Inside the Black Box of Health Promotion: What Do We Know?

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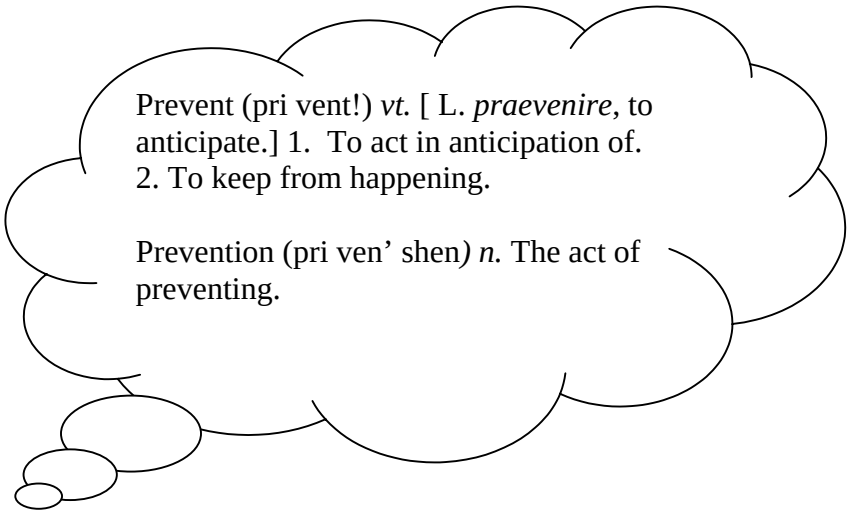
Introduction

Thank you for the invitation to come here and participate in this very worthwhile conference. It is through opportunities such as this that we sometimes make those small steps and get those new ideas that push us forward to doing a more effective job in what we do.

In my remarks today, I m going to be using health promotion, population health promotion, and prevention fairly interchangeably. All of these constructs are directed at one ultimate goal. The definition of prevention states it simply:



This simple concept is a complex process. For example, imagine that we can achieve prevention by:

a) reducing harmful practices
b) increasing positive practices
c) preventing the increase of harmful practices
d) preventing the decrease of positive practices

Or,

e) By affecting the RATE of increase or decrease of any of these things.

These different possible outcomes alone place us in a difficult place in justifying themselves over the short term through their outcomes.

I know as many of you do that getting prevention its due has been and continues to be a long struggle. We share shrinking resources that have more and more demands placed on government particularly to manage current crises and not look upriver for causes that require preventive action.. And, prevention certainly has its share of mistakes. We all know there has been a lot of fuzzy logic and disjointed efforts in prevention. This may be attributed at least in part to an odd lack of partnering and cooperation between practitioners on the ground and good social science.

I would like to speak today about the nature of prevention or of health promotion. In my title I likened prevention to a black box. In my younger days, I had the opportunity of working on military aircraft as an electrician. One of my duties was servicing the "black boxes" that would come to us from the aircraft. Each black box held a complex array of gadgetry that made it do whatever it did, and generally that was good enough to know, till something broke down. The thing was, more often than not, my job really was simply to check a box marked BCM" or beyond corrective maintenance. I had been sent to a six-month course and stationed in intermediate maintenance, and I really had little idea what was inside the box or exactly how it worked. I just could tell if it didn't work. Occasionally I could change a switch, transformer, resistor or capacitor, but often the problem was in the bowels of the box and I was lost. I suggest that the processes of preventing and promoting healthful policies, environments and practices, to be like a series of black boxes. We need to understand what is inside the black box of prevention if we are going to know how it works, and thus how we are going to be able to accurately and properly assess its worth.

I will reaffirm that the rationale of prevention rests solidly on least four foundations:

