

The Shortage of Doctorally Prepared Nursing Faculty: A Dire Situation

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Background: The decline in the number of doctorally prepared nursing faculty is a major problem contributing to the overall shortage of nursing personnel.

Purpose: This article evaluates the impact of faculty age and retirement timelines on the future availability of doctorally prepared nursing faculty.

Methods: Age and retirement data were summarized from surveys of faculty conducted by the American Association of Colleges of Nursing. Additional data about characteristics of faculty and doctoral degree recipients were obtained from other national sources. Linear regression was used to determine average change in age and retirement year.

Discussion: Results showed steadily increasing faculty age, a shortening of time to likely retirement, and a loss of younger faculty.

Conclusions: In addition to current initiatives aimed at increased financial support for doctoral study, nurse educators must rapidly arrive at short- and long-term solutions. Solutions may require examination of some of the sacrosanct traditions of nursing education.

Shortfalls in the number of doctorally prepared nursing faculty are a continuing and growing problem. Although the doctorate is considered the academic standard for teaching at the collegiate level, only half (49.4%) of full-time nurse faculty in schools of nursing with baccalaureate and graduate programs in 2001 held doctoral degrees, of which 58% were nursing doctorates.¹ During the past several years, the deficit of faculty has become an issue of grave concern as the current faculty workforce rapidly advances toward retirement and the pool of younger faculty dwindles.

The deficiency of faculty is contributing to the general nursing shortage inasmuch as the inability to recruit and main-

tain adequate numbers of qualified faculty is restricting the number of students admitted to nursing programs. In 2000, there were 671 schools of nursing with baccalaureate and higher degree programs. A total of 48,430 baccalaureate, master's, and doctoral applications were accepted in the 486 schools for which data were provided (72.4% of schools). An additional 5832 applications from qualified students were not accepted. An insufficient number of faculty was cited by 32.8% of the respondents as a reason for not accepting all qualified students.² A special survey to determine the vacancy rate for faculty in 2000 was conducted by the American Association of Colleges of Nursing (AACN). In a national sample of 220 institutions (37.8% of 553 AACN-member institutions), there were 5132 full-time faculty positions. Of these positions, 4753 (92.6%) were filled and 379 (7.4%) were vacant. The mean number of vacancies per school was 1.7, with a range of 0 to 17 vacancies; 20 schools reported no vacancies. Educational requirements were listed for 297 of the vacancies. An earned doctorate was required for 64.2%, or 195, of the positions, and a master's degree (doctorate preferred) was necessary for 30.7%, or 102, of the positions.³ Vacancy rates of 5.7% for full-time faculty positions (265 of 4676 positions) were found at the beginning of the 2000-2001 school year in a southeast regional study.⁴ A California study identified the need for 163 full-time faculty in baccalaureate and higher degree programs (9.2% of 1779 state-wide faculty) by 2003 to fill vacancies due to anticipated retirements.⁵

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Some of the warning signs about impending faculty shortages were expressed in 1990.⁶ During the past decade, inadequate faculty resources have received increasing attention in the literature and news media. Recurrent themes contributing to the shortage include the aging professoriate, the flight of doctorally prepared nurses from academia to lucrative opportunities in the clinical and private sectors, workload and workplace issues, and unrealistic role expectations. In addition, the stu-

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The conclusions, interpretations, and opinions expressed by the authors do not necessarily reflect the views of the American Association of Colleges of Nursing.

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Table 1. Measures of central tendency for age and year of retirement at age 62 by year for full-time doctorally prepared faculty

Year*	Age				Retirement at age 62 [†]			
	No.	Mean	Median	Mode	No. [†]	Mean [‡] (y)	Median (y)	Mode (y)
1993	3697	49.7	50	51	3549	2006.0	2006	2004
1994	3984	50.1	50	47	3814	2006.6	2006	2009
1995	4122	50.7	51	48	3918	2007.1	2007	2009
1997	4332	51.5	51	50	4106	2008.3	2008	2009
1998	4385	51.8	52	52	4132	2009.0	2009	2009
1999	4499	52.3	52	52	4194	2009.6	2009	2009
2000	4543	52.8	53	53	4193	2010.3	2010	2009
2001	4451	53.3	53	54	4058	2010.9	2011	2009

*Age data not collected in 1996.
[†]Includes only those individuals 62 years old or younger.
[‡]Half the cohort, on average, will retire by this time.

dent pipeline of future faculty has diminished, in part, because of expanding career choices for women.⁷⁻²⁶

Although there are multiple factors contributing to the problem, the impact of faculty age and retirement time lines is a primary influence on the future availability of doctorally prepared nursing faculty. This article summarizes data related to the aging doctorally prepared faculty workforce in the nation's institutions with baccalaureate and graduate nursing programs.

