



**Department
of Health**

**Evidence-Based Public Health:
Supporting the New York State
Prevention Agenda**

**MODULE 1:
INTRODUCTION AND OVERVIEW**

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Colleagues

- New York State Association of County Health Officials
- New York State Department of Health
- SAGE Colleges, School of Management
- SUNY School of Public Health

Overview

- Ground rules / Course Objectives
- Notebooks / Readings
- Obesity, physical activity, nutrition, other examples
- Background and Definitions
 - differences between EBM and EBPH
 - contrast types of evidence
 - selected definitions
 - overview of tools/processes
 - challenges and barriers

Ground Rules

- **Attendance**
 - Please leave cell phones, beepers on
stun

- **Active Participation is Sought**
 - All questions are welcome

- **No Tests**

Why is this course important?

**Understand the challenges in applying
evidence-based methods in public health practice**

“ . . . If we did not respect the evidence, we would have very little leverage in our quest for the truth.”

Carl Sagan

“Public health workers... deserve to get somewhere by design, not just by perseverance.”

McKinlay and Marceau



“Getting a new idea adopted, even when it has obvious advantages, is often very difficult.”

-- Everett Rogers, *Diffusion of Innovations*

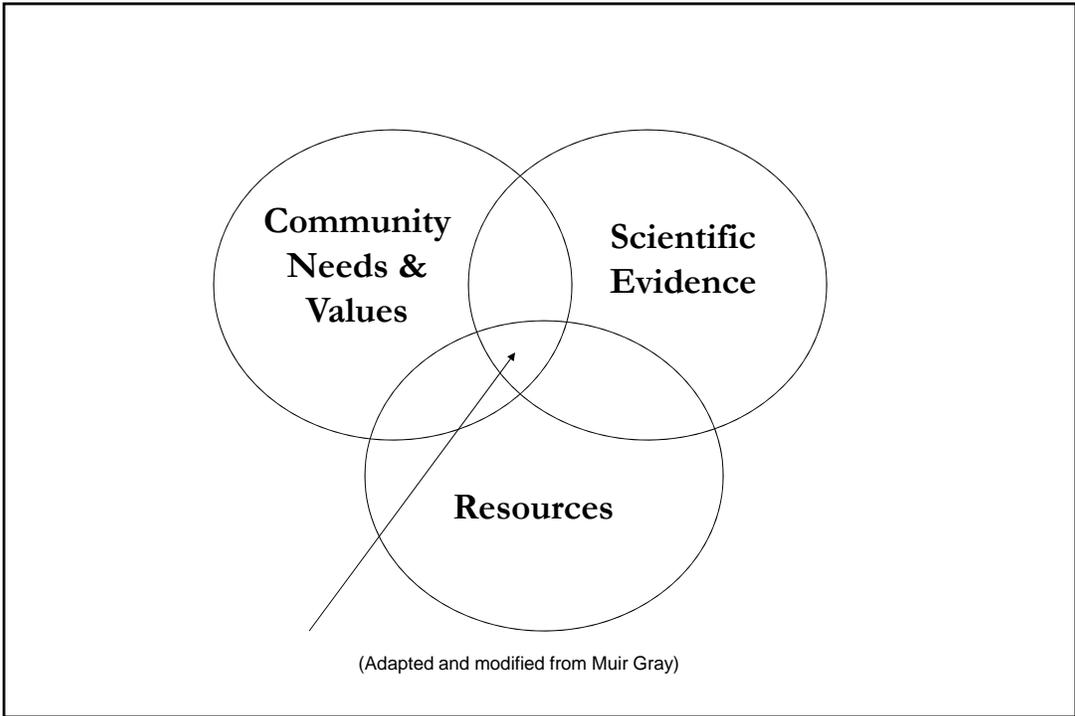
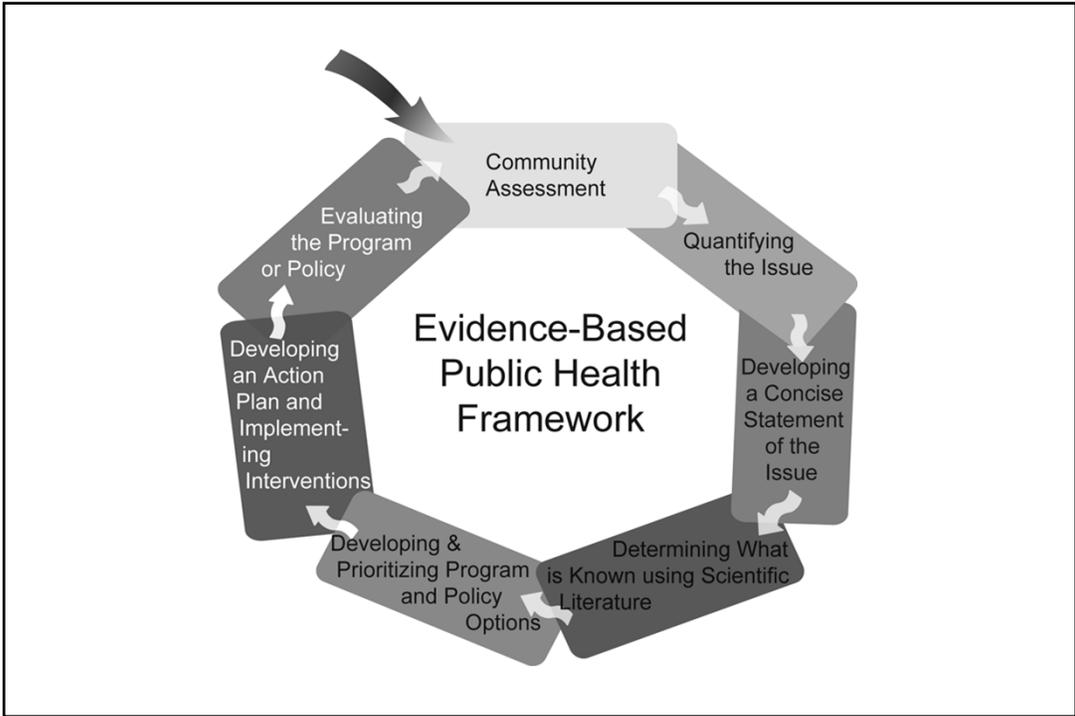
Decisions and relevance

