HISTORY

psychological and physical well-being. There is also a common medical rhetoric. Now, as then, physicians, nurses, and public health officials understand that impoverished urban children are especially vulnerable to certain health issues, even if the specific diagnoses have changed over time. Moreover, medical professionals lament the limited time children spend outdoors in green space, and advocate time in nature to improve physical health and mental well-being. As we would expect, there are also key differences between the early 20th century and today. Historically, nature-based health programs enjoyed widespread popularity among families, philanthropists, and physicians. Today, however, many urban families report that going to a park is not of interest or importance to them, likely because of safety concerns. Health issues also differ. Historical programs served children who were underweight; those with orthopedic conditions like polio, rickets, and tuberculosis; and babies with “summer diarrhea.” In contrast, contemporary children struggle with overweight and obesity as well as attention-deficit hyperactivity disorder (ADHD), anxiety, and depression.9

Despite these divergent trends, we argue that historical antecedents offer insight into structures and objectives.2 For children’s programs, pediatricians prescribe time in green space for patients, citing a growing scientific literature that indicates that children who spend more time outside increase physical activity,3 improve attention,4 and have lower rates of depression.5 NaturePHL, like many nature prescription programs, is a collaboration between pediatricians, environmental groups, government agencies, private corporations, and urban families. Despite the apparent novelty of these programs, they are not new. Rather, they are a modern version of nature-based therapeutics that characterized children’s health programs in the late 19th and early 20th centuries. Across time there are overlaps in nature-based programs’ goals. They have all sought to use “nature” to transform urban children’s health, ameliorate malnutrition, and improve children’s psychological and physical well-being. There is also a common medical rhetoric. Now, as then, physicians, nurses, and public health officials understand that impoverished urban children are especially vulnerable to certain health issues, even if the specific diagnoses have changed over time. Moreover, medical professionals lament the limited time children spend outdoors in green space, and advocate time in nature to improve physical health and mental well-being.

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the importance of recognizing and ameliorating social, cultural, and infrastructural barriers to garnering popular support for present-day programs. Drawing from the past suggests that making parks accessible, providing needed resources, and building on existing social networks are keys to programs’ success. We also argue that historical programs provide a cautionary tale about the difficulty of evaluating the efficacy of nature-based medical programs.

Examining the trajectory of historical programs highlights potential consequences for quantifying nature’s impact. In the 19th century, miasmatic theory tied patients’ health and disease to their environments, and doctors commonly recommended that their patients change environments. At the turn of the 20th century, practitioners continued these practices but sought to align natural therapeutics with new scientific ideologies. They distilled and dosed nature’s therapeutic mechanisms, claiming that the sun’s UV rays, ocean water’s chemical composition, and fresh air’s ozone-free qualities improved children’s health. These investigations lead to technological solutions, such as UV lamps and saline solution that could replicate nature’s tonic elements within clinics. Although some institutions continued to serve urban children, by the 1930s American physicians’ participation in nature-based programming declined as they moved children from the outdoors to inside urban hospitals.

Today, new scientific studies enumerate myriad benefits to spending time in green space. As physicians, nurses, and public health officials once again begin to support nature-based programs, they are confronting issues both old and new. They are tackling how to account for the experiential knowledge and holistic benefits of nature-based programs that are not easily quantified. What variables are necessary for nature prescriptions to “work” and be worthwhile to physicians and program sponsors? More critically, what will make these programs worthwhile for families? Historical case studies provide insight into elements that may help or hinder contemporary nature programming’s success.

HISTORY OF ENVIRONMENTAL THERAPEUTICS FOR CHILDREN

Fresh air institutions proliferated in the late 19th and early 20th centuries in response to the intense industrialization in cities, poor housing conditions, and children’s resulting medical problems. The institutions provided children with “country weeks”—short stays in the country—as well as fresh air, open-air schools, and marine hospitals. These programs had a wide range of objectives, from providing a safe place to play to treating dying infants and children. Yet their commonalities are as important as their differences; all of these institutions promoted time outdoors as beneficial to children’s health and well-being.

