



# Implementation and Sustainability of SBIRT in SAMHSA Grantees: Shaping the Cross-site Evaluation of SAMHSA's Third Cohort of Grantees

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# SBIRT Cross-site Evaluation Team

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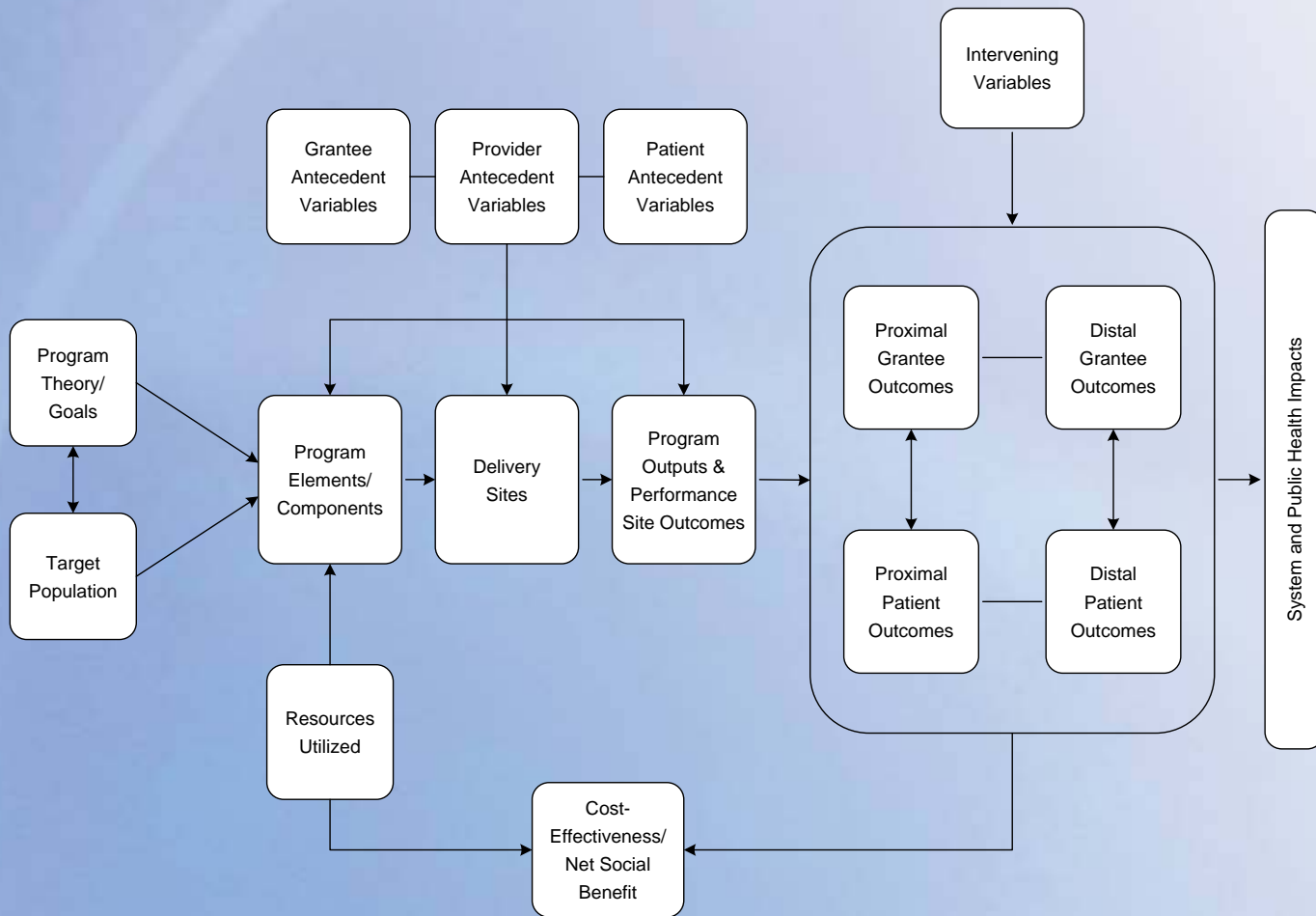
## CSAT's SBIRT Programs

- 12 campus-based programs at colleges and universities
  - Combat underage drinking and promote innovative SBIRT practices in the context of student health care
- 17 medical residency cooperative agreements
  - Promote the adoption of SBIRT among primary care and specialty medical residents
- 24 state/territory/tribal organization grantees
  - 4 cohorts of grantees
  - Expand grantees' continuum of substance abuse care to medical and other community settings

