Training in Interdisciplinary Health Science: Current Successes and Future Needs

SESSION: "DEFINING THE ESSENTIALS"

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Overview of Paper

- The Need for Interdisciplinary Population Health Science
- An Overview of Training in Population Health Science
- Defining the Essentials of Training in Interdisciplinary Population Health Science
  - Competencies
  - Training Practices
  - Institutional Contexts and Resources
- The Training Pipeline
  - Undergraduate Training
  - Predoctoral Training
  - Postdoctoral Training

Core Competencies -- Categories

- Knowledge Acquisition
- Interdisciplinary Collaboration Skills
- Knowledge Exchange and Translation

1) Knowledge Acquisition

Rationale

- Depth and breadth in knowledge
- **Depth** and expertise in knowledge about a particular discipline, approach, or population health problem
- **Breadth** of knowledge of other disciplines/approaches that challenge or complement one's own training.
- Training in population health knowledge has the aims of:
  - increasing the creativity and scope of the population health scientist
  - improving the scientist's ability to contribute effectively in an interdisciplinary team
  - transforming a scientist to produce rigorous population health research alone or in teams

Examples of Competencies (1 of 2)

- Demonstrates knowledge of concepts of health as a product of factors operating at multiple levels (e.g., molecular, cellular, organ, individual, family, community, region, nation, global) in dynamic ways over time.
- Achieves broad familiarity with literatures on the contributions of biological, behavioral and contextual factors to population health.
- Demonstrates familiarity with foundational concepts in population health (e.g., population, disparities, selection into and out of populations, ecological fallacy).
- Demonstrates introductory knowledge about the range of disciplines and theories that contribute to understanding and addressing population health.

Examples of competencies (cont.)

- Analyzes the strengths and weakness of the methods that contribute to population health science and multi-method approaches.
- Demonstrates in-depth expertise in the theory, methods, and knowledge base of at least one discipline or approach that contributes to understanding population health
- Critically analyzes and integrates knowledge, theory and methods from multiple disciplines in designing and carrying out research on population health.
- Monitors emerging methodologies and technologies (for example, “big data” mining, systems models) and assesses how they may or may not be relevant to understanding and addressing population health

2) Interdisciplinary Collaboration Skills

Rationale

- Communication with others
- Collaborative skills are needed: fostering and maintaining relationships, group dynamics, conflict resolution, etc.
- Skills not often taught in disciplinary training
- Group science important inside and particularly outside of academia

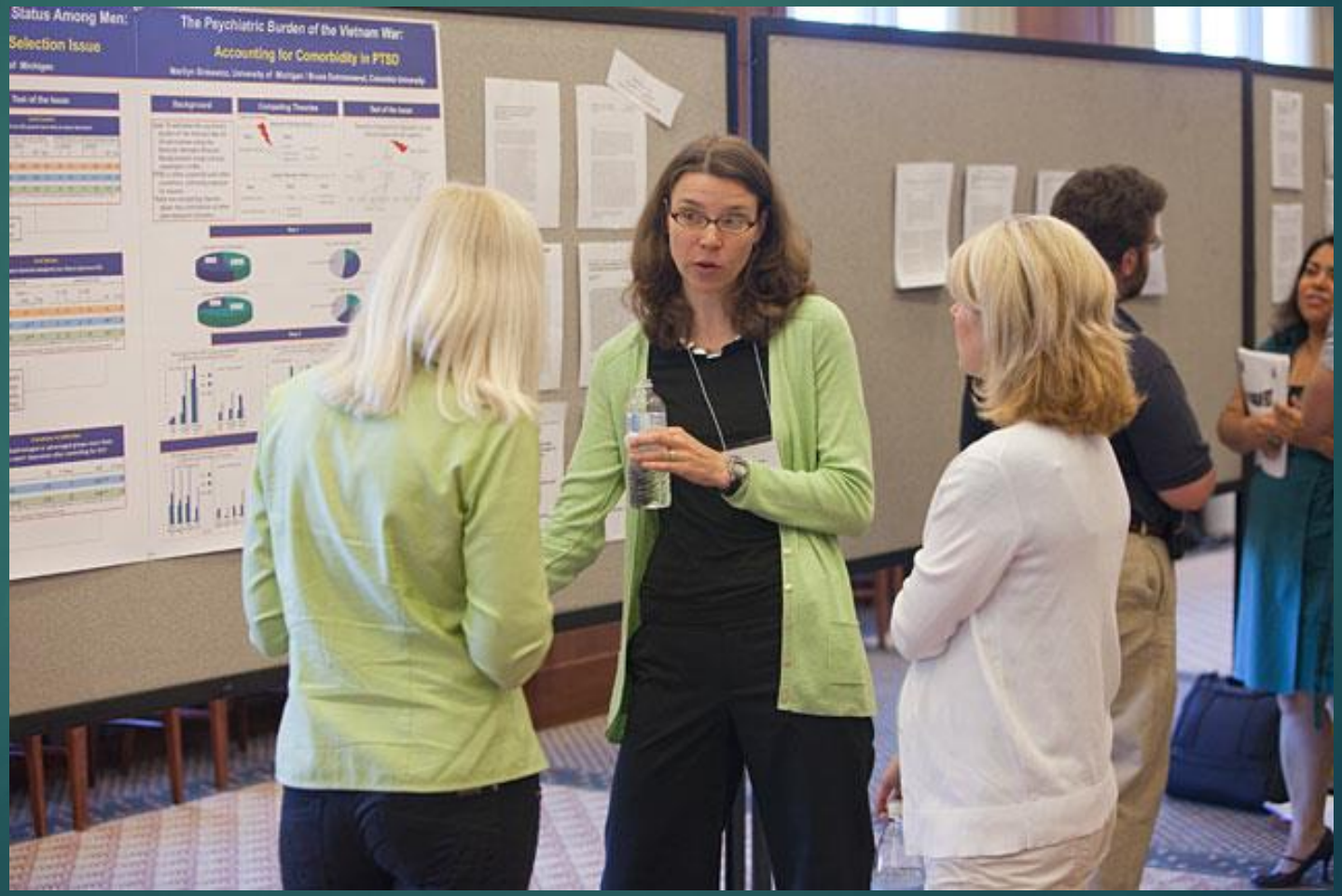
Examples of Competencies (1 of 2)

