Principles of Health Policy and Management
Program Planning and evaluation

1. Hello and welcome to the Lecture on “Planning and Evaluation.” The content for this lecture is taken from “Health Program Planning and Evaluation: A Practical, Systematic Approach to Community” by Issel, Improving Health of the Community by the Institute of Medicine, and cdc.gov. During this lecture you will hear terms framework and model used interchangeably. Don’t get confused it just terminology.

2. The objectives of the lecture are as follows:
   a. Describe program planning and evaluation
   b. Describe evaluation methods and tools
   c. Describe the evaluation process
   d. Discuss the role of measurement in the evaluation process

3. Planning is the efforts undertaken on the behalf of the public well-being to achieve deliberate or intended social change, as well as providing a sense of direction and alternatives modes of proceeding to influence social attitudes and actions (Issel, 2009; p.5) There are several approaches or models developed for systems for use in planning public health programs. Each model has different strength and emphasis.
   Two widely used models developed by CDC and National Association of County and City Health Officials MAPP (Mobilizing for Action through Planning and Partnership) emphasizes strategic planning and community involvement in the planning process. PACE-EH (Protocol for Assessing Community Excellence in Environmental Health) emphasizes environmental health, legal advocacy on environmental issues)

4. Evaluation is the purposeful, systematic, and objective collection and analysis of information used for the purpose of documenting the effectiveness and impact of planned programs, establishing accountability, and identifying areas needing change and improvement. Evaluation is most often associated with the ideas of determining accountability, assessing value, and determining worth.
   A focused evaluation is designed to reflect the specific information needs of various users, and functions to: Demonstrate accountability to diverse stakeholders. Generate a shared understanding of the program and the intended outcomes. Document program processes. Determine progress toward short, mid-term, and long-term outcomes.

5. There are many types of evaluation including
   - Traditional which assess the impact of specific program activities on defined outcomes.
     Do laws requiring complete immunization prior to school entry reduce vaccine-preventable diseases?
   - Economic evaluation combines program effectiveness info with economic resources (i.e. costs & benefits) quantitatively. It can be used to ask the question: Which program is most effective in terms of costs per child immunized?
   - Process which document kinds and amounts of services provided, characteristics of program and participants. Can be used to ask the question: Does the change in enrollment procedures increase the number of children enrolled in the registry?

6. Formative evaluation identifies the best uses of available resources, prior to a traditional program evaluation. It relies on combination of quantitative and qualitative methods to understand a process or system and identify barriers and opportunities for improvement.
   Empowerment: Programs assess existing strengths and weaknesses, focus on key goals and program improvements and develop strategies to achieve and document goals
7. Program evaluation centers on questions of efficacy or effectiveness. Efficacy or effectiveness focus on impact of a program or the ability to produce the desired outcomes within a target population. However, additional steps are usually necessary in order to make policy decisions about recommendations for individuals and the allocation of resources.

Programs shown to be effective in controlled situations, however, may not work in settings where the conditions are different.

For example, a worksite smoking cessation program developed by highly motivated and skilled health educators for university students may not be as effective when applied by human resources personnel assigned to a large auto manufacturer.

Thus evaluation of public health programs and interventions requires study designs that can distinguish the impact of the intervention within a general service population from other changes that occur only in certain groups or that result simply as a passage of time.

8. The design of the evaluation delineates when and from whom data are collected. Many types of designs are drawn from health and social sciences. Designs can be very simple or very complex. The aim in choosing a design is to come as close as possible to eliminate or minimize bias. Non-experiment designs provide the “lowest or minimum” level of evidence of the impact of a program. Experimental designs generally provide “strongest” evidence of a program or intervention effectiveness.

9. This figure shows that planning and evaluation is a cyclical and interdependent process. The distinctions between planning and evaluation are not always clear; this cycle is described in many different ways with various phases claimed by both planners and evaluators. Depending on the organization and the problem being addressed, a planning process could involve any or all of these stages (Nutt, 1984): the formulation of the problem, issue, or concern; the broad conceptualization of the major alternatives that might be considered; the detailing of these alternatives and their potential implications; the evaluation of the alternatives and the selection of the best one; and the implementation of the selected alternative. Although these stages are traditionally considered planning, there is a lot of evaluation work involved.

The evaluation phase also involves a sequence of stages that typically includes: the formulation of the major objectives, goals, and hypotheses of the program or technology; the conceptualization and operationalization of the major components of the evaluation -- the program, participants, setting, and measures; the design of the evaluation, detailing how these components will be coordinated; the analysis of the information, both qualitative and quantitative; and the utilization of the evaluation results.
10. There are several frameworks used in planning and evaluation. This CDC framework is a practical, non-prescriptive one. The framework summarizes and organizes 6 steps and 30 standards for effective program evaluation.

The steps are as follows:

**Engage stakeholders**, including those involved in program operations; those served or affected by the program; and primary users of the evaluation.

**Describe the program**, including the need, expected effects, activities, resources, stage, context and logic model.

**Focus the evaluation design** to assess the issues of greatest concern to stakeholders while using time and resources as efficiently as possible. Consider the purpose, users, uses, questions, methods and agreements.

