

ABSTRACT

The Rise and Development of Pediatrics as a Distinct Branch in Medicine

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While a variety of natural philosophers in medicine discussed female anatomy and childbirth, there existed a paucity of literature surrounding children's health and diseases. This thesis examines how pediatrics came to be a distinct branch of medicine within the United States. It was not until the later eighteenth century that major advancements and advocacy programs for quality healthcare in support of children emerged shifting the perspective many had towards the young. Prior to the nineteenth century, children's health was commonly perceived as an extension of obstetrics and gynecology. Rising infant mortality rates during the nineteenth century was one element that spurred scholars to continue understanding childhood diseases in an effort to improve how infants were nourished and managed. The nineteenth and twentieth centuries laid the foundation for how children were medically treated distinctly from adults, and the establishment of the children's hospital played a significant role in illustrating the need for more specialized care. Abraham Jacobi played an instrumental role in initiating pediatric teaching within universities, and his extensive professional presence spanned from the classroom to the hospital. Jacobi understood children to have a distinct anatomy and physiology, and he accepted numerous leadership positions within prominent pediatric organizations throughout his lifetime. With the rise of specialization during the early twentieth century came the establishment of the American Board of Pediatrics, which reflected the reality of pediatric medicine being a specialty in its own right as it pertained to individuals under the age of eighteen.

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THE RISE AND DEVELOPMENT OF PEDIATRICS AS A DISTINCT BRANCH IN
MEDICINE

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INTRODUCTION

The history of pediatrics must balance a broad amount of information across various social, political, and prophylactic dimensions. In beginning to write my thesis, I initially organized my resources according to historical periods, and over time, I came to see that my history would be best conveyed through chapters based on particular elements of historical significance. In chapter one, I utilize ancient literature and texts pertaining to early thought on women's anatomy, childbirth, and child's health to analyze how early pioneers in medicine, including Hippocrates, Aristotle, and Soranus, shaped primitive conceptualizations on human medicine. These individuals molded many of the early minds and orthodox beliefs related to the anatomy and physiology of the human body. Their impact influenced thinkers and writers, such as Rösslin, Jonas, and Raynalde, whom I explore through studying the origin and evolution of the text, *The Birth of Mankind*.

In chapter two, I delve into aspects of pediatrics characterized by its social history. I explore the presence of rising infant mortality rates in the United States during the nineteenth century and how these figures impacted children during and after this time. Addressing the subject of infant mortality was vital to achieving quality healthcare and professional medical direction for young children. I also discuss the nature of childhood diseases as it relates to how physicians managed the health of babies and children. Adolescents were commonly observed to succumb to their illnesses with little intervention, and I investigate the evolving notion of how children were not mere small adults but were steadily recognized as their own population of individuals.

Chapter three explores the significance of pediatric medicine's institutional history, which I begin by uncovering the effectiveness of the almshouse. The almshouse was one of many establishments preluding the children's hospital that offered shelter, medical care, and advice to individuals in need. The children's hospital marked a significant shift in the journey of standardizing care for the youth. I discuss specialized children's hospitals within both Europe and the United States as Europe largely functioned as a model for the states in gaining the necessary support for wide-spread funding, advocacy, and administrative and medical professionals.

Chapter four concludes my thesis with an examination of a biographical history spearheaded by the distinguished Abraham Jacobi. Jacobi's progressive mindset and zeal for children's health left a lasting impression on the future state of pediatrics as a distinct branch in medicine. His contributions have culminated in his being referred to as the "Father of American Pediatrics," and his feats to bring children to the forefront of our nation's healthcare systems persisted into the latter nineteenth and early twentieth century. This section additionally includes information on early pediatric organizations, including the American Medical Association, the American Society of Pediatrics, and the American Academy of Pediatrics. These establishments were significant to improving child advocacy and largely contributed to the creation of the American Board of Pediatrics, which recognized pediatrics as a distinct branch of medicine in the United States.

In order to understand pediatrics as we know it today, I must first examine how this particular branch of medicine emerged from ancient and medieval sources. Remedies

and teachings for treating illnesses existed long before the rise of formalized medical professionals and institutions. Particular terms come to take on new meanings as a society's viewpoint as a whole begins to shift. We see this shift throughout both Europe and the United States as the lens through which a child is seen evolves with the rise of research and education designed for children apart from being an extension of the mother. The medical field of pediatrics itself is continuously changing with the manifestation of new and improved inventions, technologies, and practices. In this first chapter, I highlight many of the notable key figures and texts I came by who were influential in advancing the conversation of children as a separate entity worthy of comprising an entirely new specialty. Knowledge of the human body and its innerworkings have long since advanced since the times of Hippocrates and Aristotle; however, it is significant to note their legacy in understanding medicine and the role of the pediatric physician.

CHAPTER ONE

Early Philosophers and Ancient Texts in Relation to Women and Children's Health

Pediatrics is a relatively young medical specialty that emerged from a pedigree of ancient philosophers and scholars (Mahnke 2000, 705). Prior to the nineteenth century, physicians were not common throughout America as mothers and midwives primarily managed a child's health (Mahnke 2000, 707). Pediatrics may have risen alongside or potentially superseded the expertise of midwives, and the sixteenth and seventeenth centuries were replete with bodies of written work on childbirth, death, and disease. This chapter begins with a brief history on the etymology of pediatrics, including the origins of the term "pediatrics" and where it may have first appeared in text. One significant sixteenth century textbook, composed by the physician Thomas Raynalde, was later adapted into many translations that contributed to the circulation of knowledge on woman and child development during this time period. Specialized care for diagnosing and treating patients from infancy to adolescence was absent within the medical field. Arguments in support of medical care specifically dedicated to children only emerged during the late eighteenth century (Mahnke 2000, 708). The history of pediatric medicine is rooted in ideas and discoveries that have since been displaced as children became visible as autonomous individuals defined by distinct illnesses, patterns of maturation, and cognitive development (Stern 2002, xiiv. 3).

1.1 A Brief Study on Women, Childbirth, and Children's Diseases

1.2. Etymology of Pediatrics

In 1544, Gabriel Miron, a physician during the time of Louis XII of France's reign, introduced the term "pediatrics" (Mahnke 2000, 706). The origin of this term may have stemmed from Miron's usage during the Renaissance period. Miron, who acted as Chancellor of the Queen and Anne of Brittany's first physician, utilized the term "pedenimice" to reference managing and treating childhood diseases (Mahnke 2000, 706). Prior to the evolution of pediatrics into the branch of medicine concerning the medical care of infants, children, and adolescents, the term "paediatrics" generally referred to sick children (Pearn 2011, 760).

The term pediatrics may have also derived from Greek origins relating to the prefix "paido" signifying a child and the suffix "iatic," which means doctor or healer (Pearn 2011, 759). Pediatric pioneers prior to the 1850 utilized phrases such as "diseases of children," "pestilences of children," or "maladies des enfantes" in French to describe the discipline concerning sick children (Pearn 2011, 760). In regard to the known chronology of written texts containing the term pediatrics, the *Oxford English Dictionary* was amongst the first recorded using the term "paediatricus" in Latin with its date documented as 1844 or earlier (Pearn 2011, 760). By the mid-eighteenth century, the term pediatrics was generally used throughout the United States to describe scholarly journals, scientific publications, and according to *Chambers English Dictionary* "that branch of medicine which relates to children and their special diseases" (Pearn 2011,

760). Abraham Jacobi, commonly known as the Father of American Pediatrics, has been attributed early on in 1880 with publishing articles with the words “pediatric” and “pediatrics,” and by the twentieth century, hospitals and university departments throughout America were named using this terminology (Pearn 2011, 760). While the term pediatrics will inevitably continue to evolve and take on varying meanings, pediatrics is generally a universal term in the English language used to refer to the specialty and encompasses children and all who contribute to their care.

1.3. Pioneers in Ancient Medicine: Hippocrates, Aristotle, and Soranus

The remainder of this chapter explores the history of pediatrics based upon textual traditions and archives from significant ancient philosophers in medicine. This section includes a discussion of Hippocrates and Aristotle, who were present during Greece’s Classical period, and Soranus of Ephesus, who was considered a prominent Greek physician beginning in the second century. Since this time in history, pediatrics has grown into a fully-fledged specialty where children who are ill can access formal medical direction. We will investigate how children before the eighteenth century were considered as patients and how the lack of organized healthcare for children at length connected to insufficient knowledge of prenatal care and childbirth, medical practices, and the female body.

1.3a. Hippocrates: The Father of Medicine

Amongst the great pioneers of medicine was Hippocrates, a Greek philosopher, who concentrated on the close observation of symptoms and possessed an impartiality to

different opinions that resulted in his being able to better explain the causes of diseases (Porter 1996, 58). Hippocrates's focus on reason rather than supernatural forces between the body and its natural environment was reason for why he treated medicine as more of a practical study (Porter 1996, 58). *The Hippocratic Corpus* was written by a multitude of authors between 420 and 370 BC who describe the human body in a state of either balance or imbalance (Porter 1996, 58). Health equated an existing equilibrium, and in order to keep the body in balance, a constant flow of bodily fluids, or humors, including blood, yellow bile, black bile, and phlegm, was to be maintained (Porter 1997, 57). Illness caused the body to shift away from equilibrium, and the presence of bile and phlegm were particularly attributed to immoderate flow during sickness (Porter 1997, 57). Because the Hippocratic Corpus equated health with equilibrium, any imbalance amounted to difficulties in diagnosing illnesses and implementing cures (Porter 1996, 58). Hippocrates like many other scholars during his time were knowledgeable of the human body's surface anatomy; however, there existed discrepancies in the science behind the innerworkings and systemic processes of the body as most observations were gathered from animal dissections (Porter 1997, 56). Hippocratic texts were distinct in how they were perceived to have contributed to the foundation of scientific medicine through their denial that disease was brought about by supernatural means as was widely accepted by the Greek civilizations (Porter 1996, 90). Hippocratics emphasized patient-centered care which called special attention to a physician's level of experience in conducting careful observation of a large population of patients (Porter 1996, 56). Hippocrates is also distinguished for his role in practicing bedside manner, and it was through focusing on the state of the patient rather than the disease itself that allowed

Hippocratic physicians to discover illness patterns and connections between the humors and the time of year (Porter 1997, 60).

