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Turning Data into Information, Part 2

Sponsored by:
The Illinois Department of Public Health and
Illinois Public Health Institute
Center for Community Capacity Development

March 20, 2013

HOUSEKEEPING

- Organizers will mute all phones during the presentation
- Q & A session at the end
  - You can ask questions through the chat option anytime during the presentation
  - At the end, we’ll take live questions. Please use the raise hand option to be un-muted.
- Technical Issues
  - 312.850.4744
  - rick.stegall@iphionline.org
Turning Data into Information; Pt. 2
March 20, 2013 1:30 PM-3:00 PM

Presenter
Jess Lynch, MCP, MPH
Senior Associate
Illinois Public Health Institute

Slides from Turning Data Into Information, Part 1**, 2/13/13
- Describe basic principles and concepts of data analysis and interpretation
- Understand how to interpret data in tables, charts, and graphs
- Describe several sources for health status and demographic data and understand how to access them.
- Understand how to integrate health and demographic data into IPLAN Assessment
- Begin to explore best practices for presenting data to stakeholders

Webinar Objectives for Part 2
Wednesday, March 20, 2013 – 1:30-3:00pm CST
- Summarize quantitative data and construct, charts, graphs, and tables that are easy to understand
- Present data in a visually compelling way
- Communicate IPLAN data to community members
- Understand several methods for integrating community input throughout the IPLAN process
- Use community input data to validate and enhance findings from secondary data sources
- Summarize and present qualitative information using basic analysis methods
Data and Information

Data: symbols; measurement of characteristics of observations
- What are we observing?
  - Population units of analysis
  - Social units of analysis
  - Geographical units of analysis
- What are their characteristics?
- Quantitative or Qualitative; Primary or Secondary

Information: data that are processed to be useful; provides answers to “who”, “what”, “where”, and “when” questions
- The same data may be shaped into different information…

Data-Information-Knowledge Hierarchy

Knowledge

Information

Data

Turning Data into Information

- describe and illustrate
- compare and contrast
- evaluate
- infer, estimate, and forecast
- analyze relationships between variables
Purpose of Turning Data into Information

- Educate and inform others of the health needs of the community and to identify disparities
- Use data to help develop priorities, plan programs, set goals, and budget funds
- Evaluate existing programs and initiatives to see if they are effective or require improvements
- Engage a range of community stakeholders to understand and address health issues

Steps for Data Analysis

1. Determine questions to answer or further understand
2. Choose key methods and indicators
3. Gather information from credible data sources
4. Input information into data collection software
5. Produce tables, charts or graphs
6. Interpret tables, charts or graphs
   - Recognize trends, patterns, similarities, and or differences among particular subpopulations of interest
7. Summarize Findings
8. Engage stakeholders to understand the significance of data
9. Present and communicate data to the community

In Part 1 of this webinar, we discussed gathering secondary data from a variety of sources.

Today, in Part 2, we will discuss collecting primary data from community residents.
Community Input - Collecting Primary Data

- increased understanding of community resident perspectives on needs and priorities as well as community strengths;
- opportunity for community engagement;
- contextual information is essential for accurate assessment & effective planning

Community Input Methods

- Surveys
- Focus Groups
- Community Forums & Town Hall Meetings
- Interviews
- Asset Mapping
- Photo Voice
- Oral History
- Event Analysis

Perspectives are Important

- If we do not accept that individual opinion is valuable, we fail to see the importance of human experience.
- Opinion is a valid indicator of how the world is experienced by those who are living in it.
- Understanding social phenomena from the perspective of people engaged in it provides knowledge about how it works, how it affects people, and how it can be changed/improved.
Gathering Community Input = Opportunity

- Communicate what you are doing
- Tell people who you are
- Spark interest in community improvement
- Communicate opportunities for involvement
- Demonstrate commitment to the community
- Demonstrate partnership with other organizations

Good Community Input
Incorporates the entire context from which humans interact to best explain social phenomena
- Political Context
- Economic Influences
- Cultural Beliefs
- Public Perception
- Media Representation
- Historical Significance
- Other Influences

Readiness for Community Input
- What staff members and volunteers are most skilled and have strong ties to the community?
- Do we already have relevant community data?
- What is the capacity of community members and organizations to participate?
- What is our role in building capacity? Communities role?
- What community engagement tools will we use and how will we use them?
- What follow-up are we prepared to do on community input collected?
- What is the level of community trust/buy-in?
Tips for Collecting Primary Data

- Assure and protect confidentiality of participants
- Use tested tools – Don’t reinvent the wheel.
- Tailor tools to your community...culturally and linguistically appropriate.
- Identify primary populations for data collection.
- Create plans to reach primary population.
- Know your research question(s).
- Be prepared to spend a day or two entering data.

