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

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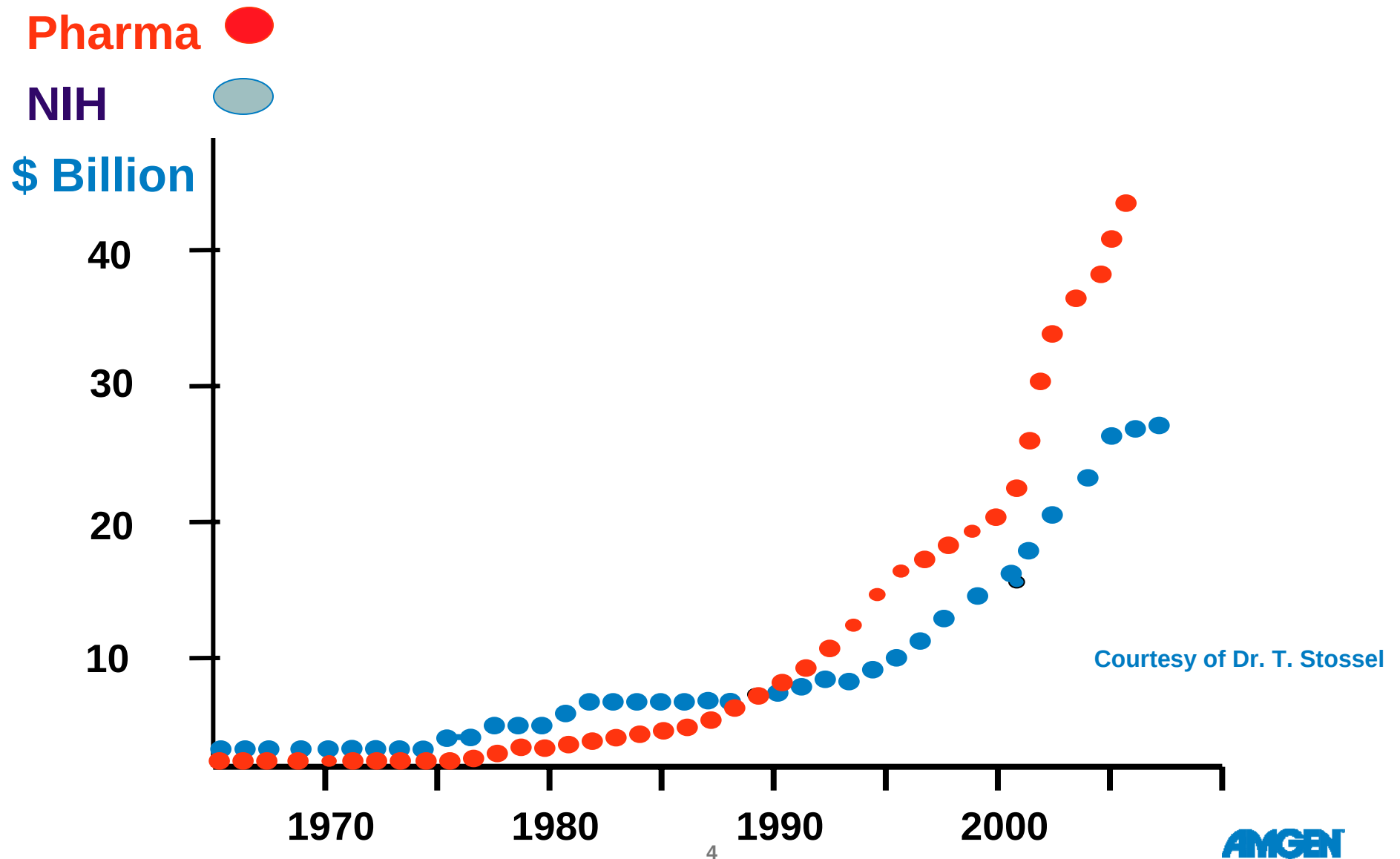
Disclaimer

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



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 Bad¹

- 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 epi 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)

Then (Grad School)

- Part of a corporate machine
 - Anonymity, bureaucracy



Now (After 2+ Years)

- 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

Clin J Am Soc Nephrol 3: 1077–1083, 2008.

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,¹ M. Alan Brookhart, PhD,²
Wolfgang C. Winkelmayr, MD, ScD, MPH,^{2,3} Cathy W. Critchlow, PhD,¹
Ryan D. Kilpatrick, PhD,¹ Marshall M. Joffe, MD, PhD, MPH,⁴ Harold I. Feldman, MD, MSCE,^{4,5}
John F. Acquavella, PhD,¹ Ouhong Wang, PhD,¹ and Kenneth J. Rothman, DrPH^{2,6}



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.