

Scaling Up and Sustaining Alcohol & PTSD Screening and Intervention in US Trauma Care Systems

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Trauma Survivors Outcomes & Support (TSOS)



Funding Sources

NIMH

NIAAA

NIMHD

Center for Disease Control

HRSA Maternal Child Health

US Department of Defense

Strauz Foundation/Trust

TSOS



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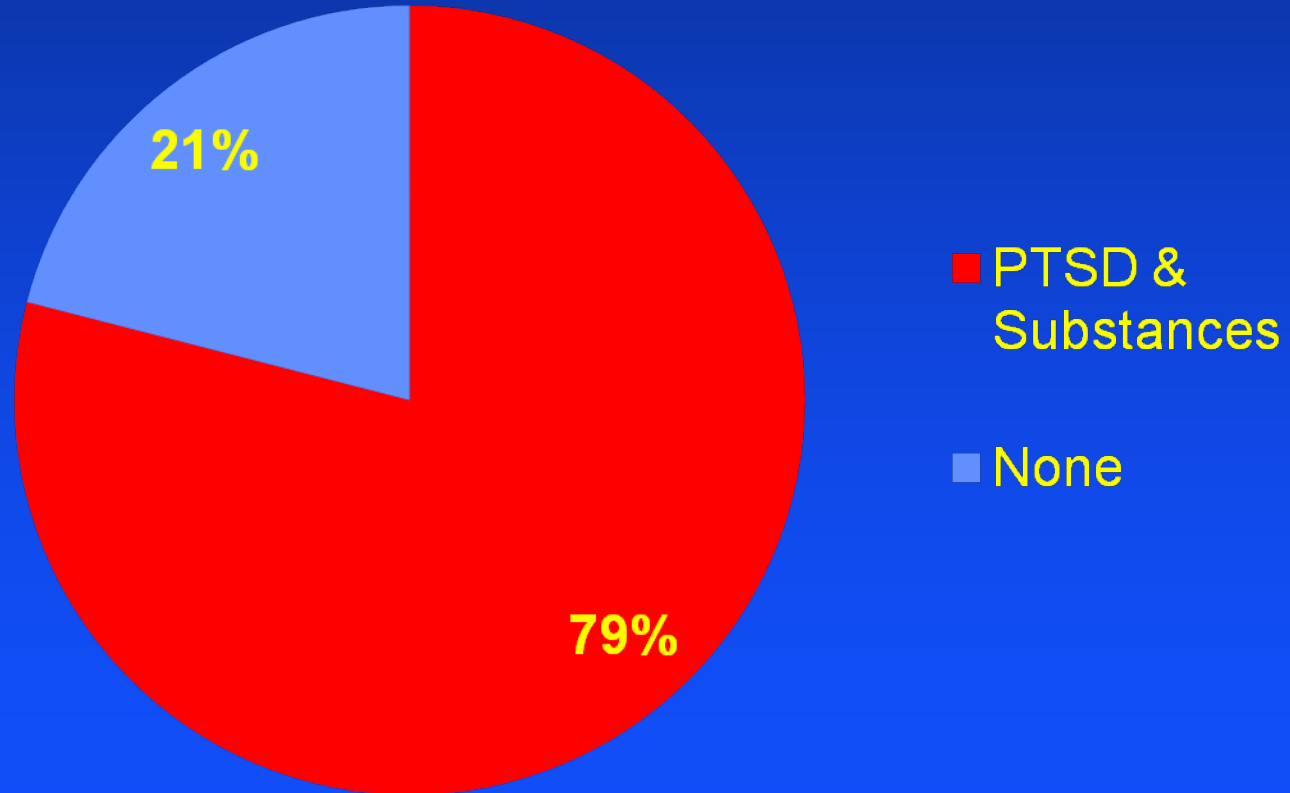
Overview: US Trauma Care Implementation Science Frameworks

- High rates of alcohol problems & PTSD
- “Make it happen” regulated implementation
- Pragmatic “real world” trials target national trauma center policy
- Change agent/boundary spanner teams
- UW/Harborview alcohol dissemination
- UW/Harborview PTSD implementation
- Future directions

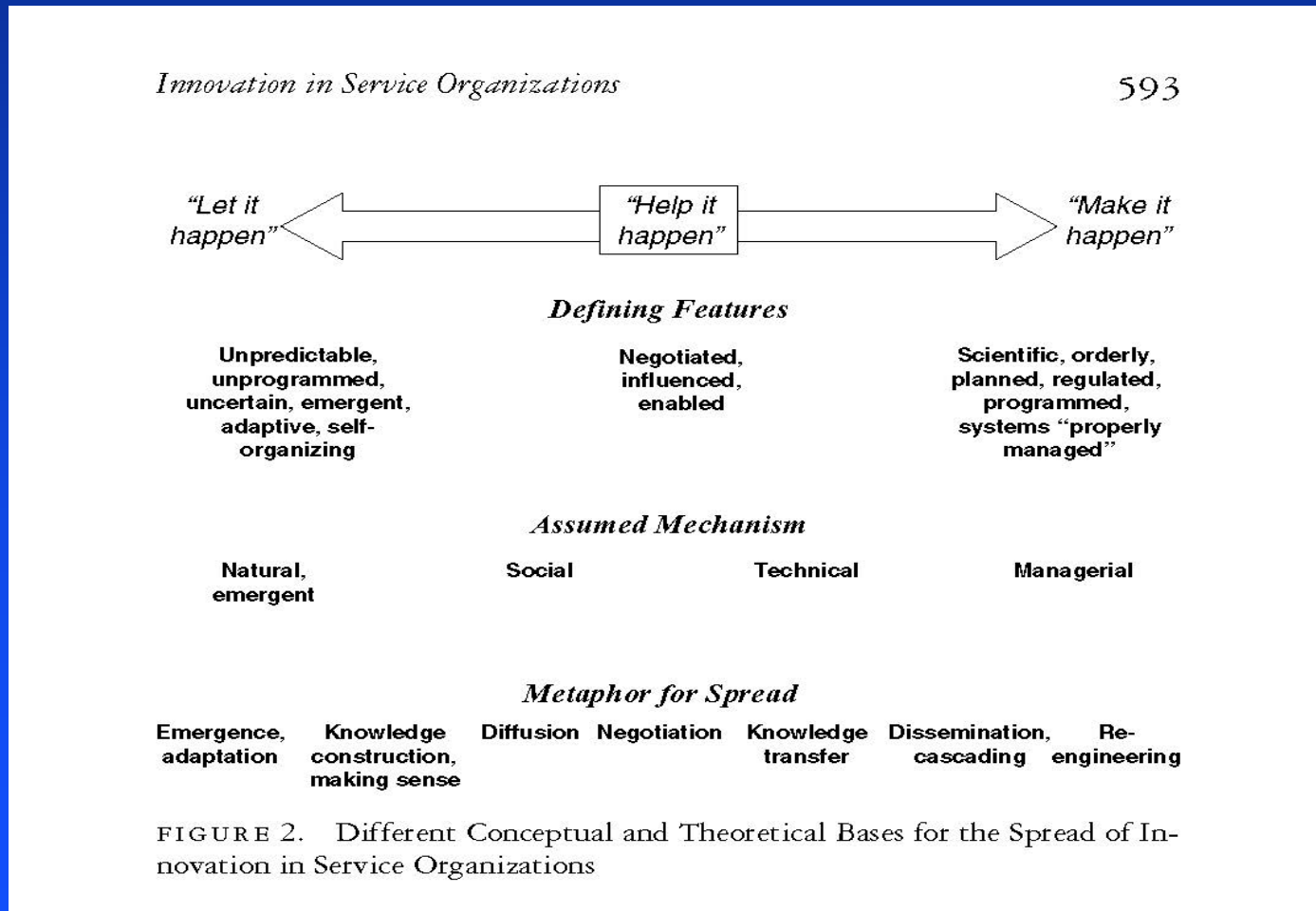
Acute Care Medical Setting: High Rates of Alcohol, PTSD & Co-morbidity

- 20-40% high early post-injury PTSD/depression
- 30-55% lifetime substance disorders
- Substantial functional impairment
- Trauma center & societal costs

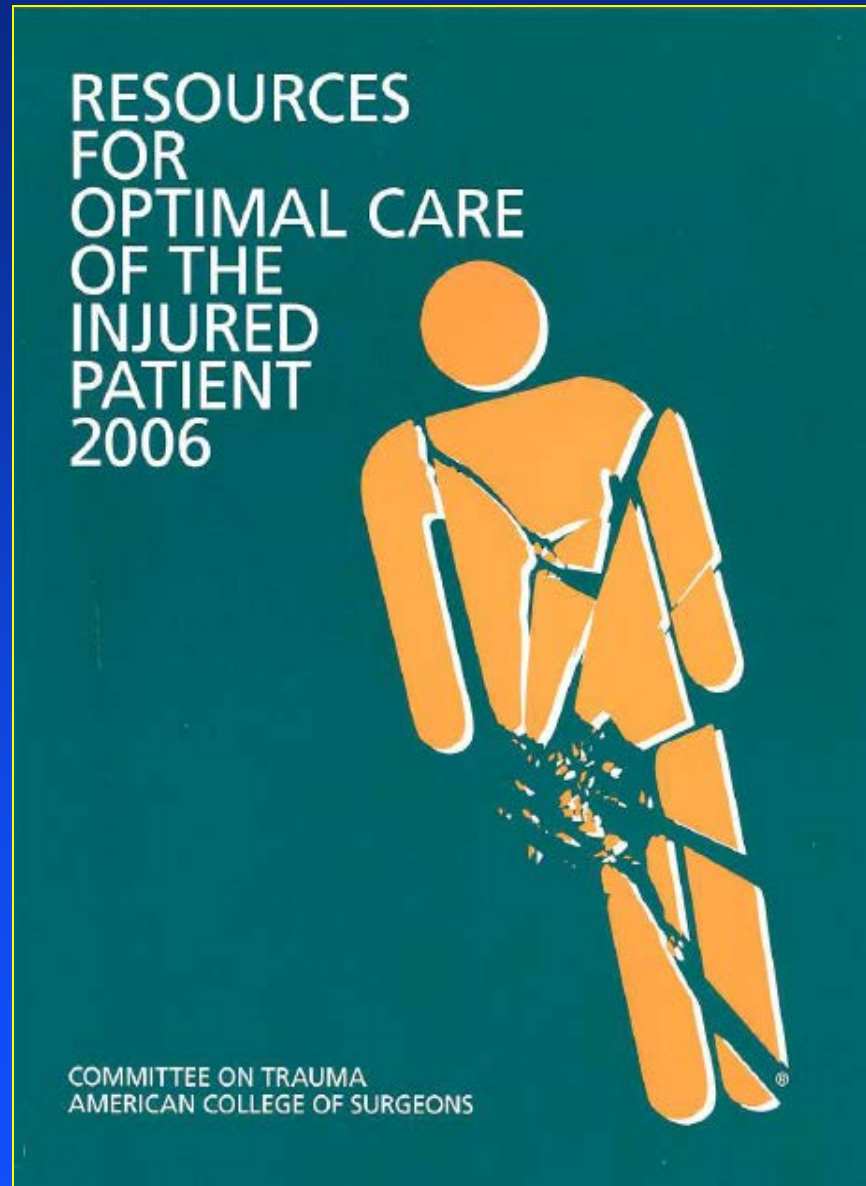
PTSD, Alcohol & Drug Use Problems Among Random Harborview Trauma Surgery Inpatients (N=878)