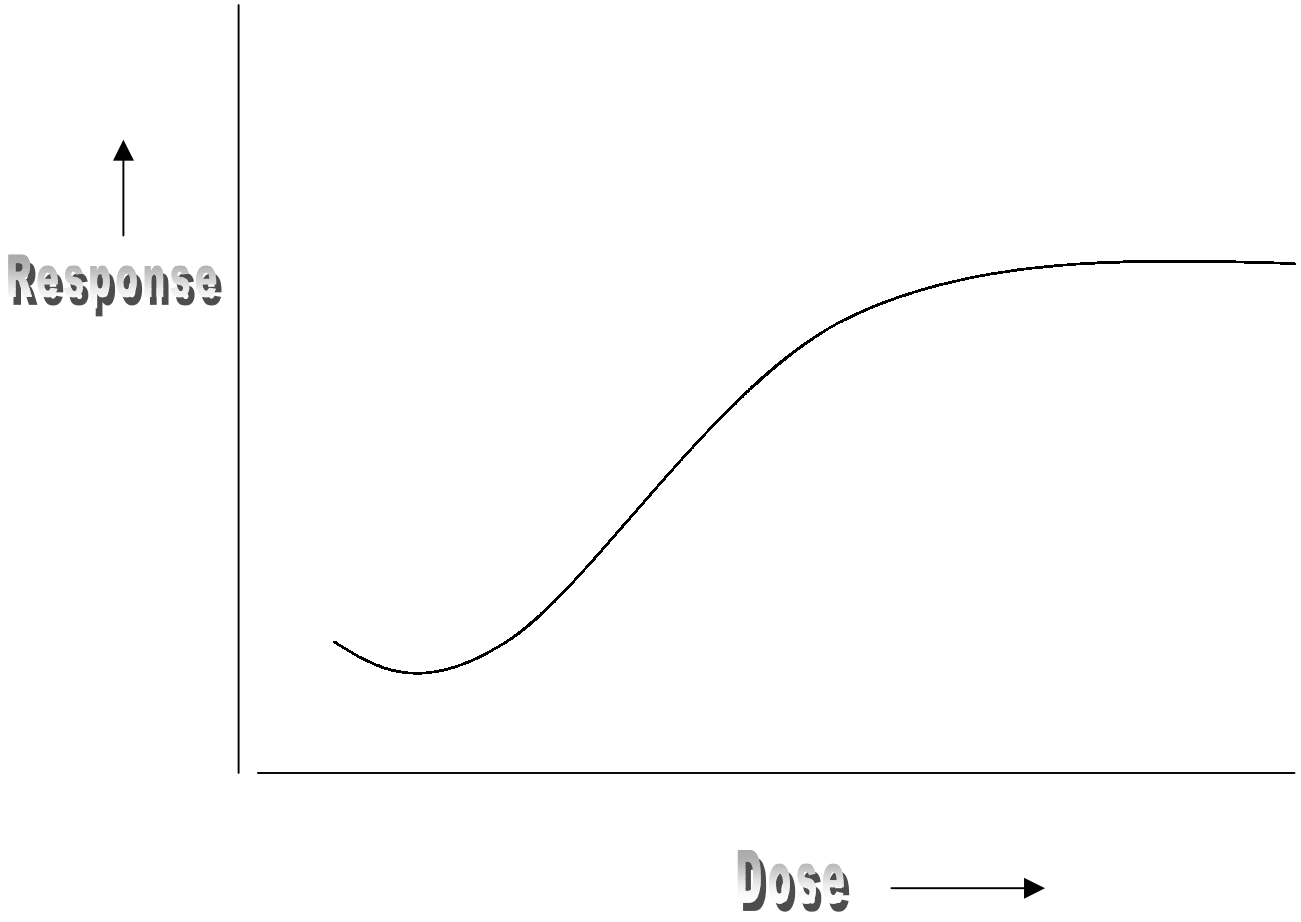
- Public health – It has the unique potential to reduce incidence
- Economic – it has the potential to save more money than it costs by intervening early.
- Common sense – It is intuitively preferable to be proactive rather than reactive.
- Moral imperative – It is the right thing to do to try to save lives and reduce human suffering.

My topic is not specifically about problem gambling. Gambling as a social and health issue has its own particular causation complex. It produces its own needs in the mix of universal, targetted and indicated prevention. And it requires its own mix of education, environmental change and policy. But basically, the dynamics as far as my talk are the same.

Prevention fundamentally involves change. Even when we accept that macro forces outside the realm of immediate choice shape our health, we have to acknowledge that change occurs through some human choice or act. A personal choice or change of course forms the essence of prevention. Often this is the individual, family or community. Sometimes it is a broader change or adoption of a course of action that will change the environments we live in. I argue this is not blaming the victim it is simply working backward along the determinants of health in terms of action.

