

Pain, Substance Use Disorders and Suicide: Epidemiology, Assessment and Risk Mitigation

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Disclosures

- ◆ **MDC has no conflict of interest related to the content of this presentation**

An expert is a person who has made all the mistakes that can be made in a very narrow field.

Neils Bohr

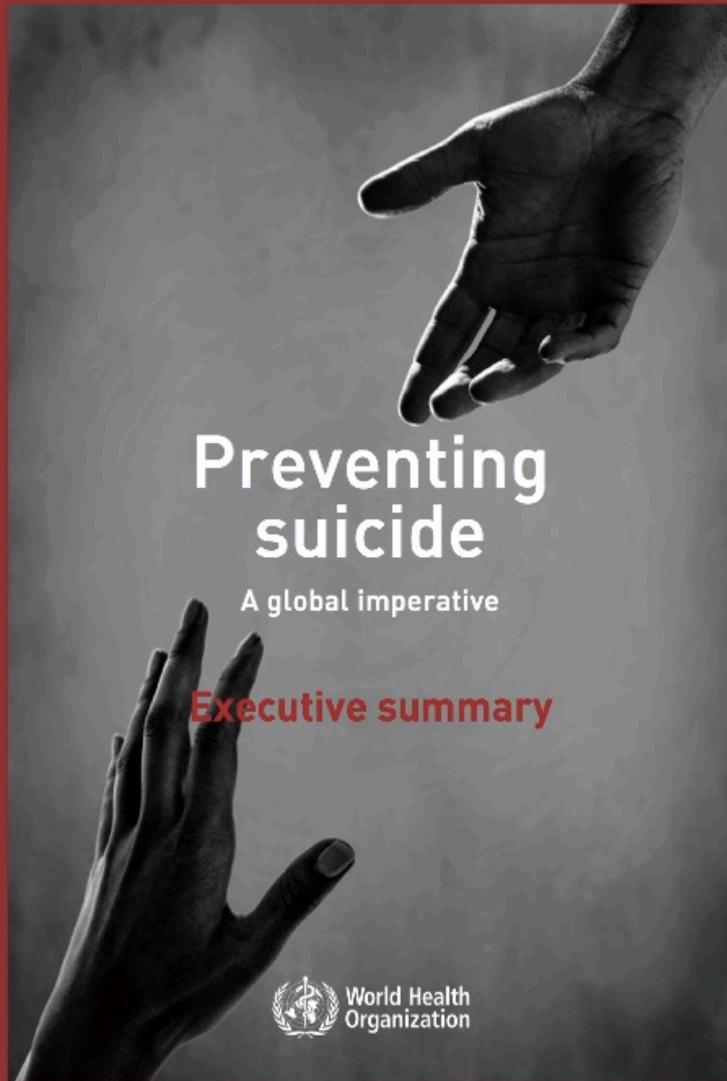
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- ◆ **Suicide Overview**
 - ◆ **Suicide and Unintentional Overdoses**
 - ◆ **Pain, Mood and Substance Use Disorders**
 - ◆ **Risk Factors, Mediators and Conceptual Models**
 - ◆ **Risk Assessment and Mitigation**
 - ◆ **Summary**

“The suffering of the suicidal is private and inexpressible, leaving family members, friends and colleagues to deal with an almost unfathomable kind of loss, as well as guilt. Suicide carries in its aftermath a level of confusion and devastation that is, for the most part, beyond description” .

Kay Redfield Jamison



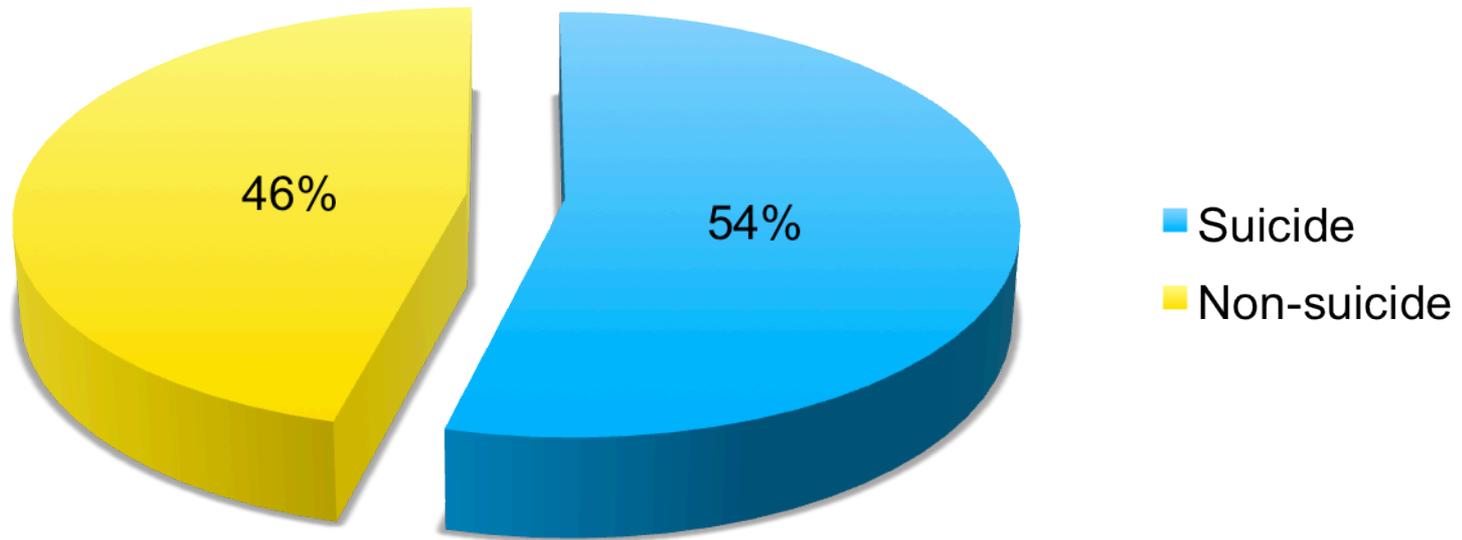
Epidemiology



- ◆ Every 40 seconds someone in the world dies of suicide
- ◆ An estimated 804,000 suicide deaths occurred worldwide in 2012
- ◆ The annual global suicide rate was 11.4 per 100,000 population (15.0 male, 8.0 female)
- ◆ In the 15-29 age group it is the second leading cause of death
- ◆ Suicide by ingestion of pesticides, hanging and firearms are the most common methods used globally

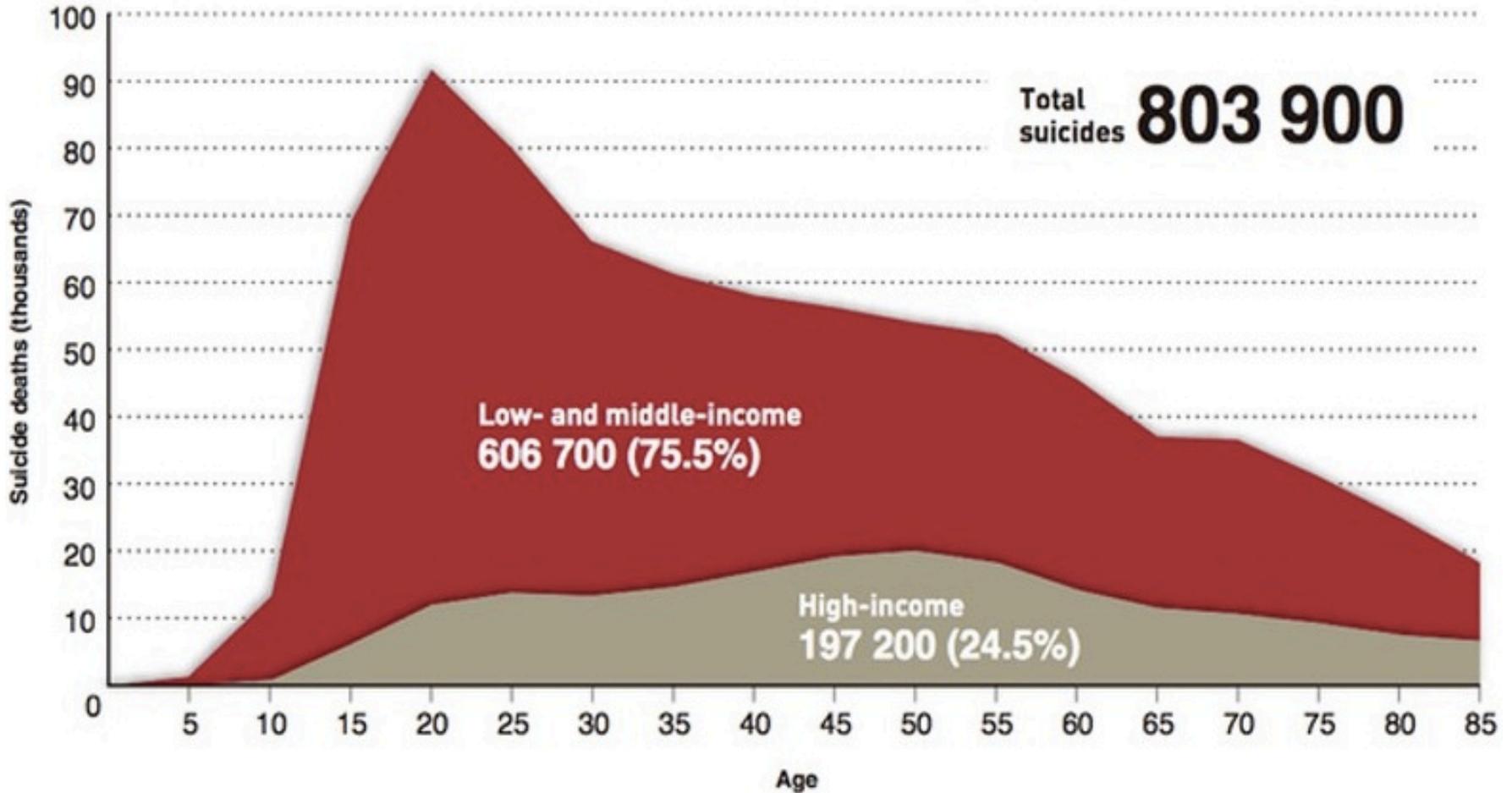
<http://www.who.int/mentalhealth/suicide-prevention/exesummaryenglish.pdf>

1.5 Million Violent Deaths Per Year



<http://www.who.int/mentalhealth/suicide-prevention/exesummaryenglish.pdf>

Suicide Rate by Income



Etiology – Biological Factors

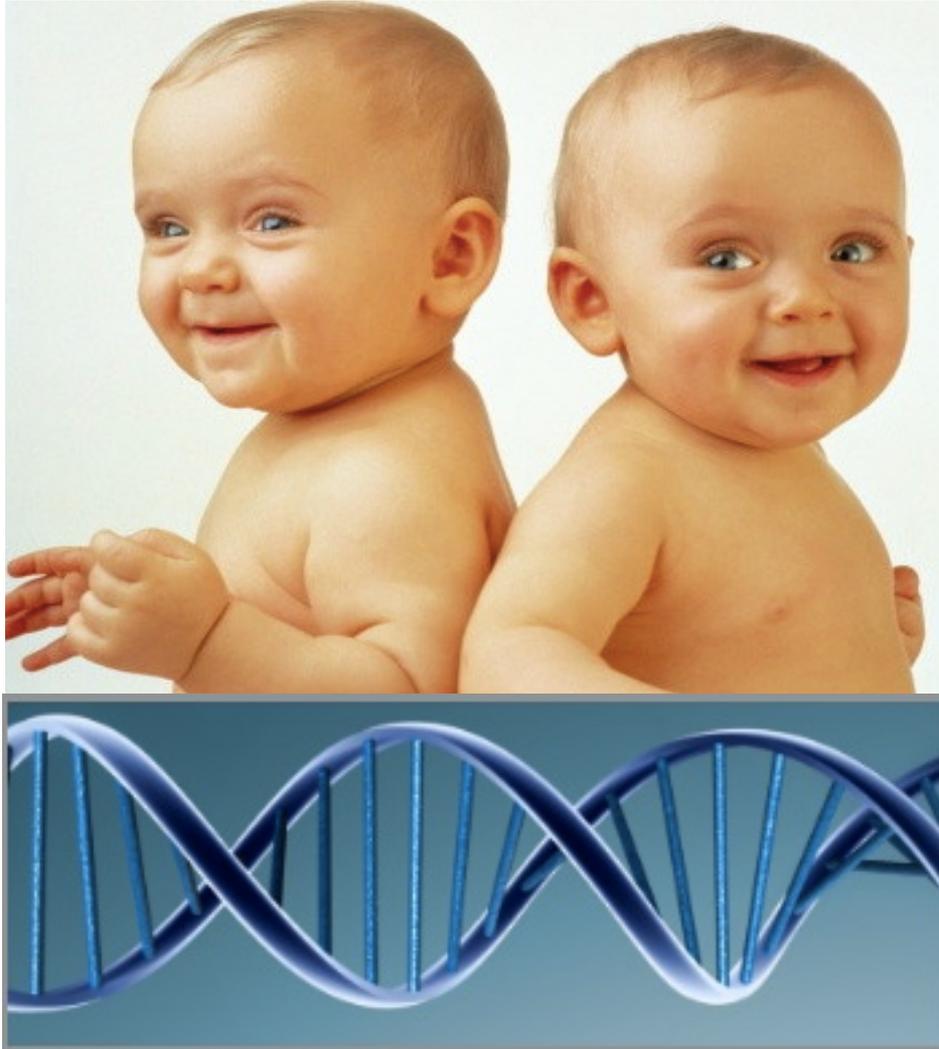
- ◆ **Diminished central serotonin plays a role in suicidal behavior**
- ◆ **Low concentration of 5-HIAA (5-hydroxyindoleacetic acid) in the CSF predicted future suicidal behavior and was discovered in depressed suicide attempters and in the brain stems of autopsied completed suicide victims**

Lester D (1995) The concentration of neurotransmitter metabolites in the cerebrospinal fluid of suicidal individuals: a meta-analysis. *Pharmacopsychiatry*. 1995, 28:45–50.

