Addressing Unhealthy Substance Use in Primary Care

Richard Saitz, MD, MPH, FACP, FASAM
Professor of Medicine & Epidemiology
Boston University Schools of Medicine & Public Health
Boston Medical Center
Outline

- Primary care...
  - Screening for unhealthy substance use in primary care
  - Brief intervention
  - Behavioral and pharmacological interventions
- Substance dependence as a chronic disease
- Co-occurring conditions
- Chronic care/disease management
  - Example
Does unhealthy substance use meet criteria for universal screening?

- Significant morbidity/mortality?
- High prevalence?
- Asymptomatic period during which detection can occur?
- Valid, feasible screening test?
- Early intervention better (than later) (screening and intervention versus not)?
Unhealthy Substance Use is Common

- 28% of adults have unhealthy alcohol use (drink too much), 8.5% of adults have alcohol use disorder
- 8% of adults use illicit drugs (MJ, NMUPD most common)
- In adult primary care…
  - Current unhealthy alcohol 8% (HMO) to 22-28%
  - Approx. 40% at-risk, 40% problem, 20% dependent
  - Current drug use 3% (HMO) to 5%

Practice Guideline

• The U.S. Preventive Services Task Force (USPSTF) recommends screening and behavioral counseling interventions to reduce alcohol misuse by adults, including pregnant women, in primary care settings.

This is a grade B recommendation (at least fair evidence of improved health outcomes and that benefits outweigh harm). USPSTF. Ann Intern Med 2004; 140: 554-6.
US Preventive Services Task Force

• Evidence limited to treatment seeking populations; insufficient evidence to change recommendation

• “The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening adolescents, adults, and pregnant women for illicit drug use.” (Jan 2008)
AMA **CPT codes**

99408  Alcohol and/or substance (other than tobacco) abuse structured screening and brief intervention services; 15-30”

99409  > 30 minutes

Modifier -25 may be coded for some health plans. *Separate and distinct from all other E&M services.*

**CMS codes (for Medicare fee-for-service patients)**

G0396  Alcohol and/or substance (other than tobacco) abuse structured assessment, and brief intervention (SBI) services; 15 to 30 minutes.

G0397  > 30 minutes

**CMS codes for Medicaid (need to be “turned on”)**

H0049  Alcohol and/or drug screening.

H0050  Alcohol and/or drug services, brief intervention, per 15 minutes.

**AMA Physician Consortium for Performance Improvement (PCPI) measure: alcohol screening**

**AMA CPT2 tracking codes (incentive $...) (coming in 2009)**
Screen for what?

- Drug use
- Unhealthy alcohol use
Amounts that risk health consequences

- Men
  - >14 standard drinks per week
  - >4 per occasion
- Women, ≥65
  - >7 per week
  - >3 per occasion

USDA; NIAAA 2007
The Spectrum of Alcohol Use
Screening Tests

• Best choices all around
  – 1 for alcohol, 1 for drug
  – DRUG
    • Single-item
  – ALCOHOL
    • Single-item (episodic limit)
    • AUDIT-C
    • AUDIT
    • CAGE+consumption

• Other choices (some limits)
  – ASSIST
  – CAGE
  – CRAFFT (adolescents)
  – POSIT (adolescents)
  – TWEAK (pregnancy)
  – T-ACE (pregnancy)
  – MAST
    • B-MAST, S-MAST, G-MAST
  – DAST-10
  – AUDIT-R
  – CAGE-AID
  – 2-item conjoint
  – Consensus single item (CSAT)
  – Laboratory tests
    • Hair, saliva, urine, serum
    • BAC, CDT, GGT, AST, HDL, MCV
‘Single’ Item

– **NIAAA**: “Do you sometimes drink beer wine or other alcoholic beverages? How many times in the past year have you had 5 (4 for women) or more drinks in a day?”*

  • +answer:>0
  • 82% sensitive, 79% specific


Screening Tests

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  - **DRUG**
    - Single-item
  - **ALCOHOL**
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    - BAC, CDT, GGT, AST, HDL, MCV
Single Item drug screening

• “How many times in the past year have you used an illegal drug or used a prescription medication for non-medical reasons?”
  – If asked to clarify the meaning of “non-medical reasons”, add "for instance because of the experience or feeling it caused”
  – a response of ≥1 is considered positive
  – 100% sensitive, 73.5% specific for drug use disorder, similar to 10-item DAST
  – 92.9% and 94.1% for past-year drug use

Smith P et al. 2008 abstract
Assess for risky use and consequences

- Determine risks
  - Use in high risk situations, with medications that can interact or contraindicated medical (e.g., sleep, liver disease, hypertension, injury) or mental health conditions (e.g., depression), pregnancy, personal or family history

- Determine whether your patient’s drinking has repeatedly caused or contributed to
  - Risk of bodily harm (drinking and driving, operating machinery, swimming)
  - Relationship trouble (family or friends)
  - Role failure (interference with home, work, or school obligations)
  - Run-ins with the law (arrests or other legal problems)
Assess for dependence symptoms

• Impaired control/Preoccupation
  • A great deal of time getting, using, recovering
  • Activities given up or reduced
  • More or longer than intended
  • Cannot cut down or control
  • Use despite knowledge of health problem

• Withdrawal
  • Symptoms, using to relieve symptoms

• Tolerance
  • Increased amounts to achieve effect
  • Diminished effect from same amount
Brief *assessment* for alcohol use disorders

Presence of either:

Recurrent drinking in physically hazardous situations or Drinking more or for longer than intended.

<table>
<thead>
<tr>
<th></th>
<th>Sensitivity</th>
<th>Specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screen-positive subjects in 3 validation samples</td>
<td>77% to 95%</td>
<td>62% to 86%</td>
</tr>
</tbody>
</table>

Ingredients of Successful Brief Interventions

- What?
  - 10-15 minutes
  - Feedback
  - Advice
  - Goal Setting
  - Follow-up

- How?
  - Empathy
  - Self-efficacy
  - Menu

Learn via video cases. Free at:
www.niaaa.nih.gov (Clinician’s Guide) and
www.mdalcoholtraining.org
Example

• Feedback: ‘The amounts you are drinking are above recommended limits and put your health at risk. Your use of alcohol may be interfering with your sleep. What do you think of that?’

