


Evidence-based Injury Prevention: Is it Necessary?



Parminder Raina, PhD

Director, BC Injury Research & Prevention Unit

Director, McMaster University Evidence-based Practice Centre

Scope of the Presentation



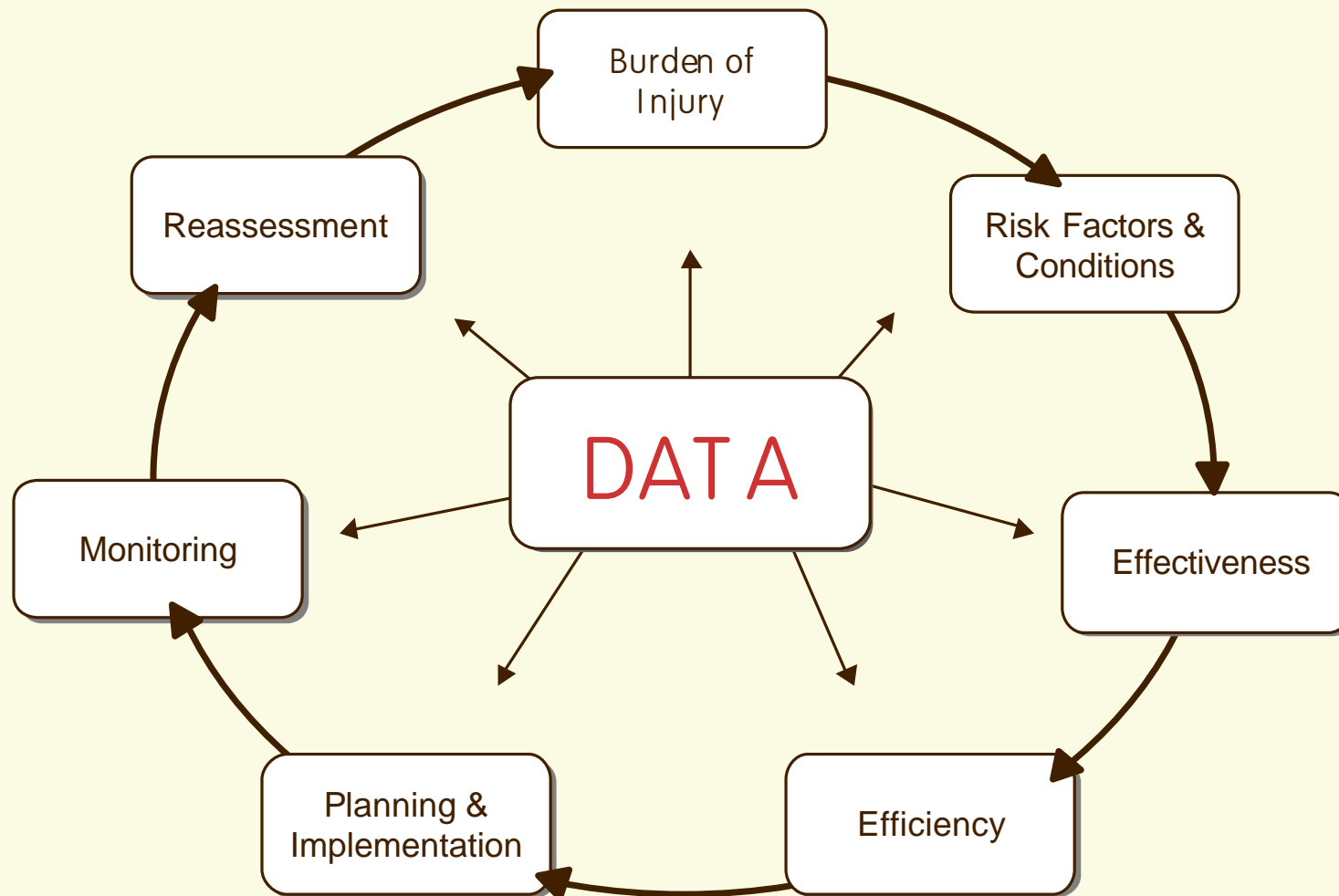
- Future of Injury Research
 - Producing Evidence
- Future of Practice of Injury Prevention
 - Evidenced-Based Best Practices Guidelines



Future of Injury Research

Producing Evidence

Injury Prevention & Evaluation Cycle




Step: 1: Are Injuries a Problem?

- Mortality
- Morbidity
- Personal costs
- Societal costs
- Disability

Descriptive Feast!!!!