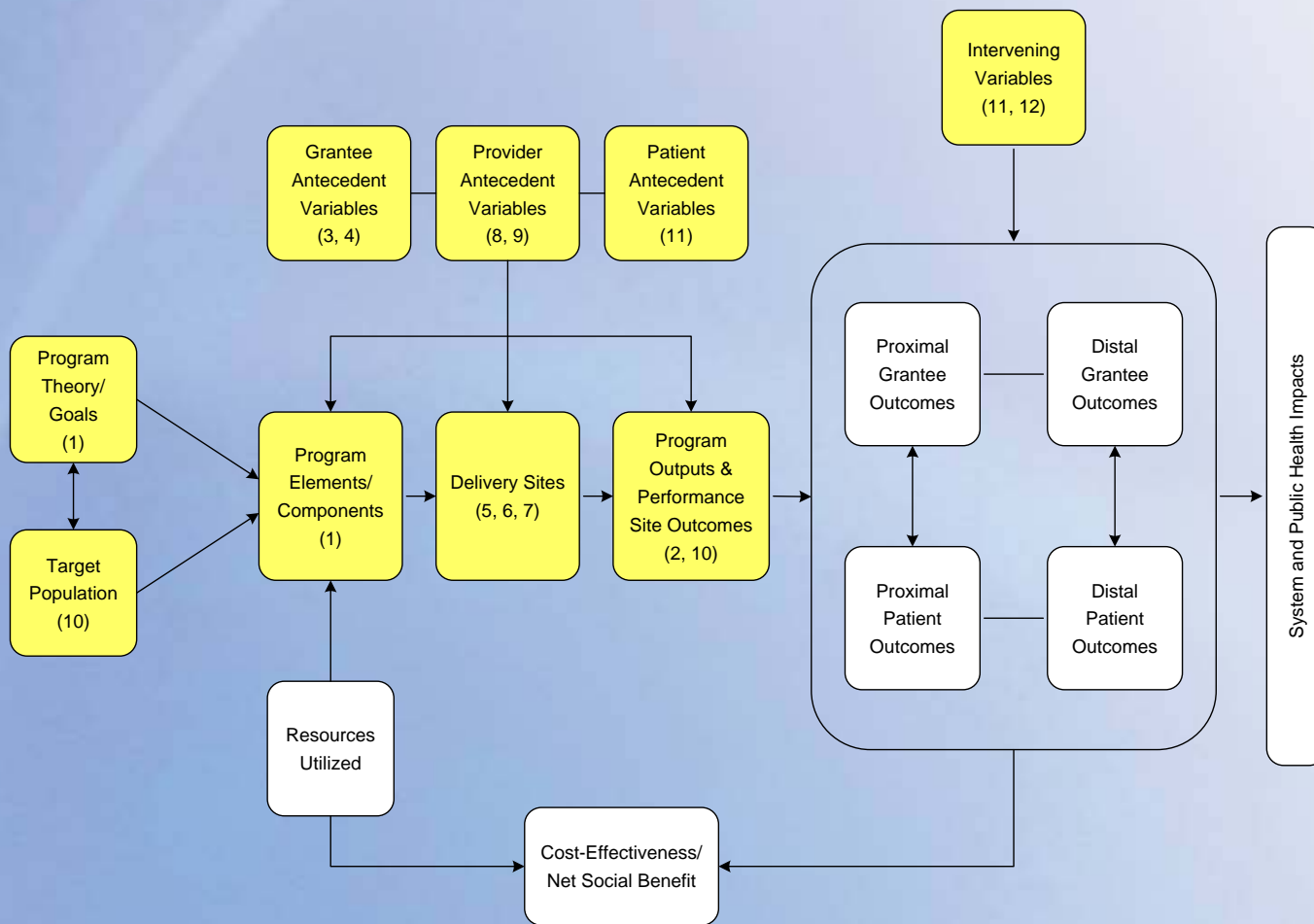
# SBIRT Cross-site Evaluation

- Previous cross-site evaluated the first cohort of CSAT state/tribal SBIRT grantees
- Current cross-site is evaluating the third cohort of state/tribal SBIRT grantees
- Examine the implementation of various SBIRT models, the outcomes of patients who receive SBIRT services, the economic impact and costs associated with SBIRT implementation, and the public health and systems of care impacts of the SBIRT initiative
- Comprehensive multimethod approach

