Working in industry: the good, the bad, and the ugly

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ACE Careers Workshop
Disclaimer

The comments provided here are solely those of the presenters and are not necessarily reflective of the positions, policies or practices of Amgen Inc.
Work History

- 1978-81 - Environmental Protection Agency
- 1981-83 – University of California
- 1983-89 – Exxon Biomedical Sciences
- 1989-2004 – Monsanto/Pharmacia
- 2004-present - Amgen
Biomedical R & D Spending

Pharma

NIH

$ Billion


40

30

20

10


Courtesy of Dr. T. Stossel
The Good

• Team focus, sense of mission
• Interesting, varied work
• A very high % of good ideas get funded
• Support for individual development
• Subject matter experts readily available
• Good salary, benefits
• Employee retention is a management focus
The Bad\textsuperscript{1}

- Commercial influence needs to be considered
- Publication irregularities have been documented
- There is some negativity about observational research (versus experimental research)

1. Generic issues, not specific to any company
The Ugly (1): Peer Negativity

- Questions about going over to the “dark side”
- Not eligible for service on expert panels
- Unlikely to be journal editors or elected to epidemiology society leadership positions [some exceptions]
- Journal peer review can be adversarial for non-scientific reasons
- Collaborations with government epidemiologists face political hurdles, lately insurmountable
- Cannot assure potential sponsors that your research will be judged fairly
The Ugly (2): Developing Caste System in Journals?

For industry-sponsored studies, an analysis of the data (entire raw data set, study protocol, and pre-specified plan for data analysis) must be conducted by an independent statistician at an academic institution, such as a medical school, academic medical center, or government research institute, that has oversight over the person conducting the analysis and that is independent of the commercial sponsor.

*Instructions for Authors, jama.ama-assn.org, August 29, 2007*
My Advice:
Interview Questions to Ask Prospective Employers

• How do you limit commercial influence on epidemiologic research – esp. whether research gets published regardless of outcome?

• Do you have any examples of early career epidemiologists as first authors on published papers?
Background/History – R Kilpatrick

• B.A., Psychology – 2000, UCLA
  • Pre-Med: Decided to pursue M.S. in Epidemiology
  • 2001 – Admitted to PhD program in Epidemiology
• Graduate Summer Internship – 2005, Amgen, Inc
• PhD, Epidemiology – 2007, UCLA
• 2007-present – Amgen, Inc
  • Senior Manager, Epidemiology – Department of biostatistics and epidemiology
### My thoughts about industry

**then (grad school) vs. now (some experience)**

<table>
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<tr>
<th>Then (Grad School)</th>
<th>Now (After 2+ Years)</th>
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| • Part of a corporate machine  
  • Anonymity, bureaucracy | • Sometimes, although Epidemiology group is relatively small and approachable. |
| • More job security/stability.  
  • No need to write grants. | • Yes. Ideas can be easier to advance into reality. |
| • Ethics may be compromised. | • Industry is very regulated/scrutinized.  
  | • Perception by non-industry colleagues can be challenge. |
| • Publications and external presence limited. | • Pubs highly valued by company and department.  
  | • Can be more difficult due to perceived COI. |
| • Greater salary and benefits  
  • Perception of “sell-out” | • True, although negative perceptions can be difficult |
What do I do at Amgen?

• Part of a matrix environment supporting development of a specific product.
  • Development team consists of clinical, safety, regulatory, statistics, epidemiology, health economics, others.
  • Creates and executes a development plan to support the safe and effective use of the drug.

• Part the epidemiology group and larger development organization.
  • Sit on internal peer review group
  • Consult/advise
  • Various initiatives.
Epidemiologists in industry are presented with number of complex (and interesting) issues

- Confounding by indication
  - May present serious and/or intractable bias
  - Time-dependent CBI can require advanced methods such as Marginal structural modeling and/or instrumental variable approaches

- Comparative effectiveness
  - Huge impetus to compare therapies from multiple, heterogeneous studies.

- Data sources are often large (claims, EMR) and are not ideally suited to study objectives.
Some projects I have worked on at Amgen


Greater Epoetin alfa Responsiveness Is Associated With Improved Survival in Hemodialysis Patients

Ryan D. Kilpatrick,⇤ Cathy W. Critchlow,⇤ Steven Fishbane,† Anatole Besarab,‡ Catherine Stehman-Breen,§ Mahesh Krishnan,¶ and Brian D. Bradbury⇤

**Clin J Am Soc Nephrol (Under Revision).**

Relationship between Epoetin-alfa (EPO) Dose and Mortality: Findings from a Marginal Structural Model

Ouhong Wang,⇤ Ryan D. Kilpatrick,⇤ Cathy W. Critchlow,⇤ Xiang Ling,⇤ Brian D. Bradbury,⇤ David T. Gilbertson, † Allan J. Collins, † Kenneth J. Rothman, † John F. Acquavella⇤

**Am J Kidney Dis. 2009 Sep;54(3):554-60**

Evolving Statistical Methods to Facilitate Evaluation of the Causal Association Between Erythropoiesis-Stimulating Agent Dose and Mortality in Nonexperimental Research: Strengths and Limitations

Brian D. Bradbury, MA, DSc, M. Alan Brookhart, PhD,⇤ Wolfgang C. Winkelmayer, MD, ScD, MPH, Cathy W. Critchlow, PhD,⇤ Ryan D. Kilpatrick, PhD,⇤ Marshall M. Joffe, MD, PhD, MPH,⇤ Harold I. Feldman, MD, MSCE,⇤,§ John F. Acquavella, PhD,⇤ Ouhong Wang, PhD,⇤ and Kenneth J. Rothman, DrPH,⇤
You might consider a career in industry if you...

- Enjoy a fast and productive pace.
- Work well in a multi-disciplinary team-based environment.
  - Can be the “epidemiology authority”.
  - Can think on your feet and effectively communicate to diverse group.
- Are interested in complex methodological challenges and advanced epidemiologic methods.
- Can face the various perceptions and not take them personally.
- Want to make a direct impact on therapeutics development and patient care.