Step 2: What are the risk factors and conditions of injury?



- The causes of injury need to be understood to reduce the frequency or severity of injuries.
- Complex forms of the chain of causation
- Creating direct and indirect associations

Individual Level Risk Factors



- Haddon's Matrix, used to elucidate risk factors at the individual level, examines the risk factors of injury according to three event phases.

Haddon's Matrix

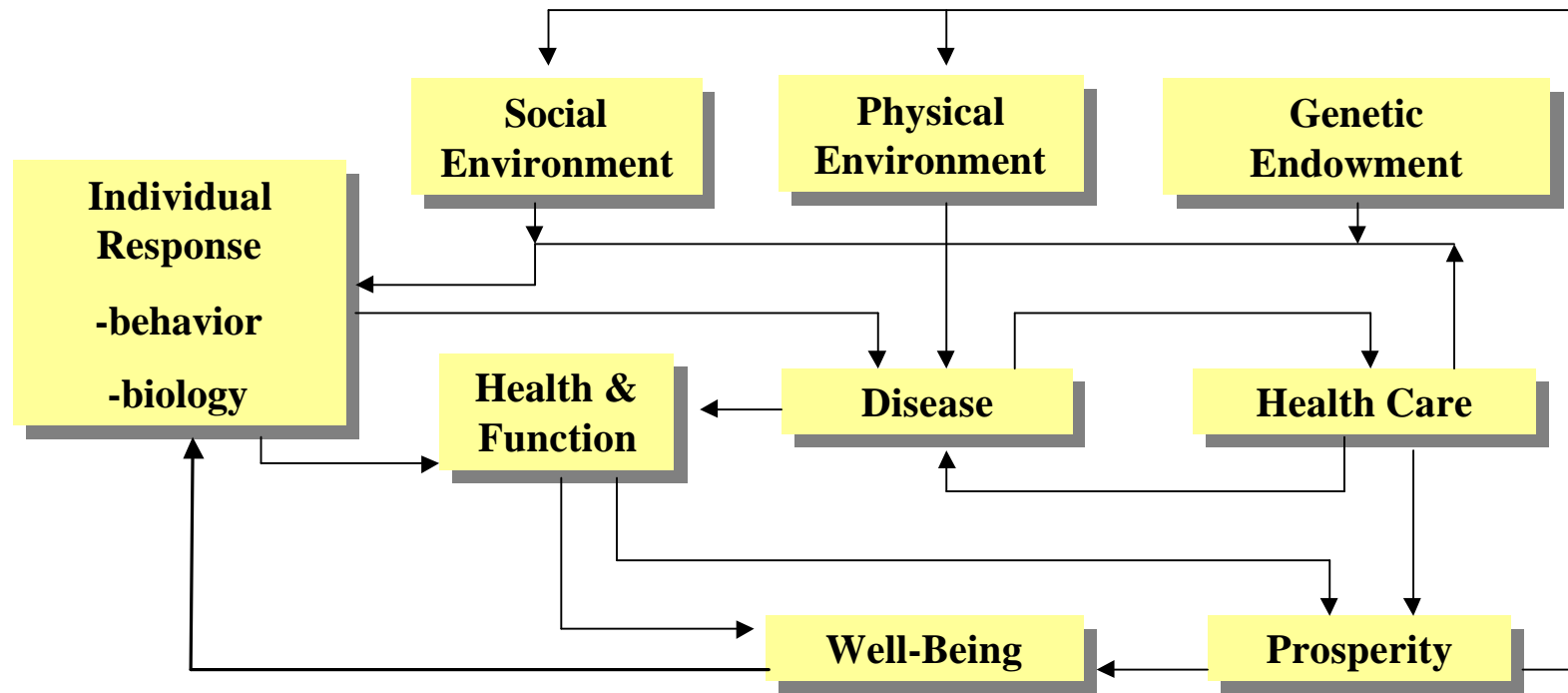
	Pre-Event	Event	Post-Event
Host			
Vehicle/Agent			
Environment			

Source: Haddon, W. Jr. Advances in the Epidemiology of Injuries as a Basis For Public Policy. Public Health Reports 95(5), 1980: 411-421.



Population Level Risk Factors

The Health Field Model



**Evans & Stoddart, 1990*

Systems Approach



- Community level factors
 - Health care system
 - Environment
 - Cohesion
 - Neighbourhood SES/Income gradient

Systems Approach Contd...



- Family context
- Individual level factors
 - Age, gender, Individual SES, behaviour

Systems Approach Contd..



