Maximizing the Value of an Academic Health Center by Retaining and Developing the Most Talented Trainees

Woodruff Leadership Academy
2010

We Will Transform Health and Healing Together by Being:

1. The 21st-century model for an academic health sciences and services center
2. An international leader in the highest quality patient care, research, education, and public service
3. A collaborative, inspirational environment that attracts and retains talented people

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I. Overview
Our project has the broad goal of proposing mechanisms to enhance the value of the Woodruff Health Sciences Center (WHSC) by capitalizing on its academic missions. Specifically, our project suggests that the WHSC has an inherent, yet potentially underutilized asset, which affords Emory a competitive advantage over comparable local, statewide and regional institutions. That asset is the large talent pool within the Woodruff Health Sciences Center’s trainee, staff, and junior faculty population. We propose that the Woodruff Health Sciences Center could more effectively draw on the best of this resource to supply a consistent stream of high-achieving clinicians, teachers, and researchers to its faculty and programs. Our proposal is closely aligned with the WHSC Strategic goal of becoming “a collaborative, inspirational environment that attracts and retains talented people.”

Our project:

1. Examines the current status of trainee retention within WHSC;
2. Determines if there are biases in favor or against such retention on the part of leadership or trainees;
3. Proposes a method to maximize WHSC’s strength through retention and development.

II. Background

Emory University is an inquiry-driven, ethically engaged and diverse community whose members work collaboratively for positive transformation in the world through courageous leadership in teaching, research, scholarship, health care and social action. Emory maintains an uncommon balance for an institution of its standing: it generates more research funding than any other Georgia university, while maintaining its traditional emphasis on teaching. The university is enriched by the legacy and energy of Atlanta, and by collaboration among its schools, units and centers, as well as with affiliated institutions. The university is recognized internationally for its outstanding liberal arts college, superb professional schools and one of the Southeast's leading health care systems, the Woodruff Health Sciences Center. (www.emory.edu)

With 4709 WHSC students, residents, fellows, and thousands of junior faculty and staff in the Schools of Nursing, Medicine, Public Health and Yerkes, there is no health care institution within the city of Atlanta or state of Georgia that matches the breadth or depth of our trainee, staff, and junior faculty talent pool. In the Southeast region, there are only a scattered few that match our educational and training capacity. This large group of young talent affords an opportunity to identify, develop, and retain future stars.
We hypothesize that retaining and developing the most elite among our talent pool will improve the overall academic productivity and reputation of the WHSC, building upon a strong record of clinical care, research and education.

The advantages of retaining and developing our own most talented trainees, staff, and junior faculty include:

1. **Value** through greater efficiency associated with recruiting internally
2. **Quality** by increasing numbers of WHSC faculty & staff making outstanding contributions
3. **Sustainability** through an enhanced culture of achievement, pride, and loyalty

Potential disadvantages of recruiting our own trainees, requiring further exploration for validity, are the homogenization of thought (“idea stagnation”) and a perception of provincialism.

To describe the most talented individuals we use the terms “rising star” and “elite” interchangeably. These individuals not only excel in current roles but demonstrate the desire, ability, and likelihood to make significant contributions in the health sciences field, in research, teaching, clinical care, quality improvement, or administration. Such stars may be students, staff, residents, clinical fellows, basic science post-doctoral fellows, or junior faculty. These rising stars are obvious choices to remain at Emory for the next phase of their academic careers.

We present case studies of talented pools of trainees - the Emory MD/PhD graduates, RN/PhDs and Advanced Practice Nurses - to highlight potential areas for improvement in retention and development efforts. Our results indicate that the retention of the truly elite graduates could be improved, with potential benefits in increasing numbers of mentored grants. We present results of surveys sent to WHSC Department Chairs, Center Directors, and Program Directors, which demonstrate variability across departments in the desire to recruit WHSC trainees, but consistency in the recognition of the merits of retaining academic stars as well as a desire to participate in institutional efforts to improve early identification and development. We also present results of surveys sent to WHSC nursing staff and trainees, identified as “exemplary” and “rising academic stars” respectively, which strongly suggests that early recognition of talent, the development of collaborative networks, and strong, consistent mentoring are key factors in their decisions to stay within WHSC for their careers. Finally, we include personal narratives from faculty and staff who have trained within WHSC before becoming models of academic success, either within WHSC or elsewhere. **Consistent with the survey results, the personal narratives highlight the critical role of the academic environment - including networks of collaboration and mentoring - in the career decisions and successes of our most talented trainees.**

Consistently, we found that early recognition of trainee talent by mentors and engagement of these trainees in the environmental fabric of WHSC led to their desire to remain at Emory.

Finally, we present our proposal for a Woodruff Mentored Scholars Program, which would institutionalize identification, retention, and development of top talent from among our trainees, staff, and junior faculty. Components of this program are informed by best practices and culled
from research studies on scientific training and mentoring. We postulate that extending these principles through a WHSC initiative would create value, quality, and sustainability. This strategy would specifically enhance the extent to which the WHSC is a collaborative, inspirational environment that attracts and retains talented people.

III. Methods

A. Case Studies in Retention: MD/PhD Graduates, RN/PhDs, & Advanced Practice RNs

1. MD/PhD Graduates

We compared the percentage of Emory MD/PhD program graduates that were retained by Emory Residency Programs for the past decade (2000-2010) to MD/PhD retention rates at a select set of peer academic medical centers. Residency selection data was obtained from the Emory MD/PhD office and from the MD/PhD websites of peer institutions. We correlated the percentage of retained MD/PhDs by an institution with the number of institutional mentored grants [K01 (research scientist), K08 (clinician-investigator) and K23 (clinical research)] as a measure of academic success for junior investigators. Grant data was obtained from NIH RePORT searches and averaged over the past 5 years for each institution. Among Emory MD/PhD graduates, we compared the productivity levels of those who were retained by Emory for residency to those that went elsewhere. Productivity was defined in terms of first-authored research articles, total research articles and total citations that resulted from their PhD work with their mentor. ISI Web of Science searches were used to generate publication data resulting from scientific articles (not abstracts or reviews). Residency choices were analyzed for the most productive MD/PhD graduates, defined as those having ≥4 first-authored articles, ≥ 12 total articles or > 300 citations.