Greenhalgh et al., 2004: Milbank Quarterly “Make it Happen”



American College of Surgeons Policy



American College of Surgeons “Make it Happen” Implementation Science Framework

- College tightly regulates centers
- Mandates linked to verification site visits performed by the college
- Verification linked to trauma center accreditation and funding
- Example: Patient Protection & Affordable Care Act

Patient Protection & Affordable Care Act: Trauma Centers

An Act

Entitled The Patient Protection and Affordable Care Act.

H. R. 3590—404

SEC. 3505. TRAUMA CARE CENTERS AND SERVICE AVAILABILITY.

(a) TRAUMA CARE CENTERS.—

(1) GRANTS FOR TRAUMA CARE CENTERS.—Section 1241 of the Public Health Service Act (42 U.S.C. 300d–41) is amended by striking subsections (a) and (b) and inserting the following:

.....

“(5) DESIGNATION.—The Secretary may not award a grant to a trauma center unless such trauma center is verified by the American College of Surgeons or designated by an equivalent State or local agency.

.....

“(b) TRAUMA CARE REGISTRY.—The Secretary may require the trauma center receiving a grant under section 1241(a) to provide data to a national and centralized registry of trauma cases, in accordance with guidelines developed by the American College of Surgeons, and as the Secretary may otherwise require.”.

Patient Protection & Affordable Care Act Funding Linked to Verification

An Act

Entitled The Patient Protection and Affordable Care Act.

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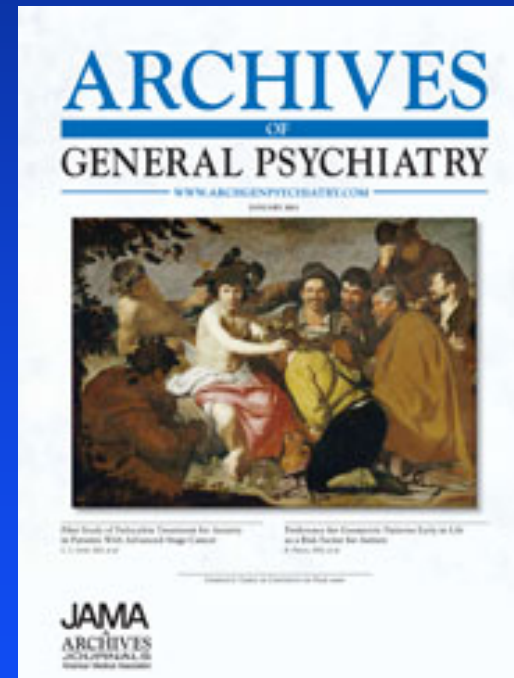
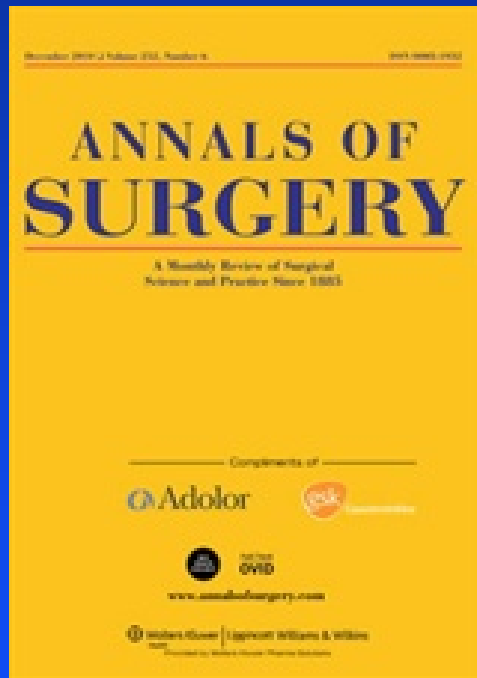
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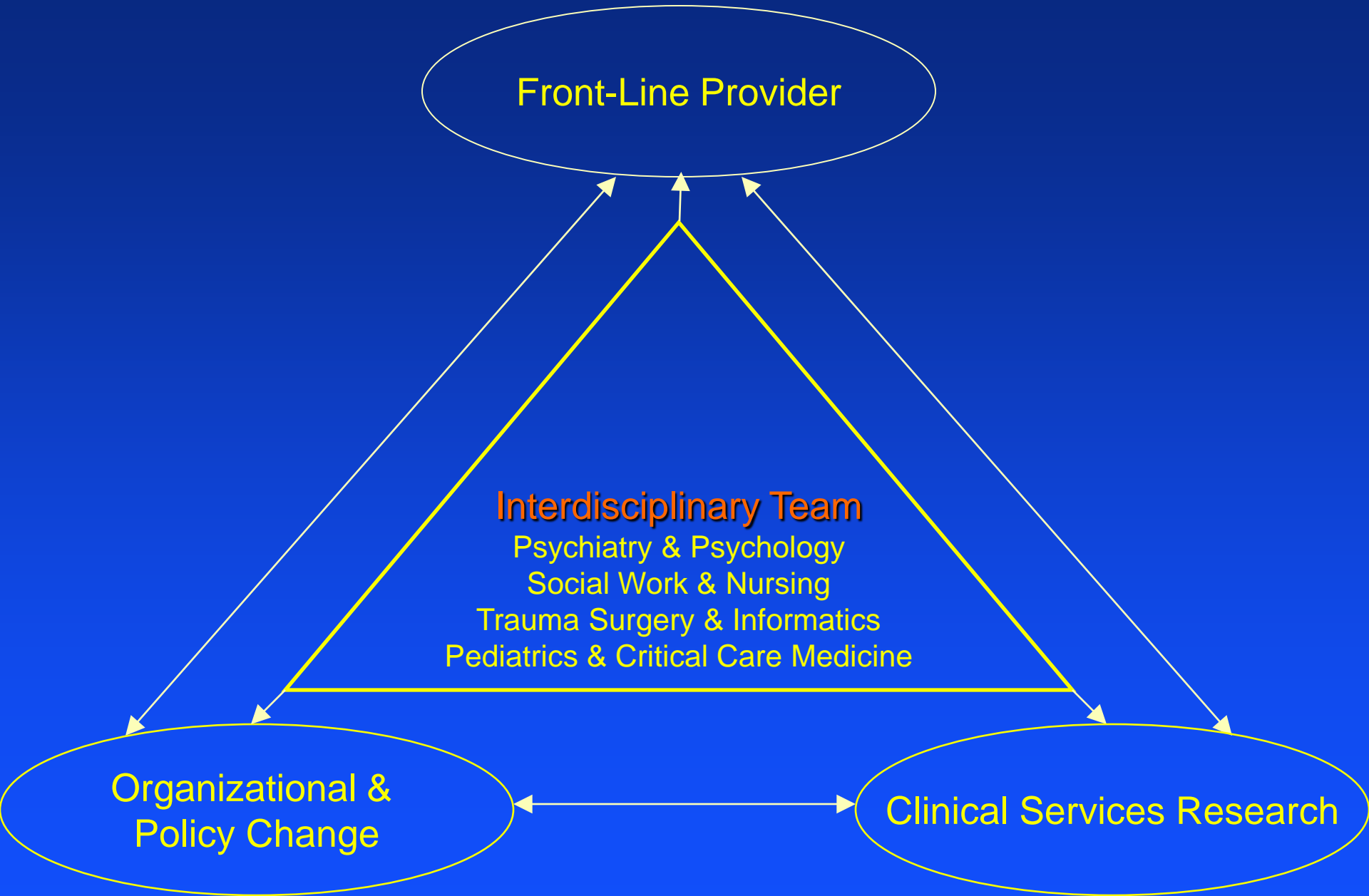
Implementation Science Methods

- Pragmatic “real world” randomized clinical trials can target policy
- Key is policy relevant outcomes
 - Substances and recurrent trauma
 - PTSD and function/work