# Cross-site Evaluation Logic Model

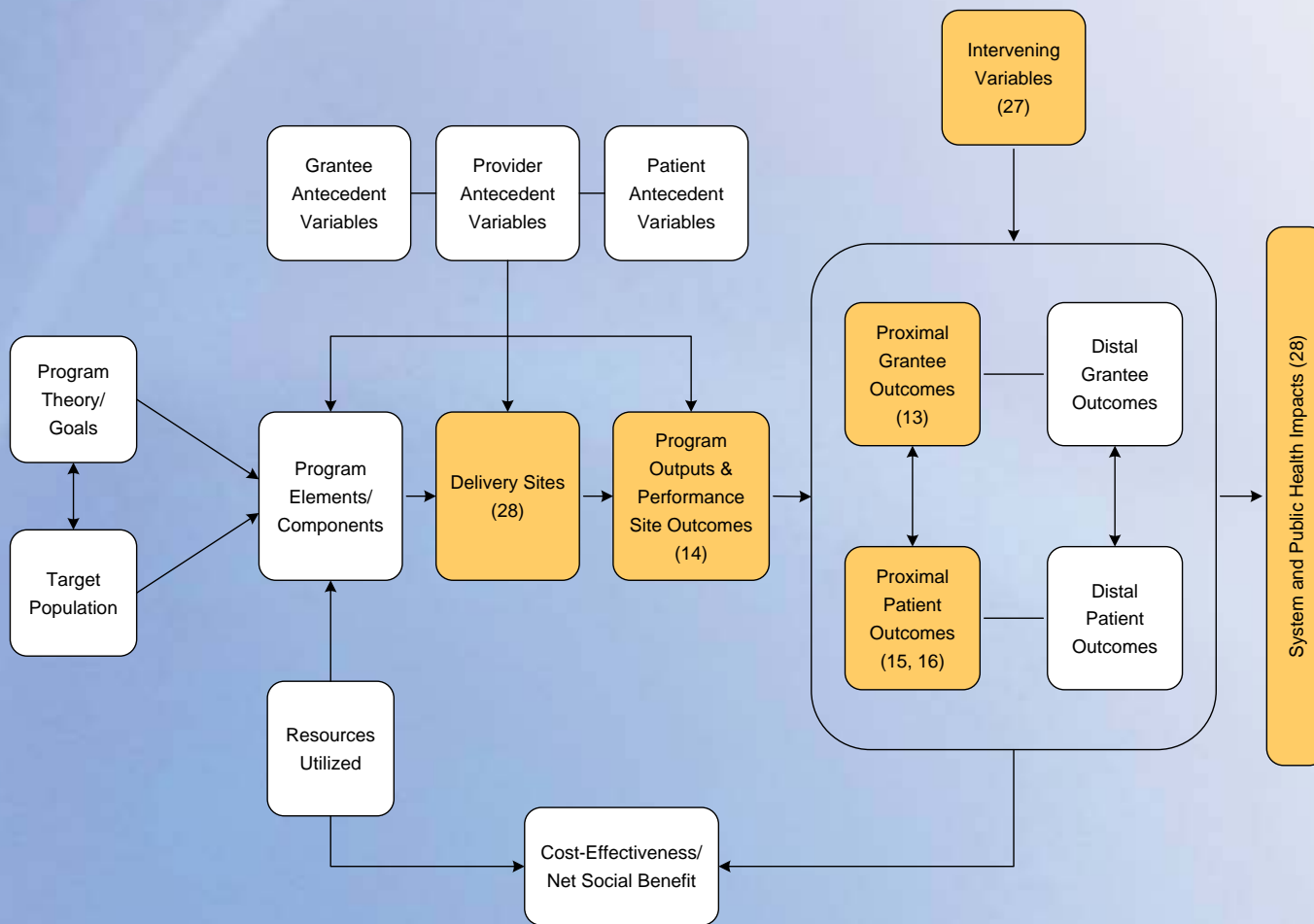


# Logic Model: Process Evaluation

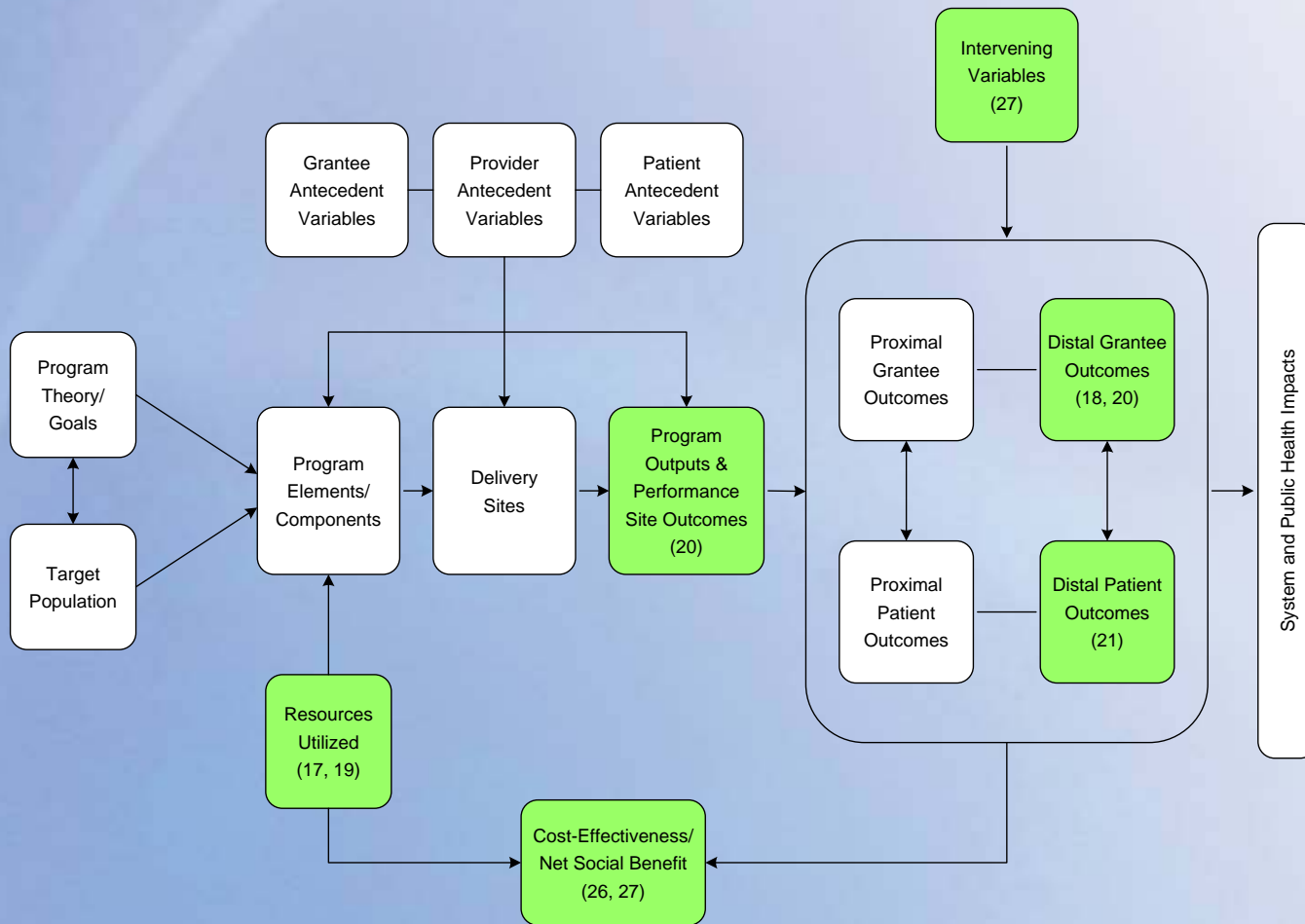




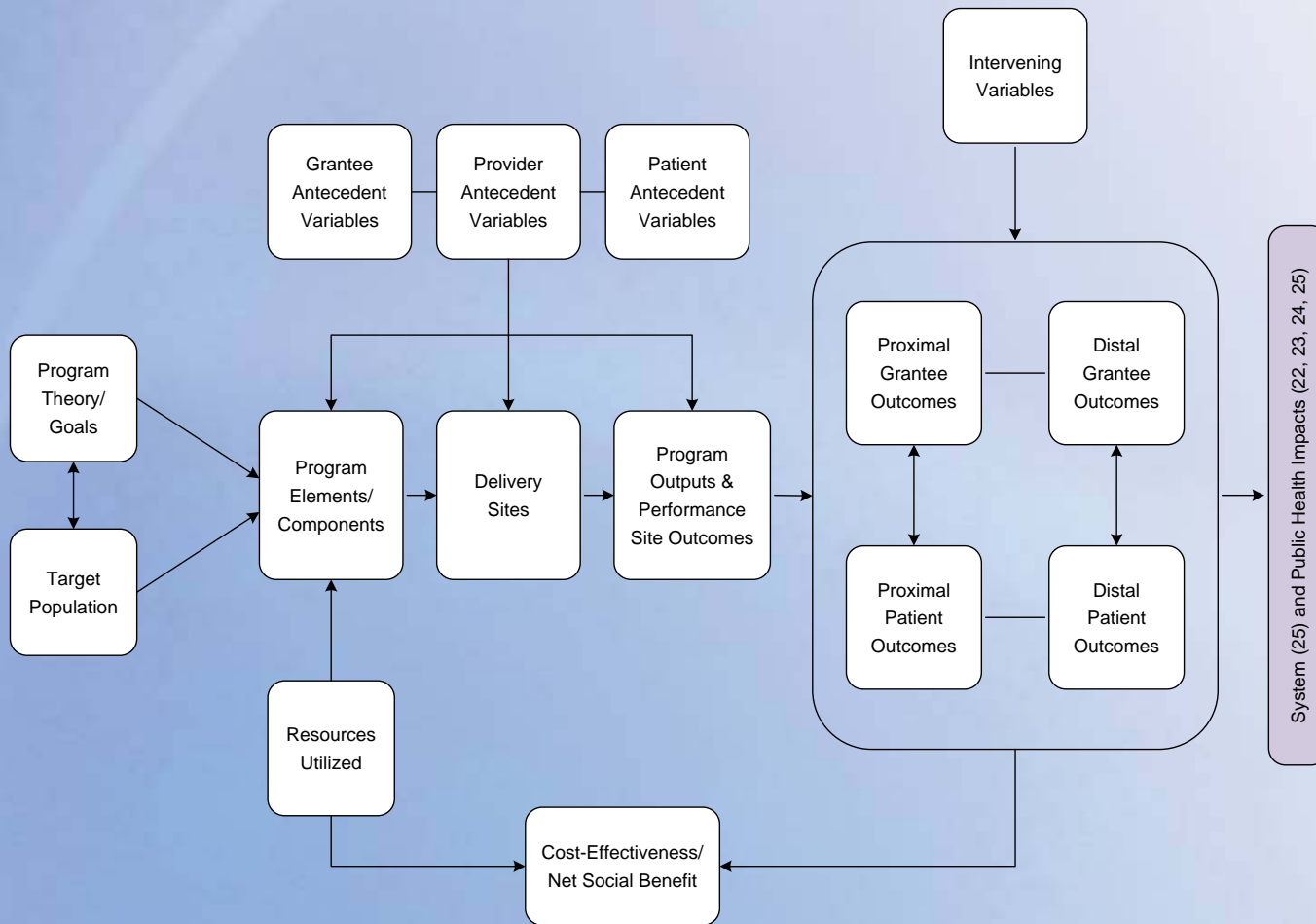
# Logic Model: Outcome Evaluation



# Logic Model: Economic Evaluation



# Logic Model: Systems Evaluation



## Challenges Facing the Cross-site Evaluation

- Implications of SBIRT model migration for conceptualizing and investigating sustainability
  - What implementation models “work”?
  - How does screening for multiple risk factors affect the operation of SBIRT programs focused on substance use?
  - How is model migration best examined and understood?
- Developing an observational methodology for assessing evidence-based practices (EBP) in real-world medical settings
  - What are the challenges for evaluating adherence to EBP in real-world settings? How might these challenges be overcome?
  - What are the most efficient methods for measuring fidelity or adherence to evidence-based guidelines in medical settings?

# Challenges Facing the Cross-site Evaluation

- Implications of integrating mental health (MH) into SBIRT service delivery
  - How do MH variables (and other psychosocial factors) influence with SBIRT implementation and service delivery?
  - What are the implications of MH and substance abuse co-morbidity on SBIRT efficacy?
  - How do MH variables relate to health and other psychosocial outcomes?
- Economic considerations relevant to SBIRT sustainability
  - In thinking about cost-effectiveness, in which health care setting is SBIRT likely to be most effective and why?
  - In which health care setting is SBIRT likely to be the least costly and why?
  - What is the likely impact of U.S. health care reform on SBIRT sustainability?



