



The Community Guide: Using Systematic Reviews to Inform Task Force Recommendations



www.thecommunityguide.org



Content of this Presentation

- Part A: How are Guide to Community Preventive Services (Community Guide) systematic reviews conducted and used by the Task Force on Community Preventive Services (Task Force)?
- Part B: How are Task Force findings and recommendations disseminated?



Part A:
How are Community Guide systematic reviews
conducted and used by the Task Force?



Role of the Community Guide Systematic Review Team

Interdisciplinary teams conduct systematic reviews of scientific literature to identify what works to promote health and prevent disease, injury and disability. These teams:

- Are led or supported by Community Guide scientists in collaboration with:
 - ◆ Scientists, program managers from within CDC
 - ◆ Researchers, practitioners, policymakers from throughout the U.S.
 - ◆ Liaison organizations



Role of the Task Force

The Task Force uses all information analyzed through the Community Guide systematic review process to:

- Make evidence-based recommendations about:
 - a) Interventions that work to promote public health
 - b) Interventions that are ineffective
- Identify where more research is needed to determine if an intervention is or is not effective



Task Force Sets Priorities* for Topics to be Reviewed

- Criteria
 - ◆ Burden of or exposure to disease, injury, disability: Mortality and morbidity estimates and costs
 - ◆ Preventability: Amount of burden that could be reduced given adequate resources
 - ◆ Related initiatives: Topics that are currently important within public health and that other groups are focusing on as well
 - ◆ Usefulness of package of selected topics to the target audience
- Task Force provides prioritized list of topics for systematic reviews to Community Guide staff

*with input from its Liaison organizations and agencies, CDC Programs, and other partners and stakeholders



Defining an Intervention

- An **intervention** is *defined* according to what was done, how and when the intervention was delivered, and who was targeted
- When an intervention definition is finalized, the following aspects should be clear to the reader (cf., Zaza et al, 2000):
 - ◆ Components of the intervention (e.g., activities, breadth of focus)
 - ◆ How the intervention was delivered (e.g., by whom, intensity of exposure)
 - ◆ The target population
 - ◆ The type of setting in which the intervention is delivered



The Task Force Seeks Answers to these Questions about an Intervention

- Does it work?
 - How well?
 - For whom?
 - Under what circumstances is it appropriate?
- What does it cost?
- Does it provide value?
- Are there barriers to use?
- Are there any harms?
- Are there any unanticipated outcomes?



The Review Process

- *Convene a review team*
- Develop a logic model
- Develop a prioritized list of interventions
- Develop an analytic framework
- Search for evidence
- Abstract and critically evaluate available studies
- Summarize the evidence
- Task Force discussion and decision



The Review Team

- Coordination Team
 - Coordinating scientist and a fellow
 - Subject-matter experts
 - Task Force member(s)
- Consultants
 - Subject-matter experts
 - Typically specialized knowledge
- Assisted by librarian, statistician, economist, CG scientific director and staff



How the Community Guide Convenes a Review Team

- Responsibility of the Coordinating Scientist
- Members identified using various methods
 - ◆ Identify topic area experts based on
 - The scientific literature and Google searches
 - Input from the Task Force and Liaisons
 - Input from stakeholder agencies and organizations
 - ◆ Recommended members subsequently identify other potential members
 - ◆ Use a formal nomination process and have a smaller group of experts rank or vote for potential members
- Send formal invitations
- Conduct trainings, orientation via Web meetings



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Logic models

- Are created early in the systematic review process
- Help the review team decide which interventions are to be evaluated
- Are developed to illustrate the entire public health context in which the specific set of interventions might act
- Show relationships between social, environmental, and biological determinants and outcomes, strategic points for action, and interventions that might act on those points



Logic Model Components

- *Interventions* – Planned activity or group of activities (including programs, policies and laws) designed to prevent disease or injury or promote health in a group of people, about which a single summary conclusion can be drawn
- *Determinants* of subsequent outcomes that are modifiable by interventions (nonmodifiable or difficult to modify determinants may also be included if conceptually relevant)
- *Intermediate Outcomes* - Variables that mediate between the intervention-related changes in modifiable determinants and the health outcomes of interest

