



Welcome to
CHNET-Works! Fireside Chats

Hosted by: University of Ottawa – Community Health Research Unit

Funded by: 2005 – 2006 Ontario Ministry of Health and Long Term Care
2004 – 2005 CHSRF – Canadian Health Services Research Foundation

CHNET-Works! Fireside Chats
Friday January 20th, 2006

Designing Multiple Intervention
Physical Activity Programs:
Does Using the MIP Framework
Help or Hinder?

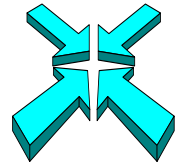
Nancy Edwards, RN, PhD
Professor, School of Nursing
CHSRF/CIHR Nursing Chair

Overview

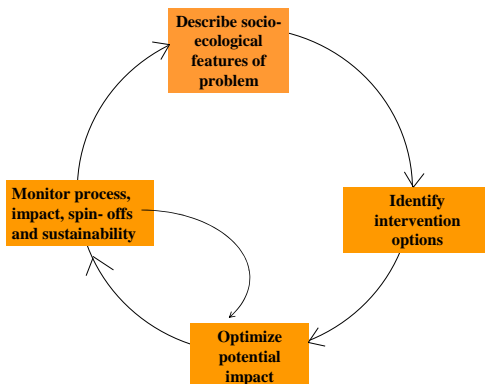
- What are multiple interventions?
- What is the MIP framework?
- How can the MIP framework be used for research and for program design?
- Examples of research that might be useful for program design
- Your questions

Multiple Interventions:
Key Dimensions

- Use multiple strategies
- Target multiple layers of the system
- Often involve multiple channels
- A "basket of interventions"
- A comprehensive approach
- Based on a systems approach
- Require optimal blend of strategies (timing, intensity, frequency)



Multiple Intervention Framework
(Edwards, Mill & Kothari, CJNR, 2004)



The socioecological framework

- Multiple levels of determinants and their interconnections
- Nested determinants: Negative and positive feedback loops (parental social norms re physical activity influence children's choices about recreation activities in school)
- Deeply imbedded determinants (e.g. cars as a means of transportation)

Identify Intervention Options

- Integrate conceptual models from different disciplines and fields of research
- Identify pathways for interventions
- Determine:
 - What prior research supports intervention strategies?
 - What dose and intensity of intervention is required to make a difference?
 - What reach and penetration of intervention strategies will be required for different population subgroups?

Optimize potential impact

- The ways in which intervention strategies are combined may make a difference
- Optimize synergies among intervention strategies
- Optimize synergies between intervention strategies and context

Monitor and evaluate program impact, spin-offs & sustainability

- Adaptive processes
 - how are program strategies tailored to local context
 - how should strategies be adapted to unanticipated contextual influences?
- What short- and long-term spin-offs occur as a result of MIPs?
- Is there evidence of sustainability, of expansion?
- Are there scaling-up processes underway?

The MIP Framework - Research

Elements	Research Questions and Approaches
Socioecological features of problem	What individual, workplace, community and policy factors influence physical activity patterns among different age groups?
Identify intervention options	Systematic reviews to examine multi-level interventions for physical activity
Optimize potential impact	How do recreational user fees influence physical activity across socio-demographic groups? Did "Participaction" shape Canadian social norms for physical activity?
Monitor process, impact, spin-offs & sustainability	Do accessible physical activity programs reduce crime rates in poor neighbourhoods? What inputs are required to sustain a volunteer-led exercise program for seniors?

The MIP Framework – Program Design

Elements	Program Design Considerations
Socioecological features	What socioecological levels should we target?
Identify intervention options	What theories need to be integrated for a MIP approach? Evidence of effectiveness from systematic reviews and primary studies?
Optimize potential impact	What other partners and stakeholders would need to be involved? What intervention timing would be optimal? Does the current context support program implementation?
Monitor process, impact, spin-offs & sustainability	What processes and outcomes should we monitor to capture multi-level changes? What elements of the program need to be sustained? What are the threats to sustainability?

Physical Activity MIP "State of the Science"

- Predominant focus on physical activity as a lifestyle choice and behaviour change strategy up until '90s
- How can we best assess environmental factors (measures are inconsistent)?
- Distinctions between built environment and natural environment are important
- Balance of aesthetics and functionality
- Universal design considerations

Environmental Factors (1 of 1) Humpel, Owen & Leslie, 2002

- Comprehensive review – relationship between perceived physical environment and physical activity
- 33 articles retrieved (1989-2002)
- Qualitative studies excluded
- 16 articles met inclusion criteria
- 12 had an explicit theoretical base (social cognitive theory, theory of planned behaviour, ecological models)

Sample Findings (2 of 1)

Environmental variables	# studies	Association
Accessible bike path/park	3	+++
Density of facilities (GIS)	1	+
Presence of sidewalks	2	00
Home equipment	5	+++ 00
Poor weather	2	00
Safe footpaths	1	+
High levels of crime	2	00
Attractive local area	2	++
Friendly neighbourhood	1	+

Conclusions (3 of 1)

- Accessibility, opportunities for physical activity and aesthetic attributes of the environment had “consistent associations with physical activity behaviour”
- Prospective studies are needed to identify causal relationships

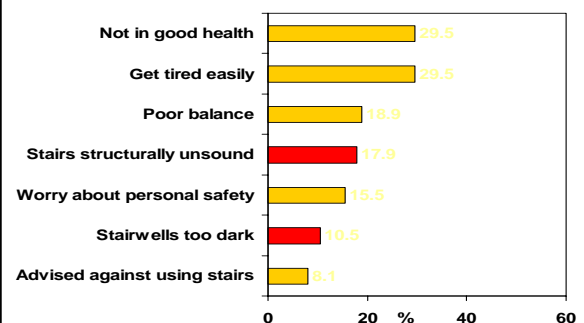
Stairs and Physical Activity Funded by CIHR