The physicians, philanthropists, and religious leaders who opened nature-based programs believed that the urban environment caused diseases—from infantile diarrhea and “debility” to rickets and tuberculosis of the joints and spine. Child welfare advocates pointed to high rates of infant mortality, “crippled” children, and injurious accidents as proof of cities’ harmful effects. Pollution was a particularly problematic issue. In a 1926 AJPH article, Frederick Tisdall, a physician in Toronto, Canada, lamented that in American cities the sun’s rays were “readily absorbed by the smoke, dust and moisture of our atmosphere and on this account are markedly diminished.” He argued that “sunlight is essential to life,” that it could cure and prevent diseases like rickets, and that mothers should be taught that sunlight’s health benefits were “readily absorbed by the smoke, dust and moisture of our atmosphere and on this account are markedly diminished.”

Although few physicians went that far, Tisdall’s remarks are representative of public health officials’ and physicians’ belief that fresh air and sunlight held curative and preventive potential. Philadelphia serves as an instructive historical case study as it boasted a variety of philanthropic institutions that temporarily removed children from the city center. Two of these programs were the Sanitarium Association of Philadelphia (SAP) and the Children’s Seashore House.

In 1877, prominent Philadelphia businessmen, lawyers, and physicians founded the philanthropic SAP. The group wanted to provide “an accessible open-air resort where hundreds of sick children, who might otherwise perish for want of such advantages, could go daily and be under the care of medical attendants.” They sought children “who through poverty are confined to unsanitary homes, unable to breathe fresh country air or improve their unhealthy surroundings” and brought them to the park. To achieve this goal, they opened a playground on Windmill Island in the Delaware River located between...
Philadelphia, Pennsylvania, and Camden, New Jersey. When that location became waterlogged after a tornado and threatened by shipping interests, the SAP’s managers moved the playground seven miles downriver to an 81-acre park in Red Bank, New Jersey.19

Ferries shuttled children and visitors between Philadelphia and the SAP. As one person reported, “It was a treat to see the poor children who enjoy their trip upon the water, and a greater one when the boat reached its landing at the Jersey shore; there were swings, bathing pools, and hammocks.”20 In addition to playing and relaxing, children enjoyed bowls of hot soup, biscuits, and milk during their stay.21 Mothers had tea at 3 PM.22 Children received clothing at no cost.

The SAP also provided child care. Although the institution welcomed mothers, they allowed children to attend on their own or with an older sibling. In its annual report for 1913, the institution published an account of a benefactor escorting three children to the playground, despite having only met them on the street corner that day and not having spoken with the mother before they departed. As the scene played out, a neighborhood woman called out to ask where they were going. Apparently unperturbed by the children’s chaperone, she ironically admonished the children, “Don’t yees get hurted or drowned . . . or your mother’ll beat you black and blue when yees git back.”23

By all measures available at that time, the institution was a success. In 1878, one of the SAP’s physicians, William Hutt, declared, “The result of our work has been a reduction in the death rate of children under five years in our city by one-half.”24 Although such proclamations are impossible to prove, we can infer that urban families believed that the SAP was a valuable resource.25 In 1878, the institution admitted 42,479 visitors, including infants, children, and mothers. In 1901, more than 125,000 visitors used the park, with an average of almost 2000 children and caretakers attending each day.26 According to the institution’s secretary, Eugene Wiley, the Sanitarium Association cared for 2,304,094 women and children during 23 years of operation.27 Urban families’ widespread use of the SAP suggests they appreciated the services and enjoyed the park. The provision of child care, free transportation, garments, food, and open green space likely contributed to the institution’s popularity among working-class families.

Urban families supported other Philadelphia-based programming as well. In 1872, a group of wealthy Philadelphians opened the Children’s Seashore House (CSH), a philanthropic hospital that provided “the benefits of sea air and bathing to such invalid children of Philadelphia, and its vicinity, as may need them, but whose parents may not be able to meet the expenses of a residence at a boarding house, and the necessary medical advice.”28 The institution was run by a staff of nurses and

Note. The boardwalk afforded patients with access to sea air, as well as entertainment during their hospital stays.


