

# Factors Influencing the Pursuit of Careers in Academic Medicine: A Survey of MD-PhD Residents in Dermatology Programs in the United States

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A survey of all MD-PhD residents in dermatology in the United States was conducted to evaluate the factors important to them in making career pathway decisions. Twenty-six MD-PhDs responded to the survey representing a 90% response rate. Although essentially all entered dermatology with the intention of pursuing a career in academic medicine,

77% percent thought they would be in academic medicine 5 years post-residency. Factors explored for a negative influence on entrance into academic medicine post-residency were 1) financial concerns, 2) length of training, 3) research hiatus due to clinical training, and 4) eligibility for existing funding mechanisms. *J Invest Dermatol* 98:125-127, 1992

**V**ery little information is available concerning MD-PhDs that pursue specialty clinical training and how that experience may influence subsequent career decision making with regard to pursuing an academic research career. Because dermatology as a specialty offers tremendous opportunities for research and limited patient care activities, we were interested in exploring the concerns of MD-PhDs entering dermatology.

## METHODS

MD-PhDs were identified by a preliminary study [1] and an inquiry to program directors at the time of the survey. A total of 32 surveys were sent to MD-PhD residents in programs in the United States in June 1989. Of the 32 surveys distributed, three went to erroneously identified individuals, one went to a person that was not interested in the survey, and four went to residents who did not participate for unidentifiable reasons. Thus, of 29 residents surveyed, 26 responded, representing a 90% response rate.

The questionnaire consisted of 75 questions that were reviewed by several members of the academic dermatology community as well as one MD-PhD who was a resident at the time of the survey (see acknowledgements). The residents were asked to participate in a study designed to explore the factors involved in their career decision making. Participation was voluntary and no monetary compensation was provided. The questionnaires were completed anonymously to encourage complete and open answers. The survey was distributed in June to coincide with completion of years 1, 2, and 3 of dermatology residency training; this maximized the responder's time in residency and maximized the number of residents with firm post-residency plans. In addition to questions concerning general background, the survey covered the following topics: career goals, private practice and moonlighting experience, post-residency finances, family influences, research and funding, and first post-residency position.

Percentages are reported to the nearest whole number. It was not

uncommon for any given question to lack several responses because the question was not applicable, not understood, or left blank for unknown reasons.

## RESULTS

**General Background Questions** There were 16 male and 10 female respondents. The mean age for males was  $33.2 \pm 10.9$  (SD) and the mean age for females was  $35.4 \pm 2.5$  (SD). Twelve percent were in year one, 29% were in year 2, and 58% were in year 3 of their residencies.

**Career Goals** Of those MD-PhDs who received their PhD prior to dermatology residency, 100% (25 of 25) responded that they entered dermatology with the intent to pursue academic medicine. In addition, they were asked if they chose dermatology because they did not want to continue a research career, and 92% said "no." When they complete their residency, 58% stated they would only look at academic dermatology positions, 15% stated they would only look at private practice positions, and 27% stated they would look at both academic medicine and private practice positions and choose whichever was more appealing (Table I). Nevertheless, 77% thought they would be in academic medicine five years out of residency.

Sixty-five percent would like to do laboratory research after their dermatology residency. The group was asked what percentage of their time they would like to be involved in laboratory research versus clinical activities and the results are shown in Fig 1.

**Private Practice and Moonlighting** Fifty-six percent of the MD-PhD residents had spent time in dermatology private practice since starting their residency; 75% stated their experience was part of their residency training, whereas 25% stated it came from moonlighting. Money was cited as the main motivation for moonlighting.

**Financial Influences on Career Planning** Seventy-nine percent responded that a fellowship salary would not be an adequate income post-residency. Similarly, 62% would moonlight if allowed to during a fellowship. Sixty-nine percent thought they knew what a fellowship position pays to a person with their background; a follow-up question for them to estimate what a fellowship stipend is revealed that 13 stated \$21,000-\$30,000, and 4 stated \$31,000-\$40,000.

Manuscript received March 5, 1991; accepted for publication September 30, 1991.

Part of this work was published in abstract form (Prystowsky JH: Survey of MD-PhDs in Dermatology. *J Invest Dermatol* 94:568A, 1990).

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**Table I.** Debt and Position to be Sought After Residency

Position Sought	Debt (thousands of dollars)		n		
	Range	Mean $\pm$ 1 SD	Total	MSTP	Non-MSTP
Academic medicine	0-70	14.7 $\pm$ 19.8	15	9	6
Private practice	16->60	41.5 $\pm$ 22.1	4	1	3
Undecided	0-80	45.7 $\pm$ 28.3	7	0	7

They were asked if when they complete their residency they will have loans from medical school and/or graduate school and 77% replied that they will have loans; 48% were \$1000-\$30,000 in debt, 22% were \$31,000-\$60,000 in debt, and 17% were \$50,000-\$80,000 in debt. Thirty-eight percent of the MD-PhDs were graduates of the federally funded Medical Scientist Training Programs (MSTP). Although two thirds of the MSTP graduates held loans, they were much lower (on average) compared to the non-MSTP group (see Table II). In addition, those MD-PhDs that decided to only look at academic positions after residency had a much lower debt than those who decided to go into private practice or who were undecided (See Table I). Ninety percent of the MSTP group planned only to look at academic positions compared to 38% of the non-MSTP group. All of those that were only going to consider private practice had loans greater than \$16,000 whereas all of those [6] with no loans were either certain of an academic career (five of six) or were undecided (one of six).