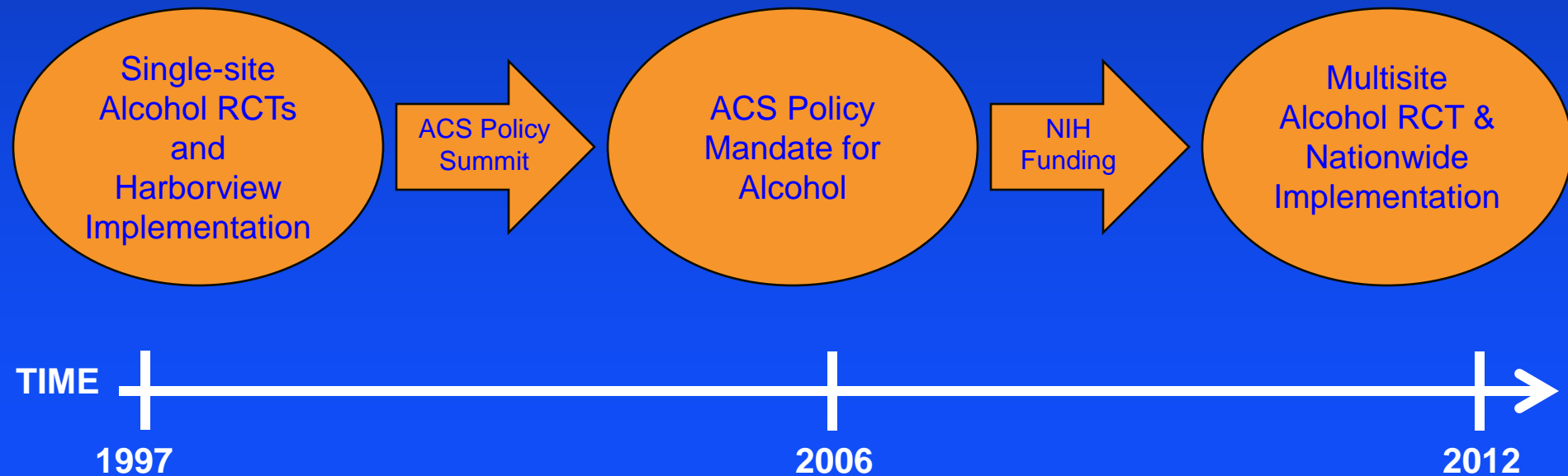
Acute Care Surgical-Psychiatry Integration



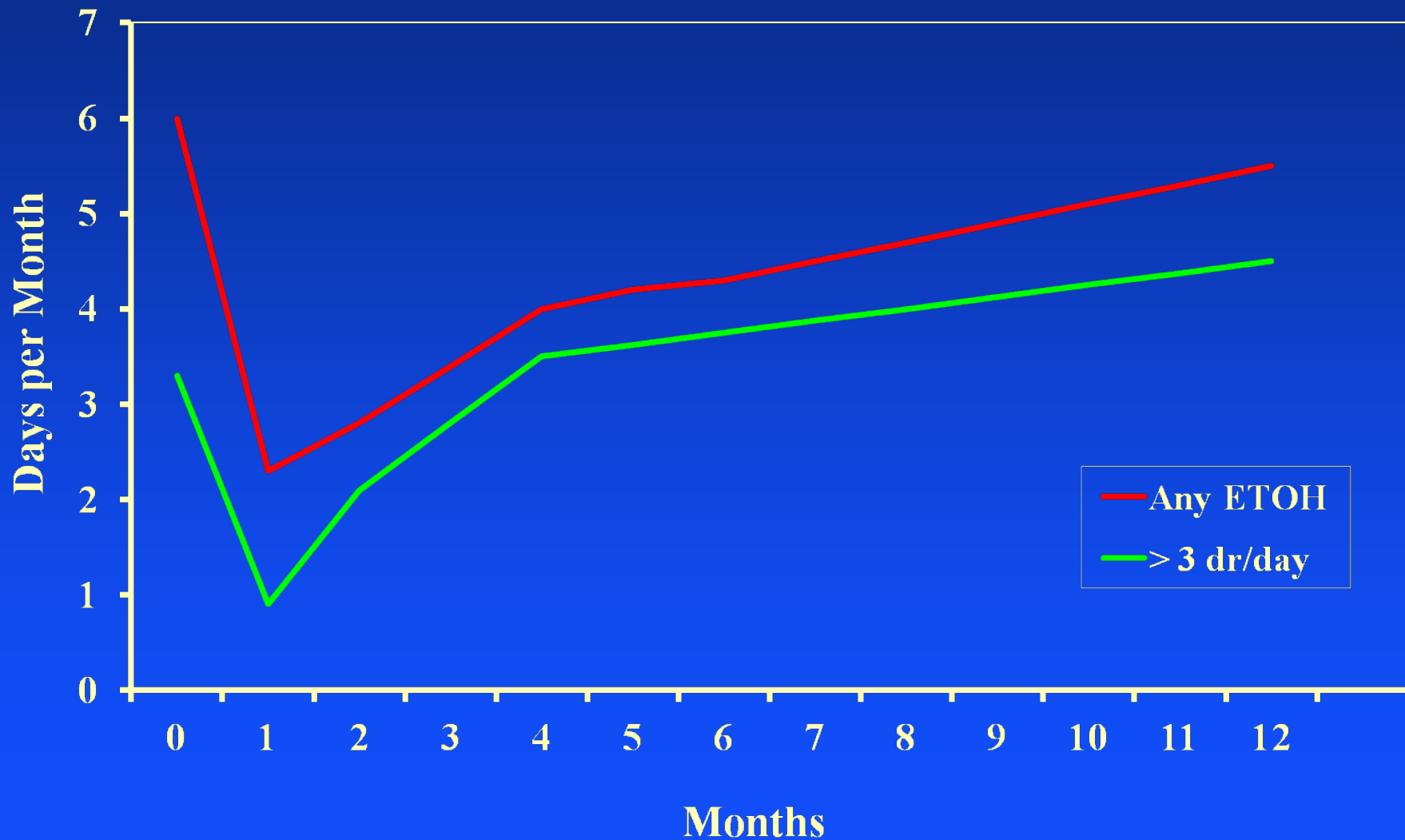
Trauma Center Interdisciplinary “Change Agent” Team Implementation Model



Orchestration Pragmatic Trials and ACS Policy: Alcohol



Natural Course of Alcohol Use After Injury (Dunn et al 2003)



Results: Harborview Alcohol RCT I



Harborview Alcohol RCT I

- 50% reduction in recurrent injury admissions
- Hazard Ratio 0.47
(95% CI = 0.26 – 1.07)

Gentilello et al Annals of Surgery 1999

Annals of Surgery 1999

ANNALS OF SURGERY
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Alcohol Interventions in a Trauma Center as a Means of Reducing the Risk of Injury Recurrence

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*From the Departments of *Surgery, †Pediatrics, ‡Psychiatry, and §Medicine, University of Washington School of Medicine, the ||Harborview Injury Prevention and Research Center, and the ¶University of Washington Alcohol and Drug Abuse Institute, Seattle, Washington*

Objective

Alcoholism is the leading risk factor for injury. The authors hypothesized that providing brief alcohol interventions as a routine component of trauma care would significantly reduce alcohol consumption and would decrease the rate of trauma recidivism.

Methods

This study was a randomized, prospective controlled trial in a level 1 trauma center. Patients were screened using a blood alcohol concentration, gamma glutamyl transpeptidase level, and short Michigan Alcoholism Screening Test (SMAST). Those with positive results were randomized to a brief intervention or control group. Reinjury was detected by a computerized search of emergency department and statewide hospital discharge records, and 6- and 12-month interviews were conducted to assess alcohol use.

Results

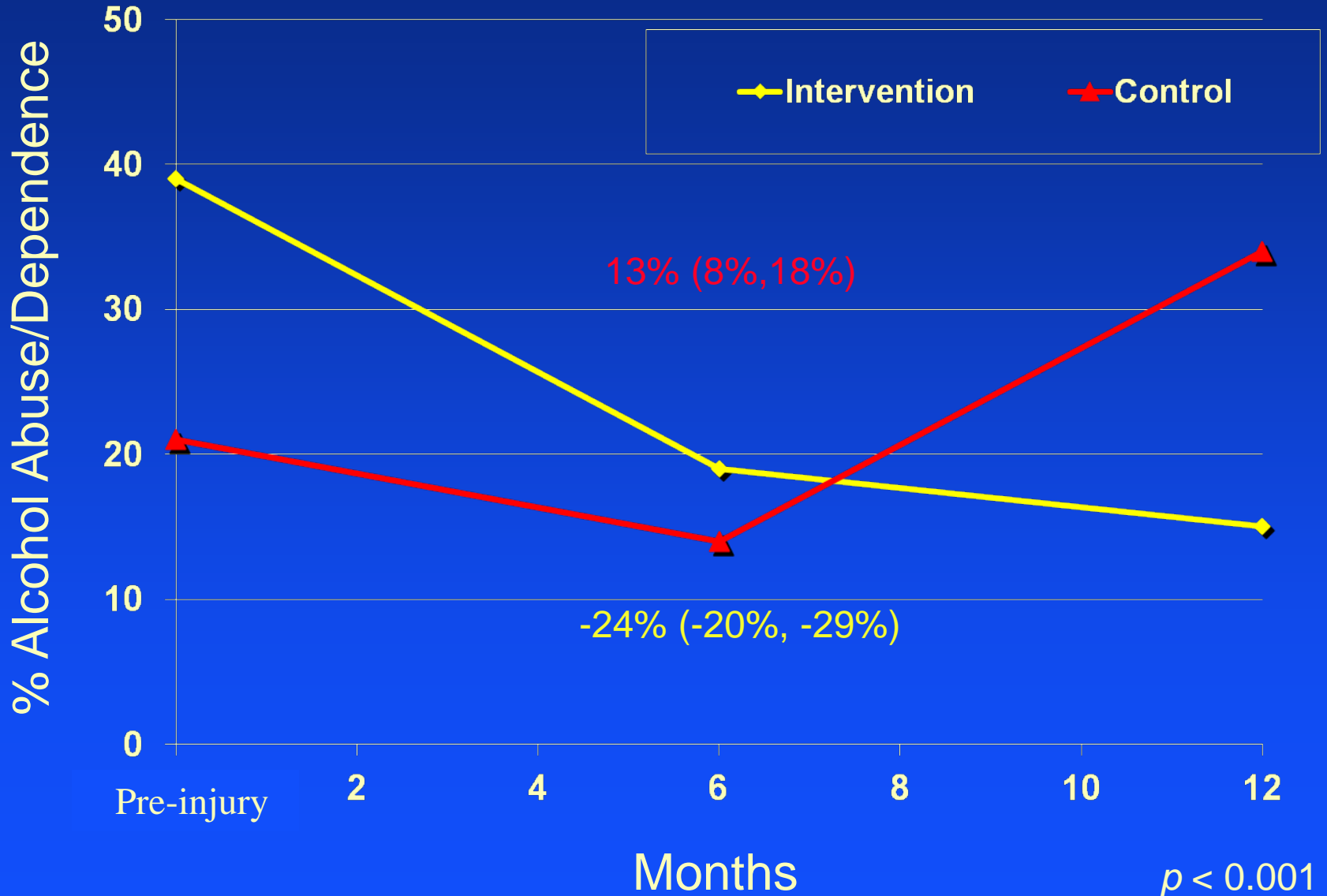
A total of 2524 patients were screened; 1153 screened positive (46%). Three hundred sixty-six were randomized to the

intervention group, and 396 to controls. At 12 months, the intervention group decreased alcohol consumption by 21.8 ± 3.7 drinks per week; in the control group, the decrease was 6.7 ± 5.8 ($p = 0.03$). The reduction was most apparent in patients with mild to moderate alcohol problems (SMAST score 3 to 8); they had 21.6 ± 4.2 fewer drinks per week, compared to an increase of 2.3 ± 8.3 drinks per week in controls ($p < 0.01$). There was a 47% reduction in injuries requiring either emergency department or trauma center admission (hazard ratio 0.53, 95% confidence interval 0.26 to 1.07, $p = 0.07$) and a 48% reduction in injuries requiring hospital admission (3 years follow-up).