2. RN/PhD Graduate Retention and Advanced Practice RN Retention

We measured student productivity by publications in peer-reviewed journals and number of first author publications. Numbers of Advanced Practice Nurses employed by Emory Healthcare were provided by Emory Healthcare Human Resources. Data from benchmark institutions were provided from direct communication with their doctoral program offices and their respective websites. Data on the retention of Advanced Practice Nurses (APRNs) by Emory Healthcare were collected by surveying the recognized top talent, our Fuld Scholars, and soliciting names of top talent from the department chairs and Associate Deans of the Nursing School.

B. Opinions of Department Chairs, Center Directors, Program Directors, Nurses, and Trainees

We distributed web-based survey instruments to Department Chairs, Center Directors, Training Program Directors, nurses, and trainees to investigate attitudes and perceptions relevant to recruiting and retaining “rising stars” as junior faculty. In the survey “rising stars”
were defined as “trainees or junior faculty members already making or well-poised to make truly outstanding contributions to the academic or organizational mission in at least one of the following areas: research, teaching, clinical care, quality improvement, or administration.”

We distributed a web-based survey instrument to nurses who earned an “exemplary rating” in an Emory Healthcare 2009 performance review. The survey had been administered by Emory Healthcare Human Resources. Responses were captured on a 5-point Likert scale.

We also distributed web-based survey instruments to trainees identified as “rising stars” by training program directors, post-doctoral fellowship program administrators, and members of our project team. The survey for these three groups focused on intention to pursue academic careers, 13 factors influencing career decisions, and Emory’s favorability with regard to those same factors. Responses were captured using a 5-point Likert scale.

C. Interviews with Retained and Lost Talent

By email or phone we contacted students, residents, and junior faculty known by our project team members to be “rising stars.” We asked two open-ended questions to rising stars retained at Emory: “why have you stayed at Emory?” and “what could Emory do better?” We asked two similar open-ended questions to rising stars who have left: “why did you leave Emory?” and “what could Emory have done to retain you?”

D. Literature Review

We searched PubMed using the keywords academic, recruiting, retaining, mentoring, and faculty, and reviewed both single center descriptive studies and systematic reviews focused on the attitudes of junior faculty with regard to academic career development. A search in CINAHL provided additional nursing evidence using the search terms faculty, nurse, and retention.

IV. Results

A. Case Studies in Retention

1. MD/PhD Graduates

The MD/PhD Program of Emory University School of Medicine trains physician-scientists to be productive clinician-investigators within academic health centers. Students typically spend 7-9 years working on both degrees and are heavily recruited by top academic medical centers for residency programs after completion. We investigated the Emory MD/PhD program to determine how Emory compared to peer institutions in retaining MD/PhD graduates for its own residency training programs. We correlated the percentage of retained MD/PhDs with a metric for academic success for junior investigators at these
institutions (mentored grants, K01, K08 and K23). We also compared retained vs. non-
retained graduates for academic productivity levels during their program and investigated
the residency choices of the most productive MD/PhD graduates (top 15%).

Among the 63 MD/PhD graduates, 94% went to residency. Thirty percent of graduates
stayed at Emory for residency (Table 1). At peer institutions, the percentage of MD/PhD
grads that stayed at their institution for residency ranged from 10 – 72%, with a mean of
30%. Institutions with the highest retention of MD/PhD grads were Harvard, Johns Hopkins,
Hopkins, Penn and Stanford; those with the lowest were Virginia, Colorado, Northwestern,
Duke.

<table>
<thead>
<tr>
<th>Institution</th>
<th>% MD/PhDs retained</th>
<th>% leaving who went to top 20 University</th>
<th>K08s (mean, 2005-09)</th>
<th>Total Mentored Grants (K01, K08, K23, mean 2005-09)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virginia</td>
<td>10</td>
<td>78</td>
<td>12</td>
<td>24</td>
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<tr>
<td>Northwestern</td>
<td>15</td>
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<tr>
<td>Colorado</td>
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<tr>
<td>Duke</td>
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<tr>
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<td>100</td>
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</tr>
<tr>
<td>Emory</td>
<td>30</td>
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<td>13</td>
<td>35</td>
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<tr>
<td>Michigan</td>
<td>34</td>
<td>77</td>
<td>32</td>
<td>65</td>
</tr>
<tr>
<td>Stanford</td>
<td>36</td>
<td>96</td>
<td>31</td>
<td>51</td>
</tr>
<tr>
<td>Penn (+ CHOP)</td>
<td>37</td>
<td>81</td>
<td>51</td>
<td>109</td>
</tr>
<tr>
<td>Hopkins</td>
<td>44</td>
<td>89</td>
<td>39</td>
<td>117</td>
</tr>
<tr>
<td>Harvard</td>
<td>72</td>
<td>100</td>
<td>121</td>
<td>239</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>30</strong></td>
<td><strong>82</strong></td>
<td><strong>31</strong></td>
<td><strong>72</strong></td>
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**Table 1.** MD/PhD Graduates Retained by Home Institutions for Residency

In our comparison of the percentage of MD/PhDs retained to the numbers of mentored
grants [K01 (research scientist), K08 (clinical scientist) and K23 (clinical research)] at those
institutions, we found a statistically significant linear relationship between the percentage
of MD/PhDs retained and the number of total mentored training awards. We also found a
strong relation between the percent retained and K08 awards (Figure 1). While Emory
retained an average percentage of MD/PhD grads, the number of institutional mentored
grants was low for its level of retention. For example, the University of Pittsburgh Medical
Center (UPMC) had a similar retention rate, yet had more than double the level of mentored
grants. The factors driving the apparent “overachievement” at UPMC relative to Emory
could be important to understand.
Figure 1. The relationship between percentage MD/PhDs retained to the average number of K08 awards for each institution. Harvard not included in graph. \( r = 0.81, p = 0.004 \). Emory and UPMC are indicated by the arrow.

