



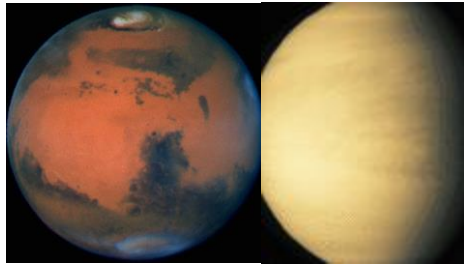
SCIENCE



CONNECTIONS



ACTION



Epidemiology is from Mars...

Evaluation is from Venus

“The Intersections Where Epidemiology and Program Evaluation Meet”

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Purpose of the Presentation

- Why evaluate programs?
- What are the differences and similarities between epidemiology and evaluation?
- What can epidemiology add to evaluation?
- What are appropriate uses for surveillance data for evaluation?
- What are some examples and strategies for bringing epidemiology and evaluation together?

Program Evaluation can be used to:

- Document and improve program operations
- Measure program achievement or progress
- Manage program resources
- Focus program priorities
- Provide recommendations
- Advocate for program
- Inform key decision makers
- Demonstrate accountability to stakeholders



"My question is: Are we making an impact?"



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Common Evaluation Questions

- What is the specific problem or issue your program will address?
- What is your program doing to impact the problem?
- What must the program accomplish to be considered successful?
- How will you measure or demonstrate success?
- What is the environment in which your program operates?



Common Epidemiology Questions

- What is the frequency of the problem?
- What are the antecedents and consequences of the problem?
- What causes a change in the problem?
- How will you test the hypothesis?
- What are the confounders?
- Where is the pump handle?



Epidemiology and Evaluation

- Research Design – Isolate changes and control for circumstances
- Program Evaluation Design – Incorporate changes and account for circumstances

Research or Scientific Approach (linear)