Conclusion

Alcohol interventions are associated with a reduction in alcohol intake and a reduced risk of trauma recidivism. Given the prevalence of alcohol problems in trauma centers, screening, intervention, and counseling for alcohol problems should be routine.

Harborview Alcohol RCT II



Harborview Alcohol RCT II: Readmissions for New Injuries

- 50% reduction in new injury admissions
 - 5% of intervention
 - 10% of controls
 - Adjusted OR = 0.43 (95% CI, 0.10, 1.96)

Zatzick, Roy-Byrne, Russo, Rivara, Droesch, Wagner, Dunn, Jurkovich, Uehara, and Katon. Arch Gen Psychiatry 2004

Implementation by Interdisciplinary Study Team at “Home” Trauma Center Site

- Full time PhD alcohol expert
- Population-based automated alcohol and drug screen

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2006



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Verification Site Visit Deficiency Criteria

“General surgeon or appropriate substitute is not available for major resuscitations in house 24 hours a day.”

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Prevention Chapter 18

“Alcohol is such a significant associated factor and contributor to injury that it is vital that trauma centers have a mechanism to identify patients who are problem drinkers.”

“In addition, level I centers must have the capability to provide an intervention for patients identified as problem drinkers.”

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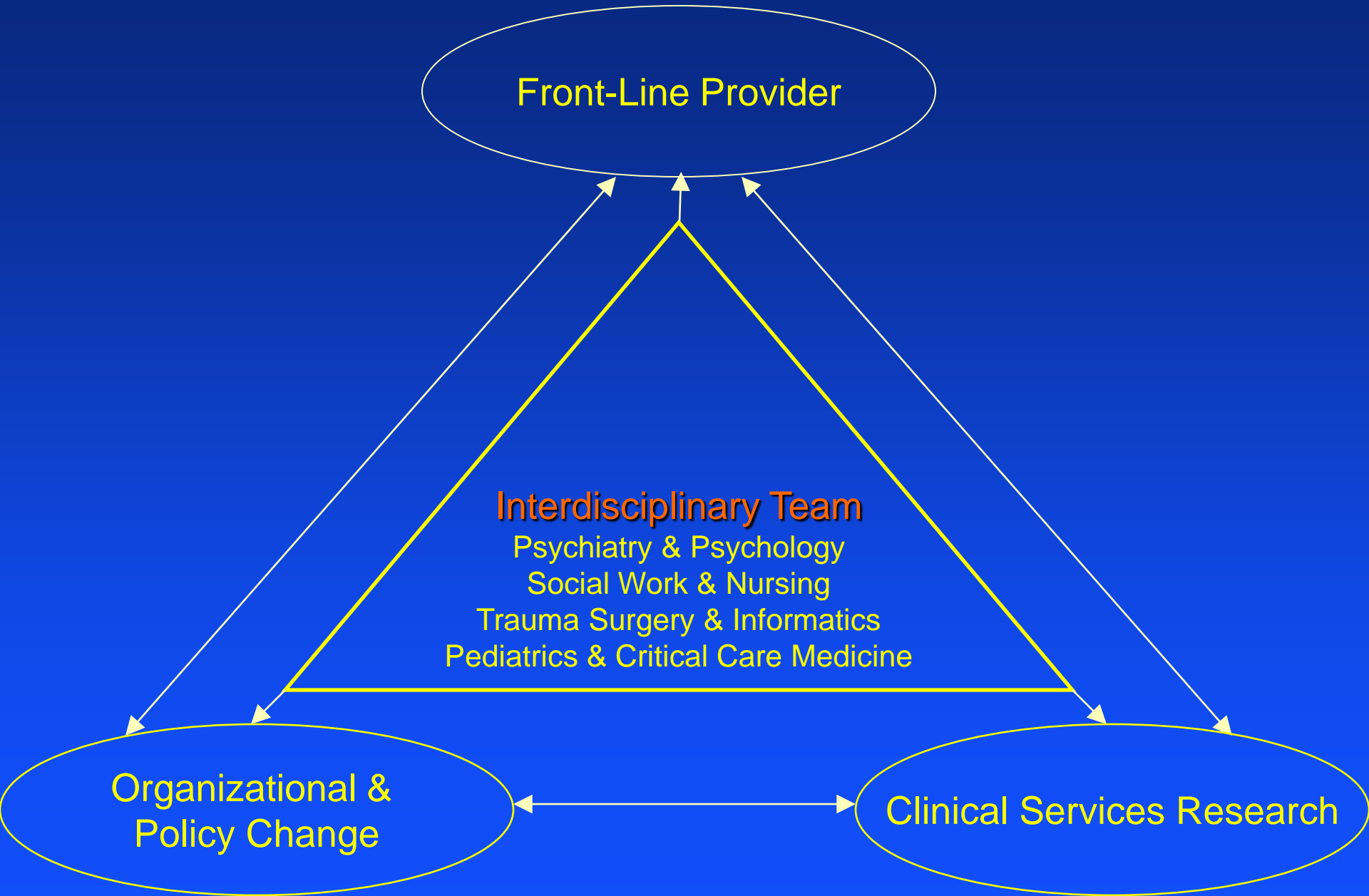
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Verification Site Visit Deficiency Criteria

“The trauma center does not have a mechanism to identify patients who are problem drinkers.”

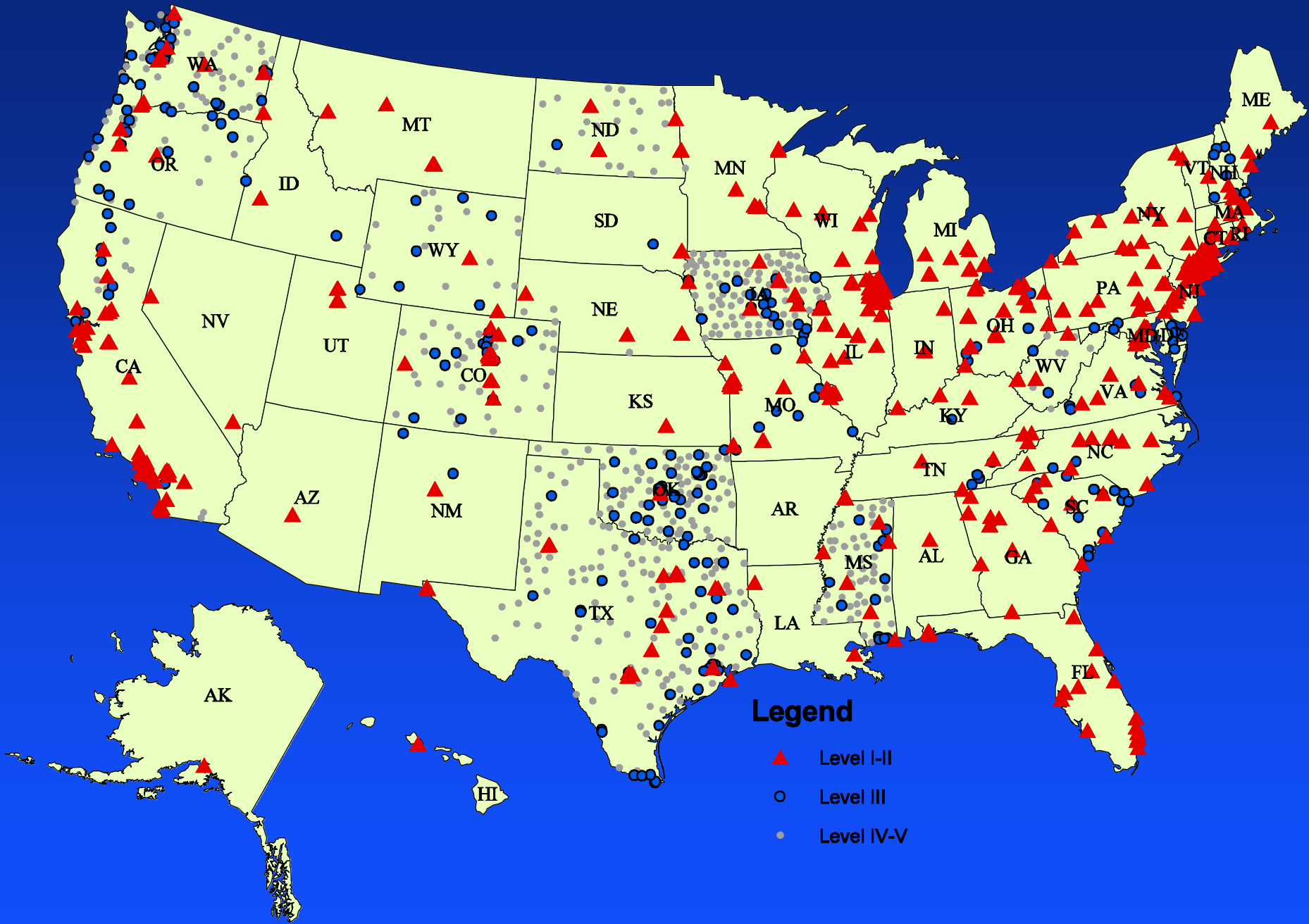
“The trauma center does not have the capability to provide intervention or referral for patients identified as problem drinkers.”

