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# A Preliminary Report of Knowledge Translation: Lessons From Taking Screening and Brief Intervention Techniques From the Research Setting Into Regional Systems of Care

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## Abstract

This article describes a limited statewide dissemination of an evidence-based technology, screening, brief intervention, and referral to treatment (SBIRT), and evaluation of the effects on emergency department (ED) systems of care, utilizing the knowledge translation framework of reach, effectiveness, adoption, implementation, and maintenance (RE-AIM), using both quantitative and qualitative data sources.

Screening and brief intervention (SBI) can detect high-risk and dependent alcohol and drug use in the medical setting, provide early intervention, facilitate access to specialty treatment when appropriate, and improve quality of care. Several meta-analyses demonstrate its effectiveness in primary care, and the federal government has developed a well-funded campaign to promote physician training and adoption of SBI. In the busy environment of the ED, with its competing priorities, researchers have tested a collaborative approach that relies on peer educators, with substance abuse treatment experience and broad community contact, as physician extenders. The ED-SBIRT model of care reflects clinician staff time constraints and resource limitations and is designed for the high rates of prevalence and increased acuity typical of ED patients.

This report tracks services provided during dissemination of the ED-SBIRT extender model to seven EDs across a northeastern state, in urban, suburban, and rural community settings. Twelve health promotion advocates (HPAs) were hired, trained, and integrated into seven ED teams. Over an 18-month start-up period, HPAs screened 15,383 patients; of those, 4,899 were positive for high risk or dependent drinking and/or drug use. Among the positive screens, 4,035 (82%) received a brief intervention, and 57% of all positives were referred to the substance abuse treatment system and other community resources.

Standardized, confidential interviews were conducted by two interviewers external to the program with 24 informants, including HPAs and their supervisors, clinicians, nurse managers, and ED directors across five sites. A detailed semistructured format was followed, and results were coded for thematic material. Barriers, challenges, and successes are described in the respondents' own words to convey their experience of this demonstration of SBIRT knowledge translation.

Five of seven sites were sustained through the second year of the program, despite cutbacks in state funding. The dissemination process provided a number of important lessons for a large rollout. Successful implementation of the ED-SBIRT HPA model depends on 1) external funding for start-up; 2) local ED staff acting as champions to support the HPA role, resolve territorial issues, and promote a cultural shift in the ED treatment of drug and alcohol misuse from "treat and street" to prevention, based on a knowledge of the science of addiction; 3) sustainability planning from the beginning involving administrators, the billing and information technology departments, medical records coders, community service providers, and government agencies; and 4) creation and maintenance of a robust referral network to facilitate patient acceptance and access to substance abuse services.

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Screening, brief intervention, and referral to treatment (SBIRT) is recommended by the National Institutes of Health (NIH),<sup>1</sup> the U.S. Preventive Services Task Force,<sup>2</sup> and the American College of Surgeons.<sup>3,4</sup> In 1993, the first trial of emergency department (ED)-SBIRT reported that 2,931 of 7,118 ED patients (41%) screened in a year were positive for substance abuse using standardized instruments, and 1,096 received a brief intervention.<sup>5</sup> What was novel here, beside the ED setting, was that SBIRT was delivered by health promotion advocates (HPAs). These are nonclinical, nonprofessional community health educators with a work history in the substance abuse field who received 2 weeks of training in motivational interviewing. In a small evaluation component ( $n = 235$ ), 45% of patients reduced their self-reported drug severity, 56% reduced alcohol use, 64% reduced heavy drinking, and 50% reported referral to treatment. These pilot findings, limited by a lack of controls, sparked replication in the ED at Yale University where HPAs now function as hospital employees who perform a billable bundled service, as they do at Boston Medical Center.