Collecting Primary Data –
All Research Starts with a Question

- Before you begin, clearly define your research question(s).
  - What is the purpose of the research?
  - Why does this research need to be done?
  - What is the intended goal of the research?
  - Goal should be to uncover something unknown or verify something already known.
- WRITE DOWN the research questions/ purpose and continually refer to these at every step of process – it will keep you on track!

Surveys
Benefits of Surveys
- Random Sampling
- Confidentiality is easily maintained
- Standardized Responses
  - On site analysis
  - Easy to compare and analyze
- Large sample size

Challenges with Surveys
- Time consuming and resource demands
  - Data entry and collection
- Lack of Follow Up
- “Representative Sample” – Limit Results
- Non-response Rates

Finding a Validated or Tested Survey
New CDC Resource... Coming Soon!
- Validated Community Opinion Survey – Free Epi Info Software
- Capture perspective and health priorities/needs of community
- Organized in a population health framework with Pre-tested questions health outcomes and social determinants
- Ability to customize – adding questions

CDC Resource Cont..
- Self-administered format (web-based and email) and administered format (telephone and face-to-face)
- Piloting questions now – Available Mid-June
- CDC is looking for 5 – 10 communities nationwide that would be interested in piloting!
- Contact Vickie Booth at CDC for more information. web6@cdc.gov or 404.498.2826
### Tips for Writing a Survey or Questionnaire

*If a tested survey or questionnaire does not exist.*

1. Make the survey or questionnaire simple.
2. Write it for the type of survey or questionnaire used.
3. Ask the right kind of questions.
4. Align your questions appropriately.
5. Do not bore the participants.
6. Test the survey before distribution.
7. Provide clear instructions.
8. Think through collection before distribution.
9. Distribute the survey.

### Which Question is Better? Why?

**How many hours a day do you spend exercising?**
- 0 to 1 hour
- 120 to 180 minutes
- 4 to 5 hours
- more than 5 hours

**How many hours a day do you spend exercising?**
- 0 to 1 hour
- 1 to 3 hours
- 3 to 5 hours
- more than 5 hours

### Which Question is Better? Why?

- **What is your religion?**
  - Christian
  - Catholic
  - Lutheran
  - Jewish
  - Episcopalian

- **What is your religion?**
  - Catholic
  - Lutheran
  - Jewish
  - Episcopalian
  - Muslim
  - Other
  - None of the above
Focus Groups:
Qualitative research where a facilitator works with a group of people (8-10 ideally) in an interactive setting to gather their perceptions of a research topic – idea, product, plan, or proposal.

Forum/Town Hall Meeting:
If you plan to have a meeting with a larger audience, you can incorporate elements of this qualitative research into the large group discussion and/or break into smaller focus groups for part of your agenda.

Benefits of Focus Groups
- Comfortable environment
- Ability to get in-depth info on sensitive issues
- Can be less time consuming and more cost effective than individual interviews
- Emphasis on interaction
- Sharing promotes new ideas
- Works well with all age levels and literacy levels

Challenges with Focus Groups
- Strong facilitation skills are critical to success. Otherwise, the facilitator can influence interactions and which issues are expressed
- Potential for ‘group think’ or focus on limited themes or opinions
- Data is not intended to be quantifiable or statistically representative
- Large amounts of data ⇒ analysis is time intensive
When to Use Focus Groups

- To look for a range of ideas or feelings
- To understand differences in perspectives
- To uncover factors that influence opinions, behaviors or motivation
- You want ideas to emerge from the group – synergy
- To pilot test ideas, materials, plans or policies
- To gather info for program or policy design
- To shed light on quantitative data already collected
- You want to capture comments from a specific population

When Not to Use Focus Groups

- You want people to come to consensus
- You want to educate people
- You don’t intend to use results but want to give impression that you are listening
- You are asking for sensitive information that shouldn’t be shared in a group or could cause harm
- You need statistical projections
- You can’t ensure confidentiality of sensitive info