Trauma Center Interdisciplinary “Change Agent” Team Implementation Model

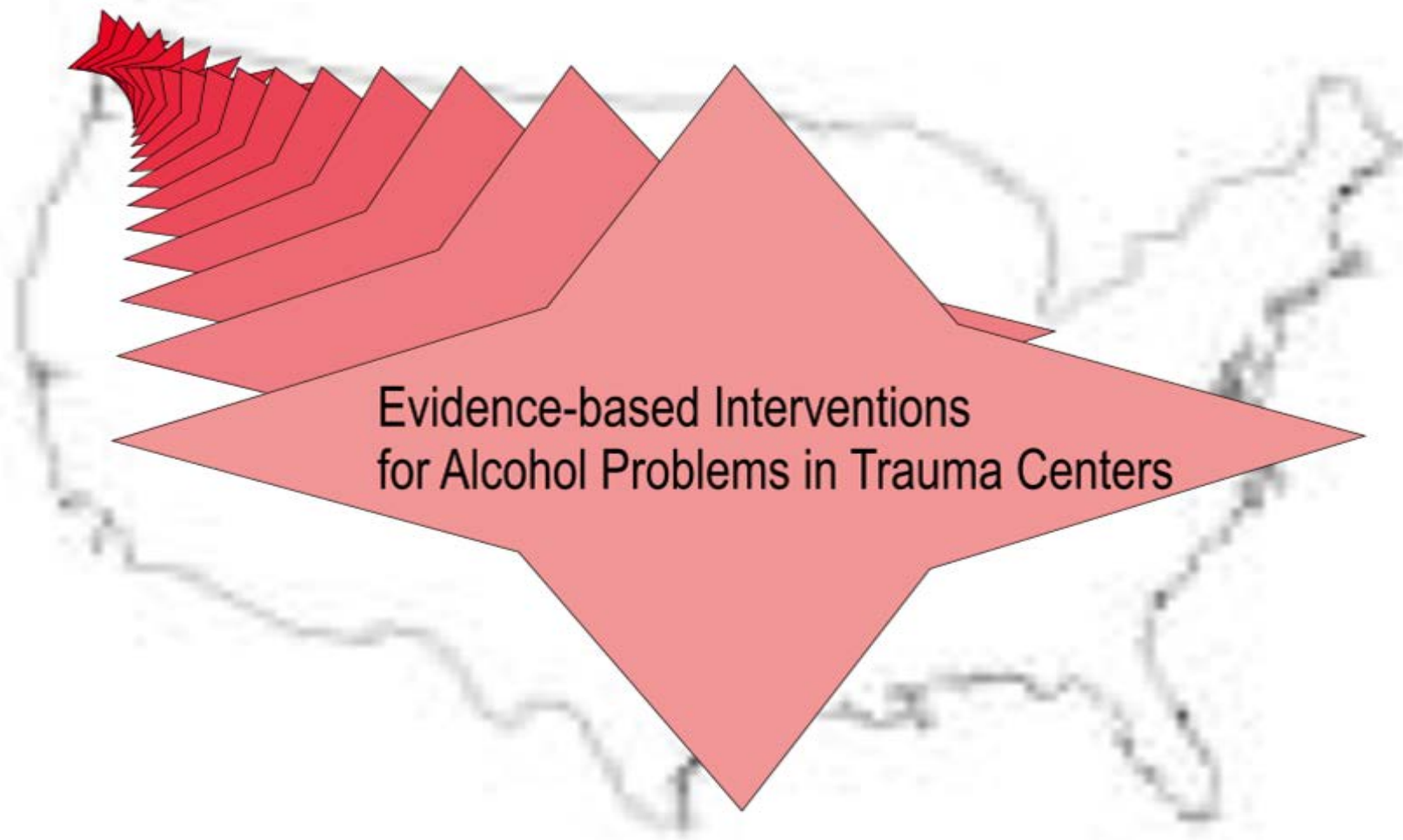


Integration by Interdisciplinary Study Team at “Home” Trauma Center Site

- Mandate applies to study team as front-line trauma center providers



Disseminating Organizational Screening & Brief Interventions (DO-SBIS)

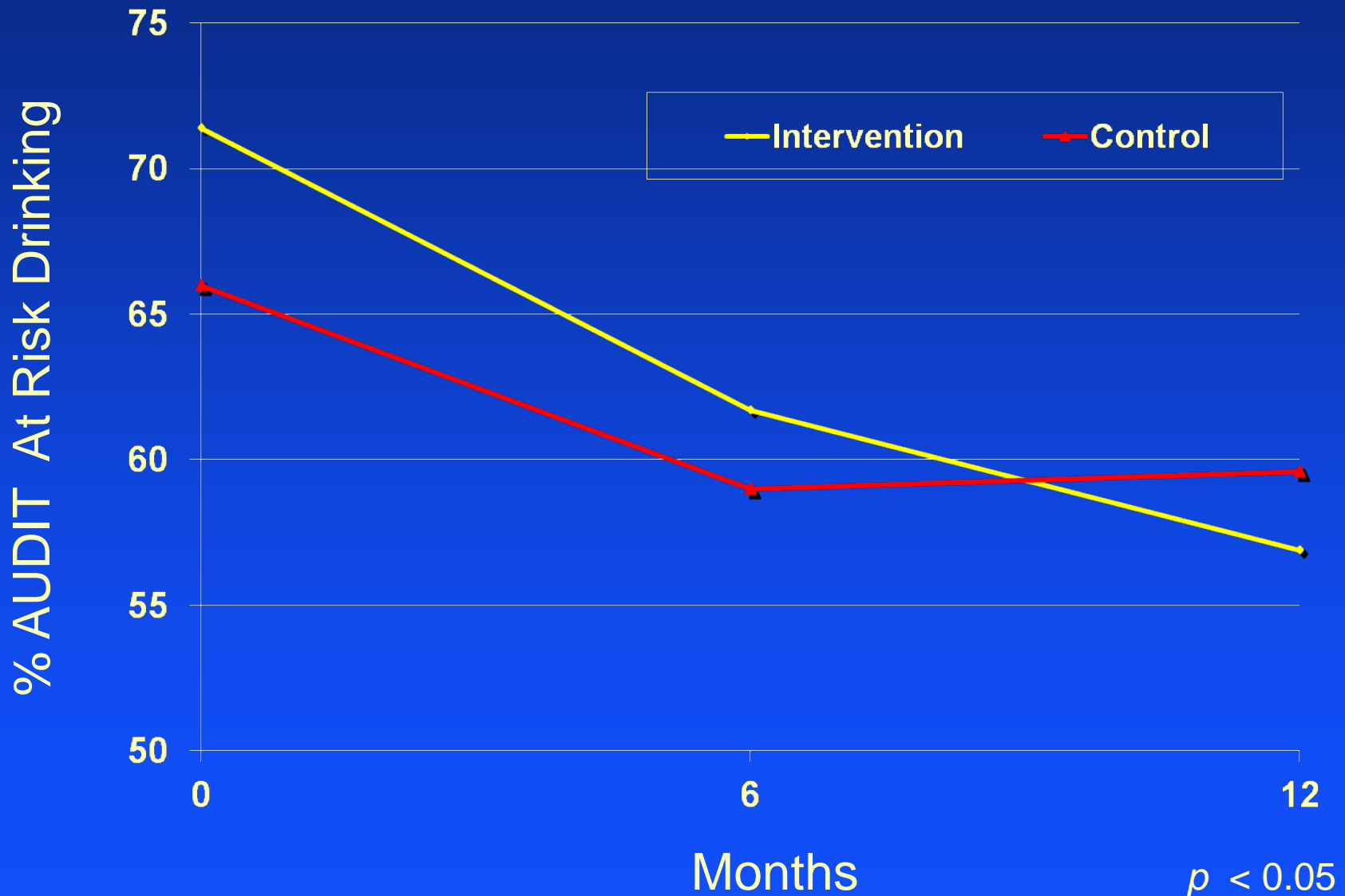


Evidence-based Interventions
for Alcohol Problems in Trauma Centers

DO-SBIS RCT

- 20 Middle Majority sites randomized
- 10 sites receive organizational intervention and SBI training
- 10 Control sites
- 878 patients
- 76% 6 month follow-up
- 71% 12 month follow-up

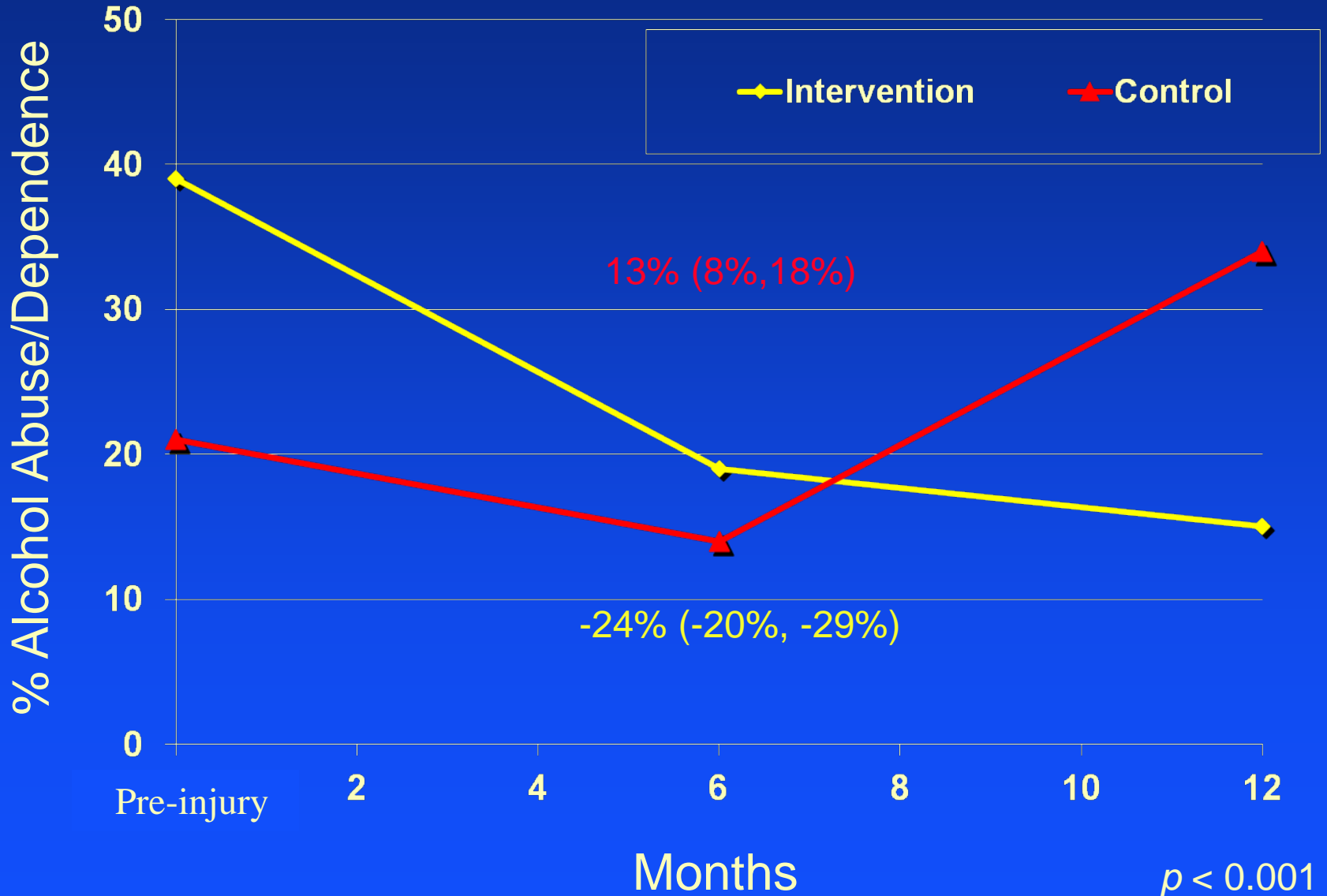
DO-SBIS Results: Patient At Risk Drinking