- Use multi-level approaches to understand how individual and community level factors work together to cause injuries
- Geographical Information Systems to identify hot spots
- Design injury prevention programs that are multi-factorial and target different levels of the system simultaneously

Research Issues at Individual level



- Screening of high risk individuals
- Better measures of exposure and outcome
- Risk Perception
- Long term consequences of injury
- Rehabilitation
- Management of Injured patients in acute care setting

Step 3: Are the injury prevention programs effective?



- Effectiveness measures the ability of an injury prevention program to reduce the burden of injury in the community setting.

EVALUATIVE FAMINE

Best possible design to assess the effectiveness

HIGHEST QUALITY (very important)

Design and test interventions using a theoretical framework



For example:

Precede-Proceed

Mediational analysis

Model for Health Behaviour Change

Step 4: Are the injury prevention programs efficient?

- Efficiency is the ability of a program to produce the greatest results for the least amount of resources spent. Given the limited public health resources currently available, it is imperative to demonstrate program efficiency.

Step 4: Contd...



- Methods for evaluating program efficiency include cost-benefit, cost-effectiveness, cost-utility, and cost-outcome, among others.

Step 5: How are injury prevention programs planned and implemented?

- Social marketing theory
 - Strategies to increase awareness among the general population and professionals,
 - Ensuring the social and political support
 - Models encompass exchanging resources for safety, meeting the needs of the community and market research
- Creating buzz


Step 6: How are changes to injury monitored?



- Measurable goals are required for the short- and long-term progress of a prevention program to be monitored.

Step 6: Contd...

- Elements to be measured include:
 - the structure of the program
 - completion of the process stages
 - and changes in injury outcome.
- Ideally, a global surveillance system could be developed to monitor the entire population for all types of injury, based on the collection of a minimum injury data set.



Future of Practice of Injury Prevention

Evidence-based Best Practice



*Evidence-based Practice of
Injury Prevention*

Present state of Injury Prevention



- Current Practice is based on:
 - Enthusiasm
 - Values
 - Circumstances
 - Resources
- Missing Link ‘ ***EVIDENCE*** ’

What is Evidence?



- We all use and interpret a wide range of sources of evidence to inform our judgments and the way we practice.

Continuum of evidence



Qualitative

Opinion based
on experience

Descriptive
studies

Surveys

Cohort
studies

Non-
randomized

Quantitative

Randomized
controlled
trials

What is Evidence-Based Injury Prevention?



- Evidence-based Injury Prevention has been defined as “the process of systematically finding, appraising and using contemporaneous research findings as the basis for decisions”

Evidence-Based Prevention is

Not:



- The property of PhD's
- A bright idea
- Using your intuition without checking it against other ways of knowing
- Saying "I've worked here for 25 years and I know"

Evidence-Based Prevention is

Not:

- Using anecdotes and stories to support major initiatives
- Growing a bright idea with a few colleagues and then going out and implementing

Evidence-Based Prevention is

Not:

- Carrying on doing things without questioning
- Reinventing the wheel by research work well-documented elsewhere

*Evidence-based Best
Practices Guide (BPG)?*





Best Practices Guidelines (BPGs)

**Systematically developed
statements to assist decisions
about appropriate interventions
for specific circumstances**

Evidence-based BPGs

an evidence-based approach

The explicit, conscientious and judicious use of the ***best available evidence*** from Injury Prevention and Control research in program planning.

as applied to Best Practices Guidelines

systematic review of the literature
+
recommendations that emerge from the review

Fundamental Characteristics of an Evidence-based BPG

formal and explicit methods
for working with Injury research

- ✓ locating
- ✓ evaluating
- ✓ selecting
- ✓ synthesising
- ✓ analysing
- ✓ interpreting
- ✓ reporting
- ✓ evaluating
- ✓ informing recommendations

DANGEROUS ASSUMPTIONS

✓ providers and policy makers, even experts in their field, are aware of, have access to and can keep up with all of the evidence

✓ healthcare literature is organised to support decision making

✓ Injury experts are also expert at synthesising & interpreting evidence

**Value-Added To An
Evidence-based Approach**

Strategy to Formulate Question & Parameters Around the Scope of BPG

- ✓ specific population
- ✓ specific intervention being studied
 - ✓ setting
- ✓ specific outcomes of interest
- ✓ design of studies under consideration
 - ✓ set inclusion and exclusion criteria
- ✓ guide search of evidence (e.g., electronic databases)
 - ✓ determine what gets in and what stays out

Strategy to Synthesize the Evidence

putting data together

Quantitative Integration: Meta-analysis

a statistical procedure for synthesizing study results
result in estimate of the population mean

Qualitative Integration

when data does not lend itself to combination

The Specific Level of Evidence or Study Design May Have An Impact on the.....

type of recommendations one might conclude

the ease of formulating recommendations

impact recommendations may have on decision-making

- **grade the recommendations**
- **different types of documents**

Is The Evidence Enough?

