

Logic Model: Components and Implementation

John Gale
Maine Rural Health Research Center
Evaluation Workshop
August 7, 2014
Nashville, TN

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

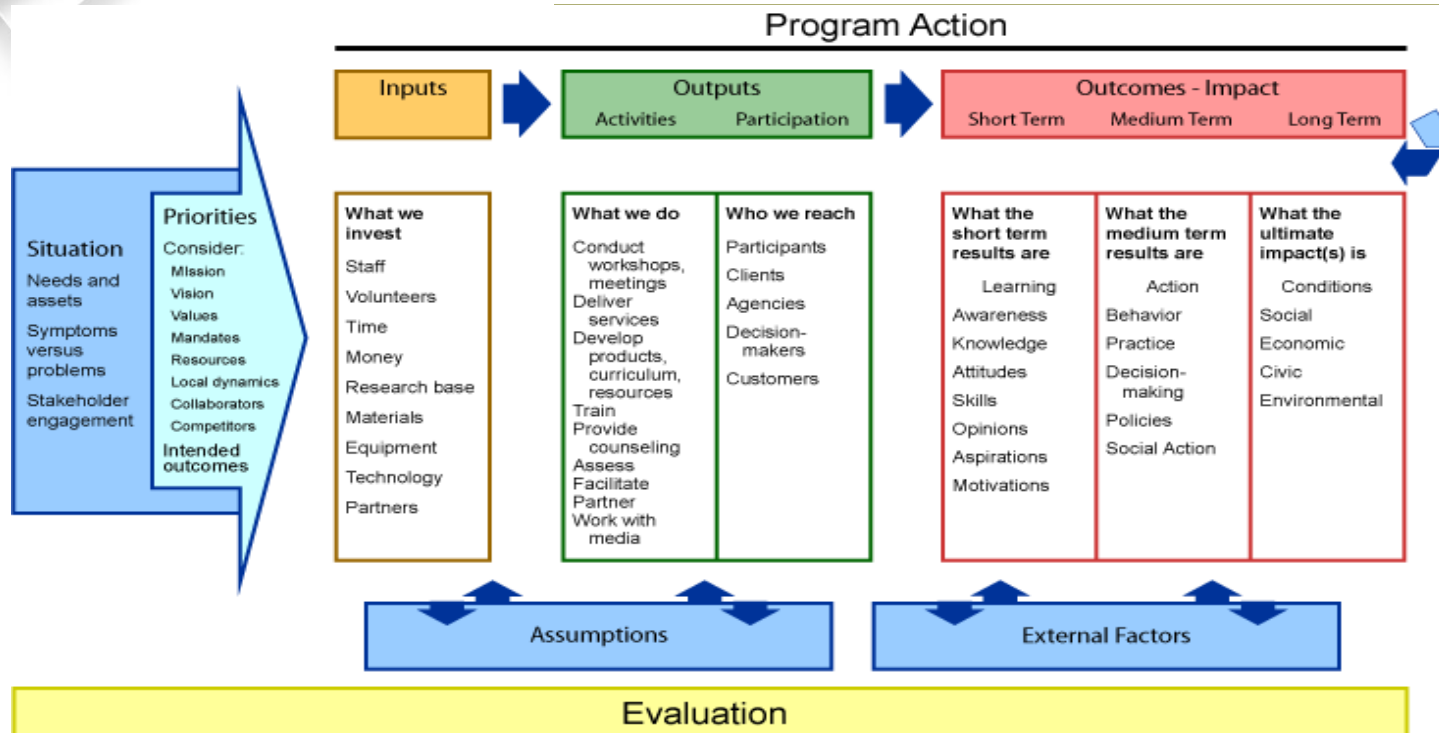
Developing a Flex Logic Model (continued)

