



Implementation Science Approaches to Integrating Cancer Survivorship Research into Practice and Policy: Models, Methods, and Measures

Russell E. Glasgow, Ph.D.
Deputy Director,
Implementation Science Team
Division of Cancer Control and
Population Sciences

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NCI Implementation Science Team Vision

To achieve the rapid integration of scientific evidence, practice, and policy, with the ultimate goal of improving the impact of research on cancer outcomes and promoting health across individual, organizational and community levels.



Models, Methods and Measures for Survivorship from Implementation Science

- Models: T0-T4 and Key Lessons Learned
- Methods:
 - Types of Evidence Needed
 - RE-AIM Framework
- Measures:
 - Care Planning
 - D and I measures (context, implementation, costs)

D&I Definitions (aka KT)



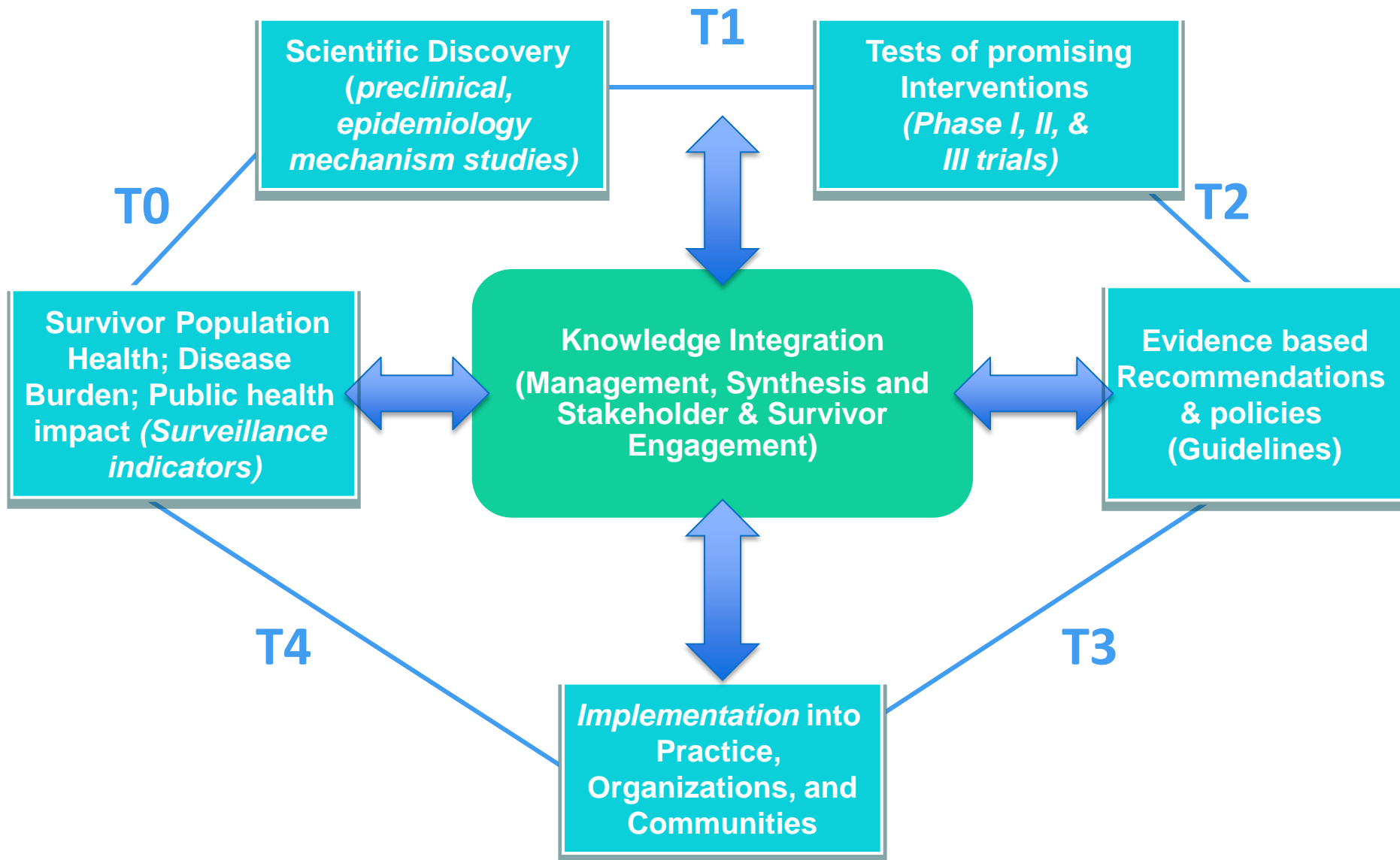
“**Dissemination** is the targeted distribution of information and intervention materials to a specific public health or clinical practice audience. The intent is to spread knowledge and the associated evidence-based interventions.” (scale-up)