• Advice: ‘Would you like to hear my advice about this? My best medical advice is that you cut back... This may help your sleeping and will help avoid other problems in the future.’
Efficacy of Brief Intervention

• Proportion of drinkers of risky amounts lower one year after brief intervention (69% vs. 57%)(n=2784)

• Consumption decreased 15% more than without brief intervention (by 38 grams [about 3 standard drinks] per week)(n=5639)

Meta-analyses:
Beich et al. BMJ 2003;327:536
Treatment in Medical Settings: TrEAT Study

- RCT, 17 practices, 64 physicians
- N=774
  - Men >14 drinks/wk
  - Women >11 drinks/wk
- 93% 12 month follow-up
- Control: health booklet
- Intervention: health booklet + 2 10-15” physician discussions and a follow-up nurse phone call

### TrEAT Study Results

<table>
<thead>
<tr>
<th></th>
<th>Control before/after</th>
<th>Intervention before/after</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Drinks/7d</strong>*</td>
<td>19/16 (-18%)</td>
<td>19/12 (-40%)</td>
</tr>
<tr>
<td><strong>Binges/30d</strong>*</td>
<td>5/4 (-21%)</td>
<td>6/3 (-46%)</td>
</tr>
<tr>
<td><strong>Hosp days</strong>*</td>
<td>42/146 (+248%)</td>
<td>93/91 (-1%)</td>
</tr>
</tbody>
</table>

*\(p<0.001\)

Efficacy and Cost of Advice

*TrEAT Long-term Follow-up*

<table>
<thead>
<tr>
<th>At 4 years…</th>
<th>Control</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital Days (p&lt;0.05)</td>
<td>663</td>
<td>420</td>
</tr>
<tr>
<td>ED Visits (p&lt;0.08)</td>
<td>376</td>
<td>302</td>
</tr>
<tr>
<td>Risky Drinking* (p&lt;0.001)</td>
<td>35%</td>
<td>23%</td>
</tr>
</tbody>
</table>

Cost of intervention: $166 per patient
(includes patient costs)

Net benefit: $546 in medical costs,
$7780 if societal costs included (mainly motor vehicle)

*36 months. >20 drinks (men), >13 drinks (women) per week

The Malmö Study

• Population-based cohort of middle-aged men identified by screening with upper decile GGT as isolated abnormality and at least 20 g alcohol daily

• Randomized to
  – GGT + RN q mo, MD q 3 mo
  – letter—GGT is high, restrict alcohol, F/U in 2 years

• 78% follow-up (4 years)

The Malmö Study

- 5-year hospital **utilization** decreased by 50% in 5 years (total approx. 1600 vs 800 days, mainly alcohol-related)
- **Sick days** decreased in intervention group
- **GGT** decreased in both groups (4 yrs)
- 16-year **mortality** decreased in intervention group
  - Total mortality: 10% vs. 14% (NS)
  - Alcohol-related (48% of all deaths): 4% vs. 7% (p=0.03)

3 controlled studies of Drug BI in people identified by screening

• Small study of adolescents in primary care in Sao Paulo
  – Positive study (decreased ecstasy and MJ use and drug problems) but only 59 subjects
• Bernstein et al, in outpatients (not primary care)
• WHO ASSIST trial
Drug SBI in outpatients - RCT

- 23,660 patients screened (DAST) in women’s health, homeless, and urgent care clinics.
- 1,175 with risky heroin or cocaine use (DAST ≥3) randomized to brief negotiated interview (BNI) or referral list/written advice; 82% completed 6-month follow-up.
- 6-month abstinence (hair)
  - Opiates: 40% of BNI, 31% of control
  - Cocaine: 22% of BNI, 17% of control
- About 38% of subjects reported a contact with drug treatment (no difference)

Bernstein et al. Drug Alcohol Dep January 2005
Drug SBI in Primary Care

• RCT

• N=731 with current drug use identified using the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST); sexually transmitted disease clinics, walk-in clinics, a dental clinic, and community medical care sites in 4 countries.

• Patients with moderate-risk scores randomly assigned to BI or no BI (low- or high-risk range excluded).
ASSIST Trial Results

• BI (vs. no BI) associated with a 3-point greater decrease in a substance use score (max score 336).

• Cannabis and stimulant scores also decreased more for BI subjects (by about 2–3 points on scales with a maximum of 39 points); opioid scores did not.

• Substance use was not significantly impacted by BI in the US.
Primary Care Management of Substance Dependence

• Menu of options (including referral)
  – Withdrawal management or referral (for opioids, severity)
  – Medications and brief, ongoing counseling
  – Assess and address any psychiatric comorbidity
  – Mutual help groups (NA, AA)
  – Needle exchange
  – Specialty outpatient counseling

• Follow-up and relapse prevention once in recovery
  – Help patient anticipate difficult situations (triggers)
  – Emphasize prior successes and use relapse as a learning experience, cope w/craving
  – Ask patient about plans to manage early relapses (lapses)

Alcohol Treatment Outcomes

• At one year, 2/3\textsuperscript{rd}s of patients have a reduction in
  – alcohol consequences (e.g. injury, unemployment)
  – consumption (by about 50%)
  – 1/3\textsuperscript{rd} are abstinent or drinking moderately without consequences

A word about “referral”

• Referral to specialty treatment and 12-step programs should be similar to other medical referrals, but it isn’t
  – Solutions: knowledge about the treatment being referred to, the “warm hand-off”
Standard (FDA-approved) Medications for Alcohol and Drug Dependence

1. Disulfiram
2. Acamprosate
3. Naltrexone (drug/alcohol)
4. Methadone
5. Buprenorphine
Opioid Detoxification Outcomes

- Low rate of retention in treatment
- Low rate of achieving abstinence
- Low rates of success in maintaining abstinence
  - < 50% at 6 months
  - < 80% at 12 months
In a Comprehensive Rehabilitation Program...*

- Increases overall survival
- Increases treatment retention
- Decreases illicit opioid use
- Decreases hepatitis and HIV seroconversion
- Decreases criminal activity
- Increases employment
- Improves birth outcomes

*Enhanced > Standard > no counseling

McLellan et al JAMA 1993

Methadone Treatment Marks 40 Years

Bridget M. Kuehn

Forty years and countless political firestorms after it was first introduced, methadone maintenance for the treatment of opioid addiction remains a standard therapy in the field of addiction treatment. The publication on August 23, 1965, of positive results from a small clinical trial of methadone as a treatment for heroin addiction in JAMA marked a sea change in the treatment of addiction (Dole and Nyswander. JAMA. 1965; 193:646-650). The study, conducted at Rockefeller University in New York City by Vincent P. Dole, MD, and the late Marie E. Nyswander, MD, suggested that a medication could be used to control the cravings and withdrawal that often lead to relapse in individuals with opioid addiction who attempt to quit. The work, along with subsequent research by Dole, an endocrinologist, Nyswander, a psychiatrist, and colleagues established the concept of opioid addiction as a chronic disease, similar to diabetes, that as such required done treatment, the approach always struggled for acceptance despite the forces of public opinion. “There is a stigma attached to addiction, addicts, and—sadly—providers,” said Kreek, a long-time supporter of the methadone system.

