Taking a deeper look at Injury Prevention

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Injury – the occult epidemic
There has to be a better way!

The Mayo Clinic

UH, OH...
Education!
My wife keeps nagging me to see a doctor about my weight, diet, blood pressure, heart, ulcers, and a bunch of other health problems.

I need some ear plugs.

So how can I help?
The Injury Iceberg

Hanson et al. *The Health Promotion Journal of Australia*, April, 2006
How safe is the Injury Iceberg?
You will never solve the injury puzzle

If you leave out 2/3rds of the pieces!
The Public Health Model

Define the problem
Data collection & surveillance

Identify causes
Risk factor identification

Develop & test interventions
Efficacy & Effectiveness research

Adoption & widespread use
Community development & dissemination program
All talk and no action!

Define the problem
Data collection
& surveillance
63%

Identify causes
Risk factor identification
(16%)

Develop & test interventions
Efficacy & Effectiveness research
(16%)

Adoption & widespread use
Community development & dissemination program
(5%)

1210 Health Promotion articles in 12 major Health Promotion Journals in 1994

Oldengurg BF, Sallis JF, French ML, et al., Health Education Research, 14;1: 1210139
Knowing is not enough, we must apply
Willing is not enough, we must do

Johann Wolfgang von Goethe
1749-1832
Lost in translation

We may be in luck! The translation is loose, but I think I overheard them say that they only captured us to save face!
Scientific Problem
Efficacy to Effectiveness Gap
The Scientific Approach
The Efficacy / Effectiveness Gap

**Efficacy**
- Scientific content
- Internal validity
- Best evidence
- Impact is determined by
  - Reach
  - Efficacy

\[ I = R \times E \]

**Effectiveness**
- Community context
- External validity
- Best practice
- Impact is determined by
  - Adoption
  - Implementation
  - Maintenance (sustainability)

\[ I = A \times I \times M \]

Obviously both are true!

Impact = Efficacious intervention x Effectively applied

\[ I = R \times E \times A \times I \times M \]

The Ivory Tower Approach
Implementation Problem
Research to Practice Gap
There is an implementation problem
The Research to Practice Gap

**Research**
- “Science Push” / top down
  - Start with the scientific definition of need
- Adverse to type 1 error
  - Researchers want proof that an intervention works
- Forgiving of type 2 error
  - Evaluation failure: i.e. failing to prove that an effective intervention works
- Success is determined by
  - “Scientifically proven” interventions designed by experts

**Practice**
- “User based” / bottom up
  - Start with community perception of need
- Attempts to engage experts, solutions & resources to solve the problem
- Empower the community to solve its own problem
- Success is determined by
  - The ability to build consensus
  - Communities capacity to work together
The Research to Practice Gap

Research

Define the problem
Data collection & surveillance

Identify causes
Risk factor identification

Develop & test interventions
Efficacy & Effectiveness research

Practice

Adoption & widespread use
Community development & dissemination program

Context driven

Science Push Approach

Context excluded
Political Problem
Injury Prevention to Safety Promotion Gap
There is a political problem

**Ginger Meggs**

**Panel 1:**
- Why does the government have warnings on cigarette packets?
- Cigarettes are bad for your health!

**Panel 2:**
- Why doesn't it just ban cigarettes?

**Panel 3:**
- That would be bad for the government's health!
- If they can put a robot on Mars, why can't they invent an edible butt?
The Disease Prevention to Health Promotion Gap

Injury Prevention

- Prefer “hard” sciences
  - Biochemistry
  - Biomedicine
- Suspicious of “soft” sciences
  - Sociology
  - Psychology
- “Safety” is hard to define and therefore hard to investigate
- Success dependent on scientifically proven interventions

Safety Promotion

- Behaviour is influenced by
  - Personal beliefs, attitudes and perceptions
  - Social Context
- People won’t change their behaviour if the social, cultural and physical environment resist this change
- Goal is to make the “healthy choice the easy choice”
- Success dependant on interventions with good fit
The Coca Cola Approach
Three different types of experts are required

1. **Content experts (researchers)**
   Why & what to do? – best methods

2. **Process experts (practitioners & policy makers)**
   How to do it? - best practice

3. **Context experts (the target community)**
   Who, where & when to do it? - best fit
Putting it all together

Research

Why and what to do

Best Methods

Practice

Best Fit

Context

Who, where and when to do it

Best Practice

How to do it
Initiatives that promote community health, wellbeing and safety and minimize risks

- Evaluate outcomes
- Evidence Based
- Strategic
- Good surveillance
Good community safety promotion practice

1. Comprehensive
2. Evaluate Outcomes
3. Strategically Coordinated & Sustainable
4. Evidence Based Programs
5. Good surveillance
6. Network Participation
7. Good community safety promotion practice
WHO Designation Criteria

1. An infrastructure based on partnerships and collaborations, governed by a cross-sectional group that is responsible for safety promotion in their community.