“**Implementation** is the use of strategies to adopt and integrate evidence-based health interventions and change practice patterns within specific....settings”

Dissemination and Implementation Research Characteristics

- Contextual
 - Complex
 - Multi-component programs and policies
 - Non-linear
 - Transdisciplinary
 - Multi-level and multi-method
 - Addresses “wicked”, messy, important problems
-
- [Brownson, R, Colditz, G, and Proctor, E \(Eds.\). Dissemination and Implementation Research in Health. New York: Oxford University Press, 2012.](#)
 - [Glasgow, R. E. & Chambers, D. Clin Transl Sci 2012;5, 48-55](#)

The Translational Science Process for Survivorship



Implications of T0-T4 model

- Progress is not linear
- Knowledge integration involves “knowing where we are going”; not getting stuck at T0-T2
- There is “basic” research at each level of T0-T4
- Need respect and convergence across methods, disciplines, and “stages” of research
- Stakeholder involvement is essential—throughout

Most Common Type of Research?

Bench to Bookshelf



Abundance of D&I Models—61 at Least; But There are Key Common Points:

- Context is critical
- Begin with stakeholders—take their perspective
- Design for dissemination—from beginning—cannot wait until the end
- Need balance between fidelity to evidence-based program and adaptation to local setting

Key Common Points (cont.)

- There is more than evidence needed for successful adoption, implementation and sustainability
- D&I Science is a multi-level affair
- Select the DESIGN and the MODEL that best fits your question—less important WHICH model than that you use it well
- Need to focus on *replication, relevance, transparency, and costs*

Types of D & I Methods and Evidence Needed: 2R's and "RCT"

- Relevant
- Rigorous and
- Rapid
- Cost informative
- Transparent



- Glasgow R, *Annals of Behavioral Medicine*, 2008, 35: 19-25.
- Glasgow R, Chambers D. *Clinical and Translational Science*, 2012, 5(1):48-55
- <http://cancercontrol.cancer.gov/IS/>

Relevant (Contextual and Practical)

- Relevant to *stakeholders* (patients/family, clinicians, administrators, policy makers)
- Relevant *samples*—representative of real-world, including patients with co-morbid conditions
- Relevant *settings*—similar to those in practice (not just the most advanced and well resourced)
- Relevant *staff*—including those who have other duties and competing demands

Why is D&I Relevant to Survivorship?

Ultimate Impact of “Evidence Based Intervention X”

Dissemination	Concept	% Impacted
50% of Clinics Use	Adoption	50%
50% of Practitioners Recommend	Adoption	25%
50% of Patients Accept Recommendation/Attempt Change	Reach	12.5%
50% Follow Regimen Correctly	Implementation	6.2 %
50% of Those Implementing Correctly have Substantial Benefit	Effectiveness	3.1%
50% Continue to Adhere/Benefit After 6 Months	Maintenance	1.6%

Moral of the Story?

1. “Focus on the **Denominator**”
(not just the numerator)
2. Each step of the dissemination sequence or each “RE-AIM” dimension is important

RE-AIM Realist* Question:

- What percent and types of patients are **Reached**;
- For whom among them is the intervention **Effective**; in improving what outcomes;
- In what percent and types of settings and staff is this approach **Adopted**;
- How consistently are different parts of it **Implemented** at what cost to different parties;
- And how well are the intervention components and their effects **Maintained**?

