SEOW Workshop for LEOWs

November 13, 2007
Welcome

- Introduce yourself
  - Your name
  - Your role in your community’s SPF SIG Grant and LEOW
  - One question you want to be sure to have answered today
Outline of the Day

- Review the Goals of the LEOW
- Data Sources
- The Logic of Epidemiological Data Analysis
- Identifying, Conceptualizing and Measuring Causal Variables
- LUNCH
- Strategies for Collecting Supplemental Data
- LEOW Work Plan Development

Please interrupt! Ask questions!
Goals for the Workshop

1. To enhance your understanding of the LEOW’s role in the planning process
2. To review the basic logic of epidemiological data analysis
3. To provide you with technical assistance and guidance for conducting your initial epidemiological needs assessments
4. To assist you in developing your local data analysis plan
SAMHSA’s Strategic Prevention Framework

1. Assess
   Profile population needs, resources, and readiness to address needs and gaps

2. Build Capacity
   Mobilize and/or build capacity to address needs

3. Plan
   Develop a Comprehensive Strategic Plan

4. Implement
   Implement evidence-based prevention programs and activities

5. Monitor, evaluate
   Monitor, evaluate, sustain, and improve or replace those that fail

Cultural Competence Sustainability
Primary Objectives of the LEOW

- Identify key constructs and data indicators to assess burden of substance use in the local community
- Collect, analyze and present data assessing the burden of substance abuse in the local community
- Establish and apply a set of criteria and prioritization model for determining critical need
- Provide recommendations or establish priorities for the local area based on epidemiological data
Data Sources Used by the SEOW

- http://www.healthpolicy.iupui.edu/SEOW.htm
Recommended Data Sources

- Treatment Episode Data Set (TEDS)
- Uniform Crime Report (UCR) series
- Vehicle Crash Records System (VCRS)
- Social Indicator System (SIS) & Prev-Stat by Indiana Prevention Resource Center (IPRC)
Community Team Activity

- Using the worksheets provided, identify the data sources your community has identified or that you believe are available.
- For each data source, make a list of the major strengths and weaknesses of each source.
Discussion

- What unique local data sources have you identified?
- What challenges are you facing in getting access to needed data?
- How have you (or how are you trying to) overcome the challenges?
Logic of Data Analysis

- What’s going on in the community
- From state- to county-level
- Available county-level data
  - Treatment Episode Data Set (TEDS)
  - Uniform Crime Report (UCR) series
  - Vehicle Crash Records System (VCRS)
  - Social Indicator System (SIS) & Prev-Stat by Indiana Prevention Resource Center (IPRC)
County-Level Data Sources

TEDS

- Persons admitted to public & private substance abuse treatment programs receiving public funding
- Annual data collection (most recent 2005)
- Demographics: gender, age, race, ethnicity
- Substance use: alcohol, cocaine/crack, marijuana, heroin, methadone, other opiates/synthetics, PCP, hallucinogens, methamphetamine, other amphetamines, other stimulants, benzodiazepines, other tranquilizers, barbiturates, other sedatives/hypnotics, inhalants, OTC, other drugs
County-Level Data Sources

UCR

- Number of arrests for possession and sale/manufacture of various substances; DUI, public intoxication, and liquor law violations; violent and property crimes
- Annual data collection (most recent 2005)
- Aggregated – no demographics
- Substances: cocaine/opiates, marijuana, synthetic drugs (including methamphetamine), other drugs
County-Level Data Sources

VCRS

- Number of collisions and fatalities (total & alcohol-related) by county
- Annual data collection (most recent 2006)
- Aggregated – no demographics
County-Level Data Sources

SIS and Prev-Stat by IPRC

- Alcohol, drug, and weapons expulsion and suspension data and drop-out, by county (1999-2005)
- Alcohol outlets (2004)
Identification of “HOT SPOTS”

- “Drill down” – subcategories
  - Gender
  - Age/age group
  - Race/ethnicity
  - Educational level
  - Income level

➡ Comparisons between groups
Identification of “HOT SPOTS”

Example:

TEDS data for Allen County
→ Cross-tabulation
Identification of “HOT SPOTS” (cont.)

