on baby-week campaigns:

Ours is a small community, comprising about 500 people. We held our first baby-week campaign, combined with the child-welfare exhibit, on March 10 to 12, 1916. The Camp Fire Girls sent invitations to the other organizations of the place to join them in undertaking the campaign. The Rebekas, the Grange, the Ladies' Improvement Club, and the Ladies' Aid Society each responded by appointing one of their members to represent them on the central committee. The cradle roll superintendent of the Sunday school, the local physician, the principal of the school, the local cartoonist, the local editor, and all other people interested enough to attend the meetings completed the membership of this central committee.<sup>40</sup>

The typical baby-week maternal education campaign followed a detailed formula provided by the bureau. A seven-day program of events included birth registration; exhibits, posters, and lectures on all aspects of infant care; "better mother" competitions (to reward mothers who correctly completed a standard examination on infant care); special newspaper articles on topics related to infant care; the distribution of bureau pamphlets and booklets on infant care (most notably *Infant Care*); and a "fathers day" which emphasized the obligation of men to create better communities for women, infants, and children.<sup>41</sup>

State child hygiene or child welfare agencies provided another essential pathway for the bureau's national maternal education campaign. The first of these state agencies was established in 1912, and by 1920 there were 34 in operation. Although they were

typically divisions of state departments of public health, their organization and scope of activities were largely defined in response to the Children's Bureau's "Minimum Standards for Public Protection of the Health of Mothers and Children."<sup>42</sup> This formulary for maternal education placed emphasis on five general activities: publicity "through press, pulpit, literature, lecture, slides, films, etc.," community-wide campaigns such as health week, birth registration day, sponsorship of baby-weeks, public exhibits at such places as county fairs, classes for mothers and "little mothers," and well-child clinics (termed "health centers").<sup>43</sup>

Although it is difficult to gauge the full scope of the Children's Bureau's national maternal education campaign in the years before Sheppard-Towner, a few statistics give a general sense of the magnitude of this effort. Between 1914 (when it was first published) and 1940, over 12 million copies of *Infant Care* were distributed, many of which very likely circulated among several households.<sup>44</sup> In 1919 during the agency's "Year of the Baby" campaign, 11 million women took an active role in helping to sponsor local baby-week campaigns.<sup>45</sup> Finally, it is estimated that in a typical year the women of the bureau received and diligently responded to more than 100,000 letters from women around the country concerning all aspects of maternal health and infant care.<sup>46</sup> This remarkable statistic illustrates not only the enthusiasm and gratitude of countless women for the efforts of the Children's Bureau, but also, as Molly Ladd-Taylor points out, the extent to which the women of the Bureau were educated in turn by mothers themselves.<sup>47</sup>

### **Maternal and Infant Health Promotion under Sheppard-Towner.**

When President Warren Harding signed the Sheppard-Towner Act into law in November of 1921, it represented a personal victory for Julia Lathrop and the culmination

of progressive women's welfare activism. The successful passage of Sheppard-Towner, over vigorous opposition from the American Medical Association, reflected both the power of women's broad-based political activism and the value of empirical data. The leadership of the Children's Bureau had worked closely with allies in the women's suffrage movement to ensure that this legislation was the number one priority for newly enfranchised female voters. Indeed Sheppard-Towner came to be seen by members of Congress as a litmus test for the unity and strength of the female vote, and its passage reflected the extent to which women across the country were engaged by the bureau's educational and outreach activities. Knowing full well that good data have value in politics as well as in research, Julia Lathrop made judicious use of findings from the Children's Bureau's infant mortality studies in crafting the Sheppard-Towner legislation, and in her compelling testimonies before Congress in support of it.<sup>48</sup>

Sheppard-Towner was funded at a modest 1.2 million dollars per year. Despite this small appropriation, the Act represented a radical shift toward the federalization of health care. The core provision of Sheppard-Towner was a basic annual federal grant, supplemented with matching funds for the support of maternal and child health promotion programs carried out by the states. The state-level agencies responsible for carrying out the work were the child hygiene or child welfare agencies designated by states accepting the funds.<sup>49</sup> Although Sheppard-Towner functioned as a block grant program, giving states wide discretion over the design of their maternal and child health promotion programs, this legislation expanded the scope and national funding base of the formulary of activities already occurring in the 34 states that had established child hygiene agencies. By the time of Sheppard-Towner's demise at the hands of the American Medical