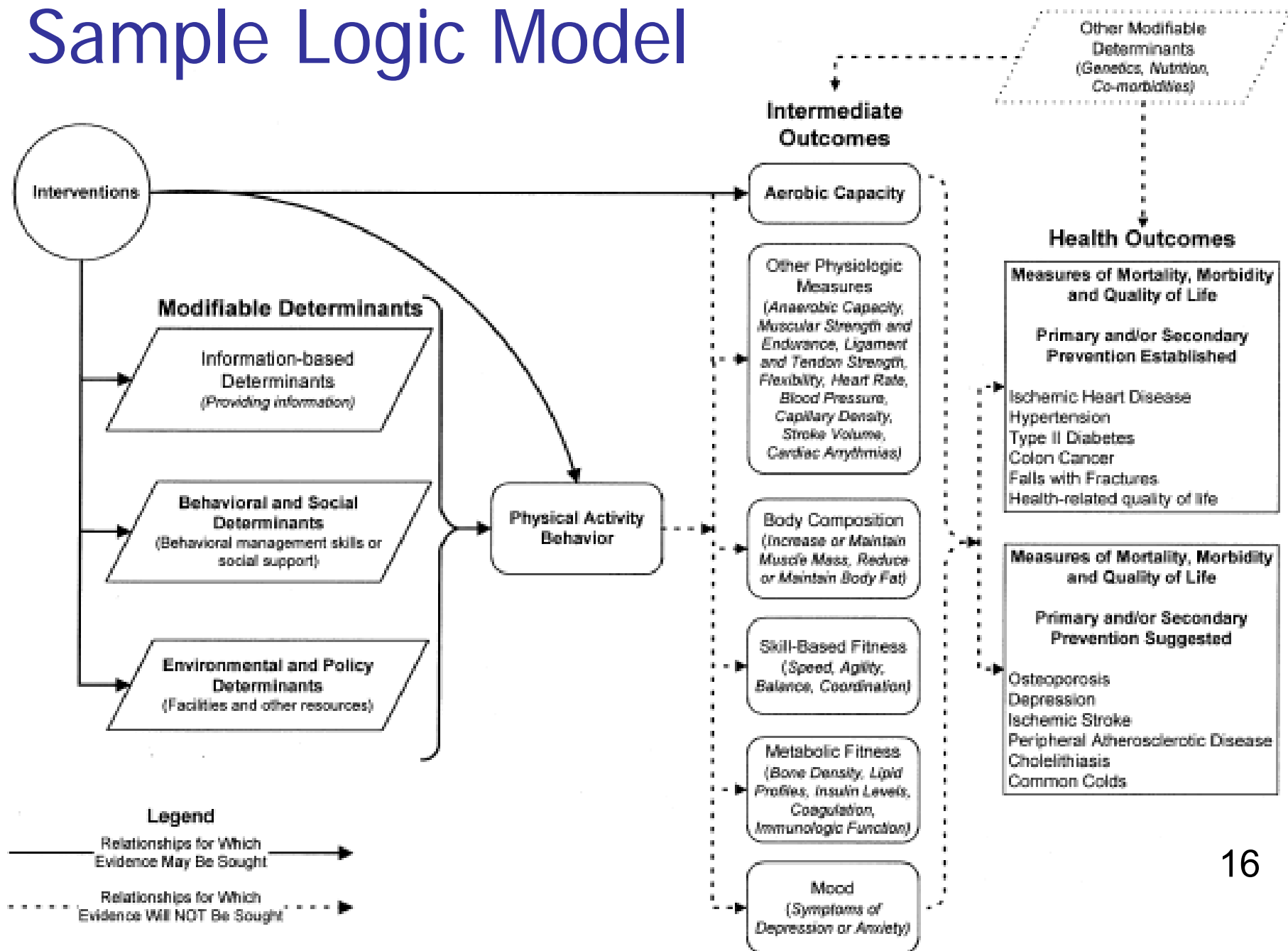


Logic Model Components

- *Health Outcomes* - Variables that directly reflect wellness, morbidity, or mortality
- *Recommendation Outcomes* - Broader set of variables than health outcomes that also include the subset of intermediate outcomes with sufficiently strong evidence of a causal association with health outcomes that any changes in them can also be assumed to affect health outcomes.
- *Other Outcomes* - Variables that represent potential secondary effects of interventions. These may or may not be health outcomes, and may be either beneficial or harmful



