Health Promotion in the Era of Engagement
Abby C. King
Background

• Given that Major Health issues are Increasingly global & multi-dimensional . . .

A Challenge for Behavioral Health Scientists:

Enhance IMPACT & REACH of our research

• Objective: highlight some emerging trends & areas of particular promise for our field

(think ‘smorgasboard’; i.e., breadth as opposed to depth)
Overarching Theme -

“Knowing is not enough; we must Apply.
Willing is not enough; we must Do.”

-Goethe
‘Doing’-- Thinking beyond our own ‘Square’
(pushing beyond our usual ‘comfort zones’)

Adapted from Giles-Corti & King, BJSM, 2009
To do this, instead of thinking “TRON”
think Era of “TRAN”
“TRAN(s)” prefix as organizing concept

• To connect, bridge, span, reach across

• Suggests a “whole” that is greater than the sum of its parts

• A way to define domains to help us expand scientific Impact & Reach
1st “TRAN(s)” Domain

TRANS-disciplinary
Growing # of Disciplines/Areas of Interest of Increasing Relevance to our field

Among them . . .

• Genetics
• Health Economics
• Neuroscience ("brain health")
• Medical Anthropology
• Medical Informatics (data collection, retrieval, classification)
• Engineering; Computer Science
• Geography; Communication
Example - Genetics

Emerging evidence of

- Genes as *Moderators* of Behavioral Intervention response
Pilot work - Low Carb vs. Low Fat Popular Diets

<table>
<thead>
<tr>
<th></th>
<th>Low Carbohydrate</th>
<th>Low Fat</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Atkins)</td>
<td>(n=33)</td>
<td>(Ornish)</td>
</tr>
<tr>
<td>(n=27)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12 month weight change (kg)

Without taking genotype into account, the average weight loss differences are negligible.

C Gardner et al. Presented at 2010 AHA Epi/Prev/NPAM, San Francisco
Matched vs. Mismatched (retrospectively)

~6-fold difference for EITHER Low Carb or Low Fat diets WHEN MATCHED by genotype

12 month weight change (kg)

**Low CARBOHYDRATE (Atkins)**

- Matched: n=19
- Mismatched: n=19

**Low FAT (Ornish)**

- Matched: n=14
- Mismatched: n=8

Genotype X Diet Match/Mismatch:

- Matched: Low Carb (n=19), Low Fat (n=14)
- Mismatched: Low Carb (n=19), Low Fat (n=8)

Change in weight:

- Low Carb (Atkins): Matched: -4 kg, Mismatched: -6 kg
- Low Fat (Ornish): Matched: -2 kg, Mismatched: -6 kg
Exciting, but are we There Yet?

(Not Quite!)
Health behaviors as *Moderators* of Genes

**Telomeres:** Specialized structures at end of chromosome involved in its replication & stability, i.e., *cellular aging*
Childhood Adversity* History & Telomere Length

* Family death, marital problems, alcohol abuse, isolation, mental illness

Kiecolt-Glaser, J. 2011, *Psychosomatic Medicine*
Current Leisure PA Moderates Relationship of Childhood Adversity on Telomere Length*

250 middle-aged women

Buffering effect

History of Childhood Maltreatment:

* Interaction significant at $p = .03$ (E Puterman, E Blackburn, et al, in preparation)
Transdisciplinary: Small Steps to Consider

• Learn the basic “language”/jargon of a related field e.g., SBM’s “Basic things you wanted to know about ____ but were afraid to ask” Primers Initiative

• Do an ‘information exchange’ with a colleague from another field (‘Cultural’ visits/observations)

• Learn basic ways to collect Cost information (value added)

• Add a nutritional scientist/PA scientist to your team!
#2: “TRANS-Generational” thinking

• Break out of age “silos” and use life-course thinking

*Example:* Neighborhood Quality of Life Study series (Sallis, Frank, Saelens, et al.)

