

## *Formative Years*





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## Children's Health in the United States, 1880–2000

*Edited by*  
*Alexandra Minna Stern*  
*Howard Markel*

*Ann Arbor*

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## Foreword

Although the history of medicine should need no justification, it evidently does if one is to judge by the way medical students are taught. When I entered medical school in 1943, there was only a desultory lecture here and there on medical history. Yet the school I attended was the first established in the United States and traced its proud lineage to Edinburgh.

Current knowledge was presented with no context. Students were expected to memorize chemical formulas and to learn to specify metabolic cycles in biochemistry without ever being asked to think about why structure mattered, why the intermediate compounds were metabolized in a stepwise fashion, and what had led Krebs to identify a self-regenerating cycle. How much more fruitful (and exciting) would our education have been had the teaching been contextualized; that is, what incongruities and difficulties faced medical scientists at the time, and how did they design experiments that permitted a resolution of the conundrums?

The justification for medical history was best expressed in William Henry Welch's homage at the Johns Hopkins Hospital celebration of Rudolf Virchow's seventieth birthday in 1891:

To appreciate the character and extent of an advance made by scientific discovery, it is necessary to know something about the ideas which have been displaced or overthrown by the discovery. The younger generation of students are in danger of forgetting that facts which are taught to them and which seem to them the simplest and most natural, may have cost years of patient investigation and hard controversy, and possibly have taken the place of doctrines, very different or even contradictory, which long held sway, and which seemed to other generations equally simple and natural.<sup>1</sup>

The Virchow honored by Welch and Osler is remembered today, if he is recognized at all, as a founder of scientific medicine for having

established cell doctrine in pathology.<sup>2</sup> In 1838, Theodor Schwann had discovered that animals, like plants, consisted essentially of nucleated cells as their basic biologic units. However, Schwann concluded that those cells developed by spontaneous generation from an undifferentiated homogenous substance termed the “blastema.” In pathology, this doctrine led to the belief that when an inflammatory exudate becomes “organized” (that is, when it acquires a cellular structure), the cells develop out of the fluid matter of the exudate. Karl Rokitansky’s theory of the dyscrasias was based on the concept that all pathology stemmed from the blood. By detailed experimental study of inflammation, Virchow disproved blastema theory and asserted unequivocally:

No development of any kind begins *de novo*. . . . Where a cell arises, there a cell must have previously existed (*omnis cellula e cellula*), just as an animal can spring only from an animal, a plant only from a plant.<sup>3</sup>

But there was another Virchow, one students rarely hear about, the one who coined the aphorism “Medicine is a social science and politics are nothing but medicine on a grand scale.”

Appointed to a commission of investigation set up to look into the epidemic of relapsing fever that was devastating miners in Upper Silesia, Virchow insisted that the causes of the epidemic were social more than medical: the bad housing and malnutrition of the miners made them vulnerable to disease. His contributions to public health were no less extraordinary. Having discovered the pathophysiology of trichinosis and traced its origin to infected pigs, he led a successful ten-year campaign to establish compulsory meat inspection in Germany. He designed and supervised the Berlin municipal sewage system that set the pattern in Germany and Europe. Virchow and his colleagues fought for the public provision of medical care for the indigent, prohibition of child labor, protection for pregnant women, reduction of the working day in dangerous occupations, and provision of adequate ventilation at work sites. Their proposals for medical reform were based on four principles: the health of the people is a matter of direct social concern; the relations between social and economic conditions and health must be subject to scientific investigation; the measures to combat disease must be social as well as medical; and medical statistics should be the standard of measurement.<sup>4</sup>

Why is Virchow, if he is recalled at all today, known only as a conventional biomedical scientist, while the Virchow who was an exponent of social medicine is unheard of? In part, this reflects the recession of

medicine as a social science in Germany and Europe in the last half of the nineteenth century; in part, it reflects the triumph of bacteriology during the next century. Whereas Virchow was concerned with environment and host as well as disease, the new doctrine of specific disease agents (identifiable microorganisms) shifted the medical gaze entirely to the pathobiology of disease. The excitement of the new science, especially as it became coupled with the discovery of therapeutic interventions to control infectious disease, increasingly preempted medical attention. Doctors learned to treat infection and not to try to cure poverty. In the rush to treat, it is easy to overlook the fact that promiscuous use of drugs leads to resistant infections or that infections occur disproportionately among the poor even after treatments are introduced, if the conditions that breed them are not corrected.

Virchow's story is strikingly parallel to that of Abraham Jacobi. Like Virchow, Jacobi was a socialist and a participant in the 1848 German revolution. Far more radical than Virchow, he joined the Communist League. Arrested and imprisoned for plotting to overthrow the Prussian king, he escaped and followed Karl Marx and Friedrich Engels to asylum in Britain and before coming to the United States. Jacobi's report on his investigation of the causes of the high infant mortality in New York tenements echoed Virchow in attributing the deaths to culture, class, poor housing, foul air, and insufficient milk. Cure required social and political as well as medical action.

In his inaugural address to the American Pediatric Society as its first president, Jacobi emphasized the responsibility of the pediatrician for preventing ill health.

The vast majority of [constitutional and infectious diseases] can be avoided, mortality greatly diminished, and ill-health resulting therefrom prevented. Ninety-nine cases out of every hundred of rhachitis need not exist. . . .

Questions of public hygiene and medicine are both professional and social. Thus, every physician is by destiny . . . a citizen of a commonwealth, with many rights and great responsibilities. The latter grow with increased power, both physical and intellectual. The scientific attainments of the physician and his appreciation of the source of evil enable him to strike at its root by advising aid and remedies.<sup>5</sup>

If physicians today understood the social roots of medicine and pediatrics, as did these pioneers, they would be at the leading edge of pub-

lic health reform rather than defending professional rights instead of patient rights.

—Leon Eisenberg

## NOTES

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4. Leon Eisenberg, "Rudolf Ludwig Karl Virchow, Where Are You Now That We Need You?" *American Journal of Medicine* 77 (1984): 524.
5. Abraham Jacobi, "The Relations of Pediatrics to General Medicine," *Transactions of the American Pediatric Society* 1 (1889): 6–17 (quotation is on pp. 16–17).