- **Our commitment:**
 - Improve health with limited resources
- Generally, health problems are well defined
- **Our job:**
 - Make a difference
- Inaction is not an option
- Sometimes difficult to identify best evidence to inform decision making

Decision-Making

- Understanding a process
- Finding evidence for decisions
- Creating new evidence for decisions

Our training framework...



Evidence-based public health is a process of:

- **Engaging stakeholders**
- **Assessing what influences health, health behaviors and community health (literature, local needs, academic theory)**
- **Developing programs based on assessment (science)**
- **Evaluating process, impact, and outcome**
- **Learning from our work and sharing it in ways that are accessible to ALL stakeholders**

Course Objectives

MODULE 1:

Introduction and Overview

1. **Understand the basic concepts of evidence-based decision making.**
2. **Introduce some sources and types of evidence.**
3. **Describe several applications within public health practice that are based on strong evidence and several that are based on weak evidence.**
4. **Define some barriers to evidence-based decision making in public health settings.**

Definitions and Background

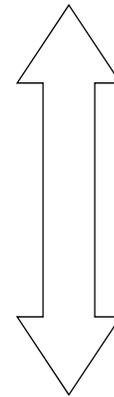
1. What is Evidence-Based Public Health (EBPH)?
2. What are contrasts with evidence-based medicine (EBM)?
3. What are types of evidence?
4. What are useful tools and processes?

What is “evidence”?

What is “evidence”?

- Scientific literature in systematic reviews
- Scientific literature in one or more journal articles
- Public health surveillance data
- Program evaluations
- Qualitative data
 - Community members
 - Other stakeholders
- Media/marketing data
- Word of mouth
- Personal experience

Objective



Subjective

Like beauty, it's in the eye of the beholder...

How are decisions generally made in public health settings?

- Anecdote or “gut feeling”
- Media driven
- Pressure from policy makers or administrators
- History/inertia

- Expert opinions (e.g., academics)
 - Peer reviewed literature/systematic reviews
 - Cost minimization/Funding availability
- OR*
- Combined methods, based in sound science
 - How to make the best use of multiple sources of information??

