Future Interdisciplinary Research for ME/CFS That will Require a Variety of Scientific Disciplines

Challenges to Interdisciplinary Translational Research

- Same scientific terms can have different meanings (interpretations)
  - Cultural/social influences
  - Clinical vs basic influences
  - Personal/professional bias/perspective (the 10 blind men and the elephant)
- A natural conflict exists in the approach for information between a scientists and a clinician
  - Scientists look for generalizable knowledge that may be applicable to people
  - Clinicians care for the individual patient by balancing the components of the illness that are generalizable (i.e. “evidence based”) with the individual variability that make each of us unique
  - Truly translational research has to account for both perspectives while remaining objective to the results derived from the study “follow the data” with the *a priori* understanding that no single intervention works for everyone

Challenges to Interdisciplinary Translational Research

- Many research efforts are discipline egocentric
  - "It's not real if it does not have a p<.05"
  - "If p<.05, then it is real"
  - "Using my methodology is the (only) correct way to look at this problem"
- "Reverse" Translational Research Approach
  - Bedside to bench approach
  - Requires a relatively "pure" population or at least a "common clinical" population
- Approaches Using "Biomarkers" Need Strong Clinical Correlates
  - Some are relative clear (tumor burden, renal function, death)
  - Major challenge with CFS research is clear clinical correlates
    - Etiology(ies)
    - Variable symptom complexes
    - Overlap syndromes

Recommending Translational Research Priorities

- Basic Science approach to a research question
  - Identify the question
  - Identify the population
  - Identify the experimental system
  - Design study with adequate controls (goal is single variable)
- Data analysis plans and ultimate conclusions/applications are highly dependent upon above
- Interdisciplinary Research for ME/CFS
  - Decide on a definition of the illness (essential criteria, spectrum)
  - Determine minimal data necessary for comparative study
  - Careful constructed design to optimize the answer to the research question
  - Strong consideration of confounders/modifiers (i.e. psychological, physical, pharmacological, etc.)

Components for Optimal Interdisciplinary Research in ME/CFS

- Epidemiology
- Genetics
- Physiology
- Psychology
- Endocrinology
- Immunology
- Sociology
- Internal Medicine
  - Generalists
  - Subspecialists
- Gynecology
- PMR
- Pediatrics
- Psychology/Psychiatry

Approaches to ME/CFS Research Should be Focused on a Reverse Translational Model