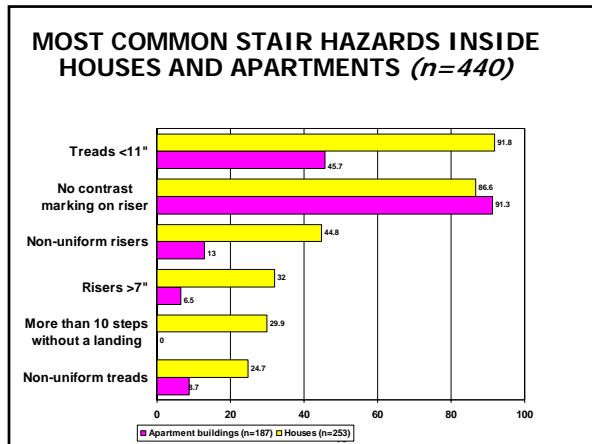
Principal Investigators
Donna Lockett & Nancy Edwards

PATTERNS OF STAIR USE AT HOME



BARRIERS TO USING STAIRS





- ### Photonovella: A Qualitative Study
- Lockett, Willis & Edwards, 2005
- Focus groups
 - 39 photographs of barriers to walking
 - Safety related to crime
 - Traffic hazards (pedestrian crosswalks)
 - Fall hazards (cracked, uneven, slanted sidewalks; lack of sidewalks on country roads)
 - Inaccessible stairs and entranceways
 - 47 photographs of facilitators of walking
 - Amenities requiring walking (mailboxes, newspaper boxes)
 - Amenities for walking connectivity
 - Aesthetic qualities

- ### What has been missing?
- Policies to support physical activity
 - Workplace
 - Municipal, provincial and federal levels
 - ?what can we learn from field of tobacco control?

Physical Activity Research Studies and MIP Model - Selected Examples

<http://aix1.uottawa.ca/nedwards>
<http://aix1.uottawa.ca/nedwards/chru>

Socio-ecological features	Identify intervention options	Optimize potential impact	Monitor process, impact, spin-offs, sustainability
-Physical activity in long-term care settings (Edwards)	-Context and systematic reviews (Riley)	-Aboriginal fall prevention initiative (Edwards)	-Sustained organizational uptake of Nursing BPGs (Davies)
-Socio-ecological determinants of exercise during home-based cardiac rehab (Blanchard)	-Photonovella with seniors (Lockett; Votta)	-Guidelines for MIPs; Ontario Mandatory Core Program Guidelines (Edwards)	

References

- Edwards, Mill & Kothari. Multiple intervention research programs in community health. CJNR 2004 36;1: 40-54.
- Humpel, Owen & Leslie. Environmental factors associated with adults' participation in physical activity. Am J Prev Med 2002;22;3: 188-199.
- Lawlor, Ness, et al. The challenges of evaluating environmental interventions to increase population levels of physical activity: the case of the UK National Cycle Network. J Epidemiol Community Health 2003;57:96-101.
- Dwyer, Hansen et al. Maximizing children's physical activity: an evaluability assessment to plan a community-based, multi-strategy approach in an ethno-racially and socio-economically diverse city. Health Prom Intl 2003; 18;3: 199-208.
- Epstein. Integrating theoretical approaches to promote physical activity. Am J Prev Med 1998;15;4: 257-265.
- Lockett, Willis, Edwards. Through seniors eyes: an exploratory qualitative study to identify environmental barriers to and facilitators of walking. CJNR 2005; 37;3: 48-65.

Knowledge Translation

- What strategies can a researcher use to make results from multiple interventions studies more understandable to practitioners and policy-makers?
- www.health-evidence.ca
- www.phred-redsp.on.ca
- www.nursing.ualberta.ca/kusp/resources_TopTen.htm

Questions from Participants

Hints from a title!

- Can you give an example of how using the MIP framework would hinder the design of a program?
- Familiarity with MIPs and supporting research may take time
- MIPs require an expanded review of evidence and data
- May require the involvement of other planning partners (e.g. urban planners)
- Tools that we traditionally use in community health may not fully support MIP approach
 - logic models identify sets of activities/strategies but don't address synergies among them
 - process and outcome measurement do not routinely address sustainability or spin-offs

Uncovering my bias!

- When, if ever, would you NOT recommend using multiple intervention programs
- Situations of major resource constraints – importance of ensuring adequate “dose” of active ingredients
- No multi-disciplinary partners to engage in the program planning and implementation process

Discrete or Intersecting Levels?

- Designing interventions aimed at changing children's behaviour requires the involvement/support of parents. Who should interventions be directed at, the children or their families?
- How do you differentiate the “levels” of individuals versus families/support networks, when children's behaviours are mediated by their parents' behaviours?

Multi-level Design

- Multi-level analysis approaches may be helpful
- Duncan, Duncan, Strycker & Chaumeton. Neighborhood physical activity opportunity: A multilevel contextual model. *Research Quarterly for Exercise and Sport*. 2002; 73;4: 457-463.
- Multi-level variables, cross-sectional data



Thanks everyone!

Next CHNET-works fireside chat:

Friday January 27th 1:00 – 2:00 PM (EST)

Injury Prevention:

Addressing Population Health Inequities

www.chnet-works.ca