What is EBPH?

“... the development, implementation, and evaluation of effective programs and policies in public health through application of principles of scientific reasoning, including systematic uses of data and information systems, and appropriate use of behavioral science theory and program planning models.”

Brownson RC, Baker EA, Leet TL, Gillespie KN. *Evidence-Based Public Health*. New York: Oxford University Press; 2003

Some Key Characteristics of EBPH

- 1. Intervention approaches are developed based on the best possible scientific information.**
- 2. Problem solving is multi-disciplinary.**
- 3. Theory and systematic planning approaches are followed.**

Key Characteristics of EBPH (cont)

- 4. Sound evaluation principles are followed**
- 5. Results are disseminated to others who need to know**

Why do Programs/Policies Fail?

- Choosing ineffective intervention approach
- Selecting a potentially effective approach, but weak or incomplete implementation or “reach”
- Conducting an inadequate evaluation that limits generalizability

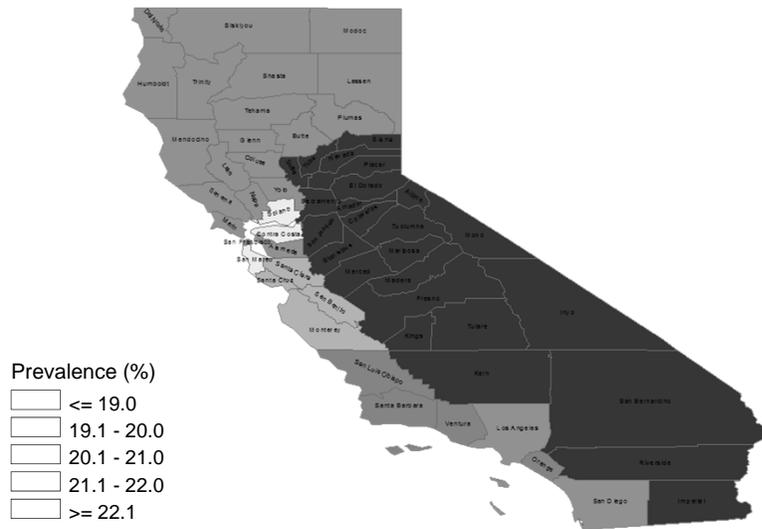
This course deals with...

- Finding and using *existing* scientific evidence
- *Generating* new evidence

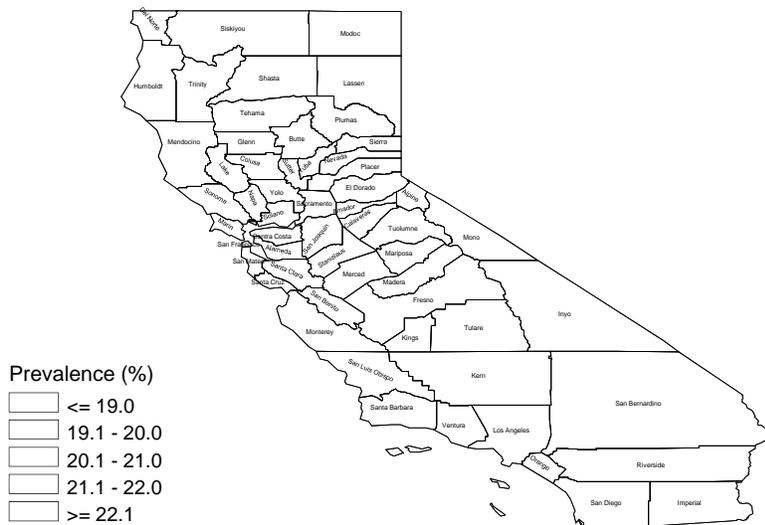
Examples Based on Varying Degrees of Evidence?