- *Pawson R, et al. *J Health Serv Res Policy* 2005;10(S1):S21-S39.
- Gaglio B, Glasgow RE. Evaluation approaches...In: Brownson R, Colditz G, Proctor E, (Eds). *Dissemination and implementation research in health: Translating science to practice*. New York: Oxford University Press; 2012. Pages 327-356.

RE-AIM Survivorship Care Plan (SCP) Example:

- In what percent and types of patients are SCPs **Received**;
- For whom among them is the intervention **Effective**; in improving what outcomes; what broader effects and negative consequences?
- Among what percent and types of settings and practitioners are SCPs **Adopted**;
- How consistently are different parts of SCPs **Implemented** across different settings, clinicians, and patient subgroups, and at what cost;
- And how well is the SCP program and its effects **Maintained**?

Rigorous...and a Word about RCTs

- Address most likely challenges to validity and conclusions for THAT question
- Both external and internal validity are important
- Design should fit the question—NOT vice-versa¹
- An RCT is not an RCT is not an RCT
- CONSORT delineation of pragmatic trials is an important advance²
- RCT is not the only design that is experimental—and it does NOT guarantee causality^{3,4}

¹ Mercer S et al. Amer J Prev Med, 2007; 3:, 139-154.

² Thorpe et al. J Clin Epidem 2009; 62: 464–475, Can Med Ass J 2009; 180, E47-E57.

³ Kessler & Glasgow, Amer J Prev Med, 2011, 40, 637-644;

⁴ Cartwright BioSocieties, 2007, 2: 11-20.