Placidi GP, Oquendo MA, Malone KM, Huang YY, Ellis SP, Mann JJ Aggressivity, suicide attempts, and depression: relationship to cerebrospinal fluid monoamine metabolite levels. *Biol Psychiatry*. 2001, 50:783–79

Boulougouris V, Malogiannis I, Lockwood G, Zervas I, Di Giovanni G. Serotonergic modulation of suicidal behaviour: integrating preclinical data with clinical practice and psychotherapy. *Exp Brain Res*. 2013 Oct;230(4):605-24.

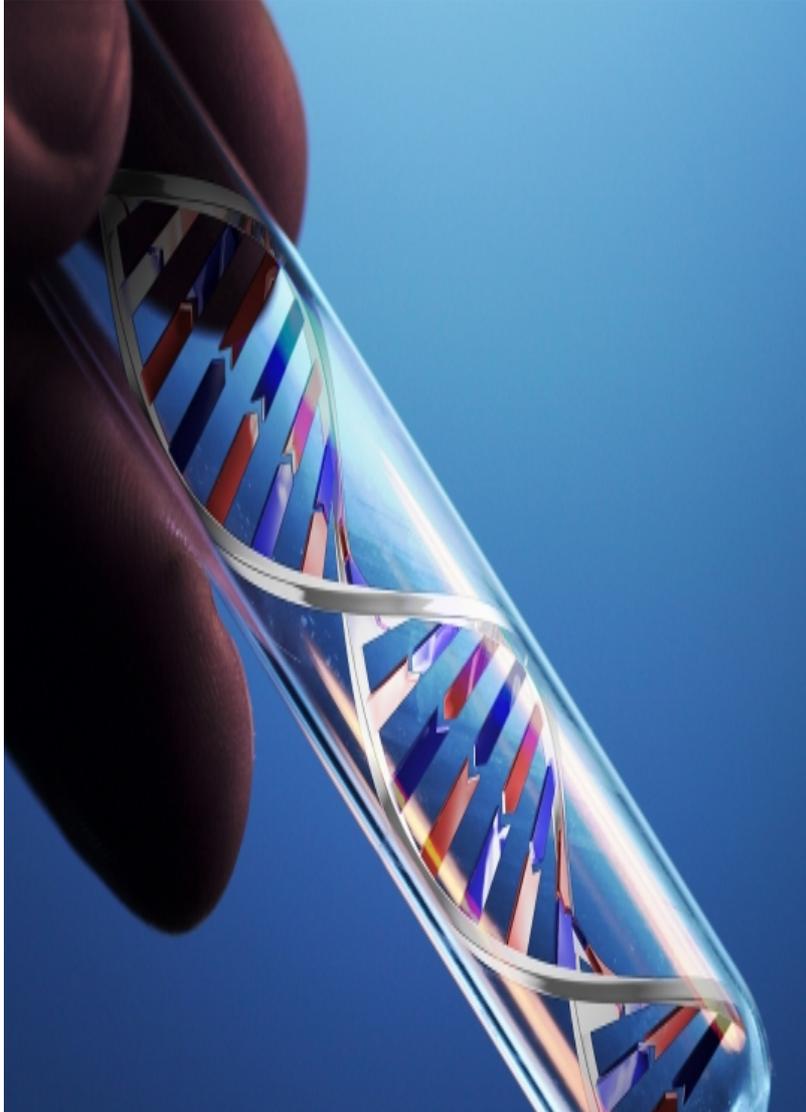
Etiology – Genetic Factors



- ◆ **Suicidal behavior, like other psychiatric disorders, tends to run in families**
- ◆ **In psychiatric patients, a family history of suicide increases the risk of attempted suicide and that of completed suicide in most diagnostic groups**
- ◆ **This has been substantiated with twin studies and adoption studies**

Voracek M, Loibl LM. Genetics of suicide: a systematic review of twin studies. Wien Klin Wochenschr 2007; 119: 463–475

Etiology – Genetic Factors-cont



- ◆ **Clinical risk factors to date have low predictive value**
- ◆ **A number of potential biomarkers of suicide have been studied**
- ◆ **The most promising to date has been the serotonergic system, particularly the polymorphism of the gene coding for the serotonin transporter (5-HTTLPR) and brain-derived neurotrophic factor**

Costanza A, D'Orta I, Perroud N, Burkhardt S, Malafosse A, Mangin P, La Harpe R. Neurobiology of suicide: do biomarkers exist? *Int J Legal Med.* 2014 Jan;128(1):73-82.

CPS-Consequences

- ◆ **Untreated or mismanaged pain can lead to adverse effects such as delays in healing, changes in the central nervous system (neuroplasticity), chronic stress, depression, suicide and opioid addiction**

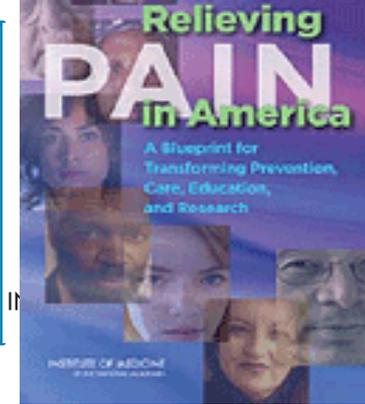
McCaffery & Pasero 1999

Fishbain 1999

Mendell & Sahenk 2003

Cheatle 2011

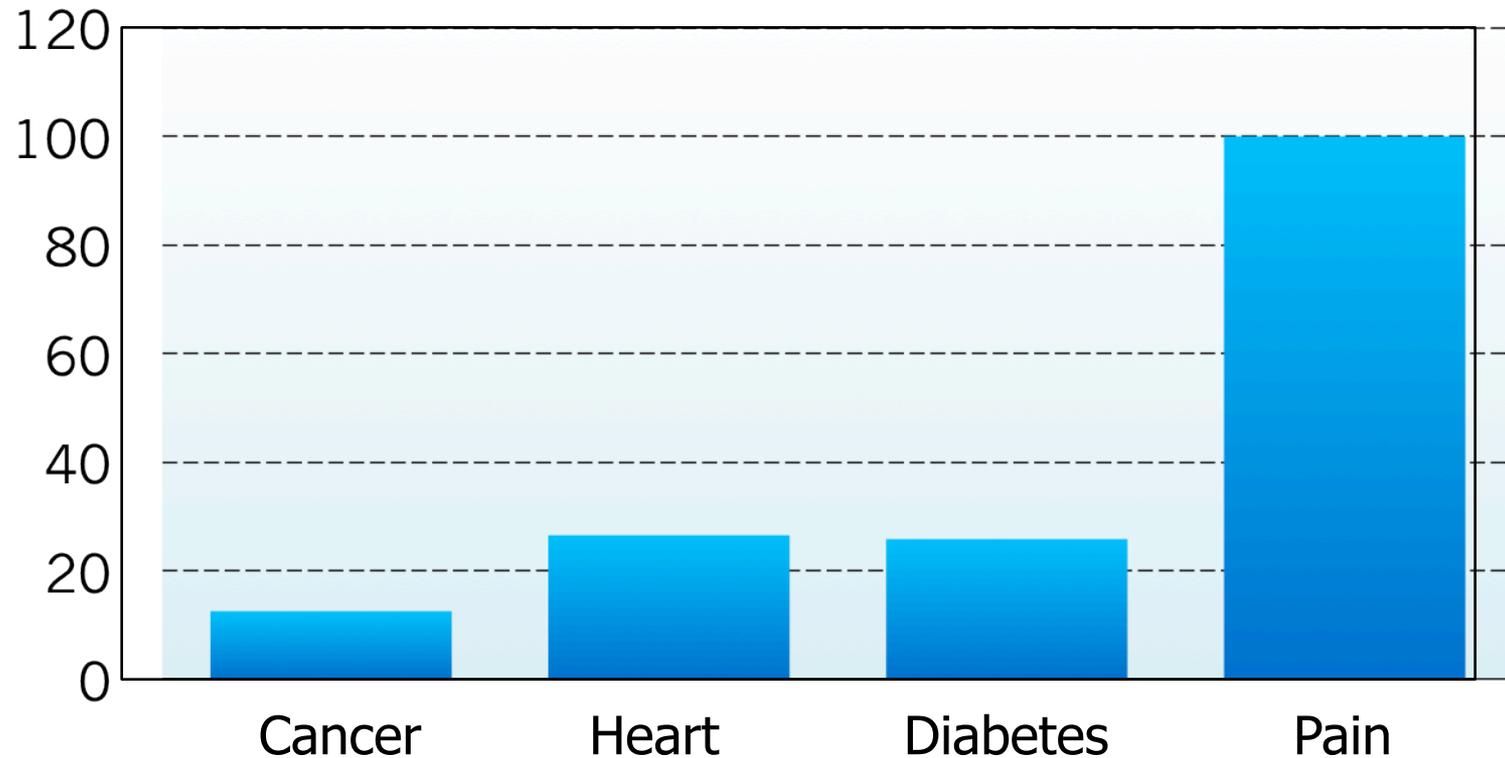
Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research. Inst of Med of the National Academies. 2011



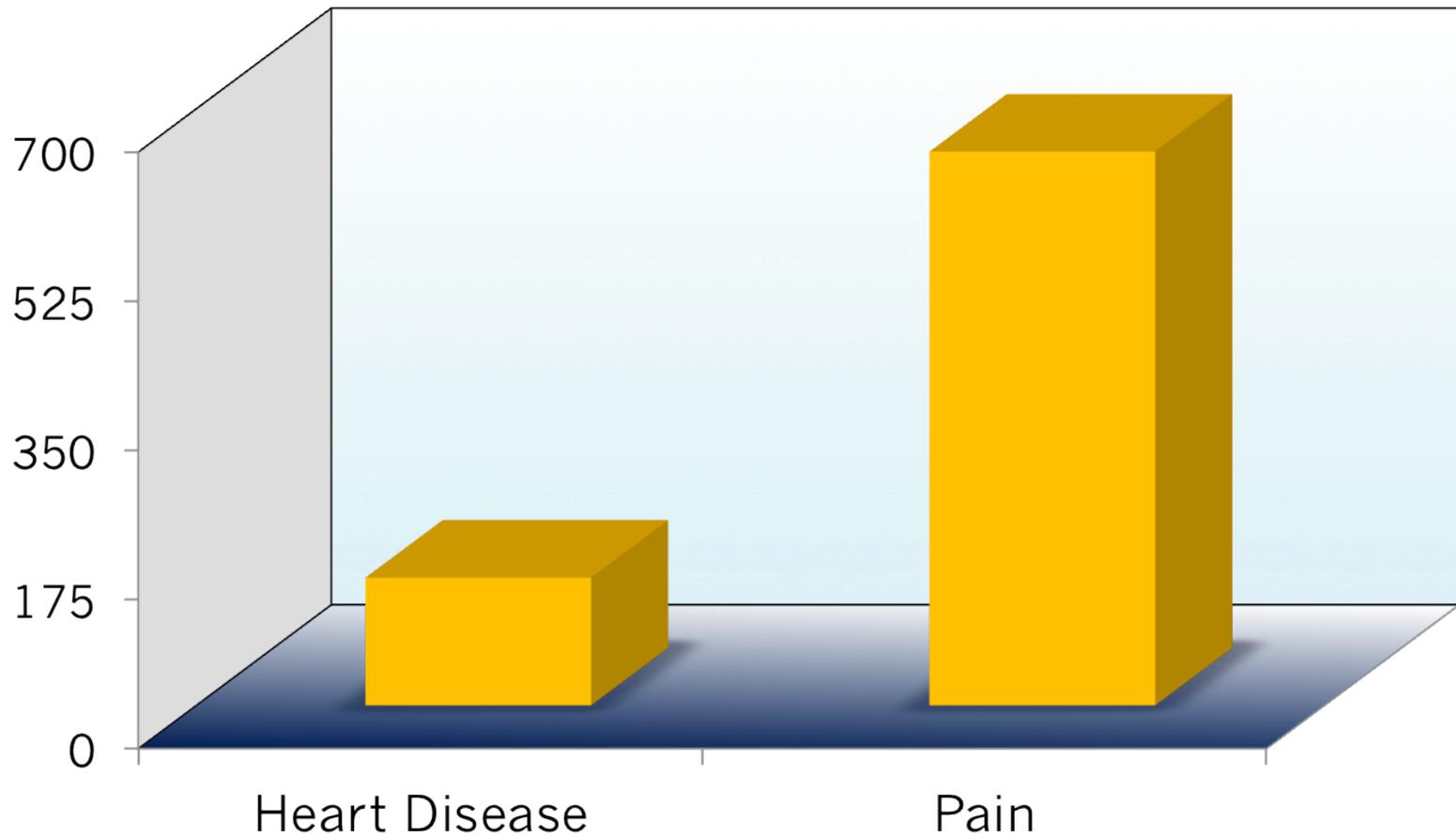
- **Chronic pain:** In the US, an estimated 100 (30%) million adults deal with chronic pain, and chronic pain's prevalence on the rise worldwide.
- The annual cost of chronic pain in the United States is estimated to be \$560 to over \$600 billion including the cost of healthcare (\$261-300 billion) and lost productivity (\$297-336 billion).
- Disablement from chronic pain affects sufferers, their families, and their workplaces.
- Pain is part of the human condition
- Protection from and relief of pain and suffering are a fundamental feature ... as well as a cardinal underpinning of the art and science of healing

Cancer vs Diabetes vs Heart vs Pain

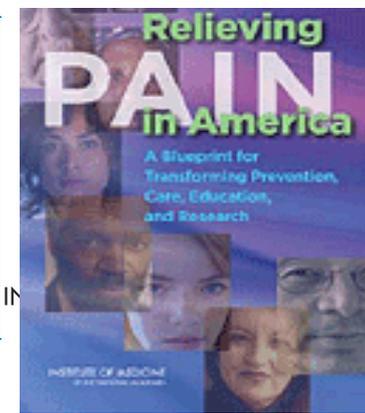
Prevalence in Millions



The Cost to America in \$ Billions



Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research. Inst of Med of the National Academies. 2011



- ❑ The 2011 IOM report on pain outlined the following principles:
 - effective pain management is a “moral imperative”
 - pain should be considered a disease with distinct pathology
 - there is a need for interdisciplinary treatment approaches
 - there is a serious problem of diversion and abuse of opioid drugs