Research that followed has been somewhat mixed. For example, among adolescents, ED-SBIRT reduced alcohol consumption in one setting<sup>6</sup> and injury (but not consumption) in another.<sup>7</sup> Two early studies were positive,<sup>8,9</sup> and a 14-site collaborative study in academic EDs reported significant reductions in alcohol consumption compared to controls at 3 months post-intervention.<sup>10</sup> SBIRT clearly reduces alcohol-related injury among adult ED patients<sup>11,12</sup> and increases abstinence from illegal drugs in urgent care.<sup>13</sup> However both Daepfen et al.<sup>14</sup> and D'Onofrio et al.<sup>15</sup> found no intervention effects, raising concerns that ED-SBIRT may not be useful across all ED patients.<sup>5</sup> Trials to distinguish differences by acuity, diagnosis, and demographics must continue.<sup>16</sup>

However, national substance abuse policy-makers at the Substance Abuse and Mental Health Services Administration (SAMHSA) and the Office of National Drug Control and Prevention have moved rapidly to institute SBIRT in EDs across the country.<sup>17</sup> A consensus report on knowledge translation<sup>18</sup> recommends inclusion of behavioral interventions in the emergency medicine (EM) curriculum and adoption of extenders (peers and professionals from outside EM). Screening and brief intervention (SBI) reimbursement codes were issued in 2008 for all types of insurance. Widespread implementation has already begun.

In 2006, the Massachusetts Department of Public Health's Bureau of Substance Abuse Services awarded the Brief Negotiated Intervention and Referral to Treatment (BNI-ART) Institute at the Boston University School of Public Health a 3-year grant to begin limited dissemination of a peer-educator SBIRT model of care (<http://www.ed.bmc.org/sbirt>) to address a state utilization gap (425,000 persons with alcohol abuse/dependence and 142,000 with drug use who need but do not obtain treatment).<sup>19</sup> This article describes and evaluates this dissemination of SBIRT to seven EDs across the state.

## THE MODEL SELECTED FOR DISSEMINATION

The high prevalence of substance use among ED patients,<sup>20</sup> paired with ED staff time constraints and limited substance abuse treatment resources,<sup>18</sup> impedes regular SBIRT performance by clinicians, while the physician extender model spares burdened staff from additional demands. HPAs conduct room-to-room screening for general health and safety and substance abuse. This health promotion approach is readily accepted by patients who might feel stigmatized if interviewed solely about substance use.<sup>5</sup>

In this model, HPAs use brief motivational interviewing,<sup>5,21-24</sup> an intervention that contains the following elements: patient permission, patient perceptions of the pros and cons of substance use, feedback on guidelines, reflection on the discrepancies between current life circumstances and future goals, assessment of readiness to change, eliciting reasons for change, identifying strengths and prior successes, providing resources, and developing a specific action plan (a prescription for change). This intervention is appropriate for both high risk and dependent use. HPAs refer interviewees to community resources and, if indicated, to the substance abuse treatment system, a process that can take several hours of phone calls to find a bed and negotiate with payers for prior approval. They locate transportation if required and arrange for medical and psychiatric clearance.

## THE SITE SELECTION PROCESS

The dissemination process was initiated by a selection committee composed of representatives from the Massachusetts divisions of the American College of Emergency Physicians, the Emergency Nurses Association, the American Hospital Association, a substance abuse treatment providers' trade organization, and a community organization representing patients in recovery. Boston University's BNI-ART Institute was the lead agency, responsible for project management, protocols, training, systems issues, adaptation, and evaluation.

In response to a call for proposals, 19 of 74 EDs in Massachusetts applied for funding. Seven were selected (one for each of the state's geographic service regions, representing urban, suburban, and rural hospitals) on the basis of three criteria: 1) demonstrated need (prevalence and resources), 2) institutional and community support, and 3) motivation and capacity to improve quality of care for ED patients with high-risk or dependent drinking and drug use.