We also compared measures of productivity between MD/PhDs that stayed at Emory relative to those who left. Overall, Emory MD/PhDs were highly productive in terms of publications with their faculty mentor. They averaged 2.4 first-authored published scientific papers, 4.4 total scientific papers with their mentors during their program (review articles not included) and over 100 citations. No statistical difference was noted between publication levels or citations of those MD/PhDs that were retained compared to those that left (Table 2), although the trend was toward more productivity by those that left.

![Figure 1](image-url)

<table>
<thead>
<tr>
<th></th>
<th>Emory Residency</th>
<th>Residency Elsewhere</th>
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<tr>
<td>Fellowship Grants during MD/PhD program (F30,31,37)</td>
<td>24%</td>
<td>24%</td>
</tr>
<tr>
<td>Average total citations</td>
<td>98 +/- 28</td>
<td>162 +/- 38</td>
</tr>
<tr>
<td>Average First-authored publications with mentor</td>
<td>2.3 +/- 0.5</td>
<td>2.4 +/- 0.3</td>
</tr>
<tr>
<td>Total publications with mentor</td>
<td>4.1 +/- 0.9</td>
<td>4.7 +/- 0.6</td>
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Table 2. Measures of Productivity by Emory MD/PhD Students who stayed at Emory for Residency compared to those that went to other institutions, 2000 – 2010.

Next, the residency choices of the most highly productive MD/PhD grads were examined. This group was defined as those that had one of the following: 4 first-authored papers, 12 total research publications, or over 300 citations resulting from their PhD work. Sixteen MD/PhD grads met this definition. Among them, 13 (81%) went to other residency programs, mostly elite institutions: Harvard hospitals (6), Washington University (2), Hopkins, UCSF, Mayo, Utah, Wisconsin.

Thus, compared to other medical schools, Emory retains an average percentage of its own MD/PhD grads, but mentored grants are lagging at Emory for its level of MD/PhD retention.
On average, the MD/PhDs retained are similar in productivity to those that leave. The majority of the most highly productive MD/PhD graduates go to elite residencies elsewhere. Programs such as Vanderbilt’s Physician Scientist Development Program, which is institutionally funded, facilitates early mentorship and requires application to mentored awards, and assists young talented trainees in making the transition to productive junior faculty (see Discussion). If the findings of the MD/PhD program can be generalized to other WHSC training programs, it would imply that WHSC could maximize its value in two ways: by retaining more of its own elite trainees while also creating “UPMC-like” capacity to develop mentored training grants among those retained trainees.

2. RN/PhDs and Advanced Practice Nurses

The Nursing PhD Program is a collaboration of the Nell Hodgson Woodruff School of Nursing and the Laney Graduate School of Arts and Sciences. Twenty-one alumnae have graduated from the program since its inception in 1999 and it currently has sixteen students enrolled. These students receive generous support from the nursing school in the form of a full tuition waiver ($38,650) and $17,000 annual stipend for two years with the expectation that they will receive external support from the NIH National Research Service Award (NRSA) or other fellowships for subsequent funding through the dissertation phase. The expectation is that they become productive researchers and educators to address the increasingly dire nurse faculty shortage. The shortage of well trained faculty is one of the principal bottle-necks in addressing the shortage of bedside nurses. Eleven of the sixteen graduates (69%) are also Advanced Practice Nurses (APRNs) and as expert clinicians, need clinical practice to maintain their certifications and licensure.

Applicants usually enter the PhD program with a masters degree, though there is increasing pressure to have PhD prepared nurses come out of research training at a younger age and Emory has been responsive by admitting two students as BSN to PhD candidates. Those PhD prepared nurses are not Nurse Practitioners who could serve in advanced practice roles, but one of the two has since taken steps to get the requisite course and clinical work completed to become an Advanced Practice Nurse. Just this year, the school has begun allowing students to become APRNs while finishing their PhDs as a recruitment strategy and to encourage simultaneous academic and clinical appointments after graduation. Not all Masters prepared nurses are additionally licensed as Advanced Practice Nurses; there continues to be an alphabet soup of preparation, but Emory Healthcare would benefit from their additional specialization as clinical nurse leaders and clinical nurse specialists.

Among our benchmarks, the University of Washington in Seattle is the top ranked graduate school for nursing according to US News and World Report, and has a large doctoral and post-doc program. Because so many nursing faculty are clinicians as well as researchers, one of their retention strategies is to offer faculty clinical practice opportunities. Their goal is for
academic-practice partnerships to become the dominant model for research and learning experiences at their institution. Similarly, the University of California, San Francisco (UCSF) was named the nation's top doctoral program in nursing by The Chronicle of Higher Education. They boast a large number of faculty educated in the California system and also have faculty practice throughout UCSF Medical System. Finally, Yale School of Nursing has extensive post-doctoral support (50% of their doctoral students) and is now considering hiring their first post-doc as faculty. Faculty also have clinical practice at two Yale institutions.

Graduates of the Emory RN/PhD program have gone on to illustrious careers at the University of Washington, CHOP, University of Toronto, and several at the CDC. Three PhDs (14% of the graduates) have been hired as Emory nursing faculty: two to tenure track after completing post-docs (one at Emory, one at UNC), and one to the clinical professor track. The RN/PhDs that have been retained had mentoring by more senior faculty as evidenced by number of publications (Figure 2) but the post-doctoral opportunities offered by our benchmarks rely on training grants from the NIH (T32 funding). The School of Nursing needs senior nursing scientists and interdisciplinary mentorship to receive T32 funding and clinical partnerships are critical; right now we have doctoral students mentored by scientists at Winship and at Grady.

