Developing a Conceptual Framework, and Introduction to Formative Research
Topics to cover today

- Importance of a conceptual framework
- Key points from Earp and Ennett article
- Examples of conceptual frameworks
- In-class group discussion on CFs
- Discussion of Assignment #1
- Introduction to formative research
Importance of a conceptual framework (program theory)

- Articulates the pathways by which an intervention is expected to cause the desired outcomes
- Provides evaluator with specific elements to assess
- Other names:
  - Logic model, program model, outcome line, cause map, action theory
Conceptual Framework of Family Planning Demand and Program Impact on Fertility

- **Societal and Individual factors**
- **Value and Demand for Children**
- **FP Demand**
  - Spacing
  - Limiting
- **Other Intermediate Variables**
  - Wanted
  - Unwanted
- **Contraceptive Practice**
- **Service Outputs:**
  - Access
  - Quality
  - Image/Acceptability
- **Service Utilization**
- **Other Health and Social Improvements**
Conceptual models: Earp and Ennett (1991)

- Definition of a conceptual model:
  - Diagram of proposed *causal linkages* among a set of *concepts* believe to be related to a particular public health problem.

- Concepts = in boxes
- Processes = shown by arrows
- Can reflect factors at multi levels (macro to micro)
Conceptual models

- Often draw on:
  - One or more theories
  - Empirical evidence
  - Knowledge specific to the particular case

- Serve to:
  - Summarize and integrate knowledge
  - Provide explanations for causal linkages
  - Generate hypotheses
Building a conceptual model

- Start with the endpoint (dependent variable, outcome, or target point for intervention)
- Identify potential correlates, based on empirical or theoretical evidence
- Show antecedent or mediating variables by proximity to dependent variables
Conventions for drawing a conceptual model

1) Only include concepts that will be operationally defined and measured
2) Present left-to-right or top-to-bottom
3) Use arrows to imply causality
4) Label concepts succinctly
5) Do not include operational definitions or values of variables in the model
How to “think through” a conceptual framework

- Example: Tobacco Prevention and Control
  - Interventions to Reduce Exposure to Environmental Tobacco Smoke

http://www.thecommunityguide.org/tobacco/tobacco.ppt

Tobacco use is the single largest cause of preventable premature mortality in the United States. It also represents an enormous cost burden to the nation. The question is, what works to make tobacco use prevention and control at the population or community level? *The Guide to Community Preventive Services* addresses the effectiveness of community-based interventions for three strategies to promote tobacco use prevention and control: 1) **prevent tobacco product use initiation**, 2) **increase cessation** and 3) **reduce exposure to environmental tobacco smoke (ETS)**. The findings strengthen and complement existing guidelines (hyperlink table and text to existing guidelines) on tobacco prevention and control.
Analytic Framework

For every intervention that we evaluate in the Community Guide, we develop an analytic framework, in which we postulate how we think the intervention works and what outcomes we think are important to capture information on. In many cases, our analytic frameworks change over the course of our reviews as we learn more about the intervention, the potential outcomes, and the body of the evidence in the literature.

Let’s start with our intervention: Smoking bans

And our goal: A reduction in morbidity and mortality. Our analytic framework will connect these two.
Analytic Framework: Smoking Bans

Smoking Bans → Reduced Morbidity and Mortality
Smoking Bans Might Result from Community Education Efforts

- Now it’s important to recognize that smoking bans might be the result or outcome of interventions, such as a community-wide education and/or political campaign.
- The experience from the state of California with a broad smoking ban has been described quite well in the literature, giving you a blow by blow account of how that state managed to adopt and implement and extend a statewide clean indoor air laws.
- It’s also important to note that in many states, pre-emption legislation precludes local governments from strengthening clean indoor air laws. These efforts have been described as a industry-sponsored effort to obstruct efforts to extend protections from ETS to workers.
Smoking Bans Might Result from Community Education Efforts

Community Education

Smoking Bans

Reduced Morbidity and Mortality
Bans Might Reduce ETS Exposure

- Now back to how smoking bans work. They work in one or three ways.
- First, directly by reducing exposure to ETS in the restricted environment. This alone will have health effects.
Bans Might Reduce ETS Exposure

