BARBARA ANN Karmanos CANCER INSTITUTE
Wayne State University

Building Interdisciplinary Research Careers in BSS and Cancer Prevention and Control Research

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What are we talking about?

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Interdisciplinary

Interprofessional

Multidisciplinary

Transdisciplinary

Cross-Disciplinary

Team Science

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Why not stick to what we know?

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What causes poor health outcomes? Isn't it all about interpersonal communication?

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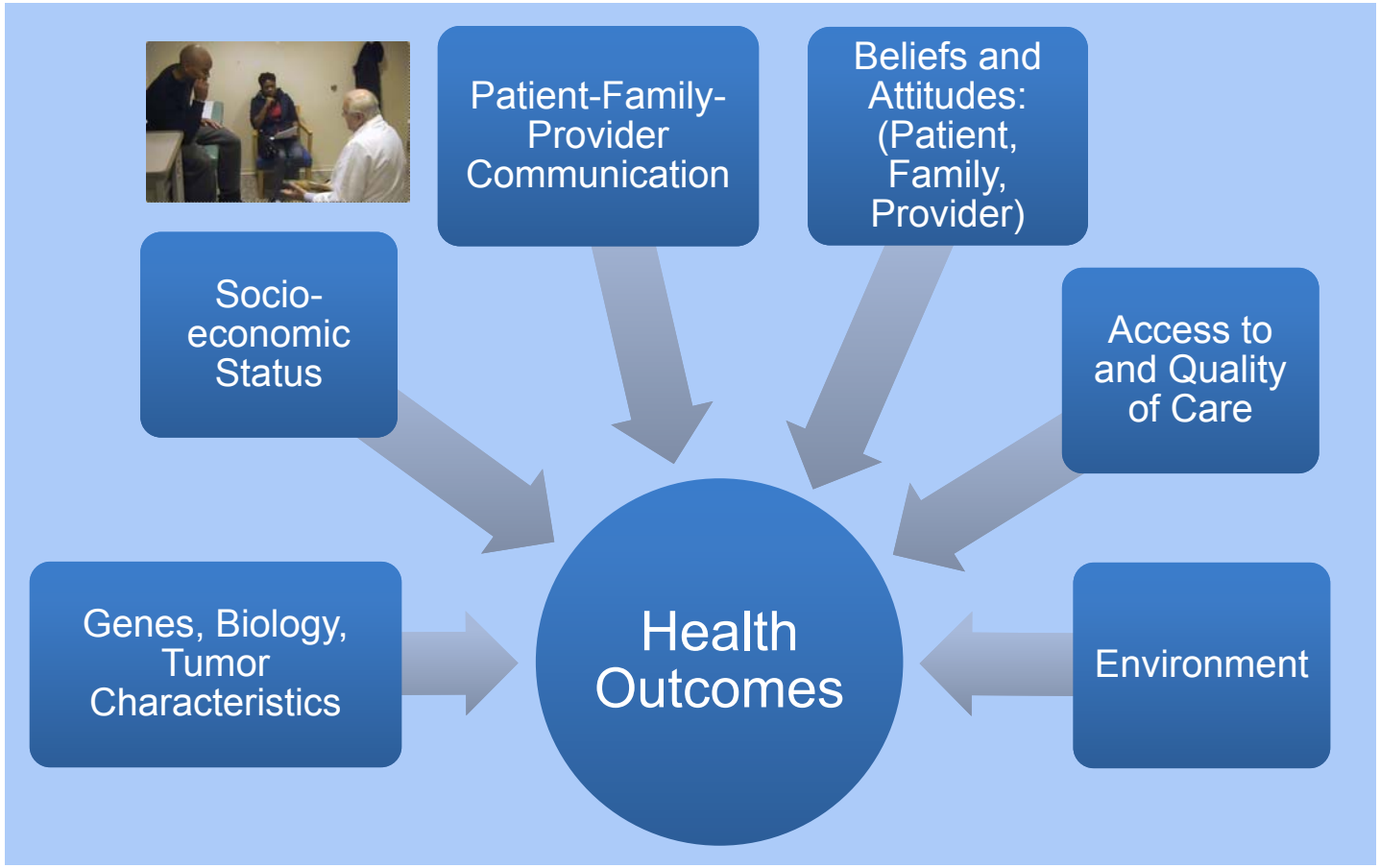
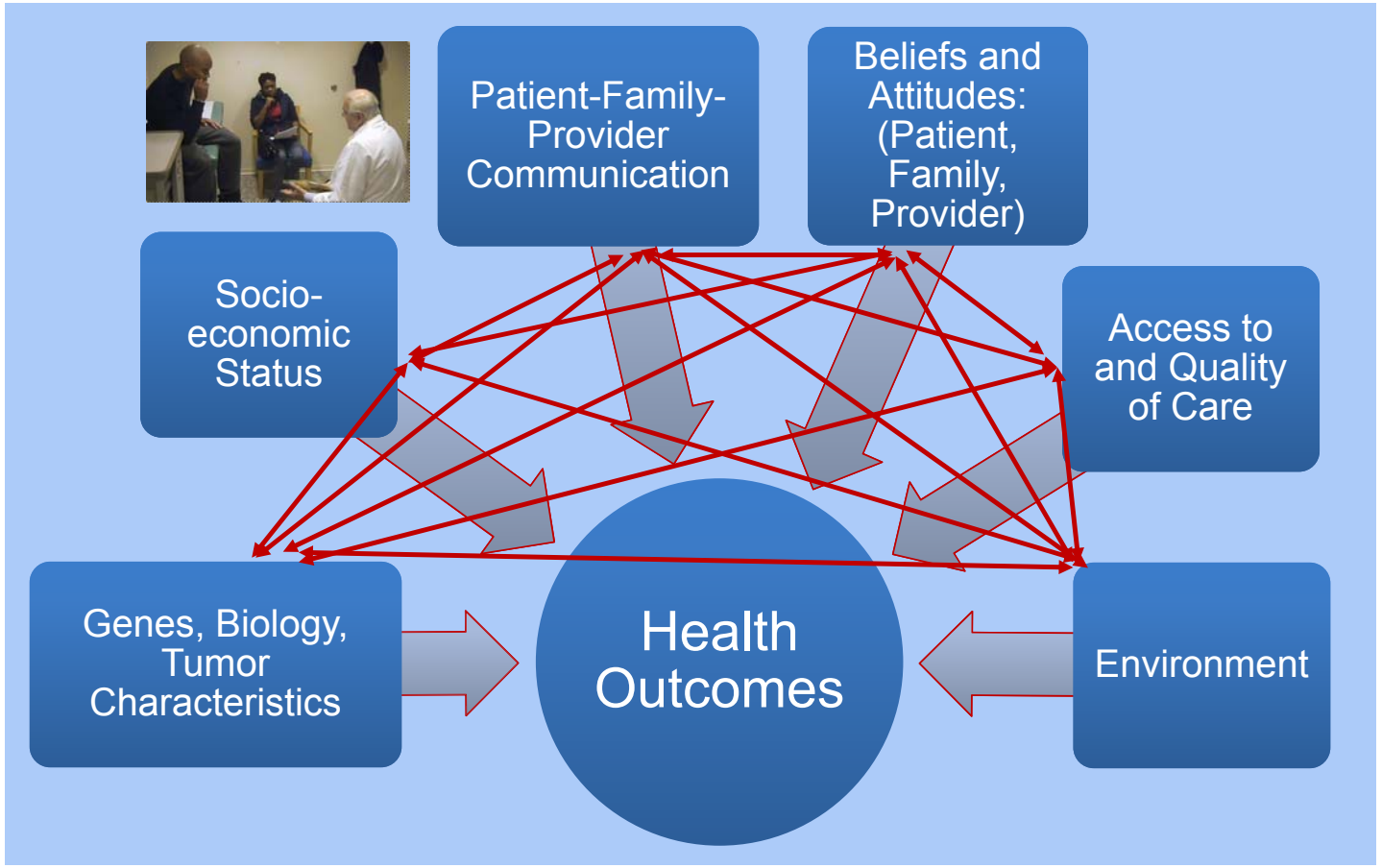
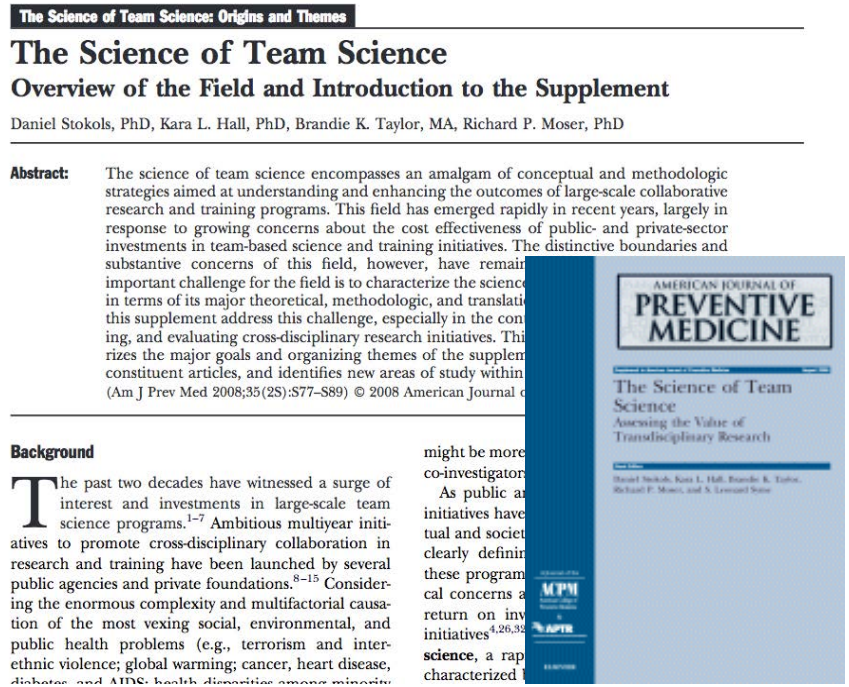
Causes are too complex for one discipline to address…..