- Using similar geographic regions, studying **built** environment factors & PA/eating behaviors in *Youth, Young to Midlife Adults, Seniors*
Some Things Youth & Seniors may have in Common related to Built Environment

*Particular Importance, for both groups, of:*

- Transport walking, due to less car access
- Safe pedestrian crossings/fewer crossings
- Reduced traffic areas (e.g., Parks a good target)
- Potential for Cross-generational activities, e.g., Walk-to-school programs with seniors

(Jacqueline Kerr, 5/11)
Another example – *Experience Corps*

**Senior Volunteers in classrooms** (Linda Fried et al., *J Urban Health*, 2004)

In addition to positive gains made by Low-income school children when Senior volunteers were in classroom, *Seniors showed gains*, relative to Controls, in:

- Physical activity levels
- Strength, walking speed
- Perceived Social networks
- Cognitive activity/engagement
TransGenerational — **Small Steps to Consider**

- Supplement “Youth vs. Seniors” Smack-down” debate with panel discussing connecting *connecting* two age groups in health promotion activities?
- Can you *expand* your datasets to other Age groups?
#3: “Translational” thinking

- Getting evidence-based interventions disseminated efficiently & effectively
- Starts with formative research & methods
  - Community-based participatory research (CBPR)
- **Small step to Consider:** Become familiar with tools, methods for engaging community
Older Adults and Neighborhood Walking
Problem & Solution Tree *

- Involve community in walking audits to identify obstacles and assets
- Evaluate city plans and policies to accommodate bike/pedestrian, public transport
- Multi-disciplinary community partnerships (residents, advocates, businesses, planners, engineers, agencies, government, enforcers)
- Activism (e.g., Photovoice; stories) to raise awareness among decision makers & the public
- Re-zone to attract senior-friendly destinations
- Partner with faith and community groups to promote activity for seniors
- Form neighborhood walking groups & partners (e.g. dog walkers; walking school buses)

Fear of Traffic
Fear of crime
Fear of Falling

Low levels of Active Transport
Low levels of Walking for Leisure/Exercise
Low levels of Physical Activity

- Street designs don't support walking
- Single-Use Zoning
- Insufficient public transportation
- Social/cultural norms that don't support activity for seniors
- Insufficient sidewalks & lighting

- Insufficient public activity spaces
- Insufficient public amenities (e.g., shade, benches)
- Few public amenities (e.g., graffiti, refuse, unkempt yards)
- Neighborhood incivilities (e.g., graffiti, refuse, unkempt yards)

- Enforce sidewalk maintenance and snow removal
- Enforce speed limits
- Add sidewalks, crossing Aids
- Add lighting, plant trees, install benches
- Involve police, law enforcement
- Neighborhood watch
- Form neighborhood walking groups & partners (e.g. dog walkers; walking school buses)
- Community education for older adults
- Poor knowledge of benefits

- Re-zone to attract senior-friendly destinations
- Evaluate city plans and policies to accommodate bike/pedestrian, public transport
- Multi-disciplinary community partnerships (residents, advocates, businesses, planners, engineers, agencies, government, enforcers)
- Activism (e.g., Photovoice; stories) to raise awareness among decision makers & the public

Adapted from Snowdon, Schultz, Swinburn. Health Promot Internat, 2008
Translational – Latest Study Designs/Methods

• RE-AIM – to improve external validity (R Glasgow et al.)
• ‘Practical’ clinical trials – to meet needs of decision makers (relevant interventions; diverse populations & settings; broad range of outcomes)
• Adaptive designs – prospective/sequential (stepped-care approach based on treatment R)
• Adaptive interventions – use pre-specified decision rules based on tailoring variables to adjust dose, etc.
A Small Step to Consider:

• Seek out a seminar, on-line tutorial, etc.

e.g., Methods Work, LLC

www.methodswork.com

(Linda Collins & Stephanie Lanza, Penn State)
#4: “TRANS-Modal” thinking

- Harnessing wide array of communication pathways & technologies to deliver health interventions in languages & at literacy levels appropriate for different groups

- Ultimate goal – shrink the health disparities gap
Proliferation of TECHNOLOGY

*(but Appropriate for Whom?)*
Especially Important for Vulnerable Populations
Technologies for Low-Literate Populations

- **ECA** (*Embodied Conversational Agent*):
  - Animated computer character simulating face-to-face counseling using speech, facial cues & other nonverbal behaviors
  - Interact with ECA through touching 1 of several conversation-based Rs on computer screen
  - Tested in Senior Center with Older Latino adults (50% had < high school education)

Hola Carmen!
Hola Carmen, qué gusto verte
Hola Carmen, parece que las cosas no van bien
¿Cómo ha dicho?

