Welcome to the COPD Readmissions Summit: Integrating COPD into Patient Centered Hospital Readmission Reduction Programs
THANK YOU COPD READMISSIONS SUMMIT PLANNING COMMITTEE

Co-Chairs:
Jerry Krishnan, MD, PhD & Byron Thomashow, MD

Planning Committee
Brian Carlin, MD
Thomas Kallstrom, MBA, RRT
Keith Kanel, MD
Jill Ohar, MD
John W. Walsh
5 KEY THEMES OF THE SUMMIT

RESPECT-don’t ignore COPD

- 30 Days Plus-Focus on Improving Quality

Tailored approaches with common themes will be necessary

- Community Building with a Patient Voice is Needed

Resources are needed to study and fill gaps
VISIT THE NEW & IMPROVED COPD FOUNDATION WEBSITE!

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(Eastern) in English, Spanish, French and translations available in
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*Confidential and HIPAA compliant. No medical advice provided.
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FREE IPHONE APP NOW AVAILABLE!

Includes:
- 7 Severity Domains
- Spirometry Grades Chart
- COPD Assessment Test (CAT)
- Breathlessness Scale (mMRC)
- Therapy Chart
- COPD Medications
- Spirometry Results
- And Much More

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Go to nascar.com/award
Click on Richard’s photo and vote!
CMS Hospital Outcome Measures for Patients with COPD

Peter Lindenauer MD MSc
Center for Quality of Care Research,
Baystate Medical Center
Tufts University School of Medicine
Disclosures

Co-led development of COPD outcome measures with colleagues at Yale Center for Outcomes Research and Evaluation (CORE) under contract from CMS

*Contract Number: HHSM-500–2008-0025I/HHSM-500-T0001, Modification No. 000007, Option Year 2 Measure Instrument Development and Support (MIDS).*
Some background

• Longstanding CMS commitment to transparency, QI
• Initial focus of public reporting was processes of care for patients hospitalized for AMI, HF, and pneumonia (e.g. use of aspirin and beta blockers)
• Program has evolved over past decade
  – Structure
  – Process
  – Outcomes
  – Patient experience
Hospital Profile

BAYSTATE MEDICAL CENTER
759 CHESTNUT STREET
SPRINGFIELD, MA 01199
(413) 794-0000

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Map and Directions

General Information

- Hospital Type ①: Acute Care Hospitals
- Provides Emergency Services ①: Yes
- Participates in ①: Cardiac Surgery Registry, Stroke Care Registry, Nursing Care Registry, Multispecialty Surgical Registry
- Able to receive lab results electronically ①: Yes
- Able to track patients’ lab results, tests, and referrals electronically between visits ①: No
### Timely & Effective Care

These measures show how often hospitals provide care that research shows gets the best results for patients with certain conditions. This information can help you compare which hospitals give recommended care most often as part of the overall care they provide to patients.

## Heart Attack Care

## Heart Failure Care

Heart Failure is a weakening of the heart’s pumping power. With heart failure, your body doesn’t get enough oxygen and nutrients to meet its needs. These measures show some of the process of care provided for most adults with heart failure.

- Why heart failure care measures are important
- More information about the data
- Current data collection period

## Effective Heart Failure Care

<table>
<thead>
<tr>
<th></th>
<th>BAYSTATE MEDICAL CENTER</th>
<th>MASSACHUSETTS AVERAGE</th>
<th>NATIONAL AVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart failure patients given discharge instructions</td>
<td>99%</td>
<td>94%</td>
<td>93%</td>
</tr>
<tr>
<td>Heart failure patients given an evaluation of Left Ventricular Systolic (LVS) function</td>
<td>100%</td>
<td>100%</td>
<td>99%</td>
</tr>
<tr>
<td>Heart failure patients given ACE inhibitor or ARB for Left Ventricular Systolic Dysfunction (LVSD)</td>
<td>100%</td>
<td>96%</td>
<td>97%</td>
</tr>
</tbody>
</table>
Hospital outcome measures

• Greater emphasis on outcome measures
  – Variation in performance on process measures explains little of the variation in outcomes
  – Focus on outcomes holds hospitals accountable for the end results of care, not how to get there
  – Ultimately matter more to patients and payors

• Current outcome measures on Hospital Compare
  – 30 day readmission and death
  – Surgical complications
  – Healthcare associated infections
  – Healthcare acquired conditions
Death Rate for Heart Attack Patients

Why is this important?