## METHODOLOGY

We selected the reach, effectiveness, adoption, implementation, and maintenance (RE-AIM) framework to guide the evaluation because it goes beyond standard models of technology diffusion<sup>25,26</sup> to incorporate robustness, translatability, and public health impact.<sup>27-30</sup> RE-AIM is a systematic and scientifically sound approach to differences between the goals and methods of implementation and effectiveness (see Table 1). It

includes critical elements described in the *Academic Emergency Medicine* Consensus Conference on Knowledge Translation: “to identify a problem, review select knowledge, adapt knowledge to a local context, assess barriers to knowledge use, select, tailor and implement an intervention, monitor use, evaluate outcomes, and sustain knowledge use.”<sup>31</sup>

This study utilized mixed methods. Quantitative, descriptive statistics are employed to measure implementation (services provided). Negative screens were recorded by count only, and data on positives (alcohol use above National Institute on Alcohol Abuse and Alcoholism [NIAAA] guidelines<sup>1</sup> and/or any illegal drug use) were entered into a password-protected Access (Microsoft Corp., Redmond, WA) spreadsheet linked to a fillable data entry form, streamlined to avoid impeding patient flow and allow maximal time for services. There were built-in checks for accuracy and completeness and protocols for monthly data transmission. There was no monitoring of screenings, interventions, or referrals that may have been performed independently by professional staff in the course of providing medical care, because the intent and scope of this evaluation were to analyze outcomes from dissemination of the HPA model of SBIRT care.

Qualitative semistructured interviews and a yearly progress report were used to document reach and evaluate the success of SBI adoption and maintenance. Assessment of SBIRT efficacy and effectiveness was based on preexisting evidence as required by the RE-AIM framework and was therefore not reanalyzed as part of this study.

Interviews were conducted at the five continuing sites, but not at two outlier sites discontinued prior to evaluation because of insufficient volume for sustainability. The semistructured interview script appears in Table 2. Interviews were transcribed and coded for themes related to the RE-AIM components. Two researchers read through the interviews, underlined important words or phrases, and developed a set of

thematic codes. Findings were then analyzed by the full team to explore for linkages between and/or among particular themes and discussed until agreement on appropriate coding was reached.

This study has been approved with exemption from continuing review as a program evaluation of anonymous data. The patient encounter data set was free of identifiers and labeled only by sequential numbering. Local sites follow patients for clinical care and continuous quality management, but not for research purposes, and therefore no individual patient outcomes are included in this evaluation. Interview data were also collected anonymously; 30 local staff members were given a number to call to speak to a person they did not know who was external to the ED SBIRT project, and 24 interviews were conducted. Because the responses were anonymous, we could not identify non-responders to characterize differences.

## THE RE-AIM FRAMEWORK IS USED TO PRESENT AND EVALUATE RESULTS

### Reach (Feasibility and Uptake)

To assure a firm commitment to uptake, hospital and ED administrators at selected sites signed a memorandum of understanding detailing responsibilities and deliverable services. Each ED director identified a leadership team of an emergency physician, nurse, social worker, and administrative leader and gave them the responsibility of acting as program “champions”; hosting local workshops; and recruiting, hiring, and supervising two HPAs for their ED.

In *Phase 1* of the uptake process, each leadership team participated in a 2.5-day seminar to learn SBIRT skills and to identify and address potential challenges to SBIRT implementation at their site. These seminars were led by the Institute’s education team of physicians, nurses, and peer educators. Sessions included a standardized curriculum for ED providers, experiential training in SBIRT skills, and evaluation of site-spe-