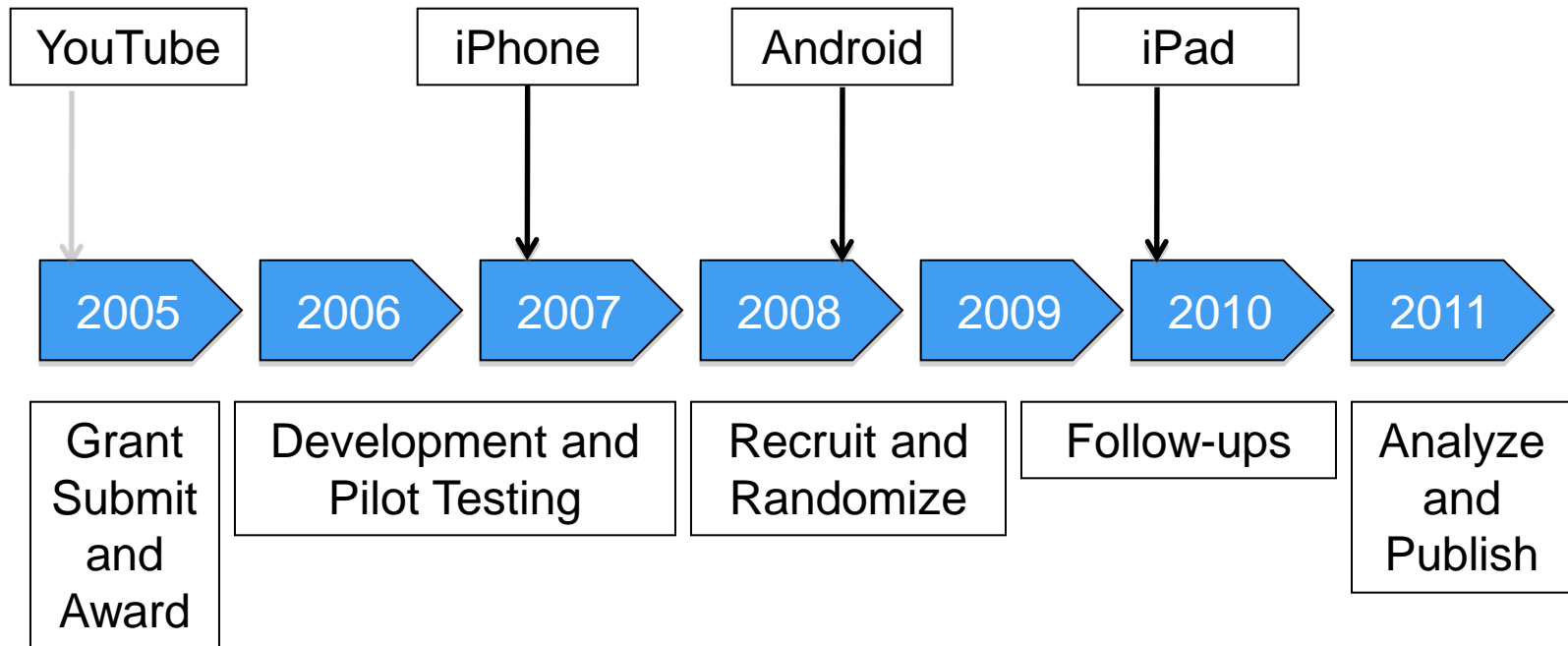
Rapid Evidence

- Need rapid learning research—especially for pressing issues such as obesity, HIV, explosion of health care spending, health inequities, and cancer survivorship
- EMRs, and their potential enhancements, make possible “rapid learning health care systems”*
 - *Real-time data on millions of real-world patients in real-world health care settings, treated under usual conditions*

• Institute of Medicine, A Foundation for Evidence-Driven Practice: A Rapid Learning System for Cancer Care, 2010. <http://www.iom.edu/Reports/2010/A-Foundation-for-Evidence-Driven-Practice-A-Rapid-Learning-System-for-Cancer-Care.aspx>

• Etheredge L et al, *Health Affairs, Web Exclusive Collection*, w107-w118, doi:10.1377/hlthaff.26.2.w107)

How to Evaluate Technologies that Outpace Research?



Cost Evidence

- Replication costs and scalability costs are arguably most needed
- Perspective— that of patient and adopting setting
- Costs should be comprehensive and transparent
- “One persons costs are another’s profits”
- Should be harmonized and include costs frequently not counted that need to be—e.g., recruitment, overhead, training, preparation and supervision¹
- Cost collection and cost-effectiveness analyses need not be overwhelming*--cost per incremental unit change

¹ Ritzwoller et al, Trans Behav Med, 2011, 1, 427-435.

Transparent Evidence on....

- Info needed to *replicate* or implement
- *Resources required*—costs for patients and delivery setting perspectives
- How were settings, clinicians, and patients selected—(who *was excluded and why*)
- *Adaptation*—changes made to protocol, to intervention, to recruitment, etc.
- *Differences across settings*

Future Evidence Needs and Opportunities—Keys to Advance Translation

- Context—key factors that may moderate results
- Scalability—potential to impact large numbers
- Sustainability
- Health equity impacts
- Patient/citizen/consumer and community perspective and engagement throughout
- Multi-level interactions, especially between policy and practice

All Models (and Methods) are Wrong...

