Connecting the Dots: Methods and Analysis
Evaluation Learning Series
Topic #5
# Evaluation Learning Series

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<td>The Importance of Engaging Stakeholders</td>
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<td>How to Create a Program Description</td>
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<td>Evaluation Questions</td>
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<td>Evaluation Design &amp; Indicators</td>
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<td>Connecting the Dots: Methods and Analysis</td>
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<td>Writing and Dissemination</td>
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Agenda

- Data Collection Methods
- Data Analysis
- Qualitative and Quantitative Data: The Big Picture
- CDC Evaluation Framework Standards
Data Collection Methods
### CDC Evaluation Framework

- Step 1: Stakeholders
- Step 2: Program Description
- Step 3: Focus Evaluation Design
- Step 4: Gather Credible Evidence
  - Choose indicators/measures
  - Decide on data collection methods and data sources

Data Collection Methods

- Are there existing data sources or do you need to collect new data?
  - Primary data collection vs secondary data collection

Primary Data Collection Methods

- Surveys
- Interviews
- Focus Groups
- Observation
- Document Review

Primary Data Sources

- Basic Screening Survey (BSS)
- Water Fluoridation Reporting System (WFRS)
- Performance measures

Secondary Data Sources

- State vital statistics
- Behavioral Risk Factor Surveillance System (BRFSS)
- Pregnancy Risk Assessment Monitoring System (PRAMS)
- National Health and Nutrition Examination Survey (NHANES)

How to Decide

▪ Context and content
  • Assess the resources you have available for data collection
  • Determine how soon you need the results
  • Ask yourself: Is this observable?

▪ Stakeholder discussions

▪ Choose the methods/sources because they fit, not because they are familiar

# Data Sources (1)

## Evaluation Questions/Indicators for School-Based Dental Program

<table>
<thead>
<tr>
<th>Questions &amp; Indicators</th>
<th>Definition (Numerator and Denominator)</th>
<th>Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What was the program’s reach in 2015?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Total # children who received services in 2015-16</td>
<td>N/A</td>
<td>SOHP Coordinator</td>
</tr>
<tr>
<td>• Number of school-based programs per Health District reached in 2015-16</td>
<td>N: Number of participating schools</td>
<td>Dental Sealants Coordinator</td>
</tr>
<tr>
<td></td>
<td>D: Number of participating health districts</td>
<td></td>
</tr>
<tr>
<td>• Number of participating schools per School Divisions in 2015-16</td>
<td>N: Number of participating schools</td>
<td>Dental Sealants Coordinator</td>
</tr>
<tr>
<td></td>
<td>D: Number of participating school divisions</td>
<td>VA-SEALS Database</td>
</tr>
<tr>
<td>• Number of sealants placed in 2015-16</td>
<td>This is the number of teeth sealed.</td>
<td>VA SEALS Database</td>
</tr>
<tr>
<td>• Number of children screened by grade in school year 2015-16</td>
<td>N/A</td>
<td>VA SEALS Database</td>
</tr>
</tbody>
</table>

**What marketing and promotional activities occurred in 2015 to promote the sealant program?**

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<th>Questions &amp; Indicators</th>
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<tbody>
<tr>
<td>• Number of dental sealant marketing materials distributed to VA schools in 2015-16</td>
<td>These included posters, flyers, tooth brushes, tooth paste, and other print materials.</td>
<td>Dental Sealants Coordinator</td>
</tr>
<tr>
<td>• Number of conferences/events attended by DHP Central Office staff to promote dental sealants in 2015-16</td>
<td>School open houses, community health events, Parent Teacher Association</td>
<td>Dental Sealants Coordinator</td>
</tr>
</tbody>
</table>

# Data Sources (2)

<table>
<thead>
<tr>
<th>Logic Model Element</th>
<th>Indicator(s)</th>
<th>Data Source(s) and Method(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outreach</td>
<td>High-risk children and families in the district have been reached with relevant information</td>
<td>Logs of direct mail and health fair contacts</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Demographic algorithm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geographic Information System (GIS) algorithm</td>
</tr>
<tr>
<td>Screening</td>
<td>High-risk children have completed initial and follow-up screening</td>
<td>Logs and lab data</td>
</tr>
<tr>
<td>Environment assessment</td>
<td>Environments of all children over EBLL threshold have been assessed for lead poisoning</td>
<td>Logs of environmental health staff</td>
</tr>
<tr>
<td>Case management</td>
<td>All children over EBLL threshold have a case management plan including social, medical, and environmental components</td>
<td>Case file of EBLL child</td>
</tr>
<tr>
<td>Family training</td>
<td>Families of all children over EBLL threshold have received training on household behaviors to reduce EBLL</td>
<td>Logs of case managers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Survey of families</td>
</tr>
<tr>
<td>“Leaded” houses referred</td>
<td>All houses of EBLL children with evidence of lead have been referred to housing authority</td>
<td>Logs and case files</td>
</tr>
<tr>
<td>“Leaded” houses cleaned</td>
<td>All referred houses have been cleaned up</td>
<td>Follow-up assessment by environmental health staff</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Housing authority logs</td>
</tr>
</tbody>
</table>

