Assumptions

IMPACT Program Curriculum
Assumptions

Assumptions are inherent in research; some assumptions are obvious, and others are more subtle. Here we discuss how assumptions can impact research.
For many years, arthritis was diagnosed by how close the bones appeared to be on a knee radiograph; this led to the assumption that arthritis is a progressive “wear and tear” disease with irreversible loss of cartilage tissue.
How we “see” arthritis…
And how this biases our assumptions in research

• Problem is “wear and tear” (versus biological)
  • Biases problem definition

• Participants in clinical trials must be those likely to lose cartilage quickly (to see the effect of the drug on slowing down cartilage loss) => trials utilize late disease. (Potentially the reason for the numerous negative results of clinical trials of new drugs)
  • Biases study design

• FDA considers cartilage loss the outcome metric for drug trials
  • Biases regulatory design
How we “see” arthritis...
And how this biases our assumptions in research

- When MRI became available (which could see cartilage tissue directly), major resources went to development of methods to measure cartilage thickness as a better measure of cartilage loss
  - Biases experimental design

- Patients will need to take drug for life and therefore will not be willing to take drug with any toxicity
  - Biased assumption of solution and of end-user preference

- Etc.

Even “scientific” studies and “facts” have inherent assumptions and bias; try to identify those.
Identify assumptions in your work:

- Reexamine “facts” that have been around for years
- Try to identify bias in viewing of problem
- Consider positive (supporting your hypothesis) and negative (unexpected or not supporting your hypothesis) as potentially important findings
- Consider your assumptions about those who might want to use the results of your research
- Consider the realistic (and practical) impact of the results; how will it really be used (by whomever)

These assumptions may take very different forms depending on the particulars of the projects.