### Crosstab

<table>
<thead>
<tr>
<th>Gender</th>
<th>Alcohol use</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Alcohol not reported</td>
<td>Alcohol reported</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>138</td>
<td>353</td>
<td>491</td>
<td></td>
</tr>
<tr>
<td>% within Gender</td>
<td>28.1%</td>
<td>71.9%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>232</td>
<td>789</td>
<td>1021</td>
<td></td>
</tr>
<tr>
<td>% within Gender</td>
<td>22.7%</td>
<td>77.3%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>370</td>
<td>1142</td>
<td>1512</td>
<td></td>
</tr>
<tr>
<td>% within Gender</td>
<td>24.5%</td>
<td>75.5%</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

### Chi-Square Tests

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
<th>Exact Sig. (2-sided)</th>
<th>Exact Sig. (1-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>5.198$^\text{a}$</td>
<td>1</td>
<td>.023</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuity Correction$^\text{b}$</td>
<td>4.911</td>
<td>1</td>
<td>.027</td>
<td>.025</td>
<td>.014</td>
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<tr>
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<td>.024</td>
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<td></td>
</tr>
<tr>
<td>Fisher's Exact Test</td>
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<td></td>
<td></td>
<td>.025</td>
<td>.014</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>1512</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$^\text{a}$ Computed only for a 2x2 table

$^\text{b}$ 0 cells (.0%) have expected count less than 5. The minimum expected count is 120.

15.
Identification of “HOT SPOTS” (cont.)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Alcohol is Primary Substance</th>
<th>Alcohol not Primary</th>
<th>Alcohol Primary</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Count</td>
<td>273</td>
<td>218</td>
<td>491</td>
</tr>
<tr>
<td>M</td>
<td>% within Gender</td>
<td>55.6%</td>
<td>44.4%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td>441</td>
<td>580</td>
<td>1021</td>
</tr>
<tr>
<td>M</td>
<td>% within Gender</td>
<td>43.2%</td>
<td>56.8%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total</td>
<td>Count</td>
<td>714</td>
<td>798</td>
<td>1512</td>
</tr>
<tr>
<td></td>
<td>% within Gender</td>
<td>47.2%</td>
<td>52.8%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Chi-Square Tests

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
<th>Exact Sig. (2-sided)</th>
<th>Exact Sig. (1-sided)</th>
</tr>
</thead>
<tbody>
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<tr>
<td>Continuity Correction</td>
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<td>.000</td>
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</tr>
<tr>
<td>Likelihood Ratio</td>
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<td>1</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fisher’s Exact Test</td>
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<td></td>
<td></td>
<td></td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>1512</td>
<td></td>
<td></td>
<td></td>
<td>.000</td>
</tr>
</tbody>
</table>

a. Computed only for a 2x2 table
b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 231.86.
Prevalence

Prevalence rates

*Total number of cases of a disease/condition in the population at a given time divided by the number of individuals in the population*
Prevalence

Example (TEDS – Allen County):
Alcohol use reported at admission: 1,142
Treatment population: 1,512

Prevalence in the treatment population:

$$\frac{1,142}{1,512} = 0.75529 \text{ or } 75.5\%$$
Prevalence

Example (TEDS – Allen County):
Alcohol use reported at admission:
Males = 789; Females = 353 (total = 1,142)

Treatment population:
Males = 1,021; Females = 491 (total = 1,512)

**Prevalence in the MALE treatment population:**
\[
\frac{789}{1,021} = 0.773 \text{ or } 77.3\%
\]

**Prevalence in the FEMALE treatment population:**
\[
\frac{353}{491} = 0.719 \text{ or } 71.9\%
\]
What is a logic model?