![Figure 2. Effect of Mentoring: RN/PhD Student Publications with PhD Mentor.](image)

Advanced Practice Nurses (APRNs) are trained at the School of Nursing in 3-5 semester programs in 11 specialties: Acute Care Nurse Practitioner, Adult Nurse Practitioner, Emergency Nurse Practitioner, Family Nurse Practitioner, Family Nurse-Midwife, Gerontological Nurse Practitioner, Nurse-Midwifery, Pediatric Nurse Practitioner - Acute Care, Pediatric Nurse Practitioner - Primary Care, Women's Health/Adult Health Nurse Practitioner, and Women's Health Nurse Practitioner. Currently there are 163 nurses enrolled in 11 specialties and 96% of students receive some type of financial aid to attend Emory, though a few very exceptional students are awarded full merit scholarships such as
the Woodruff and Fuld. The Fuld Fellows are early “superstars” that receive full tuition for BSN and MSN. Sixteen have graduated since the program’s inception and one has been hired by Emory Healthcare.

The training of nurse practitioners has recently made headlines as an affordable way to address the health care worker shortage and improve access to care. Currently there are 152 nurse practitioners working at Emory Healthcare in two levels: as care providers in primary and specialty clinics and then also as specialists in the surgical and intensive care units. Two of them are also faculty in the nursing school. By way of contrast, there are 2400 nurses employed by Emory Healthcare and 1100 MDs.

The Midwifery program the School of Nursing was ranked 8th nationally by US News and World Report and graduates 10-15 midwives per year. Currently no midwives are employed by Emory Healthcare, yet as Emory University continues to self-insure by providing healthcare to its employees, the demand for midwifery deliveries might be expected to increase as a cost-effective and valuable alternative to an obstetrician delivery.

B. Survey Results

1. Department Chairs, Center Directors, and Division Directors

Surveys were returned by 20 department chairs, 2 center directors, 2 division directors, and 1 section chief.

- Average number of junior faculty hired in each department over the past 5 years: 8
- Estimated annual number of identifiable ‘rising stars’ among junior faculty: 1-2
- Average annual costs per department for junior faculty recruitment: >$35,000
- Proportion of respondents willing to share the cost of a mentoring and retention program
  - 100% willing to share up to ¼ of the cost
  - 80% willing to share up to ½ of the cost
  - 28% willing to share more than ½ of the cost

According to Department, Center, and Division leaders, the top 3 reasons rising star junior faculty choose to leave Emory include salary, start-up package, and family or personal considerations (Figure 3). Yet the strategies ranked most effective for retaining the very best rising stars included protected time to develop research, academic mentorship, and early identification and recognition of rising stars (Figure 4), results consistent with interview responses presented below from retained and departed faculty. These results suggest the reasons star junior faculty leave Emory may be different from the reasons they stay. In other words, the accretive force for retaining our elite talent may not be higher salaries or start-up packages. That force may more resemble an ability to build collaborations and provide focused career mentorship. Insights into this difference should determine WHSC tactics to retain the best junior faculty.

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Figure 3. The most common reasons why rising star junior faculty decide to continue careers away from Emory according to Department Chairs, Center Directors, Division Directors, and Section Chiefs ranked from top to bottom. Categories at the top received the highest aggregate ranking (lowest score correlates with highest ranking).

Figure 4. The most effective strategies to retain the very best rising stars according to Department Chairs, Center Directors, and Division Directors are ranked top to bottom from highest to lowest. Categories at the top received the highest aggregate ranking (lowest score correlates with highest ranking).

We did capture an *a priori* concern related to idea stagnation as a potential disadvantage for department leaders in retaining Emory trainees as junior faculty. The results from our survey endorsed idea stagnation as a potential problem with over half (58%) of academic leaders responding that they were either ‘concerned’ or ‘very concerned’ about this possibility. However, a clear consensus emerged that the initiation of new collaborations (apart from the mentor) between the trainee/junior faculty member and other colleagues at Emory or at other institutions would be the best strategy to alleviate this concern.
2. Directors of Training Programs in the School of Medicine

Surveys were returned by 32 of 75 training program directors, almost half each from residency and fellowship programs.

Respondents identified 118 trainees from the last three years as rising stars (of 1,117 residents and fellows currently training), of which they said 35 remained at Emory upon completion of their training. They also identified the top 5 stars in their respective programs in the last 10 years, ninety-nine (99) in total for all respondents. Of these 99, they said 27 continued at Emory after their training. Nineteen went into private practice, and forty-two to other academic centers.

When asked to rank the most likely reasons the “top 5” star trainees continued their careers away from Emory, program directors ranked (Figure 5):

1. Salary
2. Real or perceived lack of mentorship opportunity
3. Family/personal requirements as the top three reasons

![Figure 5](image)

**Figure 5.** The figure depicts the most common reasons the top 5 star residents and fellows over the last ten years (in each program) decided to continue careers away from Emory according to the directors of School of Medicine residency and fellowship programs (32 respondents out of 86 programs).

Program directors ranked the following as the three most effective strategies to retain rising star trainees (Figure 6):

1. Personalized expression of interest from Emory faculty members
2. Academic mentorship opportunities
3. Trainee development

![Figure 6](image_url)

**Figure 6.** The figure depicts the most effective strategies to retain star trainees according to the directors of School of Medicine residency and fellowship programs (32 respondents out of 86 programs).

Next to last among the ten choices was “support to match a competitive offer from elsewhere.” Results from this survey reinforce the findings from the survey of Department Chairs, that while salary is a significant factor in the best trainees’ decisions to continue their careers away from Emory, there are certain strategies other than compensation that can be very effective in retaining young star talent. It is those strategies we suggest are worth considerable exploration and attention by the Woodruff Health Sciences Center.

Written comments from these program directors acknowledged the lower salaries for Emory new junior faculty appointments relative to competitors and private alternatives. They also noted the stress of high levels of clinical service activity among trainees and their teaching faculty. Both are understandable and are not unfamiliar challenges. However, other comments noted administrative delays, inadequate mentorship, and a failure to engage candidates early in the process as reasons for departure.

In response to a direct question about how many star trainees they could identify this year, program directors estimated they could identify 71 star trainees as potential candidates for a specialized mentoring program aimed at retention, if one existed.