....Some are useful

*“To every complex question,
there is a simple answer...
and it is wrong.”*

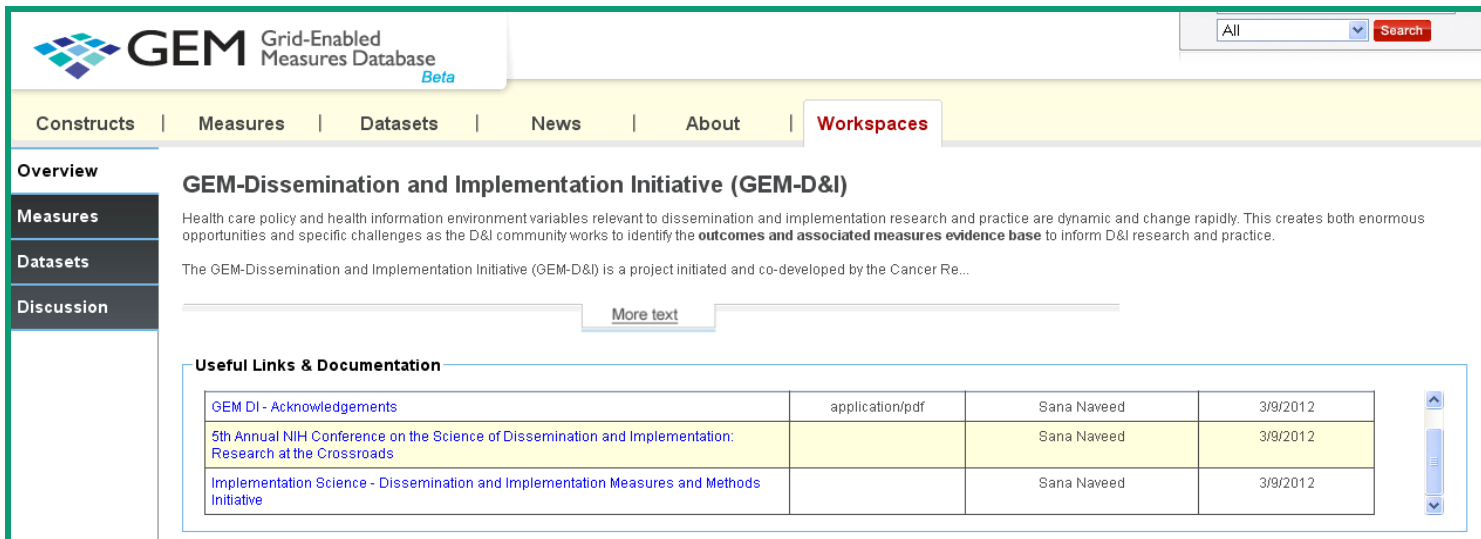
H. L. Mencken

Need for Better and Harmonized Measures in D&I and Survivorship Research

- Most studies use their own measures, often unknown characteristics, and quite different measures same construct
- Without standard or more harmonized measures, difficult to do reviews, syntheses, compare across studies
- Are different purposes of measurement—e.g.:
 - “**Gold standard**”—when this is primary focus for grant, need “best possible measure”, have staff to ensure quality
 - “**Practical measure**”—for use in busy, low-resource settings; when one of a large set of measures; has to be brief and feasible



Care Planning and D&I Measures Initiatives



GEM Grid-Enabled Measures Database *Beta*

Search:

Constructs | Measures | Datasets | News | About | Workspaces

Overview

Measures

Datasets

Discussion

GEM-Dissemination and Implementation Initiative (GEM-D&I)

Health care policy and health information environment variables relevant to dissemination and implementation research and practice are dynamic and change rapidly. This creates both enormous opportunities and specific challenges as the D&I community works to identify the **outcomes and associated measures evidence base** to inform D&I research and practice.

The GEM-Dissemination and Implementation Initiative (GEM-D&I) is a project initiated and co-developed by the Cancer Re...

[More text](#)

Useful Links & Documentation

GEM DI - Acknowledgements	application/pdf	Sana Naveed	3/9/2012
5th Annual NIH Conference on the Science of Dissemination and Implementation: Research at the Crossroads		Sana Naveed	3/9/2012
Implementation Science - Dissemination and Implementation Measures and Methods Initiative		Sana Naveed	3/9/2012

<https://www.gem-beta.org/> (GEM Homepage)

<http://cancercontrol.cancer.gov/IS/resources.html> (IS Team Website)

<http://dccps.nci.nih.gov/ocs/> (Office Cancer Survivorship)



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DATA

[State Cancer Profiles](#) (CDC, NCI) 



COLLABORATION


[Research to Reality](#) (NCI) 



PROGRAMS

[Research-tested Intervention Programs \(RTIPs\)](#) (NCI, SAMHSA) 

EVALUATION

[Reach Effectiveness Adoption Implementation Maintenance \(RE-AIM\)](#) (NCI) 

RESEARCH SYNTHESIS

[Guide to Community Preventive Services](#)
 (Federally supported) 

[U.S. Preventive Services Task Force](#)
 (Federally supported) 

[Evaluation of Genomic Applications in Practice and Prevention \(EGAPP\)](#) 

[Additional Research Evidence Reviews](#)

PLAN

[Comprehensive Cancer Control Plans](#) 

[Comprehensive Cancer Control Budgets](#)

Resources

[More about using these resources](#)

TOPICS

- Breast Cancer
- Cervical Cancer
- Colorectal Cancer
- Diet / Nutrition
- Informed Decision Making
- Obesity
- Physical Activity
- Public Health Genomics
- Sun Safety
- Survivorship
- Tobacco Control

WHAT'S NEW

RE-AIM, a framework for evaluating health promotion and chronic disease management programs, joins the Cancer Control P.L.A.N.E.T. family.