Sample Logic Model



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Developing a List of Interventions

- Brainstorm to develop an initial list using key priority-setting criteria:
 - ◆ Potential reduction of population-attributable risk
 - ◆ Potential for reducing the burden of disease and injury
 - ◆ Potential for increasing healthy behaviors and reducing unhealthy behaviors
 - ◆ Potential to improve upon current practices or policies
 - ◆ Potential to increase the implementation of interventions presumed to be effective, but not widely used
 - ◆ Potential to decrease the use of interventions presumed to be relatively ineffective in favor of more effective or more cost-effective options
 - ◆ Current level of interest among providers and decision makers
 - ◆ Other relevant priority-setting criteria



Developing a List (cont.)

- Review key literature
- Solicit expert opinions
- Finalize the set of criteria to be used for setting priorities among interventions
- Set priorities, usually through a voting procedure (with the votes of the consulting team members weighing most heavily)
- Approve the final list of subtopic and intervention priorities



Sample List of Interventions Examined in the Physical Activity Review

- Point-of-decision prompts
- School-based physical education
- Classroom-based health education
- Health education/TV turnoff
- Mass media campaigns
- Community-wide education
- College-age physical education
- Family-based social support
- Targeted information campaigns
- Non-family social support
- Creation and/or enhanced access
- Transportation policy and infrastructure
- Urban planning approaches



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Analytic Frameworks

These detailed analysis plans are created for each intervention chosen for review to:

- Expand on portions of the larger logic model
- Map the plan for evaluating interventions
- Show the hypothesized links between the intervention and the health outcomes, intermediate outcomes, and other effects that will be considered in the review
- Guide the search for evidence and evaluation of the interventions



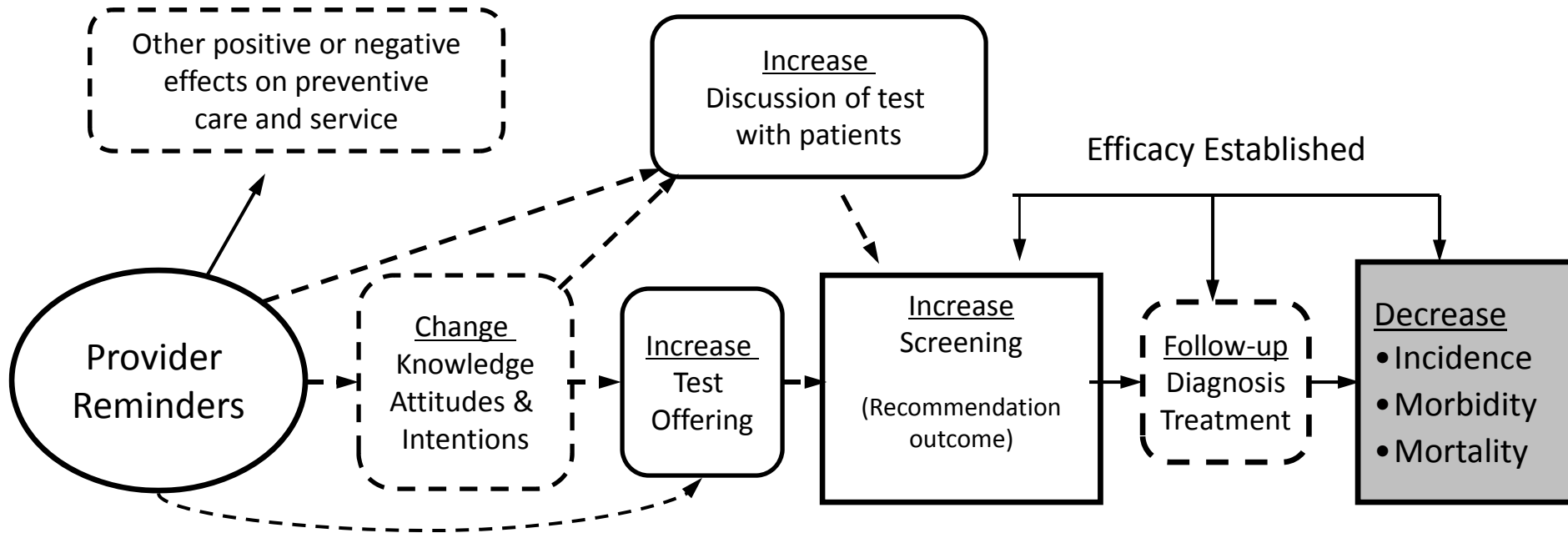
Questions Asked When Developing Analytic Frameworks