“The Farm”

Methadone maintenance represented a reversal of the traditional approach to treating drug addiction, said David F. Musto, MD, a professor of psychiatry at Yale and expert on drug policy. A 1919 Supreme Court decision had established that when alcoholics were not able to quit, they should be treated with alcohol. Methadone, some physicians had argued, was acting opioids to treat individuals with opioid addiction.

The Drug Enforcement Administration, in fact, considered methadone illegal and had threatened to deport him prior to the 1965 publication of the US government’s white paper on heroin addiction. It marked a significant shift in the way addiction was understood and treated.
Figure 8.1. Relapse to intravenous drug use after methadone maintenance treatment for 105 male patients who left treatment.
How long should methadone maintenance treatment last?

Long enough.
Methadone Maintenance Limitations

- Highly regulated - *Narcotic Addict Treatment Act 1974*
  - Created methadone clinics (Opioid Treatment Programs)
  - Separate system not involving primary care or pharmacists
- Limited access
  - 5 states: 0 clinics, 4 states: < 3 clinics
- Inconvenient and highly punitive
- Mixes stable and unstable patients
- Lack of privacy
- No ability to “graduate” from program
- Stigma
Opioid Medication Assisted Treatment Milestones

2000: **Drug Addiction Treatment Act (DATA) 2000**

- Allows qualified physician to prescribe scheduled III - V, narcotic FDA approved for opioid maintenance or detoxification treatment limit 30 patients per practice

2002: Suboxone and Subutex FDA approved

2005: Limit to 30 patients per physician

2007: Limit to 100 patients per physician after 1 year
Physician Qualifications

Licensed physician is “qualified” based on one of the following:

- Certified in Addiction Psychiatry or Medicine
- Completed eight hours of training
  - List of trainings: www.buprenorphine.samhsa.gov
  - Online training:

![BuprenorphineCME.com](image-url)
Buprenorphine: Ceiling Effect

- Full Agonist: Methadone
- Partial Agonist: Buprenorphine
- Full Antagonist: Naltrexone

Efficacy: 0% to 100%
Log Dose of Opioid

Opioid effect, sedation, respiratory depression
Effects of Buprenorphine Dose on mu Receptor Availability

MRI

Bup 00 mg

Bup 02 mg

Bup 16 mg

Bup 32 mg

Binding Potential (Bmax/Kd)

Slide Courtesy of Laura McNicholas, MD, PhD
Buprenorphine Efficacy

- Studies (RCT) show buprenorphine more effective than placebo and equally effective to moderate doses of methadone on primary outcomes of:
  - Abstinence from illicit opioid use
  - Retention in treatment
  - Decreased opioid craving

Johnson et al. NEJM 2000
Fudala PJ et al. NEJM 2003
Buprenorphine Summary

- Retention rates & efficacy comparable to methadone (80mg)
- “Ceiling” on opioid effects therefore low overdose risk
- Narcotic blockade
  - High affinity for opioid receptor
  - Slow dissociation from opioid receptor
- Abuse unlikely due to formulation w/ naloxone
  - Naloxone blocks opiate effect if injected
  - Naloxone is degraded (inert) if taking orally
## Alcohol medications

### Medications for Treating Alcohol Dependence

The chart below highlights some of the properties of each medication. It does not provide complete information and is not meant to be a substitute for the package inserts or other drug reference sources used by clinicians. For patient information about these and other drugs, the National Library of Medicine provides Medline Plus (https://www.nlm.nih.gov/medlineplus/).

Whether or not a medication should be prescribed and in what amount is a matter between individuals and their health care providers. The prescribing information provided here is not a substitute for a provider’s judgment in an individual circumstance, and the NIH accepts no liability or responsibility for use of the information with regard to particular patients.

<table>
<thead>
<tr>
<th>Action</th>
<th>Disulfiram (Antabuse®)</th>
<th>Naltrexone (ReVia®)</th>
<th>Acamprosate (Campral®)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contraindications</strong></td>
<td>Contraindicated in alcohol withdrawal and alcohol dependence or misuse with a limiting condition of pancreatitis, hepatic disease, or renal disease</td>
<td>Hypersensitivity to naltrexone, alcohol withdrawal, or liver disease</td>
<td>Acute alcohol intoxication, alcohol withdrawal, or liver disease</td>
</tr>
<tr>
<td><strong>Precautions</strong></td>
<td>Use with caution in alcohol withdrawal and alcohol dependence or misuse with a limiting condition of pancreatitis, hepatic disease, or renal disease</td>
<td>Use with caution in alcohol withdrawal and alcohol dependence or misuse with a limiting condition of pancreatitis, hepatic disease, or renal disease</td>
<td>Use with caution in alcohol withdrawal and alcohol dependence or misuse with a limiting condition of pancreatitis, hepatic disease, or renal disease</td>
</tr>
<tr>
<td><strong>Serious adverse reactions</strong></td>
<td>Hepatitis, cholestasis, jaundice, ascites, pancreatitis, fever, hypotension, death</td>
<td>Severe hepatotoxic reactions, leukopenia, neutropenia, thrombocytopenia, jaundice, death</td>
<td>Severe adverse reactions, including death</td>
</tr>
<tr>
<td><strong>Common side effects</strong></td>
<td>Headache, nausea, vomiting, diarrhea, dizziness, fatigue, insomnia, anxiety, tremor, hypotension, chest pain</td>
<td>Nausea, vomiting, diarrhea, dizziness, fatigue, insomnia, anxiety, tremor, hypotension, chest pain</td>
<td>Headache, dizziness, fatigue, insomnia, anxiety, tremor, hypotension, chest pain</td>
</tr>
<tr>
<td><strong>Examples of drug interactions</strong></td>
<td>Disulfiram (Antabuse®): Avoid with naltrexone, alcohol withdrawal, or liver disease; naltrexone, alcohol withdrawal, or liver disease; Acamprosate (Campral®): Avoid with disulfiram, naltrexone, alcohol withdrawal, or liver disease</td>
<td>Disulfiram (Antabuse®): Avoid with naltrexone, alcohol withdrawal, or liver disease; naltrexone, alcohol withdrawal, or liver disease; Acamprosate (Campral®): Avoid with disulfiram, naltrexone, alcohol withdrawal, or liver disease</td>
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</tr>
<tr>
<td><strong>Usual adult dosage</strong></td>
<td>First dose 250 mg daily, then 25 mg to 300 mg daily; taper over 3 weeks to 25 mg daily</td>
<td>First dose 50 mg to 100 mg daily, then 50 mg to 150 mg daily; taper over 6 weeks to 15 mg to 25 mg daily</td>
<td>First dose 667 mg daily, then 667 mg daily in divided doses, taper over 2 weeks to 667 mg daily in divided doses</td>
</tr>
<tr>
<td><strong>Volume, time, dose before tests</strong></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
Primary care naltrexone