Association in 1929, programs had expanded to all but three states (Illinois, Massachusetts, and Connecticut).<sup>50</sup> State-level Sheppard-Towner activities were not well documented by the Children's Bureau during the Act's first year of implementation, however there exist extensive data for activities during the last six years: 183,252 maternal and child health conferences, the establishment of 2978 permanent public maternal and child health clinics, 13,975 health classes for woman and girls, 5,748 classes for midwives, letters of maternal and child health instruction to 176,733 child-bearing woman, and the distribution of 22,030,489 pieces of maternal and child health promotion literature.<sup>51</sup> Historian Kriste Lindenmeyer notes, however, that as impressive as these numbers are, the 700,000 pregnant women reported to have been reached by Sheppard-Towner activities over the course of its seven year history likely accounted for less than 7 percent of the 10.9 million children born during this period.<sup>52</sup>

### **A New Appraisal of the Role of the Children's Bureau in Promoting Infant Survival.**

Until now, attempts to evaluate the influence of the Children's Bureau's infant mortality prevention efforts, in particular the Sheppard-Towner programs, have been limited by the lack of estimated baseline infant mortality rates in a sufficiently large number of states. In addition, only recently have extensive data become available on the period distribution of household-level factors believed to be important to the magnitude of declines in infant mortality. Our analysis of the Children's Bureau's role in infant mortality decline is based on the 44 states that had reliable birth and death registration programs in place by 1928. As noted earlier, we use 1910 as the baseline year both because of the year's proximity to the bureau's founding in 1912 and because it appears that widespread declines in infant mortality had not yet taken hold at this point.

Our analysis proceeded in five steps. First, we estimated the baseline level of infant mortality in each of the 44 states using conventional demographic techniques for the estimation of infant mortality rates in counties and regions with inadequate levels of birth and death registrations. That is, we estimated child mortality rates from recently-available 1910 census household survey samples that asked ever-married women within each state about their number of live births and living children. We then fitted the child mortality rates to model life tables in order to derive estimates of the prevailing state infant mortality rate.<sup>53</sup> We next created our dependent variable, *the decline of infant mortality that occurred between 1910 and 1930*, measured for each state as the 1910 Infant Mortality Rate (IMR) minus the 1930 IMR. We estimated the average level of decline to have been from approximately 122 infant deaths per thousand births in 1910 to 66 infant deaths per thousand live births by 1930. In our third step, we created a set of predictor variables that represented contextual factors relevant to the decline in infant mortality -- both population composition factors that contemporary evidence suggests are the most important to variations in infant mortality, and variables representing the effect of period advances in public health and medicine. We then regressed these variables on the dependent variable in step-wise fashion to identify which of them contributed significant independent effects to the infant mortality decline. Finally, we added to these contextual predictors a set of variables representing state-level variations in implementation of the key aspects of the Sheppard-Towner program. We expected both the population composition predictor variables and the Sheppard-Towner program variables to provide new information about the direct and indirect effects of the Children's Bureau activities.

[Table 1: “Major Factors in Child Mortality, 1900” about here]

**Factors in the Infant Mortality Decline Related to Population Composition and  
Advances in Public Health.**

To guide our selection of contextual factors important to the infant mortality decline, we relied on Preston and Haines’ comprehensive analysis of turn-of-the-century child mortality, described fully in *Fatal Years: Child Mortality in Late Nineteenth-Century America*.<sup>54</sup> As shown in Table 1, Preston and Haines found nine factors that appeared to offer the most influence over variations in child mortality, listed in explanatory order as: race, urban context, regional context, unemployment, housing tenure (home ownership), shared housing, the householder’s occupation, paternal literacy, and maternal literacy. Although these relationships were observed at the household level, we hypothesize that differences between states in the distributions of these variables among households should be predictive of differences in the decline in infant mortality. Because 1920 represents the midpoint of the period of analysis, we employed the 1920 census micro sample household survey data to derive our measures of these population composition variables. To this set of predictors we added a measure of the median level of household income in 1920 (measured as the median occupational income score of male householders), and three predictors representing the effects of variations in the public health infrastructure: 1) the number of years the state had in place an accurate system of birth registration, 2) the number of licensed physicians per thousand persons, and 3) the period case rate of typhoid fever.<sup>55</sup> Because typhoid was controlled (through identification and supervision of carriers by local public health authorities, protection and purification of public water

supplies, proper sewage disposal, protection of the milk supply, and selective immunization) we consider it to be a good proxy for the sophistication of the public health infrastructure. Many of the public health measures for the control of typhoid fever were closely related to or the same as other measures that would have affected the prevalence of other infectious diseases related to infant mortality.