- How is the intervention thought to be related to improved health or risk factor reduction?
- How is the intervention thought to be related to reduced morbidity and/or mortality?
- Do changes in an intermediate outcome clearly improve health or reduce known risk factors or increase protective factors?
- Are there any potential adverse effects of the intervention?
- Are there any potential beneficial effects of the intervention beyond the outcomes of primary interest in the review?



Sample Analytic Framework:

Increasing Breast, Cervical, and Colorectal Cancer Screening through Provider Reminder Interventions



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Search for Evidence

- Identify a research librarian to conduct formal electronic search
- Identify relevant existing systematic or narrative reviews; identify and obtain relevant studies from reference lists of reviews
- Determine which types of documents are most relevant to the study question
- Determine which databases are most likely to yield the appropriate document types
- Determine the search parameters and inclusion criteria (including applicable range of publication dates)



Search for Evidence (con't)

- Draft a document with the intervention definition, research question, keywords, and proposed databases
- Search the databases
- Screen titles and abstracts of resulting document list to determine potential relevance
- Obtain selected documents
- Review documents to confirm they meet inclusion criteria
- Review documents for additional references

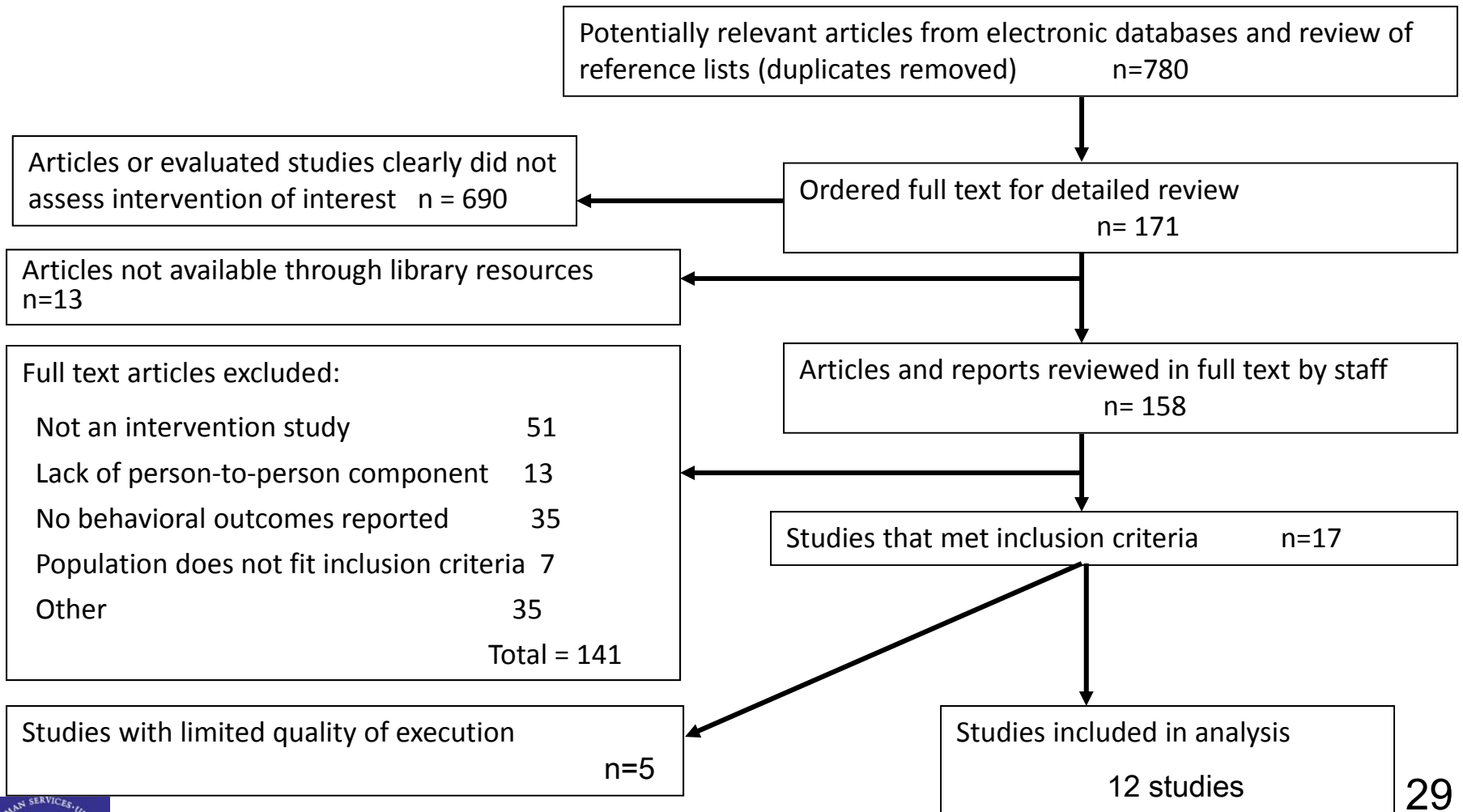


Sample Search Details

- Search period: Jan 1980 – Aug 2007
- Searched for studies published in English
- No country limitation
- References from review articles, systematic reviews, relevant studies
- Asked subject matter experts to review search results



Sample Study Flow Diagram



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Abstraction