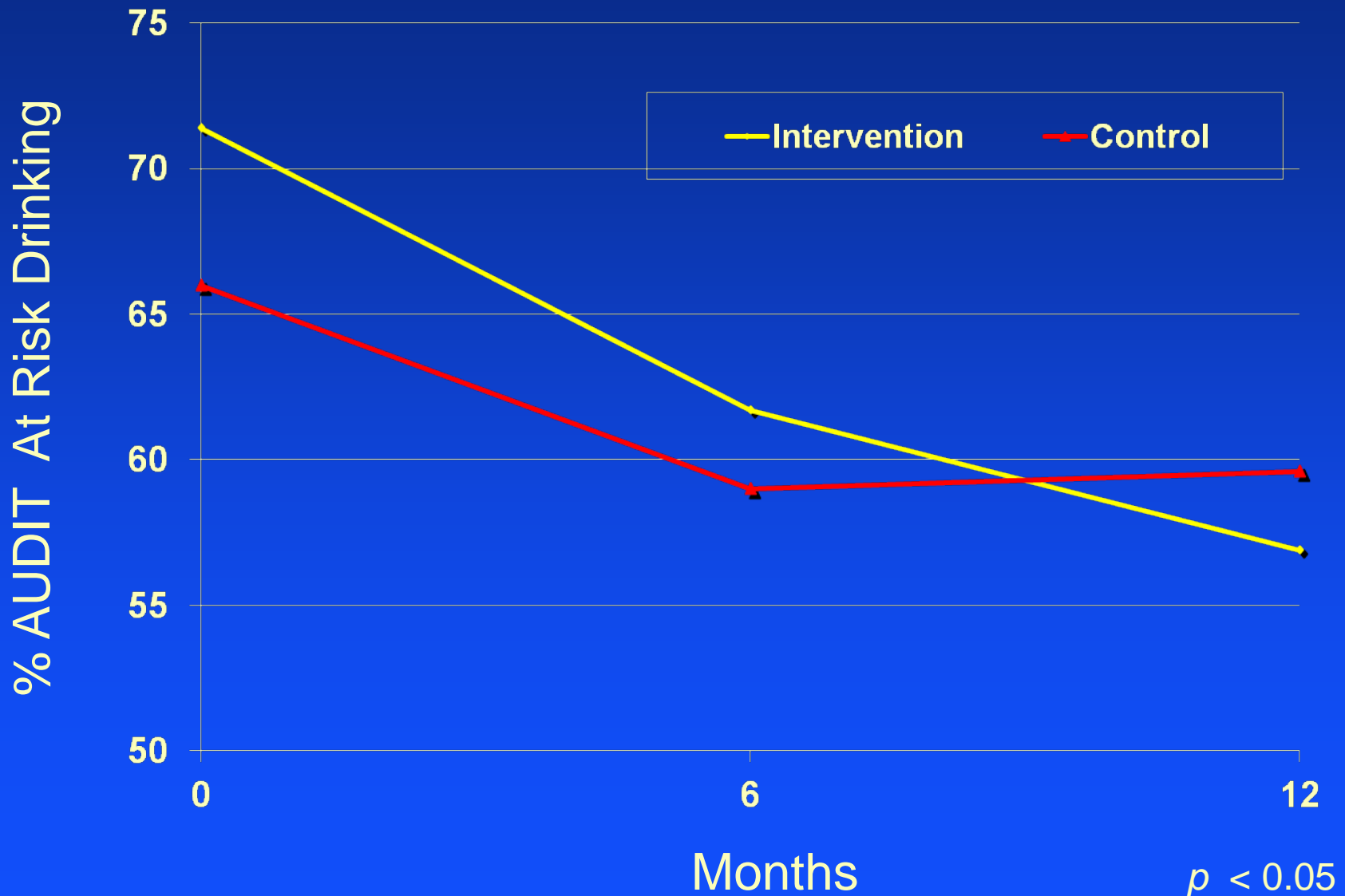
Results: Harborview Alcohol RCT I



Harborview Alcohol RCT II



DO-SBIS Results: Patient At Risk Drinking

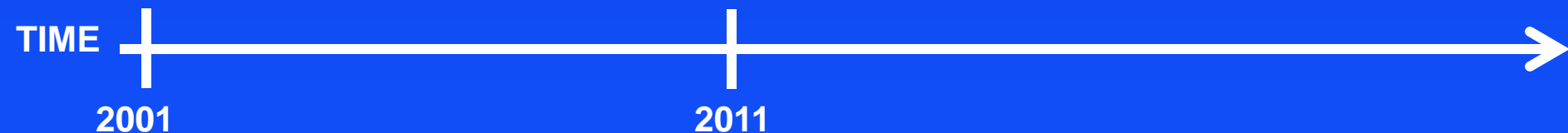


Orchestration of Pragmatic Trials & ACS Policy: PTSD

Single-Site
Pragmatic Trials
and Harborview
Implementation

ACS Policy
Summit

ACS Clinical Best
Practice Guideline
for PTSD



Stepped Measurement-Based Collaborative Care Interventions

- Combined disease management
 - Psychiatric (Depression, PTSD)
 - General Medical Settings
- Multidisciplinary teams
 - Care management (MSW, RN)
 - Mental health providers (PhD, MD)
 - Medical & surgical providers (MD)

Stepped Measurement-Based Care

EVIDENCE-BASED PTSD TX

SYMPTOMS
&
FUNCTION
CBT/MEDS

RISK BEHAVIORS
TARGETED

HARM
REDUCTION
Motivational Int.

