DOCUMENT RESUME

ED 376 637 EC 303 464

AUTHOR Hebbeler, Kathleen
TITLE Shortages in Professions Working with Young Children with Disabilities and Their Families.
INSTITUTION North Carolina Univ., Chapel Hill. Frank Porter Graham Center.
SPONS AGENCY Special Education Programs (ED/OSERS), Washington, DC.
PUB DATE Aug 94
CONTRACT HS-91-01-1001
NOTE 43p.; A product of the National Early Childhood Technical Assistance System.
AVAILABLE FROM NEC*TAS Coordinating Office Publications, 550 NationsBank Plaza, 137 E. Franklin St., Chapel Hill, NC 27514 ($5, quantity discounts available).
PUB TYPE Information Analyses (070)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Disabilities; Early Childhood Education; *Early Intervention; Labor Market; Nurses; Occupational Therapy; Paraprofessional Personnel; *Personnel Needs; Physical Therapy; Speech Therapy; Teachers; *Teacher Shortage; Therapists; Young Children

ABSTRACT

This paper synthesizes information about shortages among the professions working with young children with disabilities, birth through age 5, and their families. The paper begins with a look at national data on personnel working in early intervention and preschool special education. Distinctions between the work force in early intervention (Part H of the Individuals with Disabilities Education Act) and preschool special education (Part B of the IDEA) are clarified. The paper reports that teachers and paraprofessionals make up the largest portion of the more than 30,000 individuals working in early intervention; teachers and speech-language pathologists working with preschoolers total more than 17,000 (with no data on related services personnel). The paper examines shortages in key professions and what the future is likely to hold for them, focusing on physical and occupational therapists, speech-language pathologists, nurses, and teachers. Other issues related to personnel planning are discussed, including personnel quality, the impact of contracted services, and program adaptation to personnel shortages. The paper then explores various approaches and some of the challenges to quantifying shortages. The paper closes with a discussion of possible responses to the problem, such as decreasing attrition, staffing differently, and revising professional standards to increase supply. (Contains 36 references.) (JDD)

Shortages in Professions Working With Young Children With Disabilities And Their Families

by Kathleen Hebbeler

NEC*TAS
National Early Childhood Technical Assistance System

Shortages in Professions Working With Young Children With Disabilities And Their Families

by Kathleen Hebbeler

NEC*TAS
National Early Childhood Technical Assistance System
Chapel Hill, North Carolina

The National Early Childhood Technical Assistance System (NEC*TAS)
is a collaborative system, coordinated by the
Frank Porter Graham Child Development Center
of the
University of North Carolina at Chapel Hill

with

Federation for Children with Special Needs
Georgetown University Child Development Center
Hawaii University Affiliated Program, University of Hawaii at Manoa
National Association of State Directors of Special Education (NASDSE)
ZERO TO THREE/National Center for Clinical Infant Programs (NCCIP)

For more information about NEC*TAS, please contact the Coordinating Office at:

500 NationsBank Plaza
137 E. Franklin Street
Chapel Hill, NC 27514
(919) 962-2001
Fax: (919) 966-7463
Internet: NECTASTA.NECTAS@MHS.UNC.EDU

Additional copies of this publication are available at cost from the NEC*TAS Coordinating Office at the address given above. Please contact the Office for current order information.

This monograph is produced and distributed by the National Early Childhood Technical Assistance System (NEC*TAS), pursuant to contract number HS-91-01-1001 from the Office of Special Education Programs, U.S. Department of Education. Contractors undertaking projects under government sponsorship are encouraged to express their judgment in professional and technical matters. Opinions expressed do not necessarily represent the Department of Education's position or policy.

August 1994

Author: Kathleen Hebbeler, Ph.D., is a Senior Policy Analyst with SRI International in Menlo Park, California. She previously worked with the Office of Special Education Programs, U.S. Department of Education; the National Association of State Directors of Special Education; and the Montgomery County, Maryland, Public Schools. Her research has encompassed a number of areas related to public policy for children and families at the national, state, and local levels including early intervention and special education, child development, parent education, and community-based colaboration.

Principal Investigator: Pascal Trohanis
Contracting Officer's Technical Representative (OSEP): Peggy Cvach
Contract Specialist: Moira McLaughlin Xavier
Managing Editor: Nancy Guadagno

Contents

Acknowledgments

The author thanks the following people for their assistance in providing the information contained in this report:

- Amie Amiot and Cynthia Shewan (formerly) of the American Speech-Language-Hearing Association;
- Barbara Bloom Kreml of the American Hospital Association;
- Teresa Coska of the Office of Employment Projections, U.S. Bureau of Labor Statistics;
- Nancy Creaghead of the Council of Graduate Programs in Communication Sciences and Disorders;
- W. Vance Grant and Frank Morgan of the National Center for Educational Statistics;
- Trish Isbell (formerly) of NEC*TAS;
- Eva King of the American Physical Therapy Association;
- Nancy Milholland of the American Nurses Association;
- Judy Shaw of the National Easter Seal Society;
- Ira Silvergleit of the American Occupational Therapy Association;
- Ray Wiles of Westat, Inc.; and,
- Numerous staff members of states agencies.

The author also extends her appreciation to Carol Berman, Peggy Cvach, Joan Danaher, Jeanette McCollum, Luzanne Pearce, Nancy Striffler, Pat Trohanis, and Pam Winton for their thoughtful comments on an earlier version of this paper.

Introduction

Which of the following statements is true?

A. The number of children, age birth through 5 years, served in early intervention and early childhood special education programs has grown dramatically in the last decade.

B. The number of personnel employed to serve these children also has increased substantially.

C. There are not enough personnel to provide the services needed by these children.

D. All of the above.

If you answered "D," give yourself credit for a partially correct answer. Although all of these statements are widely regarded as true, the amount of data available to substantiate them decreases considerably from "A" to "B" to "C." It would be difficult to find an administrator of programs for young children with disabilities who would not attest to a personnel shortage. However, much of the evidence of a shortage has been and remains anecdotal or limited to discrete geographical areas. Even prior to the October 1986 passage of P.L. 99-457 (superseded by the Individuals with Disabilities Education Act [IDEA], 1990), state agencies recognized the personnel shortage problem but lacked the data to describe the extent of the problem (Meisels, Harbin, Modigliani, & Olsen, 1988). What might at first glance appear to be a simple task of counting how many professionals are needed turns out to be a complicated endeavor. This is one of the reasons there are such limited data available on personnel shortages among the professions that work with young children with disabilities.

A theme running throughout any discussion of personnel shortages is the complex and systemic nature of personnel issues (see, e.g., McCollum & Bailey, 1991). It is difficult to discuss shortages without talking about the capacity of institutions of higher education to train personnel, the factors that are increasing the demand for certain types of personnel, the other environments in which these individuals can work (and the salaries they can earn in these environments), and certification and licensing requirements. Because so many different forces interact to produce a given level of demand for personnel, a change anywhere in the system can have repercussions, foreseen or unforeseen, in many other parts of the system. The problem is linked to state policy because service delivery is state based, states set personnel standards, and states fund institutions of higher edu-

cation. The problem also is tied to national policy because the colleges and universities preparing tomorrow's professionals are not distributed evenly across all areas of the country. A local program director cannot find staff for an early intervention program because of a complicated web of societal factors and policy and programmatic decisions made within both the public and private sectors over the last several decades. Given the many factors that contribute to personnel shortages, easy or quick solutions are not likely. Unless the problem is addressed, however, high-quality services for young children with disabilities and their families are destined to be available only to the fortunate few who happen to live in select locations.

This paper synthesizes currently available information about shortages among the professions working with young children with disabilities, birth through age 5, and their families. The paper also explores various approaches and some of the challenges to quantifying shortages. It begins with a look at national data on personnel working in early intervention and preschool special education today. The paper then turns to current shortages in some key professions and what the future is likely to hold for them. The paper closes with a discussion of possible responses to the problem and data related to these responses. Its objective is to provide professionals, advocates, parents, administrators, program planners, and policy makers with the best available information to formulate a strategic response to a problem that is and will continue to be a significant barrier to creating a nationwide system of services for young children with disabilities and their families.

The Current Work Force

To understand who is needed to work with young children with disabilities, we begin with a look at the current work force. Some significant legislative differences between the programs for children from birth through 2 years and those for children from 3 through 5 years lead to different staffing patterns and available data for the two age groups. IDEA contains two distinct programs which provide grants to states and jurisdictions and establish requirements for the provision of services to young children with disabilities and their families. The Infants and Toddlers with Disabilities Program, Part H of IDEA, was created to encourage the establishment of statewide service systems for providing *early intervention* to children with disabilities (and to children at risk of developing disabilities, if states so choose) from birth through 2 years of age and their families. At the time this report was written, all states and jurisdictions were expected to be fully implementing Part H of IDEA by September 30, 1994.