**Family Influences on Career Planning** Seventy-seven percent were married; 46% had children. Of those that were married, 71% stated that their spouse worked while the MD-PhD was a resident. When asked if they were part of a dual career marriage, 76% said "yes." Geographic considerations in career planning were "very important" for 54%, "moderately important" for 42%, and of "little or no importance" for 4%.

**First Post-Residency Position** When asked what would be an appropriate and desirable first appointment post-residency, 100% stated "assistant professor" or a higher academic degree. Only 22% expected their first academic position after residency to be a post-doctoral fellow, and 78% expected junior faculty (instructor or assistant professor) positions. Eighty-eight percent expected a tenure track position.

Realizing that a fellowship position implies less of an institutional commitment for the long-term, they were asked if the pros-

**Table II.** Distribution of Educational Loan Debt

Financing in Medical School	Loans (thousands of dollars)		
	Range	Mean $\pm$ 1 SD	n
Non-MSTP	0-80	36.7 $\pm$ 28.8	16
MSTP	0-30	12.0 $\pm$ 11.2	10
Total	0-80	27.2 $\pm$ 26.3	26

pect of having to move again in a couple of years was a concern; 35% stated "yes, but the training may be worth it," 35% stated "yes, and the training isn't likely to be worth it," 6% said "no, moving isn't a concern," and "24% said no, but after all these years of training I don't want to be a 'fellow'."

**Research and Funding Post-Residency** They were asked where they thought they would obtain funding for an initial research project, and the responses were (multiple responses permitted) 23% "from NIH," 30% "from Departmental support," 26% "from the Dermatology Foundation," and 16% "from other private sources," and 5% were "unsure."

When asked what funding tracks they should compete for when beginning research during the first couple of years post-residency (multiple answers permitted), 20% of the responses were for competing in PhD-funding tracks, 50% for MD-funding tracks, and 30% for a separate funding track specifically for MD-PhDs (although one does not currently exist). When asked if there was anyone at their residency institution that could sponsor them to resume research activities in an area of their previous research interest, 50% said "yes" whereas 46% said "no" and 4% said "don't know."

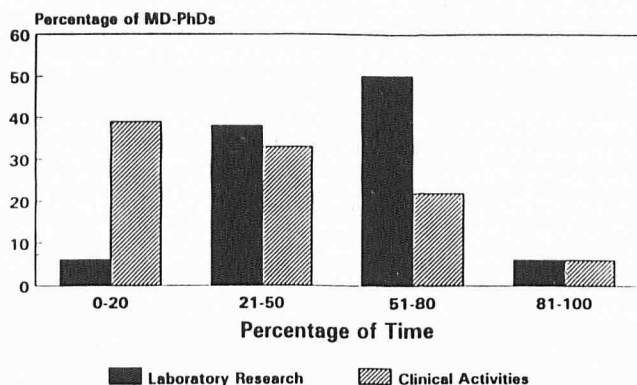
## DISCUSSION

**MD-PhDs as a Source of Physician Scientists in Dermatology** Recent literature points to concern about the apparent deficiency of individuals who will be well trained in both medicine and fundamental research [2-4]. Among the causes cited by Choppin [4] for this problem are 1) the large debts incurred to finance a medical education, 2) the comparatively low salaries of those conducting research, and 3) the prolonged period of training required for research (up to 11 years after college).

An important source of physician scientists is the group of MD-PhDs. These individuals enter academia through several pathways including those who 1) received their PhD before medical school, 2) trained for their PhD during medical school through MSTP programs, 3) trained during medical school through non-federally funded programs, and 4) received PhD training after medical school, during or after residency. The number of MD-PhDs has grown since the first NIH funded Medical Scientist Training Program began in 1964. In the early 1970s, the MSTP supplied one fortieth of the country's physician scientists; by 1980 it supplied one fourth due to the decrease in the number of MD investigators and the increase in MSTP programs [3].

The data presented in this survey provide information regarding MD-PhDs in dermatology residency training of whom 38% are graduates of MSTP programs. Despite the small number of MD-PhD residents (26 total), this is a highly trained group that has already demonstrated commitment to research and has potential to interface effectively within an academic setting with MDs and PhDs.