NO!
Necessary But Definitely
Not Sufficient.

EVIDENCE

Decision

VALUES

**CIRCUM~
STANCES**

EVIDENCE

Decision

VALUES

**CIRCUM~
STANCES**

Injury expertise

understanding of literature and experience

methodological expertise

systematic review, critical appraisal

biostatistical expertise

when to synthesize and how to synthesize, interpret results
of individual studies

library science expertise

finding the data

dissemination/implementation expertise

research update, Public Health decision-making, policy

experiential perspectives - the patient

are the questions relevant, understanding practical
significance

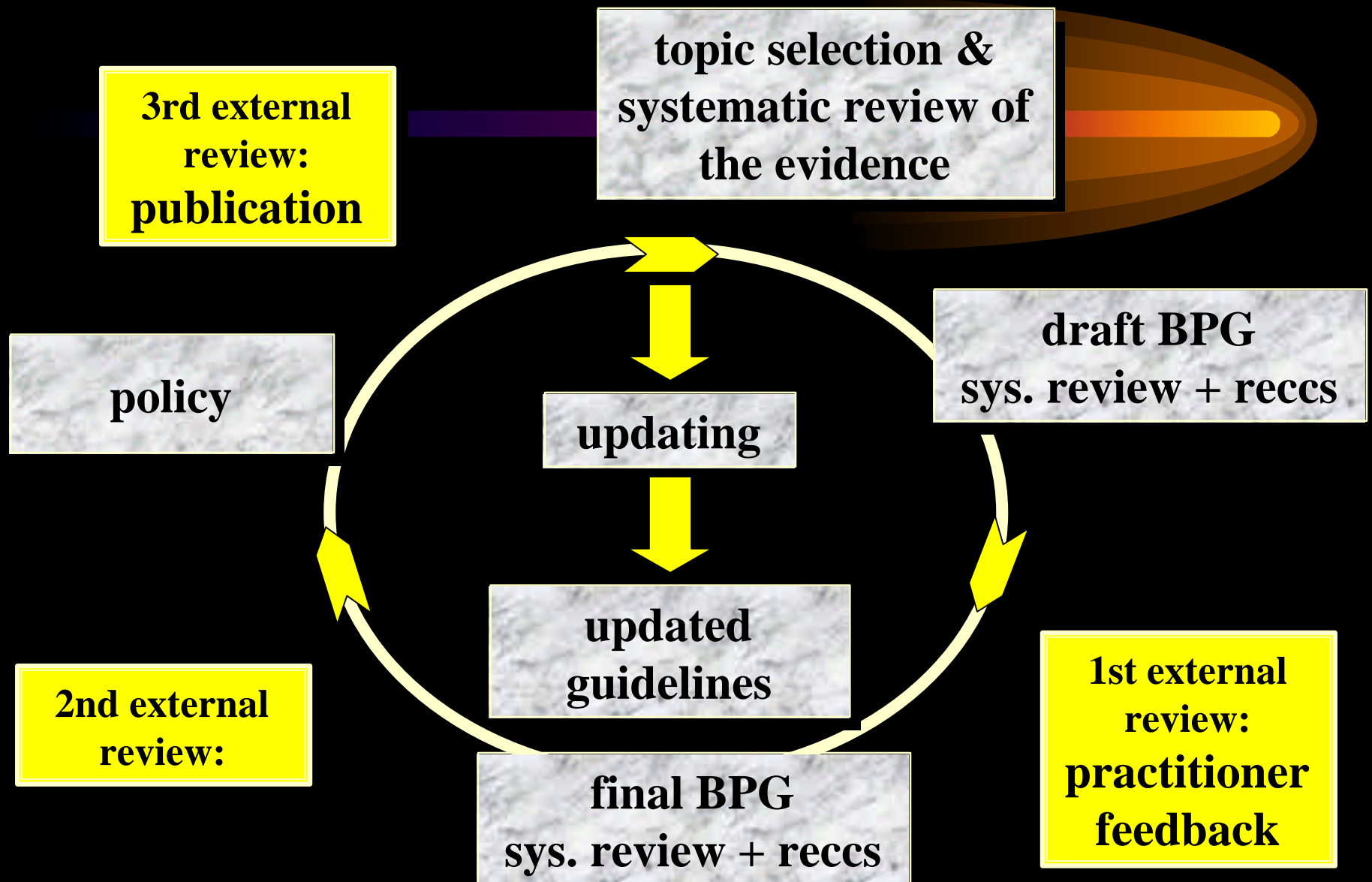
do not assume one person can wear all the hats