After 6 years, the site gets a facelift and some reorganization.

[Tell us what you think!](#)

E-NEWSLETTER

[Sign up](#) to receive monthly updates on Cancer Control P.L.A.N.E.T.

FEEDBACK

We welcome your [feedback](#) on the Cancer Control P.L.A.N.E.T. and its satellite web sites. Thank you for helping to improve this site for the cancer control community.

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Go Sun Smart (GSS)



On This Page

[The Need](#)

[The Program](#)

[» Implementation Guide](#)

[Community Preventive Services Task Force Finding](#)

[Time Required](#)

[Intended Audience](#)

[Suitable Settings](#)

[Required Resources](#)

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[Key Findings](#)

[Publications](#)

Products



Preview and order the materials from the developer

Highlights

Purpose Designed to promote sun safety to ski area employees. (2005)

Program Focus Behavior Modification

Topic Sun Safety

Age Adults (40-65 years), Older Adults (65+ years), Young Adults (19-39 years)

Gender Female, Male

Race/Ethnicity Hispanic or Latino, White, not of Hispanic or Latino origin

Setting Workplace

Funded by NCI

RTIPs Scores

Research Integrity

3.8

Intervention Impact

5.0

Dissemination Capability

4.0

1.0 = low 5.0 = high

RE-AIM Scores

Reach

60%

Effectiveness

100%

Adoption

50%

Implementation

80%

Context

Yes

The Need

Excessive exposure to ultraviolet radiation (UVR) from sunlight is both the primary and the most easily prevented cause of skin cancer. Total lifetime exposure to UVR is positively associated with several types of skin cancer, including basal cell carcinoma, squamous cell carcinoma, and possibly melanoma. Intermittent and severe exposure (i.e., sunburning) may also be linked to the development of melanoma.

Although exposure to UVR in ... [Show more](#)

[+ Show All](#)

RE-AIM Notes

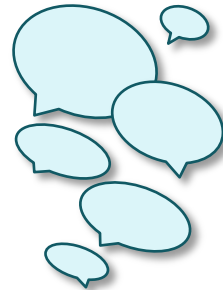
Export Email Print

Use this area to take notes about how this program might work for you.

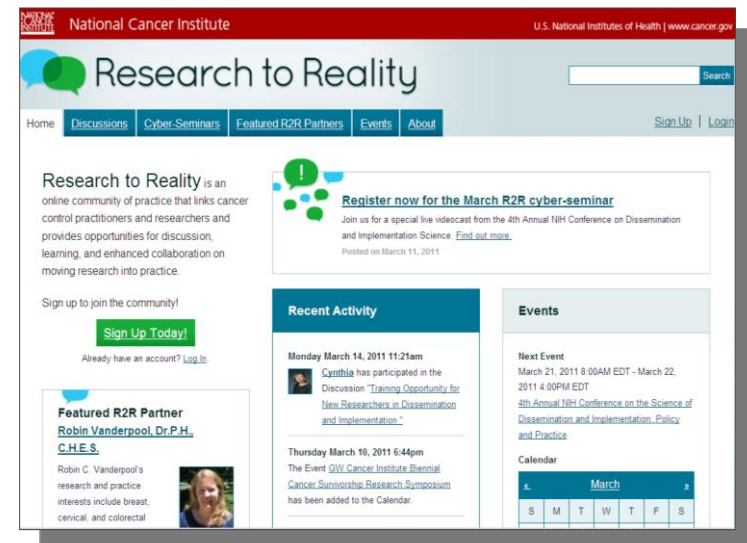
Reach

Research to Reality (R2R): A Virtual Community of Practice

A dialogue between practitioners and researchers on how to move evidence-based programs into practice

