Projecting, Predicting, Shaping: The Challenge of Workforce Models
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by childhood experiences such as exposure to arousing types of electronic media (e.g., television and video games)? Also in question is whether the insistent noise of television in the home may interfere with the development of “inner speech,” by which a child learns to think through problems and plans and restrain impulsive responding.

Research has clearly demonstrated a genetic component in attention-deficit/hyperactivity disorder (ADHD), and current treatment methods emphasize well-advertised drugs that purport to normalize catecholamine (dopamine, norepinephrine) function. Often, dramatic improvement is seen on a drug regimen, and writing a prescription (after the attention problem manifests itself) is an obvious choice for overscheduled physicians. Yet the contribution of environmental factors to the manifestation and severity of attention disorder has barely been touched by systematic research. This study’s preliminary indication that an omnipresent environmental agent is associated with manifestation of ADHD symptomatology suggests that early preventive efforts should also be part of the doctor’s armamentarium.

Guidelines from the American Academy of Pediatrics recommend no “screen time” for children <2 years old, no more than 1 to 2 hours a day of quality television and video for older children, and no electronic media in young children’s rooms. Yet a recent survey found that 43% of children <2 years old watch television every day, and 26% have a television in their bedrooms. The study also showed that 68% of children <2 years old spend slightly >2 hours a day using screen media. Somehow, the considered message of the American Academy of Pediatrics is not hitting the target.

Approximately 3 decades ago, teachers of young children at all socioeconomic levels began to report troubling changes in their students, mainly centering on decreases in abilities to listen, pay attention, and concentrate. Yet the teachers blamed the advent of fast-paced, attention-getting children’s programming for this trend. Now that the trend is viewed nationally as an “epidemic” of ADHD, perhaps it is indeed time to ask the research questions so ably initiated by Christakis et al to consider that pediatricians may have yet one more job to do in early parent education about placing limits on screen time.

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**ABBREVIATION.** GME, graduate medical education.

Hollywood loves creating movies in which the hero has seen the future and then acts to prevent an apocalyptic outcome by manipulating events leading up to it. At the end, the audience may be left debating the age-old question: Can you change the future?

The goal of Shipman et al is less dramatic than that of the silver screen, and an oversupply of general pediatricians can hardly be viewed as apocalyptic. The authors are quite cautious, in fact, and don’t pretend to “predict” the future but rather to “project” it, that is to project workforce supply based on current available data and a refined projection model. But how well can one project the future workforce or manipulate the pipeline to change it?

Workforce projections are not new, although methodologies and factors influencing the analyses have varied. One report suggested that it takes 50 years to stabilize the physician-to-population ratio; thus, manipulating the future is definitely slow and problematic. How successful were past prophesies in either predicting or modifying the future? Let us examine 3 specific areas: the supply of pediatric generalists versus subspecialists; predictions about job opportunities for other specialties such as anesthesiology; and attempts to remedy physician maldistribution.

In the early 1990s, we were warned about an oversupply of subspecialists and a dearth of generalists based on a decline in the number of medical students matching to primary care specialties. Pressure came from the federal government, which offered financial incentives to training programs to increase the number of generalists. These incentives included increased graduate medical education (GME) payments to programs based on the number of primary care trainees and increased Title VII funding. What was the outcome of these manipulations? The number of medical students matching to primary care specialties peaked in 1998, reaching 53.2%. Data from the American Board of Pediatrics, and included in the report of Future of Pediatric Education II.
cautioned about a paucity of pediatric specialists, especially in areas such as pediatric rheumatology, nephrology, and neurology. Although data from the American Board of Pediatrics actually show an increase in the absolute numbers of pediatricians entering subspecialties, the percentages of subspecialists compared to generalists decreased over a number of years. Figures are confounded by an increase in the number of pediatric subspecialties such as pediatric critical care and emergency medicine. The percentage decrease, however, has been attributed to the push toward generalism. Was the attempt to manipulate the future responsible for the shortages that occurred?

What influences the career choices that medical students and residents make? Concern about unemployment or lower incomes is noted to play a role. For instance, in the late 1990s, the word went out that anesthesiologists had difficulty finding work, and for several years many anesthesiology training programs went unfilled. Within several years, the job market seemed to have miraculously reversed, and suddenly there was a predicted shortfall of anesthesiologists. A similar phenomenon was seen in other specialties including dermatology, which now has become one of the most competitive residencies to obtain. The perceived market place seems to have a strong influence on the career choices of medical students.

What are the factors that affect physician distribution? Can maldistribution be addressed by changes in physician numbers? Shipman et al maintain that increasing the total number of physicians doesn’t change the distribution of physicians. In 1996, Miller et al reported that 22.4% of residents experienced difficulty finding a position in the geographic area in which they wished to practice. Ultimately they had to practice in a different location, which would seem to suggest that supply does influence geographic distribution at least to some extent. Other factors such as having been raised in a rural area, being foreign born and foreign trained, being a National Health Corps member, or being a J-1 visor waiver program participant also influence one’s decision to practice in a rural area. Perhaps we need to consider these factors as we try to “shape” the future workforce.

Influencing the workforce through manipulation of resident positions is complex. GME funding, including the recent allocations to children’s hospitals, provides an incentive to some institutions to maintain a large resident workforce. On the other hand, unequal distribution of GME dollars, such as lower levels of funding to public hospitals, may affect the number of physicians trained to serve an underserved population. Recommendations to reduce the number of resident positions may be a less viable alternative as we face a reduction in resident duty hours. The service needs of institutions still must be met. Although the use of midlevel practitioners has been promulgated as a way to meet the workload demands, there are insufficient numbers of these nonphysician clinicians to cover all the services.

If the pediatrician supply cannot be readily curtailed, can the pediatrician workload be increased? Workload influences include a projected increase in the birth rate related to the older maternal age (and the associated occurrence of multiple births) and increasing numbers of Hispanic people with a larger family size. Although immunization has changed the face of childhood diseases, the complexity of dealing with the “newer” morbidities (or “newest” morbidities) remains a challenge. Pediatricians are expected to care for a number of previously underaddressed problems including childhood obesity and oral and mental health. Shipman et al mention that an overabundance of pediatricians may result in lower salaries, but salaries may improve if efforts to make reimbursement to pediatricians more equitable are successful.

On the other hand, large financial rewards have never been the goal of pediatricians. If I were counseling a medical student who was interested in general pediatrics, I would advise them to pursue their interests and not be dissuaded by forecasts that the job market was bleak. The cream rises to the top, and there have always been opportunities for skilled pediatricians. In a similar vein, projections about the future vary with the predictor. Although Shipman et al are concerned about an oversupply of pediatricians, Cooper et al have predicted a physician shortfall. We are left wondering whether we need to upsize or downsize and hope that, with our efforts, we do not capsize the entire system.

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