1.3b. Aristotle and the fetal heartbeat. Aristotle, another philosopher and scientist of Greek antiquity, introduced the framework for studying human anatomy and physiology and popularized the use of animal dissections for analyzing the human body. In observing the development of the human embryo, Aristotle was the first to consciously study the physiology of a growing infant (Porter 1997, 65, Mahnke 2000, 705). Aristotelian theories offers a glimpse into modern-day embryology, or the study of prenatal development (Porter 1997, 65). The fetus's beating heart was identified as the first sign of life, and this critical moment gave prominence to the life of a baby with particular attention to the combined efforts of the body's blood, blood vessels, and brain (Porter 1997, 65).

1.3c. Childbirth and women's diseases from the perspective of Soranus of Ephesus. In AD 110, Soranus of Ephesus was a notable physician who studied the discipline of obstetrics and discussed women's diseases in accordance with Hippocratic thought. Soranus published the treatise *Gynaecology*, and in addition to his everyday practices, he resembled that of a modern-day pediatrician (Porter 1996, 72, Porter 1997, 204). *Gynaecology* discussed conception and pregnancy, management for normal and abnormal child labor, women's diseases, and proper care of a child during this time period (Porter 1997, 72). This treatise provided an unprecedented guide on how to care for children prior to the founding of pediatric medicine and specialized physicians.

Soranus instituted a procedure referred to as “turning the foot” that instructed an individual on how to ease one’s hands into the womb in an effort to pull down on the child’s leg when the baby is in the transverse position, such as the back is positioned towards the birthing canal (Porter 1996, 204). During a difficult birth, the podalic version was intended to prompt the child to be born feet first (Porter 1997, 72). Soranus’s contributions to pediatric writing intrigued future scholars and physicians in medicine as he was amongst the first medical practitioners to directly address disorders pertaining specifically to the care of infants and children (Mahnke 2002, 706).

1.4. The Perspectives of Rösslin, Jonas, and Raynalde on Midwifery and Women in Pediatrics

The scope of practice of a midwife was to support and care for women throughout pregnancy, labor, and birth. Within the realm of obstetrics during the fifteenth century, midwives managed and supervised the birthing process and were often assisted by the mother’s female friends and relatives (Porter 1996, 80). The midwife was often poorly educated yet highly experienced with significant knowledge of the easiest birthing positions and commonly observed complications (Porter 1996, 80). In comparison to a midwife, a modern obstetrician receives a higher level of education by way of attending medical school, and the two are often observed to follow different models of care in terms of medical interventions and high-risk pregnancies. First published in 1513, Eucharius Rösslin’s German textbook, intended specifically for midwives, is significant in providing insight on the professionalization of midwifery as well as early medical training in both obstetrics and pediatrics (Green 2009, 168).

1.4a. Eucharius Rösslin

Prior to the establishment of standardized training on childbirth and neonatal care for physicians, the midwife was called to lead the birthing process and fulfill the role of obstetrician and neonatologist. Managing childbirth before the nineteenth century was typically encompassed within the duties of a woman. Midwives primarily served women and families of rural and minority communities and received formal training in female illnesses, obstetrics, and infant care (Porter 1997, 128). Eucharius Rösslin, a physician of the city of Worms and Frankfurt am Main located in Germany, trained as an apothecary (Raynalde xvi). His hands-on experience with patients may have considerably inspired his German textbook *Swangern Frauen und Hebammen Rosegarten*, translated into English as “Rose Garden for Pregnant Wives and Midwives” (Green 2009, 167). Rose Garden describes the everyday expectations and duties of a German midwife.

Rösslin has been recognized for including birth figures that depict with significant detail the fetus in utero (Green 2009, 169). During the first and second centuries, Soranus of Ephesus, a Greek physician, discussed subject matters of pregnancy and conception, laboring methods, and diseases and complications experienced by women that may have significantly inspired Rösslin (Porter 1997, 72). It is also believed Rösslin had access to the Hippocratic corpus, Albert Magnus’s *On Animals*, and Soranus-based diagrams of malpresentations, which are abnormal positionings of a fetus at the time of delivery (Raynalde 2009, xvii). Rösslin may have derived his foetus-in-utero images from Muscio’s Latin text, *Gynaceia* (Green 2009, 175). Dating back to 500 AD, *Gynaceia* largely functioned as a translation of Soranus’s Greek text *Gynaecology* (Green 2009,

169). Muscio provided an iconographic model for Rösslin's birth figures; furthermore, Muscio's influence was limited in comparison to Rösslin's who provided his audience a different perspective on managing normal and abnormal births by way of novel techniques and remedies (Green 2009, 172).

The extent to which midwives referred to Rösslin's text in their day-to-day operations remains ambiguous, yet evidence exists in support of how *Rosegarten* has influenced physicians, locals, and later adaptations of this text (Green 2009, 168). The general public possessed the capacity to view the previously unseen child within the womb of the mother, and this revolutionary insight began to generate more in-depth conversations on advancing pediatric care. As individuals began to better understand child anatomy and physiology, a specialized medical community emerged. At least sixteen different editions of Rösslin's *Rosegarten* exist in its original form with these early editions progressing into being published in three German versions (Green 2009, 167). The text has since been printed in Czech, Danish, Dutch, English, French, Italian, Latin, and Spanish (Green 2009, 167). Rösslin had European-wide influence on the profession of midwifery, and his detailed documentation of how to properly care for women and children during childbirth greatly impacted literate masses of those within and distanced from a career in medicine (Raynalde 2009, xvi). Rösslin's examination of the expectations and duties of a midwife is believed to have inspired Richard Jonas's English text titled *On the Birth of Mankind* (Raynalde 2009, xvi).

1.4b. Richard Jonas. By the sixteenth century, the path to developing devoted care to infants and children was only just beginning. Published in 1540 by Richard Jonas,

On the Birth of Mankind was amongst the first significant texts to have forged a connection between the outcomes of women and babies and the general public (Wyndham 2020). Jonas released *On the Birth of Mankind* to address the subjects of human anatomy, childbirth and infant care (Mahnke 2002, 706, Hobby 35). Jonas's treatise was derived from the Latin text *De Partu Hominis*, which translated Eucharius Rösslin's *Rosegarten* from German (Hobby 37). The first-edition text was divided into three main parts that included the birthing process, direction following the delivery of the infant, and the conception of mankind accompanied by primitive birth figures. In contrast to other early texts of this time period, Jonas's treatise was amongst the first focused solely on women and children to be translated into the English language.

While Jonas's upbringing and educational background remains obscure, he is believed to have served as Master of St. Paul's Free School in London (Hobby 37). Jonas dedicated his book to Queen Catherine Parr, the last wife of King Henry VIII. By way of communicating the significance of maternalistic affection and tenderness, Jonas emphasized his chief purpose of supporting the women who endure great pains through childbirth (The Bryth of Mankynde, Fol. VII). Many constraints involving the printing press, access to manuscripts, and the ability to read impacted how many gained insight and access to books on childbirth and practices on appropriate care for both mother and child (Wyndham 2020). The average man or woman would not possess the proper education necessary to read and comprehend the terminology and language utilized by physicians. While Jonas was not believed to have earned a medical degree, his contributions to *On the Birth of Mankind* broadened the population of individuals who could grasp a brief understanding of the birthing experience. With the popularizing of

texts such as *On the Birth to Mankind*, information that had been implausible to attain was now available to a vastly wider audience of readers from medical professionals to the typical Christian reader (Hobby 37). Scholars began to pave the way towards better comprehending the female body as well as how to properly care for both the mother and child in preparation for, during, and after childbirth.

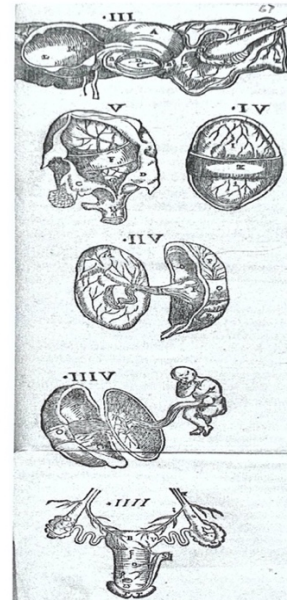
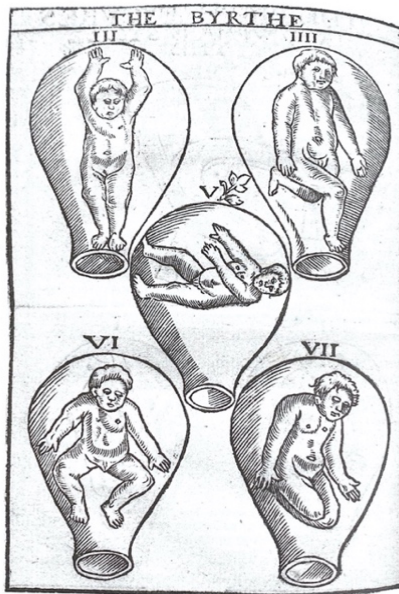
1.4c. Thomas Raynalde. In 1545, an English physician by the name of Thomas Raynalde published a revised translation in English of Jonas's *On the Birth of Mankind*. It has been noted that Raynalde worked as a physician for some time in France and drew inspiration from French culture (Raynalde 2009, xxxvi). Raynalde divides his treatise into four sections that includes a woman's anatomy and reproductive organs, childbirth, infant care, and conception with a particular sense of intimacy. Raynalde's 1545 edition titled *The Birth of Mankind: Otherwise Named, the Woman's Book*, includes the "Prologue to the Women Readers" and the addition of Book One that details and illustrates the anatomy of a woman based on the anatomical descriptions of Andreas Versalius. Raynalde worked to correct Jonas's medical terminology and revised many of Jonas's remedies in regard to approaching difficulties during the laboring process (Raynalde 2009, xix). Various early copies circulated throughout the sixteenth century; however, the illustrations and birth figures of the female torso and unseen child played an integral part in why this text appealed to a vast audience of people both familiar and unfamiliar with medicine and the human body.

1.4d. *A brief look into The Birth of Mankind: Otherwise Named, the Woman's Book (1560)*. In the 1560 edition translation of *The Birth of Mankind*, Raynalde established the need to remedy the meager amount of information that existed due to children's medicine being rarely addressed throughout early-modern British culture (Raynalde 2009, xv). He introduced a newfound sense of intimacy into caring for a child by way of discussing how to properly massage and cradle an infant during feedings in an effort to provide more extensive care (Hobby 39). In "A Prologue to the Women Readers," Raynalde advised readers to be diligent in seeking and following the instructions found throughout the entirety of his treatise.