3. Trainees Identified as Potential “Academic Stars”

Surveys were returned by 30 trainees, of 101 invited to respond, divided evenly among subgroups of MD/PhDs, nursing and nurse practitioner students, medical school residents and
fellows, and basic science post-doctoral fellows. Themes echoed those from our other surveys of Center Directors, Department Chairs, and Training Program Directors.

Twenty-two of 30 respondents (73%) indicated intentions to develop academic or research careers (Figure 7), affirming our pre-selection of this group as one whose opinions we value for the purpose of this project. Fourteen respondents indicated they were considering careers at Emory (Figure 8).

Figure 7. Subjective disposition of star trainees to continue their careers in an academic or research setting (46 respondents of 101 invited).
Figure 8. Subjective disposition of star trainees to continue their careers at Emory (30 respondents of 101 invited).

Regarding influence on decisions about where/how to spend the next stage of their careers, respondents as a whole agreed most strongly to the importance of the following factors, in order (Figure 9):

1. Quality of training
2. Opportunities for collaboration
3. Prospects for mentorship of me by others
4. Personal considerations (family, etc)

Respondents agreed with the least strength (moderate agreement to neutral) to the importance of the following factors influencing decisions about where/how to spend the next stage of their careers, in order by least agreement (Figure 9):

1. Quantity of academic (lab) space
2. Type of academic space
3. Compensation
4. Start-up package
Figure 9. Factors are presented in rank order by strongest average agreement across all trainee subpopulations (black bars represents average of ratings).

Strength of agreement with specific factors varied slightly among subgroups, but trends were consistent with the overall results.

Respondents as a whole agreed that Emory is a favorable choice per the following factors most significantly, in order (Figure 10):

1. Opportunities for collaboration
2. Quality of training
3. Personal considerations (family, etc)
4. Prospects for mentorship of me by others

Respondents agreed Emory is a favorable choice per the following factors least significantly, in order (Figure 10):

1. Quantity of academic (lab) space
2. Type of academic space
3. Compensation
4. Start-up package
Figure 10. Factors are presented in rank order by strongest average agreement across all trainee subpopulations (black bars represents average of ratings).

Strength of agreement with specific factors varied slightly among subgroups, but trends were consistent with overall results.

4. **Nurses Identified as “Exemplary”**

We evaluated the disposition of “exemplary” nurses towards remaining at Emory (Figure 11). Human Resources provided us with survey responses of 27 exemplary nurses from Emory Healthcare. We were unable to collect survey results from exemplary staff who had left Emory Healthcare. Consistent with the findings from the trainee group, our nurses most highly valued the personal and relational aspects of the job, evidenced by the top 3 factors ranked as favorable to disposing them to continue their careers at Emory:

1. Opportunity for collaboration
2. Growth opportunity
3. Expressions of interest in me by Emory leaders
Figure 11. Factors ranked from highest to lowest by Emory Healthcare nurses as favorable towards continuing careers at Emory.

C. Interviews with Retained and Lost Talent

Eleven narrative interview responses with retained and lost talent appear in the Appendix.

V. Discussion

The results of our project highlight several important issues related to the retention of talented WHSC trainees and junior faculty. In our case studies of Emory MD/PhD, RN/PhDs and Advanced Practice Nurses, it was evident that the Medical and Nursing Schools of WHSC were investing substantial time, effort, and resources into the training of a group of exceptional students, yet the vast majority of trainees went elsewhere to continue their training or career. While we do not advocate large-scale or nondiscriminatory retention of Emory students, trainees, staff, or junior faculty we do see a solid rationale for increasing the retention efforts directed at the few truly elite trainees, staff, and faculty emerging from within WHSC. We suggest specific mechanisms to enhance these efforts.

Our analysis of the Emory MD/PhD program indicated that approximately 30% of graduates were retained by Emory residencies, which was average among peer institutions. We observed that leading academic medical centers, including Harvard, Penn, Hopkins and Stanford, retained the highest percentage MD/PhD graduates into their residency programs, suggesting that a dogma of promoting further training externally may not be firmly held by the best academic
medical centers. Our results also suggest that higher retention of MD/PhDs into our own residency programs may confer an institutional advantage by procuring more mentored grants for junior faculty.

Two trends in particular stood out because they offer opportunities for improvement. First, a substantial percentage of the most productive Emory MD/PhD graduates leave for residencies at elite hospitals. Second, Emory is lagging behind peer institutions in terms of mentored grants. For this group of highly talented trainees, early recognition, collaborative engagement and mentoring through institutional programs might increase the number retained and the proportion eventually securing mentored grants. For example, UCSF has a mentoring program within its MD/PhD program that includes traditional elements, but also includes a NIH K08 Faculty Mentorship Program in which upper-year trainees receive mentorship from NIH K08 recipients. Such a program at Emory could increase opportunities for collaboration and faculty mentorship, potentially increasing the likelihood of retention and mentored grants.

The results from our comprehensive surveys on the topic of trainee and junior faculty retention revealed common, resounding and reassuring themes. These findings were amplified by the personal narratives gathered through interviews with trainees and faculty who have enjoyed academic success at Emory or elsewhere. The most important factors given by WHSC trainees influencing their career decisions were: 1) the quality of training, 2) opportunities for collaboration, and 3) prospects for mentorship. Missing from the top of this rank list were financial and material considerations, such as salary, space, and start-up packages. The clear indication is that trainees value the relational and professional aspects more than financial concerns in choosing WHSC over other training programs.

Department Chairs, Center Directors, and Training Program Directors appear to appreciate these factors. Their survey responses indicate that effective strategies to retain Emory’s academic stars include: 1) early identification and personalized expression of interest; 2) academic mentorship opportunities; and 3) encouraging academic development, often by providing protected time to develop research. Conversely, it was perceived that a lack of mentoring and academic engagement were factors that led trainees to leave, often for positions with higher salaries.