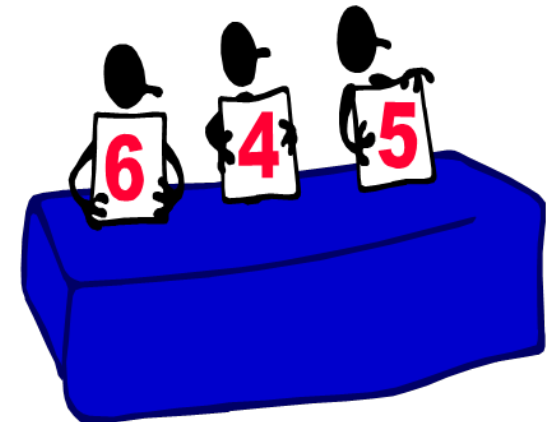
- Minimum two readers
- Record details of*
 - ❑ Study design
 - ❑ Intervention description
 - ❑ Methods
 - ❑ Sample Characteristics
 - ❑ Analysis plan
 - ❑ Results
 - ❑ Other issues addressed in paper



*The Community Guide uses a formal abstraction form for this purpose.

Quality Scoring

- Review abstraction results
- Assess results*
 - Description
 - Study population
 - Intervention
 - Sampling
 - Measurement
 - Exposure
 - Outcomes
 - Data analysis
 - Interpretation of results
 - Other



*The Community Guide has a formal procedure for quality scoring.



Design Suitability

- Based on study design and data analysis described in reviewed papers
- The suitability of the *study design* for protecting against potential biases or confounding
- Most bodies of evidence include a range of study designs



Quality of Execution

- Determination resulting from the abstraction process
- A global rating that reflects how useful a research report or paper is for addressing the research questions in the systematic review
- Studies of “limited” quality of execution are always excluded from the final body of evidence
- Most bodies of evidence include a mix of studies of varying quality of execution

Example of a Body of Evidence:

Smoke-free Policies and Tobacco Use
(n = 53 Studies Identified)

Quality of Execution	Suitability of Study Design		
	Greatest	Moderate	Least
Good (0-1 limitations)	0	0	0
Fair (2-4 limitations)	7	6	19
Limited (\geq 5 limitations)	2	4	15

Included Studies: 32 studies

Studies Excluded: 21 studies

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Summarizing the Evidence

- There are four general strategies for combining results from included studies in a systematic review:
 - ◆ No combination
 - ◆ Qualitative combination (narrative characterization)
 - ◆ “Simple” quantitative combination
 - ◆ Meta analysis