A SUCCESSFUL GUIDELINE DEVELOPMENT MODEL



*an iterative approach that
capitalizes on the strengths of many
guideline development perspectives*

The BPG Development Cycle



**EXPERT
OPINION**

BPG Model

CONSENSUS

EVIDENCE

Evaluation



attitudes

attitudes and intentions to use

objective assessments of our BPGs

impact on policy

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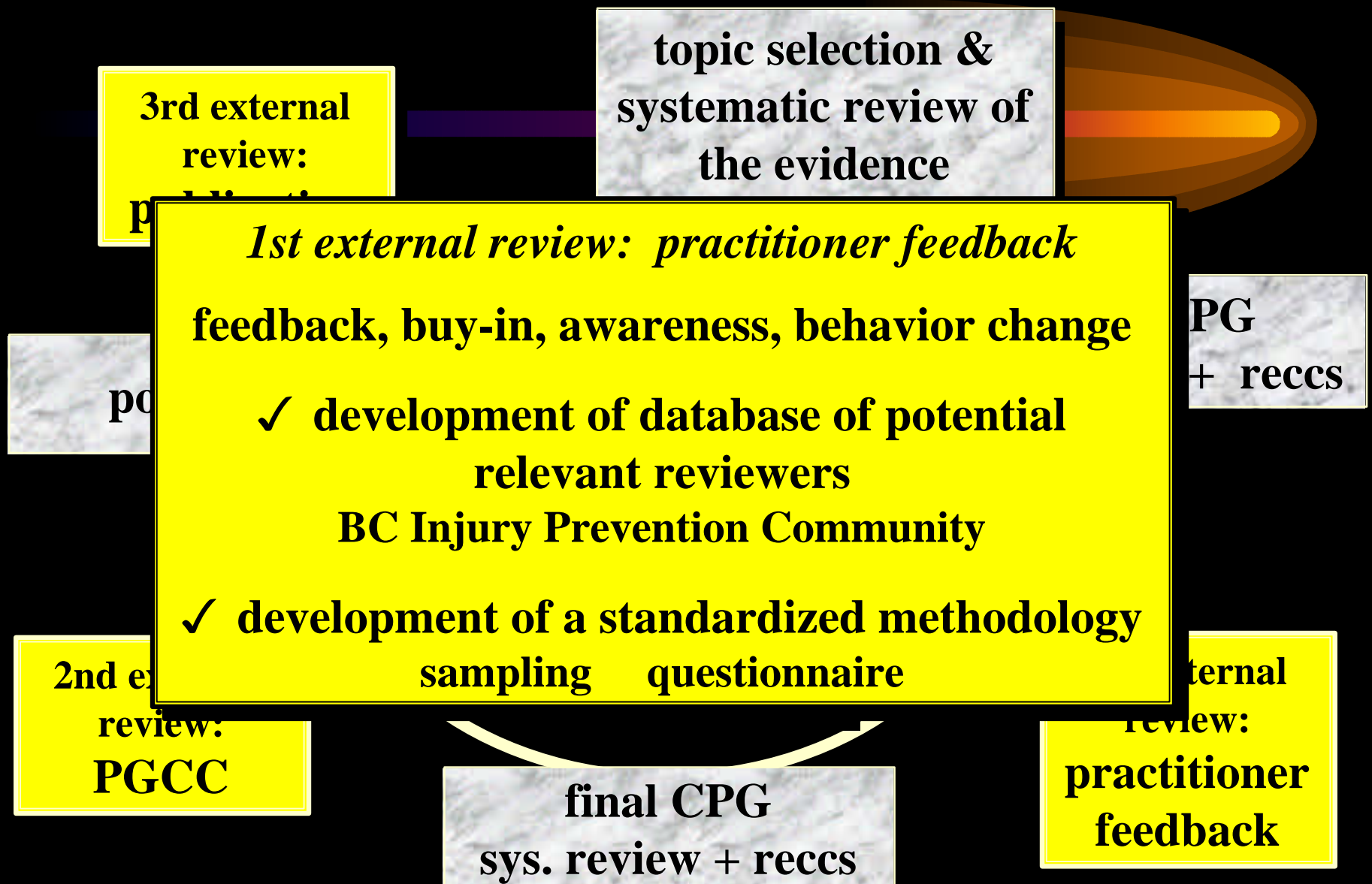


