Logic Model: Components and Implementation

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Performance Improvement Context

• Requirements established by grant guidance
• ORHP’s Strategic Planning Outline
  – Objective #9: Monitor and improve effectiveness and efficiency of grantees and contractors associated with the Flex program.
• Vulnerability of rural programs in Federal budget
• Government Performance and Results Act (GPRA)
• Planning and internal evaluation
The Era of Accountability

• What is measured gets done
• If you don’t measure results, you can’t tell success from failure
  • If you can’t see success, you can’t reward it
  • If you can’t see success, you can’t learn from and duplicate it
• If you can’t recognize failure, you can’t correct it
• If you can demonstrate results, you can win support

Adapted from *Re-Inventing Government*, Osborne & Gaebler, 1992
What Are Logic Models?

- A tool used in program planning, management, and evaluation to:
  - Understand how *program resources* are used to implement key *strategies* and activities,
  - and
  - How their implementation contributes to expected *outputs* and *short, medium, and long term outcomes*.
Purpose of a Logic Model

• Visual representation
  – Describes how a program works to solve identified problems within a given context (program theory)
  – Identifies the problem
  – Identifies the root causes (antecedent conditions of problem)
  – Links program strategies to these antecedent conditions
  – Identifies ways to evaluate effectiveness of strategies at changing the root causes and the problem

• Describes logical connections between:
  – Goals and objectives
  – Strategies and Activities
  – Outputs and outcomes
Challenges of Program Management: Activity Traps

- Having been doing a particular activity of a long time
  - Not sure why we keep doing them
- Things may be done right – they are just not the right things
- Targeting symptoms – not the root causes
- Falling for the “intervention” of the month
- Not having a consistent strategy over time
ATM: Avoiding Activity Traps

• Antecedent conditions – the “why” of a problem
  – Identify all root (causal) factors related to the problem
• Targeting antecedent conditions – “who”-“what”-“how”
  – Interventions must directly targeting root causes of problems
  – Resources needed, activities planned, and desired outcomes
  – Extract outcomes from root causes
• Measurement—representing measurement in the model
  – Identify time frame for expected outcomes
  – For which outcomes are measures/indicators necessary?
  – What are the sources of data for measures/indicators?
  – Extract measurable objectives from identified outcomes

Adapted from Renger and Titcomb, 2002
Benefits of a Logic Model

- Builds common understanding of the program and expectations for results
- Facilitates program design and improvement
- Identifies elements critical to goal attainment
- Ties resources to activities, outputs, and outcomes
- Exposes redundant elements, resource bottlenecks, and inconsistent/impractical linkages between program elements
- Identifies key performance measurement points
- Builds a chain of evidence that demonstrates the impact of the Flex Program
Limitations of Logic Models

• Represent reality but are not reality
• Focus on expected outcomes
  – Based on a static point in time – must be revised as program evolves
• Challenge of causal attribution
  – Many factors influence process and outcomes
• Doesn’t address: Are we doing the right thing?
Using the Logic Model

- Determine purpose of logic model
  - Who will use it? For what?
- Involve others—program & hospital staff, stakeholders
- Set boundaries for the model
- Understand the situation
- Explore research, knowledge base, what others are doing/have done
- Understand the environmental/external factors that may impact program outcomes
Developing a Flex Logic Model

• Stage 1 - Preparation
  – Establish logic model development framework
  – Identify participants in the development process
  – Determine roles and responsibilities

• Stage 2 – Program planning process
  – Step 1: What do you want the program to accomplish?
    • Define problem to be addressed in each core area
    • Identify antecedent conditions (root causes) of problem
    • Development problem statement
    • Identify desired program outcomes
    • Prioritize and evaluate long term outcomes
    • Identify measures for long term outcomes
Developing a Flex Logic Model (continued)

• Stage 2 – Program planning process
  – Step 2: Describe how your program will accomplish desired outcomes
    • Identify external/environmental factors that may impact program outcomes
    • Identify activities required to carry out program strategies
  – Step 3: Describing how you will know if the program is making progress towards desired outcomes
    • Identify short- and intermediate-term outcomes
    • Evaluate program’s chain of outcomes
    • Assess progress towards achieving desired outcomes
Developing a Flex Logic Model (continued)

- **Stage 3 – Implementation**
  - Establish data collection systems
  - Assign staff to implement activities and monitor execution of program strategies

- **Stage 4 – Review and revision**
  - Provide feedback loop to adjust program activities based on outputs and short- and intermediate–term outcomes
  - Modify program strategies, timeframes and outcome measures as needed
**PLANNING: start with the end in mind**