• RCT comparing primary care management (PCM, internist/nurse practitioner) and cognitive behavioral therapy (CBT, psychologist/psychiatrist)
  – PCM was 15” weekly x 4 then biweekly x 6
  – CBT was 1 hour weekly x 12

## Naltrexone RCT PCM vs. CBT

<table>
<thead>
<tr>
<th></th>
<th>CBT (n=97)</th>
<th>PCM (n=93)</th>
<th>p</th>
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</thead>
<tbody>
<tr>
<td><strong>Primary Outcomes</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤2 heavy drinking days (n, %)</td>
<td>77 (79.4%)</td>
<td>74 (79.6%)</td>
<td>ns</td>
</tr>
<tr>
<td>Percentage of days abstinent</td>
<td>79.9 ± 31.4</td>
<td>77.9 ± 30.9</td>
<td>ns</td>
</tr>
<tr>
<td><strong>Secondary Outcomes</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drinks per drinking day</td>
<td>3.3 ± 5.6</td>
<td>3.3 ± 4.7</td>
<td>ns</td>
</tr>
<tr>
<td>No relapse to heavy drinking</td>
<td>60 (61.9%)</td>
<td>52 (55.9%)</td>
<td>ns</td>
</tr>
<tr>
<td>Continuous Abstinence (n, %)</td>
<td>43 (44.3%)</td>
<td>31 (33.3%)</td>
<td>ns</td>
</tr>
<tr>
<td>GGT end point change</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>from baseline (mean ± SD)</td>
<td>-43.1 ± 75.3</td>
<td>-37.9 ± 65.7</td>
<td>ns</td>
</tr>
</tbody>
</table>
# The COMBINE Study

<table>
<thead>
<tr>
<th></th>
<th>Good Clinical Outcome</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
</tr>
<tr>
<td>Medical Management and Placebo</td>
<td>58</td>
</tr>
<tr>
<td>Medical Management and Placebo and CBI</td>
<td>71</td>
</tr>
<tr>
<td>Medical Management and Naltrexone</td>
<td>74</td>
</tr>
</tbody>
</table>

CBI=Combined Behavioral Intervention  
Good Clinical Outcome=Abstinence or drinking moderate amounts without problems.  \( P<0.025 \) (interaction p-value 0.02)

Anton RF et al. JAMA 2006 May 3;295:2003-17 (NCT00006206)
The COMBINE Study

• One year after treatment ended, the groups did not differ significantly on drinking outcomes
  – Alcohol dependence is an illness that, like other chronic diseases, requires ongoing care
Substance dependence as a chronic disease

- Like other chronic conditions…
  - Genetic and environmental etiologies
  - Chronic physiologic changes
  - Relapsing course
  - No “cure”
  - Variable adherence to care
  - Medical and psychiatric comorbidity common
    - And can be triggers for relapse
Do all with the disorder need long-term treatment/is it a chronic disease for all?

- Representative sample of 43,093 U.S. adults
- Most patients with lifetime abuse or dependence had only 1 episode (72%).
  - The mean duration of dependence episodes is 2-3 years.
  - Those with >1 episode have a mean of 5 episodes.

Comorbidity
<table>
<thead>
<tr>
<th>Med/Psych DX</th>
<th>% of AOD Pts</th>
<th>% of Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acid-related</td>
<td>5.5</td>
<td>2.1</td>
</tr>
<tr>
<td>Arthritis</td>
<td>3.9</td>
<td>1.3</td>
</tr>
<tr>
<td>Asthma</td>
<td>6.8</td>
<td>2.6</td>
</tr>
<tr>
<td>COPD</td>
<td>0.7</td>
<td>0.1</td>
</tr>
<tr>
<td>Headache</td>
<td>9.2</td>
<td>3.8</td>
</tr>
<tr>
<td>Hypertension</td>
<td>7.2</td>
<td>3.4</td>
</tr>
<tr>
<td>Low back pain</td>
<td>11.2</td>
<td>5.8</td>
</tr>
<tr>
<td>Injury/OD</td>
<td>25.6</td>
<td>12.1</td>
</tr>
<tr>
<td>Depression</td>
<td>28.5</td>
<td>2.7</td>
</tr>
<tr>
<td>Anxiety disorder</td>
<td>16.9</td>
<td>2.2</td>
</tr>
<tr>
<td>Major psychosis</td>
<td>6.6</td>
<td>0.4</td>
</tr>
<tr>
<td>Liver cirrhosis</td>
<td>0.7</td>
<td>0.1</td>
</tr>
<tr>
<td>Hepatitis C</td>
<td>0.7</td>
<td>0.2</td>
</tr>
</tbody>
</table>

Comorbidity in a Detoxification Sample

- 470 adults with no primary medical care in a short-term residential detoxification unit, mean age 36
  - 47% had chronic medical illness
  - 90% had CES-D score >16
  - 70% reported moderate to severe pain at least intermittently during 2 years of follow-up
    - Intermittent pain associated with relapse (OR 2.0)
    - Persistent pain associated with relapse (OR 5.2)

Effect of Substance Use and Disorders on Comorbid Conditions
Alcohol use and medication adherence

- 22,670 patients from 7 VA Medical Centers
  - Prescribed 3 types of medications
  - Categorized by AUDIT-C as nondrinkers, low-level drinkers, and mild, moderate and severe unhealthy use

- More severe unhealthy alcohol use associated with lower adherence

- At one year, adherence was:
  - 66% for nondrinkers
  - 63% for those with mild unhealthy alcohol use
  - 58% for those with moderate unhealthy alcohol use
  - 55% for those with severe unhealthy alcohol use