Carmen
(Culturally adapted, bi-lingual)
COMPASS - RESULTS

4-month Change in Minutes of Walking/Wk [CHAMPS]
(N = 40)

* p < .0008

King, Bickmore et al., *Ann Behav Med*, 2011 [abstract]
4-month Motivational Processes of Change

Baseline-adjusted mean

Substituting Alternatives
Rewarding Oneself
Committing Oneself
Reminding Oneself
Understanding Risks

‘Carmen’  Control

* p ≤ .03 vs. Control

© Stanford University
At 4-month Post-test, Intervention participants indicated that . . .

- ‘Carmen’ cared about them (mean rating = 6.2 out of 7)
- *Felt close to ‘Carmen’* (mean= 6 out of 7)
- *Trusted ‘Carmen’* (mean= 6 out of 7)
- Were interested in *continuing to work with ‘Carmen’*
- 95% accessed Carmen during a 20-week period *following study completion*

(Working Alliance Inventory)
‘CROWD-Sourcing’ Assessment Tools
(residents collect neighborhood info to inform policy; GPS route tracking/geo-coded Audio & Image capture)
Aggregated View for Policymakers

Runnymede Gardens, East Palo Alto
TransModal – Small Steps to Consider

• Learn about latest technologies amenable to e-Health interventions (hang out with a teenager)

• Use small grant opportunities to explore cross-disciplinary questions and paths of common interest

• Identify potential private sector partners with interests in the health field
#5: Use ‘Trans-Problem’ Orientation

- Create Interventions that *traverse* health behaviors as well as problem areas
  - potentially *more cost & time efficient*
  - can uncover *potential synergistic or interference effects* when combining health behaviors
Multiple Behavior Change & Self-Efficacy (B. Spring)

**Saturated Fat Intake Self-Efficacy**

- **Baseline**
  - FAT Reduction
  - F&V Increase

- **Post Rx**
  - FAT Reduction
  - F&V Increase

**Sedentary Behavior Self-Efficacy**

- **Baseline**
  - FAT Reduction
  - F&V Increase

- **Post Rx**
  - FAT Reduction
  - F&V Increase

**Physical Activity Self-Efficacy**

- **Baseline**
  - FAT Reduction
  - F&V Increase

- **Post Rx**
  - FAT Reduction
  - F&V Increase

**Fruits & Vegetables Self-Efficacy**

- **Baseline**
  - FAT Reduction
  - F&V Increase

- **Post Rx**
  - FAT Reduction
  - F&V Increase
**CALM Trial:** How to Combine Diet & PA programs to Optimize behavior change? (sequential vs. simultaneous)

200 Eligible Midlife & Older Adults randomized to 12 months of telephone-delivered:

- **Attention-Control** (stress management)
- **Exercise 1st,** (4 mos.) Then **Diet** Added
- **Diet 1st,** (4 mos.) Then **Exercise** Added
- **Simultaneous** Diet + Exercise Across 12 mos.

(King, Castro et al.)
CALM: 12-Month *Fruits & Vegetables*/Day

<table>
<thead>
<tr>
<th>Baseline-Adjusted Mean Number</th>
<th>Intervention</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA-1st</td>
<td>5 *</td>
<td></td>
</tr>
<tr>
<td>Diet-1st</td>
<td>5 *</td>
<td></td>
</tr>
<tr>
<td>Simult</td>
<td>5 *</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* p < .0004 vs. Control
CALM: 12-Month % Calories from Saturated Fat

* $p < .05$ vs. Control
**CALM:** 12-Month MVPA Minutes/Week

- **Intervention**
- **Control**

Baseline-Adjusted Mean Minutes/Wk

- PA-1st
- Diet-1st
- Simult
- Control

* $p < .02$ vs. Control
TransProblem-oriented - continued

• Create Interventions that traverse health behaviors as well as problem areas

• Consider “Stealth” interventions
  - health changes as a ‘by-product’ of pursuing other behaviors/values (e.g., reducing carbon ‘footprint’)
(Turning Health into Play?)
Teaching ‘Health’ vs. Social Values?
Eric Heckler, T Robinson, C Gardner, AJPM, 2010

• Question: Does a college course focused on food-related social movements (without mention of health) promote improved healthful eating as a side-effect?