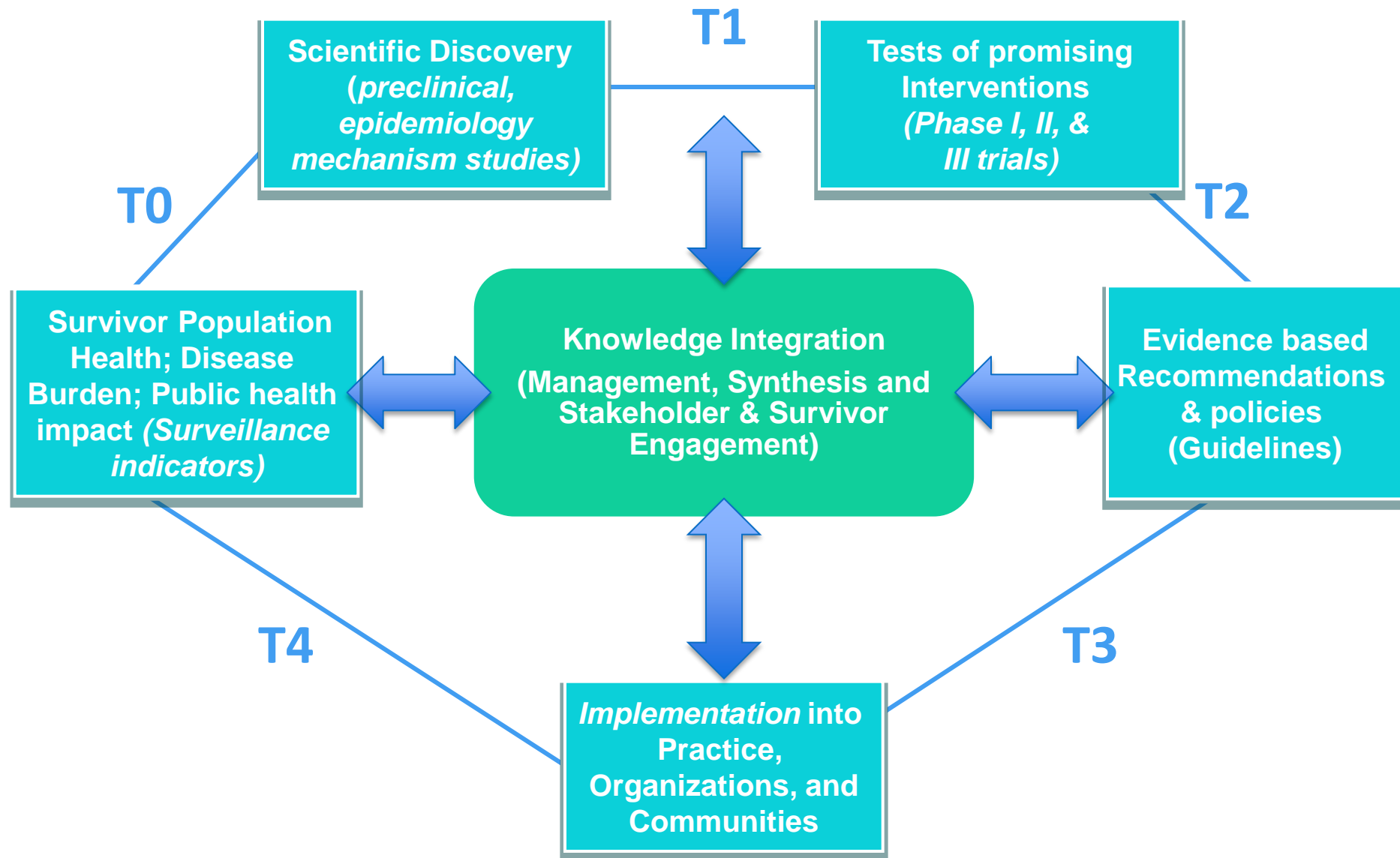


- Launched February, 2011 (NCI)
 - Linked to Cancer Control P.L.A.N.E.T. Step 2
- Site Features:
 - Monthly cyber-seminars
 - Discussion forums
 - Mentorship program
 - An events calendar
 - Featured partners
 - Community profiles



<https://ResearchtoReality.cancer.gov>

The Translational Science Process for Survivorship



Take Home Points

- There is a pressing need for a DIFFERENT type of research – “D&I” that translates more rapidly, and is more relevant to stakeholders
- This field is still emerging, but there is agreement on key common points among different models of D&I research
- There are many opportunities for this type of research, especially among networks including the Livestrong, VA, CRN, PBRN, cancer center, CTSA and community networks