Although there are multiple factors contributing to the problem, the impact of faculty age and retirement timelines is a primary influence on the future availability of doctorally prepared nursing faculty.

AGING DOCTORALLY PREPARED FACULTY

AACN conducts a survey of faculty in baccalaureate- and higher-degree granting schools of nursing each fall. In 2001, surveys were sent to 678 schools. There were 4816 full-time nurse faculty with doctoral degrees in nursing or other disciplines teaching at 542 (80%) responding institutions. The mean age of the 4451 doctorally prepared faculty members reporting age in 2001 was 53.2 years, with a median of 53 years and a range of 28 to 78 years.²⁷ The mean age for professors, associate professors, and assistant professors was 56.2, 53.8, and 50.4 years, respectively.¹ The mean and median ages of master's-prepared faculty in 2001 were 48.7 and 49 years, respectively.²⁷

Since 1993, the mean age of doctorally prepared faculty has increased steadily from 49.7 years in 1993 to 53.3 years in 2001 (Table 1). Regression analysis shows a significant change (β) of .437 per year in mean age of doctorally prepared faculty ($F = 3319.79$, $df = 1,7$; $P < .0001$). Because age data were not collected in 1996, mean age for 1996 was substituted by an

average of 1995 and 1997 data to maintain yearly data for the regression procedure.

Nursing faculty retire at age 62.5 years on average,²⁸ and faculty 65 years or older account for only 3% or less of faculty in any reporting year. Even though mandatory requirements for retirement at age 70 years were removed for faculty in 1994, the proportion of doctorally prepared nursing faculty older than 70 years has not increased substantively (0.1% in 1993 to 0.3% in 2001), a finding consistent with those in other disciplines.^{29,30} When nursing faculty who are 65 years or older are removed from the sample, the average change per year in mean age is essentially unaffected ($\beta = .434$, $P < .0001$). The increasing average age of faculty and stable retirement age among nursing faculty are consistent with findings in other disciplines.^{29,30} The findings are also consistent with the findings of Buerhaus et al.³¹ related to the aging nursing workforce.

The mean, median, and modal years of retirement at age 62 years for doctorally prepared faculty in each year are shown in Table 1. In 1993, the mean year of retirement for the cohort was 13 years in the future. In 2001, it was just less than 10 years. Regression analysis of retirement year from 1993 through 2001 showed a significant change (β) in the average time to retirement for nursing faculty of 0.593 years per year ($F = 4102.54$, $df = 1,7$; $P < .0001$). Because age data were not collected in 1996, the average retirement year for 1996 was substituted by the average of 1995 and 1997 data to maintain yearly data for the regression procedure. Even though the mean age of faculty is increasing at just less than half a year per year, the average retirement year is increasing at greater than half a year per year because some faculty retire before the age of 62.5 years or leave for personal or professional reasons. Since 1994, the modal year of retirement for the cohorts has been the year 2009. Fig 1 shows the year of retirement at age 62 for the 2001 cohort. From 2003 through 2012, between 200 and 300 doctorally prepared faculty are eligible for retirement annually. These data represent the best-case scenario on the basis of an assumption