• Quasi-experimental design
  - Compared course on ‘food-related social movements’ (discussed contemporary books [Michael Pollan’s “Omnivore’s Dilemma”], movies) with courses on obesity, health psychology, & community health assessment
Changes in Dietary Intake
(Hekler, Robinson, & Gardner, 2010)
#6: “TRANSformative” thinking

• **Strive to impact public policy**, ideally in a cost-sensitive manner

• **One Approach**: Move effective individual-level interventions *up to policy level*
  
  – e.g., **Kate Lorig’s Chronic disease self-management course** (US National Health Reform)

Lorig K et al. *Patient Educ Counsel*, 2005
Transformative - continued

Another Approach: Policy research
- Natural Experiments or
- Quasi-experimental designs

Fast Food toy ban ordinances based on nutrition guidelines
Children’s Menu Assessment Score*

*Presence of healthy choices, nutritional guidance; less toy ads/marketing

Policy Research Challenges – Toy ban example

• Got funding to evaluate similar San Fran. ordinance 😊
• But law suit by Restaurant Association has ordinance on hold 😞
• Meanwhile, other locales are considering similar ordinances (e.g., New York City) 😊
• BUT—Others have passed state legislation to Ban local communities from enacting their own toy ban ordinances! (Arizona Restaurant Association) 😞

So Stay Tuned!
Policy - Small Steps to Consider

- Identify potential Policy implications of your work during the study planning phase
- Connect with your Local Lawmakers to find out what matters to them, what evidence in our field could help
- Identify Allies among decision makers who can serve as “point persons” for health messages
- Learn how to turn results into Policy briefs to share with decision makers
Last but not least: **TRANS-National**

- Given *globalization* of health challenges, Global solutions increasingly indicated
A Promising International Initiative:

3 Risk Factors lead to 4 Major Chronic Diseases:

- Tobacco
- Diet
- Inactivity

50% of Global Mortality

Oxford Health Alliance www.oxfordvision2020.org
IPEN: 13 Countries
Maximizing between-country variance

Walking Patterns

Neighborhood Walkability (standard measures)
A Small Step to Consider

• Explore a New ‘cross-country’ comparison or collaboration with someone you meet at this Conference!
Trying the “Trans” Perspective on
for size – a small example

Senior Advocacy for Health -
The Neighborhood Eating and Activity
Advocacy Teams Project (NEAAT)

(Targets: 2 Low-income, ethnically diverse Senior
Housing Settings in San Mateo County, CA)

NEAAT - Objectives

• **Build capacity for change** in low-income neighborhoods through community partnerships

• **Train seniors to be advocates for improved neighborhood design** for health

• **Evaluate & Disseminate findings** to policy makers (quasi-experimental; individual-, neighborhood-, & policy-level data being collected; plus process information)
NEAAT Activities

• **Transdisciplinary**
  Experts in Exercise, Nutrition, Behavioral science, Public health, Planning, Housing, Policy

• **Translational**
  *Residents* identified neighborhood barriers to healthy eating and activity & learned how to *gather information* & *advocate* for change with local policy makers
  - Manual developed for dissemination
NEAAT Activities - continued

• TransGenerational Resident-organized street audit undertaken by local Youth to count pedestrians &

• TransModal – Residents learned to use Electronic tablets to more easily capture neighborhood obstacles
NEAAT Activities - continued

• *TransProblem-orientation*

  active

  *Targeted barriers & solutions related to healthy eating & living*
Access to Fresh Produce

Actions Taken:

• Better use of Community gardens
  – Community plots (with Youth)
  – Gardening classes

• “Fresh Checks” for local Farmer’s Market (coupons)

• Cooking classes
**PA: Safe Crossings & Paths to Public Transit**

**Actions taken** (by *Resident Advocacy Team*, supported by research team & community organizations):

1. Surveyed residents to gain insights, build support

2. Resident-organized *neighborhood audits* of ‘danger spots’ & actions needed by decision-makers

3. Gained Support from *local Businesses*

4. *Resident Presentations* to local policy makers
Transformational (in process)

Traffic Calming

Improved Access to Public Transportation
TransNational

• Exploring partnerships with community-oriented research groups in other locales to examine some parts of NEAAT in other cultures

Example: Afroditi Stathi, University of Bath, UK; ACE project aimed at empowering seniors to take charge of their health (electronic neighborhood audit tool sharing)

• Perhaps future collaborations with some of you in this area? 😊
From a Research Perspective . . .

• Use insights gained to refine the NEAAT intervention & expand to wider age group
• Explore possible development of a grant proposal
e.g., cluster-randomized study of 40 senior & low-income housing settings that have gone through neighborhood audits & found to be low walkable
In Closing,

Through challenging ourselves to expand beyond our usual ‘comfort zones’ in broadening scientific Impact & Reach . . .

We will be better able to meet the Challenge of not only anticipating the future, but Creating it
Thank you, Mates!