Essentially all of the residents (25 of 25) stated they entered dermatology with the intention of pursuing academic medicine although 77% thought they would be in academic medicine 5 years post-residency. Sixty-five percent stated they wanted to do laboratory research after their residency. Of those that wanted to do laboratory research, over 50% wanted to devote over 50% of their time to laboratory research. Whether this desired time allotment will be realized is not known, but the clear predominance of time desired



**Figure 1.** Laboratory versus clinical time. Those MD-PhDs that desired to do laboratory research after residency were asked how much of their time they wanted to devote to laboratory research versus clinical activities. The results from this inquiry are illustrated here.

for laboratory research is encouraging. It is not surprising that only a small percentage of the MD-PhDs would prefer to spend more than 80% of their time on laboratory research because one could argue that if that much of one's time is spent in laboratory research a clinical residency may not be necessary (or desirable) to ensure a successful and satisfying career. Exactly what the ideal allotment of time is for laboratory and clinical activities is a topic that has the potential for extensive discussion. However, if *most* of one's time is in laboratory research, there is a reasonable potential for making significant basic research contributions in dermatology.

### How to Get Back Into Research: Is A Fellowship Necessary?

The resumption of basic research activities following the hiatus due to clinical training is often alluded to as "starting over," "re-tooling," or "re-training." These descriptions are inaccurate because they suggest that the PhD training is somehow obsolete, out-of-date, and therefore of little value. A more positive phrase used by others to describe the period when research is resumed is that the MD-PhD needs an experience that will bring them "up-to-speed" in a particular area to allow them to build on their previous experience and complete development as an independent investigator.

There is little disagreement that following a research hiatus for the completion of clinical training that a period of intense research (1-3 years) is usually necessary. However, there are several ways that this additional training/experience may be acquired. The most readily cited mechanism is for the MD-PhD to do a *research fellowship*. This pathway has several disincentives, however, since about three fourths of the MD-PhDs have loans and are married, and about 50% have children. With a fellowship income, most would feel the need to moonlight, detracting from the goal of protected time for research. Furthermore, fellowships typically cannot accommodate development of a faculty practice.

An alternative and more attractive option for the MD-PhD is to take a *faculty position* at the assistant professor level. In this position the MD-PhD needs a senior research mentor(s) to oversee and guide research development, but the MD-PhD does not necessarily need to work in the senior scientist's laboratory, and could begin setting up a small independent line of research. Funding for the development of independence is a problem for this pathway of career development. However, patience and support over a 2-3 year period has the potential to produce a junior investigator with independent projects capable of competing successfully for NIH funding. An additional benefit is the ability of the department to simultaneously develop the investigator in an area of clinical expertise that will parallel or mirror their laboratory efforts. Nevertheless, pressure for departments to generate clinical revenue to support this research development and provide salary support for the investigator can limit an effective research effort, particularly if technical and/or secretarial assistance is inadequate.

A third possible pathway for MD-PhDs to pursue would be a *truncated clinical residency* to allow for 75% research time for the second and third years of residency. This would enhance the MD-PhDs capability to develop independence during the assistant professor appointment. Following an approval process, the American Board of Dermatology currently permits residents to do laboratory research for up to 75% of their time for their second or third year or for 50% of their time for both the second and third years. If additional time for research is desired, the board may approve a resident taking an additional year for research so that the board exam would be taken after a 4-year training period. Thus, during a typical 3-year

residency the most laboratory research time that can reasonably be obtained is the equivalence of 1 year of full-time research. Such training would not be considered equivalent to full fellowship research training by most bio-medical scientists; however, for certain highly qualified individuals it may be adequate.

It is also possible to combine a truncated clinical residency with a subsequent junior faculty level appointment and place the MD-PhD in a strong research environment for 3 or 4 years in conjunction with limited clinical duties. The objective should be to provide a stable environment for research over an extended period, without excessive clinical demands.

Hopefully development of research opportunities during residency training and post-residency funding mechanisms will encourage and facilitate the transition of MD-PhDs from clinical training to academic appointments. There is a prolonged period of training for an MD-PhD and the financial stress (debt) this causes was strongly correlated with the decision to leave academic medicine at the end of residency. MSTP-funded residents were more certain they would go into academic medicine than non-MSTP-funded residents. Although alternative explanations may have relevance, it is reasonable to consider a heavy financial influence; non-MSTP-funded residents had an average loan debt that was three times higher than the debt for MSTP-funded residents. Thus, the results of this survey support the concept of providing career opportunities at the completion of the MD-PhD's clinical training that will offer financial rewards permitting one to begin loan pay off, especially because almost two thirds of the MD-PhD residents in dermatology are not MSTP funded and therefore have more debt. One might also propose that greater support of physician scientists through the MSTP early in the training would increase the pool to whom academic medicine would be a feasible career choice. Expansion of funding opportunities for MD-PhDs analogous to the federally funded Clinical Investigator Award might be appropriate. However, other funding agencies could be helpful also. For example, the Dermatology Foundation has recognized the problem of funding newly graduated MD-PhD dermatologists who have completed investigative training several years prior to completion of their clinical training [5]. To address this need the Dermatology Foundation recently introduced a limited number of career Development Awards that include MD-PhDs in the eligibility requirements.

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*The questionnaire used in this research was reviewed for content and validity by Drs. Alan Moshell, Jouni Uitto, Stephen Katz, and Richard Wortzel. Dr. Bruce Link, School of Public Health, Columbia University, provided valuable advice for the method of this survey.*

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