Pain and Prescription Opioid Abuse



Opioid Focused Model

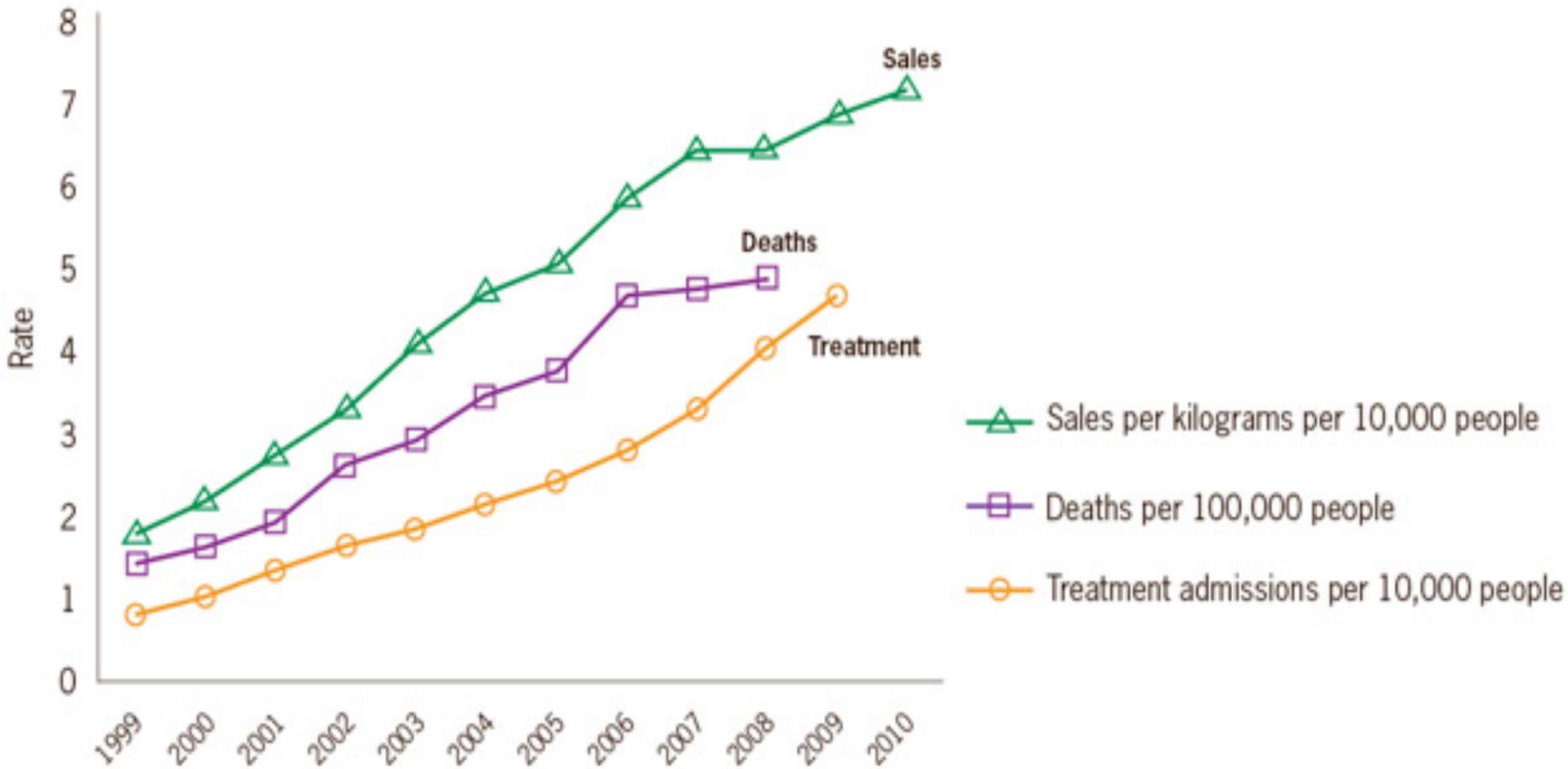
Pain Management=opioids

- Developed for numerous reasons:
 - Unidimensional and unimodal approach to pain treatment.
 - Focus of the pharmaceutical industry
 - Use of the opioid model from end-of-life and cancer populations generalized to those with pain of non-cancer origin.



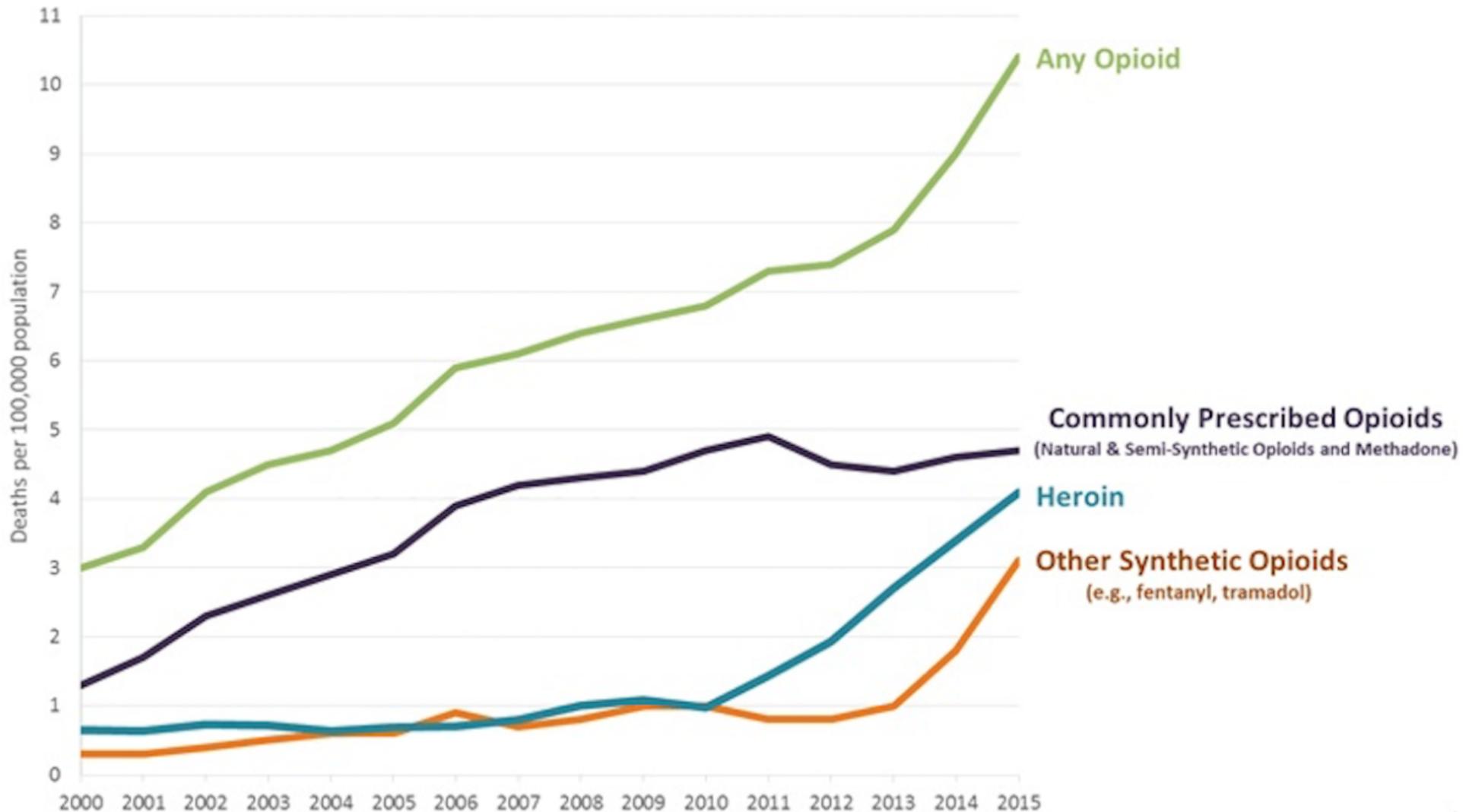
Peppin, J.F., Cheatle, M.D., Kirsh, K., McCarberg, W. The complexity model: A novel approach to improve chronic pain care. [Pain Medicine](#), 16 (4): 653-666, 2015.

U. S. Prescription Opioid Sales, Deaths, Treatment (1999-2010)



SOURCES: National Vital Statistics System, 1999-2008; Automation of Reports and Consolidated Orders System (ARCOS) of the Drug Enforcement Administration (DEA), 1999-2010; Treatment Episode Data Set, 1999-2009

Overdose Deaths Involving Opioids, United States, 2000-2015



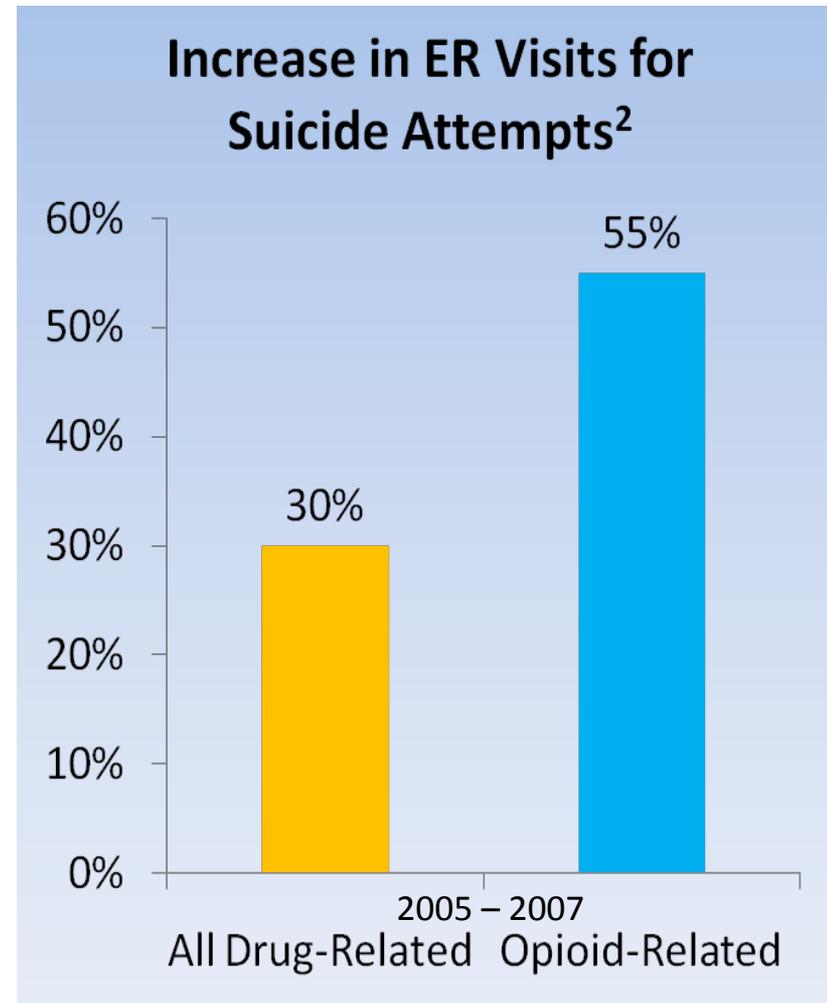
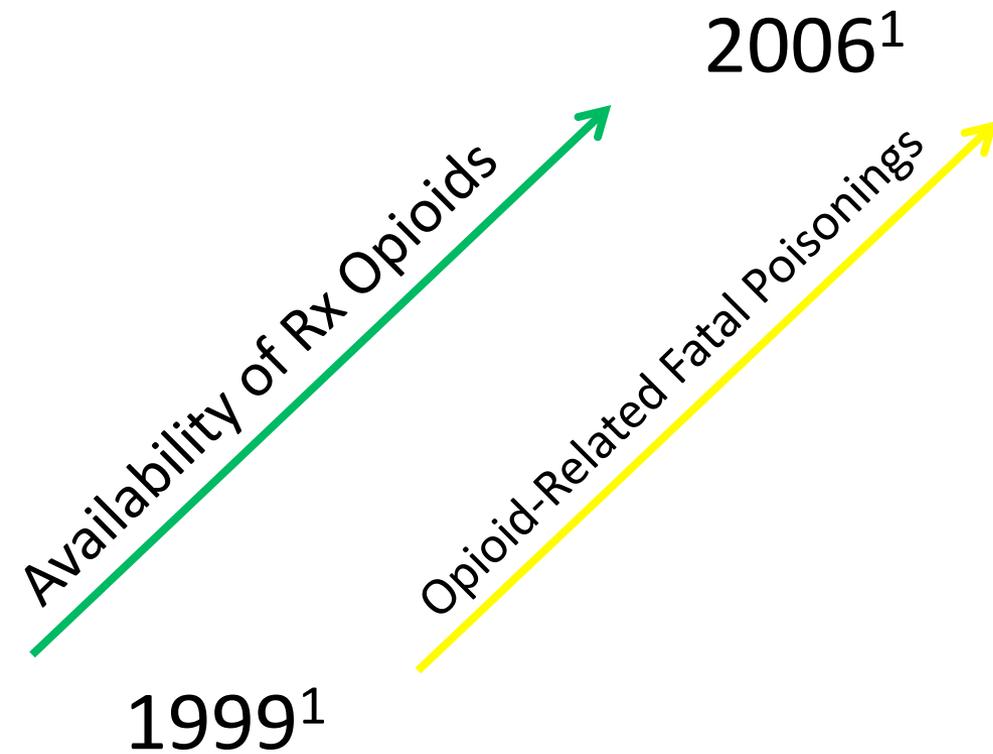
Suicide & Unintentional Overdoses

"What proportion of these cases is related to intentional death by suicide is undetermined due to misclassification, or lack of classification or intent."

"The growing concern regarding opioid addiction and fatal poisonings involving opioids has obscured a potentially equally clinically relevant problem of intentional self-harm by overdose."

Cheatle MD. Depression, Chronic Pain, and Suicide by Overdose: On the Edge. *Pain Medicine*. 2011;12(s2):S43-S48.