# Implications of SBIRT Model Migration for Conceptualizing and Investigating Sustainability

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# Conceptualizing SAMHSA Cohort 1 Programs: The Model Matrix



# SAMHSA SBIRT Implementation Challenges

- Start-up phase is short for grant recipients
- Funding is contingent on achieving service delivery targets
- Generalist staff resist providing SBIRT services
- Specialist substance abuse services are needed for high-risk participants
- Relationships with specialty treatment programs are generally not well established



# Migration of SAMHSA Cohort 1 Programs: Precursors to Cohort 3

## Migration from early service delivery models

- Full-length screening assessments → Shorter prescreen assessments
- “Traditional” SA treatment delivery → On-site delivery especially for BT
- Alcohol and drug risk factors → Tobacco, co-morbid psychiatric disorders, other health risk factors

## Migration from initial settings

- Clinic settings → Hospital/ER settings

## Migration from early implementation models

- “In-house generalist” models → “Contracted” service provision

# Re-conceptualizing the Model Matrix

- The continuum of services has expanded
- Screening involves a broader range of risk factors
- BI and BT
  - Are variable across grantee programs
  - Have become blurred in some programs
  - Tend to serve multiple functions
- Implementation models have become more complicated:
  - Service delivery approaches may vary within grantee programs
  - Screen-positive SBIRT participants receive multiple service components, often from different providers and in different settings
  - “Generalist” and “Specialist” categories each comprise different practitioner types that may affect service delivery and patient outcomes
- Service delivery venues are typically structured hierarchically and vary in terms of multiple attributes (e.g., size, location, patient flow, patient population characteristics)

# Evaluating Cohort 3 Implementation Models

- Increased assessment at performance site and SBIRT practitioner levels of analysis
- Multiple methods
  - Interviews (increased number and type of respondents)
  - Practitioner Survey (expanded)
  - Performance Site Checklist (new)
  - Structured observations of service delivery (e.g., adherence)
  - Attention to documenting program evolution over time
- Model matrix components as predictors of program performance and moderators of patient outcomes

# New Implementation Challenges

- Prescreening
  - Evidence-based practice?
  - Quality assurance issues
  - Sensitivity and specificity concerns, especially false negatives
- Implementation models
  - Hybrid models: Who does what?
  - Communication and coordination across providers and facilities
  - Service integration, continuity of care, and efficiency of delivery
  - Patient tracking

# New Implementation Challenges

- Multiple risk factors
  - Defining the continuum of risk
  - Evidence-based service components?
  - Brief (?) intervention
  - Intervention/Treatment issues
    - What (e.g., behavior change vs. treatment of underlying “condition”)
    - Where?
    - When (e.g., sequential vs. simultaneous)?
    - How? (e.g., behavioral therapies, pharmacological treatments)

# New Program Evaluation Challenges

- Guiding conceptual frameworks
- Program dismantling vs. aggregation
- Metrics for evaluating program performance
- Capturing model migration over time
- Linking implementation barriers to programmatic decision making and change
- Criteria for defining sustainability
  - Program components
  - Economic viability
  - Networks of care

# Discussion Questions

- Which implementation models “work”?
  - What combinations of services and providers are optimal for SBIRT delivery?
  - How sustainable are various implementation models?
  - Do some implementation models work better in some settings than in others?
- How does screening for multiple risk factors affect the operation of SBIRT programs focused on substance use?
- How is model migration best examined and understood?



# Assessing EBPs in Medical Settings: The Development of an Observational Methodology for SBIRT

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# Screening and Brief Intervention (SBI): Decades of Research in Medical Settings

- EBP refers to the preferential use of health interventions for which systematic empirical research has provided evidence of statistically significant effectiveness as treatments for specific problems
  - Evidence that SBI is effective with at-risk drinkers in general medical settings
  - SBI is an effective component of smoking cessation initiatives
  - Accumulating evidence that SBI can be used effectively to curb illicit drug use

# Methodological Challenges for Systematically Measuring Adherence to EBP in Cohort 1

- Variability in grantee protocols
- Need for observational assessment to occur in real time
- Systematic sampling observations
- Reactivity
- Ethical considerations
- Proficiency (sufficiency) vs. level of skillfulness

# Measuring Adherence to SBIRT Protocols in Cohort 1

## Two-stage process

- Are selected instruments and procedures “evidence-based”?
  - Assessed by evaluating SBIRT materials and protocols
- Performed direct observation of performance sites
  - Conducted by core set of experienced evaluation team members
  - Convenience sample of performance sites
  - Used tailored forms with a heavy reliance on answers to open-ended questions
  - Post hoc evaluation

# Adherence Findings from Cohort 1

- Across grantees, staff reported using evidence-based screening tools and intervention approaches; however, protocol deviations were found
  - Some codified in grantee protocols
  - Others noted during observation of provider-patient interactions
- Adherence to EBPs was stronger at sites where structured training protocols, routine performance monitoring, and feedback loops were incorporated

# Evaluating Cohort 3

- Developed an observational component to more systematically assess, in real time, adherence to EBPs
- Observations to be made at each performance site within grantee
- Will require the need for more trained evaluation staff to visit multiple sites
- Includes the use of observation forms that are highly structured and tailored to program protocols for screening, brief intervention, brief treatment, and referral to treatment