Parminder Raina, PhD

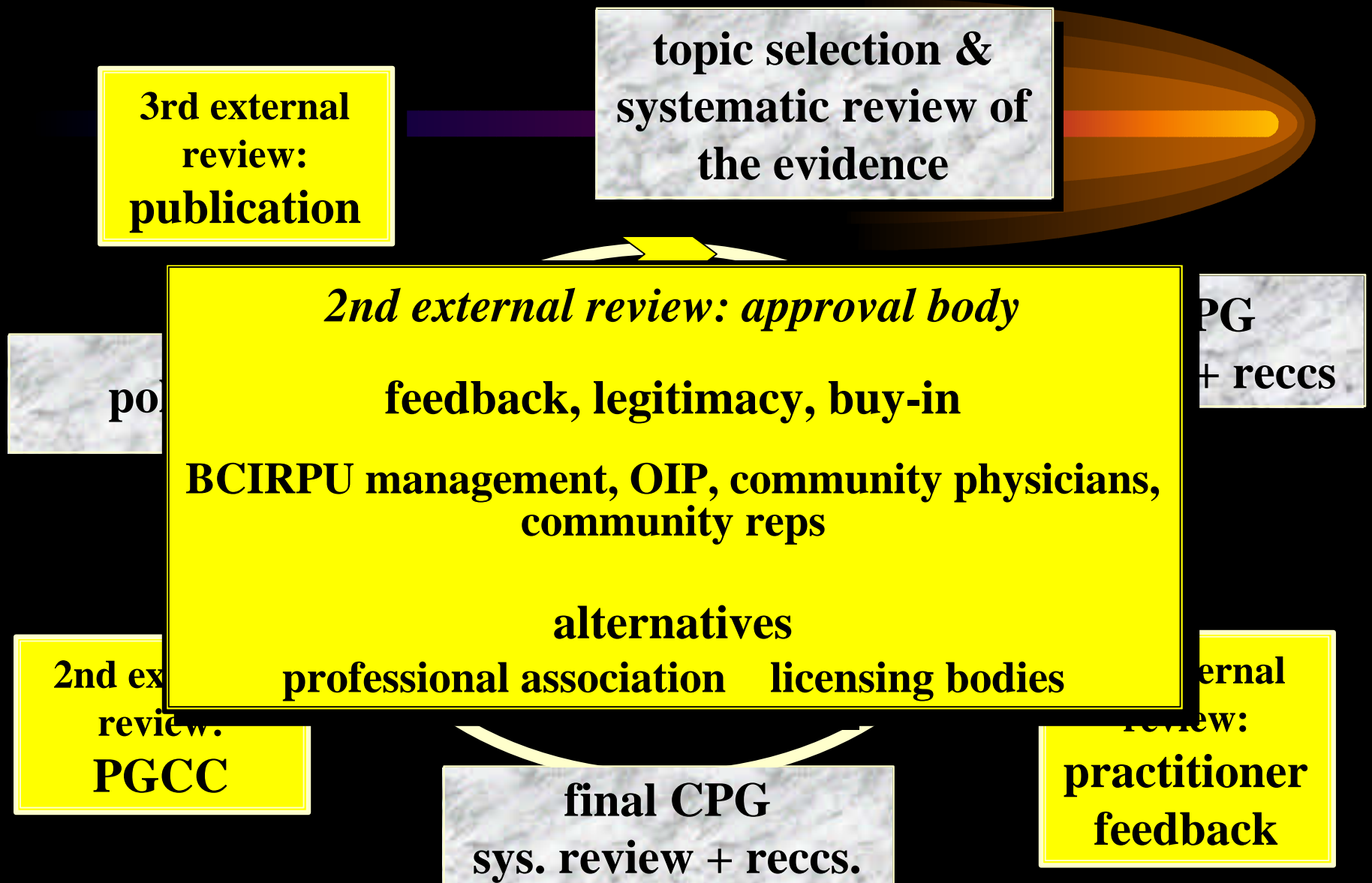
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