The Preschool Grants Program, Section 619 of Part B of IDEA, provides financial incentives and sanctions to encourage states and jurisdictions to provide a free appropriate public education (FAPE), including special education and related services, to children with disabilities ages 3 through 5 years. Presently, all states and jurisdictions are fully participating in this program.

The difference in terminology between the two programs is not mere semantics. The fundamental difference in orientation between the two programs has substantial implications for what services are provided and, therefore, for who provides them.

For preschoolers with disabilities, IDEA focuses on *educational needs* which can be addressed through the provision of special education. All other services (e.g., occupational therapy) are "related" services. A preschool-age child cannot receive a related service unless there is a need for special education. Preschool special education is provided under the auspices of state and local education agencies. Therefore, teachers play a primary role in delivering services to preschoolers with disabilities.

Early intervention services provided under Part H do not contain an educational services litmus test. A child and family can receive any single service or a constellation of early intervention services. The program is administered and services are provided through a variety of agencies across the states. Although many states have designated their education agency as the lead agency for their Part H

program, more than one half of the states have designated other agencies, such as health or social services, as the Part H lead agency. In contrast to the services for preschoolers which are administered by education agencies, Part H is an interagency program reaching across health, education, developmental disabilities, and other agencies. The interagency focus of Part H is likely to result, in many states, in a more diverse staffing arrangement than that found in the preschool program.[1]

The Current Work Force in Early Intervention (Part H)

States' and jurisdictions' early intervention[2] systems are in various stages of development. Some states are establishing a service delivery system for infants and toddlers and their families for the first time. Other states are trying to coordinate services across multiple systems which previously had operated independently under different administrative auspices. Unfortunately, the evolving nature of these service delivery systems means that good data are not available nationwide on who is staffing the systems.

DOE's Office of Special Education Programs (OSEP) annually collects data on the implementation of IDEA. Among other data, OSEP requests states to report the number of people employed and needed in early intervention in several personnel categories. At the time this report was written, the most recent data available were for December 1991 (see Table 1). The data are reported in full-time equivalents (FTEs), meaning that two half-time professionals are counted as one FTE. Across 47 states and jurisdictions (out of a possible 57), a total of 29,610 FTEs were reported as employed or contracted to provide early intervention services.

The data in Table 1 suggest that early intervention services are being provided primarily by paraprofessionals and special educators, with paraprofessionals constituting one fifth of those involved in providing services. After paraprofessionals and special educators, the most frequently employed categories of personnel in early intervention are other professional staff, nurses, and speech-language pathologists.

Several caveats should be noted with regard to these data. First, given that not all states and jurisdictions reported data, the size of the work force in early interven-

[1] There are many other differences between the two programs which are beyond the scope of this paper. Additionally, some states are trying to build seamless systems of services for children from birth through age 5 years. In these states, it is likely that there would be fewer differences between all aspects of these programs, including personnel.

[2] "Early intervention" as used in this paper refers only to services provided under Part H of IDEA. Although this phrase sometimes is used to refer to programs for children older than 3 years or for young children from low income families, those meanings are not included here.

Table 1

Personnel Employed or Contracted in Early Intervention in 47 States and Jurisdictions

(December 1991)

Category of Personnel	Number	Percent*
Paraprofessionals	5,950	20.0
Special Educators	4,509	15.2
Other Professional Staff	3,487	11.8
Nurses	3,248	11.0
Speech-Language Pathologists	3,239	10.9
Social Workers	2,593	8.8
Occupational Therapists	1,734	5.9
Physical Therapists	1,616	5.5
Physicians	1,332	4.5
Psychologists	1,059	3.6
Audiologists	530	1.8
Nutritionists	313	1.1
Total Number Employed	29,610	

* Percentage of the total FTE employed and contracted across all categories.

Source: U.S. Department of Education, Office of Special Education Programs, Data Analysis System, 1993.

tion is certainly larger than 30,000. Furthermore, the states and jurisdictions reporting may not be representative of the entire nation. For example, health professionals may play a more substantial role in the nonreporting states.

Second, data from the state of New York make up a disproportionate share of the total. New York reported employing more than 15,000 people in early intervention, or more than one half of the total employed nationwide. The distribution of the data in Table 1 may be an accurate representation of the nation or they may characterize only New York.

Finally, many states have indicated difficulty in reporting the number of personnel providing early intervention services because these services often are provided by contracted rather than employed personnel. Although states are instructed in how to report data on contracted personnel, services purchased in

units from individuals or agencies make accurate tabulations about the total number of people providing early intervention services difficult or impossible. A survey conducted by the National Association of State Directors of Special Education (NASDSE) (1993) found that more states use contracted, rather than employed, personnel for the early intervention services provided by audiologists, occupational therapists, physical therapists, and physicians. This may reflect the trend for an increasing number of professionals to work as consultants or contractors. According to a survey of the membership of the American Occupational Therapy Association (AOTA) (1990a), 34.1% reported being self-employed or in private practice in 1990. This was up from 25.5% in 1986 and 7.3% in 1973. The data for the allied health professionals (i.e., speech-language pathologists, occupational therapists, and physical therapists) might show greater involvement of these professions in early intervention if vendored services could be more accurately captured in the numbers states report to OSEP.

Interestingly, the two categories comprising the largest share of the early intervention work force — paraprofessionals and special educators — also are the positions with the least uniformity in definition from state to state. Ill-defined or multiply defined categories pose problems for national data collection. Not all states, for example, use the term "special educator." Other titles used include "developmental specialist," "early interventionist," "interdisciplinary early childhood educator," "early intervention specialist," "child development family specialist," "infant specialist," and "early childhood special educator." It is not clear how many of these individuals are being counted as special educators for the purpose of data collection. States have proposed or are in the process of proposing a variety of educational requirements for this professional on the team, including a bachelor's degree in special education, early childhood education, or child development; a bachelor's degree with additional hours in an endorsement area; or a master's degree (Hebbeler, 1992). Qualifications that vary across state lines impact on personnel shortages in ways that are discussed later in this paper.

There also is no nationally accepted definition of what constitutes a paraprofessional. In some states, it may refer to someone with a high school diploma. In other states, it may be used to describe someone with a 2- or 4-year college degree but lacking all of the qualifications for licensure at the highest standard. Some states report discomfort with the term paraprofessional because it does not foster rapport among early intervention team members (Striffler, 1993). Again, the data should be interpreted cautiously because of the lack of uniformity in the definition of the role.

The 1991 data reported by individual states to OSEP (DOE, 1993) reveals striking differences among states in how early intervention programs are being staffed. Consider, for example, the data from Ohio and Pennsylvania. Although these two states have similar populations, Ohio reported serving more than twice as

many infants and toddlers in its early intervention program than did Pennsylvania. Ohio reported to OSEP that it employed 560 nurses in early intervention, compared to 26 reported by Pennsylvania. Pennsylvania, on the other hand, reported employing 339 special educators, compared to Ohio's 113. Ohio reported using 542 social workers, 43 psychologists, and 343 physicians; Pennsylvania reported 66, 7, and less than 1 FTE, respectively. Clearly, different service delivery models in these two states are producing demands for different types of personnel in early intervention.

The Current Work Force in Preschool Special Education (Section 619 of Part B)

In 1991-92, 17,579 teachers and speech-language pathologists[3] were employed to work with the nation's 3- through 5-year-olds with disabilities (DOE, 1993). This number represented approximately one teacher for every 24 preschoolers receiving special education and related services. The number of teachers employed has increased consistently from year to year. In 1987-88, 12,718 teachers were employed, 28% less than in 1991-92. There is tremendous state-to-state variation in the student-to-teacher ratio for services to preschool children with disabilities. In some states the ratio is 15:1, and in other states the ratio is as high as or higher than 30:1.

Unfortunately, no data are available on the number of related services personnel working with 3- through 5-year-olds with disabilities. The OSEP data include only the numbers of personnel employed, by professional category, to work with 3- through 21-year-olds with disabilities.

In summary, we know a little about who is currently providing services nationally to young children with disabilities. The total work force in early intervention is upwards of 30,000 FTE professionals and paraprofessionals, but the exact number is unknown. The best available data suggest that teachers and paraprofessionals make up the largest portion of those providing services to infants and toddlers. More than 17,000 teachers and speech-language pathologists work with 3- through 5-year-olds with disabilities. Some states report extensive use of contracted personnel about whom they have not collected good information.

[3] States are instructed by OSEP to include speech-language pathologists in their counts of special education teachers.

Shortages and Projections

Given the limited nature of national-level information on the personnel currently providing services to children with disabilities from birth through 5 years of age, it is not surprising that national data on personnel shortages in this area also are limited. Even though the data are spotty and need to be gathered from many sources, they are sufficient to suggest that some serious personnel problems have existed for a number of years and are likely to continue for many years to come. This section presents what is known about personnel shortages nationally and in selected states with an in-depth look at five key professions.