# Sample from Brief Intervention Adherence Form

Brief Intervention Components									
Yes	No	DK	NA						
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Establishes rapport and introduces the session	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Expresses empathy
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Asks to show the patient the screening scores	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Rolls with/reduces resistance
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reviews screening scores w/ the patient	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Develops discrepancy
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Helps patient identify target substance(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Supports self-efficacy (2+)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Describes the risk levels associated with the scores, and their meaning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Utilizes open-ended questions (2+)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reviews the risks associated with substance use: health, legal, financial, social, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Utilizes affirmations (2+)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reviews standard drinking guidelines and sensible drinking limits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Utilizes reflective listening (2+)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Promotes personal responsibility/choice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Utilizes summary reflections (2+)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Provides advice related to limits of consumption: maintain, reduce, abstain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Generates change talk (2+)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Provides a menu of change options	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Avoids lecturing, warning, convincing-asks permission to educate, suggest or advise
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reinforces low-risk drinking and/or drug use, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Informs patient about additional BIs/BTs and makes appointment, if applicable
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Utilizes importance/readiness/confidence rulers, decisional balance, pros/cons	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Closes with summary of session
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Helps patient set goals/develop a plan of action	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other components: (describe in <i>Comments</i> )
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Provides take-home/resource materials					
<b>Comments</b>									

# Observation Protocol Training for Evaluation Staff

- Conducted a 2-day training exercise for 20 evaluation staff members
- Included didactic, role-play, video- and audio-taped activities designed to enhance the reliability and validity of collecting adherence observations
- Coding for each trainee was compared with “gold standard” codes for each item within the screening and intervention components of the observation form
- Continue with periodic recalibration training activities

# Questions for Discussion

1. What are the challenges for evaluating adherence to evidence-based practice (EBP) in real-world settings? How might these challenges be overcome?
2. What are the most efficient methods for measuring fidelity or adherence to evidence-based guidelines in medical settings?



# Implications of Integrating Mental Health into SBIRT Service Delivery

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# Overview

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- Background
- SBIRT cross-site Cohort 1 evaluation findings
- SBIRT Cohort 3 grantee profiles
- Discussion

Prevalence of Risky Alcohol Use and Mental Health (MH) Problems by Health Care Use in the US (Past 12 Months)  
 Weighted Estimates from NSDUH 2008–2009

Alcohol Risk Category	Health Care Use in the Past 12 months									
	General		Inpatient		Emergency Department		MH Outpatient		MH Prescription	
	% in Risk Category	% in Risk Cat. w/ MH Problems	% in Risk Category	% in Risk Cat. w/ MH Problems	% in Risk Category	% in Risk Cat. w/ MH Problems	% in Risk Category	% in Risk Cat. w/ MH Problems	% in Risk Category	% in Risk Cat. w/ MH Problems
Hazardous Alc. Use	20.8	2.2	16.2	3.5	20.1	3.3	16.0	7.5	13.2	6.3
DSM-IV Alcohol Abuse	4.0	0.9	2.3	0.7	4.5	1.2	4.8	2.5	2.2	2.1
Haz. Alc OR Abuse	24.8	3.1	18.5	4.2	24.6	4.5	20.8	10.0	15.4	8.5
DSM-IV Alc. Dependence	3.7	1.3	3.4	1.8	4.6	2.4	7.6	5.5	11.5	5.1
MH Problems Only	—	8.6	—	14.2	—	12.2	—	36.3	—	31.6

# Screening and Brief Therapy for Mental Health Disorders

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- U.S. Preventative Services Task Force recommendation for depression screening
- Subclinical disorders and moderate depression (Alexander, 2011; McNaughton, 2009)
- Depression relapse prevention (Howell, 2009)
- Stress and distress (Klerman, 1997)

# SBIRT Cohort 1 Findings Related to MH

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- Health outcomes (pre-post) associated with SBIRT included significant decreases in the severity of depression symptoms (PHQ-8)
- Moderators of SBIRT 1 treatment effectiveness included
  - the patient having more severe depression symptoms (associated with increased effectiveness of SBIRT 1), and
  - the patient being employed (associated with decreased effectiveness of SBIRT 1)

# SBIRT Cohort 1 Findings Related to MH

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- During a sustainability sub-study of Cohort 1, results indicated that several grantees incorporated mental health (MH) screening and brief interventions with substance abuse to facilitate sustainability
- Grantees reported that SBIRT providers were able to integrate SBIRT into a broader continuum of care and perceived to the medical treatment teams as adding value

# SBIRT Cohort 3 Grantee Profiles

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- **Georgia**

**Locations served**

- Atlanta and Macon

**Settings**

- 2 large metropolitan private hospitals (emergency centers, inpatient units, family health centers, psychiatric department)

**Mental Health Screens Used**

- Gain SS
- Full GPRA screen sample

- **West Virginia**

**Locations served**

- Charleston, Morgantown, Beckley, Huntington, Parkersburg

**Settings**

- 5 hospital emergency departments, 1 Level 1 trauma center, 1 free service clinic, 22 primary care centers, 16 school-based sites, 6 MH centers, 2 behavioral health centers, 2 workforce development sites

**Mental Health Screens Used**

- MH question included in prescreen
- PHQ-9
- Full GPRA screen sample

# SBIRT Cohort 3 Grantee Profiles

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- Missouri

## **Locations served**

- Springfield, Columbia, St. Louis

## **Settings**

- 1 large private hospital (ED), 1 university hospital (ED, psychiatric center, family health center), 5 primary care centers

## **Mental Health Screens Used**

- Mental Health Screening Form III (MHSF)
- Substance Abuse and Mental Illness Symptoms Screener (SAMISS)
- Full GPRA screen sample

- TCC

## **Locations served**

- Fairbanks, Galena, and Tok (tribal villages)