Causes are too complex for one discipline to address…..



Considering the enormous complexity and multifactorial causation of the most vexing social, environmental, and public health problems (e.g., terrorism and interethnic violence; global warming; cancer, heart disease, diabetes, and AIDS; health disparities among minority populations), efforts to foster greater collaboration among scientists trained in different fields are not only a useful but also an essential strategy for ameliorating these problems.



The Science of Team Science: Origins and Themes

The Science of Team Science

Overview of the Field and Introduction to the Supplement

Daniel Stokols, PhD, Kara L. Hall, PhD, Brandie K. Taylor, MA, Richard P. Moser, PhD

Abstract: The science of team science encompasses an amalgam of conceptual and methodologic strategies aimed at understanding and enhancing the outcomes of large-scale collaborative research and training programs. This field has emerged rapidly in recent years, largely in response to growing concerns about the cost effectiveness of public- and private-sector investments in team-based science and training initiatives. The distinctive boundaries and substantive concerns of this field, however, have remain… important challenge for the field is to characterize the scienc… in terms of its major theoretical, methodologic, and translati… this supplement address this challenge, especially in the con… ing, and evaluating cross-disciplinary research initiatives. Thi… rizes the major goals and organizing themes of the supplem… constituent articles, and identifies new areas of study within… (Am J Prev Med 2008;35(2S):S77–S89) © 2008 American Journal …

Background

The past two decades have witnessed a surge of interest and investments in large-scale team science programs.[1–7] Ambitious multiyear initiatives to promote cross-disciplinary collaboration in research and training have been launched by several public agencies and private foundations.[8–15] Considering the enormous complexity and multifactorial causation of the most vexing social, environmental, and public health problems (e.g., terrorism and interethnic violence; global warming; cancer, heart disease, diabetes, and AIDS; health disparities among minority

might be more… co-investigator… As public a… initiatives have… tual and societ… clearly definin… these program… cal concerns a… return on inv… initiatives[4,26,32]… **science**, a rap… characterized …