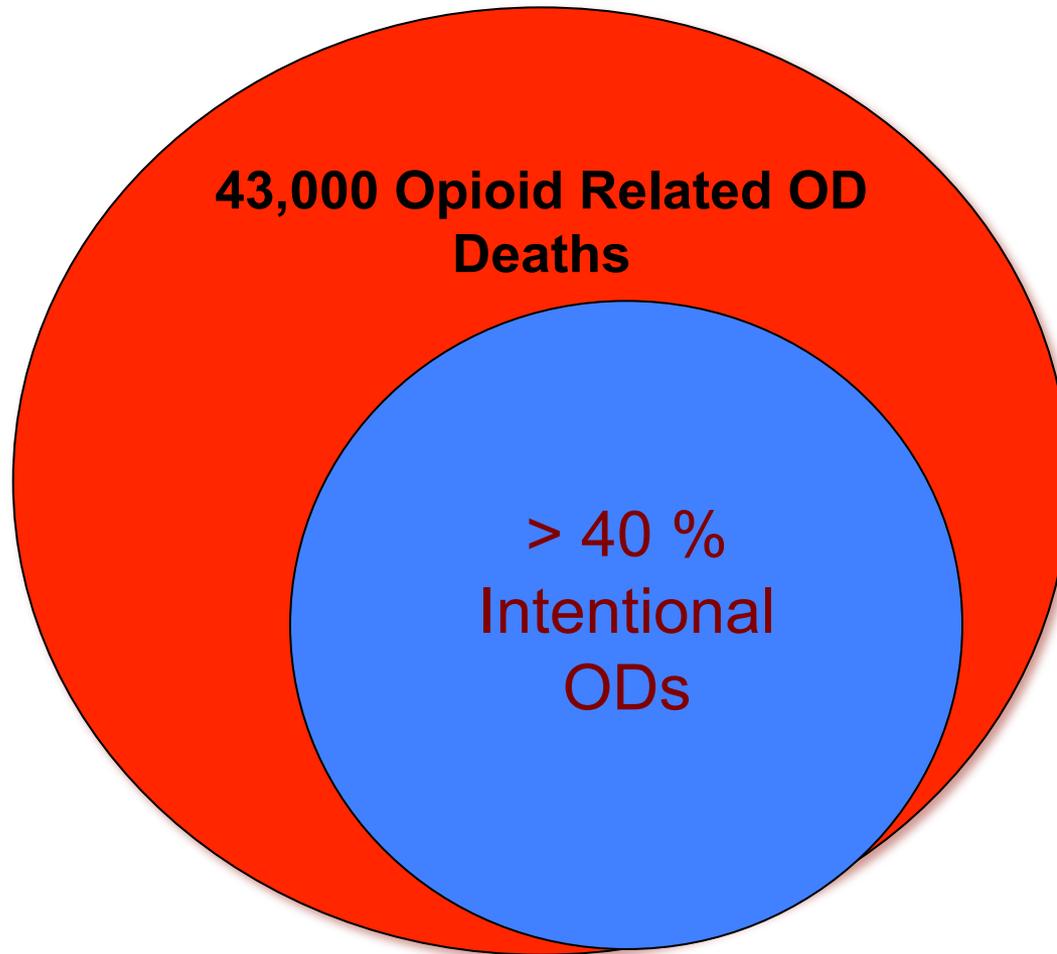
Suicide



¹Warner M, Chen LH, Makuc DM. Increase in fatal poisonings involving opioid analgesics in the United States, 1999-2005. NCHS Data Brief 2009;22:1-8.

²Substance Abuse and Mental Health Services Administration, Office of Applied Studies. Drug Abuse Warning Network, 2007: Estimates of Drug-Related Emergency Department Visits. Rockville, MD: Author, 2010.

Opioid related overdose deaths 2015-2016



RESEARCH REPORT

Suicidal intent in non-fatal illicit drug overdose

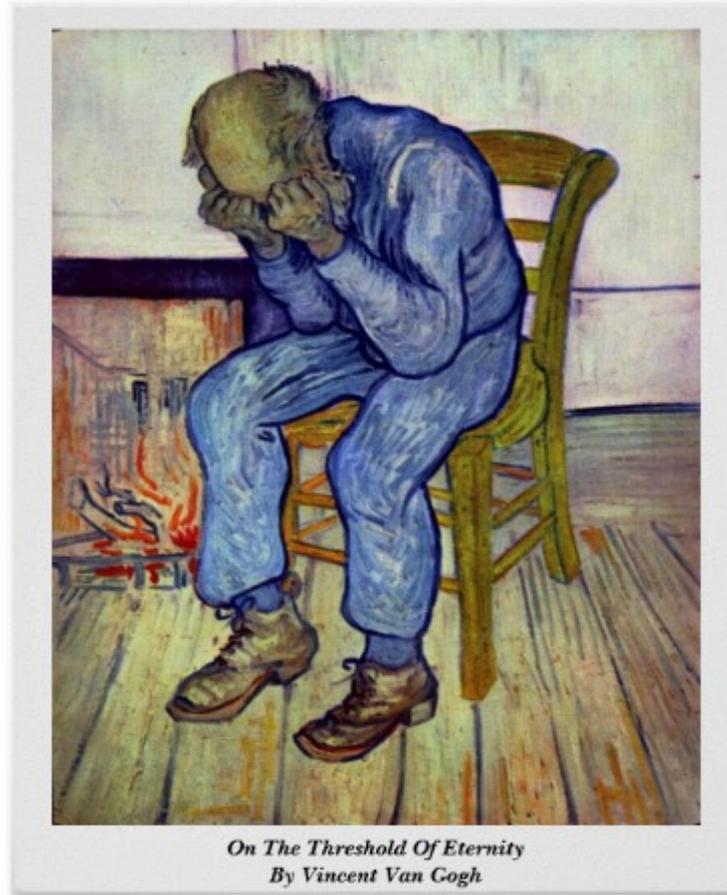
JOANNE NEALE

Centre for Drug Misuse Research, The University of Glasgow, Glasgow, UK

Abstract

Aim. *To explore suicidal intent among drug users experiencing non-fatal overdose.* **Design.** *Semi-structured interviews.* **Setting and participants.** *Seventy-seven drug users experiencing non-fatal overdose and attending six hospital accident and emergency departments in two Scottish cities during 1997 and 1998.* **Measurements.** *The extent of suicidal intent and motivations for intentional overdosing were examined.* **Findings.** *The incidence of suicidal intent was high, with 38 respondents (49%) reporting suicidal thoughts or feelings before overdosing. Suicidal actions were significantly associated with a self-reported history of life-time mental health problems and with not using heroin prior to overdosing, but not with other demographic or drug history data. Qualitative data indicated that intentional overdosing was frequently not driven by a clear and unambiguous desire to die. Furthermore, suicidal actions were motivated by a range of psychosocial factors, including: (i) predisposing personal circumstances; (ii) precipitating events; and (iii) poor individual coping strategies.* **Conclusions.** *The issue of suicidal intent needs to be addressed routinely in hospital wards and accident and emergency departments so that the need for support can be assessed.*

Pain, Mood and Anxiety Disorders





Mood and anxiety disorders associated with chronic pain: an examination in a nationally representative sample

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^a*Department of Psychology, University of Manitoba, Winnipeg, Man., Canada*

^b*Department of Psychiatry, PZ-430 PsychHealth Centre, University of Manitoba, 771 Bannatyne Avenue, Winnipeg, Man., Canada R3E 3N4*

Received 4 March 2003; received in revised form 10 July 2003; accepted 18 July 2003

- ◆ **National Comorbidity Survey to evaluate the association between chronic pain and common mood and anxiety disorders**
- ◆ **Participants (n= 5877) completed the Composite International Diagnostic Interview based on the DSM**

Diagnosis	Number of participants meeting diagnostic criteria (% in parentheses)		Inferential statistics	
	Chronic pain (n = 382)	General population (n = 5495)	χ^2	p
Any mood disorder	83(21.7)	551(10.0)	32.16	<0.0001
Depression	77(20.2)	510(9.3)	26.53	<0.0001
Dysthymia	20(5.2)	128(2.3)	5.48	<0.01
Any anxiety disorder	134(35.1)	992(18.1)	21.54	<0.0001
Generalized anxiety disorder	28(7.3)	144(2.6)	9.10	<0.005
Panic disorder with or without agoraphobia	25(6.5)	103(1.9)	7.84	<0.01
Simple phobia	60(15.7)	456(8.3)	8.70	<0.01
Social phobia	45(11.8)	428(7.8)	5.91	<0.05
Agoraphobia with or without panic	32(8.4)	182(3.3)	6.52	<0.05
Posttraumatic stress disorder	41(10.7)	182(3.3)	16.29	<0.001

Diagnoses were made using the *Composite International Diagnostic Interview*. Psychiatric diagnostic categories were not mutually exclusive.

Pain, SUD and Suicidal Ideation



◆ There is robust literature that there is a high prevalence of SI in patients with pain ranging from 18% to > 50%

Hitchcock L, Ferrell B, McCaffery M. The experience of chronic nonmalignant pain. *J Pain Symptom Manage* 1994; 9: 312-318.

Stenager EN, Stenager E, Jensen K. Attempted suicide, depression and physical diseases: a 1-year follow-up study. *Psychother Psychosom* 1994; 61: 65-73.

Fishbain DA, Goldberg M, Rosomoff RS, Rosomoff H. Completed suicide in chronic pain. *Clin J Pain* 1991; 7: 29-36.

Fishbain DA. The association of chronic pain and suicide. *Semin Clin Neuropsychiatry* 1999; 4: 221-227.

Smith MT, Edwards RR, Robinson RC, Dworkin RH. Suicidal ideation, plans and attempts in chronic pain patients: Factors associated with increased risk. *Pain* 2004; 111: 201-208.

Braden JB, Sullivan MD. Suicidal thoughts and behavior among adults with self-reported pain conditions in the national comorbidity survey replication. *J Pain* 2008; 9:1106-1115.

Ilgen MA, Zivin K, McCammon RJ, Valenstein M. Pain and suicidal thoughts, plans and attempts in the United States. *Gen Hosp Psychiatry* 2008; 30: 521-527.

Ratcliffe GE, Enns MW, Belik SL, Sareen J. Chronic pain conditions and suicidal ideation and suicide attempts: an epidemiologic perspective. *Clin J Pain* 2008; 24 : 204-210.

Substance Abuse and Mental Health Services Administration Office of Applied Studies. *Drug Abuse Warning Network, 2007: Estimates of Drug-Related Emergency Department Visits*. Rockville, MD; 2010.

Racine M, Choinière M, Nielson WR. Predictors of Suicidal Ideation in Chronic Pain Patients: An Exploratory Study. *Clin J Pain*. 2013 Jul 24. [Epub ahead of print]

Cheatle M, Wasser T, Foster C, Olugbodi A, Bryan J. Prevalence of suicidal ideation in patients with chronic noncancer pain referred to a behaviorally based pain program. *Pain Phys*, in press.

Edwards RR, Smith MT, Kudel I, Haythornthwaite J. Pain-related catastrophizing as a risk factor for suicidal ideation in chronic pain. *Pain* 2006;126 : 272-279.

◆ A systematic review by Tang and Crane revealed that the risk of successful suicide was doubled in patients with CP as compared to non-pain controls

Tang NK, Crane C. Suicidality in chronic pain: A review of the prevalence, risk factors and psychological links. *Psychol Med* 2006; 36 :575-586.

Suicide Ideation in Chronic Pain Patients

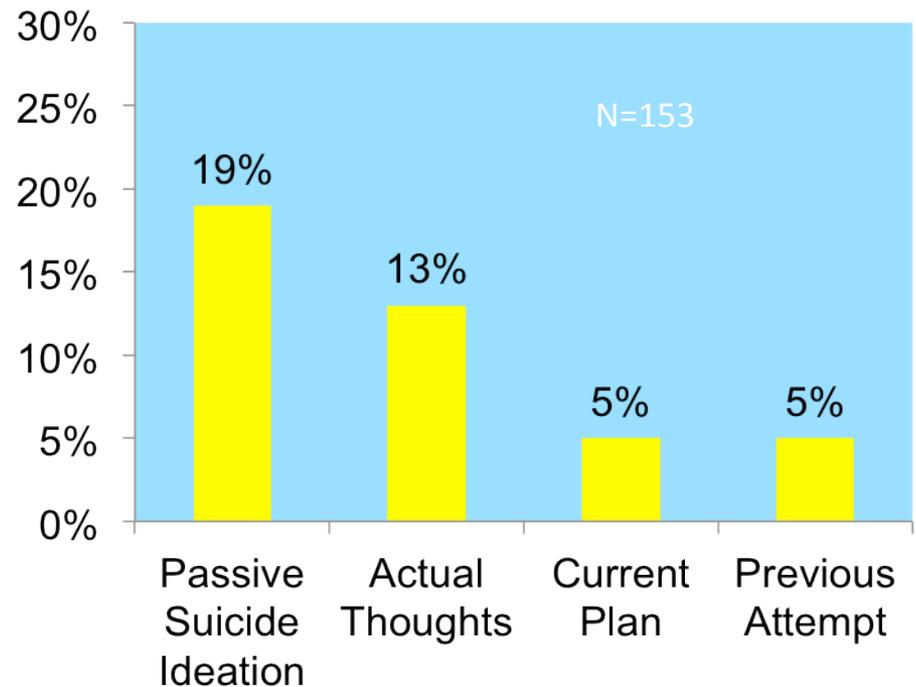
◆ Hitchcock¹

- 50% chronic pain pts had suicidal thoughts due to pain

◆ Fishbain²

- Pain severity
- Severe comorbidity (depression)

Planned Drug Overdose

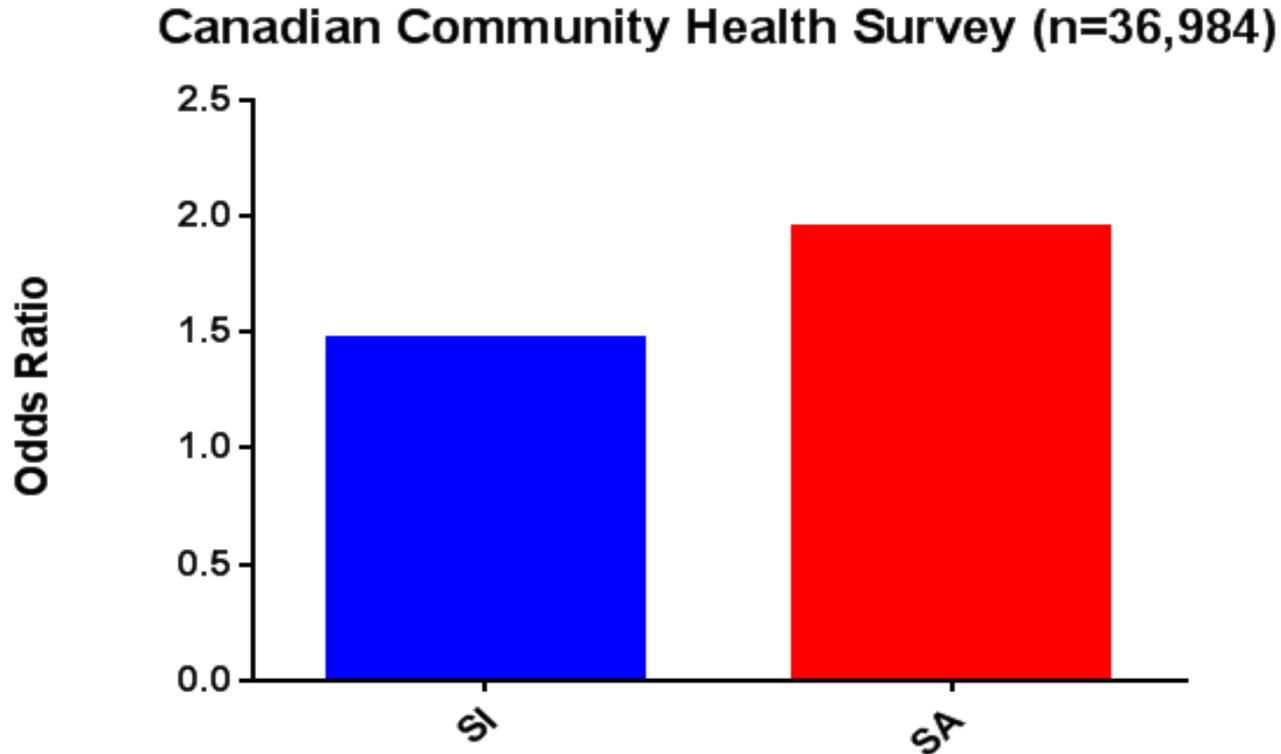


¹Hitchcock LS, Ferrell BR, McCaffery M. The experience of chronic nonmalignant pain. J Pain Symptom Manage 1994;9(5):213-8.