## **Settings**

- 1 Indian Health Services primary care clinic (family care and triage services), 2 village clinics

## **Mental Health Screens Used**

- Kessler 6
- Full GPRA screen sample



# SBIRT Cohort 3 MH Screening

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- Data collected during Jan '09–August '11
- 45.5% of patients who receive a full substance use screen also received an MH screen ( $N = 146,033$ )
- 16.9% of patients recommended to BI, BT, or RT also screen positive for MH risk ( $N = 26,562$ )
- Patients using cocaine, meth, or >1 illicit drug in the past 30 days were less likely to receive an MH screen but were more likely to screen positive
- Binge drinking and opiate use (past 30 days) were not associated with receiving an MH screen but were significantly associated with screening positive

# Discussion

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- How do MH variables (and other psychosocial factors) influence SBIRT implementation and service delivery?
- What are the implications of MH and substance abuse co-morbidity on SBIRT efficacy?
- How do MH variables relate to health and other psychosocial outcomes?



# SBIRT Economic Evaluation

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# SBIRT Cost-Effectiveness Analysis

## Cohort 1 cross-site evaluation and literature

### What do we know?

- SBIRT social costs
- Cost of SBIRT
- SBIRT impact on patient outcomes
- SBI is potentially cost-effective in the primary care setting
- High uncertainty of cost-effectiveness for hospital and emergency care setting (Latimer et al., 2009)

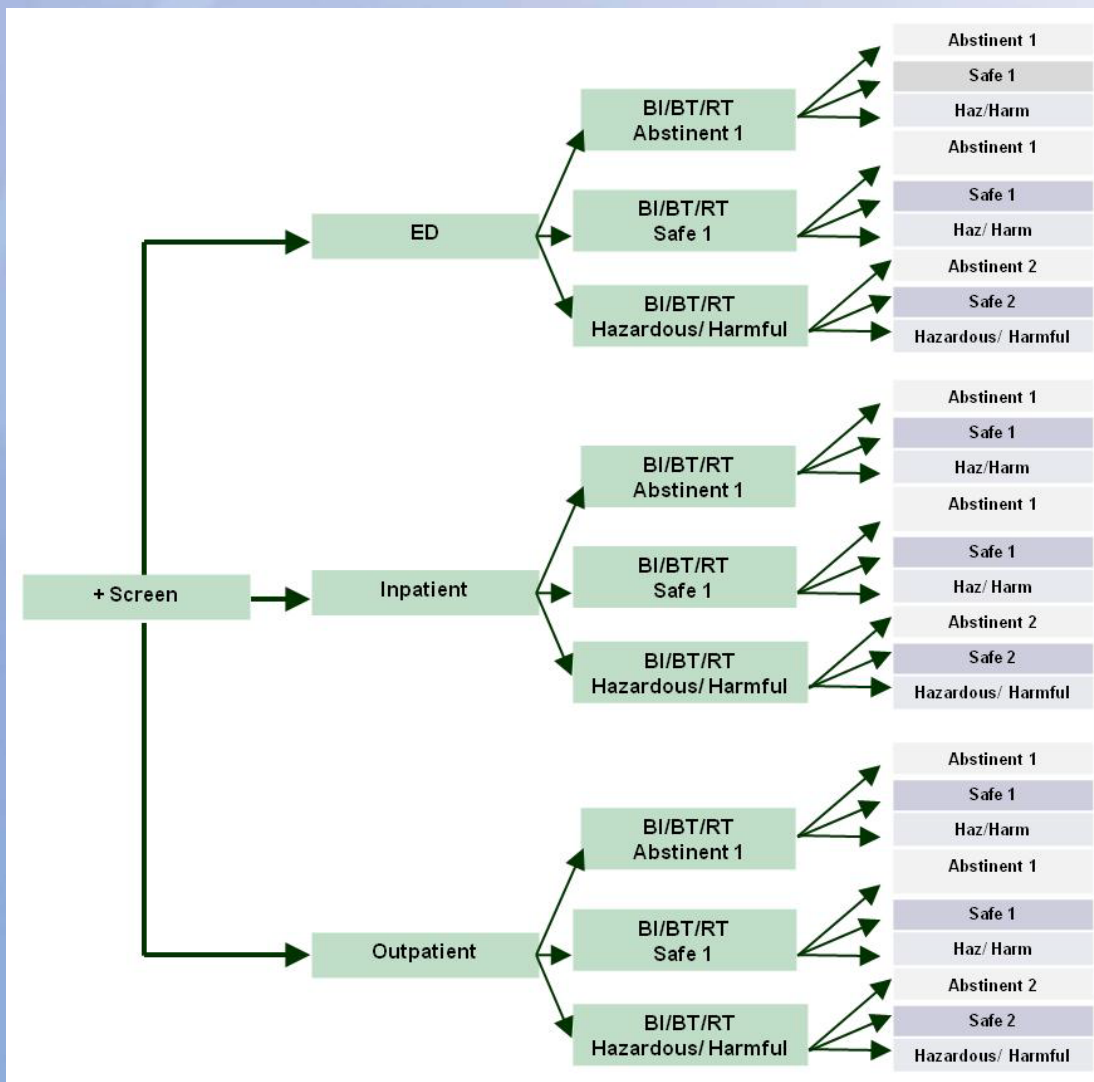
### What do we not know?