FIGURE 1—Nurses With Patients on the Atlantic City Boardwalk
physicians. Philadelphia-based charities and hospitals referred families who were admitted to the CSH regardless of race, religion, nationality, or ability to pay. Children and mothers took a train to Atlantic City, New Jersey, and generally stayed at the hospital for one to two weeks during the summer months. It was an inexpensive way to access the popular seashore resort. Railroad companies subsidized train tickets, and the hospital charged between $2 and $3 per week for food and lodging or waived the fee for destitute families.29

William Bennett, the physician in charge of the CSH, echoed other elite physicians’ claims that the seashore’s environment was uniquely capable of curing urban children with conditions ranging from asthma to eczema to tuberculosis.30 He bemoaned that most people would not be able to “see the wonderful transformation which Nature is constantly working in our invalid children,” so he relayed stories of patients’ transformations to convince donors of the hospital’s benefits (Figures 1 and 2).31

Urban families did not need to be convinced. The CSH often received more requests for admission than they could accommodate. Admitted families stayed in one of the beachfront Mothers Cottages: small, private units located between the main hospital and the ocean. Children admitted without their parents stayed in one of the wards in the large, multistoried hospital building. While at CSH, children spent their days on the beach, flying kites, building sand castles, and swimming in the ocean, under the watchful eyes of nurses and mothers (Figure 3).32

Everyone ate together in the dining hall.

The CSH logbooks of patient admissions suggest that working-class mothers appreciated the communal aspects of the institution and used it as a site for health and leisure. Mothers brought healthy children to the hospital, and families and neighbors traveled and stayed together. Many families returned for multiple summers.33 Such practices likely engendered participation among urban communities.

The CSH, like the Sanitarium Association, enabled urban families to access nature through subsidized programs. Both institutions provided food, clothing, child care, and a safe place for children to play, and they allowed mothers to maintain their social and familial connections. Families demanded access, and shared the view of physicians that time in nature was time well spent.

OUT OF NATURE, INTO THE CLINIC

Despite their popularity, nature-based therapeutic programs faded from medical practice over the 20th century, even while some continued to serve children. Physicians celebrated their institutions’ success with little pushback through the first decades of the 20th century. The SAP’s medical superintendent claimed responsibility for reducing Philadelphia’s infant mortality rate, whereas physicians at the CSH reported quantifiable measures of patients’ improvement, such as weight gained and counts of patients who were discharged “well.”34 Physicians also relayed stories of patients’ newly straightened spines, rosy cheeks, healed wounds, and rounded bellies. Children’s bodies bore testament to the tonic effects of nature.

Yet corporal evidence was not enough to sustain medical investment. By the early 20th century, physicians published articles in elite journals, including the Journal of the American Medical Association and the British Medical Journal, that quantified the benefits of time at the shore, including increased metabolism,35 high opsonic indices,36 oxidation of blood,37 weight gain, and diseases arrested and cured.38 Scientists and doctors sought to calculate and quantify patients’ results, thereby aligning their practices within the dominant trend of scientific medicine.

Efforts at quantifying nature’s therapeutic impact, however, could not sustain medical investment. By the mid-20th century, doctors had largely abandoned nature-based therapeutic programs.
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programs, and many institutions shuttered. The Sanitarium Association continued to serve Philadelphia’s youth, but it morphed into a combination of soup kitchen and playground. These changes aligned the institution with programs like the Fresh Air Fund in New York City, operating primarily as a social rather than a medical program. Although programs continued to promote the health benefits of spending time outside, physicians no longer served central roles in the institutions.

The CSH followed a different trajectory. It remained a hospital in Atlantic City until 1990, when it moved to Philadelphia. Throughout the 20th century, nurses, physicians, surgeons, and other health care providers dominated the CSH; however, their primary mode of treatment shifted from environmental to technological, as they built surgical suites and employed an orthopedic surgeon as its physician in charge.

These changes aligned with trends within medical practice over the 20th century. Historians have documented medicine’s increasingly laboratory-oriented, technologically dependent, and hospital-based professionalization, and its move away from environmental ideologies and practices. As historian Christopher Sellers has argued, when medical practices coalesced inside urban hospitals and around technological systems in the early 20th century, physicians ceased to consider patients’ environments when determining diagnosis, treatment, or care.

By the 1920s, even champions of environmental therapeutics foresaw its decline. In 1926, physician R.I. Harris implored his colleagues not to abandon “heliotherapy” (natural sunlight therapy) to treat tuberculosis. Harris acknowledged that “following many cases we are convinced that it does produce a beneficial action, even though we cannot follow it in all the devious and obscure channels through which it operates.” Rhetorically, Harris placed heliotherapy alongside other empirically derived interventions like smallpox vaccination, digitalis, and quinine, arguing that “our ignorance of the nature of its action is no reason why we should discard it or limit its application.”

