



# A Randomized Evaluation of Motivational Interviewing Training for Mandated Implementation of Alcohol Screening and Brief Intervention in Trauma Centers<sup>☆</sup>



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## ABSTRACT

The American College of Surgeons has mandated that level I and level II trauma centers implement universal alcohol screening and brief intervention (SBI) for injured patients. This study was a secondary analysis of a national, 20-hospital, cluster-randomized implementation trial focusing on practical issues of training and supervising alcohol SBI providers in motivational interviewing (MI). The purpose of this study was to examine whether real-world trauma center providers can be trained to provide higher quality counseling using MI as part of brief interventions for alcohol and whether MI skills can be maintained over time. Sites were randomly assigned to receive a 1 day workshop training in MI for alcohol SBI or not, and all providers regardless of training completed up to seven standardized patient assessments of MI fidelity over 27 months. Six domains on the Motivational Interviewing Treatment Integrity (MITI) coding system were assessed and compared to proficiency criteria. Providers in the intervention training group showed substantially improved MITI scores over the course of the 27-month time period. Domains that had particularly strong improvement were MI spirit and empathy; however, despite the overall improvement in the intervention group scores, expert-derived proficiency criteria were attained only for the global scores. Routine trauma center providers who receive MI training can deliver higher quality counseling in alcohol brief interventions, but may not, however, attain previously derived proficiency standards. Future implementation efforts in real-world acute care medical settings could further elucidate provider characteristics that predict training response and also strive to demonstrate that higher quality alcohol SBI implementation is associated with improved patient-level outcomes.

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## 1. Introduction

Each year in the United States (U.S.), over 30 million individuals present to acute care medical settings for the treatment of traumatic injury, and 1.5–2.5 million Americans are so severely injured that they require inpatient surgical hospitalization (American College of Surgeons, U.S. Department of Health and Human Services, & Department of Transportation, 2010; American College of Surgeons Committee on Trauma, 2006; Bergen & National Center for Health Statistics (U.S.), 2008; Bonnie, Fulco, Liverman, & Institute of Medicine (U.S.) Committee on Injury Prevention and Control, 1999; National Center for Injury Prevention, 2012). Alcohol use problems are endemic among injured trauma survivors (Soderstrom et al., 1997; Zatzick et al., 2012). Thus, the widespread implementation of high quality alcohol screening and brief intervention

(SBI) into acute injury care has the potential to markedly increase the population impact of prevention efforts and has been a long-standing international public health objective (Jonas et al., 2012; Koepsell, Zatzick, & Rivara, 2011; Rehm et al., 2009; Room, Babor, & Rehm, 2005; Rose, 1992). Over the past decade, the American College of Surgeons has established mandates for alcohol screening and brief intervention at trauma centers; currently the college requires universal alcohol screening and intervention for level I and II trauma centers nationally (American College of Surgeons Committee on Trauma, 2014; Terrell et al., 2008). This represents the first ever U.S. policy mandate for the integrated treatment of alcohol use problems in a general medical setting. The American College of Surgeons' mandate allows specific alcohol SBI procedures and SBI provider preparation and training to be left to the discretion of each trauma center and initial reports suggest that the mandate is implemented with marked variability (Terrell et al., 2008). There is a risk that lower quality alcohol SBI counseling and procedures could become the default standard of trauma center care nationwide. The routine use of an evidence-based counseling approach, such as motivational interviewing (MI), which emphasizes

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patient autonomy and exploration of patients' reasons and motivation for change (Miller & Rollnick, 2014), could help to insure that the mandate is implemented with sufficient quality.

Given that MI is consistent with recommendations for how to conduct brief interventions by the American College of Surgeons (2010), MI is commonly used in alcohol SBI across general medical settings (Field, Hungerford, & Dunn, 2005; Miller & Rollnick, 2014). Brief interventions using MI appear to be generally effective in trauma center, emergency department, medical inpatient, and primary care general medical settings, although treatment effects vary across settings and patient populations (Bertholet, Palfai, Gaume, Daeppen, & Saitz, 2014; Bray, Cowell, & Hinde, 2011; Cunningham et al., 2009; D'Onofrio et al., 2010, 2012; Field, Baird, Saitz, Caetano, & Monti, 2010; Havard, Shakeshaft, & Sanson-Fisher, 2008; Jonas et al., 2012; Madras et al., 2009; Nilsen et al., 2008; Vasilaki, Hosier, & Cox, 2006; Whitlock, Polen, Green, Orleans, & Klein, 2004). More specifically, with injured patients admitted to trauma centers, brief interventions using MI have been shown to improve alcohol use problems (Field, Caetano, Harris, Frankowski, & Roudsari, 2010; Field et al., 2014; Gentilello et al., 1999; Schermer, Moyers, Miller, & Bloomfield, 2006).

The large body of literature on MI training points to factors that may influence the ability to teach and learn high quality MI-based brief alcohol interventions (Barwick, Bennett, Johnson, McGowan, & Moore, 2012; de Roten, Zimmermann, Ortega, & Despland, 2013; Madson, Loignon, & Lane, 2009; Schwalbe, Oh, & Zweben, 2014; Soderlund, Madson, Rubak, & Nilsen, 2011). This literature suggests that specific training models are associated with improved training results. MI training routinely includes a 1–3 day workshop consisting of didactics, demonstrations, and active learning exercises (Madson et al., 2009), with shorter 1 day trainings more common in healthcare settings (Soderlund et al., 2011). Although these workshops can improve immediate MI skills (Baer et al., 2009; Miller & Mount, 2001), randomized controlled trials have documented improved learning and skill retention when workshops are followed by ongoing feedback and coaching (Miller, Yahne, Moyers, Martinez, & Pirritano, 2004; Moyers et al., 2008; Smith et al., 2012).