All prevention models suggest change is a process. Traditionally, and I can say this from long experience, we have been drawn into thinking of change as a singular event, an epiphany that results from the input of a single or clustered preventive intervention: Input in - result out. Or, I should say, input in, END STAGE result out. This thinking has been pervasive in prevention practice and dialogue. Many examples may be cited wherein single prevention or health promotion activities, and even prevention itself, have been deemed ineffective based on an immediate lack of visible end stage impact.

This flows as a natural consequence from the predominance of public health and epidemiology - and hence medicine - in the health promotion field, which field is actually much more suited to intervention through a combination of social sciences. In doing so, we have fallen into expecting prevention to produce the effects within the same parameters we would expect in a medical intervention. The dose-response curve is the classic model of effectiveness of a medical intervention:



While this model was intended primarily for pharmaceutical interventions, it has been widely applied to interventions including educational components. I believe this persists to a significant degree at certain levels and is misguided.

If we look inside any model of prevention that exists, we see that end stage change, the impact on actual practice, occurs only after a process of change. This process forms the essence of what lies in the black box:

Traditional Health Education Model (KASB)	**Diffusion Model (Diffusion of Innovations)**	**Stages of Change (Trans-theoretical Model)**
Behaviour ↑ **Skills** ↑ **Attitudes** ↑ **Knowledge** ↑ **Dialogue**	**Adoption** ↑ **Trial** ↑ **Interest** ↑ **Attention** ↑ **Awareness**	**Maintenance** ↑ **Action** ↑ **Preparation** ↑ **Contemplation** ↑ **Pre-contemplation**

The chart shows three models of change: 1) a generic model traditionally used in health education; 2) a model from Rogers theory of diffusion of innovations; and 3) Prochaska and DiClemente's transtheoretical or stages of change model. In the generic model, change is perceived as moving through a process of awareness, knowledge, attitudes, the learning of skills, and finally, the entrenchment of a new behaviour (or ceasing of an old one). The theory of diffusion of innovations rests on the well-observed tendency for new ideas to diffuse through a population in a fairly predictable pattern. Some people adopt new ideas or behaviours quickly, others are likely to adopt later as their peers do, and still others are slow to adopt, even after considerable exposure to the new practice. Adoption comes in stages, moving from attention to interest and on to trial and adoption. This occurs over time, and not on a set schedule. The time varies depending on many factors but in any case the time can be considerable. Using the stages of change model, individuals are seen to move from a state of pre-contemplation (not thinking of change), to contemplation of change, to preparation for change, to a process of making and maintaining the change.

Each model assumes that change follows a process. What is less often acknowledged, is that change does not happen all at once or even within a distinct time frame. I argue that change is unlikely to occur based on a single intervention, especially end stage change (behaviour, adoption, and maintenance). Rather, change begins with the process of becoming aware of the issue, as illustrated by talking about it with others, paying attention to messages, and beginning to contemplate the possibility of change. More visible changes come later. I believe where we get off track is looking for immediate end stage change as a result of single interventions.

It is no surprise then that some critics of prevention claim it doesn't work. When efforts are sporadic, and end stage impacts are expected after days or weeks or to result from singular strategies (for example, a school program) how can we possibly expect success? However, if we measure knowledge, awareness, skills, even short-term attitudes, we repeatedly find that well organized efforts achieve results. What we have not done is maintained these efforts, and reinforced them, over sufficient time and with sufficient

consistency to reach the higher levels of change. We have also not recognised sufficiently the social nature of change.

> *As a side note: These models apply best where there is a relatively low readiness for change. In some circumstances, where readiness is very high, perhaps due to a personal or family crisis, or a high-perceived relative advantage in changing, then behaviour can change in the form of an epiphany without any of the intermediate steps. This is perhaps why, within limits, legislation achieves quicker results than education.*

The common elements or steps of change are:

- A growing awareness and interest in the issues
- Social learning, modelling, the peer group
- An increasing readiness to change
- An increasing ability to change
- A choice or series of choices, conscious or unconscious
- A trying out and adopting the change

A Normative Climate Threshold Model

But these are still just smaller black boxes. What is actually happening? I would like to suggest a model we might to map and track preventive change. I call the model a **"Norm Climate Threshold Model"** of change.