- A logic model is a graphical representation of a hypothesized causal relationship between variables.
Types of variables

- Antecedents: predisposing variables that may affect whether someone ever starts using a particular substance.
- Intervening: variables which affect the relationships between antecedents and subsequent use.
- Outcomes: consequences related to use.
Alcohol-Related Problems (e.g., binge drinking, drinking & driving, alcohol-related violence, impaired school performance, impaired judgment)

Motives/Antecedents /risk factors: (Hawkins, Catalano & Miller, 1992)

- Extreme economic deprivation+
- Neighborhood disorganization+
- Physiological/genetic factors+
- Poor & inconsistent family management practices+
- Family conflict+
- Low bonding to family+
- Early & persistent problem behavior+
- Academic failure+
- Low degree of commitment to school+
- Peer rejection in elementary
- Alienation and rebelliousness+
- Early onset of drug use+

Motives/Antecedents/Protective Factors: (Hawkins, Catalano & Miller, 1992)

- Strong parental bonding-
- Positive temperament-
- Strong external support system-
- Strong commitment to school-
- Involvement in church activities-
- Belief in generalized expectations, norms, values of society-

Underage Drinking Logic Model

- Visible Enforcement
- Underage Drinking Laws
- Underage Drinking
- Price of alcohol
- Retail availability of alcohol to youth
- Social availability of alcohol to youth
- Drinking beliefs
- Family, school, and peer influence
- Drinking context
- Alcohol promotion

Conditions: Mediating/moderating variables
Meth associated problems (e.g., child neglect, violence, criminal behavior, health consequences, high risk sexual behavior)

Meth use

Supply available for purchase

Meth production

Perceived risk of arrest

Enforcement

Community Norms

Community concern about meth harm

Meth beliefs, attitudes, norms, expectancies

Price

Motives/antecedents /risk factors

Gender (male more likely)+
ADHD/Impulsivity+
Ethnicity (white more likely)+
High school drop out+
Poverty +
Unemployment +
Cohabitating w/partner +
Father incarcerated +
History of selling drugs +
Use of marijuana/illegal drugs
History of criminal activity+
Disadvantaged neighborhood+
Low religiosity +
Past mental health treatment
History of binge drinking +
Also see Hawkins, Catalano & Miller 1992 risk factors

Motives/Antecedents/Protective Factors: (Hawkins, Catalano, Miller, 1992)

Strong parental bonding -
Positive temperament -
Strong external support system-
Strong commitment to school-
Involvement in church-
Belief in generalized expectations, norms, values of society-

Conditions: Mediating/moderating/intervening variables

Methamphetamine Logic Model
Cocaine associated problems (e.g., child neglect, cocaine-addicted infants, criminal behavior, prostitution, health consequences, high risk sexual behavior, psychological problems)

Cocaine use

Motives/antecedents /risk factors
- Gender (females more likely to use crack+)
- Impulsivity (especially for females+)
- Ethnicity (white = powder; black = crack)
- Sensation seeking personality+
- Poverty and/or receiving welfare for 5 yrs +
- Unemployment +
- Never been married +
- Antisocial activity/rebelliousness+
- Drug-using peer network+
- Poor family interactions/lack of closeness+
- Past alcohol & marijuana use+
- Earlier age of sexual activity and having an STD+
- Lack of rules in the household+
- Also see Hawkins, Catalano & Miller 1992 risk factors+

Motives/Antecedents/Protective Factors: (Hawkins, Catalano, Miller, 1992)
- Strong parental bonding -
- Positive temperament -
- Strong external support
- Strong commitment to school-
- Involvement in church
- Belief in generalized expectations, norms, values of society-

Conditions: Mediating/moderating/intervening variables

Community Norms

Enforcement

Laws

Cocaine production

Cocaine beliefs, attitudes, norms, expectancies

Price

Supply available for purchase

Perceived risk of arrest

Community concern about cocaine harm

Cocaine associated problems (e.g., child neglect, cocaine-addicted infants, criminal behavior, prostitution, health consequences, high risk sexual behavior, psychological problems)

Cocaine Logic Model
Community Team Activity

- Draft a logic model of your priority substance for your community.
  - *Important*: There are many causal factors identified in the logic models; there may be only a few in your community that are really important

- Based on what you know now, highlight the most important “causal” factors behind your community’s high rates of substance abuse?
Group Discussion: Sharing Community Logic Models