[Table 2: “Demographic correlates of infant mortality decline” - about here]

As shown in Table 2, the relative importance of these factors to the decline in infant mortality depends on whether the baseline IMR level is controlled. Because our interest is in factors that contribute to the magnitude of the decline, we selected those that correlated with the decline in infant mortality once the baseline level was taken into account. In order of the magnitude of their coefficients these factors are: the proportion of married male heads of households who were unemployed; the proportion of married male heads of household who were laborers; the proportion of married females who spoke no English; the proportion of married females who were illiterate; the proportion of households that had boarders present; and the proportion of male heads of household who were illiterate. Taken together, these correlations suggest that economic factors, occupational status, and literacy were more important to the decline in infant mortality than factors related to the availability of physicians and improvements in public health. We note that those variables which are most reflective of poverty (unemployment and shared housing arrangements) are correlated with the decline in infant mortality, while median income is not.

[Table 3: “Demographic predictors of infant mortality decline” - about here]

The results from stepwise multiple regression, shown in Table 3, indicate that only three of the six variables correlated with the decline in infant mortality appear to have significant independent effects on the magnitude of the decline. In order of their standardized betas these critical contextual variables are: the proportion unemployed among married male householders; the proportion illiterate among married females; and the proportion of married male householders who were employed in laboring occupations. The relative prevalence of poverty, female illiteracy and low occupational status thus appear to have been the dominant factors in the extent to which individual states shared in the large improvement in infant survival that occurred between 1910 and 1930.

Although Preston and Haines found all three factors to be at least modestly important to turn-of-the-century variations in child mortality, in their analyses female illiteracy was the least significant. They suggest that this was so because in 1900 “too little knowledge of specific ways to enhance child survival had been developed to allow individuals to escape from the circumstances imposed by broad geographic and economic forces.”<sup>56</sup> However, female literacy is critically important to the subsequent *decline* in infant mortality, a finding that makes sense in light of the maternal education agenda and methods of the Children’s Bureau.

[Table 4: “Change modeling of predictors” - about here]

In order to gauge the relative contribution of maternal illiteracy to variations in the decline in infant mortality, we show a pair of simple simulations based on the observed unstandardized betas where both a unit change and a change in the standard deviation of the three contextual variables are allowed to affect the estimated decline in infant mortality. By manipulating both the unit change and the change in the standard deviation, we are able to observe both the direct effects of maternal literacy and the effects of its distribution. As shown in Table 4, while a unit change in maternal literacy predicts only a small improvement in the infant mortality decline, a change of one standard deviation suggests an improvement of roughly five fewer infant deaths per thousand. Plainly, much of the importance of maternal literacy to the decline in infant mortality is attributable to its great variation among states.

### **Assessing the Impact of Sheppard-Towner on the Decline in Infant Mortality**

Although state-level efforts to implement Sheppard-Towner were poorly documented during the first full year of the program, from 1924 through 1929 the Children's Bureau carefully detailed the types and numbers of Sheppard-Towner activities reported by each state in a series of annual reports. Rather than rely on the convenient but selectively-constructed tables of activities provided in these reports, we first did a content analysis of individual state reports to identify the major kinds of activities undertaken by states over this six year period, and then did a count of them during each year for each state. These counts were then summed and divided by the estimate of the mid-period population of women of childbearing years in each state. The three states that did not participate in Sheppard-Towner were given a zero on all of the Sheppard-Towner program variables, although it is likely that these states in fact engaged in prevention

activities that mirrored those provided through Sheppard-Towner.<sup>57</sup> There was large variation in the extent to which states implemented Sheppard-Towner programs, as well as in the specific kinds of activities conducted.

In order to assess the effects of Sheppard-Towner on variations in the decline in infant mortality, we expressed the decline as the residual of a regression equation where the 1930 state IMR is predicted by the 1910 IMR. In this manner, only the net effects of the contextual variables and the Sheppard-Towner program effects are observed in the  $R^2$ . The contextual variables (unemployment, female illiteracy, and occupational status) explain 56 percent of the variation in the decline in infant mortality.

[Table 5: “Analysis of Sheppard-Towner program effects” - about here]

To our disappointment, but not to our complete surprise, very little of the variation in the decline of infant mortality among states is explained by any of the Sheppard-Towner activities or by all of them taken together. As shown in Table 5, no Sheppard-Towner program variable, when added to the base equation containing the contextual variables, contributes significantly to explained variation. The program coefficients that approach statistical significance, those for Classes for Midwives and Public Health Nurse Visits, run in the opposite direction with respect to beneficial effect. We also tested the interaction of maternal literacy with each of the program variables, with similar findings (results available from authors).