POSTTRAUMA
SUPPORT

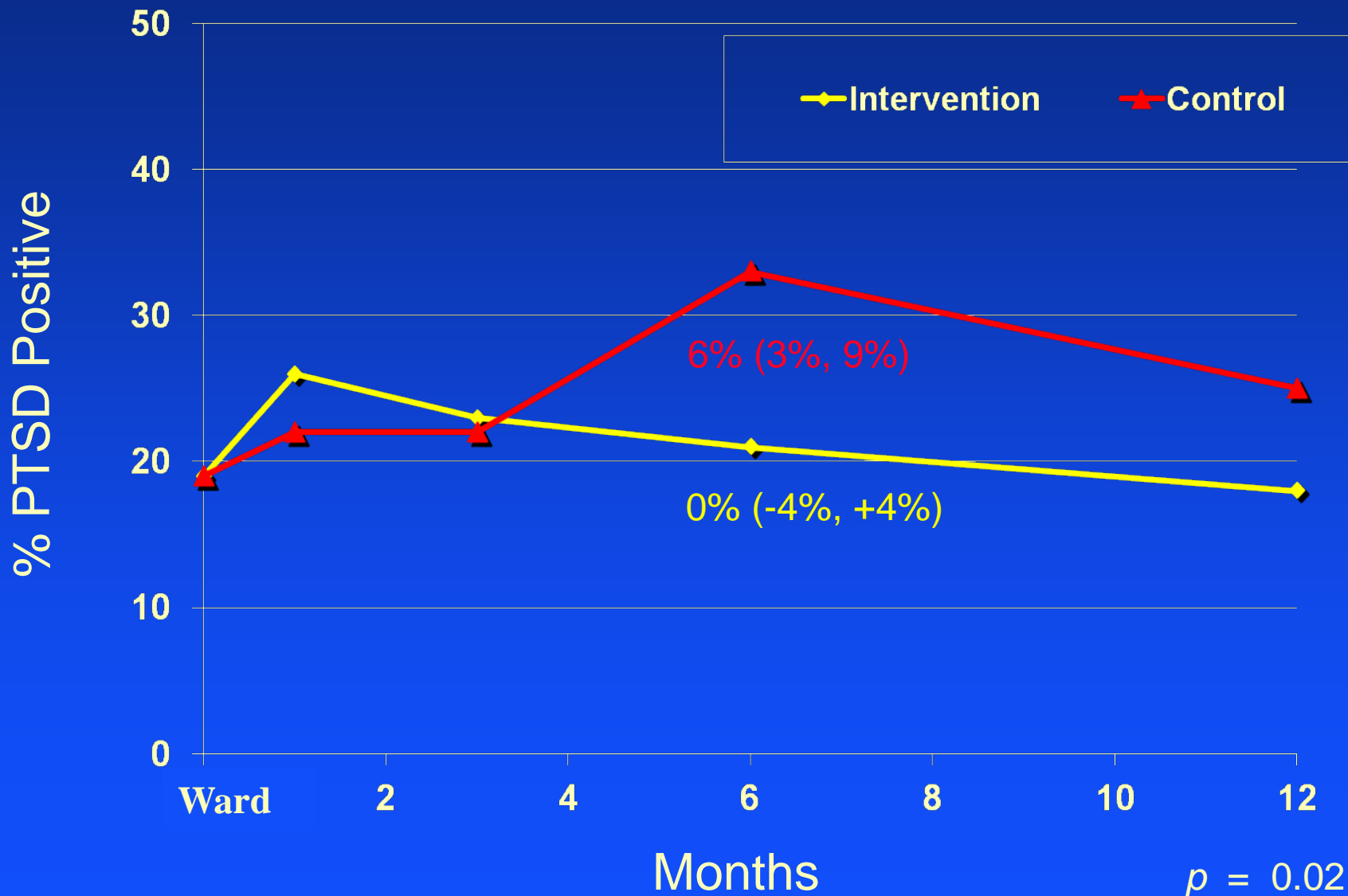
ENGAGEMENT
Posttraumatic Concerns



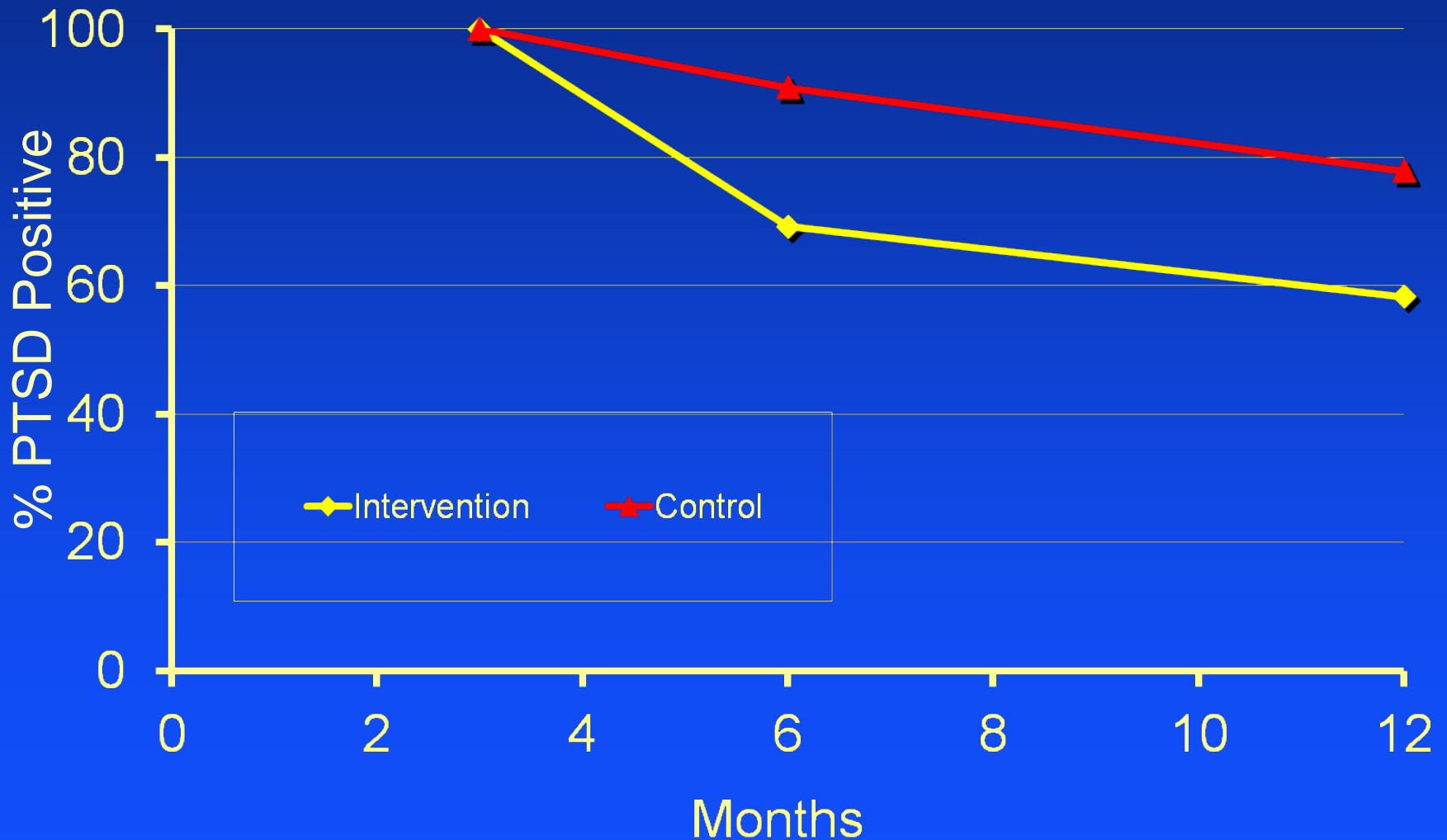
A Pilot RCT of Stepped Collaborative Care for Acutely Injured Trauma Survivors: Trauma Survivors Outcomes & Support (TSOS) Study I

- Engage hospitalized patients
- Link acute medical care to community care
- ↓ Alcohol misuse
- ↓ PTSD symptoms
- 3 month PTSD intervention
- Many patients with subthreshold PTSD