So much of the culture in a healthcare organization depends on nursing. An outstanding opportunity exists to increase retention of our RN/PhD and Advanced Practice Nurses. Our results indicate that the key factors identified by our “exemplary nurses” are collaboration, teamwork, relationship, mentoring, growth and opportunity. Particular strategies to maximize the value of an academic health center for nursing would be to: provide clinical practice appointments to nursing school faculty in advanced practice roles; recruit and retain the most talented RN/PhD students as nursing faculty; recruit midwives to Emory Healthcare; and retain the most talented APRNs into whom considerable resources have already been invested during their training.
Rising stars themselves appeared to favor factors in their decisions that are subjective, non-material, and challenging to measure. Respondents appeared to be favorably disposed towards Emory with regard to the factors they agree are important to them: quality training, collaboration, mentoring, and physical work situation. Although Emory rated modestly with regard to compensation, start-up packages, and quantity of research space, those factors did not appear to be highly disposing factors to this group of trainees. These findings suggest Emory could recruit the best of its own pool of trainees by enhancing its promise of mentorship to future young stars and providing them with collaborative opportunities to promote their careers.

The literature is consistent with our findings regarding factors that influence the thinking of residents, fellows, or physicians with regard to career decisions in academic medicine. In other investigations past experience in research, perceived opportunities for academic activity (education and research) and the influence of a mentor were the largest contributing factors that led trainees into academic medicine (Strauss, 2006). Reasons for leaving academic medicine include the absence of faculty development programs; the lack of recognition of clinical work and teaching; the absence of an “academic community;” and the failure of chairs to evaluate academic progress regularly (Lowenstein, 2007). Thus, it appears that maintenance and appreciation of an academic environment, with intellectual engagement, collaborative relationships, and mentoring are critical for recruiting and retaining faculty in academic health centers. Mentoring, in particular, with its focus on personal development, career guidance and research productivity, has received much attention for its potential to positively influence both academic retention and academic success. One systematic review on mentoring in academic medicine found that up to 50% of students and 80% of faculty do not have a mentor (Sambunjak, 2006). The nursing literature has examined nursing turnover, nursing burnout, intent to say in the job, and job satisfaction. Some studies attribute turnover to salary and benefits (compensation), work schedules, work environment, job related stress, lack of growth opportunities and staffing ratios. Summer and Townsend-Rochiccioli (2003) stated “there are several reasons nurses give for leaving: the physical and emotional stress of the job, patient acuity, staffing, perceptions of no respect, and lack of voice or autonomy. The tangible reward of salary is less of an issue for those who leave.” Shader, Broome, Broome, West and Nash (2001) looked at factors influencing turnover and found that job stress and low group cohesion leads to high turnover. “While numerous factors have been linked to nurses’ turnover, job satisfaction is the most frequently cited.” (Cavanaugh and Coffin, 1992). McGuire, Houser, Jarrar, Moy and Wall (2003) examined research conducted by three health service administration graduate students who looked at reasons staff were leaving their jobs or their occupations. Using three different research tools, the students found that job satisfaction is not all about money, or even benefits. Respect, recognition, and organizational commitment are what employees want in their jobs.

Given the high impact of academic engagement including mentoring on the retention of talented trainees and junior faculty, some academic medical centers have formalized the
mentoring of highly talented trainees as they join the faculty ranks (Brown, 2008). For example, Vanderbilt established a highly successful Physician-Scientist Development Program and a Clinical Research Scholars Program. These programs are institutionally supported; provide two years of protected research time (75%) to successful junior faculty applicants; place them with a research mentor; provide departmental support for supplies; and require the application for a mentored award by the end of the first year. Seventy-five percent of the Physician-Scientists and 60% of the Clinical Research Scholars in this program have received career development funding, more than doubling the number of mentored (K) awards at Vanderbilt since its inception. Thus, formalized institutional programs can set the stage for the next step in the careers of research-oriented trainees and faculty, as well as enhance the academic fabric and productivity of an academic health center.

VI. Recommendations

In light of these findings, we propose the establishment of the Woodruff Mentored Scholars Program (WMSP). In this program, faculty from the Schools of Medicine, Nursing, Public Health and Yerkes would identify trainees, exemplary staff, or junior faculty with the most impressive potential to become academic stars.

Co-sponsored by the WHSC and the Department Chairs of the successful candidates, elite talent would be identified months or years in advance, encouraged to build a track record of collaboration and inquiry, and then encouraged to apply for a position in the Woodruff Mentored Scholars Program. The applicant would be required to identify an appropriate mentor with whom they would develop a research proposal to launch their academic career within WHSC. Applications could be selected by leadership within the WHSC for those most likely to secure funding, either as mentored or independent grants. Candidates engaged in inquiry viewed as strategically important to Emory Healthcare and other entities within WHSC might be preferentially accepted. The WMSP would provide two years of protected research time (75%) to applicants; place them with a research mentor; utilize departmental support for supplies and as much as 25% of the protected research time; and require the application for a mentored award by the end of the first year. Woodruff Mentored Scholars - whether trainees, staff, or junior faculty - would ideally receive faculty appointments in the most appropriate departments and schools. Dual appointments to schools could create an opportunity for Woodruff Mentored Scholars to serve as teaching faculty in multiple schools, and to serve as bridging nodes for collaborative research across the Woodruff Health Sciences Center.
Figure 12. Highly competitive, the Woodruff Mentored Scholars Program (WMSP) would select from among the most promising trainee, staff, or junior faculty rising stars. Candidates engaged in inquiry viewed as strategically important to Emory Healthcare and other entities within WHSC might be preferred. Woodruff Mentored Scholars - whether trainees, staff, or junior faculty - would receive faculty appointments in the most appropriate departments and schools.

Such a program would institutionalize early identification and development of young talent, thereby increasing the retention of Emory’s elite talent. The program would also be designed to increase the productivity of this elite talent as measured by first author papers and major grants. Moreover, the program could be specifically designed to achieve an academic culture multiplier effect if Woodruff Mentored Scholars in turn serve as mentors and nodes in a collaborative social network for other aspiring researchers within WHSC.