- 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



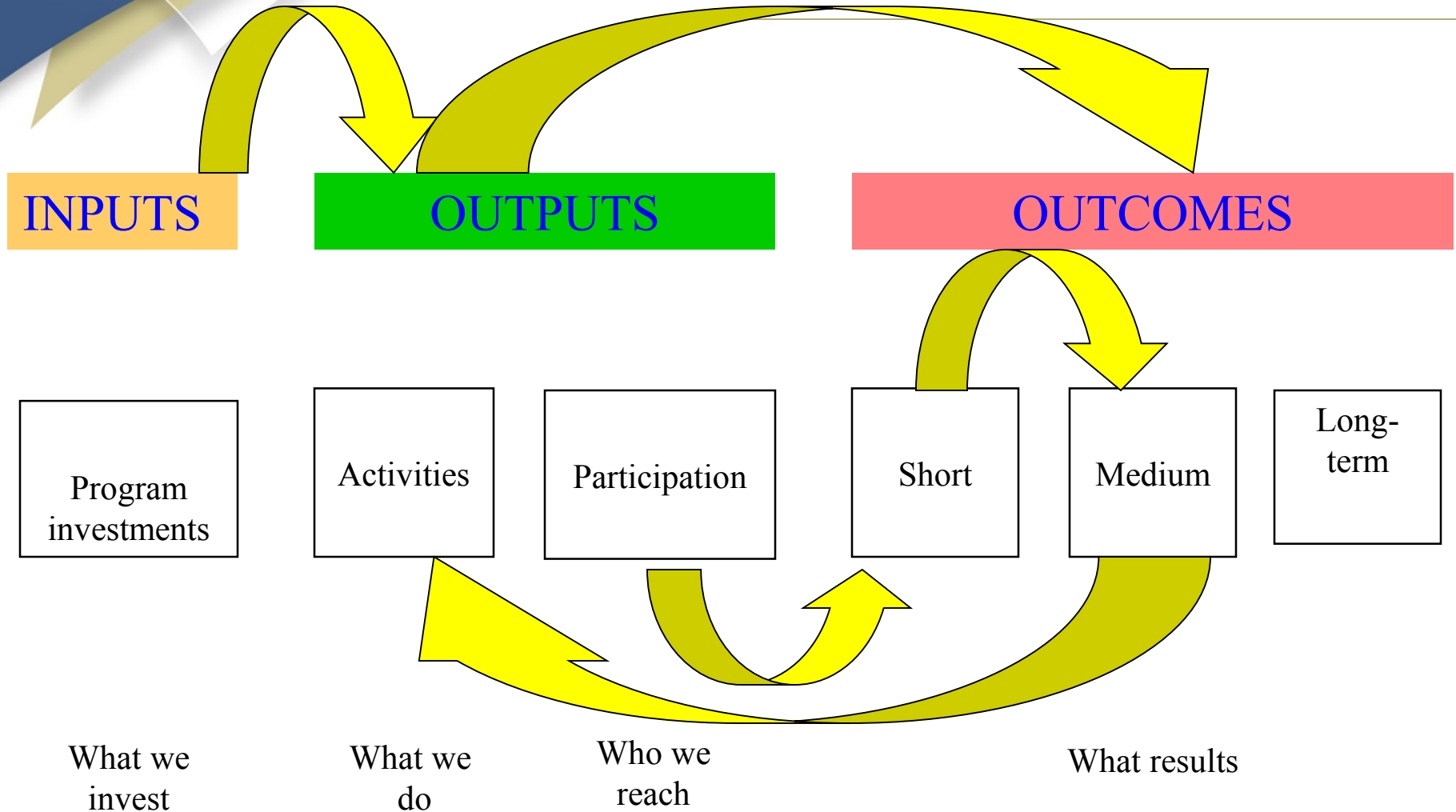
What do you want to know?

How will you know it?

EVALUATION: check and verify

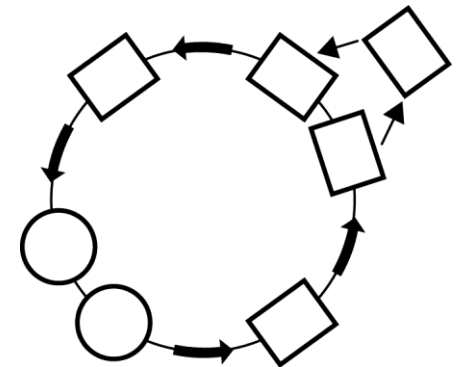
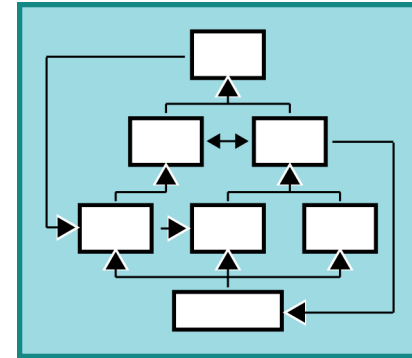
Programs aren't linear

Feedback loops and multi-dimensions



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



Inputs	Outputs	Outcomes
	1	1a b
	2	2a b c
	3	3a b
	4	

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' 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?



University of Minnesota
University of North Carolina at Chapel Hill
University of Southern Maine

Writing Good Outcomes

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

[illegible]

Who wants to Know About Your Program?