We believe that there are three possible explanations for these negative findings, all of them viable and none of them mutually exclusive. The first is that Children’s Bureau

historian Kriste Lindenmeyer is correct in her doubts that the Sheppard-Towner program by itself was of sufficient scope and magnitude to reach many of the women bearing children during the Sheppard-Towner years.<sup>58</sup> The second possibility is that our measures of Sheppard-Towner were insufficient to capture the true differences in levels of implementation among different states. Relying on program self-reports is always a risky venture, and despite the extensively detailed records and publications produced by the Children's Bureau, there is no evidence that systematic auditing procedures were used. A third possibility is that by the time Sheppard-Towner programs were implemented, the crucial variables which caused the IMR to decline were already in place. That is, pre-Sheppard-Towner efforts to promote maternal education, coupled with the eagerness of women to use and widely disseminate any knowledge that would protect their newborn children, simply eclipsed the beneficial effects of a "too little and too late" federal maternal education program. We favor this last explanation.

**Conclusion: The Children's Bureau and the Role of Maternal Education in the  
Infant Mortality Decline**

Taken together, the historical and demographic evidence suggest that that the contributions of the Children's Bureau to the American mortality transition are large, but that they occurred primarily between 1913 and the early 1920s rather than during the Sheppard-Towner era. It was during this earlier period that the grassroots maternal education movement and the maternalist political agenda fostered by the bureau flourished. We cite as evidence both the findings of our demographic analysis that maternal literacy emerged from its status as a relatively unimportant correlate of infant mortality in 1900 to second among three major factors in the decline in infant mortality

between 1910 and 1930, and the historical record that the Children’s Bureau functioned for the decade prior to Sheppard-Towner as the coordination and command center in a national campaign of maternal education. Moreover, the slope of the decline in infant mortality is dramatically steeper between 1910 and 1922 than it is during the Sheppard-Towner years (1923-1929), which suggests an earlier innovation and diffusion process (see Figure 1). While the Sheppard-Towner Act was a remarkable *political* accomplishment of the Children’s Bureau, its short existence and limited scope should not be used as the lens through which to examine the contributions of the Bureau to the decline in infant mortality.

Likewise, while improvements in general living conditions, in the science of medicine, and in the public health infrastructure were doubtless important causes of the decline in infant mortality, their contributions do not carry as much statistical weight as household-level maternal and economic characteristics, either in our analysis of the decline in infant mortality or in the analyses undertaken by Ewbank and Preston using different data and methods.<sup>59</sup> Thus we join Ewbank and Preston in suggesting that changes in health behaviors at the household level have not been given adequate consideration in conventional interpretations of the American mortality transition. We propose, however, additional emphasis on the critical role of the Children’s Bureau’s maternalist agenda, and specifically on the salience of the wide-ranging, multi-dimensional, and women-centered prevention activities that were the hallmark of this “extremely busy little bureau.”<sup>60</sup>

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#### Notes

<sup>1</sup> For an excellent and comprehensive institutional history of the Children’s Bureau, see Kriste Lindenmeyer, *A Right to Childhood: The U.S. Children’s Bureau and Child Welfare, 1912-46* (Urbana,

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IL: University of Illinois Press, 1997). See also Molly Ladd-Taylor, *Mother-Work: Women, Child Welfare, and the State, 1890-1930* (Urbana, IL: University of Illinois Press, 1994) for a history of maternalist politics and the evolution of women's welfare activism, including the development of the Children's Bureau.

<sup>2</sup> Douglas Ewbank and Samuel Preston, "Personal Health Behavior and the Decline in Infant and Child Mortality: The United States 1900-1930," in *What We Know About Health Transition: The Cultural, Social and Behavioral Determinants of Health* ed. John Caldwell, Sally Findley, Pat Caldwell, Gigi Santow, Wendy Cosford, Jennifer Braid, and Daphne Broers-Freeman (Canberra, Australia: Australian National University Press, 1990): 116-149. See also Samuel Preston and Michael Haines, *Fatal Years: Child Mortality in Late Nineteenth Century America* (Princeton, N.J.: Princeton University Press, 1991).

<sup>3</sup> Gunnar Almgren, "Demographic Transition," in *The Encyclopedia of Sociology*, ed. Edgar Borgatta and Marie Borgatta (New York: McMillan, 1992)

<sup>4</sup> Using child survival data from household surveys collected during the 1896 census sample, Preston and Haines estimated the probability of dying before age 5 in 1900 to have been .176 (see Preston and Haines, in n. 2 above, p. 86). Using child survival data from a similar 1910 census sample, we estimate the probability of dying before age 5 in 1910 to have been .171.