²Fishbain DA. The association of chronic pain and suicide. Semin Clin Neuropsychiatry 1999;4(3):221-7.

³Smith MT, Edwards RR, Robinson RC, Dworkin RH. Suicidal ideation, plans and attempts in chronic pain patients: Factors associated with increased risk. Pain 2004;111(1-2):201-8.

Suicide and Chronic Pain



Suicidal Ideation and Attempts in Patients with Chronic Pain

Ratcliffe GE, Enns MW, Belik SL, Sareen J. Chronic pain conditions and suicidal ideation and suicide attempts: an epidemiologic perspective. *Clin J Pain* 2008; 24 : 204-210.

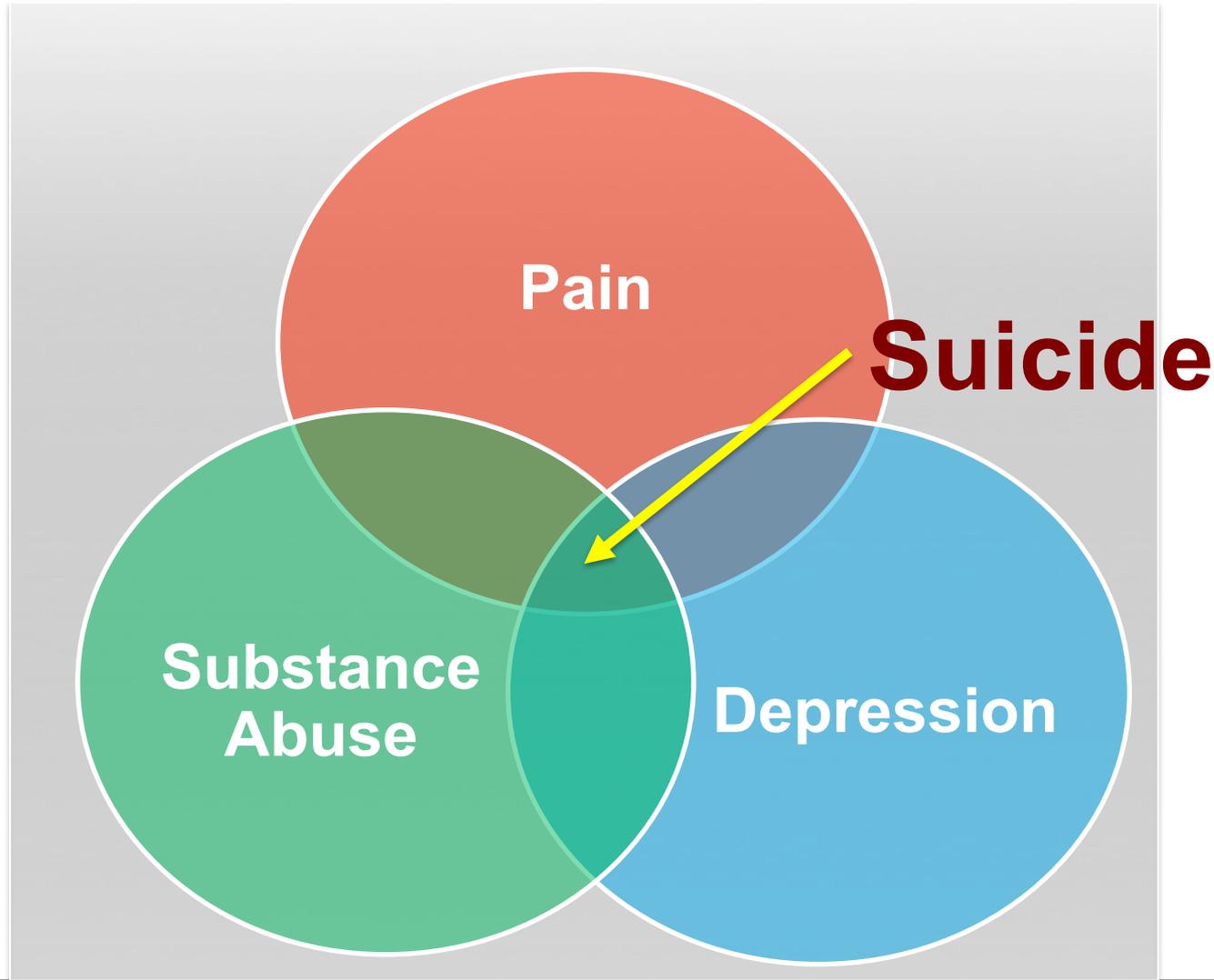
Suicidal Ideation and Behavior and SUD

- ◆ Approximately 40% of patients seeking treatment for substance use disorders report a history of suicide attempts ¹⁻³
- ◆ Compared to the general population, those with alcohol use disorders are almost 10 times more likely to die by suicide and those who inject drugs are about 14 times more likely to commit suicide.⁴



1) Roy A, Janal MN. Risk factors for suicide among alcohol-dependent patients. *Arch Suicide Res.* 2007; 11:211–217; 2) Roy A. Characteristics of cocaine dependent patients who attempt suicide. *Arch Suicide Res.* 2009; 13:46–51; 3) Roy A. Risk factors for attempting suicide in heroin addicts. *Suicide Life Threat Behav.* 2010; 40:416–420; 4) Wilcox HC, Conner KR, Caine ED. Association of alcohol and drug use disorders and completed suicide: an empirical review of cohort studies. *Drug Alcohol Depend.* 2004; 76:S11–S19.

Intersection of Diseases



Pain and Suicidal Ideation: Risk Factors and Mediators



Risk for Suicide-General Population

- ✓ Family history of suicide
- ✓ History of childhood abuse
- ✓ Previous suicide attempts
- ✓ History of mental disorder, particularly depression
- ✓ Hopelessness
- ✓ History of substance abuse
- ✓ Impulsive and aggressive behaviors
- ✓ Losses such as work, family esteem
- ✓ Isolation
- ✓ Physical illness

Centers for Disease Control and Prevention (CDC), National Center for Injury Prevention and Control. 2010. Suicide: Risk and protective factors. Available at: <http://www.cdc.gov/ViolencePrevention/Suicide/riskprotectivefactors.html> (accessed October 2012).

Risk for Suicide-Pain Patients

- ◆ **Family history of suicide**
- ◆ **History of childhood abuse**
- ◆ **Previous suicide attempts**
- ◆ **History of mental disorder, particularly depression**
- ◆ **Hopelessness**
- **History of substance abuse**
- Impulsive and aggressive behaviors
- **Losses such as work, family, self-esteem**
- **Isolation**
- Physical illness

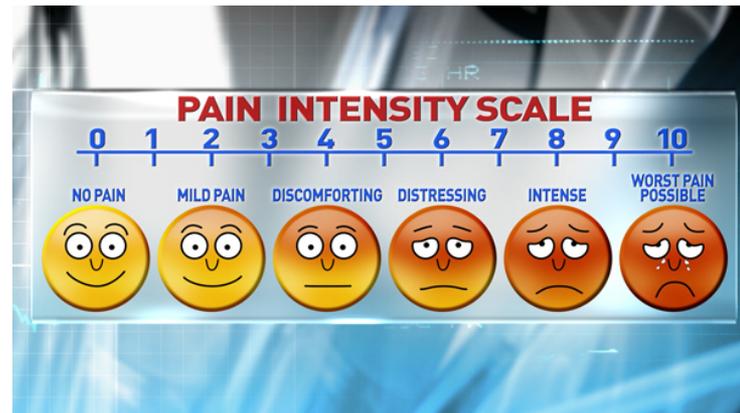
+1: Access to potentially lethal doses of prescription medications (ie opioids)

¹Fishbain DA. The association of chronic pain and suicide. *Semin Clin Neuropsychiatry* 1999;(3):221-7.

²Tang NK, Crane C. Suicidality in chronic pain: A review of the prevalence, risk factors and psychological links. *Psychol Med* 2006;36(5):575-86.

Risk Factors

- ◆ Sleep
- ◆ Pain Intensity
- ◆ Pain Duration
- ◆ Pain Type
- ◆ Opioid Dosing



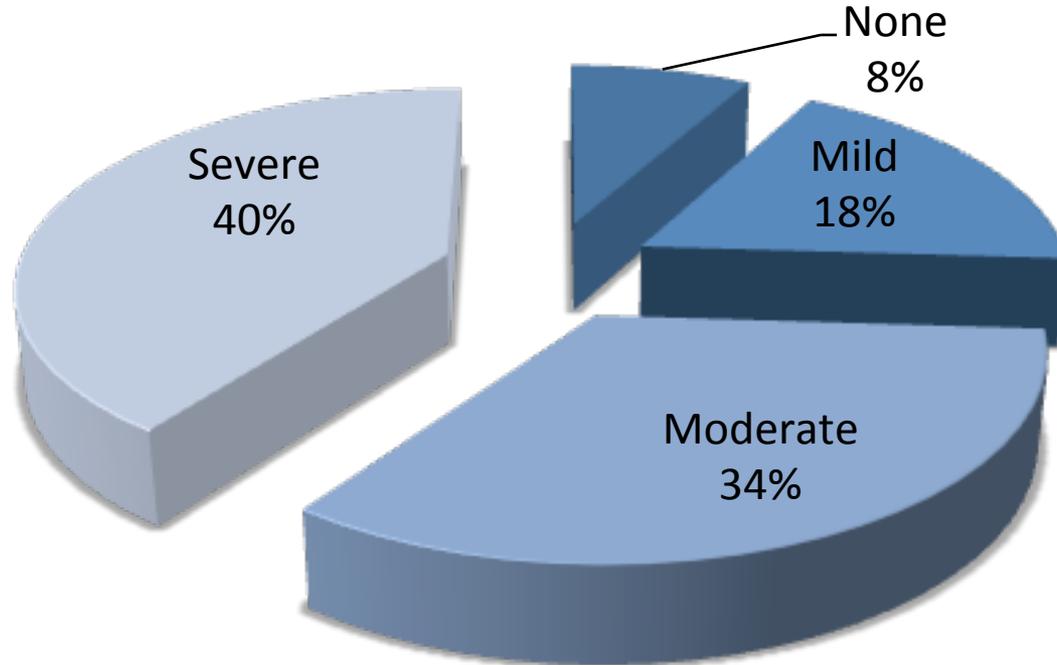
Pain and Sleep Disorders

- ◆ **Chronic pain is associated with multiple symptoms that may impair a patient's quality of life, including emotional distress, fatigue and sleep disturbance.**
- ◆ **Studies have demonstrated that 50% of patients with a number of different chronic pain conditions complain of sleep disturbance, with estimates as high as 70%-88%.**



Cheatle MD, Foster S, Pinkett A, Lesneski M, Qu D, Dhingra L. Assessing and Managing Sleep Disturbance in Patients with Chronic Pain. *Anesthesiol Clin*. 2016 Jun;34(2):379-93

% Population Sleep Disturbance (n= 1038)



Cheatle M et al "Clinical and Genetic Characteristics of Opioid Addiction in Chronic Pain" 1RO1DA032776-01 NIH/NIDA unpublished data

Suicidal Ideation in Outpatients With Chronic Musculoskeletal Pain

An Exploratory Study of the Role of Sleep Onset Insomnia and Pain Intensity

Michael T. Smith, PhD, Michael L. Perlis, PhD,†‡ and Jennifer A. Haythornthwaite, PhD**

- 51 outpatients with non-cancer chronic pain were recruited and completed the Pittsburgh Sleep Quality Index, the Beck Depression Inventory, and the Multi-Dimensional Pain Inventory. Subjects were classified as suicidal ideators or non-ideators, based on the BDI
- Results indicated that 24% reported suicidal ideation and endorsed higher levels of sleep-onset insomnia, pain intensity, medication usage, pain related interference, affective distress and depressive symptoms
- Step-wise, discriminate function analysis revealed that sleep onset insomnia severity and pain intensity predicted 84.3% of the cases
- *Authors concluded that chronic pain patients who self-report severe and frequent initial insomnia with concomitant daytime dysfunction and high pain intensity were more likely to report passive suicidal ideation, independent of the effects of depression severity*

Smith MT, et al Clin J Pain 2004; 20 (2):111-8

Pain Intensity

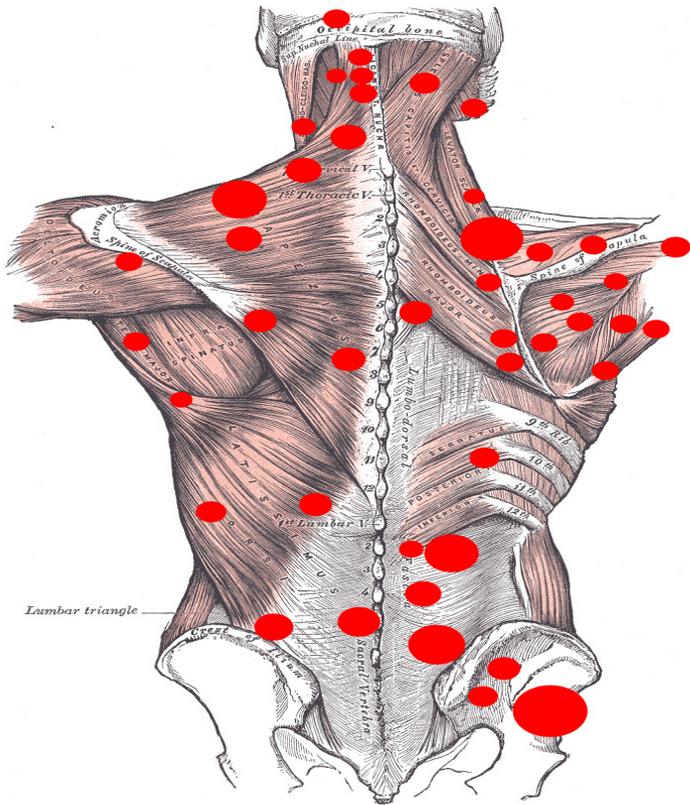
Suicide and Life-Threatening Behavior 40(6) December 2010
© 2010 The American Association of Suicidology

Severe Pain Predicts Greater Likelihood of Subsequent Suicide

MARK A. ILGEN, PhD, KARA ZIVIN, PhD, KAREN L. AUSTIN, MPH,
AMY S. B. BOHNERT, PhD, EWA K. CZYZ, MA, MARCIA VALENSTEIN, MD, MS,
AND AMY M. KILBOURNE, PhD, MPH

- ◆ Analyzed data Veteran's Affairs' medical records and the National Death Index (n=260,254) evaluating the association between self-assessed pain severity and SB in veterans.
- ◆ They discovered after controlling for demographic and psychiatric factors that veterans with severe pain were more likely to die by suicide than ones with mild or moderate pain (HR:1.33; 95% CI: 1.15-1.54).