Personnel Needed in Early Intervention

Nearly 7,000 more people were needed to provide early intervention services in 1991-92, according to the 41 states and jurisdictions that reported data to OSEP (see Table 2). The greatest need was reported for speech-language pathologists followed by paraprofessionals and special educators. States also were having difficulty finding physical therapists, occupational therapists, and nurses.

Because not all states reported and because not all states were fully implementing Part H, the stated number of personnel needed by states is an underestimate of current and future personnel shortages. Also, states have indicated that it is even more difficult to determine the number of contracted personnel needed than to determine how many are providing services. Again, substantial portions of the national totals were attributable to New York: New York reported needing 2,311 of the 6,634 total personnel needed and 1,129 of the 1,576 total speech-language pathologists needed.

States varied in the type and number of personnel they most needed. Indiana, for example, employed 18.7 nurses in early intervention but needed 17 more — nearly one nurse was needed for every one currently employed. Ohio employed 560 nurses and needed 29 more; although this need is numerically higher than Indiana's need, it is a lower ratio of 1 nurse needed for every 19 employed. Georgia employed 21 occupational therapists and 30 physical therapists and needed 20 and 23 more, respectively. Louisiana employed 9 social workers and needed 10 more.

Figure 1

A Primer on Measuring Personnel Shortages

Discussions of personnel shortages often incorporate several key concepts, which are defined briefly below.

What is supply and how is it measured?

Current supply refers to the number of individuals who are qualified and want to work in a profession. *Potential supply* is the number of individuals who are qualified to work in a profession, including those who currently are not seeking employment. These later individuals may constitute an additional source of supply under the right conditions (better pay, more flexible hours, etc.). Supply increases as new graduates enter the field and decreases as qualified professionals leave the field due to career change, retirement, or death. Measures of supply include counts of those currently working and looking for work. New graduates are added to supply counts; those who leave the field are subtracted.

What is demand and how is it measured?

Demand refers to the number of positions that exist in a profession. Demand often is measured by counting positions plus vacancies. OSEP's approach to collecting data on needed personnel is a *demand-based* or *market-based* approach. OSEP requests counts on the number of vacant positions and positions that have been filled with less than fully qualified personnel.

What is need and how is it measured?

Need refers to the number of personnel required to provide adequate services within the service delivery system. One approach to measuring need involves estimating the number of children requiring various types of services and determining an ideal child-to-staff ratio. For example, Idaho, in its Year 5 Part H grant application (1991), presented 30:1 as an ideal ratio for physical therapists . Using other estimates, including the number of infants and toddlers who will require physical therapy, the state calculated that it needs a total of 20.75 physical therapists for full implementation of its Part H program. Similarly, the Florida Department of Education (1992) undertook a study of personnel need that was based on calculating ideal staff ratios for the various types of programs for young children with disabilities in the state.

Continued

Figure 1, *continued*

Is it better to measure demand or need?

Both approaches have utility but for different purposes. Counting actual positions (i.e., demand) provides useful data for training institutions and people making career choices because the data show the number of job opportunities available to graduates. The strength of a need-based approach is that it reflects the needs of children and families rather than currently available funding. Because many of the needed positions may never materialize, need-based data may not be as useful for planning personnel preparation programs. The American Speech-Language-Hearing Association concluded that basing personnel projections on need was unrealistic because need does not account for any of the political, professional, or economic aspects influences on the work force (Shewan, 1988).

In an ideal service delivery system, need and demand are identical (i.e., the system supports the number of personnel needed to provide the services its clients require). In a less than ideal system, more personnel are needed than the system can afford, in which case need is greater than demand.

> *Example*: A state may need 50 nurses in early intervention to fully serve infants, toddlers, and their families, but it can only fund 30 positions.
>
> Need = 50 Demand = 30

What is a personnel shortage?

A shortage exists when either demand or need exceeds supply. If demand is greater than supply, vacancies remain unfilled or are inappropriately filled because qualified personnel cannot be located. The term shortage also is used to describe the difference between need (by whatever means it is determined) and supply. Again, both ways of measuring the extent of a personnel shortage are useful but they can produce very different estimates.

> *Example*: A state needs 50 nurses to fully meet the needs of children and families. The state can fund 30 positions, and can find 20 qualified individuals.
>
> Personnel shortage (demand-based) = 30 - 20 = 10
> Personnel shortage (need-based) = 50 - 20 = 30
>
> In this example, the personnel shortage is three times as high with a need-based approach as with a demand-based approach.

Table 2

Personnel Needed in Early Intervention in 41 States and Jurisdictions

(December 1991)

Category of Personnel	Number	Percent*
Speech-Language Pathologists	1,576	23.8
Paraprofessionals	964	14.5
Special Educators	787	11.9
Physical Therapists	636	9.6
Nurses	616	9.3
Occupational Therapists	557	8.4
Other Professional Staff	541	8.2
Social Workers	457	6.9
Psychologists	185	2.8
Physicians	129	1.9
Nutritionists	112	1.7
Audiologists	74	1.1
Total Number Needed	**6,634**	

* Percentage of the total FTE employed and contracted across all categories.

Source: U.S. Department of Education, Office of Special Education Programs, Data Analysis System, 1993.

Personnel Needed in Preschool Special Education

The only national data on personnel needed for services for 3- through 5-year-olds with disabilities are for teachers. These data are reported in the section below dealing with this profession. Additional data for early interventionists also are presented later in the paper.

The Outlook for Five Professions

Indications of what the future holds for key professions serving young children with disabilities are available from several national databases. Most of these data address supply and demand for each profession as a whole, not just that portion of the profession working with young children. For many professions, especially

the health fields, early intervention and special education compete with a number of other areas for the same limited pool of professionals. Unfortunately, working with young children may not be the most attractive option for many of these sought-after professionals. This section describes current and projected supply and demand for physical and occupational therapists, speech-language pathologists, nurses, and teachers. The data for the first four professions are for the profession as a whole, covering all age groups[4]; the data for teachers are for those working with young children.

Physical and Occupational Therapists

According to the Office of Employment Projections of the Bureau of Labor Statistics (BLS), 90,000 physical therapists and 40,000 occupational therapists were employed in the United States in 1992 (Silvestri, 1993). There is an abundance of indicators that there are not nearly enough of these professionals to meet the current demand for their services:

- The American Hospital Association (AHA) (B. B. Kreml, personal communication, April 1993) reports a 16.6% vacancy rate for full-time physical therapists and a 14.2% vacancy rate for occupational therapists.

- According to the AHA, it takes an average of 22.5 weeks for hospitals to fill a physical therapist vacancy and 16.9 weeks to fill an occupational therapist vacancy ("Staff shortages," 1990).

- New occupational therapists are offered an average of four jobs, with two thirds securing employment before certification (AOTA, 1990b).

The growing demand for physical and occupational therapists has been attributed to a number of factors. The need for rehabilitation services has increased dramatically as the nation's population has aged, resulting in more older people living with multiple disabilities and chronic conditions. Across all age groups, medical and technological advances allow more individuals, including infants, to survive with serious medical conditions. These individuals also need rehabilitation services. Physical and occupational therapy services are needed in an increasingly diverse number of settings and in new fields such as sports medicine. Changes in financing and reimbursement policies also have increased the demand for these services. This overwhelming increase in demand is occurring at a time when the number of potential trainees in the population, the 18- to 23-year-

[4] The only national data for these professions and services to young children are the data from the U.S. Department of Education presented in Table 2.

olds, is declining and will continue to do so through the year 2000. Additionally, physical therapy and occupational therapy (like speech-language pathology, nursing, and teaching) traditionally have been female-dominated professions. As more career opportunities open to women, more professions compete for the shrinking pool of qualified female applicants (Olsen, 1991; Silver, 1991; Yoder, Coleman, & Gallagher, 1990; Saltzman, 1989; AOTA, 1988; National Easter Seal Society, 1988).

The future outlook calls for even greater demand. The BLS (Silvestri, 1993) has identified physical therapy and occupational therapy as two of the fastest grow-

Figure 2

Finding a Needle in a Haystack Will Be Easier Than Finding a Physical Therapist in 2005

Supply has been increasing very slowly (NCES, 1992):

Year:	84-85	85-86	86-87	87-88	88-89	89-90
Number of PT graduates:	3,129	3,039	3,239	3,402	3,514	3,500

Demand is projected to skyrocket by 79,000 new positions by 2005 (Silvestri, 1993):

Year:	1990	2005
PT Positions:	88,000	167,000

Attrition due to career changes, retirement, and death creates vacancies (4% is a conservative estimate for attrition):

4% x 88,000 = 3,520 leaving annually

All of the new graduates will be needed to replace those who leave the profession due to attrition. Unless training capacity expands rapidly, there will be *no* new graduates available to meet the projected increase in demand. This will result in a personnel shortage of 79,000 PTs by the year 2005:

Increase in Demand		Increase in Supply		Projected Shortage
79,000	-	0	=	79,000

ing occupations: Physical therapy is the seventh fastest growing profession and occupational therapy is among the top 20. The demand for physical therapists is expected to increase 88% by the year 2005, representing 79,000 more professionals than were employed in 1992. The demand for occupational therapists is expected to increase 60%, or 24,000 more professionals than were employed in 1992. These numbers compare to a projected growth rate across all occupations of 22%.