Harris’ plea fell on deaf ears. Instead of sending children outside into the sun, physicians turned on UV lamps and recommended vitamin D–fortified foods. The development of vaccines and the mass production of antibiotics enabled pediatricians to prevent and cure many of the conditions that once filled nature-based institutions. Environmental medicine retreated to a few fields that focused on environmental toxins and pathogens that caused diseases. Over the 20th century, environmental programming continued, but doctors no longer prescribed them. Technology, physicians saw, replicated nature, and being outdoors was no longer medically necessary.
PRESCRIBING NATURE ONCE MORE

Today, physicians’ support for programs that provide urban children with access to nature is once again building, as scientific studies are finding improved health outcomes associated with time spent in green space. Within cities, physicians are prescribing time in nature for children through dozens of programs offered across the United States. Farther afield, the National Park Service and the US Forest Service have initiatives—such as Every Kid a Park, Healthy Parks Healthy People, and Discover the Forest—to increase access to national parks and forests.48

Despite renewed interest, these urban-based initiatives face numerous challenges. Now, as then, they are grappling with how to scientifically prove their intervention’s success through quantifiable measures. This task is more pronounced today than yesteryear. In the 21st century, physicians and patients understand their bodies, environments, and health within a biomedical model that has largely defined these as separate spheres with limited overlap or influence.49 Moreover, physicians demand scientific proof as evidence of a program’s benefits.

Philadelphia’s NaturePHL is an instructive example of these emerging programs, both for the health benefits they promote and the challenges they face. Established in 2014, NaturePHL’s objective is to increase the amount of time urban children play outdoors by connecting them with parks and playgrounds in the city and beyond. Similar to its predecessors, NaturePHL is led by a nonprofit organization, the Schuylkill Center for Environmental Education, that works in collaboration with medical and governmental agencies, parks, and public health professionals.

Nature prescription programs today are often grassroots and depend on the unfunded efforts of individual care providers, parks managers, and other public employees. Funding for NaturePHL is obtained from a mix of private industry (such as health insurance companies), private philanthropic groups, and government agencies.

Primary care physicians administer NaturePHL in Children’s Hospital of Philadelphia clinics. During annual well-child visits, physicians inform patients about the benefits of time outside. They then refer families to the NaturePHL Web site to locate nearby parks. The physicians provide guidance to children with diagnoses of ADHD, anxiety, depression, or being overweight or obese, and children who indicate spending limited time outdoors. Families can work with a Nature Navigator, who facilitates their access to one of the city’s public parks or nature programs.

NaturePHL, like contemporary counterparts, builds on recent scientific evidence that quantifies the benefits of spending time outdoors.50 Studies have demonstrated that children who live in greener environments have lower blood pressure51 and enjoy increased outdoor time and physical activity.52 Children’s exposure to urban green space can also improve attention, especially for children with ADHD,53 and lessen depression.54

As in the early 20th century, urban youths struggle with malnutrition and chronic health issues. They also face challenges that are unique to the 21st century. The average American child now spends nearly eight hours a day watching a screen.55 Sedentary activities prevent children from meeting the American Academy of Pediatrics’ recommendation of at least 60 minutes of physical activity each day; only approximately 8% of youths in the United States achieve this standard.56 The statistics are even worse for low-income urban children,57 reflected in that population’s higher rates of obesity and overweight.58

As in the late 19th century, doctors today see nature as a tool to combat ills associated with the urban environment. However, many current nature prescription programs, such as NaturePHL, rely on patients’ access to nearby urban parks and green spaces, rather than transporting patients to natural areas outside of the city. This is in part because of the increased acreage of quality parks in urban areas after numerous phases of parks development in the 20th century,59 as well as the lack of funding to bring patients out of the city and provide room, board, activities, and care.

Another issue facing nature programming is that parents today may not view the benefits as outweighing the potential drawbacks. Fear of crime and crime itself can prevent people from using parks.60 A 2014 survey of Philadelphia residents reported that residents’ concerns about safety—namely, crime and violence—in neighborhoods and nearby parks were a major barrier to spending more time outside. In Philadelphia, some of this apprehension stems from overpolicing and racial tensions in the 1960s and 1970s centered around one of Philadelphia’s major park systems.61 Current feelings of safety around Philadelphia’s parks may be influenced by these historic events.