According to traditional medieval perspective, "the female form was a faulty version of the male" as female organs were considered inverted and inferior (Porter 1997, 130). Raynalde challenged this notion, and he recognized the agonizing pain women endure during childbirth (Raynalde 2009, 115). He detailed techniques caretakers should practice that in his opinion would successfully ease the mother's suffering (Raynalde 2009, 115). In contrast to early perspectives on the role of women particularly in regard to bearing children, Raynalde described the seed, or semen, of a woman as less than that of a man (Raynalde 2009, 47). Raynalde's description of a woman's anatomy and the possession of semen reflect the orthodox mindset and scientific theories of the mid-sixteenth century. However, he distinguished himself by asserting that a woman is unique in her own right and should not be referred to as "unperfector" than a man (Raynalde 2009, 47). In the first book of *On the Birth of Mankind*, Raynalde described the role and inner parts of a woman in great detail:

And although that man be as principal mover and cause of the generation, yet (no displeasure to men), the woman doth confer and contribute much more, what to the increasement of the child in her womb, and what to the nourishment thereof after the birth, than doth the man (Raynalde 2009, 23).

In contrast to his predecessors, Raynalde affirmed the importance of a woman's role in the development of a child. The woman had the capacity to fulfill a role that cannot be accomplished by the man, and Raynalde stated that men can better serve their wives by educating themselves on the anatomy of a woman and the process of childbirth (Raynalde 2009, 20). With the exception of the male physician, who was often too costly to be called upon by the poor, midwives were the most immediate and reliable source of knowledge and proficiency in all things related to childbirth and care during the postnatal period. This treatise opened the discussion for making information on women and children more accessible to the ordinary townsman who did not hold a position within the medical profession.



Figures 1 & 2: The female reproductive parts and the pregnant uterus

While scholars today have access to more advanced technologies and have since uncovered newfound research and facets pertaining to the human body, Raynalde's early thoughts on the delivery of a child, the matrix, and the womb contributed to comprehending the connection between a mother and child. The mother conceives, nourishes, and protects the fetus, and Raynalde included intricate depictions of the woman's womb that originally appeared within Vesalius's *De Fabrica* (Raynalde 2009, 32). During the Renaissance, Vesalius shifted his studies on human anatomy toward first-hand, direct observations, and his findings and illustrations of the body's systems were significant to performing later dissections and surgeries (Porter 1996, 157). The figures are also observed in earlier editions of *The Birth of Mankind* and Rösslins's *Rosegarten*, and it is compelling to see the featured fetuses illustrated to resemble the general physique of cherub-like adults rather than as babies as they are perceived today. This observation may reflect the biased and narrowed education of scholars on children and young adults during this time period.

The second book within the treatise is dedicated to the subject of delivery, which can be divided into natural birth, which involves the child's head positioned downward within the mother's uterus, and a non-natural birth, which includes a variety of other unfavorable positions. Transverse positions endanger both the mother and child during delivery, such as the baby's feet presenting first, both feet positioned downwards, or the baby's extremities appearing before the head. Raynalde's translation perceived the unborn child through a new lens and encouraged midwives to do the same:

Furthermore, when the infant is swaddled and laid in cradle, the nurse must give all diligence and heed that she bind every part right, and in his due place and order; and that with all tenderness and gentle entreating, and not crookedly and confusedly; the which also must be done oftentimes in the day (Raynalde 2009, 155).

Unlike Jonas, Raynalde partitioned his instructions on how to properly care for a child within its own section (Raynalde 2009, 153). Raynalde's adaptations display a fluctuation in thought in comparison to his predecessors who did not clearly communicate any regard for separating the medical practices of a child and mother. The sixteenth and seventeenth century witnessed high rates of child malnutrition, cruelty, and abandonment (Mahnke 2002, 707). There still existed a great disconnect between medical recommendations and children's care. By suggesting that the negligence of nurses may contribute to childhood crookedness and deformities, Raynalde encouraged prioritizing the practice of perfecting the routine duties of a midwife and caretaker that include swaddling and bathing an infant with gentleness and attention (Mahnke 2002, 707). Raynalde upheld the power of the ordinary townspeople and called for extensive changes to be made beginning with those belonging to each individual home.

During this time period, mortality rates continued to rise and fall with the young remaining amongst the greatest at risk (Porter 1996, 117, Porter 1997, 237). Raynalde documented numerous illnesses and discussed that in the event an infant is afflicted with a fever, the nurse must take charge in ensuring that the child follows a strict diet (Raynalde 2009, 170). In this instance, he stated that the caretaker must obtain and prepare a combination of pomegranate juice, water of gourds, and sugar with a small amount of camphor (Raynalde 2009, 170). Raynalde largely incorporated the

understandings of Avicenna, the father of early modern medicine, and Raynalde also included many of his own remedies that supported the emerging practice of fixating one's practices specifically for the young. In regard to combating a fever, Raynalde instructed the nurse to stimulate the child to sweat by mixing the juice of wormwood, plantains, mallows, sengreen, and barley-meal, heating the mixture, and laying it atop the child's breast (Raynalde 2009, 170). A cooled ointment composed of rose oil and poplar oil should then be used to cover the child's forehead, temples, arms, hands, and ankles (Raynalde 2009, 170). Other early illnesses recorded in this text include observations of and remedies for epilepsy, vomiting, and swelling of the stomach or eyes.

Analyzing the treatises and texts of ancient scholars allows for a better understanding to be formed of the postulates and theories surrounding maternal and child health. Following the publications of modernized translations and inventive texts dedicated to childhood management and diseases, the body of medical professionals and advocates for improving the lives of children beginning with childbirth and well into their adolescence escalated. The growing amount of knowledge on how to build a higher standard of care for the young shifted to the forefront of many individual's minds. In addition to enhancing the birthing process for both women and babies, the drive to save lives and lower infant mortality rates began to intensify. Parents and caretakers saw that children possessed an adequate chance of survival as it was no longer acceptable to neglect one's education on how to provide medical attention and treatment specifically for a child. The need for pediatric-level care has prevailed long before the establishment of pediatrics as a recognized specialty, which does not formally occur until the mid-twentieth century.

CHAPTER TWO

Infant Mortality and Common Childhood Diseases during the Nineteenth Century

After analyzing key ancient and renaissance texts we may consider to be significant precursors to today's pediatrics, I will now turn to the early beginnings of pediatrics in nineteenth century America. I emphasize the increasing awareness of and concern over infant mortality, which largely contributed to the primary social and ethical context that brought to attention the stage for establishing pediatrics as a medical specialty. Another focal point of this chapter includes the recognition and understanding of childhood diseases, and I explore Michael Underwood's role in drawing attention to the diseases of children as a working physician throughout this time period.

The early nineteenth century was marked by a substantial increase in infant deaths, and infant mortality came to resemble a natural process that many children succumbed to. In the latter half of the nineteenth century, scholars began to focus their attention on why infant mortality rates persisted in the United States. This chapter focuses on the significance of infant mortality rates and how reformers during the late nineteenth century came to see infant deaths as a growing concern that necessitated real change within the United States' healthcare system. During this time period, the United States possessed a limited amount of knowledge pertaining to the causations of children's complaints. I examine the achievements of individuals such as Dr. Michael Underwood, an English physician and surgeon who brought to light many diseases and illnesses that afflicted children specifically, which was an anomaly for this time as most literature concerning children's health was integrated within obstetrics (Porter 1997, 382).

Underwood's treatise on children's diseases hinted at the deeper complexity of many childhood diseases that were not previously detailed or commonly addressed.

The Enlightenment and Romanticism came to see children as a vigorous force that could be utilized to educate the people on how a child was instead father to the man (Porter 1997, 382). In contrast to earlier eras, individuals began to associate children with bringing an increased value to the family, and this changing perspective may have contributed to improving how young were attended to. The significance of detailed child studies and written work published during this time resides in how a progressive and idealized outlook towards childhood began to grow. This shift in what a child contributed to society as a whole was largely influential moving into the later nineteenth and twentieth century. Childhood innocence, their goodness, and the prospect of envisioning a child's future were now qualities that had the capacity to restore the moral well-being of adults and humanity alike.

2.1. Infant Mortality and Common Causes of Childhood Diseases

The infant mortality rate during the 1880s was commonly defined as the number of deaths before the age of one per one-thousand deaths (Brosco 1999). The crude infant mortality rate soon became an accepted measure of poverty and unsanitary urban and environmental conditions (Brosco 1999). S. W. Newmayer, a former chief of division of

child hygiene and advocate for children's health and school systems in Philadelphia, stated that "the country which first recognizes its responsibilities to the child, and tries to fulfill those obligations will receive the recognition of the world as being the foremost civilized nation" (Newmayer 1911, 288). Addressing the issue of infant mortality further advanced the shift in perspective towards children no longer being perceived as mere economic resources but as valuable assets of the family (Brosco 1999). In contrast to the mid-1850's where infant deaths were commonly accepted as the reality many were forced to succumb to, children began to embody the future of the nation. The nation's efforts to improve the health and wellbeing of a child and populations at large dramatically increased (Brosco 1999, Stern 2002, 6).

2.1a. Michael Underwood.

The business of being a baby had once been classified as an extra hazardous occupation, and curiosities began to arise concerning what was being done to combat infant mortality (Newmayer 1911, 536). Pediatric literature was characterized by original clinical observations from first-hand case studies and limited access to morbid anatomy (Garrison 1923, 75). Amongst prominent eighteenth century pediatric physicians including Friedrich Hoffman, who contributed to a significant amount of original studies on infant atrophy, whooping cough, and the diseases of the foetus in utero, as well as George Armstrong, who established the first pediatric hospital in England, was Michael Underwood, a British physician (Garrison 1923, 75,77). Underwood was significantly considered to be the "last man midwife," which were male midwives who were primarily included in assisting with difficult labors or emergency situations (Garrison 1923, 78).

Underwood articulated the need to increase the representation of children in medicine. In his English *Treatise on the Diseases of Children* (1784), Underwood stated that while mismanagement may not reduce a child to death, it often impaired one's health (Underwood 1784, 4). According to Underwood, possessing the ability to recognize a healthy child from an unhealthy one was noteworthy:

How fatal such a mistake must be, is surely sufficiently obvious; since the definition of infants is eventually the destruction of adults, of population, wealth, and everything that can prove useful to society, or add to the strength and grandeur of a kingdom. It may, moreover, be observed, that where mismanagement at this period does not actually destroy the life, it often very efficiently impairs the health; the foundation of a future good or bad condition being frequently laid in a state of infancy (Underwood 1784, 4).