Reduced Exposure to ETS

Smoking Bans

Reduced Morbidity and Mortality
Bans Might Increase Smoking Cessation

- Second, smoking bans might work by affecting the tobacco use behaviors of smokers

- In response to a smoking ban, they might think twice about continuing their habit. They might reduce their daily consumption of tobacco, and these two effects might increase the number who attempt to quit. Since smoking bans also reduce queues to smokers to relapse, more smokers attempting to quit will be successful. This will result in fewer tobacco users and a reduction in adverse health outcomes.
Bans Might Increase Smoking Cessation

- Reduced Exposure to ETS
- Fewer Tobacco Users
- Reduced Morbidity and Mortality

- Smoking Bans
  - Change In Attitudes
  - Reduced Consumption
  - Increased Quit Attempts
  - Increased Cessation
Finally, we acknowledge that smoking bans might directly affect tobacco consumption by youth or affect their impressions of the social desirability of smoking. These will reduce tobacco use prevalence among adolescents and contribute to fewer tobacco users.
Bans Might Reduce Smoking Initiation

Smoking Bans → Change in Attitudes → Reduced Initiation → Fewer Tobacco Users → Reduced Morbidity and Mortality

- Reduced Exposure to ETS
- Change in Attitudes
- Reduced Initiation
- Fewer Tobacco Users
- Change in Attitudes
- Reduced Consumption
- Increased Quit Attempts
- Increased Cessation
Bans Might Increase ETS in the Home

- One unintended effect described in the literature, at least initially, was a concern that smokers might respond to workplace smoking restrictions by compensating at home, smoking more and thus increasing ETS exposures in the home.
- We looked for evidence of this potential harm in our review.
- We also examined the evidence, not shown here, that smoking bans in restaurants and hotels adversely affects business revenue and tourism.
Bans Might Increase ETS in the Home

- Reduced Exposure to ETS
- Change in Attitudes
- Reduced Initiation
- Fewer Tobacco Users
- Increased Quit Attempts
- Increased Cessation
- Increased Home Exposure
- Diverted Consumption
- Reduced Morbidity and Mortality

Smoking Bans
Body of Evidence: Bans and Restrictions

- We did a series of electronic database searches, and screened titles and abstracts and ended up with the following body of evidence:

  - 56 studies were reviewed
  - 17 studies measured differences or changes in ETS exposure, of which 10 met our criteria for good or fair quality
  - 51 studies measured smoking habits of employees exposed to bans or restrictions, of which only 9 met our criteria for good or fair. In most cases, the excluded studies did not included concurrent comparison groups.
Study Measurements by Outcome

- If you take all of the qualifying studies, and plotted their outcomes to slots on our analytic framework this is what we found across this body of evidence.

- For example we have 12 measurements of differences or changes in exposure to ETS, 6 studies of changes in tobacco use prevalence among employees, 4 measurements of cessation by smoking employees etc.
Reduced Morbidity and Mortality

Smoking Bans

1

Change In Attitudes

9

Reduced Consumption

5

Increased Quit Attempts

4

Increased Cessation

6

Fewer Tobacco Users

0*

Reduced Initiative

0*

Change In Attitudes

12

Reduced Exposure to ETS

Diverted Consumption

Increased Home Exposure
Examples of different conceptual frameworks
Model of Program Impact

- Socioeconomics Status
  - Gender
  - Income
  - Education
  - Psychographic Characteristics
  - Family Characteristics
  - Interpersonal Contacts

- Program Exposure

- Knowledge

- Attitude

- Practice
Determinants of Domestic Violence (no intervention)

- **Contextual and Community Factors**
  - Socioeconomic development
  - Domestic violence norms
  - Gender inequality
  - Crime levels

- **Household and Individual-Level Factors**
  - Socioeconomic status
  - Life cycle factors
  - Intergenerational exposure to violence
  - Risk behaviors

- Domestic violence
  - Women’s status/autonomy
Conceptual Framework
Communication Pathways to a Health-Competent Society