According to the National Center for Education Statistics (NCES) (1992), 3,502 individuals graduated nationwide in 1989-90 with a bachelor's degree in physical therapy and 1,987 graduated in occupational therapy. A bachelor's degree is the highest standard required for licensure in most states in these professions (Bruder, Klosowski, & Daguio, 1991). The number of graduates in physical therapy has been increasing slightly over the last several years, up from 3,129 in 1984-85. The number of occupational therapy graduates has remained constant over the same time period.

The shortage of physical and occupational therapists is more intense in some areas than in others. Connecticut, for example, had 9.29 licensed physical therapists per 10,000 population in 1989; Massachusetts had 12.28. By contrast, Alabama, Louisiana, Mississippi, and South Carolina all had fewer than two physical therapists per 10,000 population (American Physical Therapy Association [APTA], n.d.). Occupational therapists were the most unevenly distributed of all the allied health professionals. In 1980, only 10.1% were employed in nonmetropolitan areas, compared to 23% of the population which resides there. In 1980, metropolitan counties had 60% more physical therapists and 39% more occupational therapists per 100,000 population than nonmetropolitan counties (U.S. Department of Health and Human Services [HHS], n.d.). All available data on physical and occupational therapists point to the same conclusion: Any problems that programs for young children currently are experiencing in locating these professionals are going to get worse in the next decade.

Speech-Language Pathologists

Of the professions most heavily involved in providing services for young children with disabilities, speech-language pathology has the highest educational requirements. Most states require a graduate degree and the American Speech-Language-Hearing Association (ASHA) policy establishes a master's degree as the minimum level of preparation for entry into the profession (Bruder et al., 1991; Shewan, 1988). ASHA reports that in 1990 the average annual salary for an ASHA member with a master's degree was $31,580. The generally high educational requirements combined with relatively low compensation levels could have negative implications for the supply of speech-language pathologists in the future. On the other hand, ASHA's 1988 work force study found that speech-

language pathologists do not leave the field in large numbers and generally are satisfied with their profession (Shewan, 1988).

The BLS reports that there were 73,000 positions for speech-language pathologists in 1992 (Silvestri, 1993). ASHA estimated the supply of active personnel to be 83,100 with about half belonging to ASHA (Shewan, 1988). Only 1.6% of ASHA members reported that they were seeking employment, suggesting that currently there is neither an under- nor an oversupply of speech-language pathologists. According to the AHA, hospitals reported a vacancy rate in speech-language pathologist positions of 11.1% in 1991 (B. B. Kreml, personal communication, April 1993).

A forecast method, based on the needs of individuals with communication disorders, estimated that between 127,000 and 295,000 speech-language personnel will be needed by the year 2000 (Shewan, 1988). A smaller but still expanding picture of the work force emerges when the forecast looks at projected positions (demand). The total number of positions for speech-language pathologists is expected to grow to 110,000 by the year 2005, a growth rate of 51% over 1992 (Silvestri, 1993). The supply to meet this demand appears to be dwindling, however. Data from the Council of Graduate Programs in Communication Sciences and Disorders indicate that approximately 3,500 master's degrees were awarded in the field in 1989-90 (N. Creaghead, personal communication, April 1993). The number of master's degrees awarded has been declining from a high of 4,418 in 1983-84 (Shewan, 1988). The number of bachelor's degrees awarded also has decreased sharply. In 1987-88, 3,923 bachelor's degrees were awarded compared to 6,082 in 1980-81 (HHS, 1992; Shewan, 1988). The number of master's-level *programs* declined 8% between 1982 and 1987 (Cooper, Hemlich, & Ripich, 1987, cited in Shewan, 1988). Furthermore, the number of students applying for admittance to these programs has declined along with the number of students entering, suggesting that fewer students are seeking speech-language pathology as a career (Shewan, 1988).

ASHA reports that 10.7% of its membership, or about 4,000 people, leave the field each year. Of these, 3.3% are temporary separations due to child care, continuing education, etc., and average about 12 months out of the work force. Another 3.6% represent career changes, some of whom may re-enter the profession at a later date. ASHA also reports gaining more than 4,000 new members annually while losing 1,000 (Shewan, 1988).

The current and future supply-demand balance is not as troublesome for speech-language pathologists as for occupational and physical therapists. ASHA concluded its work force study by noting that, although there is not a national shortage, there are unfilled positions. These are in rural areas, in positions associated with low salaries, and in positions with poor working conditions. The *Eighth*

Report to Congress on health care personnel (HHS, 1992) noted several factors that need to be tracked in monitoring the future supply of speech-language pathologists. These include Medicare reimbursement for rehabilitation services; school systems growth and financing; patterns of specific diseases such as stroke, head trauma, and deafness in youth; and growth in independent practice opportunities and contractual arrangements with independent speech-pathology organizations. Programs serving young children with disabilities may or may not be able to readily hire speech-language pathologists depending on their geographic location, competing job opportunities, and a variety of other factors.

Nurses

Nursing personnel constitute the largest group of individuals working in health care. The largest group of nursing personnel are registered nurses (RNs). There are approximately 1.85 million individuals currently employed as RNs (Silvestri, 1993; HHS, 1992). In 1992, 82.7% of all RNs were employed in nursing, which is an all-time high (HHS, 1992). Sixty-nine percent of those working were employed full time. Hospitals were the employment setting for 66% of those working. The average age level of RNs has been rising; the average age was 43 in 1992 compared to 42 in 1988. This increase in age level has significant implications for losses to the profession due to retirement in the coming years.

The *Eighth Report to Congress* on health care personnel (HHS, 1992) reports that vacancy rates for RNs remain high and that demand for RNs, especially in community hospitals, has continued to grow. The AHA reports a vacancy rate of 8.1% for staff nurses (B. B. Kreml, personal communication, April 1993). Similar or greater vacancy rates have been reported in other settings (McKibbin, 1990, cited in HHS, 1992). The aging population and medical and technological advances have increased the demand for nurses much as they have for the allied health professions. Nurses, like other health care professionals, are distributed unevenly across the United States. Massachusetts and the District of Columbia had the most nurses per 100,000 population (1,167 and 1,656, respectively) while Louisiana had the fewest (442).

In recent years, the number of RN graduates had been declining steadily from the peak years of 1984 and 1985. This decline has been reversed, but the current increase is not expected to continue into the future. Furthermore, some states continue to experience decreases in the number of students and graduates. Current moves to require 4-year programs for an RN degree will further adversely impact supply.

Nationally, about 66,000 individuals graduated from programs preparing RNs in 1988-89. A second source of supply is nurses from other countries, although data on these nurses are incomplete. More than 7,000 nurses immigrated to the U.S. in

1990, with the majority being from the Philippines. Projections for the future indicate that the supply of nurses will peak in 2005 followed by a downward trend to the year 2020 (HHS, 1992).

Demand for nurses is expected to increase in all employment sectors with the largest increase in the nursing home sector. The BLS projects an increase of 42% in the number of nursing positions by the year 2005 (Silvestri, 1993). According to HHS (1992), "the aging nurse population coupled with a decline in graduations will lead to a decrease in the RN supply within the next 15 years. Given the anticipated sustained demand for RNs, future severe shortages can be anticipated" (p. 22).

HHS attributes the current shortage of nurses to an increase in demand rather than to a contraction of supply. Both factors will come into play in the future as the supply declines. By 2000, the demand for RNs is projected to be 5% more than the supply. By 2005, the difference is expected to be 11%. By 2020, demand will exceed supply by 28%. The picture will differ greatly from state to state, however. In the year 2000, when demand is projected to exceed supply by only 5% nationally, eight states (Alaska, Colorado, Connecticut, Kentucky, Louisiana, Montana, New Hampshire, and South Carolina) are expected to have shortages of at least 20%. Early intervention programs in these states will experience a severe nursing shortage 20 years before it hits the country as a whole.

Teachers

Early Intervention. In addition to the four professions just discussed, most early intervention teams include at least one other member. This member is the most difficult to discuss because this person is part of a new, emerging profession. As mentioned above, even the name for this position varies from state to state. Because the title, the exact nature of this person's role, and the corresponding professional standards are still being developed in many states, it is difficult to talk about how many of these professionals there are and how great the need is nationally for the profession. The best available information is from OSEP, which uses the term "special educator" in its data collection on personnel needs. The 41 states and jurisdictions reporting to OSEP (see Table 2) indicated a need for 787 additional special educators to provide early intervention services.