Lower Percentages Are Better

<table>
<thead>
<tr>
<th>Medical Center</th>
<th>Death Rate</th>
<th>Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mercy Medical Center</td>
<td>13.2%</td>
<td>163</td>
</tr>
<tr>
<td>Baystate Medical Center</td>
<td>15.5%</td>
<td>785</td>
</tr>
<tr>
<td>Holyoke Medical Center</td>
<td>15.2%</td>
<td>217</td>
</tr>
</tbody>
</table>

U.S. National Death Rate for Heart Attack Patients = 15.5%
Shift towards pay for performance

• Deficit Reduction and Affordable Care Acts have attempted to strengthen the business case for quality
• Programs include
  – Hospital acquired condition policy
  – Value based purchasing
  – Readmission reduction program
FY 2014 Finalized Domains and Measures/Dimensions

13 Clinical Process of Care Measures

1. AMI-7a Fibrinolytic Therapy Received within 30 Minutes of Hospital Arrival
2. AMI-8 Primary PCI Received within 90 Minutes of Hospital Arrival
3. HF-1 Discharge Instructions
4. PN-3b Blood Cultures Performed in the ED Prior to Initial Antibiotic Received in Hospital
5. PN-6 Initial Antibiotic Selection for CAP in Immunocompetent Patient
6. SCIP-Inf-1 Prophylactic Antibiotic Received within One Hour Prior to Surgical Incision
7. SCIP-Inf-2 Prophylactic Antibiotic Selection for Surgical Patients
8. SCIP-Inf-3 Prophylactic Antibiotics Discontinued within 24 Hours After Surgery
9. SCIP-Inf-4 Cardiac Surgery Patients with Controlled 6 a.m. Postoperative Serum Glucose
10. SCIP-Inf-9 Postoperative Urinary Catheter Removal on Postoperative Day 1 or 2
11. SCIP-Card-2 Surgery Patients on a Beta Blocker Prior to Arrival That Received a Beta Blocker During the Perioperative Period
12. SCIP-VTE-1 Surgery Patients with Recommended Venous Thromboembolism Prophylaxis Ordered
13. SCIP-VTE-2 Surgery Patients Who Received Appropriate Venous Thromboembolism Prophylaxis within 24 Hours

Domain Weights
- Clinical Process of Care Domain (45%)
- Outcome Domain (25%)
- Patient Experience of Care Domain (30%)

8 Patient Experience of Care Dimensions

1. Nurse Communication
2. Doctor Communication
3. Hospital Staff Responsiveness
4. Pain Responsiveness
5. Medicine Communication
6. Hospital Cleanliness and Quietness
7. Discharge Information
8. Overall Hospital Rating

3 Mortality Measures

1. MORT-30-AMI Acute Myocardial Infarction (AMI) 30-day mortality rate
2. MORT-30-HF Heart Failure (HF) 30-day mortality rate
3. MORT-30-PN Pneumonia (PN) 30-day mortality rate

Represents a new measure for the FY 2014 Program not in the FY 2013 Program.
ACA Readmission Policy

• Hospitals with higher than expected readmission rates face penalties
  – Based on Hospital Compare AMI/HF/PNE data
  – Applied to base payment for all hospital cases
  – Capped; 1% 2013, 2% 2014; 3% 2015

• Initial results
  – 33% of hospitals received no penalty
  – 67% received penalty; 9% at payment cap
  – Average penalty ~ 125k

• Aggregate penalties ~ 0.25% of hospital payments
Existing penalties are based on Medicare readmission rates for heart attack (AMI), heart failure (CHF), and pneumonia.