Potentially Vulnerable Pain Populations



Suicidal ideation and the risk of suicide in patients with fibromyalgia: a comparison with non-pain controls and patients suffering from low-back pain

This article was published in the following Dove Press journal:

Neuropsychiatric Disease and Treatment

16 April 2014

Number of times this article has been viewed

Irene Jimenez-Rodríguez¹
Juan Miguel Garcia-Leiva¹
Beatriz M Jimenez-Rodriguez²
Emilia Condés-Moreno³
Fernando Rico-Villademoros¹
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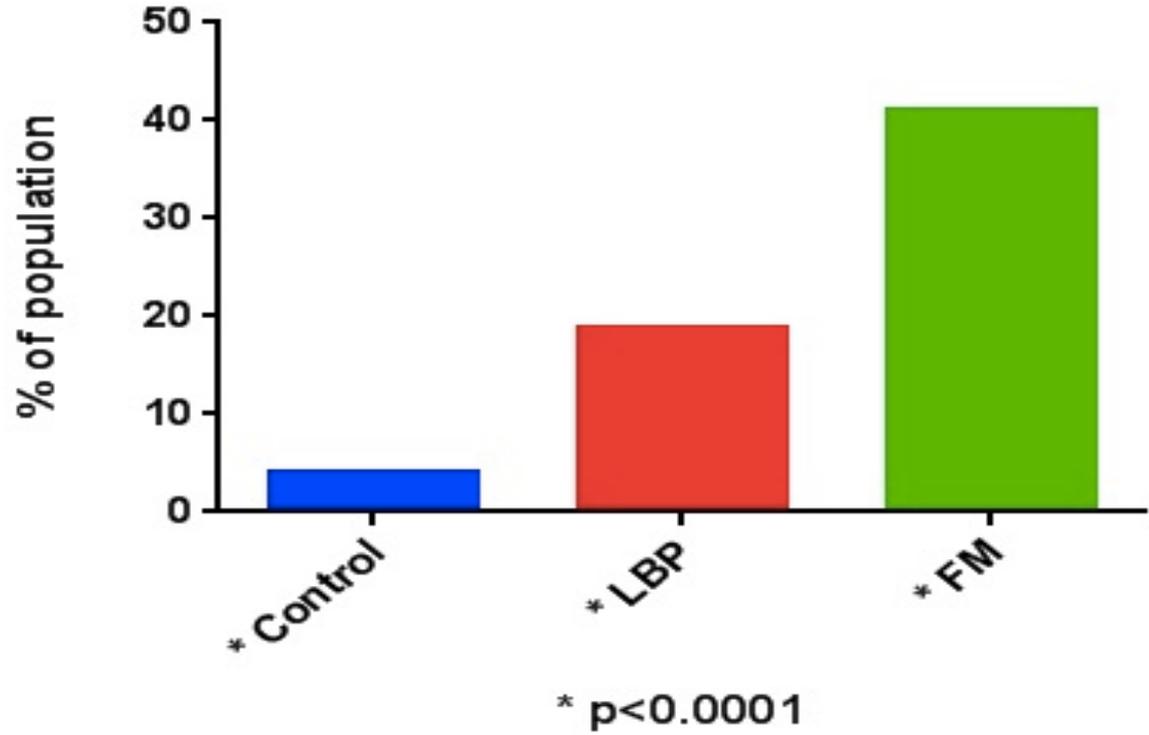
¹Instituto de Neurociencias, Universidad de Granada, Granada, Spain; ²Servicio de Neumología, Hospital Universitario Virgen de las Nieves, Granada, Spain;

³Departamento de Especialidades Biomédicas, Universidad Europea de Madrid, Villaviciosa de Odón, Spain

Abstract: Fibromyalgia is associated with an increased rate of mortality from suicide. In fact, this disease is associated with several characteristics that are linked to an increased risk of suicidal behaviors, such as being female and experiencing chronic pain, psychological distress, and sleep disturbances. However, the literature concerning suicidal behaviors and their risk factors in fibromyalgia is sparse. The objectives of the present study were to evaluate the prevalence of suicidal ideation and the risk of suicide in a sample of patients with fibromyalgia compared with a sample of healthy subjects and a sample of patients with chronic low-back pain. We also aimed to evaluate the relevance of pain intensity, depression, and sleep quality as variables related to suicidal ideation and risks. Logistic regression was applied to estimate the likelihood of suicidal ideation and the risk of suicide adjusted by age and sex. We also used two logistic regression models using age, sex, pain severity score, depression severity, sleep quality, and disease state as independent variables and using the control group as a reference. Forty-four patients with fibromyalgia, 32 patients with low-back pain, and 50 controls were included. Suicidal ideation, measured with item 9 of the Beck Depression Inventory, was almost absent among the controls and was low among patients with low-back pain; however, suicidal ideation was prominent among patients with fibromyalgia ($P<0.0001$). The risk of suicide, measured with the Plutchik Suicide Risk Scale, was also higher among patients with fibromyalgia than in patients with low-back pain or in controls ($P<0.0001$). The likelihood for suicidal ideation and the risk of suicide were higher among patients with fibromyalgia (odds ratios of 26.9 and 48.0, respectively) than in patients with low-back pain (odds ratios 4.6 and 4.7, respectively). Depression was the only factor associated with suicidal ideation or the risk of suicide.

Keywords: chronic low-back pain, suicidal risk, depression

Suicidal Ideation



	OR	95% CI	P-value
Suicidal ideation			
Fibromyalgia	26.889	5.72–126.42	<0.0001
Low-back pain	4.583	0.826–25.432	0.082
Risk of suicide			
Fibromyalgia	48.000	12.929–178.206	<0.0001
Low-back pain	4.725	1.297–17.209	0.019

Risk Factors for Suicidal Ideation among Patients with Complex Regional Pain Syndrome

Do-Hyeong Lee¹, Eun Chung Noh², Yong Chul Kim³, Jae Yeon Hwang⁵, Sung Nyun Kim¹, Joon Hwan Jang¹, Min Soo Byun¹, and Do-Hyung Kang^{1,4} ✉

¹Department of Neuropsychiatry, Seoul National University Hospital, Seoul, Republic of Korea

²Interdisciplinary Program of Neuroscience, Seoul National University, Seoul, Republic of Korea

³Department of Anesthesiology and Pain Medicine, Seoul National University Hospital, Seoul, Republic of Korea

⁴Department of Psychiatry, Seoul National University College of Medicine, Seoul, Republic of Korea

⁵Department of Psychiatry, SMG-SNU Boramae Medical Center, Seoul, Republic of Korea

Objective Chronic pain frequently coexists with psychiatric symptoms in patients diagnosed with complex regional pain syndrome (CRPS). Previous studies have shown a relationship between CRPS and the risk of suicide. The purpose of this study was to assess risk factors for suicidal ideation in patients with CRPS.

Methods Based on criteria established by the International Association for the Study of Pain, 39 patients diagnosed with CRPS Type 1 or Type 2 were enrolled in this study. Suicidal ideation was assessed using item 3 of the Hamilton Depression Rating Scale (HAMD), and symptoms of pain were evaluated using the short form of the McGill Pain Questionnaire (SF-MPQ). Psychiatric symptoms were assessed in using the Structured Clinical Interview for DSM-IV Disorders (SCID-I, SCID-II), the HAMD, the Hamilton Anxiety Rating Scale (HAMA), the Global Assessment of Functioning Scale (GAF), and the Pittsburgh Sleep Quality Index (PSQI).

Results Twenty-nine patients (74.4%) were at high risk and 10 (25.6%) were at low risk for suicidal ideation. Risk factors significantly associated with suicidal ideation included depression ($p=0.002$), severity of pain ($p=0.024$), and low scores on the GAF ($p=0.027$). No significant correlations were found between suicidal ideation and anxiety or quality of sleep.

Conclusion Significant risk factors for suicidal ideation in patients with CRPS include severity of pain, depressive symptoms, and decreased functioning. These results suggest that psychiatric evaluation and intervention should be included in the treatment of CRPS.

Psychiatry Investig 2014;11:32-38

Opioid Dosing

Pain. 2016 May ; 157(5): 1079–1084. doi:10.1097/j.pain.0000000000000484.

Opioid dose and risk of suicide

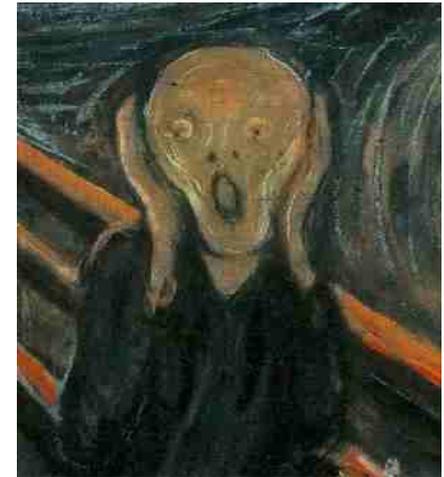
Mark A. Ilgen, PhD^{1,2}, Amy S. B. Bohnert, PhD^{1,2}, Dara Ganoczy, MPH¹, Matthew J. Bair, MD^{3,4}, John F. McCarthy, PhD^{1,2}, and Frederic C. Blow, PhD^{1,2}

- ◆ **Retrospective data analysis on the risk of suicide by different opioid doses in Veterans with CNMP.**
- ◆ **After controlling for demographic and other clinical features (depression, PTSD etc) the results indicated that higher opioid doses were associated with increased risk of suicide mortality**
- ◆ **Compared with individuals that received ≤ 20 mg morphine equivalent daily dose (MEDD), those prescribed 20 to 50 MEDD had a hazard ratio (HR) of 1.48 (95% CI: 1.25-1.75); 50 to ,100 MEDD HR of 1.69 (95% CI: 1.33-2.14); and 100 + a HR of 2.15 (95% CI: 1.64-2.81).**

Possible Mediators



Catastrophizing
Mental Defeat
Burdensomeness
Social Isolation





Pain-related catastrophizing as a risk factor for suicidal ideation in chronic pain

Robert R. Edwards ^{a,*}, Michael T. Smith ^a, Ian Kudel ^b, Jennifer Haythornthwaite ^a

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^b Health Services Research and Development, Cincinnati VA Medical Center, USA

Received 16 January 2006; received in revised form 13 June 2006; accepted 6 July 2006

- 1,512 patients seeking treatment for chronic pain completed a variety of questionnaires assessing pain, coping and psychosocial functioning
- Approximately 32% of this population reported some form of recent suicidal ideation
- Results indicated that the 2 predictors of the presence and degree of suicidal ideation were the magnitude of depressive symptoms and the degree of pain-related catastrophizing
- *Authors concluded that independent of pain severity or depressive symptomatology there is a strong association between pain-coping strategies and suicide related cognitions*

Mental defeat

Depression - Social Rank Theory



PTSD – CBT & Exposure therapy



Mental defeat in chronic pain

- ◆ A concept to characterise the deeper impact of pain on self-concept
- ◆ A state of mind marked by a sense of a loss of autonomy, agency and human integrity
- ◆ A type of self-processing, where persistent pain results in negative beliefs about the self in relation to pain



Tang et al, 2007 CJP; Tang et al., 2010; PAIN

Mental defeat

- **“Defeat of the mind”**
- **“The pain is taking over and you cannot cope with what you are supposed to do”**
- **“I just felt everything had beaten me and there’s nothing I could do. I couldn’t fight anymore.”**
- **“The pain belittles you as a person”**
- **“It’s like you’re not a human being”**

Tang, Salkovskis et al., 2009; BJCP, 48; 1-20



Mental Defeat Is Associated With Suicide Intent in Patients With Chronic Pain

Nicole K.Y. Tang, DPhil, Philippa Beckwith, DClinPsych,† and Polly Ashworth, DClinPsych‡*

- ◆ **N=62 chronic pain pts (42F; 20M)**
- ◆ **Past suicide attempts**
 - 12.9% once
 - 9.7% twice or more
- ◆ **Current and worst ever suicidal ideation**
 - Beck Scale of Suicide Ideation – to measure intent
- ◆ **Other psychological predictors of suicidality**
 - Depression, Anxiety, Hopelessness and Pain self-efficacy

Tang NK, Beckwith P, Ashworth P. Mental Defeat Is Associated With Suicide Intent in Patients With Chronic Pain. Clin J Pain. 2016 May;32(5):411-9.