Domains for Communication Interventions

- Communication to Strengthen the Social Political Environment
- Communication for Effective Service Delivery Systems
- Communication to Create Health Literate Communities and Individuals
Domains for Communication Interventions

- Communication-Social Political Environment
- Communication for Service Delivery System
- Communication for Community/Individual

Initial Outcomes

- Environment
- Service Systems
- Community
- Individual

Conceptual Framework
Communication Pathways to a Health-Competent Society
Conceptual Framework

Communication Pathways to a Health-Competent Society

Domains for Communication Interventions

- Communication-Social Political Environment
- Communication for Service Delivery System
- Communication for Community/Individual

Initial Outcomes

- Environment
- Service Systems
- Community
- Individual

Behavioral Outcomes

- Supportive Environment
- Service Performance
- Client Behaviors:
  - Community
  - Individual
Conceptual Framework

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Sustainable Health Outcomes
- USAID 5 SOs
Conceptual Framework

Communication Pathways to a Health-Competent Society

- Underlying Conditions
- Domains for Communication Interventions
  - Communication-Social Political Environment
  - Communication for Service Delivery System
  - Communication for Community/Individual
- Initial Outcomes
  - Environment
  - Service Systems
  - Community
  - Individual
- Behavioral Outcomes
  - Supportive Environment
  - Service Performance
  - Client Behaviors:
    - Community
    - Individual
- Sustainable Health Outcomes
  - USAID 5 SOs
Conceptual Framework
Communication Pathways to a Health-Competent Society

Underlying Conditions
- Context
  - Disease Burden
  - Social
  - Cultural
  - Economic
  - Communication Technology
  - Political
  - Legal
- Resources
  - Human and Financial Resources
  - Strategic Plan/Health Priorities
  - Other Development Programs
  - Policies

Domains for Communication Interventions
- Communication-Social Political Environment
- Communication for Service Delivery System
- Communication for Community/Individual

Initial Outcomes
- Behavioral Outcomes
  - Supportive Environment:
    - Multi-sectoral partnerships
    - Public opinion
    - Institutional performance
    - Resource acquisition
    - Media support
    - Activity level
  - Service Performance:
    - Access
    - Quality
    - Client volume
    - Client satisfaction
  - Client Behaviors:
    - Community
      - Sanitation
      - Hospice/PLWA
      - Other actions
    - Individual
      - Timely service use
      - Contraception
      - Abstinence/partner reduction
      - Condom use
      - Safe delivery
      - BF/nutrition
      - Child care/immuniz.
      - Bednet use

Sustainable Health Outcomes
- USAID 5 SOs
  - Reduction in:
    - Unintended/mistimed Pregnancies
    - Morbidity/mortality From pregnancy/Childbirth
    - Infant/child morbidity/mortality
    - HIV transmission
    - Threat of infectious diseases

- Context
- Resources
- Behaviors
- Outcomes
Requirement for exercise #1

- Present the diagram in terms of initial, intermediate, and long-term outcomes

Note: this is NOT a standard requirement of conceptual frameworks but it is a useful way to look at program effects.
Criteria for grading conceptual framework on exercise #1

- Diagram respects the 5 “conventions for drawing a conceptual model”

- The model presented is:
  - Conceptually clear (explains to the reader how you expect the program to achieve its objectives)
  - Visually pleasing
  - Concise but covers key factors (suggestion: include 10-15 concepts in your model)
Rules relating to confounding and modifying variables (Earp & Ennett)

- See page 169 of the article
- Technically fine, but not necessarily used among all researchers
- In exercise #1, don’t feel bound by these two rules.
Formative evaluation

Guides the design of a program

Different types:

- Needs assessment (esp. in U.S.)
- Diagnostic (formative) research
- (Specific to media) Pretesting
Needs assessment in the program cycle (McDavid)

- Strategic Planning
  - Environment Scanning
  - Stakeholder Input
- Program Development
  - Stakeholder Input
- Program Implementation
- Program Evaluation
  - Stakeholder assessments of services/outputs in relation to needs (relevance)
- Program Accountability
Steps in conducting a needs assessment (McDavid & Hawthorn)