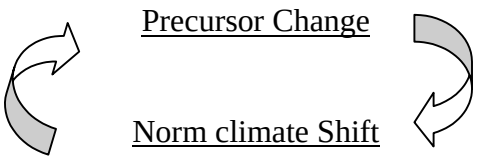
Norm or normative climate consists of the constellation of norms, attitudes, practices and physical and cultural influences in ones perceived social environment. Differing norm climates contribute significantly to explaining differences in attitudes, perceptions and practices within the population.

Within this model I propose that change is largely a social, collective process, with behaviour exhibited ultimately at the individual level. Such a collective shift should be no surprise given we are incredibly social creatures, defined so much by the nature of our relations or lack thereof with others.

Characteristics of the Model

In this model, the change we seek occurs over time through:

- Growing public awareness and dialogue
- Increased visibility of the change, orally, visually, kinaesthetically
- Modelling, peer leaders
- shifting skills, knowledge, attitudes
- Ultimately reaching a threshold, change in "tone," a tipping point, (As Malcolm Gladwell would say in his book by the same title), or the achievement of a critical mass in normative climate. Or if we are slavish to public health and epidemiological terms, we may use those terms and state that herd immunity begins to occur.
- Change is outside in and inside out and is a collective process. As people change the norm climate changes, at first gradually, then in an accelerating fashion, and more individual change occurs as illustrated by a reinforcing cycle of change:

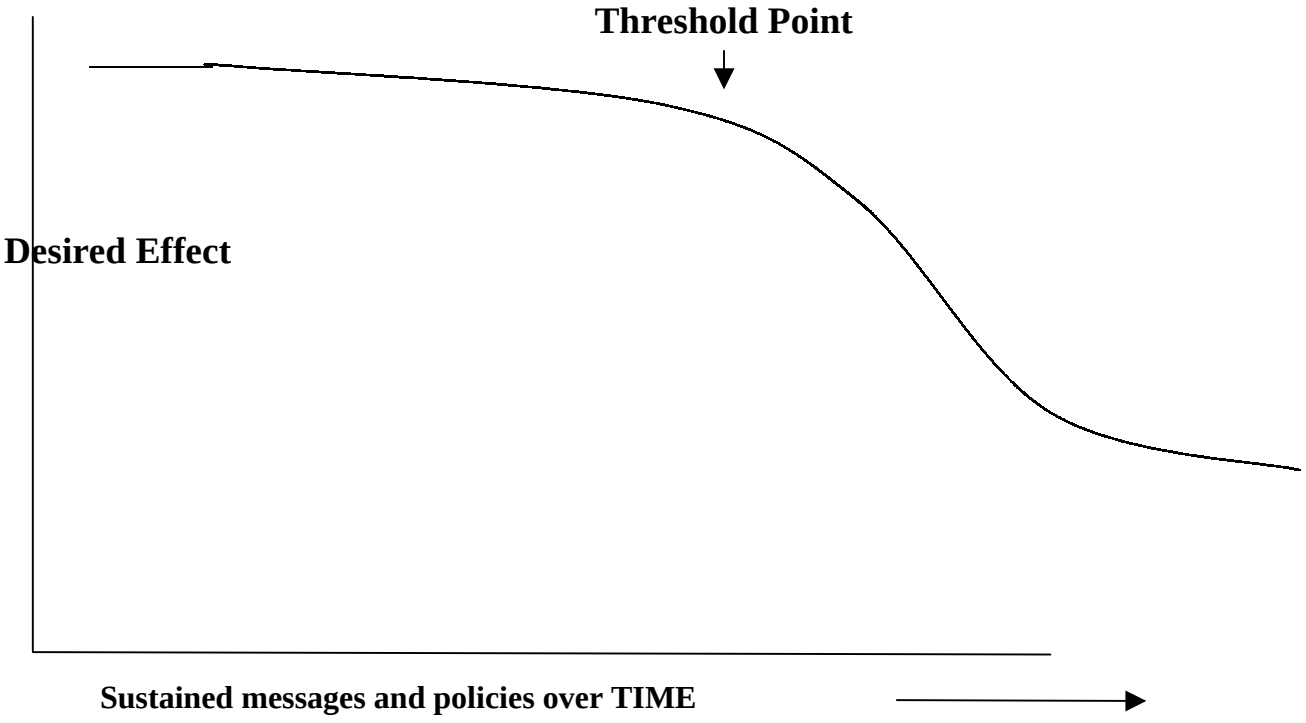


- This process is not linear.