Listening Sessions vs. Focus Groups

- Listening sessions are similar in size, number and type of questions.
- Difference = How participants are identified.
  Listening Sessions target a pre-existing group of individuals with an interest in the assessment.
- Next slide shows additional differences.
### Types of Interviews

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Structured</th>
<th>Semi-Structured</th>
<th>Unstructured</th>
</tr>
</thead>
</table>
| **Pros**       | • Questions read verbatim from a script  
• Allows for easier cross-reference between responses  
• Requires more preparation  
• Possibility of underutilising the expertise of the interview participant  
• Possibility of missing unexpected issues  
• Requires active listening to uncover new questions to ask  
• More difficult to cross-reference responses  
• Researcher needs knowledge of the subject matter & good interpersonal skills | • Written interview guide with questions to ensure key topics addressed  
• Maintains Q & A format, but allows for greater flexibility in responses  
• Free-flowing discussion allows for interviewer to contribute what she thinks is most important  
• Requires active listening to uncover new questions to ask  
• More difficult to cross-reference responses  
• Researcher needs knowledge of the subject matter & good interpersonal skills | • Only topics/themes written out in advance; no written questions  
• Free-flowing discussion allows for interviewer to contribute what she thinks is most important  
• Requires active listening to uncover new questions to ask  
• More difficult to cross-reference responses  
• Researcher needs knowledge of the subject matter & good interpersonal skills |
| **Cons**       |             |                 |              |
|                |             |                 |              |
Benefits of Interviews
- Deeper understanding of a specific experience
- Insight into problems/Issues on a systems level
- Discussion based
- Provides context to research

Challenges with Interviews
- Limited size of sample
- Findings may not be repeatable
- Resource consuming
  - Conducting, transcribing and analyzing interviews
- Emphasis placed on skills of researcher/interviewer

Asset Mapping
Asset Mapping works with the resources that the community already has (individuals, networks, businesses, organizations, institutions, etc.)

- Community Development from the “Inside out”
- Helps identify strengths and suggest ways to help build a stronger community.
- Potential to identify and develop partnerships and resources
- Focuses on capacities, assets, resources, strengths
- Citizen participation
- Builds local leadership and confidence
- Builds connections
Steps for Data Analysis

7. Summarize Findings
8. Engage stakeholders to understand the significance of data
9. Present and communicate data to the community

Summarizing and Presenting Quantitative Data

Use Tables When:
- Need to look up values
- Need to compare individual values
- Precise values are required
- Quantitative values involve more than 1 unit of measurement

Use Charts When:
- Reveal relationships among values
- Message is contained in shape of the values
- Graphs allow for identification of:
  - Trends
  - Comparisons
  - Exceptionalities
  - Similarities, differences

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  - Trends
  - Comparisons
  - Exceptionalities
  - Similarities, differences
### Tables, Charts or Maps?

- **Table?**
  - Comparing many dimensions
- **Chart?**
  - Pie for composition of one variable
  - Bar for comparison of 2-5 values across 1-3 variables
  - Line for time trends
- **Map?**
  - Geographic Distribution

### Tables – Comparing many dimensions

#### Leading Causes of Death – Whiteside County

<table>
<thead>
<tr>
<th>Cause of death</th>
<th>2007</th>
<th>2006</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deaths by diseases of heart</td>
<td>177</td>
<td>178</td>
<td>195</td>
</tr>
<tr>
<td>Deaths by malignant neoplasms</td>
<td>132</td>
<td>101</td>
<td>157</td>
</tr>
<tr>
<td>Deaths by cerebrovascular diseases</td>
<td>36</td>
<td>41</td>
<td>40</td>
</tr>
<tr>
<td>Deaths by chronic lower respiratory diseases</td>
<td>36</td>
<td>35</td>
<td>46</td>
</tr>
<tr>
<td>Deaths by accidents</td>
<td>22</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>Deaths by influenza and pneumonitis</td>
<td>15</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>Deaths by Alzheimer's disease</td>
<td>14</td>
<td>17</td>
<td>20</td>
</tr>
<tr>
<td>Deaths by nephritis, nephrotic syndrome and nephrosis</td>
<td>13</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Deaths by diabetes mellitus</td>
<td>12</td>
<td>17</td>
<td>29</td>
</tr>
<tr>
<td>Deaths by in situ neoplasms, benign neoplasms and neoplasms of uncertain or unknown behavior</td>
<td>12</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>Deaths by intentional self-harm (suicide)</td>
<td>8</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>Deaths by chronic liver disease and cirrhosis</td>
<td>6</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>Deaths by septicemia</td>
<td>9</td>
<td>7</td>
<td>10</td>
</tr>
</tbody>
</table>