**FY2013 penalties range from 0.01% to 1.00% of Medicare reimbursements.**

**Total penalties amount to roughly $280M in 2 years, it could be 3x this amount of $840M or more.**

2,217 hospitals being penalized in FY2013.

Penalty rates increase in Medicare reimbursement:

- 2014: 2%
- 2015: 3%

Penalty ranges are based on 3 years of rolling data if you start lowering readmission rates in 2013.

You can only impact FY2016 and beyond.
COPD outcome measures

- Work started late 2010
  - NQF approval in 2012/2013
- IPPS FY2014 Final Rule, CMS added COPD readmission and mortality measures to the Inpatient Quality Reporting (IQR) program
- CMS added COPD readmission measure to the Hospital Readmissions Reduction Program
- CMS will post the measures’ results on Hospital Compare
Measure specifications

• Developed and calculated using administrative claims data

• Includes Medicare FFS patients aged ≥ 65 admitted for acute exacerbation of COPD (or admitted for respiratory failure with secondary diagnosis of acute exacerbation of COPD) in 2009-2011

• Includes non-federal acute care hospitals including critical access hospitals (CAH).

• Reported as risk-standardized mortality (RSMR) and readmission (RSRR) rates
Exclusion Criteria: Mortality

Admission for patients ≥65 years of age with COPD admission

- Not enrolled in Medicare FFS for 12 months prior to hospitalization
- Transfers into the hospital
- Inconsistent or unknown mortality status
- Unreliable data
- In hospice within one year prior to or on the day of admission
- Discharges against medical advice

Initial Index Cohort

Randomly select one hospitalization per patient per year

Final Index Cohort

Hospitalizations not selected
Exclusion Criteria: Readmission

Admissions for patients ≥65 years of age with COPD admission

- Not enrolled in Medicare FFS for 12 months prior to hospitalization
- Transfers out of the hospital
- In-hospital deaths
- Hospitalizations without at least 30 days post-discharge information
- Admissions within 30 days of a prior index admission
- Discharges against medical advice

Final Index Cohort
Risk Adjustment

• Accounts for differences in patient characteristics and comorbidities across hospitals

• Includes:
  – Secondary diagnosis codes from index admission (except for potential complications of care)
  – All diagnosis codes from previous year

• Model discrimination
  – C statistics: Mortality .72, Readmission .63
• Measure assigns patient’s outcome to hospital that initially admitted patient
Measure assigns patient’s outcome to hospital that discharged patient to non-acute care setting.
Mortality Measure Outcome

• Death from any cause within 30 days of admission date for index hospitalization
Readmission Measure Outcome

• All-cause unplanned readmission:
  • To any acute care hospital
  • Within 30 days of discharge

• Multiple readmissions within 30 days of discharge only count as one outcome event
Planned Readmissions Not Counted

- Readmission measure only
- Generally not a quality signal
- Algorithm developed with expert and public input
- Details available on QualityNet
Risk-Standardized Rates

- Calculating risk-standardized mortality rate (RSMR) and readmission rate (RSRR)

\[
\text{RSMR or RSRR} = \frac{\text{Predicted outcome}}{\text{Expected outcome}} \times \text{National outcome rate}
\]
Categorizing Hospital Performance

• Categories of measure results:
  – No different than U.S. national rate
  – Worse than U.S. national rate
  – Better than U.S. national rate
  – Number of cases too small (<25 cases)

• Final RSMR and RSRR reported with interval estimate
Categorizing Hospital Performance

National COPD Mortality Rate (7.9%)

Better than COPD Mortality rate
Example Hospital 1
4.2% (2.4%, 6.5%)

No different than COPD Mortality rate
Example Hospital 2
8.2% (5.9%, 10.0%)

Worse than COPD Mortality Rate
Example Hospital 3
11.3% (9.4%, 12.9%)