- Become familiar with political context
- Identify users and uses
- Identify target pop. (geographic, socio-dem)
- Inventory existing services (what gaps exist?)
- Identify needs
- Prepare document
  - Evidence, benchmarks, conclusions, recs
- Communicate findings, implement
Use of benchmarks in needs assessment

- Compare current levels and types of services to benchmarks (or reference points)
  - Conceptions of human needs
  - Moral/ethical values (“no child left behind”)
  - Levels of service provided elsewhere
  - Service provider opinions/preference
  - Client (current, prospective) opinions
Sources of data: primary (new) & secondary (existing)

- Lit reviews
  - Similar studies
  - Demographic statistics
  - Government reports
- Surveys (mail, phone, in person)
- Focus groups
- Interviews
- Direct observation
Diagnostic research (very similar to needs assessment)

- Also called “formative research” or “formative evaluation”

- Learn more about all aspects of the problem, population, and context
Diagnostic research uses both quantitative & qualitative

- **Quantitative (demographic, epidemiological):**
  - To quantify the extent of the problem
  - To identify subgroups most affected
  - To identify explain determinants

- **Qualitative:**
  - To understand problem from user perspective, identify barriers
Great diversity in types of formative research

- Examples:
  - Formative research for Stop Aids Love Life
  - Louisiana study on teen smoking behavior
  - Investigation of places with “high rates of new partner acquisition” (PLACE methodology)
Publication of formative research in peer-reviewed lit

- Quite rare
- Results often presented in a report
  - Ex: Stop AIDS Love Life
- More likely in form of baseline findings
  - Louisiana adolescent smoking study
- If value goes beyond study location
  - PLACE methodology in S. Africa
Key points from Louisiana smoking study

- National surveys of adolescent smoking didn’t provide adequate data on target population

- Survey of 4808 students provided data:
  - Smoking patterns by ethnic group, gender
  - Social relationships related to smoking
    - Friends, family; smoking and alcohol
Example of a baseline survey as a “two-fer” (two for one)

- Formative research in form of baseline survey serves two purposes:
  - Establishing a baseline level against which to evaluate program after intervention
  - Providing insights into the problem that help to guide the design of the program
Findings from LA study useful in developing intervention

- LA rate higher than national rate for adolescents
- Who was most likely to smoke:
  - Among whites: no male/female differences
  - Among blacks: males more likely to smoke
  - Both black and whites:
    - Discretionary $$
    - Low academic achievers
Findings from LA study useful in developing intervention

- Strong relationship of smoking to:
  - Smoking of family & friends, alcohol use
- Authors discuss challenges of designing a program with these dynamics

- Formative research doesn’t give all the answers to program design!
PLACE ("priorities for local AIDS control activities) methodology

- MEASURE Evaluation Project (UNC)
- Identifies where to access sexual networks with individuals with "high rates of new partner acquisition"
- Provides information on availability of preventive services (info, condoms)
Methods of PLACE: 3 phases of data collection

- Key informants: “where do people meet new sexual partners?”
  - Community leaders, health care providers, youth on street, taxi drivers, STD clients
- Visit to sites compiled from interviews
  - Type of site, patrons, AIDS prevention?
  - Sites marked on aerial map
- Interviews with people at these sites
Useful information for designing an intervention

- Key locations: taverns and *shebeens*
- <2% of sites had on-site anti-AIDS info
- <10% didn’t have condoms onsite
- Almost 60% of owners/managers would be willing to have condoms onsite
- Patrons at these locations – frequent visitors (“regulars”)
Indicators useful for monitoring programs

- # new sites identified – sexual activity
- % of sites with condoms (verified)
- Mean rate of new partnership formation at site in past 4 weeks, by gender
- Portion of patrons who ever used a condom
- Portion used condom at last sex
Use of qualitative research to inform quantitative

- To learn vocabulary used by local population to describe problem
  - Yoder study on diarrhea: 9 different words
- To identify new concepts that researchers hadn’t considered
- To generate hypotheses to be tested through subsequent research