Table 1  
Efficacy and Knowledge Translation: Contrasting Needs

	Efficacy	Translation-focused/Replication
Goal	Achieve internal validity Isolate mechanisms and causes Evaluate theory decisions	Test external validity (generalizability) Understand context Evaluate practice/policy decisions
Participants (Reach)	Homogeneous, motivated samples with exclusions and selection criteria	Broad, heterogeneous, representative samples
Interventions (Effects)	Intensive, specialized interventions designed to maximize effect size, using standardized protocols	Brief, feasible interventions, adaptable to settings
Settings (Adoption)	Usually one selected setting to reduce variability, with adequate resources and staffing	Multiple settings to test generalizability and feasibility, usually lower resource and fewer staff
Delivery (Implementation)	By expert research staff closely following specific protocol	By a variety of staff with competing demands, using an adapted protocol
Long-term change (Maintenance)	Focus on short-term individual outcomes	Focus on long-term population effects

Adapted from the 2nd Annual NIH Conference on the Science of Dissemination and Implementation, Bethesda, MD, January 28, 2009; Lisa M. Klesges, University of Memphis, presenter.

Table 2  
Interview Questions

- Adoption: Could you share with me any concerns you had when the project started?
  - Fidelity—the state of being faithful to the protocol for an evidence-based intervention
    1. What were your initial assumptions about maintaining fidelity among all the sites/at your site?
    2. How were you able to maintain fidelity throughout the program?
    3. What steps did you take to measure fidelity/quality of the intervention?
    4. How effective were these methods?
    5. Did your feelings about maintaining fidelity change over the course of the program? If so, how?
  - Adaptability—ability to make fit
    1. In what way did the program's model need to be adapted to your hospital?
    2. In what way did the program's model need to be adapted to your community?
    3. What was the process like for incorporating the HPA into the ED working environment?
    4. How successful was the HPA at becoming a member of the ED team?
    5. What were some of the facilitators to incorporation?
    6. What were some of the barriers? (internal: HPA and staff; external: service delivery systems)
- Cultural context
  1. To what extent was culture an issue (positive/negative, ED/hospital culture and ethnicity, race, class, sexual orientation, education, disparities) in the interactions between patients, HPAs, ED/other staff, hospital administration, community)? Was anything done to address this issue, if present?
- Implementation
  - Logistics
    1. Will you tell me about how the logistics of setting up the program went? (office space, phones, territorial negotiation, responsibilities—e.g., who did what when?)
    2. Were there any particularly trying steps? If so, why?
    3. Were there any particularly smooth steps? If so, why?
    4. Describe the patient's experience with SBIRT in the ED flow. Who screened, where, with what tool? How was the HPA notified of a positive screen?
  - Agenda setting
    1. How did your team decide which patients to see?
    2. What factors went into setting the team's agenda for each day/week?
    3. How did you balance the goals of universal screening (targeting high-risk use) with placement for patients who are dependent (alcohol or other drugs)?
  - Economic costs
    1. Did your department take on any costs with the implementation and operation of this program? (e.g., staff salary, staff time, materials/supplies, office space, other resources)

Were there any unexpected costs of the program?
- Outcomes
  1. What impact has the program had on your ED?
  2. What impact has it had on the patients' experience at your hospital?
  3. What impact has it had on your job and your day in the ED?

What do you identify as the successes of the program?

HPA = health promotion advocate.

cific challenges to implementation and sustainability. In *Phase 2*, these champions hosted and taught local site SBIRT workshops to introduce the program and the skills set to the entire ED staff. In conjunction with these workshops, Institute staff and the local leadership met with representatives from departments of information technology, human resources, medical records, and billing to 1) transfer the HPA job description into each hospital's format, 2) adapt SBIRT procedures while retaining key elements of the model, 3) establish supervision criteria, and 4) solve logistic problems of space, computer, and telephone access. In *Phase 3*, 12 HPAs were hired and trained by the Institute in SBIRT and in data collection and medical record procedures.