**Gather credible evidence** to strengthen evaluation judgments and the recommendations that follow. Aspects of evidence gathering (e.g., indicators, sources, quality, quantity and logistics) typically affect perceptions of credibility.

**Justify conclusions** by linking them to the evidence gathered and judging them against agreed-upon values or standards set by the stakeholders.

**Ensure use and share lessons learned** with design, preparation, feedback, follow-up and dissemination.

The options at each step are many – there are many potential levels of detail to a logic model, countless potential stakeholders, and a large number of potential ways to gather evidence. The Framework applies each of the 4 groups of evaluation standards as a "lens" to help isolate the best approaches at each step.

11. The 30 standards are organized into four groups:

**Utility standards** ensure that an evaluation will serve the information needs of intended users.

**Feasibility standards** ensure that an evaluation will be realistic, prudent, diplomatic and frugal.

**Propriety standards** ensure that an evaluation will be conducted legally, ethically and with due regard for the welfare of those involved in the evaluation, as well as those affected by its results.

**Accuracy standards** ensure that an evaluation will reveal and convey technically adequate information about the features that determine worth or merit of the program being evaluated.

12. The Institute of Medicine’s Community Health Improvement Process (CHIP) is a framework for promoting community health or for creating healthy communities. It takes a comprehensive, community-based view of health and starts with an inclusive, participatory, community-based coalition or coordinating group.

**It also takes a comprehensive view of health.** CHIP sees health as not only the absence of disease or a chronic condition. Community health is considered in all aspects – social, economic, political, ecological, etc. This view makes it far more likely that issues will be resolved.

**It sees equity as a key.** Equity – the condition of everyone in a community getting what they needs for a decent quality of life – has been shown to be a prime factor in both individual and community health by the World Health Organization.
**It’s flexible.** The model leaves the community to determine the structure and content of its strategic and action plans, based on its own analysis and knowledge of its own needs.  
**CHIP builds in accountability.** That makes it possible to structure an effort clearly, and to identify gaps in it as they appear.  
**It builds in performance monitoring.** Not only does performance monitoring make accountability a reality, but it allows pinpoint course correction as it identifies problem areas in strategy or in the implementation of an effort.  
**It can also incorporate or fit in with other models.** Its flexibility in form and content makes it adaptable to a wide range of circumstances.  
**It sees the process as ongoing and long-term.** Real change is not a one-shot affair. It takes place over time, and as a result of constant, steady effort. CHIP recognizes that, and its cyclical model is one that is meant to be used over the long term.

13. As previously mentioned planning and evaluation go hand in hand. A useful tool for illustrating or outlining program planning and evaluation purposes is the logic model. Other names used for the logic model are roadmap and program theory. It displays the sequence of actions that describe what the program is and will do – how investments link to results. Thus, the logic model depicts the inputs, activities, outputs, and outcomes of a public health program or intervention.

The **INPUTS** are the resources, contributions, investments that go into the program.

The **OUTPUTS** are the activities, services, events and products that reach people who participate or who are targeted.

The **OUTCOMES** are the results or changes for individuals, groups, communities, organizations, communities, or systems.  
The environment in which the program exists includes a variety of External factors that interact with and influence the program action. There are also Assumptions has to be considered including the beliefs we have about the program, the people involved, and the context and the way we think the program will work.

Basically, the logic model, roadmap, or whatever terminology used is a visual “snapshot” of a program that communicates the intended relationship between program goals, activities, outputs and intended outcomes.

14. This illustrates how the logic model was applied to communicate the intended relationship between program goals, activities, outputs and intended outcomes of a public health smoking cessation program.
15. Decision-makers responsible for allocating resources and implementing public health programs and interventions need to understand the relationship between resources used and health outcomes achieved by the program or intervention in order to ensure that limited resources are allocated as efficiently as possible. One analytical tool available to decision-makers is economic evaluation.

In an economic evaluation, analytic techniques are applied to identify, measure, value, and compare the costs and consequences of two or more alternative programs or interventions.

When applied to public health programs, economic evaluation is concerned with the amount of resources used by a program or intervention, and corresponding level of health-related outcomes.

Economic evaluation is therefore an effort to analyze inputs (resources) and outputs (changes in health outcomes) simultaneously, and help decision-makers assess whether a certain level of output is worth the amount of resources expended to produce it (given that resources are scarce and can be used for alternative purposes).

There are four forms commonly used in public health.

16. Cost analysis (CA) is a form of economic evaluation that involves the systematic collection, categorization, and analysis of the net costs of a program. Net costs are often calculated by subtracting the cost-of-illness (COI) from the cost of program implementation. Other cost analyses might not incorporate COI and therefore assess only program costs. CA can stand alone but is often nested within other economic evaluations to identify and describe all costs accrued and saved throughout the life of a program or intervention. CA excludes outcome measures because they are either unavailable, or equally effective between the chosen alternatives.