- The trade-off between costs and outcomes
- Long-run implications of social costs and patient outcomes
- How SBIRT compares with SBI
- How SBIRT varies by setting

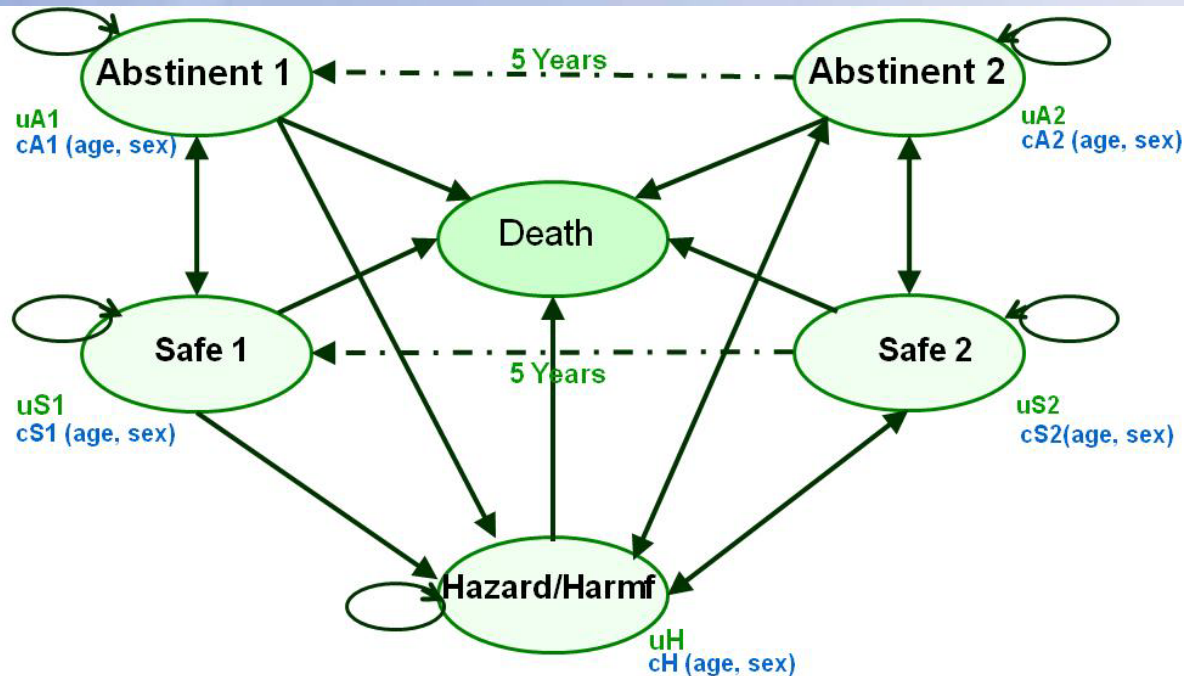
# Cost-Effectiveness Analysis (CEA)

- Research questions
  - What is the short-term and long-term cost-effectiveness of SBIRT by setting?
  - How does SBIRT compare with other SBI interventions?
- Short-term analysis
  - Compares costs and outcomes over 6 months
  - Conducts comparative effectiveness and cost-effectiveness of SBIRT by setting
  - Uses decision tree approach
- Long-term analysis
  - Extends analysis to lifetime perspective
  - Compares SBIRT cost-effectiveness with that of other SBI
  - Uses Markov approach

# Short-Term CEA of SBIRT Using Decision Tree Model



# Long-Term CEA of SBIRT Using Markov Model



States utilities variables:  $uA1$ , utility of Abstinent 1;  $uA2$ , utility of Abstinent 2;  $uS1$ , utility of Safe 1;  $uS2$ , utility of Safe 2;  $uH$ , utility of Hazardous/ Harmful

States costs variables:  $cA1$ , cost of Abstinent 1;  $cA2$ , cost of Abstinent 2;  $cS1$ , cost of Safe 1;  $cS2$ , cost of Safe 2;  $cH$ , cost of Hazardous/ Harmful

States represented by the ovals and transitions between the states represented by the arrows

# SBIRT Financial Sustainability Simulation

## Cohort 1 cross-site evaluation and literature

### What do we know?

- Costs and revenues *for the average patient*
- Patient capacity per practitioner
- For 7 sites, SBIRT program can be sustained using fee-for-service funding under certain circumstances

### What do we not know?

- Whether previous results translate to new model matrix and other sites
- How previous results would be affected by
  - variations in patient flow over time, and
  - variation in duration of service delivery



# Financial Sustainability Simulation

- Research questions
  - Under what circumstances can SBIRT be sustained with the prevailing system of insurance?
- Approach: discrete event simulation model
  - Similar to—but not the same as—Markov model presented above
- Features of SBIRT to be included
  - Window for patient interaction is inconsistent and limited
  - Engaged patients may return at a later time for additional services
  - Practitioners may balance SBIRT service delivery and other responsibilities

# Model Outputs

- Number of each service (S, BI, BT, RT) that is
  - Screened or assessed as being needed
  - Delivered
  - → Missed opportunities and slack
    - difference between number delivered and needed
  - → Revenue and costs
- How practitioners spend time on SBIRT vs. other activities
- Hypothetical example of result
  - Outpatient clinic with 3 generalists and 1 specialist is financially sustainable
    - serving 10,000 patients per year
    - providing an average of 90% of SBIRT services to those patients needing them

# Discussion

- For the CEA, which setting do you think would be
  - the most effective and why?
  - the least costly and why?
  
- Health care reform and the financing simulation
  - Expands third-party coverage
  - But there are still provider budget constraints!
  - What do you think will be the impact on SBIRT sustainability in the United States?