- What similarities and differences do you see across different communities’ logic models?
- What kinds of data will you need to be able to assess the importance of your causal factors?
LUNCH
Collecting Supplemental Data

- Why should you consider collecting supplemental data?
  - Improve your knowledge regarding the local problem and specific causal pathways
  - Enhance the time-relevance of your data
  - Improve community support of the planning process

- How can you collect supplemental data in a cost effective way?
  1. Focus Groups and In-depth Interviews with Key Informants
  2. Surveys
  3. Unobtrusive Observation Methods
  4. Community Mapping

General Resource:
http://www.socialresearchmethods.net/kb/index.php
Cross-Cutting Measurement Concerns

- Reliability
- Validity
- Generalizability
- Representativeness
Focus Groups and Key Informant Interviews

Focus Groups
- Collection of opinions, beliefs, and attitudes in a group setting
- Interactive and dynamic exchange - participants are free to talk with other group members

Key Informant Interviews
- Qualitative in-depth interviews with people (one at a time) who know what is going on in the community
- Telephone or face-to-face
Critical Questions to be Asked

- **WHO?**
  - Who is using?

- **WHY?**
  - Why are they using?

- **WHEN AND WHERE?**
  - When are they using?
  - Where are they using?
How to get “good” focus group data

- Remember your ultimate goal is to get as accurate or valid an understanding as possible.
- You can increase the validity of a sample convenience (non-random) sample by conducting multiple focus groups.
- “Saturation” is a strong indicator of validity (e.g., in repeat focus groups or interviews, you continue to hear the same themes/ideas; no new ideas/information).
Common Steps in Developing/Conducting Focus Groups and Key Informant Interviews

1. Define the purpose (what information is needed)
2. Identify and invite participants
3. Develop the tool (generate questions and write the script)
Common Steps in Developing/Conducting Focus Groups and Key Informant Interviews

4. Select a facilitator/interviewer
5. Choose the location
6. Conduct the focus group/interview
7. Collect, analyze, interpret, and report the results
Discussion

- How do you think you can use focus groups to enhance your knowledge?
- What groups would you target for focus group research?
- What kinds of questions would you ask?
Surveys

- Surveys can be used to help you learn more about causal factors.
- Surveys are a relatively quick, inexpensive way to gather information from a large number of people.
- Surveys are flexible and can be administered on paper, by telephone, or via the web.
Qualities of Good Survey Questions

- Evokes the truth
- Avoid asking “double-barreled” questions.
- Make sure your questions can accommodate all possible answers.
- Has mutually exclusive options.
- Produces variability of responses.
- Follows comfortably from the previous questions.
- Does not presuppose a certain state of affairs.
- Does not imply a desired answer.
- Does not use emotionally loaded or vaguely defined words
- Does not use unfamiliar words or abbreviations
- Is not dependent on responses from previous questions
- Does not ask respondents to order or rank a list of more than 5 items.
Survey Tools

- National Outcome Measures (NOMS) for both youth and adults.
- Information on alcohol-related community norms.
Survey Sampling Strategies

- **Random sampling** is the purest form of probability sampling. Each member of the population has an equal and known chance of being selected.
Survey Sampling Strategies (cont.)

- **Systematic sampling** is often used instead of random sampling. It is also called an Nth name selection technique. After the required sample size has been calculated, every Nth record is selected from a list of population members. As long as the list does not contain any hidden order, this sampling method is as good as the random sampling method. Its only advantage over the random sampling technique is simplicity.
Survey Sampling Strategies (cont.)

- **Stratified Sampling**
  - **Stratified sampling** is commonly used probability method that is superior to random sampling because it reduces sampling error. A stratum is a subset of the population that share at least one common characteristic. Examples of strata might be males and females, or managers and non-managers. The researcher first identifies the relevant strata and their actual representation in the population. Random sampling is then used to select a *sufficient* number of subjects from each stratum.
Survey Sampling Strategies (cont.)