17. Cost-effectiveness analysis (CEA) is used to compare the costs of alternative intervention strategies that produce a common health effect. Such effect measures are often expressed in physical or natural health units and can include final outcomes (e.g., life years gained or number of cases prevented) as well as intermediate outcomes (e.g., mean reduction in diastolic blood pressure or reduced cases of child maltreatment). CEA derives a ratio of cost per unit of health outcome as a summary measure.

18. Cost-utility analysis (CUA) is a unique form of economic evaluation that combines life years saved with the quality of life during those years. CUA is a form of cost-effectiveness analysis that attempts to capture timing and duration of disease and disability by comparing the utility associated with different health outcomes. Utility represents a person's preference (or utility) for a preferred outcome (or health state). CUA typically measures outcomes in quality-adjusted life years (QALYs) and disability-adjusted life years (DALYs). CUA is measured by the cost-utility ratio and can be expressed as the dollar value per QALY or DALY saved.
19. **Cost-benefit analysis (CBA)** is a form of economic evaluation that standardizes both costs and benefits in dollars and provides a list of all costs and benefits accrued during a period. Incongruent cost and benefit timelines are adjusted, and summary measures for a CBA are typically presented as a single value (i.e., net present value [NPV]). For example, CBA could be used to compare the net benefits of a smallpox vaccination program targeting population subgroups at risk with the net benefits of a program targeting the entire population.

20. **How Do We Determine Which Form of Evaluation To Use?**
   The decision is made on the basis of the alternatives to be compared and whether outcomes are to be examined, and the decision-making level. CBA, CUA, and CEA compare at least two alternatives and evaluate the costs and consequences of each. In contrast, CA examines only the net costs relevant to either a single intervention or in a comparison of >=2 programs.

At the highest level of decision making, the U.S. Congress decides how to allocate scarce resources towards programs with disparate outcomes.

To compare outcomes of diverse programs (e.g., defense and health), converting outcomes into a common unit (e.g., dollars) is necessary.

At the next level of decision making, the CDC director decides which scarce resources must be allocated for programs that have similar outcomes, because they affect the population's health. However, health outcomes might differ if one program could increase survival expectancy, whereas another program might not affect survival but might improve a person's overall quality of life. For comparative purposes, outcomes should be converted to a common health unit (e.g., QALY).

At the micro level of decision making, the director of a health clinic decides how to allocate scarce resources between two programs that have the same outcome measure but that achieve the outcome at different costs.

To determine the cost effectiveness of one program when comparing it to the other, the outcomes must be converted into a common natural health unit, (e.g., number of cases prevented).

Although this model illustrates the scheme of decision making to simplify the process and to explain the typical uses of economic evaluation, it is not meant to confine each form of economic evaluation to a specific level.

For example, CEA can be used by Congress to assess the effectiveness of current policy concerning inpatient length of stay for Medicare beneficiaries (cost per life year saved).

Similarly, a public health clinic director might use CBA to determine whether to construct a new facility or buy new equipment for an existing facility.
21. Because of the variations in the types of economic evaluations, there are key areas to consider in the critical appraisal of health economic evaluation studies.

**First issue is:** the question addressed by the study. We need to ask ourselves two questions about the question the economic evaluation study seeks to address:
1) Is the type of analysis used appropriate to the question?
2) What is the perspective of the analysis? Possible perspectives that should be considered are a specific provider or provider institution, a patient or patient group, a health care purchaser (or third party payer), society at large.
These questions are related as they determine the **type of analysis** which should have been performed and the **type of costs and benefits** which should be collected.

**Second thing to consider:** the estimation of resource use and cost. Two questions need to be addressed in relation to how the economic evaluation has assessed resource use and cost:
1) Are the main areas of resource use identified?
2) Are the appropriate costs measured?

**Third issue: The assessment of benefits.** Two questions need to be addressed in relation to the measurement of benefits in an economic evaluation: 1) Is the measure of benefit appropriate? 2) Is the method used to obtain clinical effect data valid?
The main difference between the different types of economic methodologies is in how the benefits are measured and valued.

**Fourth Issue: Discounting**
Economic evaluation is concerned with the summation of costs and benefits over time, BUT, individuals and society tend to **defer costs to the future** than incur them now and individuals and society tend to **prefer benefits now** rather than in the future.
Individuals’ or society’s preferences for when to incur costs and receive benefits is reflected in the discount rate. Any economic evaluation where costs and benefits occur over a number of years should consider discounting. Discounting adjusts for costs (and benefits) occurring at different points in time.

**Final Issue: Sensitivity analysis**
Economic evaluations are models which attempt to capture and summarize reality. These models use assumptions and estimates. Sensitivity analysis tests the robustness of the conclusions by repeating the comparison between inputs and consequences while varying the assumptions used. Given that there will be a degree of uncertainty about some elements of any economic evaluation; sensitivity analysis assists in judging how robust the conclusions will be.

22. This brings us to an end to this lecture. Thank you for listening. Please take a look at the questions at the end of the lecture. These questions can help you prepare for the exam.