State Hypothesis



Collect Data



Analyze Data

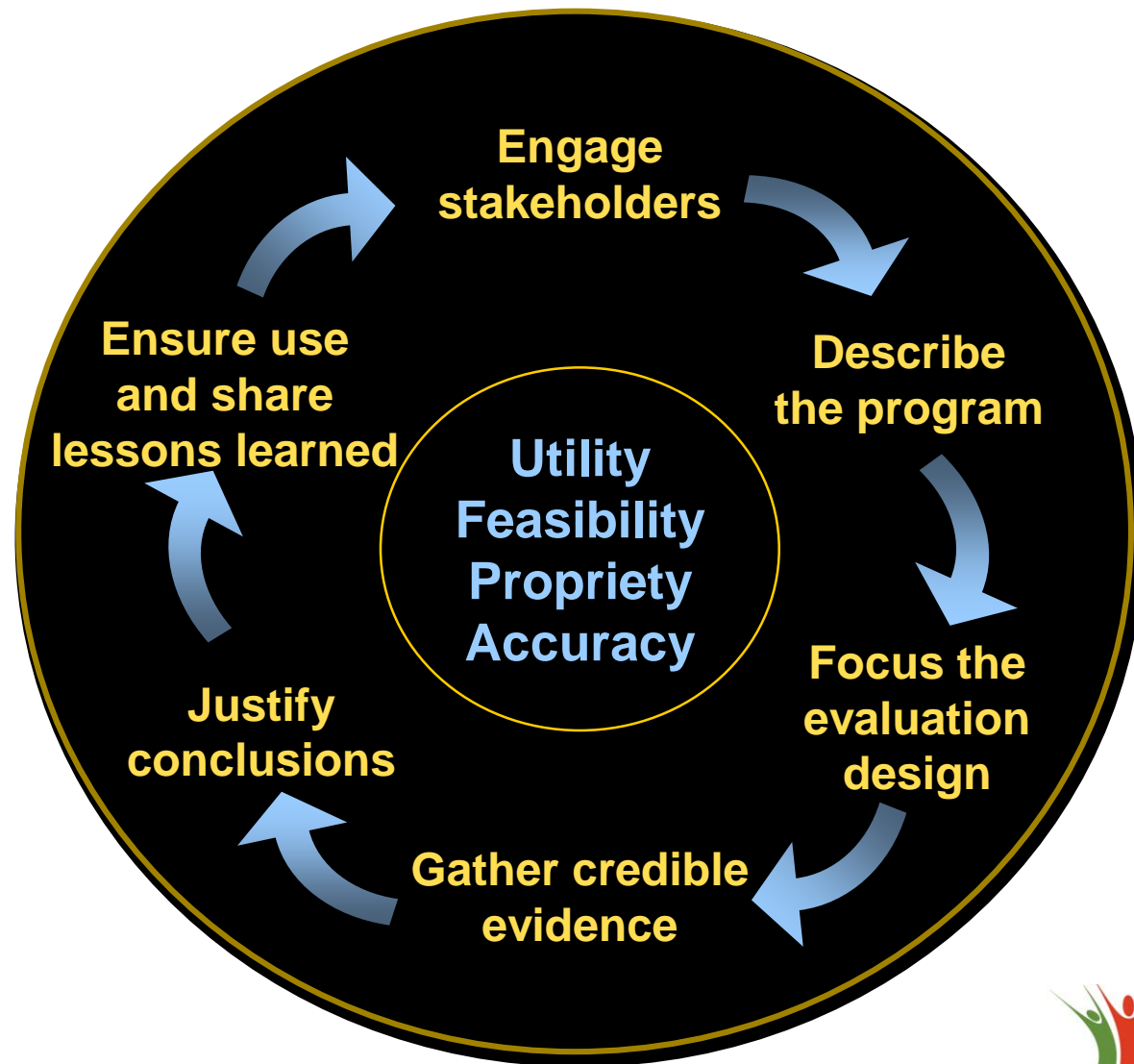


Draw Conclusions



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Program Evaluation Approach (circular)



Research vs. Evaluation

Research

- Data collection – limited sources; use of mixed methods uncommon
- Terminal analysis with focus on specific variables
- Conclusions seek to show attribution
- Disseminated to interested audiences

Evaluation

- Data collection – multiple sources; use of mixed methods common
- Ongoing analysis with integration of all data
- Conclusions seek to show attribution and contribution
- Disseminated to stakeholders and other interested audiences

Stakeholders & Investigators

**The most basic question is not
What is best?**

But rather

Who shall decide what is best?

-- Thomas Sowell



Evaluation Domains

- **Implementation (Process)**
 - Is program in place as intended?
- **Effectiveness (Outcome)**
 - Is program achieving its intended short-, mid, and/or long-term effects/outcomes?
- **Efficiency**
 - How much “product” is produced for given level of inputs/resources?
- **Causal Attribution**
 - Is progress on outcomes due to your program?



Research Designs

Post	--	X	O
Pre-Post	O	X	O
Pre-Post w/C	O	X	O
post only	--	--	O
Pre-Post w/Control	O O	X --	O O
Pre-Post w/C & post only C	O O --	X -- X	O O O
Pre-Post w/C & post only (Solomon)	O O -- --	X -- X --	O O O O



Program Evaluation Approaches and Designs

Social Agenda/Advocacy

- Utilization-focused evaluation

Questions and Methods Oriented

- Case Study

Improvement/Accountability Oriented

- Decision/accountability oriented

Evaluation Models (Stufflebeam,2001) Review of 22 approaches



Key Evaluation Principles

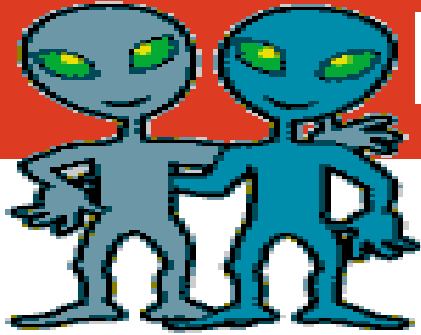
- **Participatory** – involvement of stakeholders at each stage of evaluation
- **Multiple methods** – employ broad range of information gathering procedures
- **Flexibility** – designed to accommodate complex nature of health promotion initiatives
- **Focus** – intended use is to strengthen and improve programs



Bringing Epidemiology and Evaluation Together



- Evaluation must build on and integrate epidemiology to be creditable and valuable
- Epidemiology must incorporate program evaluation to be useful and valuable



Insights from Mars and Venus

Once upon a time Martians and Venusians met and had happy relationships because they respected and accepted their differences...

Then, they came to earth and amnesia set in...