The WHSC vision of creating a collaborative, inspirational environment that attracts and retains talented people is a noble one. We believe a Woodruff Mentored Scholars Program represents a vital component of a concerted organizational strategy to achieve that vision.
VII. Summary

- A large talent pool among its trainee, staff, and junior faculty positions is a distinctive strength of the Woodruff Health Sciences Center

- Schools within the Woodruff Health Sciences Center apply substantial resources to a group of exceptional students and trainees, yet the a majority leave Emory to continue training and careers elsewhere

- An opportunity exists to retain and develop the most high achieving talent emerging from within the Woodruff Health Sciences Center

- Opportunity also exists to develop talent in concert with the strategic goals and care model priorities of Emory Healthcare

- Specific mechanisms to retain and develop elite talent should derive from an understanding of why academic stars leave or stay, and succeed or fail

- Our inquiry into success factors reveals resounding themes shared by trainees, staff, junior faculty, and their Department Chairs, Center Directors, and Training Program Directors

- Trainees, staff, and junior faculty appear to identify relational and professional aspects, more than financial ones, as factors both for staying and for succeeding at Emory:
  - Engagement by faculty (either in faculty research or as personalized expressions of interest by faculty)
  - Collaborative work or research
  - Academic and career mentorship

- A Woodruff Mentored Scholars Program (WMSP) could retain and develop elite trainees, staff, and junior faculty by:
  - Creating a formal framework for faculty engagement with rising stars
  - Protecting time for critical research
  - Ensuring effective academic and career mentorship

- Concerns about stagnation of ideas created by recruiting from within could be alleviated by:
  - Developing opportunities for trainees to initiate new collaborations (apart from their training mentor) both within and external to Emory

- Leveraging opportunities for the WMSP include:
  - Promoting research that meets the strategic needs of Emory Healthcare
  - Growing a network of collaborative research across WHSC

- Academic health centers to which we benchmark appear to have recognized and leveraged similar opportunities successfully through institutional scholars programs
References


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Appendix: Interviews Responses of Retained and Lost Emory Talent

Retained Talent

A. Junior Faculty who is now a Chaired Professor

1) Why You Have Stayed at Emory

The main reason that I initially decided to stay at Emory is because of the support from my post-doctoral mentor and my chair. I felt that both mentors really valued my contribution to the department and to Emory, and both encouraged me to develop my own research direction. I think that it is really important to promote junior faculty in ways that will help them distinguish themselves from their previous mentor’s. With their support I was able to apply for funding and received NIH funding. I think that it is important in those early years for the Chair and other mentor’s encourage junior faculty to get involved in the larger Emory community. For example, junior faculty should very early be encouraged to join a Graduate program and get involved in teaching activities. There should also be discussions about what is needed for promotion. The reason that I have decided to stay at Emory over the long term is that I just really love the environment and the collegiality at Emory and the Neuroscience program. Because I got involved in activities outside of the department, I really felt like I was an integral part of a larger community. These included being part of IACUC and graduate programs, and also collaborations with other faculty.

2) What Could Emory Do Better

One problem that junior faculty often encounter is distinguishing themselves from their previous mentors. Chairs should be cognizant of this important issue and discuss with the junior faculty ways of establishing independence from the more senior faculty. I know that this has been a problem with promotion for several junior faculty members. The whole time that I was an assistant professor, I shared lab space with my post-doc faculty. This was fine and efficient in the beginning, but it was difficult for me to establish independence in the eyes of other faculty at Emory and with study sections. This almost resulted in me leaving Emory. I had a frank discussion with my post-doc faculty and we worked out ways of increasing my independence, including separate labs pace and some start up funding. Another issue that I have had to struggle with is that my salary always lagged behind of what I could get if I was recruited elsewhere. So I would recommend that Emory make sure that salary levels of faculty remaining after post-doctoral training is equivalent to what they could get if they were recruited elsewhere. So in short the issues are: Mentors should facilitate independence, encourage junior faculty to be involved in larger community, make sure the faculty doesn’t feel that they are losing out on salary because they stay.

B. Junior Faculty Member with National Reputation in Research

1) Why You Have Stayed at Emory
Last fall I was asked to interview for the Division Director position at UT Southwestern. For me it would have been a significant promotion at an institution for which I have a lot of respect. My spouse was supportive, but I never seriously considered it. The gravitational pull at Emory is just too strong. About five years ago, our department chair demonstrated a lot of trust in our junior faculty and we’ve delivered. The formula has been a coherent strategy, departmental investment, high expectations of ourselves, and enthusiastic peer mentoring. We created a research program and a faculty development program from scratch. Our new hires now on-board into a culture of achievement. You can see it in their eyes. They want to engage and want to grow extra-clinical identities. The more I recognize the value of mentorship the more surprised I am that we built what we did without meaningful senior mentorship – we simply haven’t had those individuals in our Division. So I’ve stayed at Emory because of my peers and what we’re growing.

2) Things Emory could do better

I was lucky to find a patron, a mentor. I’d like to see Emory take Good Fortune out of the equation. My first boss at Emory, who left about five years ago, really pushed and found opportunities for me. He encouraged me to join a national committee. He helped me find a 1-year foundation grant. He convinced me to design a 1-year faculty fellowship and then he helped secure departmental sponsorship. The additional post-graduate training really has made all the difference – gaining an area of expertise outside clinical medicine gave me the traction and confidence to grow my career in a direction. So connecting the dots, the personal interest from my boss in those first few years was really the trigger.

C. Faculty with National Reputation in Research/Howard Hughes Investigator

1) Why You Have Stayed at Emory

The center for behavioral neuroscience offered a unique group of collaborations focused on my interests. I was fortunate to already have a transitional career development grant from Pfizer, allowing me to easily get a Ward and establish an independent funding line. I was already very familiar with the Center for Behavioral Neurosciences, The Neuroscience Program, Yerkes, Psychiatry, etc, making it easier to stay than go. Family considerations did also come into play in my decision to stay.

2) Things Emory could do better

I had help with startup money. It is well known fact that if you stay you don’t get a competitive (if any) startup relative to if you move; most people would rather stay where they are established, but this fact can be financially untenable - even if the startups were generally less than for outsiders, offering somewhat more than is generally the case (in money and space) would go a long way.