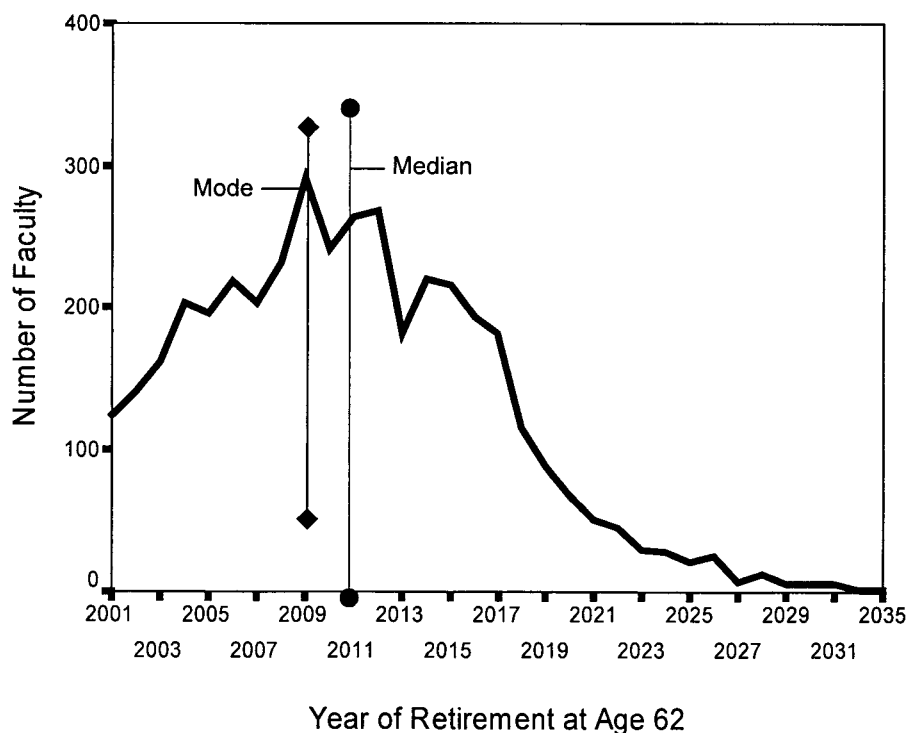


Figure 1. Number of faculty in 2001 eligible to retire at age 62 years by retirement year.

that faculty will not retire until at least age 62 years and there are no additional losses for personal or professional reasons. The 6.2% of faculty who were older than 62 years in 2001 ($n = 403$) are eligible for retirement in most systems at any time.

FACULTY AGE GROUPS

Consistent with the change in mean age, the proportion of faculty older than 50 years has increased from 50.7% in 1993 to 70.3% in 2001 (Fig 2). From 1993 to 2001, the proportion of faculty members in the age categories of 46 to 55, 56 to 65, and older than 65 years increased by 3.5%, 13.4%, and 1.3%, respectively. There were decreases in the age groups 35 years and younger (0.8%) and 36 to 45 years (17.3%), as shown in Fig 3. The decrease in the age group 36 to 45 years is particularly disturbing. Advancement to the next age category accounts for part of the decrease, but departure from academic life is a major contributing factor to the overall loss of younger faculty because of many other attractive opportunities for doctorally prepared nurses in the marketplace. In 1993, there were 169 resignations from doctorally prepared faculty members in which subsequent activity was stated. Although the majority (62%) left to take other school of nursing faculty positions, 30 individuals (17.7%) left academia to assume nursing service or private sector clinical or executive positions or to enter private practice; the proportion lost to academia was similar in 1994.²⁸

AGE OF DOCTORAL RECIPIENTS, TIME TO DEGREE, AND CAREER PLANS

Of the 365 recipients of nursing doctoral degrees in 1999 who reported age, the mean and median ages were 46 years and 46.2

years, respectively. Almost half of all graduates (48.8%) were between the ages of 45 and 54 years. Twelve percent of graduates were older than 55 years, and only 25 (6.8%) were younger than 35 years. In contrast, the median age of all research doctoral awardees in the United States in 1999 was 33.7 years.³² Given that the mean age of retirement for full-time doctorally prepared nursing faculty is 62 years, the number of years of productive teaching is curtailed because of advanced age at graduation.

From 1999 to 2000, the mean number of years registered in a doctoral program was 8.3 years for nursing graduates, compared with 6.8 years for all doctoral awardees. Median time elapsed between entry in a graduate program to completion of the doctorate in nursing was almost twice that of other fields, 15.9 and 8.5 years, respectively.³²

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AACN data on employment commitments of new doctoral graduates were last collected in 1999. About 25% of 1998 to 1999 doctoral graduates reported employment commitments in settings other than schools of nursing.³² This finding is corroborated by data from two additional sources. A special data run from the Survey of Earned Doctorates indicated that the percent of doctoral recipients in nursing planning to be