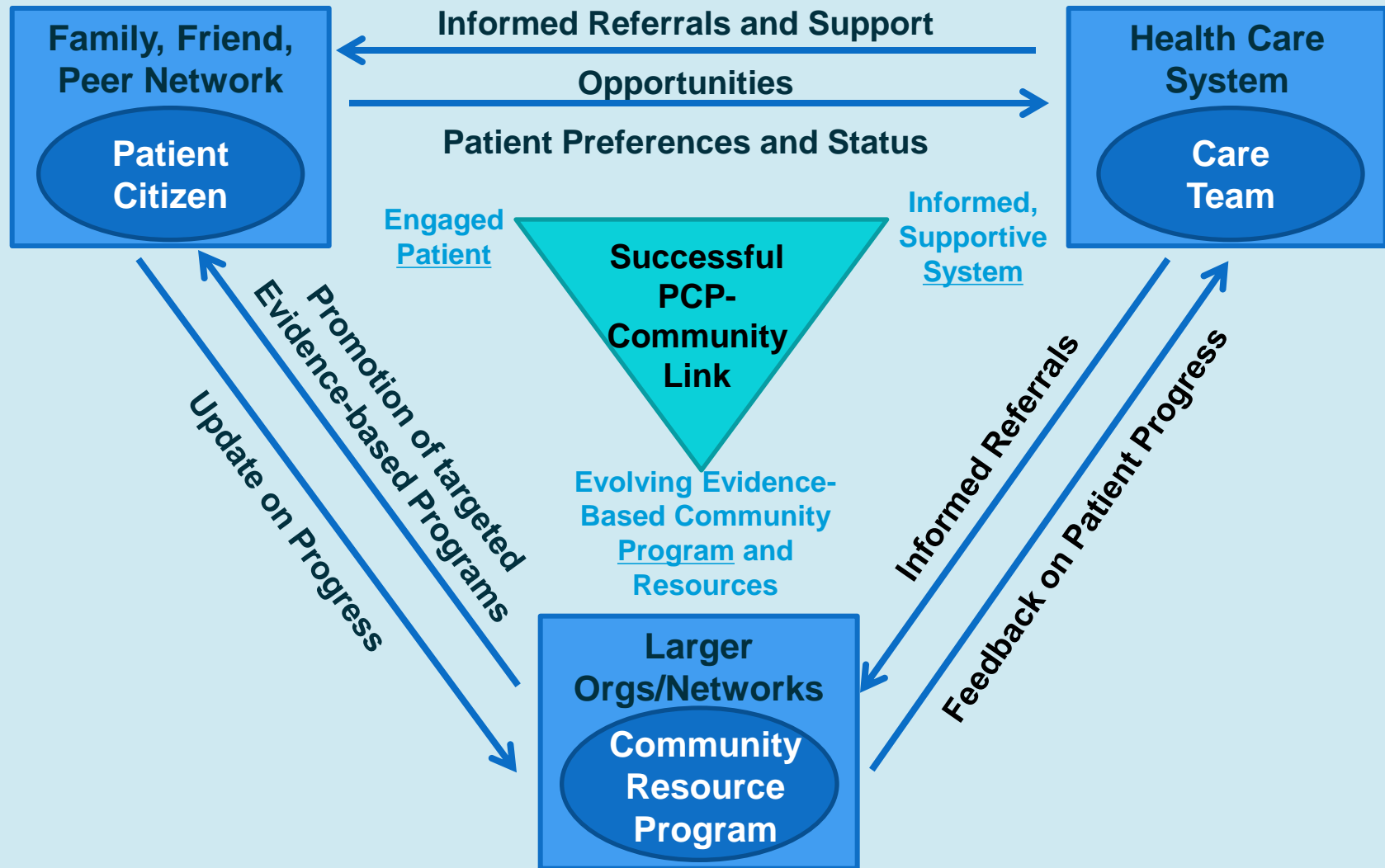
Questions/Comments



Contact me: glasgowre@mail.nih.gov

IS Team Website: <http://dccps.cancer.gov/is/>

Linking Patient, Physician, and Community Programs



Broader Multi-Level Context:
(intrapersonal/biological, interpersonal/family, organizational, policy, community/economic, social/environment/historical)