

The future of neurodevelopmental medicine – ‘It ain’t what it used to be’

Good medical care is safe, effective, and timely,¹ and requires adequate numbers of physicians with the ability, commitment, and circumstances to provide it. Although referrals to specialists clearly vary considerably among different countries and health care systems,² there is current evidence that demand for pediatric specialty care in the US is likely to increase during the next two decades.³ This projected growth, however, is not expected to be uniform among the various subspecialties.

The Future of Pediatric Education II Project reported that child neurology, developmental-behavioral pediatrics, and pediatric genetics were among the most likely disciplines to experience shortages. Other studies and recent experience confirm that growth in child neurology is particularly at risk and suggest similar concerns for pediatric psychiatry, neurosurgery, and orthopaedics.^{4,5} Taken together these trends indicate a decreasing supply of the medical subspecialists who are most likely to be involved in the future care of those with disabilities.

Of course, predictions are always uncertain and all projections are based on assumptions, some of which may prove invalid. In medicine, scientific progress is likely to change who we care for, what we do, and how we do it. Methods to prevent or reduce the prevalence of disabling conditions may emerge, as in the case of folic acid supplementation with its beneficial effect in reducing new cases of spina bifida/anencephaly in the US. Future innovations in perinatal care may lead to additional benefits, such as the improved neurodevelopmental outcomes recently reported in preterm infants treated with inhaled nitric oxide.⁶ Other hopes for the future include reducing the prevalence of preterm births, the current prospects for therapy to mitigate neonatal brain injury and, of course, the tantalizing potential for the therapeutic use of neural stem cells.

In the meantime, the challenge before those of us currently involved in the care of the children and families affected by neurodisabilities is twofold: to improve recruitment into our specialties and to consider the implications for our disciplines and our patients if the pessimistic predictions prove correct.

Current data regarding medical student specialty choice indicate that multiple factors are involved. There are a number of studies supporting the influence of personality; but prior experiences, educational debt, perceived characteristics of the specialty, and socio-demographic factors have also been shown to be important. Recently, two other factors have been emphasized: the anticipation of specialty-related income and expected lifestyle. Despite indications that economic expectations are important, a recent analysis of the factors contributing to shifts in specialty selection by American medical students between 1996 and 2002 found that ‘controllable lifestyle’ accounted for the majority of the changes.⁷ How this trend and current student attitudes relate to ‘disabilities-specialties’ is unknown as specific studies of

student perceptions of these disciplines are lacking.

Research is needed to identify the population of medical students most likely to consider disciplines involved in the care of those with disabilities. Such analyses might facilitate identification and recruitment of individuals who will be personally satisfied and professionally productive in our subspecialties.

Additionally there is a need for comparative research on specialist workforce characteristics between various countries and regions to evaluate not only utilization patterns but also measurable effects on patient outcomes. The impact of increased utilization of telemedicine or other technologies should be studied. Changes in training programs, including restructuring the goals of academic divisions to focus on training generalists in relevant disciplines and better cross-training of disabilities specialists to enhance future clinical efficiencies, could be attempted. It will also be important to consider the ways that specialists’ roles may change in a system of care that shifts from a model based on reducing impairment to one focused on enhancing functional abilities and societal participation for those with disabilities.

Whatever measures we decide to pursue in order to increase the number of subspecialists and to maintain or improve levels of care for those with neurodisabilities, it’s clearly time to begin. Our patients have a right to expect our sincere efforts in this regard. After all, as Yogi Berra, the great New York Yankee catcher has said so famously, ‘The future ain’t what it used to be.’⁸

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References

- Goldberg MJ. (2006) Are We Helping? How Do We Know? *The Gayle Arnold Lecture at the Annual Meeting of the American Academy for Cerebral Palsy and Developmental Medicine, Boston 13–16 September 2006.*
- Forrest CB, Majeed A, Weiner JP, Carroll K, Bindman AB. (2003) Referral of children to specialists in the United States and the United Kingdom. *Arch Pediatr Adolesc Med* **157**: 279–285.
- Gruskin A, Williams RG, McCabe ERB, Stein F, Strickler J. (2000) Final report of the Future of Pediatric Education II Project pediatric subspecialists of the future workgroup. *Pediatrics* **106**: 1224–1244.
- Werner R, Polsky D. (2005) Comparing the supply of pediatric subspecialists and child neurologists. *J Pediatr* **146**: 20–25.
- Mayer ML, Skinner AC. (2004) Too many, too few, too concentrated? A review of the pediatric workforce literature. *Arch Pediatr Adolesc Med* **158**: 1158–1165.
- Mertan KK, Marks JD, Hecox K, Huo D, Schreiber MD. (2005) Neurodevelopmental outcomes of premature infants treated with inhaled nitric oxide. *N Engl J Med* **353**: 23–32.
- Dorsey ER, Jarjoura D, Rutecki GW. (2003) Influence of controllable lifestyle on recent trends in specialty choice by US medical students. *JAMA* **290**: 1173–1178.
- Berra Y. (2001) *When You Come to a Fork in the Road, Take It!* Hyperion: New York.