## Quality of Diabetes Care

<table>
<thead>
<tr>
<th></th>
<th>% with retina exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>No mental disorder</td>
<td>71</td>
</tr>
<tr>
<td>Psychiatric disorder</td>
<td>71</td>
</tr>
<tr>
<td>Substance disorder</td>
<td>64</td>
</tr>
<tr>
<td>“Dual diagnosis”</td>
<td>68</td>
</tr>
</tbody>
</table>

Catheterization and Revascularization after Myocardial Infarction

<table>
<thead>
<tr>
<th></th>
<th>CATH</th>
<th>PTCA</th>
<th>CABG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted Relative Risk</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental disorder</td>
<td>0.72</td>
<td>0.75</td>
<td>0.68</td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>0.41</td>
<td>0.55</td>
<td>0.27</td>
</tr>
<tr>
<td>Affective</td>
<td>0.65</td>
<td>0.51</td>
<td>0.63</td>
</tr>
<tr>
<td>Substance Use</td>
<td>0.78</td>
<td>0.58</td>
<td>0.80</td>
</tr>
<tr>
<td>No mental disorder</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Mental Illness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Overall</td>
</tr>
<tr>
<td>Crude</td>
<td></td>
</tr>
<tr>
<td>All-cause readmission</td>
<td>69.4</td>
</tr>
<tr>
<td>Heart failure readmission</td>
<td>61.3</td>
</tr>
<tr>
<td>Mental illness readmission</td>
<td>11.6</td>
</tr>
<tr>
<td>Mortality</td>
<td>37.0</td>
</tr>
<tr>
<td>Adjusted</td>
<td></td>
</tr>
<tr>
<td>Readmission</td>
<td>...</td>
</tr>
<tr>
<td>Heart failure readmission</td>
<td>...</td>
</tr>
<tr>
<td>Mental illness readmission</td>
<td>...</td>
</tr>
<tr>
<td>Mortality</td>
<td>...</td>
</tr>
</tbody>
</table>

Data are given as the percentage of participants and as odds ratios (95% confidence intervals) for odds of readmission or mortality among patients with mental illness compared with patients with no mental illness.

\(^a\) P < .001 for all comparisons.

Influence on Hepatitis C Therapy

HIV Outcomes

- Prospective cohort study of 350 adults with HIV and alcohol problems
- Depressive symptoms and substance use were associated with worse adherence
- Substance use was associated with less HIV viral load suppression
- Substance abuse treatment
  - reduced the odds of ED utilization (AOR 0.5)
  - increased the odds of HAART for HIV (AOR 1.70)
    - not associated with 30-day HAART adherence or HIV viral load suppression

Death after Myocardial Infarction

<table>
<thead>
<tr>
<th></th>
<th>Six-month Mortality Adjusted Hazard Ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>4.29 (3.14-5.44)</td>
</tr>
</tbody>
</table>

Frasure-Smith N et al. JAMA 1993;270(15):1819-1825
Current fragmented care

- Specialty substance dependence treatment focuses on use
- Variable attention to comorbidities and long-term care
- Limited coordination between medical, mental health and addictions care
- Most (82%; Green-Hennessey 2002) do not seek addiction or mental health care
- 51% do not seek care after detoxification (Mark 2002)
- About half “complete” what is usually short-term treatment (SAMHSA 2007)
Barriers to care

- Patient characteristics: Attitudes, beliefs, motivation, employment, family, psychiatric conditions

- System characteristics: Separate systems, insurance, information sharing

- Treatment program characteristics: Distance, lack of customer focus, e.g.
  - Exclusion of patient with addiction and mental health condition
  - Requirement to bring 30-day supply of medical or psychiatric medication
Specialty Treatment

• 80% primarily government funded
  – N.B. Mental Health Parity and Addiction Equity Act of 2008 signed October 3 as part of “rescue/bailout”

• 2 of 175 programs had a physician director
  • 54% have no physician
  • 34% have a part-time physician
  • 12% have a full-time physician

• 39% have a nurse

• <25% have a social worker or psychologist

Service Coordination by Severity

Addiction Specialty        Hospital, Prison, ED
Primary Health             Mental Health Specialty
Alcohol, Tobacco & Other Drug Severity
Consultation

Integration
Collaboration
Mental Illness Severity

Adapted from SAMSHA 2002 Report to Congress on the Prevention and Treatment of Co-occurring Substance Abuse and Mental Disorders
Service Coordination by Severity

The "Z-axis"

Primary Health Consultation

Collaboration

Integration
Hospital, ED, PRIMARY CARE

Mental Health Specialty

Medical Severity

Addiction Specialty

Drug Severity & Other

Alcohol, Tobacco

Medical Specialty

Mental Illness Severity
Chronic Disease/Care Management

- **Context**
  - Patient-centered
  - Community resources
  - Chronic disease as a priority

- **Elements**
  - Self-management support
  - Delivery system design
  - Decision support
  - Clinical information systems

Chronic Disease Management

- Implemented by multidisciplinary teams with disease specific skills (e.g. nurse, social worker, physician)
  - Provide care
  - Coordinate referrals
  - Communicate with other caregivers
  - Proactively follow patients
  - Facilitate access to community resources

Chronic Disease Management

- Over 100 controlled trials for chronic disease management of medical and psychiatric conditions
  - Depression, congestive heart failure, asthma, arthritis, diabetes

- Disease management vs. usual care improves
  - Patient satisfaction
  - Adherence to treatment
  - Clinical and functional outcomes
  - Hospitalization (less)
  - Cost-effective

- Number of controlled trials of alcohol or drug dependence disease management: n=0
Chronic Disease Management for Substance Dependence: Case Management component

- Characteristics
  - Single contact point for assessment
  - Care planning
  - Linkage and coordination

- Outcomes
  - Increased treatment retention and receipt of treatment when needed
  - Increased medical, mental health, social service receipt
  - Decreased relapse, intoxication, medical, psychiatric, family, legal problems

Shwartz 1997; McLellan 1998, 1999; Dennis, Scott & Funk 2003
Chronic Disease Management for Substance Dependence: Integrated Care

- Delivery of primary medical care and addictions care at the same site*
- Can increase abstinence (Willenbring 1999), particularly among those with substance-related medical conditions (69% vs 55%, Weisner 2001)

*compared to usual separate care

Willenbring ML & Olson DH. Arch Intern Med 1999;159:1946-52
# Chronic Disease Management for Substance Dependence