### Tables - Different Units of Measure

<table>
<thead>
<tr>
<th>Site</th>
<th>Units Sold</th>
<th>Dollar amount</th>
<th>% of Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant A</td>
<td>25</td>
<td>$1285</td>
<td>57%</td>
</tr>
<tr>
<td>Plant B</td>
<td>37</td>
<td>$1190</td>
<td>62%</td>
</tr>
<tr>
<td>Plant C</td>
<td>24</td>
<td>$1190</td>
<td>52%</td>
</tr>
</tbody>
</table>
Tables - Quantitative to Categorical Relationships

- Bidirectional tables
- One set of quantitative values and the intersection of multiple categories

<table>
<thead>
<tr>
<th>Income Level</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;$15,000</td>
<td>61%</td>
<td>60%</td>
<td>57%</td>
</tr>
<tr>
<td>$15,000-34,999</td>
<td>79%</td>
<td>81%</td>
<td>84%</td>
</tr>
<tr>
<td>$35,000-50,000</td>
<td>91%</td>
<td>91%</td>
<td>93%</td>
</tr>
<tr>
<td>&gt;$50,000</td>
<td>94%</td>
<td>93%</td>
<td>95%</td>
</tr>
</tbody>
</table>

Categories Arranged in 2 directions

<table>
<thead>
<tr>
<th>Category</th>
<th>Race</th>
<th>Rural IL</th>
<th>Urban IL</th>
<th>IL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>79%</td>
<td>81%</td>
<td>84%</td>
<td></td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>94%</td>
<td>90%</td>
<td>96%</td>
<td></td>
</tr>
<tr>
<td>American Indian</td>
<td>81%</td>
<td>85%</td>
<td>88%</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>99%</td>
<td>95%</td>
<td>95%</td>
<td></td>
</tr>
</tbody>
</table>

Charts

- More effective than tables for communicating information
- Edward Tufte – *Visual Display of Quantitative Information*
- Rule of thumb: maximize data-to-ink ratio
- Avoid:
  - busy grids
  - excess tick marks
  - redundant representation of simple data
  - boxes, shadows, pointers, legends (e.g. 3-D columns in Excel)
Charts

- Avoid chartjunk:
  - 2 elements in close proximity cause interaction
  - So careful with crosshatching
  - Use labeling not legends
  - Avoid borders, bold, grids
- We read left to right, top to bottom

Pie Charts

- To show composition
- Dual pies to compare composition
- Ideally, no more than 8 slices

Race/Ethnicity of Clients, FY2012

- African American: 83.6%
- White: 6.7%
- Hispanic/Latino: 8.2%
- Asian: 1.3%
- Other: 0.2%

- Organization A: 16.7%
- Organization B: 72.1%
Data Analysis and Presentation

Trends

Unemployment 1990-2011

Maps must include

- Labeling
- Legend
- Scale
- Locational identifier
- Source

Data Analysis and Presentation - Map

Percent of Students Eligible for Free or Reduced Lunch, By School, 2011

Source: www.communitycommons.org
Pairing Tables and Charts

Comparing Jackson County & Murphysboro

<table>
<thead>
<tr>
<th>Income Level</th>
<th>Jackson County, IL</th>
<th>Murphysboro, IL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median Household Income</td>
<td>$32,896</td>
<td>$27,991</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Income Range</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $10,000</td>
<td>4,296</td>
<td>18.1%</td>
</tr>
<tr>
<td>$10,000-$14,999</td>
<td>2,474</td>
<td>10.4%</td>
</tr>
<tr>
<td>$15,000-$24,999</td>
<td>2,998</td>
<td>12.6%</td>
</tr>
<tr>
<td>$25,000-$34,999</td>
<td>2,564</td>
<td>10.8%</td>
</tr>
<tr>
<td>$35,000-$49,999</td>
<td>2,475</td>
<td>14.7%</td>
</tr>
<tr>
<td>$50,000-$74,999</td>
<td>3,209</td>
<td>13.3%</td>
</tr>
<tr>
<td>$75,000-$99,999</td>
<td>2,009</td>
<td>8.5%</td>
</tr>
<tr>
<td>$100,000-$149,999</td>
<td>1,781</td>
<td>7.5%</td>
</tr>
<tr>
<td>$150,000-$199,999</td>
<td>1,515</td>
<td>2.3%</td>
</tr>
<tr>
<td>$200,000 or more</td>
<td>1,376</td>
<td>0.6%</td>
</tr>
</tbody>
</table>