Correlations with suicide intent

	Suicidal ideation (Worst ever)	Suicidal Ideation (In the past week including today)
Anxiety	0.33*	0.002
Depression	0.32*	0.19
Pain Self-Efficacy	-0.20	0.005
Hopelessness	0.19	-0.12
Mental defeat	0.45**	0.13

Correlation between worst ever & current SI = 0.33**

Suicidal Ideation and Perceived Burdensomeness in Patients with Chronic Pain

Kathryn E. Kanzler, PsyD* ; Craig J. Bryan, PsyD, ABPP[†]; Donald D. McGeary, PhD, ABPP[‡]; Chad E. Morrow, PsyD, ABPP[§]

*Department of Behavioral Medicine, Wilford Hall Medical Center, Lackland AFB, San Antonio, Texas; [†]National Center for Veterans Studies, University of Utah, Salt Lake City, Utah;

[‡]Department of Psychiatry, University of Texas Health Science Center at San Antonio, San Antonio, Texas; [§]Mental Health Clinic, Maxwell Air Force Base, Montgomery, Alabama, U.S.A.

- ◆ 113 patients referred for pain related health complaints to a Clinical Health Psychology clinic
- ◆ Intake interview included BDI-II, MPQ and one question on burdensomeness “It would be better for everyone involved if I were to die” on a 5-point Likert scale measuring frequency of having the thought (1 = “Never or none of the time” to 5 = “Always or a great many times”)
- ◆ Results revealed that perceived *burdensomeness* was the sole significant predictor of SI (b = 3.068, P = 0.004, OR = 21.503 [2.680 to 172.547]).

Pain Pract. 2012 Nov;12(8):602-9

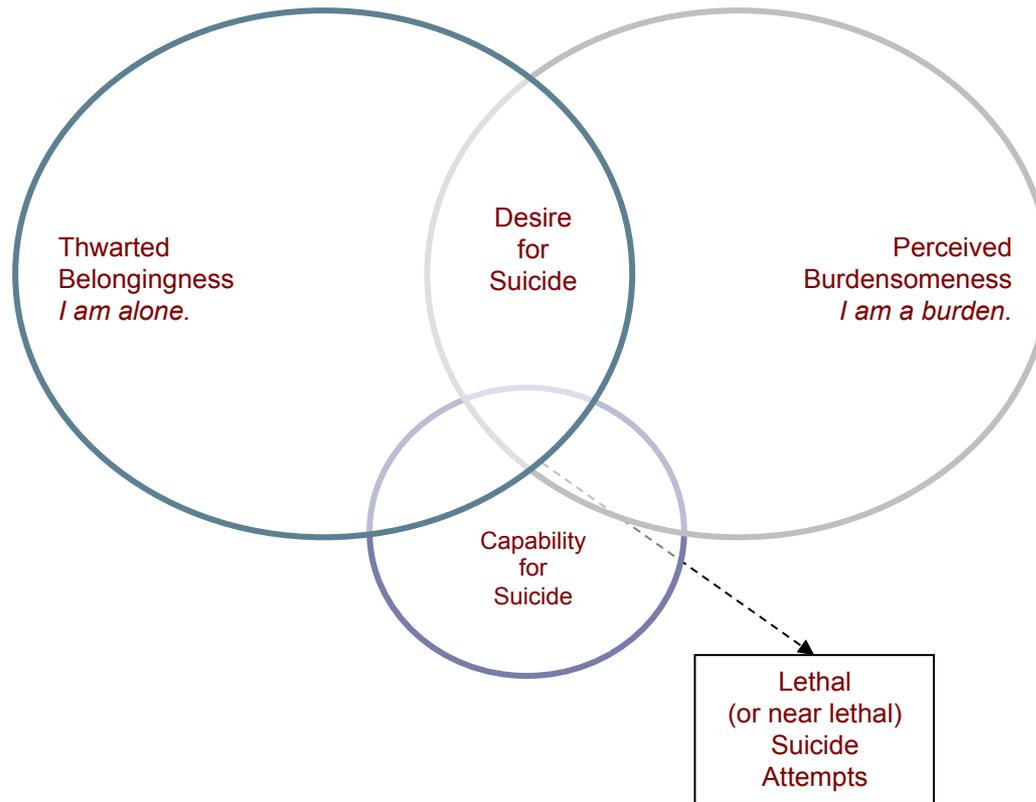
Retrospective Review

Prevalence of Suicidal Ideation in Patients with Chronic Non-Cancer Pain Referred to a Behaviorally Based Pain Program

Martin D. Cheatle, PhD^{1,2}, Thomas Wasser, PhD³, Carolyn Foster, MSN¹, Akintomi Olugbodi, MD², and Jessica Bryan, BA¹

- ◆ A retrospective chart review of 466 patients with CNCP treated in a behaviorally based pain program
- ◆ Results revealed a high rate of SI (26%).
- ◆ Logistic regression revealed that history of sexual/physical abuse (Beta=0.825; $p < 0.020$; OR=2.657 [95% CI=1.447-4.877]), family history of depression (Beta=0.471; $p < 0.006$; OR= 1.985 [95% CI= 1.234-3.070]) and being *socially withdrawn* (Beta=0.482; $p < 0.001$; OR= 2.226 [95% CI= 1/413-3.505]) were predictive of SI

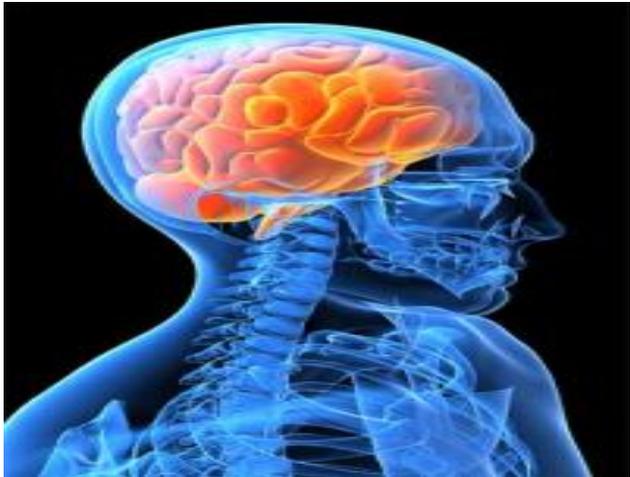
Interpersonal Theory of Suicide



Joiner TE, Pettit JW, Walker RL, et al. Perceived burdensomeness and suicidality: two studies on the suicide notes of those attempting and those completing suicide. *J Soc Clin Psychol.* 2002;21:531–545.

Risk Mitigation

- ◆ Risk Assessment
- ◆ Intervention



Cheatle MD. Depression, Chronic Pain, and Suicide by Overdose: On the Edge. *Pain Medicine*. 2011;12(s2):S43-S48.

Risk Assessment

- ◆ **Age >45**
- ◆ **Gender (female)**
- ◆ **Alcohol dependence**
- ◆ **Past suicide attempts**
- ◆ **History of psychological hospitalization**
- ◆ **Poor social support**
- ◆ **Unemployed**
- ◆ **Divorced**
- ◆ **Mental disorders**

Centers for Disease Control and Prevention (CDC), National center for Injury Prevention and Control. 2010. Suicide: Risk and protective factors. Available at:

<http://www.cdc.gov/ViolencePrevention/suicide/riskprotectivefactors.html> (accessed October 2012).

Behaviors Suggestive of Increased Risk

- ◆ Giving away personal property
- ◆ Paucity of future goals
- ◆ Making a will
- ◆ Experiencing a recent loss

Centers for Disease Control and Prevention (CDC), National center for Injury Prevention and Control. 2010. Suicide: Risk and protective factors. Available at:

<http://www.cdc.gov/ViolencePrevention/suicide/riskprotectivefactors.html> (accessed October 2012).

Assessment

- ◆ Mental Health Screening
- ◆ Suicide Risk
- ◆ SUD Screening
- ◆ UDS



Mental Health Screening Tools

Tool	# of Items	Time to Complete
Beck Depression Inventory II (Beck et al, 1996)	21	5 - 10 minutes
Beck Depression Inventory – Fast Screen for Medical Patients (Beck et al, 2000)	7	< 5 minutes
Profile of Mood States II: Full	65	10 - 15 minutes
Short (McNair et al, 1971)	35	5 - 10 minutes
Zung Self-Rating Depression Scale (Zung 1965)	20	10 minutes
Center for Epidemiologic Studies Depression Scale: Full	20	5 - 10 minutes
Short (Radloff, 1977)	10	5 minutes
Patient Health Questionnaire: PHQ-9	9	5 minutes
PHQ-4 (Kroenke et al 1999)	4	< 5 minutes

PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

NAME: _____ DATE: _____

Over the *last 2 weeks*, how often have you been bothered by any of the following problems?
(use "✓" to indicate your answer)

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself in some way	0	1	2	3

add columns: + +

(Healthcare professional: For interpretation of TOTAL, please refer to accompanying scoring card.) **TOTAL:** _____

10. If you checked off <i>any</i> problems, how <i>difficult</i> have these problems made it for you to do your work, take care of things at home, or get along with other people?	Not difficult at all	_____
	Somewhat difficult	_____
	Very difficult	_____
	Extremely difficult	_____

PHQ-9 is adapted from PRIME MD TODAY, developed by Drs Robert L. Spitzer, Janet B.W. Williams, Kurt Kroenke, and colleagues, with an educational grant from Pfizer Inc. For research information, contact Dr Spitzer at rs9@columbia.edu. Use of the PHQ-9 may only be made in accordance with the Terms of Use available at <http://www.pfizer.com>. Copyright ©1999 Pfizer Inc. All rights reserved. PRIME MD TODAY is a trademark of Pfizer Inc.

ZT242043

Opioid Abuse and SUD Screening Tools

Patients considered for long-term opioid therapy:	Items	Administered
ORT Opioid Risk Tool	5	By patient
SOAPP [®] Screener & Opioid Assessment for Patients w/ Pain	24, 14, & 5	By patient
DIRE Diagnosis, Intractability, Risk, & Efficacy Score	7	By clinician
Characterize misuse once opioid treatments begins:		
PMQ Pain Medication Questionnaire	26	By patient
COMM Current Opioid Misuse Measure	17	By patient
PDUQ Prescription Drug Use Questionnaire	40	By clinician
Not specific to pain populations:		
CAGE-AID Cut Down, Annoyed, Guilty, Eye-Opener Tool, Adjusted to Include Drugs	4	By clinician
RAFFT Relax, Alone, Friends, Family, Trouble	5	By patient
DAST Drug Abuse Screening Test	28	By patient
SBIRT Screening, Brief Intervention, & Referral to Treatment	Varies	By clinician
AUDIT-C Alcohol Use Disorders Identification Test Consumption	3	By patient

Urine Drug Monitoring

- ❑ Recent guidelines (Chou et al, 2009) recommend periodic UTS for CNCP patients on COT

- ❑ Assess only the presence of a particular drug and/or metabolite in a specific concentration at a specific moment in time

- ❑ A positive result does *not* diagnose
 - Drug addiction
 - Physical dependence
 - Impairment

- ❑ Absence of Rx opioid may reflect diversion, but also hoarding



Criteria for SI Assessment Tools

- **Predictive**
- **Brief**
- **Easy to administer & interpret**
- **Geared to suicide risk**
- **Validated in patients with pain**
- **Applicable to a variety of clinical settings**
- **Need to identify patient who needs same-day psych evaluation**

The P4: A Brief Measure

Past suicide attempts

Suicide **P**lan

Probability of completing suicide

Preventative factors

P4 Suicidality Screener

Have you had thoughts of actually hurting yourself?

NO

YES

1. Have you ever attempted to harm yourself in the past?

NO

YES

2. Have you thought about how you might actually hurt yourself?

NO

YES

3. There's a big difference between having a thought and acting on a thought. How likely do you think it is that you will act on these thoughts about hurting yourself or ending your life some time over the next month?

a) Not at all likely _____

b) Somewhat likely _____

c) Very likely _____

4. Is there anything that would prevent you from harming yourself?

NO

YES → [What? _____]

Risk Category	Shared ("Risk" Response	
	Items 1 and 2	Items 3 and 4
Minimal	Neither is shaded	Neither is shaded
Lower	At least one item is shaded	Neither is shaded
Higher		At least one item is shaded

Dube P, et al. *Prim Care Companion J Clin Psychiatry*. 2010;12(6):PCC. 10m00978.

SBQ-R

SBQ-R Suicide Behaviors Questionnaire-Revised

Patient Name _____ Date of Visit _____

Instructions: Please check the number beside the statement or phrase that best applies to you.

1. Have you ever thought about or attempted to kill yourself? (check one only)

- 1. Never
- 2. It was just a brief passing thought
- 3a. I have had a plan at least once to kill myself but did not try to do it
- 3b. I have had a plan at least once to kill myself and really wanted to die
- 4a. I have attempted to kill myself, but did not want to die
- 4b. I have attempted to kill myself, and really hoped to die

2. How often have you thought about killing yourself in the past year? (check one only)

- 1. Never
- 2. Rarely (1 time)
- 3. Sometimes (2 times)
- 4. Often (3-4 times)
- 5. Very Often (5 or more times)

3. Have you ever told someone that you were going to commit suicide, or that you might do it? (check one only)

- 1. No
- 2a. Yes, at one time, but did not really want to die
- 2b. Yes, at one time, and really wanted to die
- 3a. Yes, more than once, but did not want to do it
- 3b. Yes, more than once, and really wanted to do it

4. How likely is it that you will attempt suicide someday? (check one only)

- 0. Never
- 1. No chance at all
- 2. Rather unlikely
- 3. Unlikely
- 4. Likely
- 5. Rather likely
- 6. Very likely

Columbia–Suicide Severity Rating Scale (C-SSRS)

- **For validity relative to other measures of suicidal ideation/behavior**
- **For internal consistency of its intensity of ideation subscale**
- **Three multisite studies in:**
 1. Adolescent suicide attempters (N=124)
 2. A medication efficacy trial with depressed adolescents (N=312)
 3. A study of adults presenting to an emergency department for psychiatric reasons (N=237)
- **Found suitable for assessment of suicidal ideation/behavior in clinical and research settings**
- **Greater precision in the assessment of suicidal behavior and ideation is necessary**

Posner et al. *Am J Psychiatry*. Dec 2011; 168(12): 1266–1277.

