

## **Virtual Mentor**

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#### **Adolescent Medicine: Emergence of a New Specialty**

by Jessica Rieder, MD, MS, Elizabeth M. Alderman, MD,  
and Michael I. Cohen, MD

The essential elements behind the emergence of adolescent medicine as a medical subspecialty are the unique physical, psychological, developmental, and social needs of the adolescent. A combination of landmark scientific advances, a rapidly growing adolescent population, and societal changes over the past century have each played a role in the genesis of this new field. These changes provided the opportunity for clinicians to incorporate contributions from parent fields including endocrinology, gynecology, psychiatry, and infectious diseases that addressed the specific needs of the adolescent. The physical and hormonal changes that define puberty were elucidated as were the major psychological, cognitive, and behavioral developments that characterize the transition to adulthood. Clearly demarcating the onset of adolescence using both biologic and psychobehavioral markers helped to justify a specialty in adolescent medicine, and it emerged as a substantial scientific, clinical, and educational domain.

Key scientific advances from work primarily carried out in younger children or adults and subsequently applied to teens had a profound impact on advancing the field of adolescent medicine as a legitimate subspecialty. These advances took place, for example, in pharmacology of psychotropic medications and hormonal contraception, chronic disease management, and gynecologic diagnostic technologies.

#### **Increasing Morbidity and Mortality Among Adolescents**

While the advances of the 20th century likely contributed significantly to the 90 percent decline in population death rates from natural causes, the latter 3 decades of the century saw an increase in preventable causes of adolescent death, such as violence, automobile accidents, and suicide [1].

Societal changes in the US contributed to alarming patterns of adolescent morbidity and mortality. The post-World War II baby boom increased the number of teens in the United States from 30 million to 40 million by the early 1960s. Rejection of traditional religious, work, and interpersonal values by an increasingly independent and growing youth population in the 1960s led to more sexual experimentation, inconsistent contraceptive practices, wide use of illicit drugs, cigarettes, and alcohol, and secondary as well as postsecondary school failure.

The Women's Rights Movement, development of hormonal birth control methods, and the sexual revolution also had an indirect, yet profound, influence on the health of young adults. Many American youth seized the opportunity to express and experiment

with substance use, their sexuality, and familial and economic independence, but these behavioral trends were also associated with rising rates of sexually transmitted infections (STIs), teenage pregnancy, substance abuse, accidents, and violence. The field thus had to develop special interdisciplinary skills to address the unique intertwining of complex medical, developmental, and psychosocial issues characteristic of the adolescent patient.

### **Emergence of a New Subspecialty**

The emergence and formalization of adolescent medicine as a subspecialty is marked by 3 phases. Phase I had its origins in the late 19th century English school system. In 1884, physicians who cared for adolescent boys in boarding schools formed the Medical Officers Schools Association [2]. Soon after WWI, medical services exclusively for college students were developed to care for the increasing numbers of youth that were away from home. By the middle of the 20th century, boarding schools in the United States also began to employ school physicians to develop comprehensive student health services.

The second phase in the development of the field began during the middle of the 20th century, when services to adolescents moved beyond the school to academic medical centers and professional and federal organizations. In 1941, the first medical symposium on adolescence was held under the auspices of the American Academy of Pediatrics (AAP). By the 1950s, the first adolescent inpatient unit was opened, as was the first academic training program in adolescent medicine at Boston Children's Hospital [3]. With the support of the federal government, adolescent medicine training programs with comprehensive inpatient, outpatient, and psychosocial support services were developed in the 1960s.

Coincident with governmental support of the specialty was a rapid evolution of health law and medical practice that acknowledged the concepts of self-consent for emancipated or mature minors, and recognized the primacy of confidentiality. These changes opened the door to the establishment of hospital-based clinics and free clinics in large urban centers dedicated to treating STIs and alcohol and substance abuse. By 1968, the Society for Adolescent Medicine was formed [3]. Subsequently, many other organizations and committees with a primary focus on adolescent health were created to support the needs of this patient group.

The third phase in the development of adolescent medicine occurred in the latter part of the 20th century with the formalization of the field of adolescent medicine and with the institutionalization of community-based, interdisciplinary adolescent medicine, preventive and treatment services in general pediatric programs, general pediatric practices, and school-based health centers. In 1978, the Task Force on Pediatric Education, formed by all the pediatric academic societies, published a report that gave prominence and legitimacy to the nascent subspecialty [4, 5]. This report led to sub-board certification, accreditation of training programs, and the emergence of formal curricula for the preparation of future clinicians and investigators. In 1979, the AAP formally organized a Section on Adolescent Health, which has provided continuing medical education in the field of adolescent medicine for the practicing pediatrician.

The American Board of Pediatrics administered the first examination for sub-board certification in adolescent medicine in 1994, and in 1998 the Accreditation Council on Graduate Medical Education, through its Pediatric Residency Review Committee process, accredited 16 adolescent medicine fellowship training programs.

### **Future of Adolescent Medicine**

The next decade will undoubtedly bring many challenges. To highlight a few areas of scientific opportunity, expect a great deal of growth in neurobiology and vaccine development. Recent evidence suggests that the maturation of neurobiological development during adolescence takes longer than previously believed. This modification of our current understanding of the timing of adolescent decision making and social development will have far-reaching implications. The development and widespread use of vaccines to prevent herpes simplex virus, human papillomavirus, and human immunodeficiency virus infections will profoundly influence the health of adolescents. Work done in areas of serious adult diseases, such as obesity, hypertension, asthma, and diabetes will focus on research and clinical initiatives that can prevent or minimize the occurrence of these illnesses during adolescence.

Several important ethical issues relating to adolescents need attention, including gene therapy, transplantation, cloning, and genetic testing. The re-emergence of the debate about family responsibility versus adolescent autonomy will clearly influence the adolescent's right to consent and confidentiality. From a social perspective, adolescents now have access to communication tools that could exponentially increase their exposure to diverse educational, employment, and life opportunities. Teens and their families will have to acquire the skills to manage these tools prudently. Finally, the general field of adolescent medicine faces a number of complex challenges. These include the provision of clinical services to a rapidly changing and culturally diverse population of teens, the continued evolution and expansion of training programs, and the stabilization of funding streams for care, training, and research. We firmly believe that the next decade's many challenges are, in reality, profound opportunities.

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*Jessica Rieder, MD, MS, is an assistant professor of pediatrics at the Albert Einstein College of Medicine and an attending physician at the Children's Hospital at Montefiore in the Bronx, New York. She is also the director of the Bronx Nutrition and Fitness Initiative for Teens.*

*Elizabeth M. Alderman, MD, is a clinical professor of pediatrics at the Albert Einstein College of Medicine. She is the director of the post-doctoral fellowship program and adolescent ambulatory practice at the Children's Hospital at Montefiore in the Bronx, New York.*

*Michael I. Cohen, MD, was chairman of the Department of Pediatrics at the Albert Einstein College of Medicine from 1980 to 2002. He has been a member of that faculty since 1967 and currently is professor and chairman emeritus. Dr Cohen established one of the first comprehensive programs in the nation in adolescent medicine at the Montefiore Medical Center in 1967. It has since served as a prototype for similar programs throughout the country.*

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