Given the state-by-state process through which standards are being established, it appears that barriers that exist for special education teachers of school-age children — diverse state standards which reduce teacher mobility and restrict the potential supply pool from which states can hire — will be recreated for teachers of infants and toddlers. A teacher who is certified in State A may not meet the certifi-

cation requirements in States B or C, thereby limiting the number of places where new graduates and experienced teachers can work or, at least, work permanently without additional education or training. Varying requirements also can pose as barriers *within* a state. The various agencies operating early intervention programs may have different entry-level requirements for similar positions.

The most pressing issue at the moment, however, is not differing certification requirements for teachers working with infants and toddlers with disabilities, but the absence in many states of appropriate professional requirements, of educational programs to train these individuals, and of faculty to staff these programs. Furthermore, no consensus exists in the field as to the appropriateness of teacher certification as opposed to some other form of credentialing. In many states, only rudimentary elements of the system to produce and certify members of this emerging profession are in place; in some other states, there is no system at all. Establishing such a system is a slow and difficult process because of the number of components and key players involved. Gallagher (1989) identified seven components, including securing university approval, hiring faculty, establishing credentials, and recruiting students. He alerted states that ". . . the time [required] to carry out these components is substantial even under the best circumstances" (p. 3).

Another issue related to an emerging profession and personnel shortages is the type of policies states implement to address practicing professionals who do not meet newly adopted standards (McCollum & Bailey, 1991). Any action that makes large portions of the current work force ineligible for the profession will create shortages.

Valid data on shortages of teachers in early intervention will be difficult to obtain on a large scale until states finalize the qualifications for the position. The data on the number of individuals employed provides the best insight into the extent of the current demand. Precise data on supply may remain an unknown quantity for some time into the future, but estimates can be obtained by looking at the number of programs within each state and nationwide that are training teachers to work with young children with disabilities, and how many graduates they produce annually. Responses from 161 of the 210 deans of schools of education surveyed by Gallagher and Staples (1990) identified 84 programs nationwide with early childhood special education programs. In total, these programs graduated 326 undergraduates and 425 master's degree students. These figures are an underestimate of the number of professionals being trained because of the number of deans who did not respond and the number of graduates from programs not located in schools of education. Nevertheless, it is unlikely there are thousands of graduates from these sources. Will 800 or 1,000 graduates per year be sufficient to supply a profession that currently is serving nearly 200,000 infants and toddlers (and 400,000 preschoolers) (DOE, 1992) and is certain to serve even more in the

future? It is not likely, especially in light of the profession's relatively high attrition rate. Whatever this professional is to be called and whatever the professional requirements will be, our training institutions currently are not preparing very many of them.

Preschool Special Education. The differences between the systems that deliver services to children from birth through 2 years of age and to 3- through 5-year-olds may be seen most clearly in the position of the special educator. The agency responsible for serving preschoolers with special needs is a school system, the children are older, the setting often looks more like what most people would call a classroom, and the professional in the setting is a teacher. Much like teachers of infants and toddlers, however, the absence of *appropriate* certification requirements may be an issue for personnel who serve 3- through 5-year-olds, particularly if requirements do not recognize the unique developmental needs of young children. From a systems standpoint, more of the rules are in place for preschool teachers which makes it possible to talk about who does and does not meet the requirements.

States reported to OSEP that they needed 2,288 more teachers for preschoolers with disabilities than they were able to find in 1991-92. This number represents one vacancy or one position filled by a less than fully qualified person for every six teachers employed. Many states have only recently enacted mandates to serve 3- through 5-year-olds so the need is almost certain to increase over the next several years. If all of the approximately 800 graduates reported in the deans' survey described above (Gallagher & Staples, 1990) elected to work in preschool special education (leaving no one to work with infants and toddlers), there still would be 1,800 unfilled preschool teacher positions.

What Even Good Data on Shortages Won't Show

One of the purposes of this paper is to summarize the currently available data on personnel providing services to young children with disabilities. It is hoped that these data will assist program planners and policy makers in shaping the future of programs for young children with disabilities. Several issues related to personnel planning are not portrayed by the data summarized here, however. One is the issue of personnel quality. Other issues are the impact of contracted services and program adaptation to personnel shortages.

This paper thus far has focused on a mathematical definition of shortage; that is, shortage as the difference between demand or need and the available supply. An alternative definition for personnel planning purposes is that a personnel shortage is an insufficient number of appropriately qualified personnel to provide needed services at a reasonable cost. "Appropriately qualified" in this context does not mean meeting state licensing or certification requirements but actually having the knowledge, sensitivities, and skills needed to work with young children and their families. Many professionals providing early intervention and special education may have received little training in the unique needs of this population even though they meet all legal requirements for their positions (Noonan & Knitzer, 1991; Bailey, Simeonsson, Winder, & Huntington, 1990; Kontos, n.d.). Alternatively, individuals who have extensive experience in the field may provide quality services but lack a paper credential. Certified or licensed is not synonymous with qualified especially where young children are concerned, but it is the former and not the latter that is being counted in data on personnel shortages. A more substantial examination of personnel is needed to determine how well the system really is staffed. However alarming the numbers may be on current and impending shortages in some professions, using a quality standard will paint an even gloomier picture.

An equally difficult issue to understand using currently available data is the extent to which personnel shortages have been masked by high-cost contracted services. By law, services must be provided. A program has no choice but to pay the going rate to contract with the service providers it needs. Because there are not nearly enough service providers, some professions can charge and receive a high fee for their services. Technically, there is no personnel shortage because personnel have been identified to provide the service. In reality, the inadequate number of service providers inflates the price for the service which results in a significant drain on limited program resources. This aspect of the personnel shortage is not

portrayed by the currently available data but its presence is apparent in program expenses.

Lastly, inferring personnel shortages from data on vacancies assumes that programs search indefinitely for individuals to fill those positions. An alternative assumption is that programs explicitly or implicitly adapt service provision to correspond to the personnel available. Services may be provided by other personnel such as paraprofessionals, programs may make greater use of contracted services, or fewer children will be determined to need a service in locations where it is in short supply. In sum, an inability to find an adequate number of trained personnel will impact service delivery systems in many ways and not even those in the system may be aware of the pervasiveness of the influence.

Possible Responses to Personnel Shortages

Many individuals concerned about services for young children and their families have recognized that there are no easy solutions to the problem of personnel shortages (McCollum & Bailey, 1991; Gallagher, 1989). Figure 3 summarizes some of the multiple influences currently leading to personnel shortages. In considering where to begin to address the problem, several possible solutions have been suggested. Given the systemic nature of the personnel shortage problem, many of the solutions are interrelated.

1. Train More Professionals

Attracting more people to the professions that serve young children is one way to increase the supply. AOTA, for example, has launched a major recruitment campaign to draw more people into the field.

Increased recruitment may not be as productive as it at first appears, however, because the current training capacity of institutions of higher education limits how many more individuals can enter the field. For some professions, generating more interest in the field without simultaneously expanding the capacity of the system to train more people will do little to alleviate personnel shortages. Programs in physical therapy and in occupational therapy have more applicants than spaces and already attract some of the brightest students (Shephard, 1991).

Expanding training opportunities is difficult to implement for a number of reasons, including universities' reluctance or inability to expand existing programs or create new programs and insufficient faculty to staff the programs, especially for those professions where a Ph.D. faculty member will earn less than a practitioner with a bachelor's degree in private practice. Extensive faculty vacancies have been reported in physical therapy making program expansion difficult (Dockery, 1988, cited in Yoder et al., 1990.)

2. Enhance Recruitment of Professionals

In addition to recruiting more people into professions serving young children with disabilities, programs may be able to do a better job of attracting already trained professionals to their employment setting. The National Easter Seal Society (1988) developed a comprehensive set of strategies for recruiting (and retaining) staff, including paying for one education course per year or assuring