AMERICAN JOURNAL OF PREVENTIVE MEDICINE

The Science of Team Science
Assessing the Value of Transdisciplinary Research

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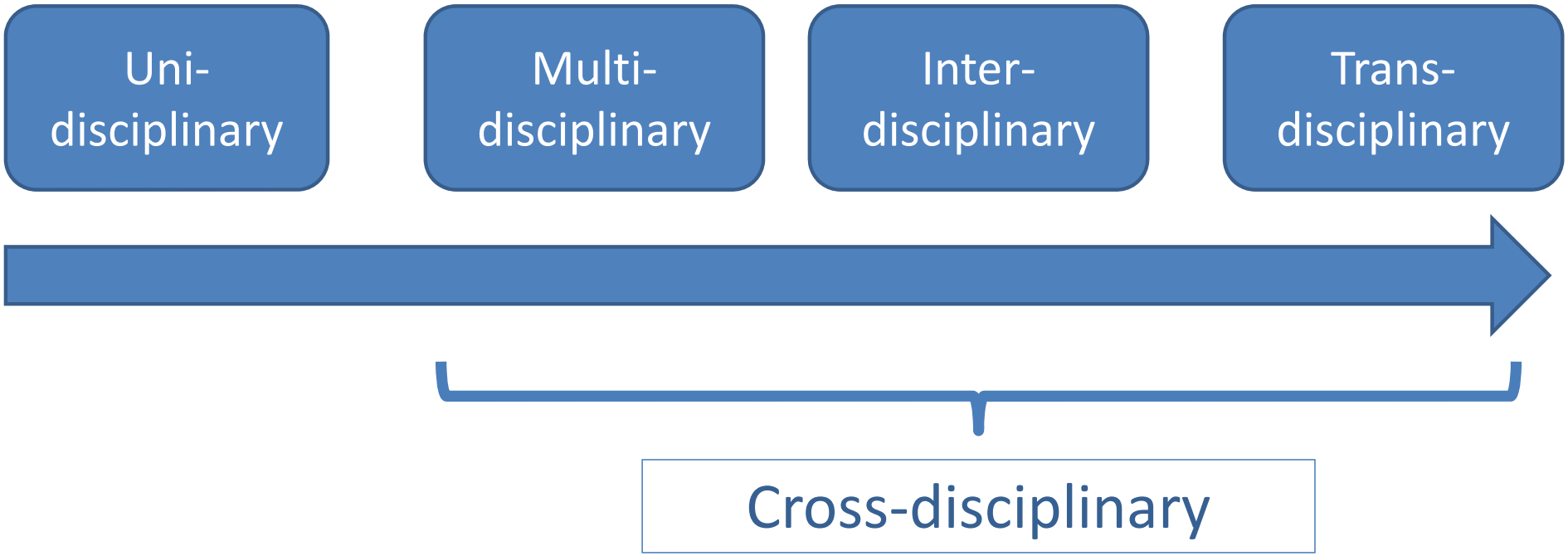
Stokols et al, Am J Prev Med 2008

Collaborative Research Continuum



Stokols et al, Am J Prev Med 2008;
Rosenfield PL, Soc Sci Med 1992

Definitions and Example

- Problem: Minorities, and in particular African Americans, are underrepresented in clinical trials
  - Lack of access represents a disparity in treatment
  - Findings from trials are limited in generalizability
- Cause: Although there are multiple factors, one may be the quality of communication during patient-physician interactions with African American versus White patients.
- Solution: How can we address and overcome this problem?

Unidisciplinarity

- Researchers from a *single discipline* work together to address a problem
- Example:
  - Using communication theory, communication scientists interview patients, family members, and providers to learn more about how they discuss trials in racially discordant interactions
  - Design/Methods: Descriptive, qualitative
  - Findings inform interventions to improve communication; contribute knowledge to communication science
- Advantages: Fewer meetings and disciplinary conflicts; fundable through internal, foundation, or small research grants (R03)
- Disadvantages: Narrow; not innovative; may not address complex problems

Multidisciplinarity

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- A *sequential* process where researchers from *different disciplines* work independently, and then combine efforts to address problem
- Example:
  - Using communication theory, communication scientists and oncologists collaborate to video record and analyze interactions where clinical trials are discussed with black and white patients; findings used to inform future interventions.
  - Design/Method: Descriptive; interaction analysis combined with post-visit interviews
  - Findings used to inform future interventions; knowledge contributes to clinical medicine and communication science
- Advantages: More innovative, larger network, more funding opportunities
- Disadvantages: Disciplinary conflicts; more meetings; slower; where/how to publish?