<table>
<thead>
<tr>
<th><strong>Model Conceptual Element</strong></th>
<th><strong>Potential Implementation Elements</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Resources</td>
<td>Case management; address social, legal, financial needs</td>
</tr>
<tr>
<td>Chronic disease as priority</td>
<td>Focus on substance dependence as chronic illness; Explicit care plans</td>
</tr>
<tr>
<td>Self-management support</td>
<td>Routine assessment and feedback; Patient participation; Behavior change; Psychosocial support</td>
</tr>
<tr>
<td>Delivery system design</td>
<td>On-site service delivery (integrated care); Referral agreements; Planned visits; Use of non-physicians in multidisciplinary team; Patient reminders; Collaboration of addiction, medical and psychiatric physicians</td>
</tr>
<tr>
<td>Decision support</td>
<td>Specialty expertise made accessible</td>
</tr>
<tr>
<td>Clinical information systems</td>
<td>Electronic medical record; Monitoring of outcomes</td>
</tr>
</tbody>
</table>
### Systems

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>CDM COMPONENT</th>
<th>CHANGE EXPECTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needed services in disparate locations, systems</td>
<td>On-site care (&quot;one-stop shopping&quot;) and referral agreements</td>
<td>Increased likelihood of receiving addiction and related treatments</td>
</tr>
<tr>
<td>Addiction addressed as acute problem</td>
<td>Longitudinal service delivery</td>
<td>Addiction addressed as a chronic problem, reduced risk for relapse</td>
</tr>
<tr>
<td>Lack of addiction clinician expertise and time</td>
<td>Availability of expert addiction clinician</td>
<td>Patient receives evidence-based treatments, reduced risk for relapse</td>
</tr>
<tr>
<td>Care uncoordinated, patient with competing needs and priorities</td>
<td>Coordination of explicit care plan and progress (with patient, PCP)</td>
<td>Receipt of effective addiction treatment, PCP supports care plan and reinforces addiction use feedback</td>
</tr>
<tr>
<td>Patient disorganized and overwhelmed by healthcare system</td>
<td>Securing appointments and issuing reminders</td>
<td>Adherence to treatment and follow-up</td>
</tr>
<tr>
<td>Patient unaware of addiction treatment services</td>
<td>Offer of addiction treatments to all</td>
<td>Awareness of available services and greater likelihood of treatment engagement</td>
</tr>
<tr>
<td>No relationship with healthcare provider over time, low likelihood of long-term engagement</td>
<td>Development of therapeutic alliance with clinical case manager</td>
<td>Addiction and related health problem treatment engagement</td>
</tr>
</tbody>
</table>

### Medical, Psychiatric & Social

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>CDM COMPONENT</th>
<th>CHANGE EXPECTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical problems get in the way of addiction treatment</td>
<td>Medical assessment and management, coordination of care, PCP referral</td>
<td>Addiction treatment engagement and adherence</td>
</tr>
<tr>
<td>Psychiatric problems get in the way of addiction treatment</td>
<td>Psychiatric assessment and management, coordination of care</td>
<td>Addiction treatment engagement and adherence</td>
</tr>
<tr>
<td>Social problems get in the way of addiction treatment</td>
<td>Social work assessment and management, coordination of care</td>
<td>Addiction treatment engagement and adherence</td>
</tr>
</tbody>
</table>

### Addiction Specific

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>CDM COMPONENT</th>
<th>CHANGE EXPECTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation to change</td>
<td>Motivational enhancement</td>
<td>Enhanced treatment engagement</td>
</tr>
<tr>
<td>Relapse risk</td>
<td>Relapse prevention counseling, naltrexone, disulfiram</td>
<td>Reduced risk for relapse</td>
</tr>
<tr>
<td>Referral to addiction treatment</td>
<td>Ambulatory detoxification</td>
<td>Resumption of treatment engagement</td>
</tr>
</tbody>
</table>

**PCP** = Primary Care Physician  
**CDM** = Chronic Disease Management
Primary Care

- Integrated and accessible health services provided by generalist clinicians
- Address the majority of healthcare needs
- Sustained patient-clinician partnership; balancing and negotiating priorities is key
- Occurs in family and community context
- Grounded in both biomedical and psychosocial sciences; physical and mental health not separate

Institute of Medicine 1996
Receipt of Primary Care Improves Addiction Severity

Table 1 Association between primary care visits and addiction outcomes in multi-variable analyses.

<table>
<thead>
<tr>
<th>Primary care visits during 6 months</th>
<th>Substance abuse treatment n = 391</th>
<th>Alcohol severity n = 248</th>
<th>Drug severity n = 300</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Predicted mean ASI score</td>
<td>Predicted mean ASI score</td>
<td>30-day drug use or use of alcohol to intoxication n = 391</td>
</tr>
<tr>
<td>0</td>
<td>–</td>
<td>0.34</td>
<td>0.16</td>
</tr>
<tr>
<td>1</td>
<td>1.08 (0.70–1.67)</td>
<td>0.26</td>
<td>0.15</td>
</tr>
<tr>
<td>≥2</td>
<td>1.04 (0.73–1.49)</td>
<td>0.30</td>
<td>0.13</td>
</tr>
<tr>
<td>P-value</td>
<td>P = 0.94</td>
<td>P = 0.04</td>
<td>P = 0.01</td>
</tr>
</tbody>
</table>

### Care for People with Drug Abuse or Dependence

<table>
<thead>
<tr>
<th></th>
<th>Hospitalization (AOR, 95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV</td>
<td></td>
</tr>
<tr>
<td>Regular* drug care</td>
<td>0.85 (0.76-0.96)</td>
</tr>
<tr>
<td>Regular med care</td>
<td>0.82 (0.74-0.91)</td>
</tr>
<tr>
<td>Both</td>
<td>0.76 (0.67-0.85)</td>
</tr>
<tr>
<td>Non-HIV</td>
<td></td>
</tr>
<tr>
<td>Regular drug care</td>
<td>0.71 (0.66-0.76)</td>
</tr>
<tr>
<td>Regular med care</td>
<td>0.91 (0.86-0.95)</td>
</tr>
<tr>
<td>Both</td>
<td>0.73 (0.68-0.79)</td>
</tr>
</tbody>
</table>