- Convenience Sampling
  - Convenience sampling is used in exploratory research where the researcher is interested in getting an inexpensive approximation of the truth. As the name implies, the sample is selected because they are convenient. This nonprobability method is often used during preliminary research efforts to get a gross estimate of the results, without incurring the cost or time required to select a random sample.
Survey Sampling Strategies (cont.)

- **Judgment Sampling**
  - Judgment sampling is a common non-probability method. The researcher selects the sample based on judgment. This is usually an extension of convenience sampling. For example, a researcher may decide to draw the entire sample from one "representative" city, even though the population includes all cities. When using this method, the researcher must be confident that the chosen sample is truly representative of the entire population.
Survey Sampling Strategies (cont.)

- **Quota Sampling**
  - **Quota sampling** is the non-probability equivalent of stratified sampling. Like stratified sampling, the researcher first identifies the strata and their proportions as they are represented in the population. Then convenience or judgment sampling is used to select the required number of subjects from each stratum. This differs from stratified sampling, where the strata are filled by random sampling.
Survey Sampling Strategies (cont.)

- Snowball Sampling
  - Snowball sampling is a special nonprobability method used when the desired sample characteristic is rare. It may be extremely difficult or cost prohibitive to locate respondents in these situations. Snowball sampling relies on referrals from initial subjects to generate additional subjects. While this technique can dramatically lower search costs, it comes at the expense of introducing bias because the technique itself reduces the likelihood that the sample will represent a good cross section from the population.
Discussion

- How do you think you can use surveys to enhance your knowledge?
- What groups would you target for survey research?
- What kinds of questions would you ask?
Unobtrusive Measures

- Unobtrusive measures involve collecting and analyzing data without direct involvement of the researcher.
  - Avoids “measurement effect” bias
  - Provides naturalistic, meaningful observations
  - Very flexible; infinite numbers of potential indicators (limited only by the investigator’s imagination)

- The validity of unobtrusive data gathered over time is dependent on systematic methods of data collection.
Unobtrusive Measures

- **Indirect Measures**
  - Count of billboards or print and radio advertisements

- **Content Analysis**
  - Examine text of billboard or print and radio advertisements
  - Magazine and newspaper Articles

- **Existing Data**
  - School expulsion data
Community Mapping

- Data +
- Geographic Units =
- Meaningful Maps

http://www.policylink.org/EDTK/Mapping/default.html
Discussion

- How do you think you can use unobtrusive measures and community mapping to enhance your knowledge?
- What groups or behaviors would you target for this type of research?
Community Team Activity

- Draft your LEOW work plan
  - Data sources
  - Hot spot Identification
  - Examine causal process
  - Supplemental data collection
Group Discussion

• What challenges will you face in implementing your plan?
• What kind of assistance will you need to implement your plan?
Think About Prioritization Now

- Your LEOW will likely identify many “hot spots” and important causal factors
- How will you choose among them?
Factors to Consider in Prioritizing

- Time trends/other comparisons
- Size/magnitude
- Severity
- Economic costs/impact
Broader Criteria

- Competencies, skills. Human, institutional, financial
- Evidence of and feasibility to change
- Awareness, concern, interest (public, organizational)

Capacity/Resources
Preventability/Changeability
Readiness/Political Will

NEED
### Example: State Prioritization Matrix

<table>
<thead>
<tr>
<th>Priority</th>
<th>Existing Capacity/Resources</th>
<th>Preventability and Changeability</th>
<th>Community Readiness/Political Will</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol (60%)</td>
<td>Weak</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Tobacco</td>
<td>Strong</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Marijuana</td>
<td>Weak</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Cocaine (20%)</td>
<td>Weak</td>
<td>Modest/Low</td>
<td>High</td>
</tr>
<tr>
<td>Meth (20%)</td>
<td>Weak to Moderate</td>
<td>Modest</td>
<td>High</td>
</tr>
<tr>
<td>Prescription Drugs</td>
<td>Weak</td>
<td>Low</td>
<td>Low</td>
</tr>
</tbody>
</table>
Guidelines for the Local Epidemiological Report

Required:
- The Local Epidemiological Profile

Recommended:
- Priority Summary Report
- “Fact Sheets”
Closing Questions or Comments?