<sup>5</sup> Like Preston and Haines, we base our estimates of mortality in early childhood on two questions which were asked of all women who had ever been married in representative census survey samples from 1896 and 1910. The women were asked how many children had been born to them (excluding stillbirths) and how many were still living. These two questions, in addition to the age of the woman, allow us to produce a very close approximation of child and infant mortality rates through the use of model life table techniques. These methods are detailed in Henry Shryock and Jacob Siegel, *The Methods and Materials of Demography* (San Diego, Calif.: The Academic Press, 1976). In order to maximize the precision of our 1910 estimates of early childhood mortality and infant mortality, we based them on the reported child survival rates of children born to ever-married women aged 30-34. Our decision to use the 30-34 age range was based on the analysis of alternative early childhood mortality estimation methods by Samuel

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Preston and Alberto Palloni, "Fine-Tuning Brass-Type Mortality Estimates with Data on Ages of Surviving Children," *Population Bulletin of the United Nations*, 10 (1977): 72-91. Their analysis suggests that when West model life tables are used (the convention in estimations of U.S. mortality) the errors in estimations of child mortality before age 5 are minimized by relying on survival reports by women aged 30-34. See Preston and Palloni, Table 2. Preston and Haines base their estimates of child mortality in 1900 on a self-weighted 1896 sample of 27,069 households from all the states and territories of the United States. Our own estimates of mortality employ data from the *Integrated Public Use Microdata Series: Version 2.0*, Steven Ruggles and Matthew Sobeck (Minneapolis: Historical Census Projects, University of Minnesota, 1997). The IPUMS is a U.S. census data base that includes high-precision samples from thirteen federal censuses between 1850 and 1990.

<sup>6</sup> See Almgren (n. 3 above) for a general review and critique of theories of mortality transition, as well the review by Ewbank and Preston (n. 2 above).

<sup>7</sup> Ewbank and Preston (n. 2 above).

<sup>8</sup> Gretchen Condran and Samuel Preston, "Child Mortality Differences, Personal Health Care Practices, and Medical Technology: The United States, 1900-1930," in *Health and Social Change in International Perspective* ed. Lincoln Chen, Arthur Kleinman, and Norma Ware (Boston, Mass.: Harvard University Press, 1994): 171-224. The authors' content analysis of the conventional pediatric medical texts, most particularly Holt's thirteen editions of *The Care and Feeding of Children*, shows that the use of cathartics and purging for diarrheal disease (as opposed to the proper application of rehydration) was the favored medical advice until at least the early 1930s. Since dehydration is the fatal mechanism of diarrheal disease, purging was no doubt the proximate cause in countless infant deaths.

<sup>9</sup> Preston and Haines (n. 2 above).

<sup>10</sup> Ewbank and Preston (n. 2 above).

<sup>11</sup> R.A. Meckel, *Save the Babies: American Public Health Reform and the Prevention of Infant Mortality, 1850-1929*. (Baltimore, MD: Johns Hopkins University Press, 1990).

<sup>12</sup> Meckel (n. 11 above), p.180. For an illustration of methods and findings, see Emma Duke, *Infant*

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*Mortality: Results of a Field Study in Johnstown, PA., Based on Births of One Calendar Year.*

(Washington, D.C.: U.S. Government Printing Office, 1915) (U.S. Children's Bureau Publication No. 9).

<sup>13</sup> Grace Abbott, "Federal Aid for the Protection of Maternity and Infancy," *American Journal of Public Health* 7, no. 9 (1922): 737-742, p. 772.

<sup>14</sup> Molly Ladd-Taylor, "Women's Health and Public Policy," in *Women, Health and Medicine in America: A Historical Handbook*, ed. Rima D. Apple (New York: Garland Publishing Inc., 1990), pp. 391-410.

<sup>15</sup> On this point see K. K. Barker, "A Ship upon a Stormy Sea: The Medicalization of Pregnancy," *Social Science and Medicine*, 47, No. 8 (1998): 1067-1076.

<sup>16</sup> Ewbank and Preston (n. 2 above).

<sup>17</sup> *Ibid.*, p. 143.

<sup>18</sup> For the medical history perspective, see Meckel (n. 11 above). For analysis of this aspect of reform by feminist historians, see Ladd-Taylor (n. 14 above) and Lynne Curry, "Modernizing the Rural Mother: Gender, Class, and Health Reform in Illinois, 1910-1930" in *Mothers and Motherhood: Readings in American History* ed. Rima D. Apple and Janet Golden (Columbus, Ohio: Ohio State University Press, 1997): pp. 495-516.