- California Proposition 99
 - smoking as key public health issue
 - effects of price increases
 - 25 cent per pack increase in 1988
 - earmarked for tobacco control with strong media component
 - for 1988-93, doubling of rate of decline against background rate

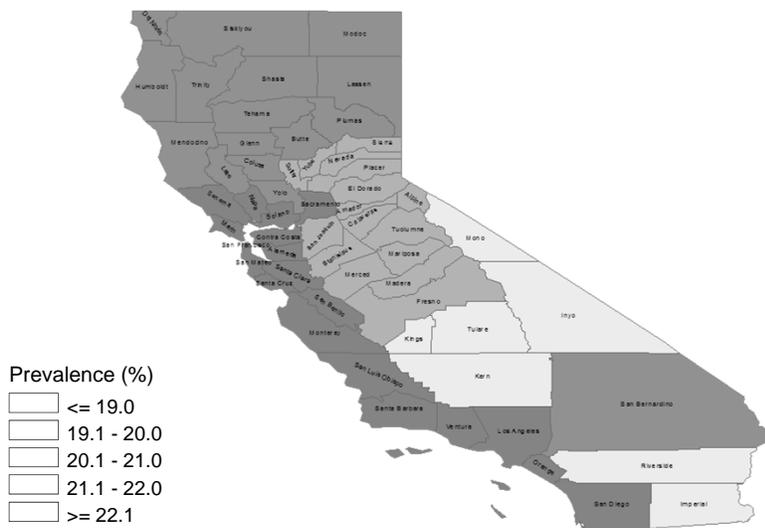
California adult smoking prevalence by region, 1990



California adult smoking prevalence by region, 1996



California adult smoking prevalence by region, 1999



What is EBM?

- **Process has grown recently:**
 - **pathophysiology**
 - **cost-effectiveness**
 - **patient preferences**
- **In large part, learning to read journals**

What is EBM?

Sackett & Rosenberg:

1. **Convert information needs into answerable questions.**
2. **Track down, with maximum efficiency, the best evidence with which to answer them (from the clinical examination, the diagnostic laboratory, the published literature, or other sources.**

What is EBM? (cont)

Sackett & Rosenberg:

- 3. Critically appraise that evidence performance for its validity (closeness to the truth) and usefulness (clinical applicability)**
- 4. Apply the results of this appraisal in clinical practice**
- 5. Evaluate performance**

Differences Between EBPH and EBM?

Differences Between EBM & EBPH

Characteristics	EBM	EBPH
Quality & volume of evidence	experimental studies	quasi-experimental studies
Time from intervention to outcome	shorter interval	longer interval
Training	more formal – certification required	less formal – no certification required
Decision making	individual	group

Types of Evidence

Characteristic	Type 1	Type 2
Data	strength of preventable risk – disease relationship	relative effectiveness of public health programs
Action	“something should be done”	“this should be done”
Quantity	more	less

More recently, type 3 evidence

- Focuses on carrying out type 2 interventions
 - Implementation of the intervention
 - Issues of context
 - How the intervention is received from the target audience
- Involves “*how* something should be done”

Rychetnik et al, 2004

In our research paradigms we may rely too heavily on randomized designs for community-based studies

**“The best is the enemy
of the good”
-Voltaire**

The problem of randomized trials and parachutes....

**The effectiveness of parachutes
has not been subjected to
rigorous evaluation by using
randomised controlled trials....
We think that everyone might
benefit if the most radical
protagonists of evidence based
medicine organised and
participated in a double blind,
randomised, placebo controlled,
crossover trial of the parachute.**

Smith and Pell, BMJ, 2004



Parachutes reduce the risk of injury after gravitational challenge, but their effectiveness has not been proved with randomised controlled trials

When evidence is not enough

- Cultural and geographical limitations
 - Largely Western-world phenomena
 - Evidence may be a luxury in some parts of the world
- Bias in deciding what gets studied
- Emerging health issues
 - Bioterrorism
- Community-based & participatory approaches
 - May seem counter-intuitive to a strict evidence-based process

Useful Tools and Processes

- Systematic Reviews
 - e.g., Guidelines
- Meta-Analysis
- Economic Evaluation
- Risk Assessment

Systematic Reviews

One of the best...