The foundation of a good or poor future was grounded in one's state of infancy and ultimately the ability to persevere through illness and disease. Infant mortality rates before the 1800's remained one in four children, and for the young abandoned to local orphanages, infant mortality rose to 97% in as late as 1850 (Underwood 1784, 4, Mahnke 2002, 709). Underwood's *Treatise on the Diseases of Children* details the common causes and symptoms of childhood diseases that he observed. New disorders, including malformations of the heart, "skin bound," chicken pox, and poliomyelitis, were discussed, and the text includes a culmination of first accounts as well as revisions of Walter Harris's 1689 treatise on the acute diseases of infancy (Garrison 1923, 78). Underwood also included his experience in managing numerous disorders specific to child anatomy and physiology. Underwood focused his attention on the issue of whom a child can entrust in properly treating their complaints, and he argued that children are often impaired by their inability to adequately describe their illness experience

(Underwood 1784, 6). In addition, he posed the question of whether the education, observations, and experiences of his time truly fulfilled the qualifications required to sufficiently manage and treat children's diseases (Underwood 1784, 7, 8). In conclusion, the physician supported the belief that a medical professional acquired the skillset needed to treat children's complaints through the current curriculum offered when he obtained an education in medicine. Underwood's treatise supported the pressing need for medicine to focus more on the particulars of children as a separate population of individuals.

Eighteenth century American pediatrics is pronounced for its primary findings on diseases, such as documented by Armstrong and Underwood, rather than definite contributions to child health studies. In transitioning to the nineteenth century, this period marked the movement for hygienic school inspections led by Virchow, Chadwick, and Cohn as well as a greater interest in infant mortality as a component of national depopulation (Garrison 1923, 84). Infant mortality throughout the fifteenth, sixteenth, seventeenth, and eighteenth century were notably high as a result of poor hygiene and nutrition, yet it was not until the nineteenth century that an outstanding amount of literature and new developments in regard to public health and welfare issues affecting children were implemented.

2.1b. Infant mortality rates during then nineteenth century. High infant mortality rates of the mid-1800s may have resulted from a culmination of poor urban conditions between 1850 and 1880 as well as the inferior infant nutrition and nourishment available between 1880 and 1910 (Stern 2002, 4). Early 19th century estimates were primarily based upon burial records and calculated as a percentage of total deaths in a community;

however, these statistics were likely to appear skewed in events such that an epidemic affecting only adults or older children could make the child mortality rate seem much lower than in reality (Brosco 1999). By the late nineteenth century, William Farr, an English health statistician, had been appointed Compiler of Abstracts for the General Registrar Office where he contributed to the study of infant mortality by way of supplying more representative and comparative data (Seibert 1940, 552). He notably claimed that infant mortality rate was the most appropriate health indicator because infant populations were easily susceptible to common diseases and environmental conditions (Brosco 1999). During this time period, many scientists and scholars began to investigate the connection between infant mortality and social welfare. High infant mortality rates were observed to be associated with low economic and social standards as an increased number of infant deaths were observed in working class families (Seibert 1940, 555).

In the nineteenth century, infant mortality became accepted as a reliable index of the health of a population, and the sluggish developments in support of care for children merely resembled managing small adults (Porter 1997, 236, Mahnke 2002, 708). Prior to the nineteenth century, the young of all classes were at the greatest risk of contracting the bloody flux, scarlet fever, whooping cough, influenza, smallpox, [and] pneumonia (Porter, "The Greatest Benefit to Mankind" 237). Throughout his considerable descriptions of many children's illnesses, Underwood is notably recognized for his inclusion of a skin-bound disorder, which at present is referred to as Underwood's disease. Sclerema Neonatorum is a rare disorder of infancy characterized by firm, waxy skin lesions. Underwood observed how the skin of the infected was peculiarly rigid across the face and extremities, and he described how the child always felt cold

presenting with a cry unlike his or her typical noise (Underwood 1784, 114). Infants affected by this illness succumbed to the disease in a short period of time with few cases found to have made a full recovery (Underwood 1784, 115).

During the second half of the nineteenth century, between 15 to 20 percent of American infants died before their first birthdays (Meckle 1990, 1). The infant death rate was based upon 1 per 1,000 live births between the period of July 1987 to July 1988, and the highest rates of infant mortality were observed amongst the urban immigrant poor (Meckle 1990, 6, 243). Within the later decades of the nineteenth century, increased efforts to reduce infant mortality began to improve by way of improving how infants lived, died, and were nourished (Meckle 1990, 39).

2.2. Understanding Childhood Diseases in Twentieth Century America.

According to the 1999 CDC report, in 1900, the leading causes of childhood death in the United States were pneumonia and influenza, tuberculosis, and enteritis with diarrhea (Field 2003, 43). The need to develop a better understanding of children's diseases was evident in order to halt the alarming increase in the death of children. More children were observed to die in the first year of life in comparison to the combination of the remainder of one's childhood (Field 2003, 49). By controlling the environment after a child's first month of life, it has been observed that infant deaths declined (Seibert 584). Investigations and autopsies performed during this time period continue to support the gradual movement of identifying a possible connection between child deaths and preventable causes of death associated with the environment (Field 2003, 56).

2.2a. *The Influenza Epidemic and Tuberculosis.*

In 1918, the second wave of the influenza epidemic hit impacting children and adults of all ages across the United States (Porter 1997, 483). With the loss of over 500,000 American lives, a tragedy of this caliber had not been seen since the Black Death of the mid-1300's. Influenza was observed to be particularly lethal towards young adults, and investigations as to why the healthy young were seemingly targeted remains unclear (Porter 1996, 50). Towards the end of the twentieth century, pneumonia in combination with influenza was amongst the top ten overall causes of death in children (Porter 1996, 346). With the increased support for child vaccines following Louis Pasteur's revolutionary anthrax vaccine, effective protection against many common infectious diseases was now available for the youth (Porter 1996, 346).

Tuberculosis was viewed by nineteenth century physicians to be a female disease as female populations appeared most frequently affected, but widespread reports of the disease-causing *Mycobacterium tuberculosis* infecting children of the developing world began to increase (Porter 1996, 106, 379). During the nineteenth century, Robert Koch developed Koch's postulates that established a correlation between *M. tuberculosis* and the disease (Porter 1996, 185). By isolating the bacterium, cultivating the bacterial strains in pure culture, and injecting the cells from the pure culture of *M. tuberculosis* into the model organism, Koch's discovery of a link between a particular organism and a disease further advanced the germ theory of disease (Porter 1996, 185). Tuberculosis is an ancient disease that most commonly presented during the Medieval Era as scrofula, the glandular form of tuberculosis (Porter 1996, 37). Scrofula, otherwise known as King's Evil, was believed to have been cured by royal touch, and this disease appeared in

Underwood's 1784 treatise dedicated to children's diseases. Underwood suggested that scrofula affected the adipose membrane, eyes, muscles, tendons, bones, and joints, and most commonly presented between the ages of two and twelve (Underwood 1784, 204). A child may experience a "falling of the lungs" as scrofula is correlated to the inhalation of contaminated air; moreover, bacteria has the potential to travel from the lungs and infect the lymph nodes (Underwood 1784, 204). Scrofula was observed to result from having contracted other diseases as well as one's hereditary medical history, and a child subjected to bad diet or a low, wet, and unhealthy situation was more at risk to this disease (Underwood 1784, 205). While tuberculosis in children results from the early hematogenous spread of the bacterium following a primary infection of the lungs, most adult infections remain within the lungs (Alcaïs 2006).

2.3. Not Just Small Adults.

The nineteenth and early twentieth century laid the foundations for discerning how "children are not just small adults" (Gillis 2007, 946). Michael Underwood addressed one distinction of a child's inability to properly convey their condition:

Their ideas of things are too indistinct to afford us sufficient information, and they accordingly often call sickness at the stomach, pain, and pain, sickness; they will frequently make no reply to general questions, and when they are asked more particularly whether they have any pain in one or another part of the body, they almost certainly answer in the affirmative though it afterwards frequently turns out they were mistaken (Underwood 1784, 6).

There exists a significant difference in how a physician should approach assessing a child. Underwood emphasizes the significance of a physician's physical examination in

fully understanding a child's needs (Gillis 2007, 946). Described by Eugène Bouchut as “the language of signs,” the caretaker must prioritize recognizing and studying a child's natural language in order to properly observe the diseases of infancy and childhood (Gillis 2007, 946).

Because children are physically distinct from adults, many environmental factors including oxygen consumption, quantity and quality of food, and normal development, serve as susceptibility factors (Bearer 1995, 7). For example, children generally present with a higher metabolic rate due to their larger surface-to-volume ratio signifying that they will consume more oxygen in comparison to a healthy adult over any given time. As a result, children may be more susceptible to air pollutants (Bearer 1995, 8). The bodies of children undergo developmental growth and differentiation, and any disruptions to these processes may cause serious injury to a child that may otherwise not be affected as an adult (Bearer 1995, 10).

Underwood understood how “the destruction of infants is eventually the destruction of adults, of population, wealth and everything that can prove useful to society or add to the grandeur of a kingdom” (Garrison 1923, 150). Arthur Newsholme, a leading British public health expert and medical examiner throughout the Victorian era, reported significantly on the high infant mortality rates. Newsholme declared that infant mortality is of multiplex causation signifying that this issue in social medicine required change across the spectrum of medical expertise, public hygiene, purified feeding, instruction of the mother, and much more (Garrison 1923, 159). High infant mortality reflects “the sacrifice of the unfortunate rather than the unfit,” and as the infant welfare

movement continued to spread throughout the United States, substantial advances and reforms could be observed.