*Regular=one source of care over time*
PCMH: Patient Centered Medical Home

- Excellent healthcare based on a trusting relationship with a personal physician who provides first contact and continuous comprehensive care
  - A team
  - Patient-centered (respectful and responsive to individual preferences and values)
  - Prevention/check-ups, coordination/consultation, accessible (hours, open access)

The Patient-Centered Primary Care Collaborative www.pcpcc.net Medical Home Demonstration project (2009) is mandated by Congress through the Tax Relief and Health Care Act of 2006 (TRHCA).
<table>
<thead>
<tr>
<th>TODAY’S CARE</th>
<th>MEDICAL HOME CARE</th>
</tr>
</thead>
<tbody>
<tr>
<td>My patients are those who make appointments to see me</td>
<td>Our patients are those who are registered in our medical home</td>
</tr>
<tr>
<td>Patients’ chief complaints or reasons for visit determines care</td>
<td>We systematically assess all our patients’ health needs to plan care</td>
</tr>
<tr>
<td>Care is determined by today’s problem and time available today</td>
<td>Care is determined by a proactive plan to meet patient needs without visits</td>
</tr>
<tr>
<td>Care varies by scheduled time and memory or skill of the doctor</td>
<td>Care is standardized according to evidence-based guidelines</td>
</tr>
<tr>
<td>Patients are responsible for coordinating their own care</td>
<td>A prepared team of professionals coordinates all patients’ care</td>
</tr>
<tr>
<td>I know I deliver high quality care because I’m well trained</td>
<td>We measure our quality and make rapid changes to improve it</td>
</tr>
<tr>
<td>Acute care is delivered in the next available appointment and walk-ins</td>
<td>Acute care is delivered by open access and non-visit contacts</td>
</tr>
<tr>
<td>It’s up to the patient to tell us what happened to them</td>
<td>We track tests &amp; consultations, and follow-up after ED &amp; hospital</td>
</tr>
<tr>
<td>Clinic operations center on meeting the doctor’s needs</td>
<td>A multidisciplinary team works at the top of our licenses to serve patients</td>
</tr>
</tbody>
</table>

*Slide from Daniel Duffy MD School of Community Medicine Tulsa Oklahoma*
Confidentiality: CFR 42, Part 2

- (a) An individual or entity (other than a general medical care facility) who holds itself out as providing, and provides, alcohol or drug abuse diagnosis, treatment or referral for treatment; or
- (b) An identified unit within a general medical facility which holds itself out as providing, and provides, alcohol or drug abuse diagnosis, treatment or referral for treatment; or
- (c) Medical personnel or other staff in a general medical care facility whose primary function is the provision of alcohol or drug abuse diagnosis, treatment or referral for treatment and who are identified as such providers. (See §2.12(e)(1) for examples.)
Confidentiality: CFR 42, Part 2

• Does it apply?
  – I am a doctor, not a lawyer; this is not legal advice
  – Primary care services usually do not “hold themselves out as…” nor is their “primary function…”

• If so, releases (PCP↔specialist)
  – Communication with PCP similar to other specialists
  – Patient safety, quality of care rely on such communication
    • e.g. methadone and QTc
Addiction Health Evaluation and Disease management (AHEAD) study: Design

- Randomized controlled trial of the effectiveness of alcohol and/or drug dependence chronic disease management in primary care, with 3, 6, and 12 month in-person follow-up (and 2 year healthcare utilization follow-up)
AHEAD study: CDM Intervention

- Systems components
  - RN care manager, MDs (internist with alcohol/drug expertise, psychiatrist), SW, in primary care
  - Linkage with city addiction treatment services
  - Use of electronic record
  - Coordination of care with PCP and specialty treatment services (phone, EMR, info. releases)
  - Reminders
**AHEAD study: CDM Intervention**

- **Medical, psychiatric, social components**
  - Assessments, address short term needs, prioritize, refer, ongoing social work assistance

- **Substance dependence-specific components**
  - Negotiate treatment plan
  - MET
  - Relapse prevention, primary care adaptation
  - Offer naltrexone, acamprosate, disulfiram, or buprenorphine; medication management
  - Offer referral to mutual help groups and specialty treatment
  - Re-entry to care after relapse
**AHEAD study: Intervention**

- **AHEAD Assessment**
  - AHEAD Unit Initial Intervention (2 visits)
    - Initiate alcohol treatment
    - Initiate medical treatment
    - Linkage to primary care
    - Additional treatment
    - Referrals

  - Linkage

- **ONGOING PRIMARY MEDICAL CARE**

  - **AHEAD Unit Continuing Care**
    - Medical Specialist
    - Community Agencies
    - Psychiatrist
AHEAD Study: Preliminary data
Conclusions

- Alcohol, and maybe drug, screening and brief intervention effective in primary care
- Management of unhealthy substance use in primary care (including counseling, medication and referral) is feasible and efficacious
- Substance dependence is sometimes a chronic disease, often accompanied by co-occurring conditions that affect each other
- Chronic disease management is an approach that has promise for improving treatment for substance dependence
- Preliminary data suggest that patients with substance dependence appear to be willing to initiate and engage with chronic disease management/addiction care
# Leading Causes of Preventable Death in the US

<table>
<thead>
<tr>
<th>Cause</th>
<th>Number</th>
<th>% of all deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco</td>
<td>435,000</td>
<td>18.1</td>
</tr>
<tr>
<td>Diet/Activity</td>
<td>400,000</td>
<td>16.6</td>
</tr>
<tr>
<td>Alcohol</td>
<td>85,000</td>
<td>3.5</td>
</tr>
<tr>
<td>Illicit drugs</td>
<td>17,000</td>
<td>0.7</td>
</tr>
<tr>
<td>Total deaths</td>
<td>2,403,351</td>
<td>--</td>
</tr>
</tbody>
</table>

- >50% of alcohol deaths due to INJURY
- 2.3 million years of potential life lost (30/each alcohol related deaths)

Attributable Preventable Burden of Disease in Developed Countries

Screening and Brief Intervention: Among the most effective and cost-effective preventive services

- Grouped according to health impact and cost-effectiveness
  - 10: Aspirin chemoprophylaxis, childhood immunizations, tobacco use screening and brief intervention
  - 9: Unhealthy alcohol use screening and brief intervention
    - Cost-saving for society; $1755 per QALY (health system)
  - 8: Colorectal cancer screening, hypertension screening, influenza vaccination, pneumococcal vaccination, vision screening

AUDIT

• Alcohol Use Disorders Identification Test (AUDIT)
  – 10 items, consumption and consequences
  – Positive score ≥8 for men, ≥4 for women, elderly
  – 57-95% sensitive, 78-96% specific