Results: TSOS I PTSD Checklist



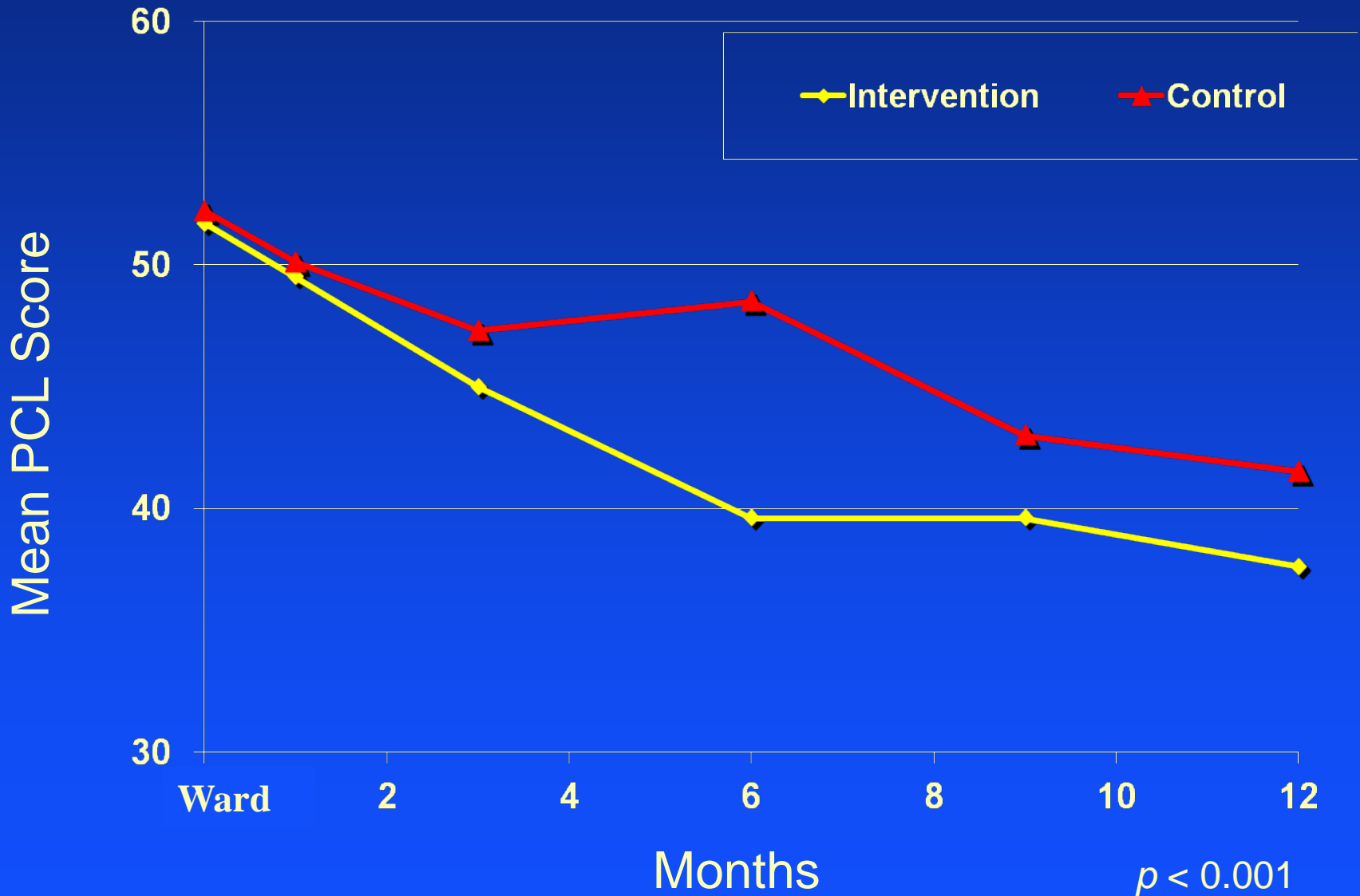
TSOS I Results: 3 Month PTSD Subsample



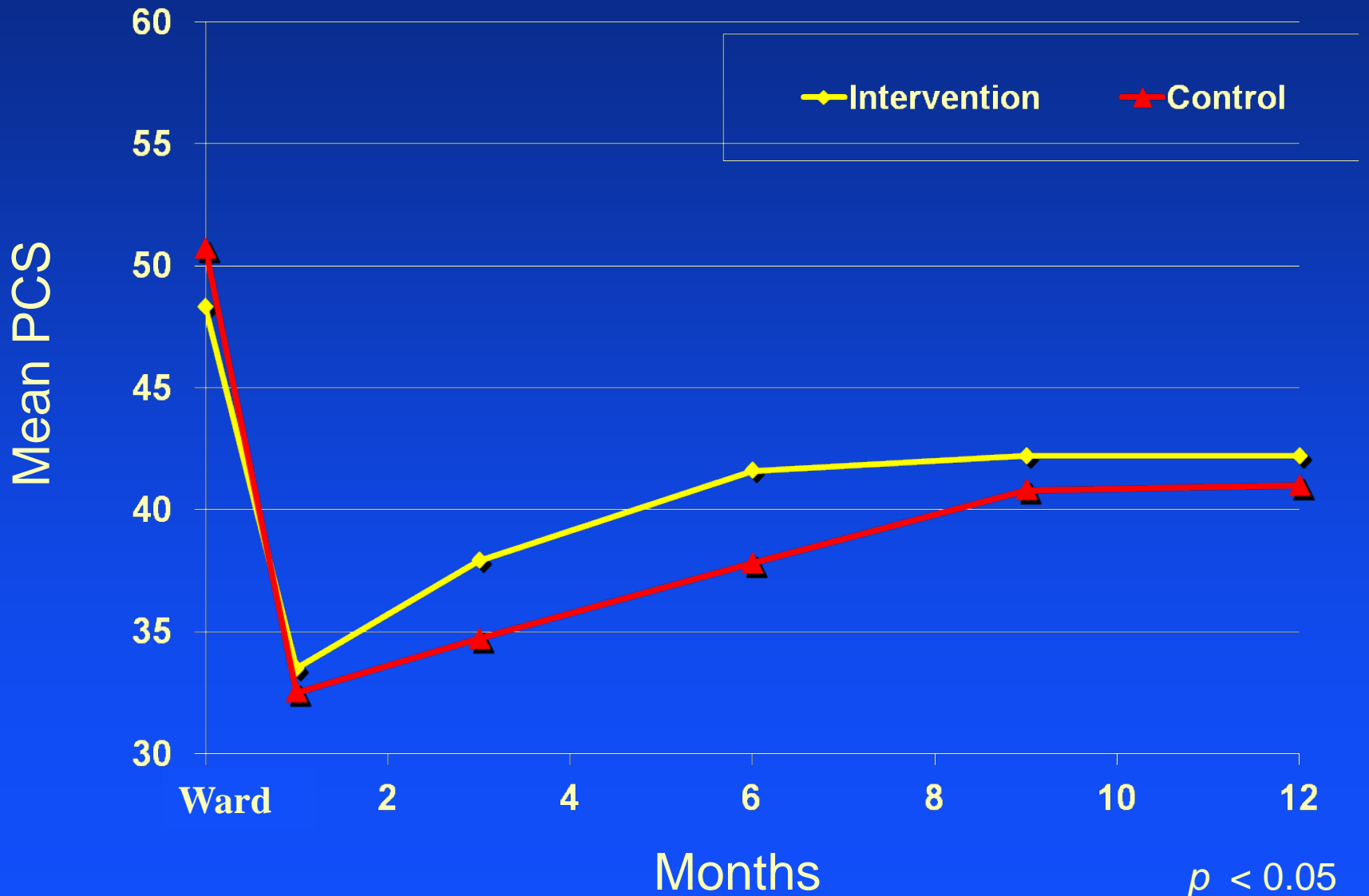
RCT of Stepped Collaborative Care: TSOS II

- Highly symptomatic PTSD patients only
- 2 early PTSD screens with PTSD Checklist
 - Surgical ward (days post-event)
 - Outpatient surgery clinic (weeks post-event)
- Stepped Intervention
 - Care management
 - Medication
 - CBT

Results: TSOS II PTSD Checklist



Harborview PTSD Trial II: SF-36 Physical Function



Annals of Surgery 2013

FEATURE

A Randomized Stepped Care Intervention Trial Targeting Posttraumatic Stress Disorder for Surgically Hospitalized Injury Survivors

Douglas Zatzick, MD,*† Gregory Jurkovich, MD,†‡ Frederick P Rivara, MD, MPH,†§ Joan Russo, PhD,* Amy Wagner, PhD,*|| Jin Wang, MS, PhD,*† Chris Dunn, PhD,* Sarah Peregrine Lord, MA,* Megan Petrie, BA,* Stephen S. O'Connor, PhD,*† and Wayne Katon, MD*

Objective: To test the effectiveness of a stepped care intervention model targeting posttraumatic stress disorder (PTSD) symptoms after injury.

Background: Few investigations have evaluated interventions for injured patients with PTSD and related impairments that can be feasibly implemented in trauma surgical settings.

Methods: The investigation was a pragmatic effectiveness trial in which 207 acutely injured hospitalized trauma survivors were screened for high PTSD symptom levels and then randomized to a stepped combined care management, psychopharmacology, and cognitive behavioral psychotherapy intervention (n = 104) or usual care control (n = 103) conditions. The symptoms of PTSD and functional limitations were reassessed at 1, 3, 6, 9, and 12 months after the index injury admission.

Results: Regression analyses demonstrated that over the course of the year after injury, intervention patients had significantly reduced PTSD symptoms when compared with controls [group by time effect, CAPS (Clinician-Administered PTSD Scale): $F(2, 185) = 5.50, P < 0.01$; PCL-C (PTSD Checklist Civilian Version): $F(4, 185) = 5.45, P < 0.001$]. Clinically and statistically significant PTSD treatment effects were observed at the 6-, 9-, and 12-month postinjury assessments. Over the course of the year after injury, intervention patients also demonstrated significant improvements in physical function [MOS SF-36 PCS (Medical Outcomes Study Short Form 36 Physical Component Summary) main effect: $F(1, 172) = 9.87, P < 0.01$].

Conclusions: Stepped care interventions can reduce PTSD symptoms and improve functioning over the course of the year after surgical injury hospitalization. Orchestrated investigative and policy efforts could systematically introduce and evaluate screening and intervention procedures for PTSD at US trauma centers. (Trial Registration: clinicaltrials.gov identifier: NCT00270959)

problems, are common in physically injured patients with and without traumatic brain injury (TBI).^{4–10}

After traumatic injury, PTSD and related comorbidities are associated with a broad profile of functional and health-related impairments.^{8,11–16} A number of investigations have reported an association between high PTSD symptom levels and the development of postinjury impairments in physical functioning.^{6,12,15,17} In a nationwide US study of injury survivors, PTSD and depression made an independent “dose”-related contribution to the inability to return to work after surgical hospitalization; 39% of individuals with no disorder versus 67% of individuals with 1 disorder and 78% of individuals with both disorders had not returned to work 12 months after injury.¹³

A body of evidence now suggests that trauma-exposed individuals, including injured trauma survivors, may respond to early cognitive behavioral therapy (CBT) and pharmacologic interventions.^{18–22} Epidemiologic data, however, suggest that it may take months or years for trauma-exposed individuals with PTSD to enter treatment.²³ Effective intervention models that serve to initially engage and then link injured trauma survivors to evidence-based PTSD services are therefore key in the early mental health response to trauma.^{19,24}

Large-scale randomized trials have established the effectiveness of collaborative care models that integrate care management, evidence-based pharmacotherapy, and CBT in the treatment of primary-care medical patients with depressive and anxiety disorders.^{25–29} Few large-scale investigations have comprehensively targeted PTSD and related functional impairments among injured patients initially treated in inpatient trauma surgical settings.^{18,30–32} Finally, no published investigations have assessed the effectiveness of stepped care interventions targeting PTSD for patients with TBI.

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EDITORIAL

Posttraumatic Stress Disorder (PTSD) Screening and Early Intervention After Physical Injury

Are We There Yet?

Raul Coimbra, MD, PhD, FACS

Dr Zatzick and the group¹ from the Harborview Injury Prevention and Research Center and their level 1 trauma center program at the University of Washington are to be congratulated for their excellent work on the screening and management of posttraumatic stress disorder (PTSD) in surgically hospitalized injury survivors.

This article will be highly cited in future research projects and will be mandatory reading for all of us working in trauma settings and dealing with survivors of severe injury.

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Rehabilitation Chapter 12: PTSD Criteria

Table 1. Criteria for Posttraumatic Stress Disorder

- A. The person has been exposed to a traumatic event in which both of the following were present:
1. The person experienced, witnessed, or been confronted with an event or events that involve actual or threatened death or serious injury, or a threat to the physical integrity of self or others.
 2. The person's response involved intense fear, helplessness, or horror. **Note:** in children, this may be expressed instead by disorganized or agitated behavior.
- B. The traumatic event is persistently reexperienced in one (or more) of the following ways:
1. recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions. **Note:** in young children, repetitive play may occur in which themes or aspects of the trauma are expressed.
 2. recurrent distressing dreams of the event. **Note:** in children, there may be frightening dreams without recognizable content.
 3. acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur on awakening or when intoxicated). **Note:** in young children, trauma-specific reenactment may occur.
 4. intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event
 5. physiologic reactivity upon exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event
- C. Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by 3 (or more) of the following:
1. efforts to avoid thoughts, feelings, or conversations associated with the trauma
 2. efforts to avoid activities, places, or people that arouse recollections of the trauma
 3. inability to recall an important aspect of the trauma
 4. markedly diminished interest or participation in significant activities
 5. feeling of detachment or estrangement from others
 6. restricted range of affect (eg, unable to have loving feelings)
 7. sense of foreshortened future (eg, does not expect to have a career, marriage, children, or a normal life span)
- D. Persistent symptoms of increasing arousal (not present before the trauma), as indicated by 2 (or more) of the following:
1. difficulty falling or staying asleep
 2. irritability or outbursts of anger
 3. difficulty concentrating
 4. hypervigilance
 5. exaggerated startle response
- E. Duration of the disturbance (symptoms in Criteria B, C, and D) is more than 1 month.
- F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
- Specify if:*
- Acute: if duration of symptoms is less than 3 months
 - Chronic: if duration of symptoms is 3 months or more
- Specify if:*
- With delayed onset: onset of symptoms is at least 6 months after the stressor

Source: American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision. Washington, DC, American Psychiatric Publishing, 2000. Used with permission.

American College of Surgeons Policy Summit 2011

- Commitment for PTSD screening and intervention as best practice guideline

Summary

- Even the most challenging co-morbid trauma exposed populations can be effectively treated
- RCTs target policy in “Make it happen” health service delivery contexts
- Implementation teams comprised of front-line providers, clinical researchers and policy makers key to scaling-up

Trauma Center Interdisciplinary “Change Agent” Team Implementation Model