CHAPTER THREE

Children's Hospitals: "Pediatrics Before Pediatricians"

Following my analysis of the public health concerns surrounding infant mortality and childhood diseases that heightened Americans' concerns for the well-being of child, I devote this chapter to discussing the institutional history of pediatrics. Efforts to improve child health and welfare were set in place, and one of the key factors I came by in my analyses of pediatric institutions was the creation of the children's hospital. My investigation into children's hospitals revealed their significant role in the rooting of pediatric specialization in the United States. All great innovations begin somewhere, and in studying this conceptualization behind the children's hospital, I begin the narrative within the late-eighteenth century almshouse. It was in this place that destitute families and their children received food, shelter, support and emergency medical care when necessary. At almshouses, people observed illnesses and sometimes death, and in-depth discussions on how to improve medical techniques and teachings for these sick individuals continued to be an infinite source of potential towards better healthcare. This chapter shows why specialized institutions were important in a time where change was not easily accepted. While I concede that many other institutions and figures have contributed to the growth of pediatrics and these particular institutions at times resisted germinating medical thought, they provided care for children in need in ways that paved the way for later developments in pediatrics. I give mention to Hôpital des Enfants

Malades in Paris, France because it was the world's first children's hospital and London's Hospital for Sick Children, which significantly inspired Dr. Francis W. Lewis and his colleagues to construct the first hospital for sick children in America. Within the United States, I discuss the Children's Hospital of Philadelphia and the Nursery and Child's Hospital in New York City to provide insight into how children's hospitals reformed American medicine in regard to how children were professionally managed and treated as well as how they affected the future of pediatric teaching.

3.1. From Almshouses to Hospitals

3.1a. The Antecedent Establishments Leading up to the Rise of Hospitals

The development of the hospital is contingent on what constitutes the term "hospital" (Lindberg 1978, 349). A hospital can reflect institutions that offer services, including food and shelter with little to no specialized care, to paupers and passersby, or the term can refer to institutions dedicated to treating the ill with skilled medical expertise (Lindberg 1978, 349). The hospital as a medical institution oftentimes arose from outgrowths of religious houses, and under the rule of religious orders, Christian charity functioned as one of the greatest proponents for the establishment of hospitals with specialized medical care (Porter 1996, 209). The Sampson hospital originating in the fourth century Byzantine Empire was one of the earliest institutions known to offer medical attention to those in need (Lindberg 1978, 349). Following the Byzantine model, hospitals continued to expand in the West during the Medieval Period with the primary focus being to ensure patients died in a state of grace rather than perform extensive, prolonged treatments (Porter 1996, 210). By the eighteenth century, European hospitals

introduced new adaptations with an emphasis on the sick and poor populations (Porter 1996, 214).

Prior to the rise of hospitals, almshouses, orphanages, and asylums functioned as medical centers that provided a platform for residents to be diagnosed and treated as patients (Radbill 1979, 286-287). Before the nineteenth century, sick children were directed towards almshouses and orphanages because hospitals were inaccessible to the poor with the exception of emergency situations (Radbill 1979, 286). An almshouse, or poorhouse, was a place of residence open to the general masses in search of shelter and support, and the institution was generally endowed by a charitable individual or organization. Almshouses provided for the sick, carried out educational activities, and conducted medical research, and “[they] were a hospital in every sense of the word” (Radbill 1979, 286).

Throughout the study of human diseases and illnesses, “dis-ease” has been defined by an individual being subjected to his or her own personal experience of pain and discomfort (Porter 1996, 82). As young people similar to adults routinely suffered from diseases including scarlet fever, influenza, and smallpox amongst many others, they required specialized care but were instead relocated to the local almshouse (Porter 1997, 237). Because resident physicians of almshouses were free to study and treat children as well as correlate clinical findings with pathologic discoveries of autopsies, these institutions housed some of the earliest foundations of pediatric knowledge (Radbill 1979, 287).

During the nineteenth century, there was also a rise in dispensaries, which served as a central location for the urban poor to receive medical aid, including medical

examinations and minor operations (Stern 2002, 54). In 1769, the Dispensary for the Infant poor was founded in London by George Armstrong (Caulfield 152). Armstrong's objective was to provide a means for the children of industrious, impoverished families to receive medical advice and treatment (Caulfield 152). Children at this time below the age of four years old were not allowed admission into any existing institutions (Caulfield 152). A formalized hospital that fostered the potential spread of contagious children's diseases and the act of separating infants and mothers appeared impractical (Caulfield 152). Dispensaries allowed for practicing physicians to train and receive first-hand clinical experience (Stern 2002, 54). Dispensaries were significant because most successful academic pediatricians and public health officials during the early twentieth century acquired their knowledge from the young and impoverished individuals that frequented these institutions (Stern 2002, 54). Many children's hospitals later emerged from dispensaries, especially as the movement towards more specialized hospitals emerged, such as those dedicated to the deaf, blind, and feeble-minded (Radbill 1979, 288).

3.1b. The need for early pediatric teaching. The first American course taught on the subject of pediatrics was hosted in 1860 by Abraham Jacobi (Meckle 1990, 45). Prior to and throughout the nineteenth century, pediatric teaching was integrated within courses on obstetric theory and practice (Meckle 1990, 45). In addition, institutions including foundling asylums, infant dispensaries and children's hospitals contributed to pediatrics becoming its own entity within the realm of medicine (Meckle 1990, 45). A greater amount of specialized attention began to shift in the direction of the young, and this

change in focus gave rise to a new generation of pediatric theorists who began to base their studies on clinical observations of a larger population of patients (Meckle 1990, 46).

According to L. Emmett Holt, “Not so much the diseases of early life are peculiar, as that the patients themselves are peculiar” (Emmett 31). In 1860 at New York Medical College, Abraham Jacobi, a physician and professor, stepped into the role of the world’s first dedicated professor of pediatrics (Stern 2002, 23). Jacobi introduced the term “pediatrics” in the English language, and his teaching of children’s diseases in the medical school contributed to the growing community of pediatricians in New York City and around the world (Stern 2002, 23).

The study of pediatrics concerns an entire organism rather than a specific organ as seen with many other specialties, such as cardiology or neurology (Meckle 1990, 47). The expertise of a practicing medical practitioner specialized in children was age specific rather than organ or disease specific (Meckle 1990, 47). During this time period, physicians and scholars pushed for others to see the substantial level of medical expertise necessary for infant and children care. Pediatric medicine required more specialized instruction and techniques beyond what other professions had to offer, and many argued that pediatrics involved a mastery beyond the general practitioner (Meckel 1990, 48). For example, Abraham Jacobi, a German physician and scholar, paved the way for raising the standards of pediatric education and medical practices. His stout defense in support of committees and institutions dedicated to children’s health despite widespread disapproval contrasted the nature of those who came before him.

3.2. The Rise of Early Children's Hospitals

The original intent for developing the children's hospital was to provide direct medical care for the children of the laboring poor. Rather than function as proper hospitals, early medieval institutions often operated as places of refuge (Viner 1998, 119). By the nineteenth century, children's hospitals began to emerge throughout European and American communities. Along with the developments of formalized healthcare institutions came the onslaught of enforcing a strict and standardized code of conduct amongst both the patients and staff (Howie 1981, 346). A physician's approach to a clinical encounter was generally cultivated from experience gained within the hospital; therefore, the hospital environment proved itself to be a pivotal place for medical teaching and observation for individuals of all ages (Gillis 2007, 398).

3.2a. The World's First Children's Hospital: Hôpital des Enfants Malades

The first hospital for sick children was located in Paris, France. For reasons potentially pertaining to the rise of sick babies or to the increased attention to the study of children's diseases, the child became a special patient, and medical professionals no longer accepted hospitalizing children with adults (Weiner 2003, 39). In 1802, Hôpital des Enfants Malades in Paris became the first hospital open to children in need medical care, which signified a great shift within pediatric-specific medicine (Radbill 1979, 289). The emergence of children's hospitals came about through the culmination of many evolving institutions compounded with the work of resolute individuals within healthcare. Prior to being made the world's first children's hospital, in 1722, the building was founded as Maison Royale de l'Enfant-Jésus, a work shelter for poor Parisian women

who labored in the spinning of flax and cotton industry. In 1795, the building was converted into a storage center for coal and carriages during the time of the French Revolution, and subsequently it became an orphan asylum for 436 children. On April 29, 1802, the orphans residing at Maison Nationale des Orphelins were relocated to another institution within Paris, and the Conseil Général des Hôpital formally established the Hôpital des Enfants Malades, which consisted of 300 hospital beds and 59 staff members that included two clinicians and one surgeon (T.E.C., Jr., 1981 670). In 1801, The Conseil Général des Hôpital was founded by Napoléon Bonaparte as the first centralized authority in regulation of all civilian Parisian hospitals (Ermakoff 2011, 123).

3.2b. London's Hospital for Sick Children on Great Ormond Street. In 1852 London, the Hospital for Sick Children was another center for exploration with it being the first of its kind in all of England (Radbill 1979, 289). The hospital was founded by Dr. Charles West, who worked in association with Sir Thomas Smith, the first surgeon to perform antiseptic surgery and manufacture a device that administered chloroform for treating children (Casimir 2019, 2). With the fellowship of Edwin Chadwick, an English social reformer and Henry Jones, an English physicist and chemist, a Provisional Committee was formed (Markel 1999, 674). Potentially due to jealousy from his professional colleagues, West faced many setbacks in his attempt to create a true children's hospital (Viner 1998, 120). This committee worked to publish advertisements in the *London Times*, the *London Morning Posts*, and the *London Standard* that solicited for any contributions and support for the hospital located on London's Great Ormond Street (Markel 1999, 674).

Funding for the hospital's growth has been largely accredited to the famed British novelist, Charles Dickens (Casimir 2019, 2). Dickens publicly advocated for the impoverished children of England by way of visiting the hospital and addressing England's alarming infant and child mortality rates (Markel 1999, 674). In his article titled "Drooping Buds," Dickens wrote of how "some of their diseases are peculiar to themselves; other diseases, common to us all, take a form in children varying as much from their familiar form with us as a child varies from a man..." (Markel 1999, 674). Dickens's audience and readers throughout the city of London were affected by his words of passion. The hospital's reprinting of "Drooping Buds" in addition to public speeches and benefit readings hosted by Dickens contributed to the influx of funding that was utilized to increase the number of patient beds and support the medical staff (Markel 1999, 675). The children's hospital opened with ten beds; furthermore, the continued support of Dickens and many other advocates allowed for growth and prosperity. The legacy of the collaborative endeavors between Dr. Charles West and Charles Dickens lived on through the founding of similar children's hospitals throughout the United States. A longtime advocate for the poor and their children, Dickens was well-acquainted with board members of the children's hospital as well as many of the institution's early contributors, such as Baroness Angela Georgina Burdett- Coutts (Markel 1999, 674). It was also likely that Dickens was well-informed of the health reforms taking place, including West's contributions, that may have led to his emphatic essays and visits to the London hospital (Markel 1999, 674).