<table>
<thead>
<tr>
<th>Program Action</th>
<th>Inputs</th>
<th>Outputs</th>
<th>Outcomes - Impact</th>
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<tbody>
<tr>
<td></td>
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<td>Activities</td>
<td>Participation</td>
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<td><strong>What we do</strong></td>
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<td>Work with media</td>
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<td><strong>Who we reach</strong></td>
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<td>Participants</td>
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<td>Customers</td>
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<td><strong>What the short term results are</strong></td>
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<td><strong>What the medium term results are</strong></td>
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<td>Social Action</td>
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**Situation**
- Needs and assets
- Symptoms versus problems
- Stakeholder engagement
- Intended outcomes

**Priorities**
- Consider:
  - Mission
  - Vision
  - Values
  - Mandates
  - Resources
  - Local dynamics
  - Collaborators
  - Competitors

**Assumptions**

**External Factors**

**Evaluation**
- What do you want to know?
- How will you know it?

**EVALUATION: check and verify**
Programs aren’t linear
Feedback loops and multi-dimensions

Program investments

Activities

Participation

Short

Medium

Long-term

What we invest

What we do

Who we reach

What results

Inputs

Outputs

Outcomes
What Does a Logic Model Look Like?

- Graphic display of boxes and arrows; vertical or horizontal
  - Relationships, linkages
- Any shape possible
  - Circular, dynamic
  - Cultural adaptations; storyboards
- Level of detail
  - simple
  - complex
- Multiple models
Check Your Logic Model

- Assessing and finalizing the logic model
  - Is it meaningful?
  - Does it make sense? (Plausibility)
  - Is it doable?
  - Can it be verified?

Share with development committee, program partners, evaluators, program participants, other involved agencies for comment and feedback
**Outputs vs. Outcomes**

**Outputs**
- Result from successful completion ("product") of program activities
- Examples: amount of technical assistance provided to CAHs or number of hospital personnel attending QI training

**Outcomes**
- Changes or benefits to individuals, groups, organizations, and or communities that result from program outputs
- Time specific – short, intermediate, and long term
- Become more difficult to measure and assign attribution or causality as the time horizon becomes longer
- Chain of outcome evidence becomes important
- Examples: improvements in hospital quality or financial performance
Outcomes Timeframes

• Short term – 1-2 years
  – Involves changes in participants knowledge, attitudes, or skills
  – Example: CAH staff will have greater knowledge of statewide QI initiatives and QI methods

• Intermediate term – 3-4 years
  – Involves changes in participants behavior
  – Example: CAHs participating in benchmarking programs and using data to improve clinical quality

• Long term – 5 or more years
  – Involves changes in participants condition or status
  – Examples: CAHs demonstrate improved quality of care in medication safety, reduction in medical errors, and patient outcomes
Program Chain of Outcomes

• Broad goals are difficult to measure – Improve the health of rural communities
  – Causality/ attribution is difficult to prove
  – Many entities, programs, and stakeholders impact CAHs
  – Data collection is expensive
  – Achievement of broad goals may have long time horizons

• Program theory of change provides a “chain of outcomes”
  – Describes why and how interim outcomes will contribute to improved health of rural communities
  – Interim outcomes are less expensive and easier to measure
  – Provides evidence of program impact and evidence that it is on track to achieve desired goals
Evaluating Chain of Outcomes

• Do the long term outcomes represent meaningful and valued change in participant’s status or condition?

• Do program outputs and short, intermediate, and long-term outcomes relate to each other logically?
  – Check “If-Then” relationships between outputs and outcomes
  – If accurate, then each output/outcome should be expected to result in the next outcome of the chain.

• Are the outcomes achievable given the available resources and the program’s influence over the target population.

• Have potential negative outcomes of the program been identified?
Writing Good Outcomes

SMART objectives: Specific, measurable, attainable, results-oriented, timed

<table>
<thead>
<tr>
<th>Who/what</th>
<th>Change/desired effect</th>
<th>In what</th>
<th>By when</th>
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</table>
**Who wants to Know About Your Program?**

<table>
<thead>
<tr>
<th>Who might use the evaluation?</th>
<th>What do they want to know?</th>
<th>How will they use the info?</th>
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<tbody>
<tr>
<td>You – staff</td>
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<tr>
<td>Participants</td>
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<tr>
<td>Other Flex Programs</td>
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<td>Other CAHs</td>
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<td>ORHP/Other funders</td>
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</table>
Example: Washington’s Rural Healthcare Quality Network

• Washington’s Rural Healthcare Quality Network

• Problem definition:
  – Existing quality improvement programs were not relevant to the small hospital environment

• Assumptions
  – A rural appropriate QI program organized through a network of CAHs will demonstrate that CAHs can deliver services of comparable or better quality as urban hospitals
  – Strong administrative and clinical leadership is critical to building sustainable networks
  – QI networks will produce value that will assure sustainability over time
**Washington Flex Program: Rural Health Care Quality Network Logic Model**

**Situation:** Existing quality improvement programs are not relevant to the small hospital environment. They do not reflect the scope of work of small rural hospitals and, as such, do not allow small hospitals to demonstrate the quality of the services they provide.