Who might use the evaluation?	What do they want to know?	How will they use the info?
You – staff		
Participants		
Other Flex Programs		
Other CAHs		
ORHP/Other funders		

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

Program: 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

Inputs	Outputs		Outcomes -- Impact		
	Activities/Strategies	Outputs	Short	Medium	Long
<ul style="list-style-type: none"> Executive Director, RHQN Medical Director, RHQN Chair, RHQN BJ Noll, Nurse Consultant, OCRH CAH clinical and administrative staff WA State Hospital Association WA Health Foundation AWPHD DOH Survey and Licensing office Membership fees of \$2,500 per hospital plus a commitment to use \$6,500 in services per year Flex funds of at least \$120,000 and Nurse Consultant salary, fringe, and travel (9/04-8/05) 	<p>Develop RHQN including: governance structure; membership; administrative systems; videoconferencing system; and QI program that meets Medicare COP.</p> <p>RHQN to obtain Coordinated QI Program (CQIP) status to protect peer review discussions.</p> <p>Set minimum SOP for RHQN members on the following Medicare COPs: peer review, credentialing, annual performance evaluation</p> <p>Develop QI benchmarking system for patient satisfaction, patient safety and at least one clinical collaborative.</p>	<p>Completed business/ strategic plan.</p> <p>Policies and procedures for peer review discussions</p> <p>Minimum SOP are adopted using best practices for rural.</p> <p>Completed CQIP application</p> <p>Quality measurement tools for patient satisfaction, patient safety, and at least one clinical collaborative.</p>	<p>Effective operational structure is in place by August 2005</p> <p>Operational documentation completed by August 2005</p> <p>CAHs received contracted services during Sept 2004-August 2005</p> <p>CAHs expressed commitment to continued participation in RHQN</p> <p>Initial CQIP status is obtained by December 2004</p> <p>Participants meet RHQN standards set for Medicare COP</p> <p>90% of participants meet/exceed RHQN minimum SOP</p> <p>Members adopt common quality measurement tools for patient satisfaction, patient safety, and at least one clinical collaborative by August 2005</p> <p>80% of RHQN members adopt at least 1 common quality measurement tool</p>	<p>RHQN continues to increase capacity through August 2006</p> <p># of participating CAHs increases</p> <p>Larger proportion of RHQN expenditures are self-supporting</p> <p>Focus areas are identified</p> <p>Scope of CQIP is expanded by August 2005 - peer review discussions are shielded from disclosure</p> <p>Participants meet RHQN standards set for Medicare COP</p> <p>95% of participants meet/exceed RHQN minimum acceptable standards of performance</p> <p>Participants demonstrate higher patient satisfaction scores over time</p> <p>Baselines are established</p> <p>Best practices are identified and implemented</p>	<p>Sustainable network in place by August 2007</p> <p>All CAHs participate in RHQN by August 2007</p> <p>More than 50% of RHQN expenditures are self-supporting.</p> <p>RHQN participates in national quality initiatives</p> <p>CQIP covers all facets of RHQN operations</p> <p>Participants meet standards set for Medicare COP</p> <p>100% of participants meet/exceed minimum SOPs</p> <p>100% of CAHs are able to get insurance coverage</p> <p>100 % of CAHs meet State Licensure QI standards</p> <p>CAHs exhibit appropriate patient volume and utilization</p> <p>Less than 25% of patients inappropriately by-pass the hospital</p> <p>Improvement is shown on quality measurement tools</p>

Assumptions

- 1) A rural appropriate QI program organized through a network of CAHs will demonstrate that CAHs can delivery services of comparable or better as urban hospitals.
- 2) Strong administrative and clinical leadership is critical to building sustainable networks.
3. QI networks will produce value that will assure sustainability over time.

External Factors

Public and private "pay for performance" systems create opportunities for rural hospitals to demonstrate their value.

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		
Activity	Outcome	Measure
Support development & implementation of evidence-based protocols for common diagnoses	Increased CAH utilization of evidence-based protocols Improved hospital quality of care and patient safety	# of CAHs using evidence-based Improvement in hospital care measures
Support activities to reduce unnecessary hospital re-admissions	Reduction in CAH unnecessary re-admissions	# of CAHs using re-admission guides and protocols Reduction in preventable hospital re-admission rates

Examples of Outcomes and Measures

Core area: Financial performance improvement		
Activity	Outcome	Measures
Support efforts to improve CAH business office and billing operations	CAHs exhibit better cash flow and improved viability	# of CAHs participating in business office and billing operations # of CAHs have improved the turn around time to bill 3 rd party carriers # of CAHs with improved cash flow # of CAHs with improved financial margins

Examples of Outcomes and Measures

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

Resources

- FMT Team: Toolkit for State Flex Programs
 - <http://www.flexmonitoring.org/documents/PLMToolkit.pdf>
- WK Kellogg: Logic Model Development Guide
 - <http://www.wkkf.org/knowledge-center/resources/2006/02/WK-Kellogg-Foundation-Logic-Model-Development-Guide.aspx>
- Targeting Outcomes of Programs (TOP) Framework
 - <http://citnews.unl.edu/TOP/english/index.html>
- United Way Measuring Program Outcomes: A Practical Approach
 - http://www.unitedwaystore.com/product/measuring_program_outcomes_a_practical_approach/program_film