3.3. Leading Children's Hospitals in the United States

Nineteenth century America looked to Britain for models, and in both countries directing their efforts to founding new hospitals, they took the initiative to fuse philanthropy and entrepreneurship (Porter 1997, 381). The crystallization of children's hospitals illuminated how specialties became identifiable by their institutions. The first special hospitals were not initially supported by most general hospitals, and gradual support of these establishments grew with the incentive for practitioners to improve their skills (Porter 1997, 387). Special hospitals in the United States distinguished themselves from their British models in how they largely catered immigrant populations, including Germans, Italians, and Jews amongst many others (Porter 1997, 387).

3.3a. Children's Hospital of Philadelphia

In the United States, the Children's Hospital of Philadelphia, founded in 1855, grew to be the nation's first permanent children's hospital (Mahnke 2000, 709). Before the establishment of specialized hospital care, women and children in need of medical advice and treatment depended primarily on medical charities. The institution was founded by Francis W. Lewis, R.A.F. Penrose, and T. Hewson Bache who drew inspiration from Lewis's visit to London's Hospital for Sick Children ("Children's Hospital of Philadelphia" 2010, 4). In its first year, the Children's Hospital of Philadelphia possessed twelve beds and cared for 67 inpatients and 306 outpatients ("Children's Hospital of Philadelphia" 2010, 4)

Because wealthy parents of this time period utilized private home physicians, children's hospitals primarily served the young of impoverished families (Evans 2004,

176). The hospital matron typically lived in the hospital and oversaw patient care (Evans 2004, 176). The goal of the hospital trustees was to not only provide medical services but also promote Christian morals and values. In the development and daily operations of the hospital, religion and medicine intersected in many aspects as the many charitable individuals and institutions who aided in hospital funding upheld their Christian influences. Hospitalizations typically lasted from weeks to months, and during this time, caretakers supplied children with sufficient nutrition and enough time to regain their strength (Evans 2004, 176). A major complaint of hospitals was the presence of contagious diseases as the fear of rising infection rates persisted with the confining of weak and immunocompromised children in close vicinity (Evans 2004, 176). Many children suffered from tuberculosis, which is an infectious bacterial disease of the lungs, due to its easy transmission by way of droplets released into the air from one person to the next (Evans 2004, 176). Tuberculosis can be spread by coughing, breathing, sneezing, or even inhaling in the bacteria of someone who has been infected. The disease was amongst the major causes of death in children during the nineteenth century that contributed to significant pediatric research and the push towards recognizing the importance of institutionalized infant care.

3.3b. Nursery and Child's Hospital in New York City. The Nursery and Child's Hospital in New York City was founded in 1854 by Mary Delafield Dubois, otherwise known as Mrs. Cornelius DuBois on the Nursery's official papers (Quiroga 1986, 198). The daughter of an affluent London merchant, DuBois moved to New York in 1819 alongside her recently widowed father (Quiroga 1986, 196). Quite possibly a

combination of her personal misfortunes with the death of four of her children before the age of three and the experience she faced in taking in a pregnant and unwed servant, DuBois possessed a passion for charity (Quiroga 1986, 197-198). The initial intent of Mrs. Cornelius Dubois and her partner, Anna R. Emmet's raising of ten thousand dollars was to provide care for the children of wet nurses and working parents (Quiroga 1986, 198). The institution was erected with the objective to rescue infants from New York's "farming out" system that included all non-institutional arrangements that cared for dependent children (Quiroga 1986, 195). Baby farming would be the equivalent to today's family day care; however, many condemned this alternative as children were found as victims of unsanitary conditions and abuse. Founded by charitable women, the hospital predominantly operated on donations and state funding (The Nursery and Child's Hospital). Wet nurses were charged \$5 per month while parents were charged \$6 per month to admit their children (The Nursery and Child's Hospital). This amount covered boarding, food, and an education for the children of wet nurses, and admitted patients were provided with the necessary medical care.

Prior to opening of The Nursery and Child's Hospital, no other institution admitted children under the age of two (Quiroga 1986, 196). Ordinarily, orphaned children, who were identified as such if the parents did not pay their medical charges for a duration of one week or abandoned them at the hospital, were "farmed" out to paid wet nurses (The Nursery and Child's Hospital, Quiroga 1986, 196). The baby farming system gave rise to a form of legalized infanticide as approximately 90% of the nearly 1,000 babies per year between the years 1854 to 1859 did not survive (Quiroga 1986, 196). In response to this issue, the hospital worked to establish a foundling home where children

under the age of twelve could be adopted. For those over the age of twelve, they were relocated to other charities or returned home. The Nursery and Child's Hospital, like most other hospitals of its time, operated on Christian standards, but was distinctly led by a board of female leaders known as the Lady Managers (The Nursery and Child's Hospital, Quiroga 1986, 202). The shift from the delivery of motherly care to formal medical care directed by male professions occurred following the crisis of one patient with suspected smallpox (Quiroga 1986, 201). Due to the high volume of sick patients and the growing demands of those in need, DuBois was observed to adapt to the needs of her community and consult more specialized physicians for help.

3.4. Why Children's Hospitals

The Nursery and Child's Hospital in New York was special in how its original leadership was fully governed by an all-female Board of Managers who limited the authority of visiting physicians (Quiroga 1986, 202). During this time, the Medical board functioned similar to an advisory council as everyday patient care, budgeting, and overseeing of staff was controlled by the Lady Managers (Quiroga 1986, 202). The hospital and adjacent dispensary not only served their patients' needs but also became the epicenter for statistical information on children's diseases as it consulted with a great many of New York's ill children (Quiroga 1986, 202). For this reason, this institution provided teaching material for medical students in New York and around the world who benefitted from their findings. The legacy of the Lady Managers of Nursery and Child's Hospital lives on through their insistence that their names rather than their husbands appear on the legal consolidation papers documenting the union of the Nursery with the

Infant Asylum in 1909 (Quiroga 1986, 207). This declaration of equal representation allowed for the permeation of quality management within the hospital that served as a model for future children's hospitals to come.

CHAPTER FOUR

American Pediatrics as a Formally Recognized Specialty

The story behind the specialization of pediatrics spans decades and involves a great many prominent figures as described throughout my previous chapters. In addition to the individual roles of many passionate physicians and scholars, the fusion of great minds and research findings has allowed for the founding of numerous children's hospitals across continents and influential pediatric societies. I devote this chapter to telling a biographical narrative that ultimately culminated in the formal recognition of American pediatrics as a specialty. I chose to focus on the life and impact of Abraham Jacobi in the specialization of pediatrics because of his striking role in advocating for children's health and medicine that ultimately gave rise to his being named the "Father of American Pediatrics." Jacobi was outspoken in his vision for conceptualizing children beyond mere diseases, and his ardent call for change and actions in being the many "firsts" in pediatrics significantly advanced the acceptance of pediatrics as its own specialty. I also acknowledge that Abraham Jacobi is only one man, and he did not singlehandedly found pediatrics in the United States. While I came across many pioneers in medicine, Jacobi forced his presence to be seen and heard throughout New York City and abroad. He worked unconventionally in how he challenged medical practices accepted by society and introduced new agencies of care never before practiced.

In addition, this chapter discusses the fundamental role of pediatric institutions and assemblies in the history of pediatric medicine. The American Medical Association, founded in 1847, is today's largest association of physicians and medical students in the United States. The American Medical Association's establishment of a chair dedicated to children's diseases was monumental to the progression of children's health in the entirety of medical care. The emergence of new specialties during this time marked the growth of early twentieth century specialization that occurred, which brought together more men and women who desired to advance the study of children and their diseases. The American Pediatric Society was founded in 1888 with Jacobi serving as president twice; furthermore, more institutions, such as the American Academy of Pediatrics, were born with the mission to promote child welfare. The last institution I discuss is the American Board of Pediatrics, which signifies the birth of American pediatrics as a special medical branch in the United States.

4.1. The Father of American Pediatrics

Pediatrics largely gained support during the late nineteenth century. In 1853, the arrival of German immigrant, Abraham Jacobi, in New York City played an instrumental part in reforming the United States' healthcare system (Mahnke 2000, 710). In addition to his devoted advocacy and research on children's health, Jacobi went on to help found and serve as president for both the American Medical Association's section for the Diseases of Children and the American Pediatric Society (Mahnke 2000, 710). Jacobi seemingly rose to the forefront of pediatrics within a few years of his arriving in

America, and the second half of the nineteenth century all but points to Jacobi on subject matters pertaining to the history of American pediatrics. He is at the center of pediatric teaching and research, and he was particularly influential on New York City as this is where he taught the first official collegiate course on pediatrics and worked directly with New York's youth. Jacobi envisioned more for the sick children that he encountered on a daily basis, and he is remarkable for his successful endeavors to recruit his peers to see his perspective on better preventing and treating children's diseases and endorsing larger specialized organizations that possess an even greater capability of improving the lives of children.

4.1a. The Early Life of Abraham Jacobi

Abraham Jacobi was the son of an impoverished German shopkeeper in the small town of Westphalia (Haggerty 462). He attended three medical schools, which was common of this time, and graduated from the University of Bonn in 1853 (Haggerty 462). In his early life, Jacobi grew prominent in Germany for his political activism as a radical socialist (Stern 2002, 24). He was involved with Karl Marx and the Cologne Communist Trial prior to fleeing to America in 1853 after an unsuccessful attempt to establish a medical practice in England (Stern 2002, 25). The Cologne Communist trial took place in 1852 and involved eleven members of the Communist League who had plotted to overthrow the Prussian king and institute a socialist republic (Viner 1998, 437). Arriving in America, he had few contacts and friends, and Jacobi found hope in being introduced to social activist Joseph Weydemeyer as well as establishing himself in New York's German communities, otherwise referred to as Kleindeutschland (Viner 1998, 439).

Without delay, he launched further into his endeavors on the study of children's diseases by investigating the causes of high infant mortality in German tenement districts (Stern 2002, 25). His early patients were mostly German immigrants and their children, and he often provided medical attention for the sick tenement poor free of charge (Viner 1998, 443). While the high level of competition amongst medical practices and the need for a steady income may have attracted Jacobi to this impoverished German area, he continued to display a passion akin to his social activism for medical reform.