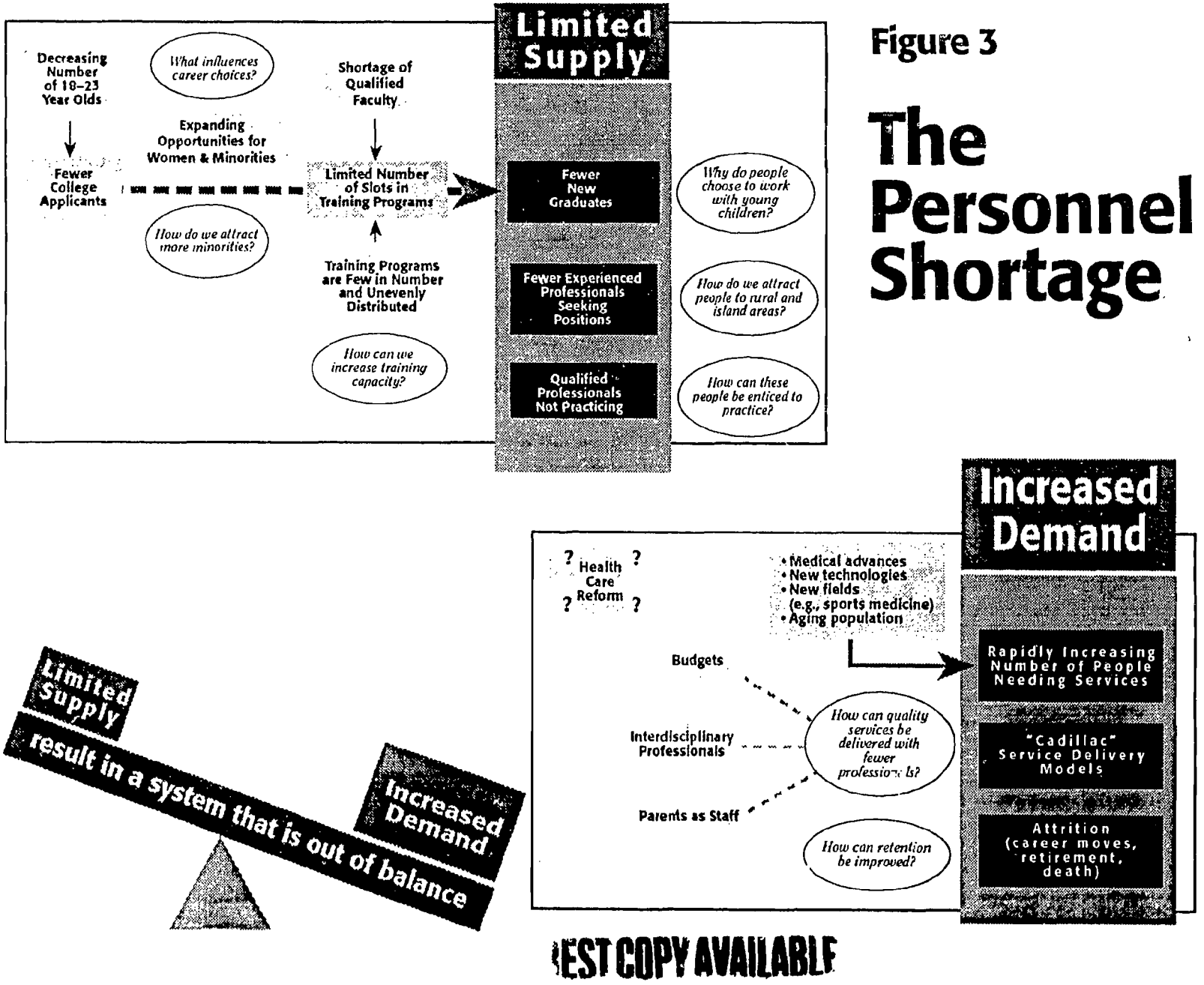


Figure 3

The Personnel Shortage

NEC*TAS

29

30

participation in patient management decisions. Every state, locality, or program should examine current recruitment approaches to identify ways to make their setting more attractive to prospective staff.

From a systems perspective, enhanced recruitment is a win-lose proposition when there are not enough staff to go around. If New Mexico succeeds in attracting professionals from neighboring states, children and families in Colorado may lose. Similarly, one program's successful recruitment campaign may be another program's turnover problem. Relocating professionals may make personnel someone else's problem but it won't make the problem go away.

3. Decrease Attrition

Retaining personnel who are already employed is the surest way to reduce the problem of how few people are out there to be hired. Administrators must spend excessive amounts of time recruiting and hiring, investments in inservice training are wasted, and service quality suffers when programs are revolving doors for employees.

Several studies have looked at attrition from early intervention programs. Kontos (n.d.) reported an average turnover rate of 30.65% across setting and personnel categories in Indiana. She notes that this is considerably higher than the 19.4% replacement rate for all occupations and close to the 40% rate often quoted for regular early childhood programs. A study of home-based intervention teams in North Carolina found an annual turnover rate of 19% for professional staff, 23% for consultants, and 12% for directors. The median length of service for professional staff was 2.8 years (Palsha, Bailey, Vandiviere, & Munn, 1990).

A critical question regarding supply and demand is whether individuals who leave a particular position take another position in a program for young children (and thus remain in the supply pool), or whether they go on to serve a different group or leave their profession altogether. Administrators and policy makers are well served by information about turnover rates and why people leave. The National Easter Seal Society (1988) notes that retention of younger workers requires competitive salaries and employer contributions to graduate and continuing education. Older and younger workers respond to career ladders, flexible hours, and employer assistance with child care and parent care.

Certainly, every effort should be made to make early intervention and preschool special education attractive settings in which to work. Optimized working conditions are important for retention as well as for recruitment; factors that keep current professionals employed are likely to similarly influence a young person's decision to pursue a career in the field.

4. Pay More

Low pay negatively impacts both recruitment and retention in a profession and for a position in a particular program. Most of the professionals working with young children have opportunities to work in other settings. In many localities, most of these alternatives pay significantly more. Physical and occupational therapists in Maryland's early intervention programs noted that compensation rates in adult private practice settings generally are more lucrative than in pediatrics. They also reported that they had been contacted both at work and at home by "headhunters" recruiting them for new jobs (Training/Recruitment Subcommittee, 1992). Occupational therapists working in early intervention reported an average annual income of $30,476 compared with $44,306 for those in private practice. Early intervention and sheltered workshops were the two settings in which occupational therapists received the least income (AOTA, 1990a).

The prospect of low pay may have a similarly depressing effect on young people considering a career in one of the professions working in early intervention or special education. They may choose to avoid a field altogether because of its limited financial prospects. The unfortunate truth, as Shewan (1998) noted in ASHA's work force study, is that "competition to gain the fair market share of potential candidates for the profession will be influenced by the earning potential (salaries) within the profession" (p. 1). There may be little anyone can do during a period of budgetary constraints to improve salaries for professionals working with young children and their families, but the hidden costs associated with paying staff less than a competitive wage should not go unnoted.

5. Distribute Staff More Equitably

Regardless of the overall plus and minus of the national data on shortages, some areas of the country, especially rural and island areas, continue to experience a severe lack of all personnel. One contributing factor is the placement of training institutions. College and university training programs are not distributed evenly across all the states or even within a state, making it far easier to enter a profession (and therefore to hire a new professional) in some areas than in others. Other contributing factors are geographic desirability and cost of living.

Given that current forces have produced a serious maldistribution of personnel, some system of incentives, such as scholarships with a payback service requirement or a loan forgiveness program, may be necessary to lure professionals to the areas with the most severe shortages. The 1985 reauthorization of the Public Health Service Act commented on "persistent geographic and maldistribution problems" but subsequent administration budget requests did not provide support to address the problem (National Easter Seal Society, 1988).

6. Staff Differently

Much of the rapidly expanding knowledge base on providing services to young children with disabilities and their families has resulted from model demonstration programs developed in university settings. Many of these projects have been richly staffed with multidisciplinary teams of paraprofessionals and bachelor's- and master's-level professionals. One of the unmistakable messages of the data on personnel shortages is that this cadillac model of service delivery, even if programs could afford it, is not realistic on a large scale. There is not now and almost certainly will not ever be a sufficient number of highly trained professionals to provide services in this manner.

Alternative models involve using professionals with varying skill and training levels. Many states are considering staffing arrangements with multiple levels. Illinois, for example, has designed a staffing model with eight occupational levels including associate, assistant, and paraprofessional (Striffler, 1993).

The use of multiple staffing levels carries with it several key requirements. One is the availability of upper-level staff who are willing and trained to supervise those at the lower levels in providing services. Many professionals may prefer to directly provide services rather than supervise others or they may lack the supervisory expertise needed to carry out this role. A second requirement is an adequate supply of the assistants and aides who can carry out their concomitant responsibilities. And, third, state regulations and professional standards must be established that support alternative staffing arrangements.

Several of the professions involved in the provision of services to young children have professional classifications for those who assist more highly trained professionals. In addition to RNs, nursing personnel consist of licensed practical nurses (LPNs) and assistive personnel. RNs and LPNs are subject to state licensing requirements. According to the BLS (Silvestri, 1993), there were 659,000 LPNs in the U.S. in 1992 and the number of positions is expected to grow to 920,000 by 2005. The 1,048 nursing programs in the United States graduated more than 30,000 LPNs in 1988-89, which reversed a 6-year trend of an annually decreasing number of graduates (HHS, 1992).

Physical therapy assistants provide services under the direction of a physical therapist. They also may supervise physical therapy aides where permitted by law (HHS, 1992). There were 61,000 physical therapy assistant positions in 1992 according to the BLS (Silvestri, 1993), with growth projected to 118,000 by 2005. In 1990, there were 101 accredited programs for physical therapy assistants which represented a 55% increase over the number that existed in 1985. In 1990, 1,431 students graduated from 73 reporting programs (HHS, 1992).