| Unemployment | 2,706 | 5.3% |
| Poverty Rate | 17,523 | 29.1% |
| With Food Stamp/SNAP | 3,628 | 15.3% |
| Child Poverty Rate | 19,390 | 32.2% |

Overall Poverty Rate and Child Poverty Rate
Analyzing Qualitative Data

- Read through all the data while keeping in mind your research questions
  - Take notes on where/how the questions are answered

- Code the data:
  - Use the unique identifiers you assigned as a means to keep track of the participants
  - Group the answers to similar questions together
  - Sort quotes into groups with common themes/issues from answers to similar questions

- Select questions that highlight important findings.
- Pay attention to unexpected findings.
- Step back – think about the large implications of the findings.
  - What do these say about the problem/issue being researched?
Analyzing & Presenting Qualitative Data

- Write a few sentences about each theme/issue that come directly from the data.
  - These sentences should be combined together to answer the appropriate interview question/topic.
- Begin to link common themes across the interview questions.
- Step back – Think about the larger implications of the findings.
  - What do these say about the problem/issue being researched?
Case Example – Will County

• Multi-Component Model
  – Community Survey
    • 2009 random sample household survey available online and to return by mail – 5000 mailed/485 responses
    • Base survey was from 2005 survey for comparisons
    • Some populations in respondents underrepresented
  – 10 Focus Groups
    • Special populations (African American, homeless, Latino/Hispanic, special needs and youth)
    • Service providers for special populations
    • Geographic emphasis (northern, eastern and southern Will County)
    • Facilitated by member organizations and contacts who work with special populations

• Photo Voice
  • Developed guidance and submission form; provided 35 mm disposable cameras
  • Widely marketed through Steering Committee especially with youth groups
  • Collected photos for 6 weeks; also marketed on Facebook
  • Included findings in overall report

• Asset Mapping
  • Intern from local school of nursing
  • Original approach – divide county into geographic sections and map
  • Limited resources; incorporated questions into survey and focus groups to identify assets and extended this work to specific priorities once adopted by action planning

Case Example – Will County

• Process engaged additional partners and served as a catalyst for community member interest and engagement
• Identified priorities for special populations and geographic areas
• Capacity building in data collection and communicating data
• Identified cross-cutting themes that impacted ultimate community priorities
Case Example – Tazewell County

- Multi-Component Model
  - Community Survey
    - Undergraduate and Graduate Nursing Students – developed and implemented survey
    - Primary collection – online for 2 months / follow-up with underrepresented groups via paper copies in local libraries and upon request.
    - Most important factors for health community, most important health problems in community, most risky behaviors in community, rating overall health, demographics
  - Stakeholder / Community Leaders Focus Group
    - Key stakeholders and leaders on the IPLAN Steering Committee
    - Discussed and identified various opportunities and challenges/threats to or for the public's health and to the local public health system
    - Identified top issues

Why collect community input?

- Value gained usually outweighs the effort!
- Can help answer questions in secondary data...help to understand the "why".
- Primary data can enhance findings from existing secondary data sources.
- Themes, perspectives and quotes gathered from interviews, focus groups and forums can help provide some realistic context to specific community data.

Questions?

We’ll take live questions at this time. Please use the raise hand option to be un-muted, or submit a question via the chat feature.
Thank You!

We are planning several additional IPLAN trainings (webinars and in-person) and will be emailing info out shortly!

If you have training or technical assistance follow-up needs, contact:

Laurie Call, Director
Center for Community Capacity Development, IPHI
Laurie.Call@iphionline.org

Feedback

- Please complete the evaluation form.
- Your input is used to plan future offerings.

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