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The Effect of Gentle Ventilation on Survival in Congenital Diaphragmatic Hernia

ABBREVIATION. CDH, congenital diaphragmatic hernia.

In the September 2003 issue of *Pediatrics*, Stege et al¹ discuss the effect of new therapies for congenital diaphragmatic hernia (CDH) on survival. They point out that studies reporting improved survival using high-frequency ventilation, extracorporeal membrane oxygenation, inhaled nitric oxide, and delayed surgery are flawed by selection bias and conclude, after assessing 185 cases of CDH from a regional database, that survival is determined principally by the rate of antenatal termination and incidence of associated anomalies. Literature supporting a very promising approach to CDH, gentle ventilation, spearheaded by Wung et al,² was not presented. In a study reporting 89 consecutive patients with CDH at a single institution, patients treated with gentle ventilation had a 78% overall survival (89% of treated infants survived), compared with 15% and 44% survival during earlier eras in which paralysis, hyperventilation, alkalinization, and extracorporeal membrane oxygenation were used in the absence of gentle ventilation.³ This study minimizes the selection bias reported by Stege et al, with all CDH patients born during the time of data collection included for analysis. Because prenatal diagnosis did not effect survival in this cohort, it is unlikely that the improved survival was due to prenatal termination rate. Most recently, an 85% survival is reported with gentle ventilation in CDH.^{4,5} Given the low cost, low potential morbidity, and ease of initiating this promising therapy, gentle ventilation should be assessed aggressively and critically for efficacy in improving survival in CDH.

PATRICIA R. CHESSE, MD
 Departments of Pediatrics and Biomedical
 Engineering
 University of Rochester
 Rochester, NY 14642

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Address correspondence to Patricia R. Chess, MD, Departments of Pediatrics and Biomedical Engineering, University of Rochester, Box 850, 601 Elmwood Ave, Rochester, NY 14642. E-mail: patricia_chess@urmc.rochester.edu

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Early Television Exposure and Subsequent Attention Problems in Children

ABBREVIATION. ADHD, attention-deficit/hyperactivity disorder.

The study by Christakis et al,¹ relating the amount of children's television exposure at ages 1 and 3 years to later attention problems, is important and long overdue. Their systematic approach, their inclusion of a wide variety of variables, and the size of the group all lend credibility to their findings, which create a new imperative for follow-up investigations. Additional studies should, among other things, quantify more specifically the diagnosis of "attentional problem," investigate the potential mechanisms underlying this relationship, parcel out the effects of various types of content, and ultimately seek specific causal variables, if any exist.

Neuroscience increasingly confirms the power of environmental experiences in shaping the developing brain because of the plasticity of its neuronal connectivity. Thus, repeated exposure to any stimulus in a child's environment may forcibly impact mental and emotional growth by either setting up particular circuitry ("habits of mind") or depriving the brain of other experiences. This shaping process, which affects brain structure and function, seems to influence both cellular development and neurotransmitter regulation. Although little research has targeted specifically the developmental trajectory of the brain's attention systems, which include interlocking feed-forward and feedback loops and associated catecholamine neurotransmitters in prefrontal and subcortical areas,² there is every reason to believe that their gradual maturation implies a degree of malleability to environmental influences. One of the most interesting questions yet to be addressed is: To what degree can catecholamine mechanisms, which have been implicated in stimulus-seeking and addictive behaviors as well as in attention disorders, be "set"

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Address correspondence to Jane M. Healy, PhD, 4266 Columbine Dr, Vail, CO 81657. E-mail: janetomh@vail.net

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by childhood experiences such as exposure to arousing types of electronic media (eg, 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),³ and current treatment methods emphasize well-advertised drugs that purport to normalize catecholamine (dopamine, norepinephrine) function.⁴ 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.⁵ 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 decreasing abilities to listen, pay attention, and engage in independent problem solving.^{6,7} Frequently, 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 and to consider that pediatricians may have yet one more job to do in early parent education about placing limits on screen time.

JANE M. HEALY, PhD
4266 Columbine Dr
Vail, CO 81657

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Projecting, Predicting, Shaping: The Challenge of Workforce Models

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 al¹ 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.² How successful were past prophecies 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.³ 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.⁴ What was the outcome of these manipulations? The number of medical students matching to primary care specialties peaked in 1998, reaching 53.2%.³ Data from the American Board of Pediatrics, and included in the report of Future of Pediatric Education II,

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Address correspondence to Carol D. Berkowitz, MD, Harbor-UCLA Medical Center, 1000 West Carson St, Box 437, Torrance, CA 90509. E-mail: carolb@pol.net

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