How to Succeed as a Clinician Scientist in the Year 2009 and Beyond

Andrew I. Schafer
Chairman, Department of Medicine
Weill Cornell Medical College
National Research Capacity and Demand for Grants Surges at End of Doubling Period: Success Rates Fall
Sources: IMPAC II Current and History Files and AAMC Faculty Roster

September 2007, Age Distribution of NIH RPG Investigators and Medical School Faculty
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Sources: IMPAC II Current and History Files and AAMC Faculty Roster
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September 2007, Age Distribution of NIH RPG Investigators and Medical School Faculty

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The Clinical Investigator as an Endangered Species*

James B. Wyngaarden, M.D.

Fredric M. Hanes Professor and Chairman
Department of Medicine
Duke University Medical Center
Durham, North Carolina

The title of this symposium is "The Academic Physician: An Endangered Species." There is a paradox in that title. The paradox is that we have never had more full-time physicians in academic medicine than we have right now. About 33,000 physicians have full-time faculty positions in the United States, and that is close to 10% of the physicians in this country. This large figure reflects the expanding clinical roles of academic medical centers, which include, for example, 25% of all acute and intensive care beds of the country. Annual Association of American Medical Colleges surveys of funded, unfilled faculty vacancies have listed about 1,000 available positions each year over the last 10 or 15 years. Each year faculty ranks grow by 1,000, but another 1,000 new positions become available to be filled the following year. Thus, in the global sense there continues to be a shortage of academic physicians. But these position vacancies tend to be concentrated in specific fields, such as anesthesiology and pathology, with high service requirements. These are not the endangered species that I am referring to.

Eighteen months ago, as part of a presidential address, I discussed this topic with respect to the clinical investigator with special emphasis on the physician-scientist. I use that term to signify an individual thoroughly trained in clinical medicine and also thoroughly trained in a scientific discipline, and who, in addition, participates in both clinical and experimental endeavors as a career role. Thus I refer to the physician who is simultaneously a serious scientist, and far less to the clinician who may occasionally also do some research. I want to discuss the topic in that

*Presented as part of a Symposium on The Academic Physician: An Endangered Species held by the Committee on Medical Education of the New York Academy of Medicine October 10, 1980.
The End of the Physician-Scientist?

GORDON N. GILL

Not the End of the Physician-Scientist


Editorial

The clinical investigator: bewitched, bothered, and bewildered--but still beloved.

J L Goldstein and M S Brown
Chasm between Basic Science and Clinical Practice
Chasm between Basic Science and Clinical Practice

- Scientific
Bridging the Chasm
Bridging the **Scientific** Chasm between Basic Science and Clinical Practice

- Reductionism of molecular biology
- Integrationism of systems biology
- Translational research
- Evolution of physicians as members of research teams
Chasm between Basic Science and Clinical Practice

- Scientific
- Cultural
Cultural Barriers Separate Clinical Medicine from Basic Science
(from Barry S. Coller)

- Need for Immediate Action
- Avoiding Rush to Judgment
- Adherence to standards of practice
- Encouragement to challenge existing paradigms
Cultural Barriers Separate Clinical Medicine from Basic Science
(from Barry S. Coller)

<table>
<thead>
<tr>
<th>Respect for hierarchy and expert authority</th>
<th>Critique, challenge accepted wisdom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Errors as mortal threats</td>
<td>Errors as inevitable manifestations of creative process</td>
</tr>
</tbody>
</table>
Cultural Barriers Separate Clinical Medicine from Basic Science
(from Barry S. Coller)

- Focus on unique principles
- Focus on generalizable principles
- Commitment to the Physician’s Oath
- Commitment to Search for the Truth
Bridging the Chasm
Bridging the Cultural Barriers between Basic Science and Clinical Practice

- *Vive la différence*
- Institutional leadership to cultivate a climate of mutual respect and trust
- Research team building
- MD trainees experience laboratory research
- PhD trainees experience clinical medicine (e.g. HHMI “Med Into Grad” Initiative)
Major Contemporary Issues in Physician-Scientist Career Development