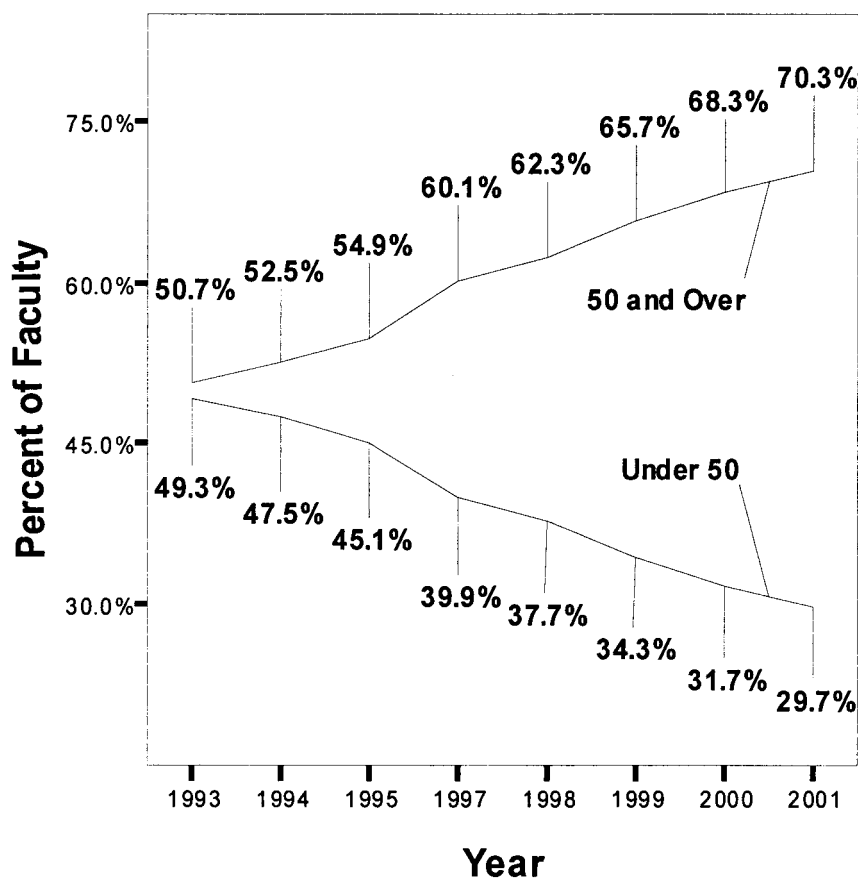


Figure 2. Proportion of doctorally prepared faculty older and younger than 50 years for each reporting year.

employed in areas other than education increased steadily from 15.5% from 1980 through 1984 to 26.9% from 1995 through 1999; teaching as a primary employment activity decreased from 70.8% from 1980 through 1984 to 59.5% from 1995 through 1999.³³ Data generated from the National Sample Survey of Registered Nurses databases estimated that in 1992, 1996, and 2000 the proportion of nurses with nursing doctorates who were employed in schools of nursing offering baccalaureate and higher degrees showed steady declines, from 67.7% in 1992 to 61.9% in 1996 and 49.5% in 2000, which represents an overall decrease of 18.2%.³⁴

TRENDS IN DOCTORAL PROGRAM ENROLLMENT AND GRADUATIONS

During the fall of 2001, there were 3070 students enrolled in the 79 doctoral programs in nursing; 59.1% were part-time students. There were 394 doctoral program graduates from August 1, 2000, to July 31, 2001, a decrease of 11.1% from the previous year. Graduates represent only 12.8% of enrollees, a reflection of more part-time than full-time students.³⁵ The failure of schools to produce more graduates is particularly disconcerting given that the number of doctoral programs has increased from 54 in 1992 to 79 in 2001.^{35,36}

Five-year trend data in the same 74 schools reporting data to AACN between 1997 and 2001 showed an average increase (β)

of 43 doctoral students per year ($P = .003$). The pattern of graduations, on the other hand, was erratic or random, indicating no trend. The small pool of doctoral graduates available to fill faculty positions may be further diminished as the number of non-US citizens graduating from doctoral programs is increasing, from 4.7% from 1993 through 1994 to 13.8% from 2000 through 2001.^{35,37}

When the educational pipeline for doctoral preparation is evaluated, it is important to note that master's enrollments and graduations have declined steadily for the past 5 years. Regression analysis of cohort data in 280 schools in 2001 indicates an average decrease (β) of 480 students during 5 years ($P = .01$) and 155 graduates ($P = .03$) per year.³⁵ This decline is disturbing given that master's graduates are the source for future doctoral students. In addition, the shift of master's-prepared faculty to doctoral student and ultimately to doctoral graduate does not increase the number of new people in the faculty pool.

