Behavioral Screening and Intervention: A Huge Step Toward the Triple Aim

Richard L. Brown, MD, MPH
Professor of Family Medicine
School of Medicine and Public Health
University of Wisconsin
CEO, Wellsys

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Behavioral Screening and Intervention: A Huge Step Toward the Triple Aim

or …

Thriving in an Era of Value-Based Financing by Systematically Addressing Behavioral Issues

Richard L. Brown, MD, MPH
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Outline

- The shift to value-based care
- The importance of addressing behavioral issues
- What’s needed
- Behavioral screening and intervention (BSI)
- Enhancing BSI for chronic disease and addiction
- Summary
CMS Value-Based Care Programs

- Medicare penalty programs for hospitals - % of total revenue
  - 3% for readmissions
  - 2% for quality metrics
  - 1% for hospital-acquired conditions
- Accountable care organizations (admissions: revenue → costs)
  - Quality metrics
  - Shared savings
- Bundled programs
  - Hip/knee replacement
    ‣ Set fee for 90-day episode of care
    ‣ Rewards & penalties based on quality metrics
  - More coming …

AAMC, https://www.aamc.org/advocacy/medicare/153882/selected_medicare_hospital_quality_provisions_under_the_aca.html
Medicare Reimbursement in 2018

Alternative payment programs

50% Tied to quality or value
40% Fee for service
10%

Outline

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Behavioral issues → ↓ outcomes + ↑ costs

Depression

• ≥69-year-old men at home:
  ↑ 22% in hospital admissions, ↑65% in hospital days

• 160,000 admissions for CHF, MI & pneumonia in 11 healthcare systems:
  ↑ 40% in 30-day readmissions

• 1,418 Boston hospital inpatients
  Depression symptoms

  None (63%) 12.6%
  Mild (16%) 19.6%
  Mod. to severe (24%) 21.1%

• 64% increased risk of revision for hip arthroplasty
  (Largest risk factor of 29 conditions studied)

Prina, CMAJ, 2013; Ahmedani, Psychiatric Services, 2015; Cancino, Journal of Hospital Medicine, 2014; Bozic, Clinical Orthopedics and Related Research, 2014
Behavioral issues → ↓ outcomes + ↑ costs

Alcohol
• Same number of hospitalizations as for myocardial infarctions
• Inner city hospital: 20% of ICU admissions - higher rate of uninsured
• Among pneumonia patients, higher charges, more ICU admissions
• 160,000 admissions for CHF, MI & pneumonia in 11 healthcare systems:
  ↑ 24% in 30-day readmissions
• VA patients admitted for CHF: 6-fold higher 1-year readmission rates
• Trauma center: 150% higher chance of repeat trauma admission, twice the risk of complications from pneumonia and other infections
• 9,000 VA surgeries: Complication rates increased from 5.6% to 14.0% in a dose-response manner with heavier drinking

Adams, JAMA, 1993; Marik, Alcohol and Alcoholism, 1996; Saitz, Archives of Internal Medicine, 1997; Ahmedani, Psychiatric Services, 2015; Evangelista, American Journal of Cardiology, 2000; Rivara, JAMA, 1993; Bradley, Journal of General Internal Medicine, 2011
Behavioral issues $\rightarrow$ ↓ outcomes + ↑ costs

Smoking

• At one hospital, prevalence is 3 times that for the general population

• 753 VA patients with CHF - 82% increase in odds for 1-year readmission

• Higher 30-day readmission rates for
  - Myocardial infarction
  - H. flu pneumonia + COPD
  - Schizophrenia
  - Hysterectomy
  - Ventral hernia repair
  - Arthroscopic meniscectomy
  - Lower extremity arterial bypass

Behavioral issues → ↓ outcomes + ↑ costs

Smoking and surgical complications

- For 82,304 smoking vs. 82,304 non-smoking surgical pts, ↑ odds of:
  - Pneumonia (109%)
  - MI (80%)
  - Infections (30% - 42%)
  - Unplanned intubation (87%)
  - Stroke (73%)
  - Cardiac arrest (57%)
  - Septic shock (55%)
  - Mechanical ventilation (53%)
  - Death (38%)

- Hip arthroplasty - 3.71 x ↑ risk of deep infection
  - 3.05 x ↑ risk of aseptic prothesis loosening
  - 2.58 x ↑ risk of revisions

Turan, Anesthesiology, 2011; Teng, PLOS One, 2015
National Inpatient Sample (NIS), 2012
26.6 million US civilian, non-maternal, non-neonatal hospital stays

% Diagnosed with a MH/SUD

<table>
<thead>
<tr>
<th>% Diagnosed</th>
<th>General Pop</th>
<th>NIS Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>77.5%</td>
<td>67.7%</td>
</tr>
<tr>
<td>Yes</td>
<td>22.5%</td>
<td>32.3%</td>
</tr>
</tbody>
</table>