- *Guide to Community Preventive Services*
 - sponsored by the CDC
 - follows work from the U.S. Preventive Services Task Force
 - 15-member task force
 - mainly HP 2010 areas of emphasis
 - www.thecommunityguide.org



Become Involved
[Send comments and suggestions](#)

In The Spotlight:

[Cancer Control PLANET Home](#)

[New Findings on Informed Decision Making](#)

New Strategic Partnership: [\[link\]](#)

[The Community Guide at a Glance](#)

[Recommendations by Topic](#)

[Changing Health Risk Behaviors](#)

[Tobacco Product Use](#)

[Alcohol Abuse](#)

[Physical Activity](#)

[Sexual Behavior](#)

[Addressing the Environment](#)

[Social Environment](#)

[Información en Español](#)

[Addressing Specific Health Conditions](#)

[Vaccine Preventable Diseases](#)

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[Oral Health](#)

[Violence](#)

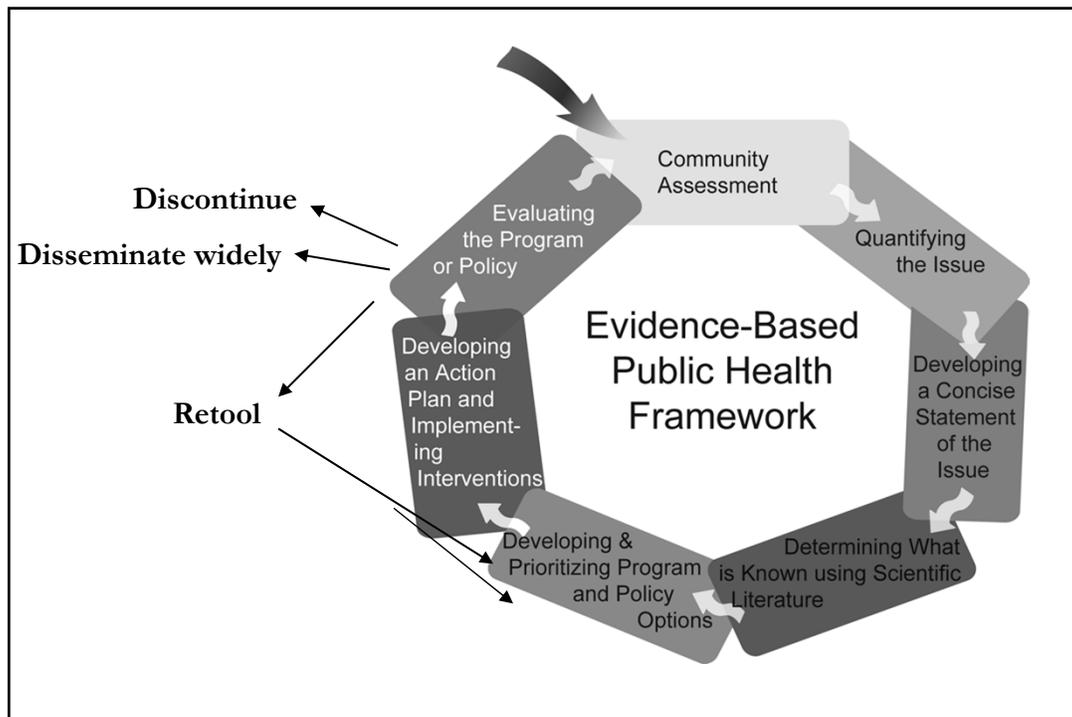
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Barriers to EBPH

- **Lack of leadership in setting a clear and focused agenda for evidence-based approaches**
- **Lack of a view of the long-term “horizon” for program implementation and evaluation**
- **External (including political) pressures drive the process away from an evidence-based approach**

Barriers to EBPH (cont)

- **Inadequate training in key public health disciplines**
- **Lack of time to gather information, analyze data, and review the literature for evidence**
- **Lack of comprehensive, up-to-date information on the effectiveness of programs and policies (overall and in high-risk populations)**



Summary

- **EBPH is growing**
- **When is evidence sufficient for action?**
 - **Remember why we entered public health**
 - **All of public health proceeds in light of the best, yet imperfect evidence**
- **Public health largely remains a zero-sum game**
- **Another broad goal: Put data/information at your fingertips and break down “data silos”**