#### Effectiveness (Was the Dissemination Based on an Intervention That Has Proven Effectiveness?)

This dissemination was based on research evidence supporting both the feasibility and the efficacy of ED-SBIRT using well-trained nonclinical staff (research assistants or peer educators).<sup>2-13,16,17</sup> In the 14-site

study of changes in drinking patterns postintervention,<sup>10</sup> the sites that used extenders had greater reductions in mean number of drinks per week than those that relied solely on clinicians (unpublished data). The Link study of SBIRT for illegal drug use was also conducted by peer educators.<sup>13</sup>

#### Adoption (Fidelity, Adaptiveness, and Cultural Issues)

We report here on ED-SBIRT procedures and services delivered, as well as themes identified systematically from 24 interviews conducted with ED clinicians, HPA supervisors, HPAs, nurse managers, and ED directors across five sites.

**Fidelity to Key SBIRT Elements.** HPA training began with introduction to the ED environment. HPAs shadowed clinicians to learn about role distinctions and the patient care process. SBIRT skills were taught in Week 2, using the curriculum, videos demonstrating key communication techniques (see <http://www.ed.bmc.org/sbirt>), role plays, videotaping and critique of

simulated interviews with standardized patients, and experiential training with actual ED patients. In subsequent local site visits, the education team observed HPA performance and scored adherence using a checklist. While there may have been a Hawthorne effect from observation, the fact that trainers were not actually employers was a mitigating factor. A retraining process to enhance fidelity was implemented if needed. There was a learning curve for data accuracy, as several of the HPAs had minimal computer skills and none had previously entered data. Individual mentoring and repeated site visits were required to develop consistency.

Monthly telephone conference calls and quarterly education workshops were used to share information and discuss successes and challenges. The data set was analyzed monthly to evaluate HPA performance and assess the balance of service delivery between high-risk use and abuse or dependency. In the 14-site collaborative study, we found equal distribution of high risk and dependent use,<sup>10</sup> but in everyday ED practice there was a natural pressure to focus on the most dependent because of their potential impact on ED flow, a perspective that could limit HPAs to targeted screening of intoxicated patients or substance-associated diagnoses, but as one supervisor said, "We can't afford to miss the hidden population." Program expectations were clear that screening for the high-risk individual was as important as dependence from a public health perspective.

Health promotion advocates also described a tension between natural conversation and the motivational style algorithm that they had been taught in training. Over time they came to an accommodation, individualizing the intervention for the needs of each patient, yet still adhering to the algorithm's elements and skills "because it works." Each site had a designated supervisor (nurse or social worker) responsible for SBIRT implementation, who provided weekly support, mentoring, and oversight and acted as an advocate for the SBIRT program with ED leadership, staff, and hospital administration. The amount of time invested in supervision varied across sites from weekly meetings to daily contact.

**Adaptiveness.** Integration of the HPAs into the ED culture and team required adaptation. The ED culture's rules and time pressures challenged the HPAs. The "treat-and-street" orientation of many ED clinicians came into natural conflict with HPA prevention goals. HPAs had considerable concern initially about whether the ED team would accept them as nonprofessional extenders with substance abuse expertise and knowledge of community resources. In fact, many clinicians did have difficulty with the HPA role, partly because of resistance to investing resources into substance abuse patients, who were often seen as "malingerers" and "incurables." Some clinicians described worrying initially that the program would increase burden on staff. The HPAs sometimes experienced an uncomfortable reception: "Why are you here, and are you impinging on my turf?" As described in interviews, "when an HPA entered the room to perform nontargeted screening, nurses would say, we didn't call for you." One

social worker reported thinking that "they were coming after the social workers' jobs."

Factors that promoted integration and helped the HPAs "find a niche for themselves" included 1) broad support from stakeholders and community organizations, 2) early designation of a multidisciplinary leadership team, 3) the "gift" of external funding for these positions, 4) growing perception of patient satisfaction with HPA services, 5) improvements in patient flow, and 6) recognition of HPA expertise in substance issues. HPAs shadowed different physicians and nurses to learn what roles each person played, were careful to solicit input from staff as to the appropriate time to screen and intervene, and asked staff to show them how to work around the demands of patient care. One supervisor reported that "Instead of hiding in an office, they were present and out there."