DISCUSSION

According to the latest projections from the Bureau of Labor Statistics, there will be more than 1 million job openings for registered nurses by 2010 because of growth and net replacements.³⁸ This translates into large numbers of faculty that will be needed to educate these nurses. How will nursing education meet this challenge?

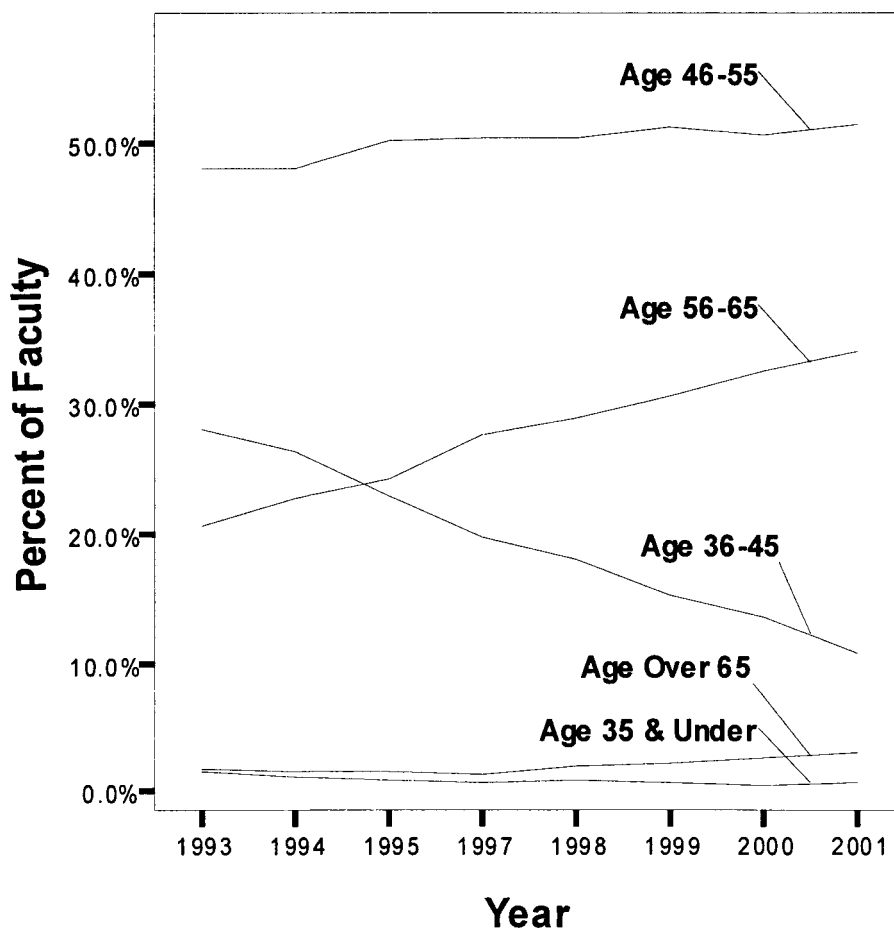


Figure 3. Percent contribution of age group to faculty total by year.

Proposed short- and long-term solutions to faculty shortages have centered on similar topics, including increasing federal and private support for doctoral education, implementing additional online degree programs, creating accelerated pathways for master's and doctoral education, early encouragement of students to consider academic life, fostering competitive salaries, and developing programs for master's-prepared clinicians to teach educational skills.^{4,7-9,12,14,16-18,23,25,39} Legislative initiatives are currently under way that would increase funding for nursing education in general and include support for nurse educator preparation.

CONCLUSIONS

Nursing education faces a dire situation, and the time has long expired for additional discussion about the dwindling numbers of doctorally prepared faculty. Nurse educators must now arrive at creative, innovative, short-term solutions in tandem with the implementation of long-term solutions. Both approaches will require intense examination of some of the sacrosanct traditions of nursing education and an unbiased scrutiny of the faculty workplace environment.