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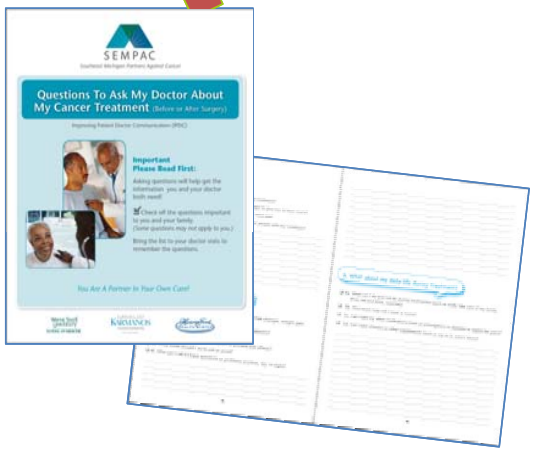
Interdisciplinarity

- An *interactive* process where researchers work *jointly*, each drawing from their own discipline, to address the problem
- Example:
  - Communication scientists, social psychologists, medical oncologists, linguists, and community members collaborate to develop a conceptual model and an intervention to better understand and improve clinical communication about clinical trials
- Advantages: More complex, innovative approaches; increased network and funding
- Disadvantages: Conflicting schedules, concepts, and terms; slow pace; where to publish/disseminate?

Provider
Background, Experiences, Attitudes, Beliefs, Judgments, Decisions, & Behavior

Patient
Background, Experiences, Attitudes, Beliefs, Judgments, Decisions, & Behavior



Provider Treatment Recommendations
Patient Decisions & Behaviors
Health Outcomes

NCI/NIH U54CA153606 (PI Albrecht & Chapman)

Partnering Around Cancer Clinical Trials (PACCT): A Communication Intervention to Increase the Participation of African Americans In Prostate Cancer Clinical Trials, R01CA200718-01 (Eggly, PI)

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WSU/KCI

- Louis A. Penner, PhD
- Teri L. Albrecht, PhD
- Mark Manning, PhD
- Elisabeth Heath, MD, FACP
- Lauren Hamel, PhD
- Ellen Barton, PhD
- Mark Wojda, MA

Hopkins/SKCC

- Michael Carducci, MD
- Dina Lansey, MSN

Med Oncology Nursing

pacct Partnering Around Cancer Clinical Trials

Barbara Ann Karmanos Cancer Institute Wayne State University

Johns Hopkins Medicine

Communication Science/Linguistics

Social Psych/Statistics

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Transdisciplinarity

- An *integrative process*; researchers work *jointly* to develop a shared conceptual framework that extends discipline-specific theories, concepts, and methods, to create new models and language to address the problem
- Example:
  - Investigators tackling health disparities and trials include a geographically and ethnically/racially group of communication scientists, clinical oncologists, geneticists, epidemiologists, nurses, social psychologists, community members, health economists, implementation scientists, sociologists, etc. Together they create a novel biosocial, multi-level, multi-disease model/intervention
- Advantage: Greatest potential to solve broad, complex problems
- Disadvantage: Difficult to achieve and sustain due to complexity; expensive