<sup>19</sup>For excellent discussions of Progressive women's maternalist activism, see Alisa Klaus, "Women's Organizations and the Infant Health Movement in France and the United States, 1890-1920," in *Lady Bountiful Revisited: Women, Philanthropy, and Power*, ed. Kathleen D. McCarthy (New Brunswick, NJ: Rutgers University Press, 1990), pp. 157-173; Kathryn Kish Sklar, "The Historical Foundations of Women's Power in the Creation of the American Welfare State, 1830-1930," in *Mothers of a New World: Maternalist Politics and the Origins of Welfare States*. eds. Seth Koven and Sonya Michel. (New York: Routledge, 1993): pp. 43-93; and Theda Skocpol, *Protecting Soldiers and Mothers: The Political Origins of Social Policy in the United States*. (Cambridge, MA: The Belknap Press, 1992). Robyn Muncy's *Creating a Female Dominion in American Reform 1890-1935* (New York: Oxford University Press, 1991) places the development of the Children's Bureau in the context of women's Progressive era reform activities and the professionalization of social work. On the maternalist activism of rural women, see

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Curry (n. 18 above).

<sup>20</sup> Katherine Kish Sklar, "Hull House in the 1890s: A Community of Women Reformers." *Signs: Journal of Women in Culture and Society* 10 no. 4 (Summer 1985): 658-677.

<sup>21</sup> Linda Gordon, *Pitied but not Entitled: Single Mothers and the History of Welfare*. (New York: Free Press, 1994)

<sup>22</sup> Carroll Smith-Rosenberg, *Disorderly Conduct: Visions of Gender in Victorian America* (New York: Oxford University Press, 1985).

<sup>23</sup> The notion of tension between "advocacy and objectivity" is drawn from Mary O. Furner's book of that title, *Advocacy and Objectivity: A Crisis in the Professionalization of American Social Science, 1865-1905* (Lexington, KY: The University Press of Kentucky, 1975). For a discussion of the dialectic between reformist and academic social science, see Mary Jo Deegan, *Jane Addams and the Men of the Chicago School, 1892-1918* (New Brunswick, NJ: Transaction Publishers, 1990). Edith Abbott (sister of Children's Bureau director Grace Abbott) was, for example, transformed by her years at Hull House from a conservative economist to one of the most influential voices in social reform and the professionalization of social work (Muncy n. 19 above).

<sup>24</sup> There is an increasingly rich literature on mothering and maternal education which reminds us that the advice-giving of the Children's Bureau and other experts was at once welcomed and perceived as laden with class- and race-based assumptions. See, for example, Emily K. Abel, "Benevolence and Social Control: Advice from the Children's Bureau in the Early Twentieth Century," *Social Service Review* 68, no. 1 (March 1994): 1-19; Rima D. Apple, "Constructing Mothers: Scientific Motherhood in the Nineteenth and Twentieth Centuries," in *Mothers and Motherhood: Readings in American History*, eds. Rima D. Apple and Janet Golden (Columbus, OH: Ohio State University Press, 1997), pp. 90-110; Linda Gordon, "Putting Children First: Women, Maternalism, and Welfare in the early Twentieth Century, in *U.S. History as Women's History: New Feminist Essays*, eds. Linda Kerber, Alice Kessler-Harris, and Kathryn Kish Sklar (Chapel Hill: University of North Carolina Press, 1995), pp. 63-86; Gwendolyn Mink, *The Wages of Motherhood: Inequality in the welfare state, 1917-1942* (Urbana, IL: University of

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Illinois Press, 1995); Judith Raftery, “‘Mainly a Question of Motherhood’: Professional Advice-giving and Infant Welfare,” *Journal of Australian Studies* 45 (June 1995): 66-78; Sheila Rothman, *Women’s Proper Place: A History of Changing Ideals and Practices, 1870 to the Present*. (New York: Basic Books, 1978).

<sup>25</sup> Nancy Pottishman Weiss, “Save the Children: A History of the Children’s Bureau, 1903-1918” (Ph.D. diss. University of California, Los Angeles, 1974): 53, quoted in Skocpol (n. 19 above), quotation on p. 482.

<sup>26</sup> Terri Coombs-Orne, “Infant Mortality and Social Work: Legacy of Success,” *Social Service Review* 62 no. 1 (March 1988): 83-102; Sheila M. Rothman, “Women’s Clinics or Doctors’ Offices: The Sheppard-Towner Act and the Promotion of Preventive Health Care,” in *Social History and Social Policy* eds. David J. Rothman and Stanton Wheeler (New York: Academic Press, 1981), pp. 175-201.