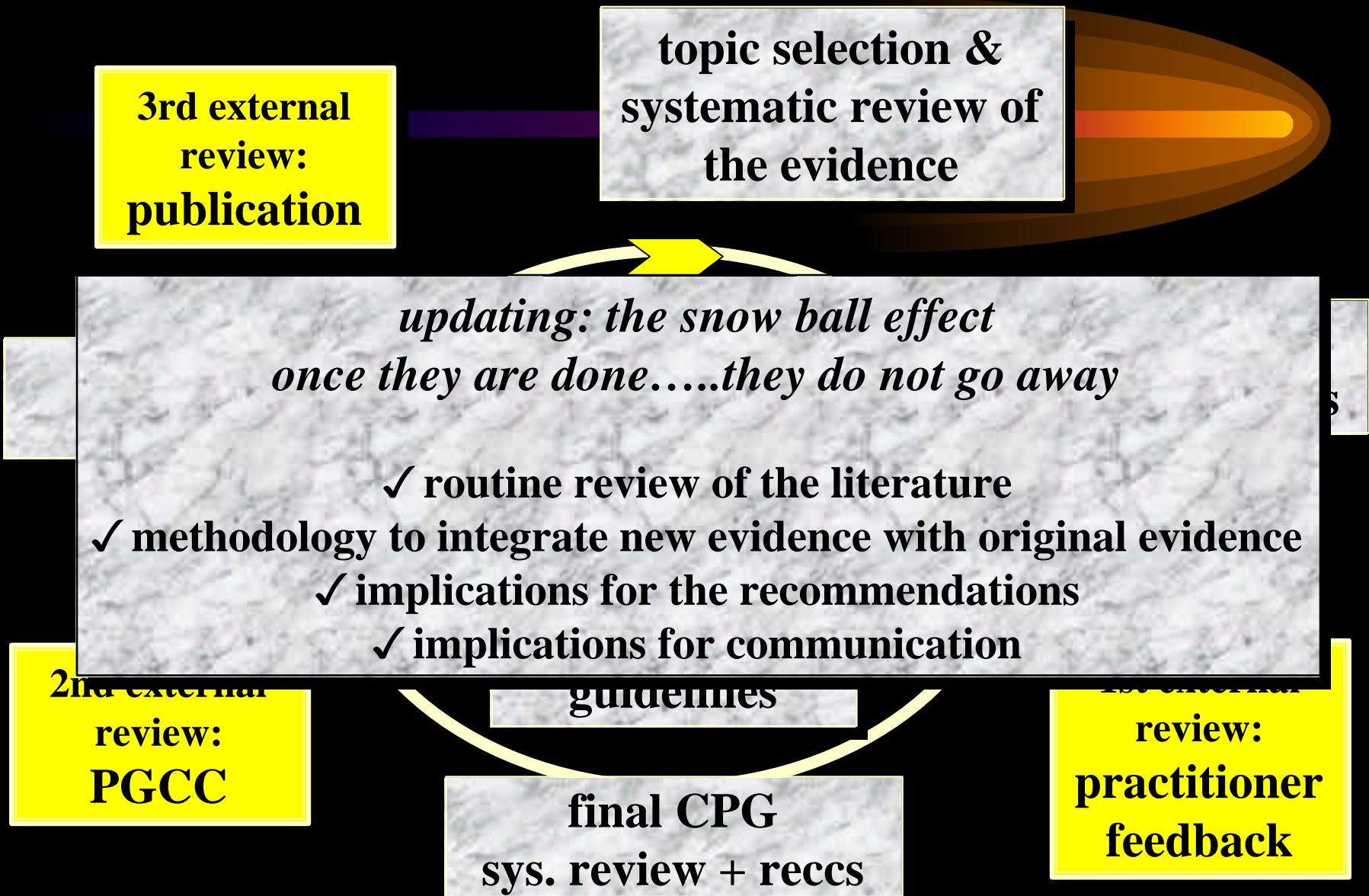
The BPG Development Cycle