**Cultural Context.** Programs were adapted to fit the culture of patients served by each hospital. In settings with a high percentage of immigrants, staff had to be sensitive to disclosure issues and deportation fears. In settings where many patients were unemployed, the work question had to be adapted to "What did you do for a job in the past, or what do you like to do during the day?" There was an unmet need for interpreters and in particular for Hispanic culture brokers. Language barriers were a formidable obstacle to treatment entry and required development of special relationships with programs that could accommodate diverse patients.

#### **Implementation (Documented Service Outcomes)**

In the first months of operation (August 2007 to December 2007), a total of approximately 173,605 patients were reported to be in the ED during the covered shifts. Some sites practiced screening at triage, but in many instances screening was limited by the priority set by local EDs on addressing the needs of the more acute patients. HPAs screened 15,383 ED patients using a health and safety survey (described elsewhere<sup>5</sup>) that contains standard substance abuse questions embedded among other public health issues. This number represents one or two employees at each site working a 40-hour work week, primarily evenings and weekends, screening whenever possible between interventions and prolonged efforts to place dependent patients in treatment.

HPAs identified 61% of the positive screens; 39% were identified by ED clinical staff, primarily nurses, followed by physicians and social workers, and then referred to the HPA for formal screening and intervention. Among the 4,899 who were positive for high risk or dependent drinking and/or drug use, 4,035 (82%) received a brief intervention, and 57% of these were referred to the substance abuse treatment system, with only 14% refusing referral. For 29% of the high-risk drinkers, the intervention was an endpoint and no referrals were required. Patients receiving an intervention reflected the demographic distribution of the ED census at the seven sites: 64% male and 89.1% white, 7.4% African American, and 3% other. Hispanics constituted 7.4% of these racial groups. Among positive

screens, 82.3% exceeded NIAAA safe drinking guidelines, 68.8% reported binge drinking in the past month, and 70.2% reported using drugs in the past month.

The most frequently reported drugs of abuse in descending order were marijuana, cocaine, opiates, and benzodiazepines. While 1,391 patients were placed in detox facilities, no beds were available for 237 patients who requested detox. Transportation to treatment was provided for 394 patients. Referrals included Alcoholics Anonymous and Narcotics Anonymous; outpatient treatment; buprenorphine, naloxone, and methadone programs; psychiatric services; primary care; and social work. Only 5% of patients seen by HPAs were “repeat visitors” with frequent ED visits.

**Impact on Patients: Interview Data.** In the interview process, staff described their initial resistance, then growing acceptance, with significant improvements in patient care. One ED director admitted to “doubts about whether patients would volunteer information about drug and alcohol use as readily as they do other information, but the opposite is true, they love the interviews.” Nurses talked about patient perceptions of increased trust and respect, and one stated that “patients don’t fall through the cracks so much anymore because the HPAs are there to follow through.” In yearly progress reports, sites describe an initial split between ED staff members who actively welcomed SBIRT, and those, including some “designated champions,” who were skeptical about feasibility. Clinicians were surprised by the number of positive screens, especially the extent of the hidden population: “Our hospital serves an educated, upper middle class population, very different than the inner city, and due to the program many people are realizing how much of our population is affected by dependence.” “Many of these elderly patients are not normally seen as people who have dependency issues, but they are a huge part of the population, and often their dependence is not known to family.” The program “is proving with numbers that there is a need.”

Patient flow was a major concern prior to initiation of the program, but directors described unexpected improvement in flow, because patients are not “hanging around in the waiting room” and the “ED is able to get ‘em in and get ‘em out where they need to go.” The HPAs give better care, interviewees say, because the program focuses on those who “would usually get pushed to the back of the line.” Interviewees also described improved communication between patients and staff, and increased patient satisfaction, in part because of reduced waiting time for treatment placement. One nurse clinician also mentioned that “Even non-substance abuse patients find that the HPA is someone who will listen and connect them with resources.”