D. Emory Medicine Resident (consensus Top 5% in class) stayed to join Faculty

1) Why You Have Stayed at Emory
I decided to join the Emory faculty because I have realized during residency that to balance my professional life, I need an outlet beyond clinical medicine to keep myself happy and sane at work. Emory provided the most comprehensive experience with the strongest faculty support for my personal goals (which are centered around Quality Improvement research within the hospital). Additionally, there are many avenues for me to continue to explore to explore at Emory, such as medical education and Health IT should my research lead me to new areas of interest.

2) Things Emory could do better

Two Associate Professors were instrumental in my decision to stay at Emory. They have supported my current research endeavors as a resident despite their own busy schedules. I really felt (and still feel) they have my best interests in mind, whether it was in research discussions or career counseling. Additionally, the faculty in general are all very approachable which helps to make for a non-malignant work environment.

E. Emory Medical Student who stayed for Residency, then on Faculty, now with National Recognition in Research

1) Why You Have Stayed at Emory

I chose to stay at Emory for residency largely because of a meeting I had with my Chairman at the time of my recruitment. He made a formal commitment to me to allow my research to continue while I performed my residency. I also had a mentor in place from my MD/PhD program and the department gave me the flexibility in my training to pursue this course. It is frightening to remember back when one is a resident, how vulnerable you are to misdirection; after all, once one matches, one has little decision but to stay where they wind up regardless of what the reality of the situation turns out to be. I think I would have to cite the very same reasons why I stayed at Emory for residency and as a faculty member. It was the proper balance of emphasis on attention to patient care, necessity for teaching, and understanding of the importance of basic research.

2) Things Emory could do better

The development of the official research track in the residency programs would assist to develop successful clinician investigators. I think any further formalization of this culture of balance between patient care and research, which is not really an official policy, and the advertising of that culture, will help in continuing to build Emory. As someone who has benefited greatly from the environment in the past, I feel a profound dedication to now participate in the perpetuation and further development of this environment, so as to afford talented members of the next generation all of the support and resources they need to develop to their full potential.

F. Post-Doc who stayed to join Faculty now an Assistant Professor in Psychiatry

1) Why You Have Stayed at Emory
The salary (although it was lower than my peers) and startup (only 30K) were clearly not factors in my staying at Emory. I stayed because of the quality of the research here at Emory and the rich possibilities for future collaborations. One important factor in my decision to stay was the personal interest shown in me by my mentor. Although I was already doing work that was different from his, I felt supported and appreciated.

2) Things Emory could do better

I am now considering leaving primarily because my research focus has shifted and my department and the physical location of my lab are not conducive to those “hallway interactions” that I value in advancing my thinking. Another important issue is the way I am perceived in my department. Many (including faculty and students) continue to treat me as if I were still a trainee.

G. Nurse Practitioner Trained at Emory, now at Emory Midtown

1) Things Emory could do better

I actually almost didn't take the job because I was treated so badly in the hiring process. I felt this reflected very poorly on Emory. The whole thing was strange since my direct supervisor, who knew me from clinical, wanted to hire me and working with her was fine. I applied for four jobs and got offers from all four. (One of the other jobs) paid a good 10% more and the people were so nice and professional.

Lost Talent

Interview Responses from WHSC Trainees or Faculty Who Left

A. Junior Faculty, Trained at WHSC Recruited Away by Vanderbilt, Recipient of National “Early Career Investigator Award”

1) Why You Left Emory

I hadn’t planned to leave, but at a certain point in one’s career, other institutions start calling. When they did, I agreed to look (as everyone should). What I saw at the other institutions were far better environments for research, academic collaboration, personal growth, etc. This prompted me to look back on my last 1-2 years at Emory. I realized then that I had been dissatisfied for quite some time. A number of specific things concerned me: lack of suitable recognition for my accomplishments, a feeling that I was reaching a plateau (at a far too early stage in my career), insufficient opportunities for career growth, poor research infrastructure, unclear vision among the leadership, leaders who were not empowered and resourced to sufficiently support the faculty, job responsibilities that were not aligned as they should have been (e.g., clinicians were being told to do research, hospitalists were being told to do clinic, researchers were being asked to teach, etc), ... I could go on.
2) What Emory Could Have Done to Retain You

By the time I left, my Division at Emory had dug itself into a deep hole, in terms of morale, finances, career development, position within the Department, etc. I don’t think there’s anything Emory could have done to suddenly correct all of these things and retain me. I did receive an initial offer of retention, but it fell far short of what I had been offered elsewhere. I chose to not pursue a negotiation with Emory. I had already decided to leave. I’ve been incredibly happy at my current institution. It was absolutely the right move. Here I have a great group of research colleagues, leadership roles that are appropriate to my career stage, exciting opportunities for subsequent growth, more resources at my disposal, a culture of excellence, a boss who has a very clear vision about where we are headed and has been incredibly successful in moving us in that direction, proactive attention to faculty and staff satisfaction, much higher financial compensation, ... again, I could go on.

B. Medical Student, Leaving for Internal Medicine Residency at UCSF, AOA Inductee as M4

1) Why You Left Emory

I knew from the start of the residency application process that I would likely leave - not because of a deficiency in Emory's program, but rather because I had the opportunity and desire to experience life in another part of the country and medicine in a different practice setting. I made UCSF my top choice for several reasons - strong leadership, great city, tremendous patient diversity, multiple practice settings, established tracts within the residency program (eg. clinical research, global health, policy, etc...), emphasis on general internal medicine, overall resident satisfaction, and strong tradition/reputation of the program. Emory shares most of these characteristics, but some are not as well developed.

2) What Emory Could Have Done to Retain You (or Could Do in the Future)

Even if Emory had the “best” program in the country, I most likely still would have left (at least for residency), just to have a different experience. I would be excited, however, to return to Emory at a later point in my career.

C. Nurse Practitioner Trained at Emory, left for a competitor

1) Why You Left Emory

Emory really does need to hire more NPs. The NPs that I know that work at Emory tell me that they are doing a job that seems it needs 2 NPs to complete all the responsibilities.