Preparing the Data for Public Consumption

- Qualitative and statistical results presented for each outcome of interest
 - ◆ Verbal and visual presentations prepared for the Task Force
 - ◆ Written reports prepared for peer-reviewed publication
- Preferred format
 - ◆ Express all study results in the same units
 - ◆ Create scatter plot (or forest plot)
 - ◆ Summarize results using
 - Descriptive statistics—Median and inter-quartile interval effect estimates, or
 - Inferential statistics—Weighted mean and confidence interval
- When results cannot be expressed in the same units
 - ◆ Tables of related results reviewed qualitatively to assess the consistency and magnitude of effects



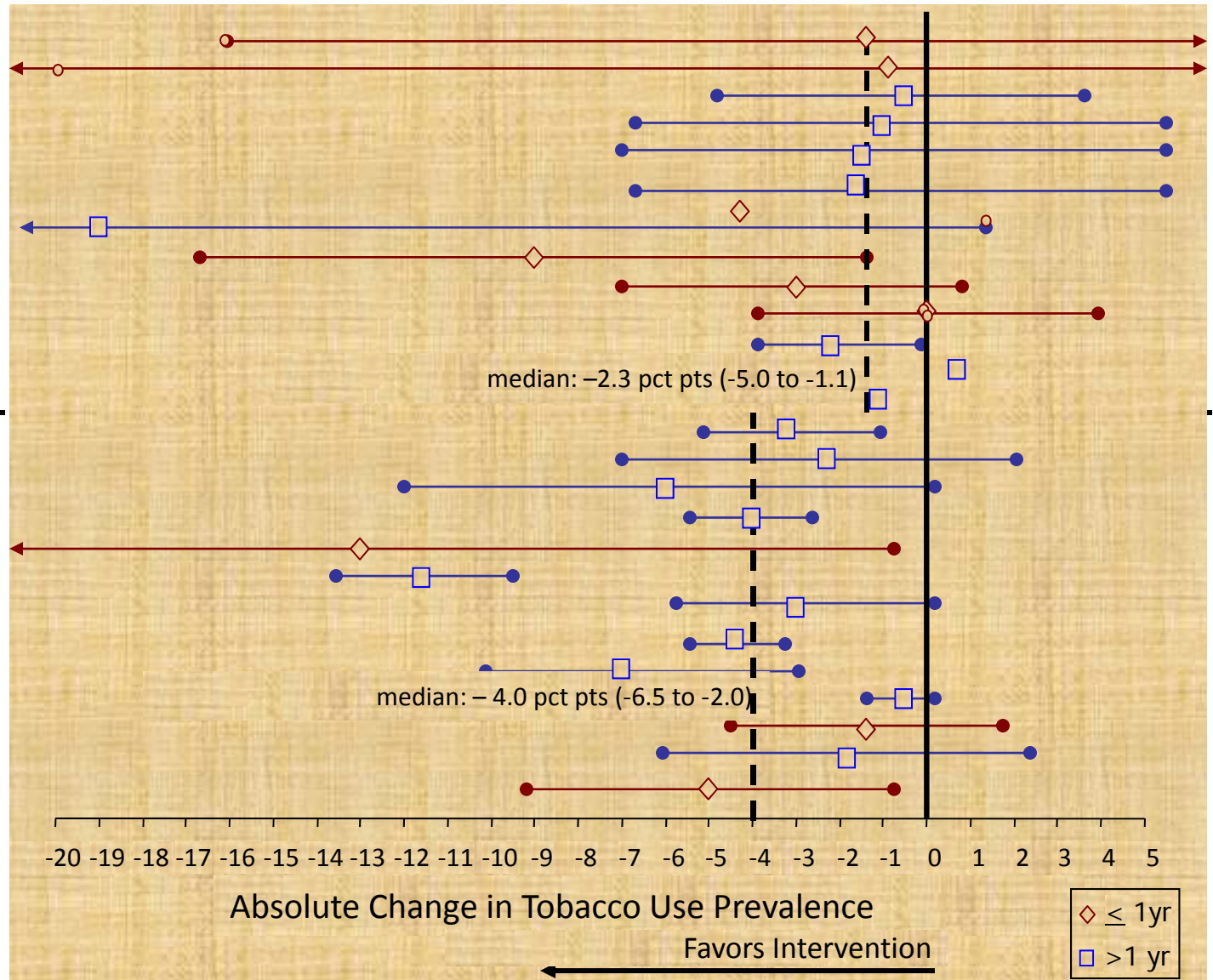
Example of Scatter Plot

Overall Change in Tobacco Use Prevalence*

(n=27 measurements from 27 study arms in 23 qualifying studies)