Nursing education faces a dire situation, and the time has long expired for additional discussion about the dwindling numbers of doctorally prepared faculty.

What insights do the data summarized in this article give us to assist in setting our course of action?

Earlier age at entry into doctoral study and full-time doctoral study are imperative. Nursing must strive to adopt career pathways like those in other disciplines, in which individuals progress from doctoral student to faculty status in a timely fashion.

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The prolonged period between entry into master's study to completion of the doctorate needs to be shortened. The current median time of 15.9 years will not serve to sufficiently increase the pool of doctorally prepared faculty. We must also strive to recruit new people into doctoral study in addition to individuals who already hold full-time faculty appointments.

Adoption of a broader-based view of the educational preparation needed for faculty status deserves consideration. For example, doctorally prepared, nationally certified advanced practice nurses without master's degrees in nursing may be an untapped resource for full-time faculty. According to data from the 2000 National Sample Survey, there are an estimated 3000 individuals in this category.³⁴ Some may already be involved in nursing education in some capacity; however, are individuals with these credentials being rejected from full-time faculty positions because they lack a nursing master's degree? Last, new models of interdisciplinary education are worth exploration and consideration.

The key issue that deserves immediate attention is the increasing number of faculty leaving academia. Further study of the full range of issues contributing to this problem is imperative. Augmenting the number of nurses with doctoral degrees and creating opportunities for master's-prepared nurses to gain educational skills may not succeed in building a viable faculty pool if they, as Raymond Woosley⁴⁰ recently stated, ". . . don't enjoy their day." ■

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News From NINR



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FY 2002 BUDGET INCREASE FOR NINR

Patricia A. Grady, PhD, RN, FAAN, Director, NINR, NIH

Last year, NINR reached a fiscal milestone when our budget surpassed the \$100 million mark. The recently signed president's budget for fiscal year (FY) 2002 grants NINR a 14.5% increase, to \$120,451,000.

Roughly 77% of the FY 2001 NINR budget went to our research project grants, the R01 and R15 grant awards to individual nurse researchers. That percentage should remain steady in FY 2002. The new budget will enable us to continue to support our projects in progress and add more new and competitive grant awards.

In FY 1999, the NINR success rate for new awards (the likelihood of a research grant application receiving funding) was only 14% compared with the average success rate at the National Institutes of Health (NIH) of 31% to 32%. With a large budget increase in FY 2000, our success rate jumped to 31.6%, but then last year, it declined to 25.7%. The steady increase in grant applications that we have seen in recent years is a healthy index of nursing research activity. NINR's growth will help support important new science as we work to move our success rate toward the NIH average.

Approximately 8% of the NINR budget goes into predoctoral and postdoctoral training National Research Service Awards and T32 Institutional Training grants. During the last 3 years, the number of training positions increased from 193 in FY 1999 to 250 in FY 2001, with a ratio of predoctoral to postdoctoral students of about 3:1. In response to concerns from the outside community, our yearly training stipends have also steadily increased. NINR's training mission will continue to be very important to the Institute and to the discipline.

Support for university-based research centers accounts for 5% of NINR expenditures. The P30 Core Center grants go to interdisciplinary, collaborative nursing research programs at well-established institutional settings. These centers bring together a core of nurse investigators to pursue specific areas of basic and/or clinical nursing research. The P20 Exploratory Center grants target less-experienced schools of nursing, helping to expand their beginning research efforts and centralize resources. We currently support 9 P30 and 9 P20 centers. Please check our Web site, <http://www.nih.gov/ninr/research/idea.html>, for a list of all the centers, including their principal investigators and areas of research.

Together, the funds for training and research centers address the important development of the nursing research infrastructure. Other research areas of opportunity identified for FY 2002 include the following:

- Management of chronic pain
- Cachexia: behavioral management and quality of life
- Informal caregiving in noninstitutional settings
- Health disparities: health promotion for cancer prevention

Nursing research is still a young and growing science within the health sciences community. National interest in health care research has led to a drive for doubling the budget at the National Institutes of Health, and nursing research benefits from this increased support. At NINR, we remain committed to devoting our time, effort, and resources to provide the training and research support that establishes the scientific basis for nursing care. ■