

**EDITORIAL**

**GERALD B. MERENSTEIN, MD**

University of Colorado School of  
Medicine  
Denver, Colo

*Eff Clin Pract.* 2001;4:178-179.

**e****c****p**

EFFECTIVE CLINICAL PRACTICE

**EDITOR**

**H. GILBERT WELCH, MD, MPH**

**INTERIM EDITORS**

**LISA M. SCHWARTZ, MD, MS**  
**STEVEN WOLOSHIN, MD, MS**

**ASSOCIATE EDITORS**

**JOHN D. BIRKMEYER, MD**  
**JAMES SARGENT, MD**  
**BRENDA E. SIROVICH, MD, MS**

---

## Neonatal Workforce: How Much Is Enough?

---

In 1980, the American Academy of Pediatrics Committee on Fetus and Newborn (COFN) stated that there would be a sufficient number of neonatologists by 1983.<sup>1</sup> In 1985, the Committee again assessed the neonatal workforce and concluded that there was an adequate supply of neonatologists to meet patient needs.<sup>2</sup> The Committee expressed concern that an increasing number of neonatologists might reduce the pediatrician's role in newborn care and result "in more fragmented and inconsistent care of the sick newborn." In the subsequent 15 years, the number of neonatologists in the United States has increased more than 150%.

In a recent survey of neonatal practices, Pollack and colleagues<sup>3</sup> provided some insight into what all those neonatologists do. Clinical care represents 40% to 60% of their workday, whether they are in private or academic practice. Because the last COFN statement assumed that neonatologists would spend one third of their time in clinical practice, this finding suggests a need for fewer neonatologists than predicted by the COFN. A surprisingly large number of neonatologists (62% of practices) provide normal newborn care. Approximately 50% of practices planned to hire additional neonatologists or neonatal nurse practitioners.

Workforce cannot be assessed simply by counting heads. Distribution and practice characteristics must also be considered. In a 1983 telephone survey of neonatologists, we found that the number of neonatologists varied in the nine standard U.S. census regions but found no correlation between infant mortality and the number of neonatologists per live birth.<sup>4</sup> In this issue of **e****c****p**, Goodman and associates<sup>5</sup> present new data on the geographic variation of the neonatologist workforce. In 246 market-based regions, they found marked variations in the number of neonatologists per live birth. These variations could not be explained by use of mid-level providers or by location of academic medical centers. Some areas had as few as 1.2 neonatologists per 10,000 live births, while others had more than 25. Does this workforce distribution make sense?

Although researchers can readily determine supply and distribution, determining the need for neonatologists is much more difficult. Changing patterns of care have affected the need for neonatologists. These include increased survival of

*This paper is available at [ecp.acponline.org](http://ecp.acponline.org).*

extremely low birthweight infants (<1000 g), decreased involvement of pediatricians in both subspecialty (level III) and specialty (level II) neonatal intensive care units, increased hospital care of normal newborns by neonatologists, and deregionalization of perinatal care. Need may be further affected in the future by the decrease in neonatal nurse practitioner programs and the limited time pediatric residents spend in neonatal intensive care rotations. The continued generation of new basic science information and translational applications may also affect neonatal care in the future. The need for neonatologists to actively pursue research careers may further increase the need for neonatologists.

Whatever the factors that affect need, it alone cannot explain the geographic variation in supply. Fifteen years ago, my colleagues and I worried that an excessive number of neonatologists would disrupt regionalization.<sup>4</sup> We worried that neonatologists would force pediatricians out of the neonatal intensive care unit (NICU) and normal-newborn nurseries. We worried that newborns might receive excessive intervention and treatment and that too many newborns might be admitted to the NICU (and stay there too long). Now these worries seem to be more real, particularly in certain parts of the country.

But no one knows for sure. Few data are available on the relationship between supply and outcome, and there are many questions. Is the increasing supply of neonatologists responsible for deregionalization of perinatal care? Has increased supply led to too many NICU beds? Does this in turn cause too many newborns to be admitted to the NICU? Is the NICU the right place for a mildly ill infant, typically one being observed to rule out sepsis? Or do too many mildly ill infants spend too much time in an environment where they are exposed to the dangers of infection and excessive intervention? These questions lead to the more fundamental question: Is the increasing supply of neonatologists beneficial or harmful to the long-term outcomes of newborns?

There is hope. The COFN and the Section on Perinatal Pediatrics of the American Academy of Pediatrics are working to better define the levels of

neonatal intensive care used today. The Section is updating its directory and is conducting surveys on training programs and on levels of care. The first two actions address the issue of supply, and the third addresses utilization. This will further refine our understanding of the supply of neonatologists; however, it does not separate demand and opportunity from need.

Much work remains to be done. Hard questions about quality must be answered. What constitutes quality intensive care for newborns? When is the NICU appropriate? When is it excessive? Research is essential if we are to assess outcomes in areas where the supply of neonatologists varies. Because the increased survival of neonates limits the use of survival as a performance measure, short- and long-term developmental outcomes must play an increasing role in quality assessment. Hard questions must also be answered about need. How should it be defined? Although opportunity and demand still exist, we clearly don't need more clinical neonatologists. It is important to define the need for a neonatal workforce in terms of the patient, not in terms of job opportunities for neonatologists.

#### References

1. American Academy of Pediatrics. Committee on Fetus and Newborn. Committee of the Section on Perinatal Pediatrics. Estimates of need and recommendations for personnel in neonatal pediatrics. *Pediatrics*. 1980;65:850-3.
2. American Academy of Pediatrics. Committee on Fetus and Newborn. Manpower needs in neonatal pediatrics. *Pediatrics*. 1985;76:132-5.
3. Pollack LD, Ratner IM, Lund GC. United States neonatology practice survey: personnel, practice, hospital, and neonatal intensive care unit characteristics. *Pediatrics*. 1998;101:398-405.
4. Merenstein GB, Rhodes PG, Little GA. Personnel in neonatal pediatrics: assessment of numbers and distribution. *Pediatrics*. 1985;76:454-6.
5. Goodman DC, Fisher ES, Little GA, Stukel TA, Chang C. The uneven landscape of newborn intensive care services: variation in the neonatology workforce. *Eff Clin Pract*. 2001;4:143-9.

#### Correspondence

Gerald B. Merenstein, MD, University of Colorado School of Medicine, 4200 E. 9th Avenue, Denver, CO 80262.