Financial Sustainability of Screening, Brief Intervention, and Referral to Treatment Programs in Emergency Department Settings

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SBIRT in Emergency Settings

- Mixed evidence for the effectiveness of SBI in emergency settings; more research is needed (e.g., Nilsen et al., 2008; Landy et al., 2015)
- Implementation required (Level I and II trauma)
  - American College of Surgeons Committee on Trauma (2006).
- Emergency departments represent
  - The principal source of care for some
    - 17.7% report usually receiving care in the ED (CDC, 2012).
  - A target-rich environment
    - 24-31% of all visits; 50%+ of severely injured (D'Onofrio & Degutis, 2002).

Prior Work

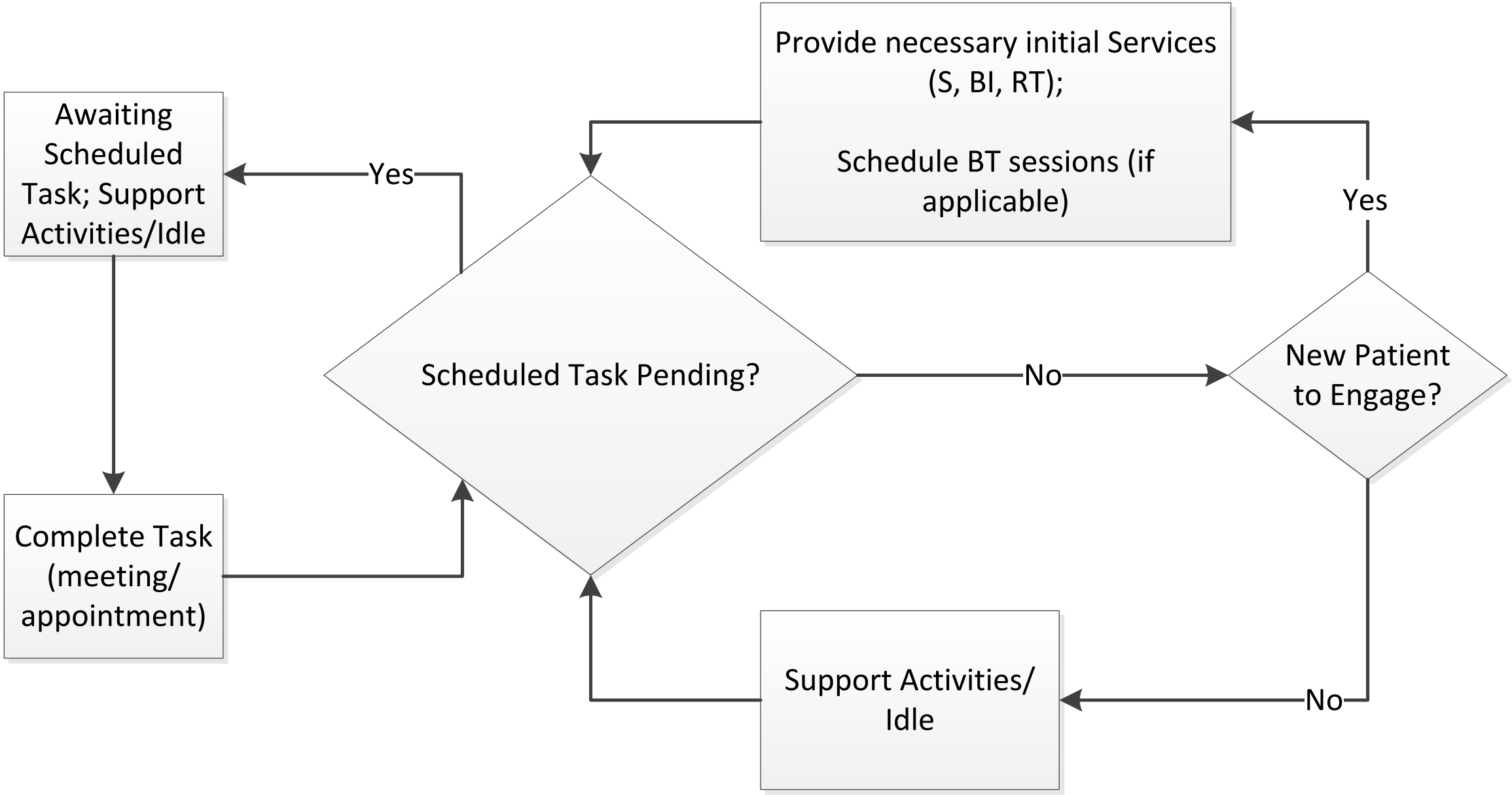
- SBIRT is financially sustainable in ED/Trauma settings if the provider is able to meet a minimum annual screen quota (≥ 3000 depending on staffing; Cowell et al., in press).