NIS - Average Length of Stay

<table>
<thead>
<tr>
<th>MH/SUD</th>
<th>Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>4.6</td>
</tr>
<tr>
<td>+</td>
<td>6.6</td>
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</table>

NIS - Average Cost per Stay

<table>
<thead>
<tr>
<th>MH/SUD</th>
<th>Cost per Stay</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>$15K</td>
</tr>
<tr>
<td>+</td>
<td>$12.6K</td>
</tr>
</tbody>
</table>

Many hospitalizations for patients with MH/SUDs are avoidable

MH/SUD = Mental Health or Substance Use Disorder

Heslin et al, HCUP Statistical Brief 191, AHRQ
Need for More Effective Chronic Disease Management

Patients with Diagnosed Hypertension
- 48% uncontrolled

Patients with Diagnosed Type 2 Diabetes
- 52% uncontrolled

Patients with Diagnosed Hyperlipidemia
- 67% uncontrolled

Mozaffarian, Circulation, 2013; Ali, NEJM, 2013; http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6004a5.htm
### Co-morbidity in Dual-Eligibles

<table>
<thead>
<tr>
<th>Condition</th>
<th>None</th>
<th>Mental Health Disorder</th>
<th>Alc/Drug Disorder</th>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension</td>
<td>31%</td>
<td>52%</td>
<td>4%</td>
<td>13%</td>
</tr>
<tr>
<td>Diabetes</td>
<td>32%</td>
<td>54%</td>
<td>3%</td>
<td>11%</td>
</tr>
<tr>
<td>Coronary Heart Dz</td>
<td>26%</td>
<td>53%</td>
<td>4%</td>
<td>17%</td>
</tr>
<tr>
<td>CHF</td>
<td>30%</td>
<td>48%</td>
<td>6%</td>
<td>16%</td>
</tr>
<tr>
<td>COPD/Asthma</td>
<td>24%</td>
<td>51%</td>
<td>5%</td>
<td>21%</td>
</tr>
</tbody>
</table>

### Hospitalizations Per Pt Per Year

- **HTN**: 0 to 3
- **DM**: 1 to 2
- **CHD**: 3 to 6
- **CHF**: 2 to 4
- **COPD**: 0 to 2

#### Total Cost of Care Per Pt Per Year

- **HTN**: $0K to $40K
- **DM**: $10K to $30K
- **CHD**: $20K to $30K
- **CHF**: $25K to $35K
- **COPD**: $15K to $25K

Boyd C, Faces of Medicaid Data Brief, Center for Health Care Strategies, December 2010
Behavioral Risks and Disorders – Wisconsin adults –

Lead to 40% of deaths and most chronic disease

- Smoking: 19%
- Binge drinking: 32%
- Drug use: 8%
- Depression: 7%
- Fruit <1/d: 38%
- Vegetable <1/d: 26%
- Lack of exercise: 47%
- Obesity: 30%

Prevalence

Costs of Behavioral Risks and Disorders
– United States –

<table>
<thead>
<tr>
<th>Category</th>
<th>Healthcare</th>
<th>Productivity</th>
<th>Justice, Social, Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco Use</td>
<td>$133B</td>
<td>$156B</td>
<td>$25B</td>
</tr>
<tr>
<td>Binge Drinking</td>
<td>$161B</td>
<td>$34B</td>
<td>$11B</td>
</tr>
<tr>
<td>Drug Use</td>
<td>$120B</td>
<td>$61B</td>
<td>$5B</td>
</tr>
<tr>
<td>Depression</td>
<td>$26B</td>
<td>$52B</td>
<td>$147B</td>
</tr>
<tr>
<td>Obesity</td>
<td>$147B</td>
<td>$73B</td>
<td>$100B</td>
</tr>
</tbody>
</table>

Healthcare costs for tobacco, alcohol and depression = $184B

http://www.cdc.gov/nchs/data/nhis/earlyrelease/200812_08.pdf;
http://www.oas.samhsa.gov/NSDUH/2K6NSDUH/2K6results.cfm#Ch3;
http://www.cdc.gov/NCCDPHP/publications/aag/oosh.htm;
www.ensuringsolutions.org;
http://www.drugabuse.gov/NIDA_notes/NNVol13N4/Abusecosts.html;
http://www.cdc.gov/Features/AlcoholConsumption/;
http://archives.drugabuse.gov/about/welcome/aboutdrugabuse/magnitude/
Costs to Employers – Per Employee Per Year

(Healthcare and Productivity Loss)

$5,816

$621

$3,000 - $4,000

Poor self-care
A systematic, population-based approach to addressing behavioral issues would help you thrive under value-based financing.
Outline