<sup>27</sup> Jacqueline K. Parker and Edward M. Carpenter, “Julia Lathrop and the Children’s Bureau: The Emergence of an Institution,” *Social Service Review* 55, no. 1 (March 1981): 60-77. As the first agency ever to be established with the exclusive function of overseeing children’s issues the Children’s Bureau needed to establish an authoritative niche for itself in the space left by the Bureaus of Education and Public Health, whose efforts were aimed at school-aged children and adults (see Kriste Lindenmeyer, “The U.S. Children’s Bureau and Infant Mortality in the Progressive Era,” *Journal of Education* 177 no. 3 (Fall 1995): 57-69). In addition to needing to identify a substantive area where the bureau’s efforts stood a good chance of effecting change, addressing infant mortality was personally and intellectually appealing to Lathrop and her colleagues. Lathrop was influenced by the prevention ideology of European and American public health reformers, which constructed the problem as one of “preventable deaths.” The loss of multiple children to early deaths was also part of the personal experience of the women reformers, who frequently had witnessed the devastating effects of infant mortality first-hand in their own families. For a poignant example of the lasting impressions left by such experiences see Katherine Kish Sklar, *Florence Kelley and the Nation’s Work: The Rise of Women’s Political Culture, 1830-1900*. (New Haven: Yale University Press, 1995), pp. 27-29.

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<sup>28</sup> The formal title of the Sheppard-Towner Act was “The Congressional Act for the Promotion of the Welfare and Hygiene of Maternity and Infancy of November 23, 1921.” In a strict sense the Act was repealed in 1927 under a sunset provision that allowed it to continue through 1929. Although Children’s Bureau advocates fought hard to repeal the legislation that ended the Sheppard-Towner program, they could not overcome the vigorous opposition led by the American Medical Association. See Lindenmeyer (n. 1 above), pp. 100-103.

<sup>29</sup> Julia Lathrop, *Birth Registration: An Aid in Protecting the Lives and the Rights of Children*. (Washington D.C.: Government Printing Office, 1914) (U.S. Children’s Bureau Publication no. 2). Lathrop noted with some irony the disparity between the government’s interest in enumerating immigrants versus its reluctance to count citizens who were born in the United States.

<sup>30</sup> Meckel (n. 11 above); Preston and Haines (n. 2 above).

<sup>31</sup> As Lathrop wrote in the Children’s Bureau’s monograph on birth registration: “There are certain uses of a birth certificate that can be made to serve the child’s right to education and protection from labor before the legal age.” Lathrop (n. 29 above), quotation on p. 10. A comprehensive and coordinated system of registering births also made possible early health interventions by visiting nurses, provided proof of U.S. citizenship, and was later used as a means of addressing status for children born outside of marriage (see Parker and Carpenter, in n. 27 above).

<sup>32</sup> Parker and Carpenter (n. 27 above), p. 34; Skocpol (n. 19 above), pp. 487-488.

<sup>33</sup> Parker and Carpenter (n. 27 above), p. 67.

<sup>34</sup> Lindenmeyer (n. 27 above), p. 61.

<sup>35</sup> As Emma Duke wrote in the findings of the Johnstown, PA study, “[a] grouping of babies according to the income of the father shows the greatest incidence of infant deaths where wages are lowest, and the smallest where they are highest, indicating clearly the relationship between low wages and ill health and infant deaths.” Duke (n. 12 above), quotation on p. 45.

<sup>36</sup> Mrs. Max West [Mary West], *Infant Care* (Washington D.C.: Government Printing Office, 1914) (U.S. Children’s Bureau Publication no. 8) and Mrs. Max West [Mary West], *Infant Care* (Washington D.C.:

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Government Printing Office, 1922). After the Johnstown, PA and other Children's Bureau community studies of infant mortality implicated maternal depletion as a critical mediating variable between poverty and infant mortality, revised versions of *Infant Care* placed strong emphasis on the importance of adequate rest and limiting labor. The contribution of high fertility to maternal depletion was deliberately omitted because the bureau's leadership was well aware that venturing into issues of birth control could bring a quick end to the bureau. See Lindenmeyer (n. 27 above), p. 106.

<sup>37</sup> Julia Lathrop "Income and Infant Mortality," speech before the American Public Health Association at Chicago, IL, December 9, 1918, published in the *American Journal of Public Health* 9 no. 4 (April 1919): 270-274.

<sup>38</sup> William L. Chenery, "A Great Public Servant," *The Survey* 45 (September 1921): 637-638.

<sup>39</sup> Julia Lathrop, *Baby Saving Campaigns: A Preliminary Report on What American Cities are Doing to Prevent Infant Mortality*. (Washington D.C.: Government Printing Office, 1914) (Children's Bureau Publication no. 3). With the exception of her national birth registration campaign, Julia Lathrop's strategy for the Children's Bureau left structural public health improvements related to infant mortality in the hands of the Public Health Service while the Children's Bureau asserted dominion over all activities contributing to maternal education (see Lindenmeyer, n. 27 above). "Little Mothers' Leagues" were organized to provide recreation and basic baby care training for young girls who often took charge of younger siblings. Progressive reformers disagreed about whether it was better to train girls as *de facto* caregivers, or to advocate women's return to the home from the workplace (see John Duffy, *The Sanitarians: A History of American Public Health* (Urbana, IL: University of Illinois Press, 1992), pp. 208-209.