Occupational therapy assistants carry out rehabilitation programs under the supervision of occupational therapists. The BLS places the current number of occupational therapy assistants at 12,000 with a projected increase to 21,000 by 2005 (Silvestri, 1993). The number of programs for occupational therapy assistants has increased steadily over the last two decades. In 1990, there were 68 programs across the country. The number of graduates in 1989 was 1,038, an 11.9% increase over the previous year (HHS, 1992).

Although currently relatively few in number, these assistant-level staff positions represent an important potential contribution to the delivery of services for young children. Trainees for these roles are increasing and programs are expanding, in contrast to the situation for programs for the professionals who will supervise them. Of all the possible responses to the problem of personnel shortages, restructuring how programs are staffed may hold the most promise.

7. Create or Revise Professional Standards to Increase Supply

Certification and licensing standards are designed to insure that only qualified individuals are practicing in the profession. In theory, this protects the recipient and results in a higher caliber of service. State standards also can contribute to shortages by making professionals qualified in one state ineligible to practice in another state or by demanding more training or course work than the position actually requires. States have some ability to increase or decrease supply by the standards they adopt. For example, a handful of states require graduate-level work for licensing in physical or occupational therapy (Bruder et al., 1991). It is difficult to understand why the practice of these professions would require more education in some states than others.

The profession most likely to be impacted by professional standards is the early interventionist/early childhood special educator. Fifty-eight states and territories recently have made or are in the process of making independent decisions about the professional requirements for this position. Almost certainly, some will opt for graduate-level degrees, and others will opt for undergraduate degrees. Some will create a certification standard for birth through 2 years, while others will include a wider age span. Establishing requirements for this position involves a delicate balancing act designed to raise the quality of the supply pool without simultaneously reducing its size. This is no easy chore especially for a position that doesn't pay very well.

Who Can Solve the Problem?

Crafting a solution to personnel shortages will require the combined efforts of those who develop policies, those who administer programs, and those who train new professionals. The federal government can provide leadership in identifying

solutions to the maldistribution of training programs and professionals. It can continue to support the creation and dissemination of new training programs and innovative models of service delivery attuned to the realities of personnel supply and demand.

State governments can work closely with their institutions of higher education to develop long-range and multifaceted comprehensive systems of personnel development (CSPD) as required by IDEA. Each state's system needs to address areas such as training opportunities, staffing requirements, and retention and attrition across the multiple disciplines involved in early intervention and in special education for preschoolers. States also can encourage the development of new service delivery models and alternative staffing arrangements and support interdisciplinary professionals through certification and licensing policies, technical assistance, and financing incentives.

Institutions of higher education obviously are key players in determining the number and type of personnel who will be available. Training programs need to be maintained, expanded, and redesigned as necessary to produce both the practitioners and the trainers of practitioners for tomorrow's work force.

Local coordinating groups can examine the personnel needs for their region, recognizing that programs for young children may be competing among themselves for the same limited pool of professionals. Interagency coordination may need to include a coordinated approach to staffing and hiring as well as to service delivery.

Professional associations can further enhance their efforts to recruit individuals to serve young children with disabilities and their families. They can take lead roles in supporting multi-tiered staffing arrangements by developing professional standards, career ladders, and training guidelines.

All levels of government and the professional associations can continue to collect and refine the data on personnel involved in early intervention so that policies can be based on solid information and so that trends can be identified and addressed before an impending crisis materializes.

Local program administrators who hire staff or contract for vendored services witness the impact of personnel shortages most directly. These individuals can maximize their programs' attractiveness to promote staff recruitment and retention and can consider other staffing configurations. They also can make their experiences known to those higher up in the policy chain whose action or inaction today will shape the problem well into the next century.

Conclusion

The vision of P.L. 99-457 for the provision of early intervention and preschool special education services to young children with disabilities and their families is in serious jeopardy because of personnel shortages. Programs for young children are competing for an increasingly inadequate number of physical and occupational therapists and soon will find themselves competing for nurses as well. A national infrastructure to train enough early childhood special educators to staff programs for young children and their families is needed, but there is little indication that one is being built. The dwindling number of young people who represent tomorrow's interventionists, teachers, and therapists have a wide range of professional options open to them. Even if they choose teaching or one of the health professions, they may well opt to use their skills with older people. There are many gaps in the currently available data on personnel who work with young children with disabilities and their families but the available information carries a clear message. Today's personnel picture looks fair-to-troublesome; tomorrow's could well be catastrophic.

Three critical personnel issues have not been addressed in this paper. Each of these is complex and merits extensive treatment in its own right. One is the underrepresentation of minorities in professions that serve young children with disabilities (Holmes, 1987). While expanding the work force, there also is a critical need to recruit members of minority groups to facilitate the provision of culturally competent services. One bright note is that minorities tend to be better represented among the assistant professionals, such as the LPNs and the occupational therapy aides, which may represent a career ladder to greater representation on the next professional rung (HHS, 1992; AOTA, 1990a).

Another issue that was only briefly mentioned is the critical need for university faculty in each of these professions. The staffing of the higher education infrastructure that prepares the service providers and researches new advances in service delivery is crucial to the provision of high-quality services especially for the children and families who will be served by the system in the decades to come.

A third issue involves the hiring and use of parents as staff. This innovation, which is highly consistent with the family focus of the Part H legislation, raises a spectrum of issues directly related to personnel standards and shortages. How are parent staff trained? What kind of roles can they fill? Can parents replace more traditional early intervention staff or take on some of their roles, or are parent staff a supplement with no impact on other staffing requirements? If this

trend becomes widespread, it certainly will impact on the number and kind of other staff needed by programs serving young children with disabilities.

This paper repeatedly has emphasized the systemic nature of the problem of personnel shortages. The best available information suggests that the problem is rooted in many different causes and responds to many different forces. Some of these are known and others are just emerging. One significant factor on the horizon that is likely to impact on personnel providing services to young children with disabilities and their families is health care reform. If health care is changed to provide access to services that many people now need but cannot afford, demand will increase. Young children with disabilities will be competing with an even larger pool of individuals requiring the services of the already undersupplied health care professions. A second unknown on the horizon is the impact of full implementation of Part H. Many state service delivery systems are not yet operating at the level necessary to provide services to all eligible infants, toddlers, and their families. Expansion of services translates to an unknown level of increased demand. If states drop out of the program and provide a reduced level of service, demand would likely change accordingly.

Solving a problem as complex as personnel shortages will require multiple strategies — short-term strategies to deal with today's problem and long-term strategies to avert what lies ahead. Changing the course of the current systems that provide services and that train, certify, and hire personnel for early intervention and special education may be somewhat akin to moving a mountain and just as slow. There is a need to collect better data about the extent of the problem and the effectiveness of various solutions. However, we do know that we cannot afford to wait until all the answers are in. Averting the impending personnel crisis will depend on a coordinated effort at the national, state, and local levels to train, certify, and employ both more and different types of personnel. Crafting solutions to a problem that cuts across so many sectors will not be easy but the vision of P.L. 99-457 will not be realized unless this mountain is moved.

References

American Occupational Therapy Association. (1990a). *Member data survey.* Rockville, MD: Author.

American Occupational Therapy Association. (1990b). *Shortages in occupational therapy: Fact sheet.* Rockville, MD: Author.

American Occupational Therapy Association. (1988, March 17). Critical OT shortage prediced. *OT Week,* p. 1.

American Physical Therapy Association. (n.d.) *Physical therapy manpower estimates by state.* Alexandria, VA: Author.

Bailey, D. B., Jr., Simeonsson, R. J., Yoder, D. E., & Huntington, G. S. (1990). Preparing professionals to serve infants and toddlers with handicaps and their families: An integrative analysis across eight disciplines. *Exceptional Children, 57,* 26-35.

Bruder, M. B., Klosowski, S., & Daguio, C. (1991). A review of personnel standards for Part H of PL 99-457. *Journal of Early Intervention, 15*(1), 66-79.

Florida Department of Education. (1992). *Provision of adequate staff for prekindergarten programs for exceptional students.* Tallahassee: Author.

Gallagher, J. (1989). *Policy alert (P.L. 99-457, Part H): Planning for personnel preparation.* Chapel Hill, NC: Carolina Policy Studies Program.

Gallagher, J., & Staples, A. (1990). *Available and potential resources for personnel preparation in special education: Dean's survey.* Chapel Hill, NC: Carolina Policy Studies Program.

Hebbeler, K. (1992, December). *State certification policies for infant specialists and early childhood special educators.* Paper presented at the meeting of the Division of Early Childhood, Council for Exceptional Children, Washington, DC.

Holmes, E. M. (1987, December 15). Help wanted: Blacks in allied health professions. Closing the health status gap. *Blacks in Higher Education, 4*(19), 16.

Idaho Infant Toddler Interagency Coordinating Council, & Infant Toddler Program, Department of Health and Welfare. (1991, November). *Annual state application under Part H of the Individuals With Disabilities Education Act for year five (Federal FY 1991).* Boise: Authors.