- Cost estimates of screening/BI are similar to reimbursement levels; insurance reimbursement may be sufficient to sustain alcohol SBI in practice (Bray et al., 2012).

The Model

- Discrete event simulation in an ED with ~50,000 patients
- “Hybrid” staffing model
- Heterogeneous patients; homogenous practitioners.
- Accounts for ED challenges
- Tracks program costs, revenue, and other outputs for one year under several policy scenarios.

SBIRT Practitioner Activities



Parameter Sources

Item	Source
Patient arrival frequencies	National Hospital Ambulatory Medical Care Survey (NHAMCS)
SBIRT service requirements and receipt	Government Performance and Results Act (GPRA) data
Patient insurance status	NHAMCS
Staffing levels	Cross-site evaluation data; assumed
SBIRT service durations	Cross-site evaluation time and motion study
Support activity durations	Cross-site evaluation practitioner interviews
SBIRT reimbursement rates	Center for Integrated Health Solutions (2014)
Wage rates	Bureau of Labor and Statistics Occupational Employment Statistics
Program administrative costs	Cross-site evaluation semi-structured interviews

Model Scenarios

Parameter	Base Case	"Optimistic" Scenario	"Pessimistic" Scenario
Probability patient is insured	0.81	0.96	0.81
Probability prescreen is completed	0.85	1	0.7
Patient availability: probability the patient is available to see the SBIRT provider	0.75	0.9	0.6
Population risk; probability the prescreen is positive	0.24	0.32	0.17

Results - Financial

Parameter	Base Case	"Optimistic" Scenario	"Pessimistic" Scenario
Program revenue	$235,420 ($3,975)	$431,128 ($5,146)	$130,976 ($2,783)
Total program costs	$449,504 ($353)	$466,573 ($486)	$434,152 ($428)
Service delivery labor costs	$284,139 ($292)	$291,787 ($356)	$276,500 ($342)

Results - Coverage

Parameter	Base Case	"Optimistic" Scenario	"Pessimistic" Scenario
Proportion of PS+ patients missed	0.032 (0.002)	0.027 (0.001)	0.048 (0.004)

- From base case, decreasing patient availability to 60%: 0.056 (0.002).

Results - Utilization

Parameter	Base Case	"Optimistic" Scenario	"Pessimistic" Scenario
Proportion of SBIRT practitioner time spent idle	0.165 (0.005)	**0.020 (0.003)**	**0.355 (0.005)**
95th percentile of support backlog at end of shift (hours)	2.42 (0.23)	**109.63 (28.58)**	0.78 (0.08)

Discussion

- Reimbursement revenue is likely insufficient to cover total costs of universal SBIRT in the ED.
- Under some reasonable scenarios, reimbursement can likely cover the largest cost component: service delivery labor.

SBIRT programs can approach a break-even point by reducing costs or increasing revenues:

  - Reduce staff costs
  - Reduce idle time
  - Minimize administrative costs

Sources

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More Information

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Appendix – other scenarios

	Scenario							
	Base	**1**	**2**	**3**	**4**	**5**	**6**	**7**
p(prescreen completed)	0.85	0.85	1	0.85	0.85	1	1	0.7
p(patient available)	0.75	0.75	0.75	0.9	0.75	0.9	0.9	0.6
p(insured)	0.81	0.96	0.81	0.81	0.81	0.96	0.96	0.81
p(PS+)	0.24	0.24	0.24	0.24	0.32	0.24	0.32	0.17
Revenue	$235,420 ($3,975)	$277,731 ($4,206)	$275,752 ($4,099)	$238,574 ($3,628)	$305,320 ($4,163)	$331,206 ($3,824)	$431,128 ($5,146)	$130,976 ($2,783)
Service delivery labor costs	$284,139 ($292)	$284,139 ($292)	$291,834 ($349)	$284,162 ($319)	$284,146 ($333)	$291,720 ($287)	$291,787 ($356)	$276,500 ($342)
Total costs	$449,504 ($353)	$449,504 ($353)	$460,648 ($425)	$449,798 ($426)	$454,202 ($487)	$460,887 ($363)	$466,573 ($486)	$434,152 ($428)
Proportion specialist time idle	0.165 (0.005)	0.165 (0.005)	0.102 (0.004)	0.172 (0.005)	0.062 (0.005)	0.108 (0.004)	0.020 (0.003)	0.355 (0.005)
Missed Opportunities	3.28% (0.22%)	3.28% (0.22%)	3.52% (0.23%)	2.07% (0.17%)	3.72% (0.15%)	2.20% (0.15%)	2.68% (0.16%)	4.76% (0.35%)
Duration of support activities incomplete at the end of a shift (hours, 95th percentile)	2.42 (0.23)	2.42 (0.23)	4.11 (0.61)	2.29 (0.19)	7.75 (1.38)	3.87 (0.55)	109.63 (28.58)	0.78 (0.08)