Study (sample size)

- Anderson 99-1 (96)
- Anderson 99-2 (87)
- Edye 89 (1937)
- Erfurt 91a-2 (998)
- Erfurt 91a-3 (987)
- Erfurt 91a-4 (908)
- Kronenfeld 87 (455)
- Nilsson 01 (89)
- Puska 88 (576)
- Shi 92-3 (1188)
- Shi 92-4 (1013)
- Sorensen 02 (7327)
- Sorensen 96 (84 sites)
- WHO 86 (49784)
- Musich 03 (2141)
- Poole 01 (304)
- Wood 97 (218)
- Bertera 93 (7178)
- Erfurt 91b (77)
- Goetzel 02 (4586)
- Goetzel 96 (805)
- Goetzel 94 (9162)
- Holt 95 (629)
- Ozminkowski 00 (9234)
- Pelletier 04 (500)
- Shimizu 03 (1029)
- Wood 89 (688)



* The findings on this slide are drawn from a review of assessments of health risks with feedback to change employee behavior

Example of Results Table

Quantity of Alcohol Use*

n = 5 data points from 5 study arms in 5 studies

Study	Measure	N	FU	Pre	Post	Absolute Change, CI (Relative Change, CI)
Puska 88	Drinks per week	391 (I)	1 y	6.6	6.6	
		258 (C)		5.8	6.9	
	Difference					-1.1 drinks (-15.9%) NS
Edge 89	Drinks per week	861 (I)	3 y	NR	NR	
		1076 (C)		NR	NR	
	Difference					+0.02 drinks (NR)
Kronenfeld 87	% having five or more drinks in a sitting	142 (I) 313 (C)	1 y	14 15	9 13	-3.0 (-25.8%), sig
Holt 95	Ounces of alcohol per day (self-report)	629	5 y	0.55	0.44	-0.11 ounces (-20.0%) (p<0.001)
Bertera 93	Mean number of drinks per week for those who reported 15+ drinks/week at pretest	511	2 y	23.2	13.3	-9.9 drinks (-42.8%)(p<.001)

I = Intervention group

C = Comparison group

* The findings on this slide are drawn from a review of assessments of health risks with feedback to change employee behavior

Review Team Provides Summary Evidence Tables

- Very abbreviated summary of each study and the study's results, presented in tabular format
- Includes
 - ◆ Important study variables
 - ◆ Data elements used in analysis
- Useful to understand
 - ◆ Individual studies with related characteristics
 - ◆ When one intervention is assessed for multiple outcomes

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Task Force Discussion

- When final results are tabulated, the review team presents results at a public meeting of the Task Force
- Purpose is so the Task Force can
 - ◆ Provide oversight on reviews led by CDC scientists
 - ◆ Carefully consider and summarize review results
 - ◆ Make recommendations for (or against) interventions shown by the systematic review to promote (not promote) population health
 - ◆ Identify areas within the reviewed topics that need more research



Task Force Meetings Are Not Rubber-Stamping Events....

- Task Force decisions require judgments about the quality and reliability of research evidence, and the magnitude of public health impact
- Members of the Task Force consider carefully our purpose, methods, and process
 - ❑ Inclusion/exclusion of study designs
 - ❑ Summary effect measurements
 - ❑ Requirements for translating the findings and recommendations into action in real world practice and policy



Main Questions Asked to Inform a Recommendation

- Does it work?
 - ❑ How well?
 - ❑ For whom?
 - ❑ Under what circumstances is it appropriate?
- What does it cost?
- Does it provide value?
- Are there barriers to use?
- Are there any harms?
- Are there any unanticipated outcomes?



In General, a Task Force Conclusion About Effectiveness Requires....

A **Body** of Evidence

+

A Demonstration of Effectiveness

Number and quality of studies;

Design suitability:

- More than 1 study
- Fewer studies if high quality and suitable design
- More studies if lower quality/unsuitable design

Consistency of Effect

+

Sufficient Magnitude of Effect

“Most” studies demonstrate an effect in the direction of the intervention

The effect demonstrated across the body of evidence is “meaningful”

What Do the Findings Mean?