• AUDIT-C
  – First 3 items of AUDIT (consumption only)
  – Positive score ≥4 for men, ≥3 for women
  – Similar operating characteristics

Fiellin DA, O’Connor PG. Ann Intern Med 2000;133:815-27
AUDIT

• How often do you have a drink containing alcohol?
• How many drinks containing alcohol do you have on a typical day when you are drinking?
• How often do you have 6 (4/5) or more drinks on one occasion?
• How often during the last year have you found that you were not able to stop drinking once you had started?
• How often during the last year have you failed to do what was normally expected from you because of drinking?
• How often during the last year have you been unable to remember what happened the night before because you had been drinking?
• Have you or someone else been injured as a result of your drinking?
• How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?
• How often during the last year have you had a feeling of guilt or remorse after drinking?
• Has a relative, friend, doctor, or other health worker been concerned about your drinking or suggested that you should cut down?
Alcohol-related Diagnoses, AAFs<1

- Pulmonary and other respiratory tuberculosis 0.25
- Malignant neoplasm of lip, oral cavity, and pharynx 0.50
- Malignant neoplasm of esophagus 0.75
- Malignant neoplasm of stomach 0.20
- Malignant neoplasm of liver + intrahepatic bile ducts 0.15
- Malignant neoplasm of larynx 0.50
- Diabetes mellitus 0.05
- Essential hypertension 0.076
- Cerebrovascular disease 0.065
- Pneumonia and influenza 0.05
- Diseases of esophagus, stomach, and duodenum 0.10
- Cirrhosis of liver without mention of alcohol 0.50
- Biliary cirrhosis 0.50
- Acute pancreatitis 0.42
- Chronic pancreatitis 0.60
Medical Disorders More Common in Patients with Substance Use Disorder, Psychotic Disorder, and Both

- Diabetes
- Hypertension
- Heart Disease*
- Asthma*
- Gastrointestinal Disorders*
- Skin Infections*
- Malignant Neoplasms
- Acute Respiratory Disorders*

*highest risk in those with both

Integrated Medical and Alcoholism Care

• Randomized trial of a thorough multidisciplinary evaluation, and care plan (N=101)
• Monthly primary care visits to review drinking and medical problems
• Mental health, social services and more intensive alcohol treatment on site
• 2-year results:
  – 30-day abstinence increased from 47% to 74%
  – Mortality decreased from 30% to 19%

Willenbring ML & Olson DH. Arch Intern Med 1999;159:1946-52
Receipt of Primary Care Improves Addiction Severity, particularly among those with worse physical health.

<table>
<thead>
<tr>
<th>Predicted mean differences in drug addiction severity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample mean -2 SE</td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>Receipt of primary care</td>
</tr>
<tr>
<td>No primary care visits</td>
</tr>
<tr>
<td>1 visit</td>
</tr>
<tr>
<td>≥ 2 visits</td>
</tr>
</tbody>
</table>

Buprenorphine Efficacy


75% retention
75% UTS negative
20% mortality in placebo group
### Table 3. Eligibility and Treatment by Quality Indicators

<table>
<thead>
<tr>
<th></th>
<th>Overall</th>
<th>No</th>
<th>Yes</th>
<th>$P$ Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patients classified as ideal candidates</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prescribed ACE inhibitors</td>
<td>16.4</td>
<td>16.7</td>
<td>15.3</td>
<td>.02</td>
</tr>
<tr>
<td>Documentation of left ventricular systolic function</td>
<td>98.2</td>
<td>98.2</td>
<td>98.3</td>
<td>.12</td>
</tr>
<tr>
<td><strong>Treatment among ideal candidates</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prescribed ACE inhibitors</td>
<td>71.0</td>
<td>71.3</td>
<td>69.7</td>
<td>.40</td>
</tr>
<tr>
<td>Prescribed ACE inhibitors or ARBs</td>
<td>79.5</td>
<td>79.7</td>
<td>78.5</td>
<td>.47</td>
</tr>
<tr>
<td>Documentation of left ventricular systolic function</td>
<td>52.0</td>
<td>53.0</td>
<td>47.3</td>
<td>&lt;.001</td>
</tr>
<tr>
<td><strong>Adjusted odds of treatment among ideal candidates</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prescribed ACE inhibitors</td>
<td>...</td>
<td>1 [Reference]</td>
<td>0.96 (0.80-1.14)</td>
<td>.61</td>
</tr>
<tr>
<td>Prescribed ACE inhibitors or ARBs</td>
<td>...</td>
<td>1 [Reference]</td>
<td>0.95 (0.78-1.17)</td>
<td>.64</td>
</tr>
<tr>
<td>Documentation of left ventricular systolic function</td>
<td>...</td>
<td>1 [Reference]</td>
<td>0.81 (0.76-0.87)</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

Abbreviations: ACE, angiotensin-converting enzyme; ARB, angiotensin receptor blocker.

*Data are presented as the percentage of participants and as adjusted odds ratios (95% confidence intervals) for receipt of quality indicator among patients with mental illness compared with patients without mental illness.

*Same cohort for the evaluation of the prescription of ACE inhibitors or ARBs.*

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Treating Major Depression in Patients with Myocardial Infarction

- Randomized, clinical trial
- 2,481 men and women hospitalized with MI and depression (75%) or lower perceived social support (25%)
- CBT and group therapy for 6 months
- Results:
  - Improvements in depressive symptoms and perceived social support
  - No difference in 24% death or recurrent MI
Chronic Disease Management (CDM)

- Example: Depression RCT, CDM v. usual care
- 1,801 depressed older adults, 18 primary care clinics
- CDM
  - Patient education
  - Visit with a trained depression nurse or psychologist in primary care
  - Team development of care plans
  - Work with primary care physicians, make referrals
  - Offer of medication or brief psychotherapy
  - Frequent follow-up visits and phone contacts
- CDM patients were more likely to
  - Receive depression treatments
  - Have reduction in depressive symptoms and functional impairment
  - Have improved arthritis pain and function

AHEAD study: Intervention Structure

- Assessment (alcohol/drug, medical, social, psychological)
- Initial intervention (over 2 visits)
  - Feedback
  - Preventive services
  - Initiation of alcoholism treatment
  - Initiation of medical treatment
  - Referral to primary medical care
  - Additional treatment and referrals
- Continuing care
  - RN care manager contacts, ongoing facilitated referrals, availability for drop-in care