- Builds and maintains working relationships among people with different approaches to population health science and practice.
- Assesses when an interdisciplinary approach may be necessary or unnecessary and which other disciplines/approaches could contribute significantly to a particular research project.
- Develops research questions and selects appropriate study designs to understand a population health problem from an interdisciplinary perspective.
- Navigates and negotiates roles and responsibilities within an interdisciplinary and/or cross-sectoral team project where there are likely no clear, shared norms at the start.

Examples of competencies (cont.)

- Leads and/or functions effectively within an interdisciplinary and/or cross-sectoral team.
- Demonstrates problem-solving and conflict management skills.
- Fosters group cohesion.
- Mentors trainees from one's own and other disciplines, either one-on-one or in team mentorship.

3) Knowledge Translation and Exchange



Rationale

- Producing and communicating science
- Understanding push, pull, and exchange relationships
- All population health scientists can benefit from learning about various research translation and exchange options

Examples of Competencies (1 of 2)

- Understands different theories of or approaches to knowledge translation and exchange.
- Communicates with practitioners, policymakers, the media, and/or other relevant audiences about the findings and population health significance of one's research.
- Summarizes and communicates the importance of a body of research (synthesis of research in a particular area, rather than just one study) for relevant audiences.
- Understands how to engage networks, knowledge brokers, social media, and other avenues to disseminate research.
- Understands the basics of the policymaking process.
- Frames, speaks, and writes about one's research using a variety of approaches to communicate with different audiences.

Examples of Competencies (Cont.)

- Able to evaluate how potential end-users of one's research (e.g., scientists, practitioners, and/or policymakers) prefer to access and use those research findings (e.g., their preferred formats and venues).
- Understands the barriers and incentives experienced by potential research users in accessing and applying population health science.
- As relevant, develops and maintains relationships with practitioners/policy makers in one's area to enhance the efficient exchange of information over time between scientists and end users of the science.
- Able to engage policy/practice stakeholders in the design of a study to ensure the results will be useful, as appropriate.

Training Practices

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- Coursework and mentored study
- Interactive seminars
- Mentored research experience
- Experienced-based learning
- Immersion
- Mentorship

Immersion

- Face-to-face
- High dosage
- Formal and informal interactions

Immersion

Economist

Historian

Immersion

Economist

Historian

Traditional model of mentorship

Institutional Contexts and Resources

- Examples of barriers and incentives for training interdisciplinary scholars
  - Available faculty and trainees from different training backgrounds
  - Money (internal and external funding)
  - Time (the most precious faculty resource)
  - Value placed on interdisciplinary work – rewards and barriers (tenure, promotion, etc.)

What is needed moving forward?