**Impact on ED clinicians.** Clinicians mentioned that the HPAs created resource materials for staff use, relieving anxiety about how to help patients. “I can give my patients hope because I can introduce them to someone who will really help them,” and “Patients trust me more now because their visit with me leads to a

solution now instead of just sympathy.” Staff also said, “I’m able to do my job instead of worrying about a patient who is acting out.” The HPA is part of the ED team now: “There is much more collaboration in patient care.” The extender role was mentioned explicitly: “The HPA is a true team player... [he or she] will answer the phones and chip in if we’re in a pinch” and “Operations would practically grind to a halt here without the HPA.” Staff commented repeatedly that they developed compassion for substance abuse patients because of the HPA’s presence in their ED and the patients’ success stories that the HPAs brought back.

**Hospital and ED Impact.** Important contributions included improving patient flow, being good for community relations (“improves the ED’s image in the public eye”), reducing the need for security involvement (“helps calm down antsy patients when others don’t have time to babysit them”), and success in finding detox placements (“The detoxes save beds for the HPAs because they trust them”). During this period when several of the hospitals went up for trauma recertification and one became certified for the first time, the program was critical for successful completion of requirements: “The accreditation committee loved the program because of what it had to offer patients.”

#### **Maintenance (What Is the Program’s Potential for Sustainability?)**

From the onset, even before HPAs were hired, the local information technology staff, medical record coders, and billing departments were oriented to the program and assigned tasks that would be necessary for each program to eventually become self-sufficient. A medical record template was provided with elements needed for billing documentation, in preparation for testing new SBI Current Procedural Terminology (CPT) and Center for Medicare and Medicaid Services (CMS) reimbursement codes.

In interviews, ED directors stated that their goal was to break even on salaries. Currently all sites document the SBIRT procedure in the ED record, but they are at different stages of initiating billing procedures using SBI CPT, CMS, and Evaluation and Management (E&M) codes. Based on a number of studies, 20% to 25% of ED patients will screen positive for at-risk or dependent drinking and drug use.<sup>10,20</sup> Current reimbursement rates for bundled SBI services stand at Medicaid H0050 at \$48.00; commercial insurance CPT 9408 at \$33.41; Medicare G0396 at \$29.42; and increased return on E&M of \$57 for Levels 2 to 3, \$97 for 3 to 4, and \$140 for 4 to 5. With procedures supported by physician order and charting in the medical record, HPAs can generate an estimated \$57,500 a year each from billing for a weekly census of 10 positive screens with interventions (G, H, and CPT codes) and 10 intensive efforts at placement (resulting in increased E&M billing because of changes from one level to the next as a result of increased intensity and coordination of care). With Medicaid codes slow to turn on in all states, however, sustainability is still a major issue, and ED directors are quite concerned about viability, because the program is still dependent on short-term state funding.

Once billing is fully operational, it will become important to track reimbursement return rates to document sustainability. Nationally, the rate of uninsured is higher than in Massachusetts, and local conditions may limit the ability to obtain reimbursement for procedures performed; SAMHSA and its academic partners at George Washington University's "Ensuring Solutions" are following this situation closely and developing strategies for insurance solutions as health care reform efforts take shape.

Emphasis was also placed on marketing the project to hospital and community stakeholders as a value added service that expands the scope of community benefits required by Medicare. For example, HPAs held breakfast meetings for treatment system providers and cosponsored events on National Recovery Day for community leaders and legislators. When patients are successful at changing unhealthy behaviors ("He came back to the ED with a suitcase in hand saying he was ready to go into treatment!"), and no longer keep returning to the ED to "sleep it off and occupy beds needed to empty out a full waiting room," ED staff, directors, and hospital administrators recognize the need to sustain these programs. Value-added services played a strong role in three hospitals agreeing after 1 year of operation to underwrite part of the HPA salary cost. The development of a substance abuse treatment facility referral network was also a key issue for sustainability. Over time, each of the sites developed preferred provider relationships, meaning that treatment system intake workers were more willing to accept patients from the HPA in that ED because they arrived on time, motivated, appropriate for the facility's criteria, and accompanied by medical and psychiatric clearance and all necessary medications.