**Goal:** To develop a sustainable quality improvement system specific to the needs of small rural hospitals

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Outputs</th>
<th>Outcomes -- Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Executive Director, RHQN</td>
<td>Developed business/strategic plan.</td>
<td>RHQN continues to increase capacity through August 2006</td>
</tr>
<tr>
<td>• Medical Director, RHQN</td>
<td>Policies and procedures for peer review discussions</td>
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<tr>
<td>• Chair, RHQN</td>
<td>Minimum SOP are adopted using best practices for rural.</td>
<td># of participating CAHs increases</td>
</tr>
<tr>
<td>• RJ Noll, Nurse Consultant, OCRHI</td>
<td>Completed CQIP application</td>
<td>Larger proportion of RHQN expenditures are self-supporting</td>
</tr>
<tr>
<td>• CAH clinical and administrative staff</td>
<td>Quality measurement tools for patient satisfaction, patient safety, and at least one clinical collaborative.</td>
<td>Focus areas are identified</td>
</tr>
<tr>
<td>• WA State Hospital Association</td>
<td>Set minimum SOP for RHQN members on the following Medicare COPs: peer review, credentialing, annual performance evaluation</td>
<td>Scope of CQIP is expanded by August 2005 - peer review discussions are shielded from disclosure</td>
</tr>
<tr>
<td>• WA Health Foundation</td>
<td>Develop QI benchmarking system for patient satisfaction, patient safety and at least one clinical collaborative.</td>
<td>Participants meet RHQN standards set for Medicare COP</td>
</tr>
<tr>
<td>• AWHF</td>
<td>Develop RHQN including governance structure, membership administrative systems; videoconferencing system; and QI program that meets Medicare COP.</td>
<td>90% of participants meet/exceed RHQN minimum SOP</td>
</tr>
<tr>
<td>• DOH Survey and Licensing office</td>
<td>RHQN to obtain Coordinated QI Program (CQIP) status to protect peer review discussions.</td>
<td>Members adopt common quality measurement tools for patient satisfaction, patient safety, and at least one clinical collaborative by August 2005</td>
</tr>
<tr>
<td>• Membership fees of $2,500 per hospital plus a commitment to use $6,500 in services per year</td>
<td>Operational documentation completed by August 2005</td>
<td>80% of RHQN members adopt at least 1 common quality measurement tool</td>
</tr>
<tr>
<td>• Flex funds of at least $120,000 and Nurse Consultant salary, fringe, and travel (9/04-8/05)</td>
<td>CAHs received contracted services during Sept 2004-August 2005</td>
<td>Participants demonstrate higher patient satisfaction scores over time</td>
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<table>
<thead>
<tr>
<th>Assumptions</th>
<th>External Factors</th>
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<tr>
<td>1) A rural appropriate QI program organized through a network of CAHs will demonstrate that CAHs can deliver services of comparable or better as urban hospitals.</td>
<td>Public and private &quot;pay for performance&quot; systems create opportunities for rural hospitals to demonstrate their value.</td>
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<tr>
<td>2) Strong administrative and clinical leadership is critical to building sustainable networks.</td>
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<td>3) QI networks will produce value that will assure sustainability over time.</td>
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**Sustainable network in place by August 2007**

All CAHs participate in RHQN by August 2007

More than 50% of RHQN expenditures are self-supporting

RHQN participates in national quality initiatives

CQIP covers all facets of RHQN operations

Participants meet standards set for Medicare COP

100% of participants meet/exceed minimum SOPs

100% of CAHs are able to get insurance coverage

100% of CAHs meet State Licensure QI standards

CAHs exhibit appropriate patient volume and utilization

Less than 25% of patients appropriately by-pass the hospital

Improvement is shown on quality measurement tools
Strategies: RHQN Network

- Governance and administrative structure, membership, video conferencing system
- Clinical QI program that meets Medicare COP
- Coordinated QI program status
- Minimum standards of performance for peer review, credentialing, annual performance evaluation
- Clinical quality benchmarking system
**Planned Outputs**

- Business/strategic plan
- Policies and procedures for peer review
- Minimum standards of performance on Medicare COP for peer review, credentialing, annual performance review
- Quality measurement tools for patient satisfaction, patient safety, and implementation of one clinical collaborative
Initial Outcomes and Measures

• **Effective operational structure in place by 8/05**
  – Complete operational documentation
  – CAHs receive contracted services - 9/04 - 8/05
  – CAHs commit to participate during 9/05-8/06