The BPG Development Cycle



The CPG Development Cycle



The BPG Development Cycle

topic selection &

*topic selection &
systematic review of the evidence*

guideline development groups

- ✓ selection criteria to choose topic
- ✓ systematic review of literature
- ✓ recommendations

practicality

- ✓ no quality assessment of individual studies
- ✓ English language
- ✓ do not formally seek unpublished literature

sys. review + reccs

3rd
r
pub

poli

2nd exte
review
PGC

CPG

w + reccs

external
view:
titioner
dback

Where The Evidence-based Approach Falls Short in BPG Development

✓ decision regarding quantitative vs. qualitative synthesis

no one clear answer ~ considerable debate in the literature

✓ statistical significance vs. Practical significance

what to do when you have one but not the other

✓ finding a balance between benefits & harms

✓ application of findings to different communities &
different populations

issue of generalizability

Where The Evidence-based Approach Falls Short in BPG Development

✓ cultural considerations and values

acceptability of interventions, issues of privacy, decision-making preferences

✓ feasibility and affordability

choosing among options when there are limited resources

✓ public pressures and advocacy movements

public demands may outweigh the evidence

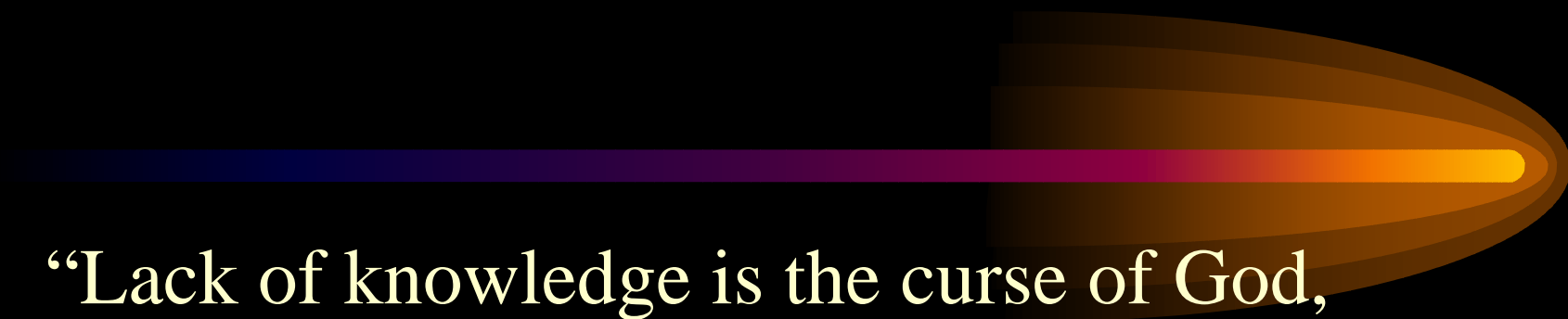
CONCLUSIONS

Evidence-based approach to BPGs?

consider reframing the model

an *evidence-informed* strategy that
incorporates *consensus* from *experts* and
key stakeholders

methodologically sound, scientifically rigorous,
participatory, credible, enabling




“Lack of knowledge is the curse of God,
Knowledge the wing
Wherewith we fly to heaven.”

William Shakespeare
Henry VI

What is Evidence?




- We all use and interpret a wide range of sources of evidence to inform our judgements and the way we practice.
- That evidence may be highly variable, from our own experience to a trusted colleague's professional opinion or a randomized controlled trial you read about in a professional journal.

- 
- No matter which forms of evidence you draw upon they will comprise a rich and highly varied mix of sources.
 - You are able to be a discerning consumer of that evidence.

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What is Evidence?



- Two underlying assumptions are:
 - there is research evidence and,
 - that it is possible to make a judgement about its quality and usefulness.

Value-Added of Expert Opinion


Why Not An Approach Solely Based on Expert Opinion?

- **not a methodology**
- **body of evidence on which opinions are based is implicit, biased**
 - **threat of conflict of interest**
 - **what expertise do you select clinical? methodological?**
 - **can not replicate process**
- **no explicit basis for recommendations**

Value-Added of Consensus Approach

Why Not An Approach Solely Based on Consensus Opinion?

- **not a methodology to work with the literature**
consensus does not address a systematic approach to locating, evaluating, selecting, synthesizing, etc. research
- **body of evidence on which consensus process is based is implicit, biased**
 - **threat of conflict of interest**
 - **can not replicate process**
- **no explicit basis for recommendations**



‘ that it wasn’t the things folks don’t know that
are the problem - it’s the things that they
know that ain’t so’

Mark Twain

OBIP - opinion-
based decision
making

EBIP - evidence-
based decision
making

Pressure



PROGRAM IN EVIDENCE-BASED PREVENTION

a strategic initiative of BCIRPU

develop and maintain knowledge products about best practices, disseminate and implement them, and evaluate their use by providers and planners in the injury system

~Sport & Recreation Injuries~

balance of scientific rigor and practicality

Evidence-Based Prevention is

Not:



- A moral framework, like the assumption in much of the early 'evidence' about young people's drinking behaviour that all youthful drinking is inevitably problematic (Sharop & Lowe, 1989)