• The shift to value-based care
• The importance of addressing behavioral issues
  • What’s needed
• Behavioral screening and intervention (BSI)
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• Summary
What’s Needed

- Many patients need multiple services
- Their behavioral issues are usually interrelated
Outline

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BSI – The Concept

Screen*

Low risk
Reassurance and reinforcement

Assessment

Intermediate risk
Intervention
Follow-up and support

High risk
Referral

Benefits

Identification
- More accurate
- Earlier

Intervention
- Avert complications
- Prevent progression
- Avoid need for costlier treatment

*Annually in primary care and at each hospital admission and ED visit
Workflows in Busy Healthcare Settings

Ambulatory Settings

Patients complete screen while waiting

MA reviews screen

Coach sees patient at that visit

Inpatient Units and Emergency Departments

Coach introduces him/herself and delivers services

Follow-up: Phone, telehealth or transfer to primary care based coach
Intervention Methods for Unhealthy Behaviors

• To promote commitment to healthier behaviors:  
  *Motivational interviewing*

• To help implement and sustain healthier behaviors:  
  *Behavior change planning*

Miller & Rollnick, Motivational Interviewing, 3rd edition, 2013; Handley, JABFM, 2006; Unutzer, JAMA, 2002
Outcomes: Smoking Screening & Intervention

Candidates: 19% of Wisconsin adults

- 12-Month Quit Rates
  - No Screening: 3%
  - Screening: 6%
  - Screening plus optimal intervention: 28%

- Up to 5 hours of one-on-one counseling over >8 visits
- Physicians and non-physicians obtain similar quit rates
- Medication and counseling

Fiore, Treating Tobacco Use and Dependence: 2008 Update, AHRQ
Outcomes of Brief Alcohol Interventions

Candidates: 32% of Wisconsin adults

- Injuries: 33%
- ED visits: 20%
- Hospitalizations: 37%
- Arrests: 46%
- Crashes: 50%

Total ↓: 6%

Behavioral risk management

National Business Group on Health, Guide to Preventive Services
IMPACT Model of Collaborative Care

Coach
• Measures severity of depression (PHQ-9)
• Educates about depression and instills optimism
• Promotes behaviors that reduce depressive symptoms
• Refers for medications and/or counseling
• Promotes engagement in treatment during contacts every 1 to 4 weeks
• Reassesses severity (PHQ-9) every month and alerts providers when treatment plans may need modification

Consulting Psychiatrist (most helpful for severe disorders)
• Reviews cases and advises on diagnosis and treatment

Gilbody, Archives of Internal Medicine, 2006
Effectiveness of Collaborative Care

- Meta-analysis of 69 randomized controlled trials: 75% higher odds of remission at 6 & 12 months after diagnosis

- One-year results of Project DIAMOND:

  Treatment Response at One Year
  (50% reduction in PHQ-9 scores)

  - Usual care: 34%
  - Usual care + Collab Care: 70%

  Complete Remission at One Year
  (PHQ-9 Score of ≤4)

  - Usual care: 30%
  - Usual care + Collab Care: 54%

- Effective for other mental health disorders

## BSI: The Bottom Line
### Cost Savings - 100 employees - Year 1

<table>
<thead>
<tr>
<th></th>
<th>Alcohol</th>
<th>Depression</th>
<th>Tobacco</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per ...</td>
<td>Risky drinker</td>
<td>Depressed person</td>
<td>Quitter</td>
</tr>
<tr>
<td>Healthcare</td>
<td>$523</td>
<td>$841</td>
<td>$192</td>
</tr>
<tr>
<td>Productivity</td>
<td>$1,200</td>
<td>$991</td>
<td>$1,897</td>
</tr>
<tr>
<td>Absenteeism</td>
<td>$0</td>
<td>$310</td>
<td>$479</td>
</tr>
<tr>
<td>Injury</td>
<td>?</td>
<td>?</td>
<td>$2,013</td>
</tr>
<tr>
<td><strong>Year 1 Savings Per Employee</strong></td>
<td><strong>$1,723</strong></td>
<td><strong>$2,142</strong></td>
<td><strong>$4,581</strong></td>
</tr>
</tbody>
</table>

| Number of Employees    | 32      | 7          | 4       | **Total** |
| Healthcare savings     | $16,736 | $5,887     | $768    | **$23,391** |
| Other workplace savings| $38,400 | $9,107     | $17,556 | **$65,063** |
| **Year 1 Savings**     | **$55,136** | **$14,994** | **$18,324** | **$88,454** |

**Year 1 Cost Savings Per Employee = $884**

*Fleming, Medical Care, 2000; National Business Group on Health, 2011; Osilla, Addictive Behaviors, 2010; Rost, Medical Care, 2004; Unutzer, 2011*
BSI: The Bottom Line
Likely Additional Cost Savings