<sup>40</sup> Children's Bureau, *Baby-Week Campaigns, Revised Edition* (Washington D.C.: Government Printing Office, 1917) (U.S. Children's Bureau Publication no. 15): quotation on p. 16.

<sup>41</sup> *Ibid.*, pp. 35-38.

<sup>42</sup> Anna Rude, "Status of State Bureaus of Child Hygiene," *American Journal of Public Health* 10 no. 10 (October 1920): 772-779.

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<sup>43</sup> Ibid., p. 776-777.

<sup>44</sup> Condran and Preston (n. 8 above).

<sup>45</sup> Lindenmeyer (n. 1 above).

<sup>46</sup> Grace Abbott, "Ten Years' Work for Children," *North American Review* 218 (1923): 189-200. An excellent annotated collection of the original letters is Molly Ladd-Taylor, *Raising a Baby the Government Way: Mother's Letters to the Children's Bureau 1915-1932*. (New Brunswick, NJ: Rutgers University Press, 1986). For an example of the sustained and personal nature of the bureau staff's commitment to helping and educating women, as well as an thoughtful analysis of the contradictions inherent in their approach, see also Abel (n. 24 above).

<sup>47</sup> Molly Ladd-Taylor, "'Why does Congress wish women and children to die?': The rise and fall of public maternal and infant health care in the United States, 1921-1929," in *Women and Children First: International Maternal and Infant Welfare 1870-1945* eds. Valerie Fildes, Lara Marks, and Hilary Marland (New York: Routledge, 1992).

<sup>48</sup> Ibid. With the passage of Sheppard-Towner, an exhausted Lathrop turned the reins of the Children's Bureau and the administration of the Act over to the capable hands of Grace Abbott.

<sup>49</sup> Molly Ladd-Taylor, "Women's Health and Public Policy," in *Women, Health and Medicine in America: A Historical Handbook* Rima D. Apple ed. (New York: Garland Publishing Inc., 1990), pp. 391-410.

<sup>50</sup> For a discussion of the politics surrounding the passage and defeat of Sheppard-Towner legislation, see Molly Ladd-Taylor, "Federal Help for Mothers: The Rise and Fall of the Sheppard-Towner Act in the 1920s," in *Gendered Domains: Rethinking Public and Private in Women's History* eds. Dorothy O. Helly and Susan M. Reverby (Ithaca, NY: Cornell University Press, 1992), pp. 217-227. See also Lindenmeyer (n. 1 above).

<sup>51</sup> Children's Bureau, *The Promotion of the Welfare and Hygiene of Maternity and Infancy, The Administration of the Act of Congress of November 21, 1921: Fiscal Year Ended June 30, 1929*. (U.S. Children's Bureau Publication no. 203) (Washington D.C.: Government Printing Office, 1931): Table 6, p. 28.

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<sup>52</sup> Lindenmeyer (n. 1 above).

<sup>53</sup> See Ruggles and Sobeck (n. 5 above).

<sup>54</sup> Preston and Haines (n. 2 above).

<sup>55</sup> The occupational income score used is the Duncan Occupational Income Score (Ruggles and Sobeck, n. 5 above). The number of physicians per thousand persons in 1920 is taken from *The American Medical Directory* eds. M. Virginia and R. Enlour (Washington D.C.: The American Medical Association, 1958), Table 2. The variable for communicable disease control is the case rate of typhoid fever for 1928 (source, *Report of the Committee on Communicable Disease Control*, White House Conference on Child Health and Protection, 1931). National public health officials at that time believed that incidence reporting for typhoid fever was more complete than that for other diseases (*Report of the Committee on Communicable Disease Control*, White House Conference on Child Health and Protection), p. 87.

<sup>56</sup> Preston and Haines (n. 2 above), p. 176.

<sup>57</sup> For example, although Illinois did not participate in Sheppard-Towner, Illinois female reformers engaged in a sustained effort to reduce the infant mortality rates among farm families. See Curry (n. 17 above).

<sup>58</sup> Lindenmeyer (n. 1 above), p. 64.

<sup>59</sup> Ewbank and Preston (n. 2 above).

<sup>60</sup> Paul U. Kellogg, "Editorial," *The Survey*, 59, no. 7 (January 1928), pp. 461-462, quotation on p. 461.