To combat rising infant mortality rates, Jacobi suggested a fusion of medical, social, and political therapy, and his dedication to children's medicine set into motion the specialization of pediatrics (Stern 2002, 25). Jacobi was believed to have been largely inspired by Rudolph Virchow, who is accredited with founding social medicine and has been named the "Father of Modern Pathology." Virchow was influential for his perspective on diseases in large populations being a cause of abnormal social conditions; furthermore, he believed the physician's role should encompass providing education, democracy, stability, and prosperity for the people (Viner 1998, 445). As a new immigrant, Jacobi was not welcomed into the community of established physicians, and cultural differences, such as his Jewish background, contributed to his being labeled as a radical (Viner 1998, 444). Jacobi also distinguished himself from other prominent figures of his time by publishing a host of scientific articles. He wrote on infectious diseases, most notably diphtheria, that plagued children during this time period, and in addition, he addressed the concerns with sanitary milk supplies and the high mortality rates present in foundling homes (Shulman 2004, 167). Jacobi used the term "paediatrics" to encapsulate the therapeutics, pathology, and physiology of children (Stern 2002, 31). He envisioned

for pediatricians to acquire the knowledge and skillset necessary to move beyond simply learning children's diseases to performing infant feedings, promoting child hygiene, and bolstering disease prevention (Connolly 212). His ability to lecture within the classroom advanced into the hospitals where his advocacy grew even more noticed by observing peers, patients, and students (Haggerty 1997, 463).



Figure 3. Abraham Jacobi

4.1b. Abraham Jacobi's role in pediatric teaching. Dr. Robert J. Haggerty, an educator, researcher, and editor in chief of *Pediatrics in Review* for 25 years, labeled Abraham Jacobi a “respectable rebel” for his vivid career and striking contributions to

pediatric medicine (Haggerty 1997, 462). I share Dr. Haggerty's observation that many of Jacobi's most inspiring contributions to pediatrics stem from his often controversial and radical medical practices of his generation. The hostility to pediatrics and specialization from other medical experts appeared to further propel Jacobi's efforts.

Jacobi's early career involved being the Professor of Infantile Pathology and Therapeutics at New York Medical College and Chief of Staff of New York's Nursery and Child's Hospital (Shulman 2004, 167). In just four years of being in New York, the College of Physicians and Surgeons contacted Jacobi to lecture on infant pathology (Quiroga 1986, 203). In 1860 while professor at New York Medical College, Jacobi established a free clinic, which allowed him practice bedside clinical teaching. Here, Jacobi transformed the fashion in which medical instruction was spread throughout the states where Americans heavily relied on reading medical literature and lectures for instruction. This institution served as the first children's clinic in the United States, and Jacobi's incorporation of live patients into his teaching further bolstered the future of medical education (Haggerty 1997, 462).

Between 1862 and 1870, Jacobi served as attending physician at New York's Nursery and Child's Hospital that functioned as a long-term shelter for foster children and orphans (Quiroga 1986, 203). Following his study comparing and contrasting New York's Nursery and Child's Hospital and Randall's Island, both located in New York, with similar European hospitals, Jacobi openly recommended the deinstitutionalization of infants. His findings led to him openly addressing the Lady Board on how "poor tenements of our working classes yield better results in raising their infants" (Quiroga 1986, 204). In publicly challenging the policies set in place by the Lady Board and

undermining the control of “First Dictresses” Mary Delafield DuBois, Jacobi was expelled from the Nursery and Child’s Hospital (Quiroga 1986, 195). Jacobi’s continuous call for change and challenging of authority, however, led to a great level of disdain that postponed hope for immediate change. However, Jacobi was not discouraged by this setback in his career and continued to act as a catalyst for change in support of improving how children were cared for. In 1870, he served as Clinical Professor of Diseases of Children at Columbia University and remained in this position for 29 years (Shulman 2004, 167, Haggerty 462).

In contrast to his American counterparts, Jacobi understood children to have a distinct physiology and pathology that required a study separate from the medical teachings of adults. He did not believe it sufficient to simply modify adults’ courses of treatments or lower dosages, and soon he gathered a following who were receptive of his position on how to improve medical care for children (Quiroga 1986, 203). On the other hand, Jacobi recurrently faced opposition with the 1870 dispute between him and DuBois illustrating the ongoing strain that existed within the hospital. DuBois imagined the hospital to be a benevolent social institution that fostered aid to patients and instilled in them a sense of morality, whereas Jacobi saw a place to diagnose, treat, and learn from the ill (Quiroga 1986, 208). DuBois’s chief complaint regarding Jacobi’s presence appeared to stem from his continuous advocacy for change, such as in the patients’ diets, research utilizing hospital statistics, and open criticism of the Nursery (Quiroga 1996, 203). The Lady Managers’ tendency to disregard the medical input of male authorities largely contributed to their dissent of Jacobi’s call to deinstitutionalize in an effort to lower infant mortality rates. However, in the years to follow, the hospital continued to

adhere to more recommendations fostered by male medical professionals with the general consensus that specialists, particularly pediatricians, were a positive factor in declining infant mortality rates in New York between the years 1880 to 1910 (Quiroga 1986, 208).

4.2. American Medical Association (1847)

Abraham Jacobi spearheaded pediatrics becoming a distinct medical branch. Many pediatric-focused institutions during the early twentieth century that aided in this movement towards more specialized care. Some of the most notable organizations include the American Medical Association (“AMA”), the American Pediatric Society (APS), and the American Board of Pediatrics.

In 1847, The American Medical Association (“AMA”) was founded in Philadelphia with the mission “to promote the art and science of medicine and the betterment of public health” (“AMA”). It was not until more than 30 years later in 1880 that the Section of Diseases of Children of the American Medical Association was founded (Shulman 2004, 167). Held in Richmond, VA, this AMA meeting resulted in the creation of the first organized group of physicians dedicated to children’s health in the United States (Shulman 2004, 167). In 1871, Jacobi was selected as First Chair of the Section of Diseases of Children (Haggerty 1997, 464).

4.3. Specialization during the late nineteenth to early twentieth century

Throughout the 1920’s and 1930’s, becoming a medical specialist was as simple as filling out a questionnaire card that indicated one’s preferred field of study (Brownlee 1994, 732). No legal or medical requirements in regard to medical training or education

were necessary to attain the title of a specialist, and concern grew for the rise in general practitioners turning to specialization in every field (Brownlee 1994, 732). Specialty boards were created in response as a means to inform the general public of which physicians had become an expert in their particular study (Brownlee 1994, 732). In 1917, the American Board of Ophthalmology became America's first specialty board, and otolaryngology (1924) relating to diseases of the ear, nose, and throat, obstetrics and gynecology (1930), and dermatology (1932) followed shortly after (Brownlee 1994, 732). There was a need to establish restrictions and expectations for medical practitioners, and the very idea of specialization served to bring about legitimization (Porter 1997, 388). The emergence of new specialties marked medicine's current evolution, which was marked by growing demands, recently developed careers, and a new optimism towards research on treatment and cures.

4.3a. American Pediatric Society (1888)

The American Pediatric Society (APS) was erected in response to dissatisfaction amongst members of the AMA who supported pediatrics becoming its own entity apart from the Obstetrics and Gynecology Sections (Shulman 2004, 167). In Washington D.C. in the company of 14 physicians, Job Lewis Smith, an American clinical professor of pediatrics, was believed to have shaped the organization of the APS (Shulman 2004, 167). The younger brother to Stephen Smith, a proponent for sanitary reform and founder of the American Public Health Association, Lewis Smith shared how many childhood illnesses were naturally miasmatic, resulting from unpleasant or unhealthy air, and must be resolved by means of sanitary improvements (Stern 2002, 37).

The miasma theory gained large popularity during the eighteenth century as miasmatists attempted to reason why poorer environments and homes were more often affected by epidemics and disease (Porter 1996, 103). Cholera, chlamydia, and the Black Plague have traditionally been linked to the miasma theory; however, these diseases have since been explained by the germ theory of disease through research conducted by both Pasteur and Koch (Porter 1996, 184). Jacobi served as a founding member of the APS, and of the 43 founding members, he was notably selected as the organization's first ever president (Haggerty 1997, 464). Between 1871 and 1913, Jacobi provided his expertise to nearly all of New York City's hospitals, and throughout this time period, he additionally served as president of New York County Medical Society, New York State Medical Society, New York Academy of Medicine, Association of American Physicians, and American Climatologic Association.

Abraham Jacobi passed away in 1919 at the age of 89 (Ligon-Borden 2003, 248). The year prior, Jacobi survived a fire that ultimately destroyed his home by way of jumping a distance of over 10 stories out of his window (Ligon-Borden 2003, 249). While he managed to escape the fire, he suffered severe shock as well as endured the loss of his autobiography that he had recently began crafting (Ligon-Borden 2003, 249). In the coming years, pediatrics continued to make unprecedented advancements in terms of social welfare, medical training, and politics, which to a great degree can be associated with Jacobi and his endeavors to bring about change in his medical community.

4.3b. The American Academy of Pediatrics (1930). The American Academy of Pediatrics (AAP) was established in 1930 with the intent to promote children's welfare

(Shulman 2004, 171). At Detroit's Harper Hospital, 35 pediatricians gathered to create the AAP's constitution and by-laws, and by 1931, there were 304 charter members under the leadership of Dr. Isaac Abt, a leading clinician in Chicago and prominent advocate of child welfare (Shulman 2004, 171). The buildup to the American Academy of Pediatrics is distinguished by the progressivism of the 1920's as social reformers began paving the way towards improving the relationship between child and maternal health (Mahnke 2000, 712). As seen through the legacy of Abraham Jacobi, pediatrics functioned to represent people throughout healthcare departments around the world as well as within the halls of Congress by way of political advocacy. The establishment of this specialty organization can also be associated with the passing of the Sheppard-Towner Act of 1921, which was the first federally funded social welfare program for women and infants (Madgett 2017). Jeannette Rankin, a Republican representative of Montana and the United States' first congresswoman, was amongst the first to support a bill encouraging the hygiene of and proper care for maternity and infancy ("Jeannette Rankin"). Julia Lathrop, chief of the US Children's Bureau, also served as a large proponent of addressing infant mortality, and she introduced many welfare programs that empowered states to promote prenatal, infant and children's health (Madgett 2017). The US Children's Bureau, established in 1909, made significant advances early on in their development in how they investigated the causes of infant and maternal mortality (Lemons 1969, 776). The Bureau discovered a correlation between poverty and mortality rate, which was defined as the number of deaths in a particular population per unit of time (Lemons 1969, 776). The Children's Bureau took note of how families earning less than \$450 annually in the 1920's typically had one in six babies die within their first year,

and families earning approximately \$1250 annually typically experienced a rate of one in sixteen babies (Lemons 1969, 776). With the United States ranking 17th in maternal and infant mortality in 1918 and the support of studies concluding that 80% of expectant mothers admitting to not having received any maternal advice or training, the United States Children's Bureau was amongst the first to act as a principal force towards developing health services for mothers and their young (Lemons 1969, 776). It was at this time that people began to discuss the unusually high infant death rates plaguing Americans, especially those inhabiting lower income levels. According to S.W. Newmayer, "the United States is awakening to such realizations when it contemplates a National Child Welfare Bureau," and Newmayer was not alone not ignorant to the high number of infant deaths during his time (Newmayer 1911, 532). Florence Kelley, the executive secretary of the National Consumers' League, asked before Congress how she should respond to the women who questioned "why does Congress wish women and children to die" (Lemons 1969, 778)? The passage of the Sheppard-Towner bill was largely supported by the lobbying efforts of women's suffrage organizations; however, many clinicians disagreed with this bill culminating in the American Medical Association referring to the act as "an imported socialist scheme" (Mahnke 2000, 712). The AMA feared that the integrity of state medicine was at risk as the Sheppard Towner Act would unlawfully misuse the States' money (Lemons 1969, 783).