• **Participants meet standards for Medicare COP**
  – Rural appropriate benchmarks are created
  – 90% meet/exceed minimum acceptable standards of performance

• **Members adopt common quality measurements tools by 8/05**
  – 80% of RHQN members adopt at least 1 common quality measurement tool
Intermediate Outcomes and Measures

• Network increases capacity through 8/06
  – # of participating CAHs increases
  – Larger portion of RHQN expenditures are self-supporting
  – Focus areas are identified

• Scope of CQIP is expanded by 8/05
  – All peer review discussions are shielded from disclosure

• Participants meet standards set for Medicare COP
  – 95% meet/exceed minimum acceptable standards of performance

• Participants demonstrate higher patient satisfaction scores over time
  – Baselines are established and best practices are identified
Long Term Outcomes and Measures

• Sustainable productive network in place by 8/07
  – All CAHs participate in RHQN by 8/07
  – More than 50% of RHQN expenditures are self-supporting
  – RHQN participates in national quality initiatives

• CQIP covers all facets of RHQN operations
  – Members express confidence in protection of peer review and QI discussions
Long Term Outcomes and Measures (continued)

• Participates meet standards for Medicare COP
  – 100% meet/exceed minimum acceptable SOP
  – 100% meet State Licensure QI standards
  – 100% are able to obtain insurance coverage

• CAHs exhibit appropriate volume and utilization
  – Less than 25% of patients inappropriately by-pass the hospital
  – Participants exhibit improvement on established quality measures
Challenges: Dealing With Complexity

• Trying to convey everything in a single logic model
  – Develop individual logic models for core strategies
  – Consolidate activities under core strategies
  – Present only core strategies and key outcome and indicators on overall logic model

• Failure to depict the underlying rationale
  – Problem statements and activities are more easily identified than underlying rationale
  – Clearly identify theory of change
Challenges: Outcomes and Measurement

• Extract outcomes from targeted causes of underlying problem.
• Extract measurable objectives from the identified outcomes
  – For which outcomes are indicators necessary?
  – Can changes in outcomes be expected during the course of the program?
Lessons from Washington

• The logic modeling process requires a careful examination of program strategies, activities, and expectations for results;

• New program design and improvement options become evident;

• Helps priority setting by identifying elements critical to goal attainment;

• Exposes redundant elements, resource bottlenecks, and inconsistent or impractical linkages between program elements; and

• Identifies key performance measurement points
### Examples of Outcomes and Measures

**Core area: Quality improvement**

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<tr>
<th>Activity</th>
<th>Outcome</th>
<th>Measure</th>
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<tbody>
<tr>
<td>Support development &amp; implementation of evidence-based protocols for common diagnoses</td>
<td>Increased CAH utilization of evidence-based protocols</td>
<td># of CAHs using evidence-based</td>
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<td></td>
<td>Improved hospital quality of care and patient safety</td>
<td>Improvement in hospital care measures</td>
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<tr>
<td>Support activities to reduce unnecessary hospital re-admissions</td>
<td>Reduction in CAH unnecessary re-admissions</td>
<td># of CAHs using re-admission guides and protocols</td>
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<td>Reduction in preventable hospital re-admission rates</td>
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## Examples of Outcomes and Measures

### Core area: Financial performance improvement

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<th>Activity</th>
<th>Outcome</th>
<th>Measures</th>
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<tr>
<td>Support efforts to improve CAH business office and billing operations</td>
<td>CAHs exhibit better cash flow and improved viability</td>
<td># of CAHs participating in business office and billing operations</td>
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<td># of CAHs have improved the turn around time to bill 3rd party carriers</td>
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<td># of CAHs with improved cash flow</td>
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<td># of CAHs with improved financial margins</td>
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### Examples of Outcomes and Measures

**Core area: Community development and engagement**

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<th>Activity</th>
<th>Outcome</th>
<th>Measures</th>
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</table>
| Encourage and support CAHs with identifying options to address local gaps in behavioral health services | Improved availability of behavioral health services in rural communities  
Increased collaboration between CAHs and behavioral health services providers  
Improved patient care in CAH communities | # of CAHs that have received TA/support to develop behavioral health services  
# of CAHs engaged in efforts to develop local behavioral health services  
# of CAHs collaborating with behavioral health providers to develop local services  
# of CAH communities where behavioral health services have been implemented or expanded |
Resources

• FMT Team: Toolkit for State Flex Programs

• WK Kellogg: Logic Model Development Guide

• Targeting Outcomes of Programs (TOP) Framework
  – http://citnews.unl.edu/TOP/english/index.html

• United Way Measuring Program Outcomes: A Practical Approach