1. Women physician-scientists
Women Physician-Scientists

Gender Distribution of Matriculated Medical Students

![Graph showing the gender distribution of medical students from 1981 to 2005. The graph comparing the percentage of male and female students over the years.]
Women Physician-Scientists
Medical School Faculty, by Gender and Rank Over Time: “Slow Pipeline” versus “Leakage from Pipeline”
Why Women Find Physician-Scientist Careers Less Attractive Than Do Men

• Concerned that it will be impossible to combine a successful career with childbearing and family life
• Feel that they have to be better than their male counterparts to be considered equal
• Receive little encouragement to become physician-scientists
• Lack compelling role models

Major Contemporary Issues in Physician-Scientist Career Development

1. Women physician-scientists

2. Generation gap in expectations
“There’s a tremendous generation gap between what the current generation of junior faculty want and what the current generation of senior faculty perceive as correct.”

-Junior male faculty MD-scientist, Duke Faculty Focus Group
Male executive survey question: “I want job options that let me have more personal time”

Source: Jody Miller, “Get a Life!” Fortune, November 28, 2005
Changing Family Structures

<table>
<thead>
<tr>
<th>Year</th>
<th>Male Single Parents</th>
<th>Female Single Parents</th>
<th>Other Families</th>
<th>Dual-worker Families</th>
<th>Traditional Families</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>3.5%</td>
<td>1.8%</td>
<td>10.8%</td>
<td>20.4%</td>
<td>63.4%</td>
</tr>
<tr>
<td>2005</td>
<td>5.9%</td>
<td>12.8%</td>
<td>24.2%</td>
<td>40.6%</td>
<td>17.4%</td>
</tr>
</tbody>
</table>

Memorandum from Einstein to Mileva Einstein-Maric
18 July 1914

A. You will see to it that:
   1. My clothes and laundry are kept in good order;
   2. I will be served three meals regularly in my room;
   3. My bedroom and study are kept tidy, and especially that my
desk is left for my use only.

B. You will Relinquish all personal relations with me insofar as they are not
completely necessary for social reasons. Particularly, you will forgo my:
   1. Staying at home with you;
   2. Going out and traveling with you.

C. You will obey the following points in your relations with me:
   1. You will not expect any tenderness from me, nor will you offer any
      suggestions to me;
   2. You will stop talking to me about something if I request it;
   3. You will leave my bedroom or study without any back talk if I request it.

(reference: Collected Papers of A. Einstein, Vol. 8, p. 32)
The New Workforce Imperative

Corporate Ladder:
- Traditional hierarchy
- Linear path upward
- Move or stop moving
- Fits traditional family structure
- Assumes workers’ needs remain consistent over time

Corporate Lattice:
- Multiple, individualized paths upward
- Move faster, slower; change directions
- Personalized career-life fit
- Adjusts as workers’ needs change over time

Off-Ramps and On-Ramps: Keeping Talented Women on the Road to Success

(Harris survey of 2400 “highly qualified” professional women and 653 men ages 28-55)

- Two thirds of highly qualified women have discontinuous or nonlinear careers
- 93% of women who stepped out of the workforce want to return to their careers
- Most organizations are ill equipped to make reentry possible, let alone easy

-Hewlett SA, 2007
Major Contemporary Issues in Physician-Scientist Career Development

1. Women physician-scientists
2. Generation gap in expectations
3. Mentoring
Johannes Peter Muller
(1801-1858)
Contemporary Approaches to Mentoring

- Mentoring teams
- Multigenerational mentoring
- Dynamic process
How to Succeed as a Clinician Scientist

1. Being mentored effectively
   - Proactively cultivate mentors
   - Mentor phenotypes
     - scientific advisors
     - “godfathers”/ “godmothers”
   - Become a good mentee
   - Learn early how to become an effective mentor
   - Career-long necessity
How to Succeed as a Clinician Scientist

2. Starting your faculty research career

• Focus, focus, focus
• Don’t be seduced into many different non-research responsibilities
• Be selective about writing review articles, chapters
• Cultivate/fertilize your research creativity
• Find great collaborators
• Attract great trainees
• When do you know you are hitting a wall?
How to Succeed as a Clinician Scientist

3. Qualities of the successful academic physician and clinical investigator

- Scientific integrity
- Intellectual balance
- Resilience, tenacity, perseverance
- Ability to communicate clearly and persuasively
- Organizational skills
- Ability to focus
- Time management skills
- Responsiveness to critique