- Alcohol - injuries, discipline, turnover, future years
- Drugs - healthcare, productivity, absenteeism, injuries, discipline, turnover, future years
- Depression - $2,522 in healthcare in Years 2 to 4, injuries
- Tobacco - increasing healthcare savings in Years 2 to 10
- Changes in diet, exercise, and weight
- Changes in family members’ stresses, behaviors, illnesses
• Helped 36 clinics conduct 113,000 screens and 23,000 interventions
• Attained high patient satisfaction ratings: 4.3-4.9 / 5.0
• Documented improvement in behavioral outcomes:
  - ↓ 20% in binge drinking
  - ↓ 15% in marijuana use
  - ↓ 55% in depression symptoms
• Medicaid savings over 2 years: $546 per patient screened
• “Effective innovation” - www.innovations.ahrq.gov
• “Exemplary public-private partnership”
  - 2013 White House National Drug Control Strategy

Brown, American Journal of Managed Care, 2014; Paltzer, unpublished, 2014
All Americans should receive tobacco, alcohol and depression screening and intervention services.

Tobacco and alcohol screening and intervention prevent more deaths, disease and injury and reduce healthcare costs more than screening for:

- All cancers
- High blood pressure
- High cholesterol
- Diabetes
BSI: Endorsements

National

Wisconsin

Behavioral risk management
Outline

• The shift to value-based care
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Patients’ age, gender and chronic diseases determine the issues coaches address

<table>
<thead>
<tr>
<th>Clinical Issues</th>
<th>Well 15 yo ♂</th>
<th>51 yo ♂ w/HTN &amp; DM</th>
<th>Well 78 yo ♂</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients’ goals</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Smoking</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Alcohol and drugs</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Healthy diet</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Diabetic diet</td>
<td>✓</td>
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<td></td>
</tr>
<tr>
<td>Sodium intake</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical activity</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Obesity</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Medication adherence</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Anxiety</td>
<td>✓</td>
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<td>✓</td>
</tr>
<tr>
<td>Indication for aspirin</td>
<td>✓</td>
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<tr>
<td>Cognitive function</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall risk</td>
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<td></td>
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</tr>
</tbody>
</table>

(List is not comprehensive)
Addiction Treatment in Primary Care

Referral to treatment often fails, so let’s bring treatment to primary care settings

Drugs to Aid Alcoholics See Little Use, Study Finds

By ANAHAAD O’CONNOR  MAY 13, 2014

Two medications could help tens of thousands of alcoholics quit drinking, yet the drugs are rarely prescribed to patients, researchers reported on Tuesday.

The medications, naltrexone and acamprosate, reduce cravings for alcohol by fine-tuning the brain’s chemical reward system. They have been approved for treating alcoholism for over a decade. But questions about their efficacy and a lack of awareness among doctors have resulted in the drugs’ being underused, the researchers said.

Less than a third of all people with alcohol problems receive treatment of any kind, and less than 10 percent are prescribed medications.

The Affordable
Pharmacotherapy for Alcohol Dependence: A Team Approach

- Take interval histories
- Review progress
- Motivate continued progress
- Help patient refine behavior change plans
- Convey information to primary care provider
- Review information with patient
- Conduct usual medical management
- Refill medication
- Encourage continued progress
Primary Care/Behavioral Health/Chronic Disease Integration

<table>
<thead>
<tr>
<th>Tier</th>
<th>Unhealthy Behaviors</th>
<th>Mental Health Disorders</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Health Coach</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Screening</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brief Assessment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Motivational interviewing, including patient education</td>
<td>Behavioral Activation</td>
</tr>
<tr>
<td></td>
<td>Help patients design behavior change plans and refine them over time</td>
<td>Collaborative Care</td>
</tr>
<tr>
<td>2</td>
<td>Physician, Psychiatrist, Clinical Nurse Specialist - Rx</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other Specialists, Programs, Counselors, Educators</td>
<td></td>
</tr>
</tbody>
</table>
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Poor self-care
A Vision for Thriving Under Value-Based Financing

- Minimize penalties for readmission, hospital-acquired conditions, quality problems
- Maximize
  - Chronic disease and injury prevention
  - Chronic disease outcomes
  - Quality metric performance
- Optimize
  - Your patients’ health
  - Your bottom line
Behavioral Screening and Intervention: A Huge Step Toward the Triple Aim

Thriving in an Era of Value-Based Financing by Systematically Addressing Behavioral Issues

Richard L. Brown, MD, MPH
Professor of Family Medicine
School of Medicine and Public Health
University of Wisconsin
CEO, Wellsys
drrichbrown@gmail.com