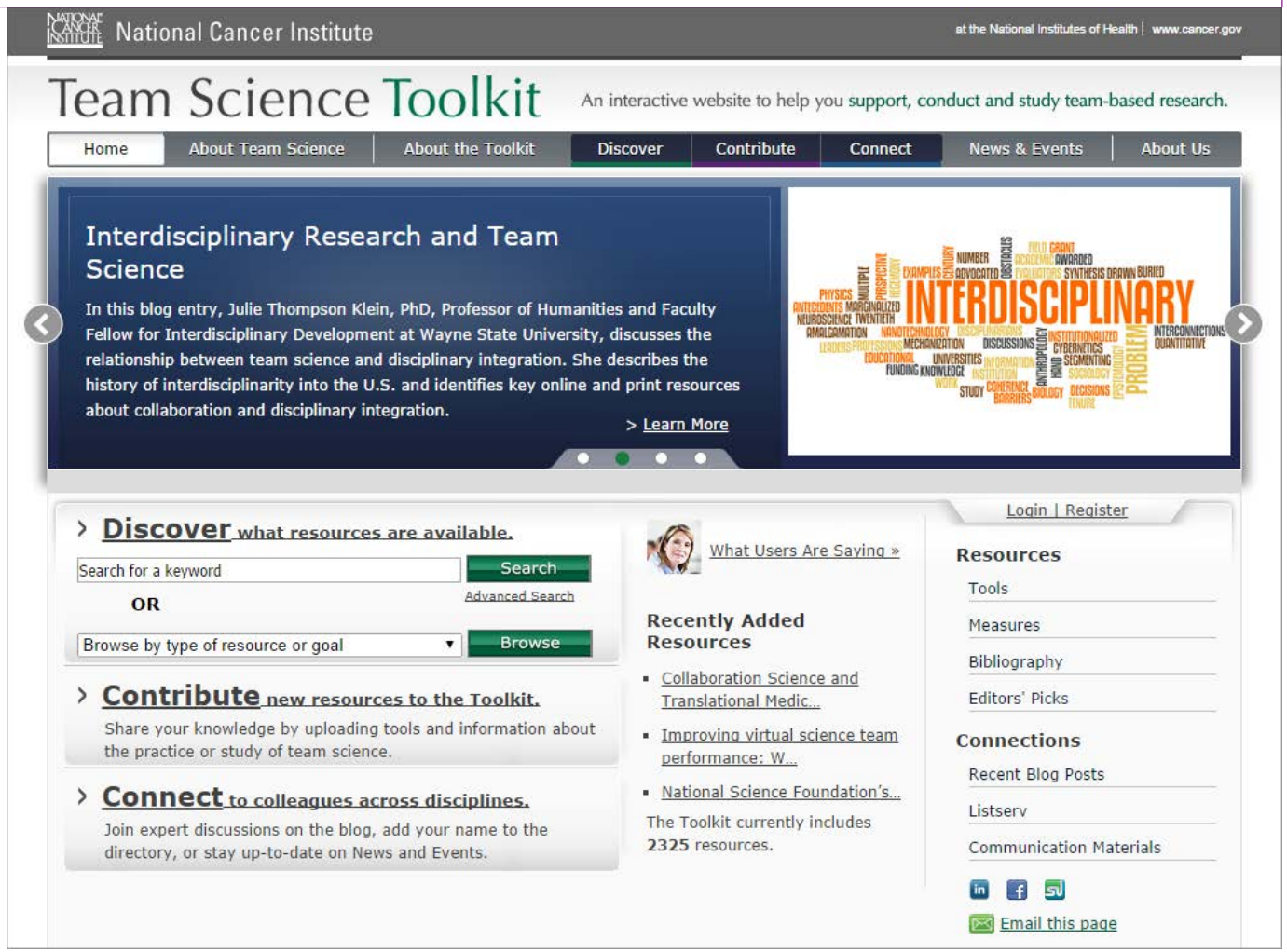
How to do it?

- Create relationships outside of your department.
  - Ask around for introductions, and follow up
  - Attend cross-disciplinary lectures and other opportunities
  - Go to them--meet people in their native habitat
- Be open-minded. Listen, observe, learn their language
  - Read articles and journals outside your discipline
- Offer to do the work; write articles; get funding
- Get outside your silo and your comfort zone!

Things to Consider

- Institutional infrastructure and resources (funding, data sharing)
- Disciplinary differences (methods, theories, writing style)
- Language differences (jargon)
- Politics: power and control (proprietary rights, authorship)
- Processes: Interpersonal dynamics, schedules
- Funding trends: talk to the NCI
- Describing the collaboration for reviewers (PI, co-I, consultant, managing conflicts)

The Team Science Toolkit is an interactive website that provides resources to help users support, engage in, and study team-based research.



www.teamsciencetoolkit.cancer.gov

- Consolidates information on team-based research and the Science of Team Science (SciTS) field in one accessible location
- Integrates resources from multiple disciplines and fields, such as psychology, management, public health and communication
- Includes a user-generated set of resources, such as practical tools and strategies, measures and metrics, bibliographic citations, and publications
- Includes sections written or coordinated by the NCI, such as introductions to team-based research and the SciTS field, key resources, and expert blogs


Celebrate
success!