Ultimately, the Sheppard Towner Act was passed by Congress and signed by President Harding in 1921. Women's organizations helped to enact the bill, and they later fought against its being repealed until 1929 when organizations including the AMA, the Women's Patriots, and the Sentinels of the Republic succeeded in their opposition to

nullify the law (Lemons 1969, 785). While the House of Delegates of the American Medical Association passed a Resolution condemning the act, the Pediatric Section of the AMA announced their support in the St. Louis papers on the following morning (Mahnke 2000, 712). The Sheppard-Towner Act called attention to how the AMA did not in actuality express the values and desires of the entire medical profession. Marshall Pease, former Professor of Pediatrics at New York Postgraduate Hospital and Medical School, is widely known for his contributions in sharing the history of the American Academy of Pediatrics. Pease shared how the formation of an organization similar to that of the American Academy of Pediatrics appeared inevitable following the “ruling sterilizing the Pediatric Society of the American Medical Association” (Mahnke 2000, 713). In response to the Pediatric Section’s dissent from the AMA, the House of Delegates ruled that no section of the AMA would be able to independently adopt, approve, or disapprove matters pertaining to the AMA (Mahnke 2000, 713). In seven years, Sheppard-Towner Act hosted 183,252 health conference, established 2,978 permanent prenatal care centers, and contacted over 4 million infants and 700,000 expectant mothers (Lemons 1969, 785). Most appreciably, following the Sheppard-Towner Act, the infant death rate declined from 75% per 1,000 live births in 1921 to 64% (Lemons 1969, 785). While the act was terminated in 1929, its legislative journey and its vehement advocates brought striking awareness to the issue of infant and maternal mortality and need for quality healthcare. The American Academy of Pediatrics was created with the purpose of “spreading the benefits of pediatric knowledge to children everywhere,” and within three years, the American Board of Pediatrics was established (Wyckoff 2020).

4.3c. The establishment of the American Board of Pediatrics (1933). The American Board of Pediatrics (ABP) was formed in 1933, and in 1934, the organization held its first examination that certified general pediatricians (Brownlee 2020, 734). It was less than three years after the formation of the American Academy of Pediatrics that the American Board of Pediatrics began certifying pediatric specialists. The ABP was composed of members from the American Academy of Pediatrics, the American Medical Association Pediatric Association, and the American Pediatric Society (Brownlee 1994, 733). Similar to its pediatric precursors, the ABP functioned to raise the standards of pediatric practice by way of developing guidelines and regulations that were applicable to all individuals granted membership. Within the realm of pediatrics, the American Board of Pediatrics was the first of its kind to distinctly examine the work and study of pediatricians, and this establishment is significant to pediatrics being firmly established in the United States. In reference to S. W. Newmayer's nineteenth century statement that "we do not know how to keep alive and healthy those children born," monumental progress in the United States was being made in terms of childbirth, prenatal care, children's institutions, and legislation (Newmayer 1911, 288).

The American Board's first examination took place in 1934, was entirely oral, and involved each examiner providing his own cases (Brownlee 2020, 734). During the early development of medical boards, it was common for particular individuals to be certified "on record" or "grandfathered" into the process, and original members of the ABP were appointed nine-year terms along with no restrictions for reappointment (Brownlee 2020, 734). By 1938, the ABP declared that no member could accept reappointment, and by 1941, the term of office for members was changed to six years, which remains in effect

today (Brownlee 2020, 734). According to its charter, the objective of the ABP was to review accreditation of training programs, develop criteria to certify members, and examine applicants (Brownlee 2020, 734). In this regard, the ABP was significant because the AMA Committee on Medical Education was previously the only agency that worked to evaluate training programs within the medical specialties (Brownlee 2020, 734). However, while the responsibilities of the ABP and Committee on Medical Education appear to overlap, the Committee on Medical Education did not include pediatricians (Brownlee 2020, 734).

Another significant organization includes the American Board of Medical Specialties (ABMS), which functions to standardize the guidelines and regulations of all participating medical boards (Brownlee 2020, 734). While it remains uncertain as to who led the process of uniting the specialty boards, the ABMS was established in 1933 (Brownlee 2020, 734). Following much debate, the ABMS publicized that AMA membership was not a requirement of the ABMS as it was determined that AMA certification did not deem a person a specialist (Brownlee 2020, 735). Membership in the ABMS included the five boards of ophthalmology, otolaryngology, obstetrics and gynecology, dermatology, and pediatrics, and in addition, these boards worked in conjunction with the Committee on Medical Education of the AMA, the Association of American Medical Colleges, the Federation of State Medical Boards, and the National Board of Medical Examiners (Brownlee 2020, 734-735). Additionally, by 1937, board certification was required to become a full Fellow of the American Academy of Pediatrics, which is regarded as the highest status of membership in this professional organization (Wyckoff 2020).

On the subject of pediatric residency, the Board of Pediatrics determined that candidates could be examined for certification five years post-graduation from medical school (Brownlee 2020, 735). These five years were intended to allow for a one-year internship, two-year pediatric residency, and two-year window for training and practice; however, physicians such as Dr. Graeme Mitchell, an early member of the AAP committee, did not agree with the two-year residency (Brownlee 2020, 735). Despite opposition, it was agreed that two years in residency was satisfactory given that Dr. Mitchell's students who had participated in a one-year residency failed their examinations when given the opportunity to confront the Board (Brownlee 2020, 735).

On the other hand, with the rise of the American Board also came inquisitions on what constituted the certification of a pediatrician (Brownlee 1994, 734). The conceptualization of the pediatrician can be defined as a type of medical physician who specializes in managing the physical, behavioral, and mental well-being of a child from birth until the age of 18. Pediatricians are distinct from other physicians in the field of medicine in how they are specifically trained to diagnose and recognize illnesses pertaining to infants, children, and teenagers. These physicians are tasked with paying special attention to growth and developmental factors unique to the pediatric population, and they must have the ability to recognize particular diseases and conditions that manifest differently in children than in adults. While individuals today acknowledge the need for pediatricians, this recognition exists as a result of numerous trained physicians and scholars advocating for children's health. Even so, despite years of clinical observations and statistical findings on the mounting infant deaths, it was not until the early 1930's that pediatric physicians came to be realized as specialists in their own right.

CONCLUSION

Pediatrics as a specialized branch of medicine did not function as such until after the middle nineteenth century. Literature pertaining to pediatrics before this time is limited, and amongst early civilizations, a child belonging to a lower socioeconomic status or impoverished family was most commonly exposed to inferior medical management and potential mistreatment (Garrison 1923, 2). An infant child was commonly perceived to be weak and classified as being low in value (Garrison 1923, 2). The light in which children have evolved to be viewed as the future of society is a result of an extensive history consisting of ancient medieval medical discoveries, infant welfare movements, institutions dedicated to children's health, and a greater amount of medical representation for the young.

American pediatrics is a relatively modern specialty with its being formally recognized as a special branch of medicine within the 1930's. While high infant mortality rates remained high in the years leading up to the nineteenth century, it was not until the middle of the eighteenth century that statisticians and scholars vocalized the need for immediate action to aid in infant survival. Advocacy for improving economic conditions for the poor as well as encouraging better hygiene contributed to decreasing the rate of infanticide. The battle to save the babies gained much attention and support leading into the nineteenth and twentieth century as funding for pediatric teaching within universities and leading hospitals for children seeking medical attention began to cement itself within society.

The nineteenth century appeared hopeful for advocates of child health, yet the journey to securing pediatrics as an indispensable field of medicine whose independence was recognized apart from obstetrics and gynecology was not complete. More physicians and scholars rose to the forefront of pediatric medicine by way of publishing original observations and treating adolescent patients first-hand. Michael Underwood was amongst the prominent physicians who observed previously unfamiliar conditions, such as the skin-bound disorder Sclerema Neonatorum, and findings such those recorded by Underwood reflect an early interest in pediatric conditions. Clinical observations prior to the days of expert precision showcase how far pediatrics as a discipline has evolved since this time period. Throughout this essay, I present many explanations as to how children are not simply small adults, and this distinction is made evident by way of the heightened discussions on childhood diseases, child anatomy and physiology, and the need for more specialization amongst physicians and medical teaching. Biographical details on the life of Abraham Jacobi highlight his prominent relation to pediatrics that was central to pediatrics being regarded as a course of study within the university and the significance of representative case studies on infant survival. Jacobi was a distinguished physician and public advocate who committed his life's work to raising the standards of children's health and development within the unyielding world of medicine. The last chapter of my study is largely focused on Jacobi's efforts as it pertains to how he contributed to paving the way for more specialization during the mid-twentieth century. Pediatric institutions led the exploration of ways in which hospitals, caretakers, physicians, and families could all contribute to improving how children were managed within the nation's healthcare system.

In 1933, the American Board of Pediatrics was formally established, which signified a grand achievement for all advocates of children's health who contributed to maintaining the study of pediatrics before proper pediatricians. It may be reasonable to assume that any well-equipped physician or specialist of today is familiar with the general trend of the history of medicine (Garrison 1923, 1). In general, I believe that understanding the history of one's field of expertise is fundamental to gaining a more holistic perspective. Establishing the branch of pediatrics as a distinct specialty in the United States involves far more factors that could be further explored in a future scientific or historical paper, and this thesis helps to explore one narrative of how pediatrics grew to become the specialty it is today.

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