They forgot they were from different planets and expected each other to think and communicate in the same way.



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What is public health surveillance?

- Ongoing, systematic collection of health data or health-related events
- Timely analysis, interpretation, and dissemination of data
- Impetus for public health action and priorities
- Evidence base for program planning and policy development



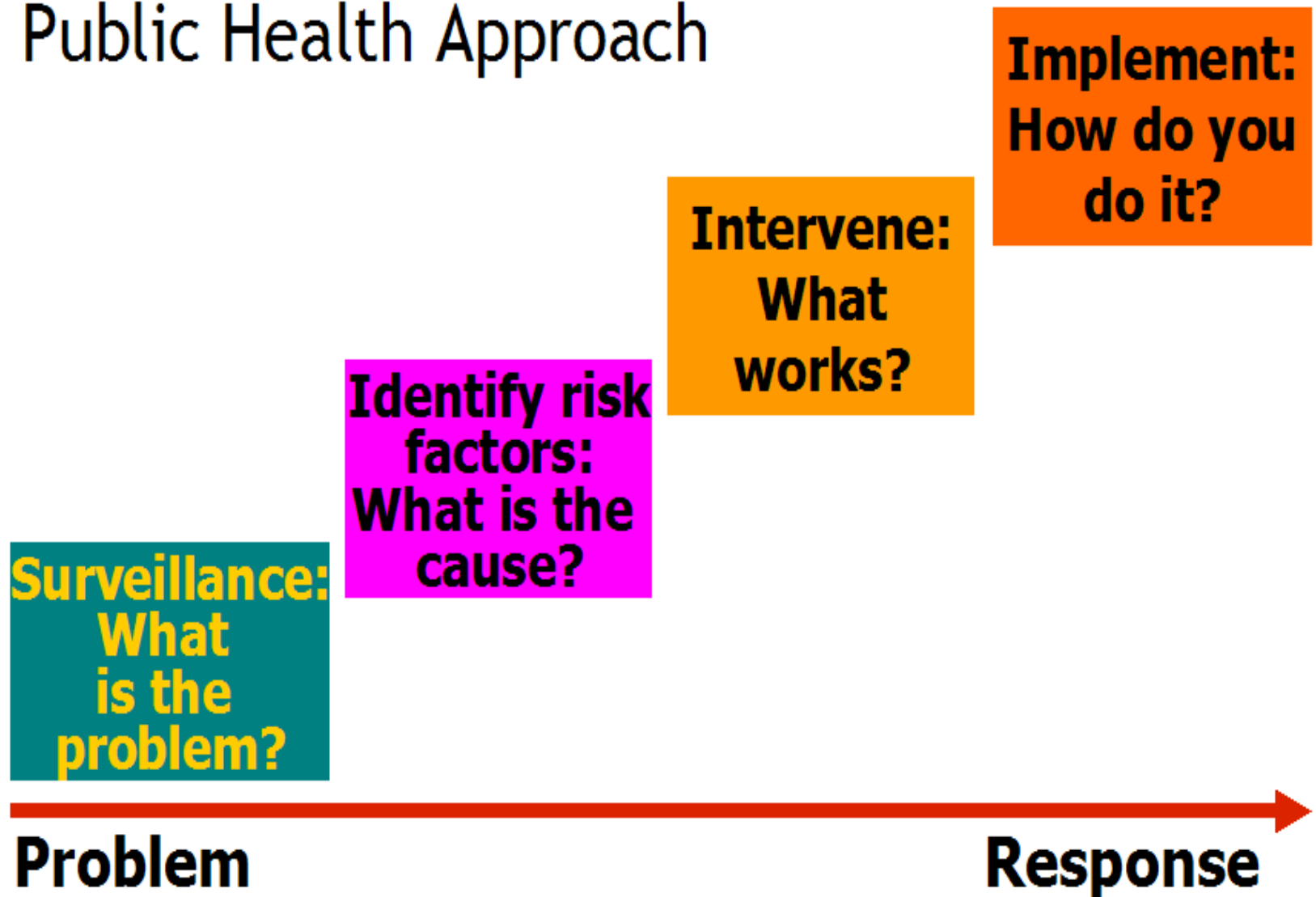
What is public health surveillance?