Columbia–Suicide Severity Rating Scale (C-SSRS)

Ideation			
	Yes	No	NA
1. Wish to be dead or not wake up			
2. Nonspecific thoughts			
3. Specific thoughts of method			
4. Some intent to act, no plan			
5. Specific plan and intent			

	Intensity						
Most Severe Ideation:	0	1	2	3	4	5	NA
a. Frequency of thought							
b. Duration of thoughts							
c. Controllability of thoughts							
d. Deterrents							
e. Reasons							

Behaviors				
	Yes	No	#	NA
Actual suicide attempts				
Interrupted attempts				
Aborted attempts				
Preparatory actions				
Non-suicidal self-injurious behaviors				

	Severity of Injury					
Lethality of Suicide Attempts	0	1	2	3	4	NA
Most serious attempt						

Potential Lethality of Suicide Attempts	0	1	2	NA
Most serious attempt				

Posner et al. Am J Psychiatry. Dec 2011; 168(12): 1266–1277.

Risk Stratification

Factor	Low	Medium	High
Age			>45
Gender			Female
History of Suicide Attempts?	No		Yes
Social Support?	High	Intermediate	Low
Divorced?	No		Yes
Mental Disorders?	None	Past/Treated	Active
History of Substance Abuse?	None	Treated	Active
Employment			Unemployed
Plans	None	Vague	Specific
Means	No		Yes (lethal supply of Rx)
Alcohol Dependence?	No		Yes
Pain Intensity	Low Pain		High Pain

Tang NK, Crane C. Suicidality in chronic pain: A review of the prevalence, risk factors and psychological links. *Psycho Med* 2006;36(5):575-86. Centers for Disease Control and Prevention (CDC), 2. National center for Injury Prevention and Control. 2010. Suicide: Risk and protective factors. Available at:

<http://www.cdc.gov/ViolencePrevention/suicide/riskprotectivefactors.html>. 3. Cheatle MD. Depression, Chronic Pain, and Suicide by Overdose: On the Edge. *Pain Medicine*. 2011;12(s2):S43-S48.

Intervention



Acute Suicidal Phase

- ◆ **IP treatment depending on severity of depression and SI/plans**
- ◆ **Pharmacotherapy targeting depression and sleep**
- ◆ **If opioids Rx do so in small amounts with family member dispensing**
- ◆ **Frequent UDS to ensure adherence**

Chronic Depression/SI

- ◆ **Require ongoing psychiatric/ psychological care as part of overall pain management program**
- ◆ **Frequent UDS if opioids Rx until mood stabilizes**
- ◆ **Regular mental health screening**

SI/SA Prevention in Patients with Pain

➤ Treat co-morbidities

- ✓ Sleep
- ✓ Depression
- ✓ Anxiety
- ✓ Pain coping



➤ Manage SUD

- ✓ MAT
- ✓ AA/NA

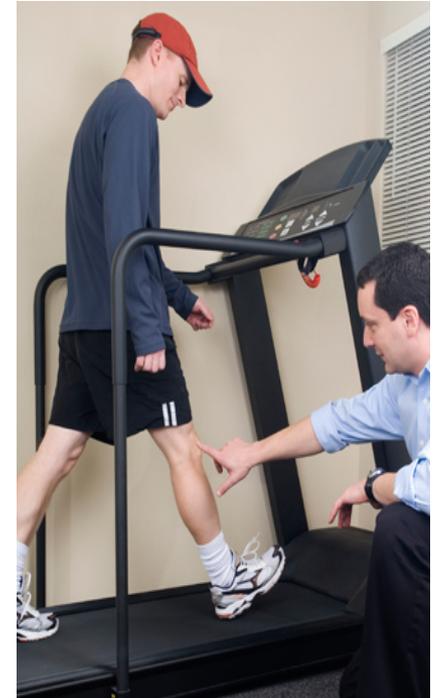


➤ Encourage Social Support/Daily Purpose

➤ Manage Pain



Biopsychosocial Approach to Pain and Addiction Care



Biopsychosocial Approach to CPS

Comprehensive pain management programs based on the biopsychosocial model of pain, typically emphasizing *cognitive behavioral therapy*, a *graded exercise program* and appropriate *medication management* have been shown to significantly improve treatment outcomes (return to work, pain reduction and increase in activity).

Gallagher, 1999

Loeser & Turk, 2000

McCracken & Turk, 2002

Cheatle & Gallagher, 2006

Biopsychosocial Treatment Program

CBT

Exercise

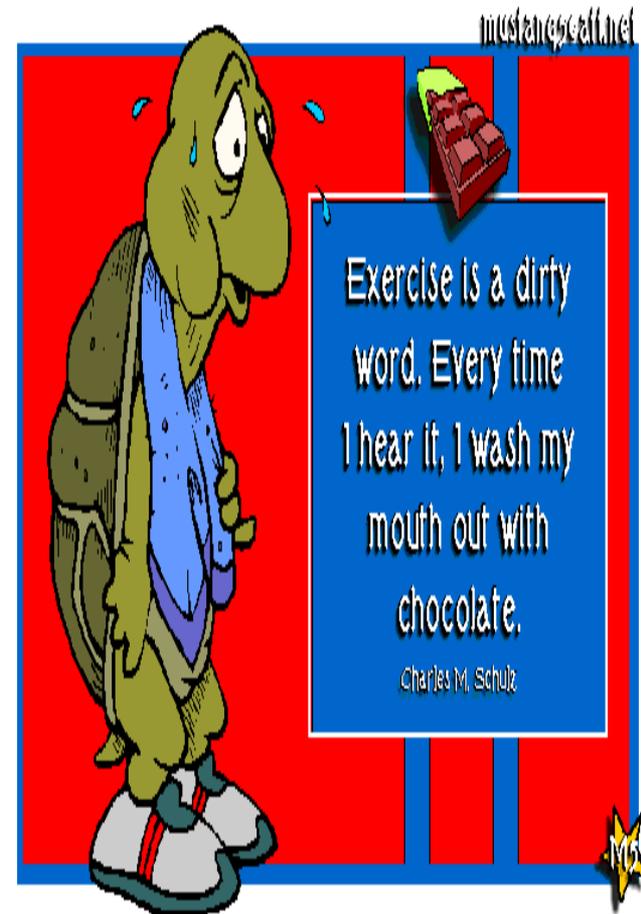
Nutrition

Evidence-based rational pharmacotherapy

Social Support

Physical Therapy

- ◆ Most patients with chronic noncancer pain have had multiple trials of physical therapy, many of which have been not efficacious and, in some cases, exacerbated the pain
- ◆ Physical therapy program for patients with chronic noncancer pain should include:
 - Acquiring first-aid techniques for pain relief at home
 - Establish a well-balanced independent exercise program. This should include establishing weekly goals that can be achievable that will not lead to an increase in pain or discouragement

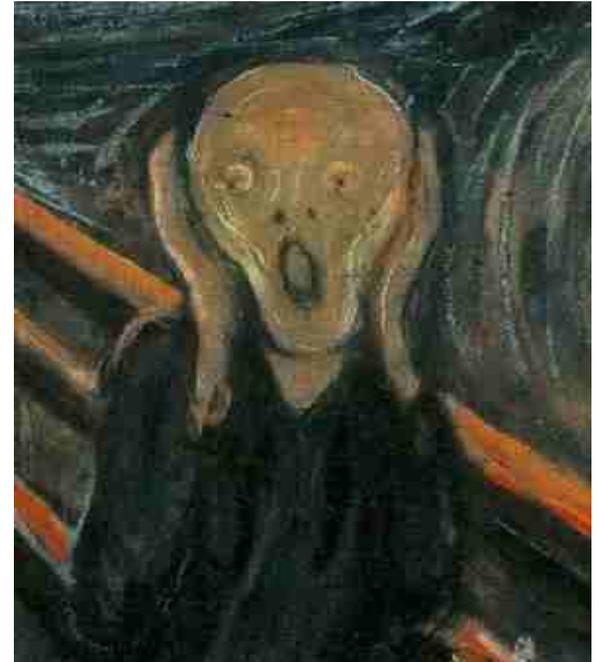


CBT



Cognitive Behavioral Therapy

- ❑ CBT focuses on maladaptive thought patterns (catastrophizing) and behaviors (kinesiophobia) that occur frequently in patients with CNCP
- ❑ The objective of CBT is to guide the patient in recognizing and reconceptualizing his/her personal view of pain, identifying their role in the process of healing and promoting the patient being proactive rather than passive, and competent rather than incompetent
- ❑ CBT include specific skill acquisition (relaxation therapy, stress management, cognitive restructuring) followed by skill consolidation and rehearsal, and relapse training (Turk, Flor, 2006)



CBT cont' d

◆ CBT has been found to be efficacious for a number of chronic pain disorders including:

- Arthritis (Keefe & Caldwell, 1997)
- Sickle Cell disease (Chen et al, 2004)
- Chronic low back pain (Lamb et al, 2010; Glombiewski et al, 2010)
- TMJ (Turner et al, 2006)
- Lupus (Greco et al, 2004)
- Pain in breast cancer patients (Tatrow et al, 2006)

Social Support, Relapse and SI/SA

- ◆ **20 patients with a history of chronic nonmalignant pain and SUD treated with chronic opioid therapy for a period of more than 1 year were retrospectively evaluated to determine the factors associated with prescription abuse.**
- ◆ **Those who did not abuse opioid therapy were more likely to be active members of Alcoholics Anonymous and to have a stable family or other similar support system.**
- ◆ **Those who abused opioid therapy were more likely to be recent polysubstance abusers, or have a prior history of oxycodone abuse. None of them were active members of Alcoholics Anonymous and generally had poor support system**



Dunbar SA, Katz NP. Chronic opioid therapy for nonmalignant pain in patients with a history of substance abuse: report of 20 cases. *J Pain Symptom Manage*. 1996 Mar;11(3):163-71.

Medication-Assisted Therapy



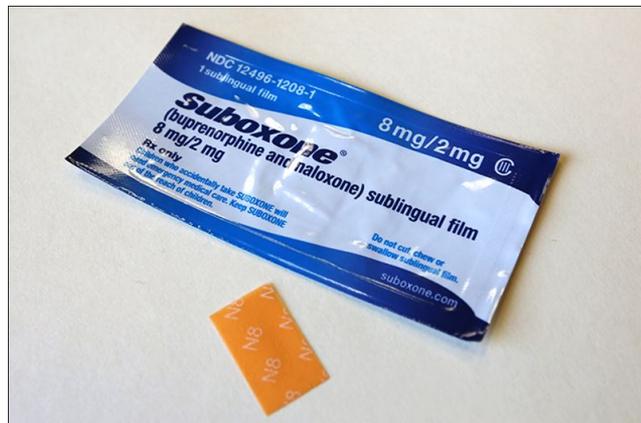
Medication Assisted Treatment

- ◆ **Methadone**
- ◆ **Buprenorphine**
- ◆ **Extended Release and Oral Naltrexone**

Methadone

- ◆ **Methadone is a full mu opioid agonist**
- ◆ **Blocks NMDA and monoamine reuptake**
- ◆ **Pharmacokinetic and pharmacodynamic effects of methadone have advantage over other opioids in that methadone is long-acting, development of tolerance is low, thus potentially leading to lower dosing long-term**
- ◆ **Methadone has NMDA receptor blocking activity and this may be the reason for efficacy in treating neuropathic pain**
- ◆ **Patients on MMT for OUD who do experience CNCP require higher dosing**

Buprenorphine Formulations



- ◆ **Buprenorphine is a partial agonist at the mu-opioid receptors and an antagonist at the kappa receptors.**
- ◆ **Mu-opioid receptor activity produces the analgesic effects of buprenorphine, while a strong affinity for the kappa receptors render them inactive.**

Ultra-Low-Dose Buprenorphine as a Time-Limited Treatment for Severe Suicidal Ideation: A Randomized Controlled Trial

Yoram Yovell, M.D., Ph.D., Gali Bar, Ph.D., Moti Mashiah, M.D., Yehuda Baruch, M.D., Irina Briskman, M.D., Jack Asherov, M.D., Amit Lotan, M.D., Amihai Rigbi, Ph.D., Jaak Panksepp, Ph.D.

- ◆ **A randomized double-blind placebo-controlled trial of ultra-low-dose sublingual buprenorphine as an adjunctive treatment.**
- ◆ **Severely suicidal patients without substance abuse were randomly assigned to receive either buprenorphine or placebo (in a 2:1 ratio), in addition to their ongoing individual treatments**
- ◆ **Patients who received ultra-low-dose buprenorphine had a greater reduction in Beck Suicide Ideation Scale scores than patients who received placebo, both after 2 weeks (mean difference -4.3, 95% CI=-8.5, -0.2) and after 4 weeks (mean difference=-7.1, 95% CI=-12.0, -2.3)**

Am J Psychiatry. 2016 Oct 1;173(10):1043

Extended Release and Oral Naltrexone

- ◆ Naltrexone for extended-release injectable suspension
- ◆ Effective for treatment of opioid and alcohol dependence
- ◆ Low dose naltrexone now being used off label to treat fibromyalgia



Dana



Summary



- Pain is a potentially independent risk factor for suicide
- Patients with pain and h/o SUD are particularly at risk for SI and behavior
- Possible mediators of the relationship between pain and suicidal risk include active SUD, insomnia, mental defeat, poor social support, and poor pain coping skills, in particular, catastrophizing
- Given the high co-occurrence of pain and suicidal ideation, patients with chronic pain and especially patients with pain and concomitant SUD should be routinely screened for depression and suicide
- *Globally and locally poor access to mental health services needs to be addressed*

From: mother of pain sufferer

Date: Fri 3 Feb 2012

To: cheatle@upenn.edu

Subject: daughter's suicide from unrelieved pain

“My 45 yo daughter suffered for 4 ½ years of constant back pain-unrelieved by narcotics and mostly ignored by all of the MD's I took her to....on Jan 9th 2012, she killed herself by jumping off a high bridge to end her agony. It was HER RELENTLESS AGONIZING PAIN which eventually killed her. When she recognized the only narcotic she could tolerate no longer worked, there was no hope left...she knew her old age would be a nightmare...it is then that she made the decision to get out of her inferno. “

THANK YOU !!

Martin D. Cheadle, Ph.D.

[cheadle@pennmedicine .upenn.edu](mailto:cheadle@pennmedicine.upenn.edu)

Discussion