Families’ concerns about the safety of parks and playgrounds are particularly noteworthy. Philadelphia’s park system spans 9200 acres, covering more than 10% of the urban landscape.62 Historically, families viewed playgrounds and programs like SAP as offering a safer place for children to play than the city streets, and they traveled miles to access these healthy environments. Today, urban parks and green spaces are more prevalent in urban neighborhoods, are less affected by industrial air pollution, and in many cases can provide retreat from urban stressors. Despite improved conditions and access, in a 2014 survey, 60% of city residents said they visited a park infrequently or never and 88% reported never participating in a park program because of lack of information or interest.63

Even families who want to frequent parks face barriers. Work schedules are difficult to navigate, particularly in single-parent households. According to the Pew Research Center, in 2017, 32% of children lived with one parent and 3% had no parent at home, compared with 8.5% of children who lived in single-parent homes in 1900.64 Mothers today are more likely to work outside the home, and social norms have shifted such that the older siblings and “little mothers” who once escorted children to parks, including the SAP, would now be seen as too young and vulnerable to do so.65

Yet the popularity of programs that have operated since the 19th century, including the Fresh Air Fund and the Sanitary Association (now called Soupy Island), suggests that urban families still try to provide their children with access to nature, at least beyond the city limits. The questions become how urban programs address families’ concerns about safety, facilitate access, break down barriers, and encourage families’ participation in city-based nature prescription programs.
LESSONS LEARNED

Historical institutions provide possible answers to these questions. The SAP and CSH allowed families to access parks, playgrounds, beaches, and open-air settings by providing child care, transportation, food, and clothing for free or at reduced rates, and by encouraging urban families to maintain their city-based social networks throughout their stay.

Although social, cultural, and medical contexts have changed over the past two centuries, we can glean important lessons from the successes of these historical nature-based health programs. Nature prescription programs like NaturePHL can look to ventures like the SAP and the CSH for lessons on providing infrastructure and resources that meet families’ needs, whether it is food, transportation to green spaces inside as well as outside the city, or a safe place for kids to play. The mechanisms and partnerships necessary to provide this infrastructure will need to be developed according to context. By making these experiences fun and fostering a sense of community, nature-based programs may begin to take deeper root. Although popular and medical perceptions about the environment’s role in health has changed, public and health professionals alike recognize that time outside improves urban children’s health.

Historical programs also provide a cautionary tale. Even with medical and popular support, nature prescription programs may once again fade from medical practice and memory.

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This article was accepted May 21, 2019. doi: 10.2105/AJPH.2019.305204

Contributors
The authors contributed equally to the article’s argument, framing, introduction, and discussion, and to revising and editing this article in its entirety. M. Crnic wrote the sections “History of Environmental Therapeutics for Children” and “Out of Nature, Into the Clinic.” M.C. Kondo wrote the “Prescribing Nature Once More” section.

Acknowledgments
We thank the editors of the Journal, as well as the anonymous reviewers for their astute feedback on earlier versions of this article.

Conflicts of Interest
The authors have no conflicts of interests to disclose.

Endnotes
closely related to fresh air programs, hospitals used nature to treat children with active, and often chronic, non-contagious medical conditions, rather than focus on prevention and social intervention.

14. When children develop tuberculosis, it most often appears in the joints and spine rather than in the lungs, as it does in adults.


17. Ibid., 698.


22. Ibid., 14.


25. For another perspective on the Sanitarium Association, see Condran and Murphy, “Defining and Managing Infant Mortality,” 491–494.


27. Ibid.

28. “The Children’s House, NE. Cor South Caroline and Pacific Avenues, Atlantic City, N.J.” no page. The annual reports for the Children’s Seashore House can be found at the Historical Society of Pennsylvania. They vary in title and publication information, so for convenience they will be referred to as “CSH Annual Report for [year].”

29. CSH Annual Report for 1875, 15; back cover.

30. The Annual Reports often included lists of diseases of patients. See, for instance, CSH Annual Report for 1887, 6.

31. CSH Annual Report for 1914, 15.