2. Long-term, sustainable programs covering both genders and all ages, environments and situations.

3. Programs that target high-risk groups and environments and programs that promote safety for vulnerable groups.

4. Programs that are based on available evidence.

5. Programs that document the frequency and causes of injury.

6. Evaluation measures to assess their programs, processes, and the effects of change.

7. Ongoing participation in national and international Safe Communities Networks.
Mackay Safe Communities

Launched in February 2000
Mackay Safe Community

Launched 3rd February 2000

152 Members
500 Relationships
Mackay Safe Community

Designated 31st August 2004

168 Members
1002 Relationships
Mackay Safe Community

More cohesive

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2004</th>
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<tbody>
<tr>
<td>Members</td>
<td>152</td>
<td>168</td>
</tr>
</tbody>
</table>
| Total
relationships | 500   | 1002  |
| Av. relationships / member | 3.3   | 5.9 (p < 0.0005) |
| Density        | 0.022 | 0.036 (p < 0.0002) |
| Centralization | 18%   | 43%   |
| Clustering Co-efficient | 0.30  | 0.50  |
12% reduction in Emergency Department Injury Presentations
All selected Injuries trend by intervention group 2003 - 2006

85 hospitalisations prevented

Child Injury Prevention Group (ChIPP) Sarina & Mackay
A Mackay Entertainment Centre of empty seats in our ED

we prevented 900 ED presentations in 2004
9 days of ED caseload
12 years later and we are still going strong

Mackay Safe & Healthy Community
Redesignated an International Safe Community in 2010
“Never doubt that a small group of thoughtful, committed people can change the world. Indeed, it is the only thing that ever has!”

Margaret Mead
Any Questions?
More Information?

Social Network Analysis
Mackay Whitsunday Safe Communities

Doctoral Thesis: Dr Dale Hanson

Community Safety Promotion Networks: From Metaphor to Methodology

http://eprints.jcu.edu.au/1751/

James Cook University
More Information?

Closing the Gap Between Injury Prevention Research and Safety Promotion Practice Revisiting the Public Health Model

Public Health Reports, 2012
Volume 127
Issue 2

http://www.publichealthreports.org/

Dale W Hanson
Caroline F Finch
John P Allegrante
David A Sleet
Research alone is not sufficient to prevent sports injury

British Journal of Sports Medicine, 2012
Volume 45
Issue 16
p1253

Dale W Hanson  Caroline F Finch  John P Allegrante  David A
Documenting the Development of Social Capital in a Community Safety Promotion Network: It’s not just what you know but who you know.

Dale Hanson
Jan Hanson
Paul Vardon
Kathryn McFarlane
David Durheim
Rick Speare

Health Promotion Journal of Australia
August 2008, p 144
Measuring the sustainability of a community safety promotion network: working from the inside out

Dale Hanson
Jan Hanson
Paul Vardon
Kathryn McFarlane
David Durheim
Rick Speare

Hanson et al., Int J of Injury Control & Safety Promotion, Sept 2012, p 297
The injury iceberg: an ecological approach to planning sustainable community safety interventions

Dale Hanson
Jan Hanson
Paul Vardon
Kathryn McFarlane
Jacqui Lloyd
Reinhold Muller
David Durheim

Health Promotion Journal of Australia
Ecological approaches to the prevention of unintentional injuries

John P. Allegrante, Dale W. Hanson, David A. Sleet, Ray Marks

Abstract

Background: Injury as a cause of significant morbidity and mortality has remained fairly stable in countries with developed economies. Although injury prevention efforts are conceptualized as a biomedical construct, such a reductionist perspective overlooks the importance of the psychological, environmental, and sociocultural conditions as contributing factors to injury and its consequences. This paper describes the potential of the ecological model for understanding the interrelated causes of unintentional injuries and guiding injury prevention approaches. We review the origins and conceptualize the elements of the ecological model and conclude with some examples of applications of ecological approaches to the prevention of unintentional injury and promotion of community safety.

Methods: A review of the English-language literature on the conceptualization of ecological models in public health and injury prevention, including the application of the ecological model in the prevention of falls and road traffic injuries and in the community safety promotion movement.

Results: Three dimensions are important in social-ecological systems that comprise key determinants of injury: (1) the individual and his or her behavior, (2) the physical environment, and (3) the social environment. Social and environmental determinants have profound impact on population health and in the causation of injury.

Conclusions: Social and environmental determinants of injury should be studied with the same energy, urgency, and intellectual rigor as physical determinants. Application of the ecological model in injury prevention shows the most promise in falls injury prevention, road traffic injury prevention, and community safety promotion.

Key words: ecological model, injury prevention, public health, safe communities, safety promotion

Introduction

Injury is not merely a product of individual biological, psychological, and behavioral factors; it is an outcome of collective social conditions created when people interact with the environment. Preventing unintentional injury, like preventing disease, requires attention to the entire social system [1].

Much of our thinking about health and disease causation has been dominated, since almost the beginning of the 20th century, by the prevailing medical model [2]. By extension, injury prevention has been conceptualized as a biomedical construct in which preventing injury is conceived as preventing the sudden release of energy that produces tissue damage, or protecting the individual when energy is released (e.g., from seat belts). This reductionist perspective overlooks the importance of the psychological, environmental, and sociocultural conditions as contributing factors to an injury event and its consequences.

William Haddon, the father of modern injury prevention, prophetically introduced the concept of ecological injury prevention with publication of his seminal paper, “On the Escape of Tigers: An Ecological Note” [3]. In the context of the prevailing epidemiological model of causation in which the agents, hosts, and environment interact, he highlighted the opportunities for...