- **Recommended**– strong or sufficient evidence that the intervention is effective
- **Recommended Against**– strong or sufficient evidence that the intervention is harmful or not effective
- **Insufficient Evidence** – the available studies do not provide sufficient evidence to determine if the intervention is, or is not, effective



What Does “Insufficient Evidence” Mean?

- Insufficient evidence means that additional research is needed to determine whether or not the intervention is effective
- In some cases there are not enough studies to draw firm conclusions
- In other cases, the available studies have inconsistent findings
- This does **NOT** mean that the intervention does not work



Sample Task Force Recommendations: Policy Level

Motor Vehicle-Related Injuries		
Alcohol-Impaired Driving	Sobriety Checkpoints	Recommended (Strong Evidence)
	Lower Blood Alcohol Concentration (BAC) Laws for Young or Inexperienced Drivers	Recommended (Strong Evidence)
	0.08% Blood Alcohol Concentration (BAC) Laws	Recommended (Strong Evidence)
	Maintaining Minimum Legal Drinking Age (MLDA) Laws	Recommended (Strong Evidence)
Child Safety Seats	Community-Wide Information and Enhanced Enforcement Campaigns	Recommended (Strong Evidence)

Part B:

How are Task Force findings and recommendations disseminated?



How are Task Force Recommendations and Findings Disseminated?

1) www.thecommunityguide.org

The Community Guide Home Page

GUIDE TO COMMUNITY Preventive Services - The Community Guide
What works to promote health

SEARCH

What is the Community Guide?

The Guide to Community Preventive Services is a free resource to help you choose programs and policies to improve health and prevent disease in your community. Systematic reviews are used to answer these questions:

- Which program and policy interventions have been proven effective?
- Are there effective interventions that are right for my community?
- What might effective interventions cost; what is the likely return on investment?

More than 200 interventions have been reviewed and the Task Force on Community Preventive Services has issued recommendations for their use. Learn more about the guide, our systematic review methods, and the Community Guide team.

All Community Guide Topics

- Adolescent Health
- Alcohol
- Asthma
- Birth Defects
- Cancer
- Diabetes
- HIV/AIDS, STIs & Pregnancy
- Mental Health
- Motor Vehicle
- Nutrition
- Obesity
- Oral Health
- Physical Activity
- Social Environment
- Tobacco
- Vaccines
- Violence
- Worksite

News & Announcements

Cognitive Behavioral Therapy Can Benefit Youth Exposed to Traumatic Events
Individual and group cognitive behavior therapy reduces harm to youth who show psychological symptoms following exposure to traumatic events. [More »](#)

Cancer Screening Reviews Updated
If everyone who should be screened for cancer got screened, many of the 17,175 leading cancer deaths per year could be prevented! [More »](#)

Did You Know?
April is Alcohol Awareness Month. [More »](#)

Other Key Information

- About the Community Guide
- Message from the Community Guide Director
- Task Force Findings
- Systematic Review Methods
- Community Guide Publications
- Community Guide Team
- The Guide to Clinical Preventive

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To receive email updates about The Guide to Community Preventive Services, enter your email address:

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Task Force Meetings

2009
June 17-18
October 14-15

2010
February 17-18
June 16-17
October 20-21

2011
February 15-16
June 16-17
October 19-20

Contact Us:

Ways To Use The Community Guide

Programs or Services Planning, preventive services,	Funding Grant development, funding
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How are Task Force Recommendations and Findings Disseminated? (con't)

2) Peer-reviewed Journals

- American Journal of Preventive Medicine (always)
 - Evidence review
 - Recommendations article
- Morbidity and Mortality Weekly Report (MMWR)
- Topic-specific journal

3) Summary documents and briefs

4) Liaison organizations share with their constituents or members

5) Conference, Web, other presentations





Visit the Community Guide Web site and find out what works to promote health and safety in your community. Learn about:

- Evidence-based Task Force findings and recommendations
- Systematic review methods
- Interventions on 18 public health topic areas
- How to use the Community Guide
- And more!

www.thecommunityguide.org