Triangulation

- **Sequential**
  - Qualitative methods used to develop a quantitative instrument
  - Interviews conducted post-survey

- **Concurrent**
  - Focus groups/interviews to confirm the response validity of a quantitative instrument

<table>
<thead>
<tr>
<th>Utility</th>
<th>Feasibility</th>
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<tbody>
<tr>
<td>Consider the purpose and use of data collection. Do you want to tell an in-depth story? Or do you want to analyze a range of experiences?</td>
<td>Which methods can you afford?</td>
</tr>
<tr>
<td></td>
<td>How long until the results are needed?</td>
</tr>
<tr>
<td></td>
<td>How often do you need the data?</td>
</tr>
<tr>
<td></td>
<td>Are you well-versed in the chosen data collection method or will you need assistance from an external consultant?</td>
</tr>
</tbody>
</table>

## The Four Standards (2)

<table>
<thead>
<tr>
<th>Propriety</th>
<th>Accuracy</th>
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<tbody>
<tr>
<td>Will the data collection method be seen as intrusive to participants?</td>
<td>Is the issue a measurable/observable behavior?</td>
</tr>
<tr>
<td>Are there issues of confidentiality or participant safety in seeking</td>
<td>How honest will respondents be answering questions on this issue?</td>
</tr>
<tr>
<td>answers to questions on this issue?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Is this something that participants will likely know?</td>
</tr>
</tbody>
</table>

Data Collection: Iowa

- Planning to conduct a sealant evaluation
- Proposed data collection method: survey to assess facilitators and barriers
  - Struggled with proposed delivery method
- Reached out to CDC and some other states with experience
  - Considered context while making decisions
- Decision: Paper survey followed by focus groups
Discussion

- Have any of the four standards posed a challenge when thinking about data collection?
Qualitative and Quantitative Data: The Big Picture
Using Qualitative Data for Program Evaluation

- Dissemination plan
- Share findings with stakeholders

- Example: focus groups, case studies, in-depth interviews
- Sampling (i.e., convenience, etc.)
- Resource availability (i.e., staff, cost)
- Stakeholder engagement

- Take time to interpret data and draw meaningful conclusions
- Data-driven recommendations

- Time
- Data storage (i.e., transcripts, audio recordings)
- Data cleaning

- Ongoing
- For qualitative data, themes

- Software
- Codebook
- Coding data

Using Quantitative Data for Program Evaluation

- Dissemination plan
- Share findings with stakeholders

- Take time to interpret data and draw meaningful conclusions
- Data-driven recommendations

- Ongoing
  - For quantitative data, 2X2 tables, crosstabs, etc.
  - Missing data

- Data reporting
- Data collection
- Data management
- Data analysis
- Data interpretation
- Data quality assessment

- Example: surveys (i.e., BSS)
- Sampling
- Resource availability (i.e., staff, cost)
- Time
- Stakeholder engagement

- Time
- Data storage
- Data cleaning

Data Analysis Recap
Data Analysis

- **Demographics**
  - Ensure **meaningful** interpretation

- **Comparisons**
  - Using statistical tests improves quality of information
  - Relate comparisons to larger context

After Analysis & Synthesis

- Interpret findings
- Make judgements

Program Standards

- What your stakeholders deem as fundamental to this evaluation
  - Human rights
  - Health equity
  - Resource efficiency
  - Policies

Interpret the Findings

- Make sure you explain what the audience needs/wants to know
- Consider that there may be other explanations for your results
- Are the results consistent with theories supported by previous research?

Tips for Justifying Conclusions

- Share preliminary findings with stakeholders
  - Leads to more thoughtful conclusions due to unique perspectives of stakeholders

- Plan, plan, plan
  - Allocate enough time to work with the data in order to prepare for analysis, interpretation, stakeholder and intra-program feedback if necessary and conclusion development

Source: Developing an Effective Evaluation Plan. Atlanta, Georgia: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; Division of Nutrition, Physical Activity, and Obesity, 2011
Quantitative Data Analysis

- **Descriptive statistics**
  - Microsoft Excel or Access

- **Inferential statistics**
  - SPSS
  - SAS
  - STATA

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Qualitative Data Analysis

- Organize themes and codes
  - Microsoft Word

- Other software packages
  - EZ-Text/
    - Free CDC software package which helps to create, manage, and analyze semi-structured qualitative databases
  - Atlas-ti

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CDC Evaluation Framework
Standards
The Four Standards (3)

<table>
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<tr>
<th>Utility</th>
<th>Feasibility</th>
<th>Propriety</th>
<th>Accuracy</th>
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</thead>
<tbody>
<tr>
<td>Have you carefully described the perspectives, procedures and rationale used to interpret the findings?</td>
<td>Is the approach to analysis and interpretation appropriate to the level of expertise and resources?</td>
<td>Have the standards and values of those less powerful or those most affected by the program been taken into account in determining standards for success?</td>
<td>Can you explicitly justify your conclusions? Are the conclusions fully understandable to stakeholders?</td>
</tr>
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</table>

End of Topic #5: Connecting the Dots: Methods and Analysis

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the CDC.