Our literature review revealed a paucity of comprehensive training studies examining SBI performed in the unique acute care trauma medical center mandated implementation context. Therefore, the current investigation was a secondary analysis of a larger cluster randomized implementation trial of alcohol SBI using MI with predominantly acute care nurses and social workers at 20 U.S. trauma centers (Zatzick et al., 2014). The intervention group providers were given a workshop with feedback and coaching in concert with the American College of Surgeons' guidelines (American College of Surgeons Committee on Trauma, 2014) and then followed longitudinally using a novel 27-month standardized patient design (Zatzick, Donovan, et al., 2013; Zatzick, Jurkovich, et al., 2013). Findings from the trial indicated that alcohol SBI delivered by study-trained providers was associated with modest reductions in alcohol use problems among patients, particularly those without traumatic brain injury.

A crucial implementation issue in this mandated regulatory context is that trauma centers typically designate current employees to be SBI providers without regard for counseling skill or trainability (Zatzick, Donovan, et al., 2013; Zatzick, Jurkovich, et al., 2013; Zatzick et al., 2014). These service delivery characteristics raise questions for nationwide trauma center implementation efforts in the wake of the American College of Surgeons' alcohol SBI mandate. First, can routine trauma center providers randomized to a 1 day workshop and follow-up feedback and coaching demonstrate sustainable gains in MI skills over a 27-month period? Second, can SBI providers be trained to MI proficiency criteria?

## 2. Material and methods

### 2.1. Design

The current investigation is a secondary analysis of training implementation and outcomes from the Disseminating Organizational

Screening and Brief Intervention Services (DO-SBI) study (Zatzick, Donovan, et al., 2013; Zatzick, Jurkovich, et al., 2013; Zatzick et al., 2014), a cluster randomized implementation trial of the effects of a multilevel (i.e., trauma center and provider levels) intervention targeting the delivery of high quality alcohol SBI services at 20 U.S. level I trauma centers. The goal of the DO-SBI study was to harness the opportunity afforded by the American College of Surgeons' mandate by testing the delivery of evidence-based alcohol SBI at U.S. trauma centers. In the longest follow-up period for an MI training evaluation yet, the present analysis includes longitudinal data collected prior to and 27-months following randomization and training. This allowed for the detection of transient training effects versus potentially sustained gains in MI proficiency as a result of a workshop followed by feedback and coaching.

### 2.2. Participants and procedure

The University of Washington's and each participating site's institutional review board approved all study procedures prior to full protocol initiation. The study included American College of Surgeons level I trauma centers classified as middle adopters (Zatzick, Donovan, et al., 2013; Zatzick, Jurkovich, et al., 2013). Middle adopters meant that the centers demonstrated an interest in readiness to implement evidence-based alcohol SBI procedures, but without well-established SBI services (Rogers, 1995). Additionally, these sites had never received grant funding for alcohol SBI related research or service development and were deemed unlikely to implement high quality services without additional training. Site randomization to intervention ( $n = 10$ ) and control ( $n = 10$ ) occurred in a 1:1 ratio. A series of blocks of either two or four sites were generated using a random number generator by the investigation's statistician. Once generated, intervention and control site assignments were entered into 20 sequentially numbered envelopes. Site randomization was then conducted by a blinded research coordinator. Despite randomization, a greater percentage of providers were nurses in the control group and social workers in the intervention group (see Table 1).

Provider recruitment ( $N = 40$ ) for the trial began in 2008 and included nurses ( $n = 19$ ), social workers ( $n = 15$ ), physicians assistants ( $n = 4$ ), one chemical dependency professional, and one respiratory therapist, who were predominantly White and female (see Table 1). The training background of nurses included in the study were split between having a bachelor's degree or less (58%) and master's degree or

**Table 1**  
Characteristics of study providers.

Characteristics	No. (%)		
	All ( $N = 40$ )	Intervention ( $n = 16$ )	Control ( $n = 24$ )
Gender			
Male	2 (5.0)	0 (0.0)	2 (8.3)
Female	38 (95.0)	16 (100.0)	22 (91.7)
Race			
White	36 (90.0)	15 (93.8)	21 (87.5)
Black	2 (5.0)	0 (0.0)	2 (8.3)
Hispanic	2 (5.0)	1 (6.3)	1 (4.2)
Job type <sup>a</sup>			
Nurse	19 (47.5)	3 (18.8)	16 (66.7)
Social worker	15 (37.5)	11 (68.8)	4 (16.7)
Other <sup>a</sup>	6 (15.0)	2 (12.5)	4 (16.7)
Years since receipt of professional degree <sup>b</sup>			
<1	1 (2.5)	1 (4.2)	0 (0.0)
1–10	15 (37.5)	10 (41.7)	5 (31.3)
11–20	11 (27.5)	4 (16.7)	7 (43.8)
21–30	7 (17.5)	5 (20.8)	2 (12.5)
>31	6 (15.0)	4 (16.7)	2 (12.5)

Note.  $M$  = mean,  $SD$  = standard deviation, MI = motivational interviewing.

<sup>a</sup> Between group difference statistically significant at  $p < .05$ .

<sup>a</sup> Other = chemical dependency professional ( $n = 1$ ), physicians assistants ( $n = 4$ ), and respiratory therapist ( $n = 1$ ).

<sup>b</sup> Means and standard deviations for years since receipt of professional degree: intervention group,  $M = 16.5$ ,  $SD = 11.4$ , and control group,  $M = 17.0$ ,  $SD = 13.0$ .

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