Essential to the model are three key characteristics of successful prevention:

- *Consistency*: Consistent core messages
- *Durability*: Messages sustained over time
- *Comprehensiveness* : Multiple approaches (multiple channels, coming from different angles and sources, reaching different levels of individual and collective attitudes and actions)

The model might be shown like this:



Evidences of the Model's Veracity

What evidence do we have that this model is actually applicable and if applied might work?

First, we have already seen evidence of this non-linear social concept of prevention at work in:

- Drinking driving, where we have experienced a 50% decline in drinking driving arrests in the past 15 years

- Tobacco, where we have experienced a 50% reduction in recent decades.

- Recycling behaviours, which have increased at a slow then increasing rate.

These are but three examples. Success in all resulted at least in part from sustained efforts over time, in many channels, and consistent in content.

Second, we have seen the converse effects of generational forgetting and decay of influence, wherever we have slackened out prevention effort. One key example lies in the sharp increase in adolescent marijuana use we have seen during the 1990's.[1] During this time we have not had a single federal or (in BC at least) provincial prevention effort specific to that substance, and at the same time have witnessed an increase in pro-marijuana messages. This by the way underscores the importance of realising we are not working ion a vacuum. For every preventive effort we make there is an effort, explicit or implicit, working against us.

Third, research involving in the most comprehensive and enduring prevention efforts suggests these often do show us at least a glimpse of end stage change. Some of these

[1] The McCreary Centre Society notes such an increase between its 1992 and 1998 Adolescent Health Surveys

have been outlined in the excellent compendium produced by Gary Roberts and others at the Canadian Centre on Substance Abuse. Evidence suggests, however that without ongoing efforts and reinforcements, these changes decay.

Fourth, while we have not conducted prospective studies with the change envisioned in this model are consistent with the epidemiological criteria for cause and effect. The model makes scientific sense, effects have been seen in several different settings and issues, the prevention efforts preceded and accompanied the change, and the model is consistent with other theories, such as diffusion of innovations.

This model of change may seem common sense. But the fact is, we have not followed it, and as a result prevention remains spottily implemented, not comprehensive, and of relatively short duration. Often we have placed our faith in a single cluster of time limited interventions such as social marketting, or school based programs and services. Putting in place the three qualities of successful prevention – comprehensiveness, consistency, and duration - remain the greatest challenges in prevention and health promotion.

Recommendations

I would make some recommendations to this conference and to those concerned with problem gambling.

1. Do not suppose that any single effort or group of efforts will have the consistency, comprehensiveness and duration to achieve end stage change.

2. Realise that change occurs slowly and is not linear.

3. Carry reduced expectations of the benefits of single programs. Precursors such as awareness or interest or knowledge or increased dialogue provide possible markers that we are on the road to change.

4. Ensure that messages are consistent. I will use the example with which I am most familiar: that of illicit drug use in Canada. In this arena, messages are in no way consistent. We are in fact seeing the effects of a null prevention curriculum when it comes to illicit drug usage. Consistency means achieving and holding a consensus.

5. When making decisions about the extent and duration of prevention, think in terms of years and decades not months or weeks, and in terms of consistency and comprehensiveness, not in terms of immediate change. As a case in point, in British Columbia, in the late 1980's the provincial government made available grants to communities willing to form local action groups using community mobilisation models to reduce substance abuse in their communities. Many bright lights emerged. I can name several, in Nanaimo, Nakusp, Surrey, and in Penticton. The program was ended in two to four years after it started. Government moved on to other issues. One by one, the lights flickered and went out. We will never know how close those communities were to reaching that threshold of effect where measurable and sustained differences occurred. And the perceived failure reinforced the cynical and false view that prevention must not work.

In summary, if we are to make a difference in health promotion or prevention in any area we need the triad of consistency, durability, and consistency. We need the exertion of effort over time. Many examples of success give us hope, that if we have the will, we can prevent much in terms of problems in the future. If we remember the potential cost of these problems, we should be impelled to put prevention/promotion efforts in place and leave them there. We should measure our success in incremental impacts on precursors to change, and track end stage change only as a long term consequence of steady, consistent efforts. The Norm Climate Threshold Model is offered as a framework for a total prevention effort.

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