The Individuals with Disabilities Education Act, P.L. No. 101-476, 104 Stat. 1103 (1990) (codified as amended at 20 U.S.C. Secs. 1400-1485).

Kontos, S. (n.d.) *A profile of Indiana's early intervention workforce.* West Lafayette, IN: Purdue University.

McCollum, J. A., & Bailey, D. B., Jr. (1991). Developing comprehensive personnel systems: Issues and alternatives. *Journal of Early Intervention, 15*(1), 57-65.

McCollum, J. A., McLean, M., McCartan, K., & Kaiser, C. (1989). Recommendations for certification of early childhood special educators. *Journal of Early Intervention, 13*(3), 195-211.

Meisels, S. J., Harbin, G. L., Modigliani, K., & Olsen, K. (1988). Formulating optimal state early childhood intervention policies. *Exceptional Children, 55*, 159-165.

National Association of State Directors of Special Education. (1993). *Preliminary results of NASDSE early intervention personnel survey.* Alexandria, VA: Author.

National Center for Education Statistics, U.S. Department of Education. (1992). *Digest of education statistics.* Washington, DC: Author.

National Easter Seal Society. (1988). *Crisis ahead: Recruitment and retention of rehabilitation professionals in the nineties and beyond.* Chicago: Author.

Noonan, K. G., & Knitzer, J. (1991). *The training challenge of serving infants and toddlers with special needs in New York City.* New York: Bank Street College of Education.

Olsen, G. G. (1991, April/May). Therapist shortage threatens access to care, *REHAB Management*, pp. 28-29.

Palsha, S. A., Bailey, D. B., Jr., Vandiviere, P., & Munn, D. (1990). A study of employee stability and turnover in home-based early intervention. *Journal of Early Intervention, 14*(4), 342-351.

Saltzman, A. (1989, June 12). One physical therapist, 10 job offers. *U.S. News and World Report*, p. 67.

Shephard, D. (1991, February 11). Hospital initiatives can boost supply of allied health care personnel. *American Hospital Association News*, p. 4.

Shewan, C. M. (1988). *ASHA work force study final report.* Rockville, MD: The American Speech-Language-Hearing Association.

Silver, S. (1991, January 10). Allied health: Chronic shortages predicted. *The Washington Post*, p. G7.

Silvestri, G. T. (1993, November). Occupational employment: Wide variations in growth. *Monthly Labor Review, 116*(11), 58-86.

Staff shortages in physical rehabilitation. (1990, August 5). *Hospitals*, p. 16.

Striffler, N. (1993). *Current trends in the use of paraprofessionals in early intervention and preschool services.* Chapel Hill, NC: NEC*TAS.

Training/Recruitment Subcommittee of the Maryland Interagency Coordinating Council. (1992). Recruitment and retention in physical and occupational therapy. Unpublished report.

U.S. Department of Education, Office of Special Education Programs, Data Analysis System. (1993, July 1). [State reports to OSEP of personnel employed or contracted in early intervention as of December 1991.] Unpublished raw data.

U.S. Department of Education. (1992). *Fourteenth annual report to Congress on the implementation of the Individuals with Disabilities Education Act.* (ED/OSERS 92-6; GPO: 1992 O-328-452 QL 3). Washington, DC: U.S. Government Printing Office.

U.S. Department of Health and Human Services. (1992). *Health personnel in the United States: Eighth report to Congress, 1991.* Washington, DC: Author.

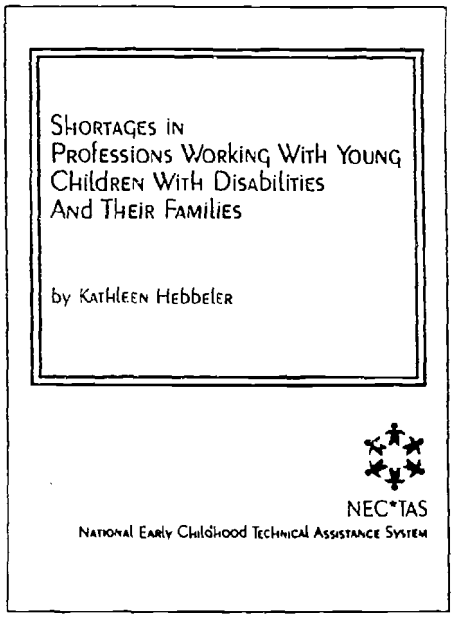
U.S. Department of Health and Human Services. (n.d.) *Rural health profession facts.* Washington, D.C.: Author.

Yoder, D. E., Coleman, P. P., & Gallagher, J. J. (1990). *Personnel needs — Allied health personnel meeting the demands of Part H, P.L. 99-457.* Chapel Hill, NC: Carolina Policy Studies Program.

NEW RELEASE FROM NEC*TAS

Shortages in Professions Working With Young Children With Disabilities and Their Families

This new NEC*TAS monograph, written by Kathleen Hebbeler, provides professionals, advocates, parents, administrators, program planners, and policymakers with the best available information with which to formulate a strategic response to the shortage of personnel available to work with young children with disabilities and their families — a problem that is and will continue to be a significant barrier to creating a nationwide system of services for these children and families.



The number of children served in early intervention and early childhood special education programs has grown dramatically in the last decade. However, the number of personnel employed to provide the services needed by these children, although also substantially increased, has not kept pace with the need.

This paper examines this personnel shortage by first looking at national data on the current work force in early intervention and preschool special education. It then turns to current shortages in five key professions — physical therapy, occupational therapy, speech-language pathology, nursing, early intervention, and preschool special education — and projects what the future is likely to hold for them. The paper closes with a discussion of possible responses to the problem and data related to these responses.

To order *Shortages in Professions Working With Young Children With Disabilities and Their Families*, please use the form on the back of this release.

National Early Childhood Technical Assistance System
Frank Porter Graham Child Development Center * University of North Carolina at Chapel Hill
500 NationsBank Plaza * 137 E. Franklin Street * Chapel Hill, NC 27514 * (919) 962-2001

Shortages in Professions Working With Young Children With Disabilities and Their Families

Kathleen Hebbeler. 1994. 35 pp., softcover. $5.00.

Contents:

- The Current Work Force – in Early Intervention (Part H) and in Preschool Special Education (Section 619 of Part B)
- Shortages and Projections:
  - Personnel Needed in Early Intervention
  - Personnel Needed in Preschool Special Education
- The Outlook for Five Professions: Physical and Occupational Therapists, Speech-Language Pathologists, Nurses, and Early Intervention and Preschool Special Education Teachers
- What Even Good Data on Shortages Won't Show
- Possible Responses to Personnel Shortages
  - Who Can Solve the Problem?
- Conclusion
- References
- Tables and Figures

ALSO AVAILABLE FROM NEC*TAS

Current Trends in the Use of Paraprofessionals in Early Intervention and Preschool Services

Nancy Striffler. 1993. 25 pp., softcover. $5.00.

Contents:

- Methodology
- Findings:
  - Case Examples: Illinois and Utah
- New Occupational Categories:
  - Including Parents as Service Providers (Hawaii, Illinois, Massachusetts, North Carolina, and Wisconsin)
  - Extending Allied Health Services (Illinois, Utah, and Texas)
  - Varied Service Environments (Maine and South Carolina)
- Summary
- References
- For More Information . . .
- Appendices:
  - How Are Paraprofessionals Used in Your State or Jurisdiction?
  - State and Jurisdiction Responses to Questions on the Use of Paraprofessionals

Order Form

Quantity	Title	Unit Cost	Total Cost
_____	Shortages in Professions Working with Young Children With Disabilities and Their Families	$ 5.00	$ _____
_____	Current Trends in the Use of Paraprofessionals in Early Intervention and Preschool Services	$ 5.00	$ _____
	TOTAL ENCLOSED		$ _____

Mail To:

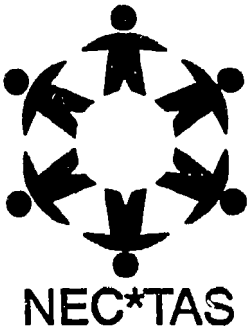
Name: _____ Phone: _____

Address: _____

_____

City _____ State _____ Zip Code _____

- **Make checks, money orders, or purchase orders payable to the University of North Carolina at Chapel Hill (UNC-CH).**
- **Quantity discounts are available. For details, please call NEC*TAS Publications at (919) 962-2001.**
- **Shipping and handling charges are included in the unit cost.**
- **Mail payment with this order form to:**
  NEC*TAS Publications
  500 NationsBank Plaza
  137 E. Franklin Street
  Chapel Hill, NC 7510
- **Purchase orders *only* may be faxed to NEC*TAS (919) 966-7463.**



National Early Childhood Technical Assistance System
a program of the Frank Porter Graham Child Development Center at the University of North Carolina at Chapel Hill
137 E. Franklin Street, Suite 500
Chapel Hill, NC 27514
(919) 962-2001 • Fax: (919) 966-6453