Interdisciplinary Collaboration: Opportunities, Challenges, and Career Impact

Karen Bandeen-Roche, Ph.D.
Departments of Biostatistics, Medicine & Nursing
Johns Hopkins Medical Institutions

Interdisciplinary Collaboration:
What is it? A statistician's point of view

Bringing statistical science
to the table
with other scientific disciplines
to build knowledge,
inform decisions and conclusions,
or advocate policy
in a shared area of inquiry

Interdisciplinary Collaboration:
Why do it? Take a big picture view.

- If not: Your methods research risks irrelevancy
  - Targeted to a non-existent problem…
  - Ignorant of critical data features…
  - Naïve…
  - … Pertinent only to academic aims
- Otherwise: It's up to you

- Some reasons besides avoiding irrelevancy:
  - Impact on science, shoppers, society
  - Learning
  - Engagement in science as a social process
  - Fun

Maximizing the opportunity Statistics is a science discipline

- Not only a service
  - Not the only service
- My experience: Colleagues are happy to recognize statisticians as scientists
  - Be authoritative
  - See your expertise as valuable
  - Think deeply
  - Be a scientist
- Statistical advancement matters

Maximizing the opportunity
Sit at the table

- Show investment: time, commitment
  - Part of being taken seriously, thus making impact
- Become engrained in the subject matter
  - SERIOUSLY engrained!
  - At least: For thoughtful study design, methods choice
  - Better: To contribute thoughtfully at the table
    - Crystallization of questions; synthesis
- Leadership is possible

Maximizing the opportunity
Eye on the prize: accomplishment

- Your motivation for being involved

- Knowledge … conclusions … policy
  - Role of statistical science
  - The advancement in its own right
- This = critical consideration for opting into collaboration
  - What value added of high-level statistical practice?
  - An area of inquiry—multi-disciplinary?
  - Is the aim important?
  - Are there high energy… expertise… standards… priorities?
    - Best experiences: Yes
    - Worst experiences: No

A few trees in the forest
Collaboration or Consulting?

- Compared to collaboration, I'd characterize consulting as
  - Shorter term
  - More advisory
  - More highly regimented
- Some advantages of consulting / disadvantages
  - Diversity of applications seen / attention splitting
  - Less strings of attachment / superficiality
  - Breadth of impact / 10x5% = 150%
- In practice—portfolio becomes a spectrum

Sequence of consultations

One primary collaboration

A few trees in the forest
The import of communication

- Tell ‘em what you want to do and why
  - With sophistication; absent jargon
  - Pictures help
  - Why does it matter to do it your way?
- Let them tell you what they want to do and why
  - Ask questions: Don’t be afraid to look stupid
  - Do learn as you go along
- Rules of the road: Disciplines are cultures
  - Authorship / credit
  - Resource sharing
  - Research and dissemination oversight

A few trees in the forest
Beyond the "obvious" opportunities

- Funding your statistical research
  - Somewhat obvious: Compelling extra-statistical science enriches statistical research
  - Less obvious: Extra-statistical science funding finds statistical research appealing
    - Foundations
    - Center grants: Pilot, Junior Investigator support
- Student involvement: A true win-win

A few trees in the forest

~~Dangers~~ Challenges worth mentioning

- **A-Number 1: Never saying no**

Some specifics	Solutions
The everlasting feast	Get agendas; attend as appropriate
Computing down to the last t-test	Build in support
Getting stuck in unproductive relationships	➢ Trial runs ➢ Mentoring

Bottom line: We all have to do some grunt work, but document that X% of your effort is going to activities that well use your time

A few trees in the forest
~~Dangers~~ Challenges worth mentioning

- **Maintaining balance**

Some specifics	Solutions
Stranger in one's department	Clear communication / negotiation / recognition
Torn between two horses	Get a mentor to run cover for you
No time for methods research	➢ Block out your time ➢ Live with your decisions ➢ Chant: New ideas=raison d'etre

<u>Bottom line:</u> Balance must be planned. It doesn't just happen.

Closing word
Career impact

- Taking ownership goes a long way for + impact
  - Prize-seizing scientist at the table (?)
- Clear communication is key
  - Expectations, feedback within & across disciplines
- Meet challenges with planning, initiative, help
- Can be way positive
  - Pertinence of statistical research
  - Import of scientific endeavor
  - Funding, mentorship opportunities
  - Enjoyment