- Evidence base for program evaluation and performance improvement
- Assess health status of populations
- Monitor exposed or treated populations
- Generate hypotheses and stimulate research



Surveillance and the Public Health Approach

Public Health Approach



Utility of Surveillance Data

Public health surveillance provides a feedback loop that links the Public, health care providers, and health care agencies by:

- Identifying people and groups of people at risk for disease
- Prioritizing health needs in persons at higher risk for disease exposure accompanied by a plan for follow-up
- Incorporating surveillance data as a source of information for program planning and evaluation
- Using indicators to determine if a condition exists or certain results have been achieved



Using Surveillance Data in Evaluation

- The National Heart Disease and Stroke Program requires each grantee to have an evaluation plan
- Surveillance data can help ensure the right evaluation questions are identified
- Surveillance data can be used to set meaningful benchmarks for progress



Using Surveillance Data in Evaluation

CVD surveillance data can also be used as one source of credible evidence to compare:

- Local objectives against national objectives
- Local area objectives within a state
- Look at the trend of data over a period of time



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Sources of Data

- Mortality data
 - Death registry
 - Medical examiner
- Morbidity data
 - Reportable diseases (e.g., TB, STDs)
 - Cancer & Stroke Registries
- Birth registry
- Hospital discharge (utilization data)

Sources of Data

- Special surveys (NHANES, NHIS, BRFSS, State CVH Examination Surveys)
- Outbreak reporting
- Sentinel systems
 - Influenza-like illness reporting and testing (Kaiser)
 - CDC Acute Hepatitis Sentinel County Study
 - West Nile Virus Surveillance Program
 - WHO MONICA



Compendium of Data Sources

- National Health Interview Survey
- National Health and Nutrition Examination Survey
- Behavioral Risk Factor Surveillance System
- Youth Risk Behavior Surveillance System
- School Health Policies and Programs Study
- Health Plan Employer Data and Information Set
- Worksite or Health Care Provider surveys
- Legal Research data
- Media Market and Sales data
- Program monitoring and process data



The Massachusetts Experience



“In God we trust. All others
bring data.”

-W. Edwards Deming



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Coverdell Nat'l Acute Stroke Registry

Surveillance

- Data collected in MA since 2005
- 56 of 70 Primary Stroke Service hospitals
 - ~85% of annual stroke discharges
- Monitors adherence to guidelines-based care for acute stroke patients
 - Acute thrombolytic treatment
 - In-patient care
 - Discharge orders



Coverdell Nat'l Acute Stroke Registry

Evaluation

- Provides information on
 - Mode of arrival to Emergency Department
 - Time from symptom onset to ED arrival
 - Hospital performance (time targets, treatments)
- Monitors adherence to state regulations
- Can be used to assess effectiveness of media campaigns

Stroke Signs and Symptoms

What is the extent of the problem?

- BRFSS, vital records, hospital discharge data, emergency department data – used to summarize the burden of disease
- BRFSS – initially used to identify stroke signs and symptoms knowledge gap in MA



Stroke Signs and Symptoms

Does the message resonate with the target audience?

- Formative research on cultural norms, barriers to calling 9-1-1, efficacy of existing messages
 - Literature search and environmental scan
 - Group interviews before concept development
 - Concept testing with prototypes



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Stroke Signs and Symptoms

What is the “reach” of the (education) initiative?

- MA Clearinghouse data from material orders
- MA Clearinghouse pop-up survey data from material downloads
- In-house tracking database for train-the-trainer outreach
- Google alerts
- Kit evaluation forms

Stroke Signs and Symptoms

What is the “reach” of the (media campaign) initiative?

- Sigma encoding reports for PSAs
- Media buy information
- Nielsen data
- Licensing information (states/countries)

Stroke Signs and Symptoms

Was the initiative effective (short-term)?

- Education pilot with pre/post/6-month follow-up knowledge assessment
- Media campaign longitudinal random-digit dial survey (pre/post)



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Stroke Signs and Symptoms

Was the initiative effective (long-term)?

- Coverdell Acute Stroke Registry
- 9-1-1 data (if available)
- Mortality data



Discussion

- What is the value of evaluation to epidemiologists?
- What can epidemiology add to evaluation?
- What are some examples of surveillance data systems that have been used for program evaluation?
- What are some examples and strategies for bringing epidemiology and evaluation together?



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