## DISCUSSION

A physician-centered approach to SBI has been shown<sup>2</sup> to be effective and cost saving in primary care where patients have lower acuity and return regularly for follow-up appointments, but the busy environment of the ED with its competing priorities demands a team-centered mode of delivery. The clinician-extender model that was disseminated still encourages a team approach and active, yet manageable involvement of ED staff. Clinicians can screen and refer to an HPA in the course of their regular activities and where possible begin an intervention or reinforce a process of change that has begun with an HPA interaction. Information systems documenting a positive screen at triage or at the bedside, and triggering notification of the HPA, could facilitate integration of care and support a team approach.

When we compare our data from our small state-funded dissemination of ED-SBIRT with data from SAMHSA's evaluation of its multimillion dollar grants to states to implement SBIRT,<sup>17</sup> some important differences emerge. The federal SBIRT program reports a positive screen rate of 23%, lower than the 32% in our study, and an intervention rate of 70% of positives, with 43% of those receiving an intervention recommended for brief or specialty treatment. On the other hand, in ED-SBIRT,

82% of positives received brief intervention, and 57% of those received an active referral to the substance abuse treatment system (actual assistance in getting placed vs. a "recommendation to go"). The difference in the percentage of referrals to treatment between the two data sets (43% vs. 57%) represents a tension between a population-based public health approach that promotes universal screening and our more targeted clinical ED intervention. The large percentage of dependent compared to high-risk drinkers in the ED setting is a fact of life that complicates the requirements for intervention. Our collaborative model emerged from the real needs of both ED staff and patients.

## LIMITATIONS

Although many of the interviewees expressed initial skepticism and concerns, the evaluation interviews were positive overall. There may have been some selection bias in the qualitative process, although a large number of individuals were interviewed from all participant categories and saturation of themes was achieved. Furthermore, confidentiality was assured to all respondents, and the interviewers were external to the program and not previously known to interviewees. The few who were contacted and did not respond might, of course, have presented a different picture. Furthermore, staff at the two sites that were deactivated prior to the evaluation might have had negatives to report.

The data we present are limited to process markers. A translation study presumes preexisting evidence for effectiveness and therefore does not include the long-term outcomes for individual patients that are the hallmark of efficacy and effectiveness trials. Although we were able to demonstrate performance of a large number of SBIRT procedures, this study was not designed as an effectiveness trial.

While it would have been valuable to be able to compare clinician success rates for SBIRT to HPA rates, this project was only funded to disseminate the HPA model of care to seven EDs. Effective tracking of clinician activities was not possible within this scope; information about comparative effectiveness based on provider type needs to be addressed with a subsequent effectiveness trial.

## CONCLUSIONS

Based on the RE-AIM evaluation presented here, we conclude that the ED-SBIRT extender model was successfully disseminated with Massachusetts Bureau of Substance Abuse funding to five of the seven hospital EDs selected to represent each of the state's geographic regions. The dissemination process demonstrated changes in ED staff attitudes to SBIRT over time and provided a number of important lessons for the larger rollout to follow. We learned that ED-SBIRT implementation success depends on 1) external funding for start-up and bridging until reimbursement mechanisms are fully established; 2) local champions to resolve territorial issues, address stigma, and promote a cultural shift from treat and street to prevention; 3) sustainability

planning from the beginning involving administrators, the billing and information technology departments, medical records coders, community service providers, and government agencies; and 4) a robust referral network to facilitate patient acceptance and access to substance abuse services. ED-SBIRT appears to be a feasible approach to identification of hidden use, early intervention, and steering the most challenging patients to specialized services.

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