Risk-Standardized Mortality Rate (RSMR)
COPD Mortality: Opportunity for Improvement

- National mortality rate: 7.9%
- Hospital risk-standardized mortality rate (RSMR) range: 4.3%-13.0%
COPD Readmission: Opportunity for Improvement

• National readmission rate: 21.1%

• Hospital risk-standardized readmission rate (RSRR) range: 16.3%-29.3%
Shifting and narrowing the curve
Limitations

• Validity of ICD-9 codes; hospital coding
• Limited ability to adjust for severity of COPD
  – Lack of physiologic or quality of life data
  – Oxygen dependence
• Air quality a theoretical concern
• Models validated using out of sample data, but not through chart review / clinical model
• Readmission rates should be viewed in context of hospital mortality outcomes given competing risk
General concerns for all measures

• Impact on hospitals that care for the poor; models intentionally do not adjust for race or SES
• DNR and palliative care decisions made during hospitalization
• Size of incentives (not enough or too much??)
• Random variation and small # of observations
• Attribution of accountability in transfers
• Evidence that public reporting or p4p works and unintended consequences
### Issue 4: Socio-economic status and risk adjustment

<table>
<thead>
<tr>
<th>Share of beneficiaries on SSI</th>
<th>Heart failure readmission rate as a share of the national average</th>
<th>Median penalty</th>
<th>Share with no penalty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2%</td>
<td>0.92</td>
<td>0.00%</td>
<td>57%</td>
</tr>
<tr>
<td>2-4</td>
<td>0.91</td>
<td>0.02</td>
<td>46</td>
</tr>
<tr>
<td>4-5</td>
<td>0.94</td>
<td>0.07</td>
<td>43</td>
</tr>
<tr>
<td>5-6</td>
<td>0.95</td>
<td>0.09</td>
<td>41</td>
</tr>
<tr>
<td>6-7</td>
<td>0.97</td>
<td>0.13</td>
<td>36</td>
</tr>
<tr>
<td>7-9</td>
<td>0.99</td>
<td>0.14</td>
<td>35</td>
</tr>
<tr>
<td>9-10</td>
<td>1.03</td>
<td>0.29</td>
<td>26</td>
</tr>
<tr>
<td>10-13</td>
<td>1.04</td>
<td>0.32</td>
<td>24</td>
</tr>
<tr>
<td>13-18</td>
<td>1.06</td>
<td>0.42</td>
<td>21</td>
</tr>
<tr>
<td>Over 19</td>
<td>1.12</td>
<td>0.33</td>
<td>25</td>
</tr>
</tbody>
</table>

Source: 2013 IPPS proposed rule penalty and SSI files from CMS

Data preliminary and subject to change
Options for SES and readmission

- Add SES to risk adjustment models
- Compare hospitals against similar hospitals to compute penalty
- Provide financial assistance to hospitals with low income share
- Watch...current incentive may close gap
Summary

• COPD has joined other common conditions as focus for CMS transparency and improvement efforts

• Early data suggest opportunities to reduce readmission rates and hospitals now have growing incentive to do so

• At this point have clearer vision of the ultimate goals than just how to get there
Acknowledgements

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  Elizabeth Drye
  Changqin Wang
  Yun Wang
  Susannah Bernheim

• Advisory Group
  – David Au
  – Jerry Krishnan
  – Todd Lee
  – Richard Mularski
Technical expert panel

• Darlene Bainbridge, MS, NHA, CPHQ, CPHRM
• Robert A. Balk, MD
• Dale Bratzler, DO, MPH
• Scott Cerreta, RRT
• Gerard J. Criner, MD
• Guy D’Andrea, MBA
• Jonathan Fine, MD
• David Hopkins, MS, PhD
• Fred Martin Jacobs, MD, JD, FACP, FCCP, FCLM
• Natalie Napolitano, MPH, RRT-NPS
• Russell Robbins, MD, MBA
Proportion of Hospitals Facing No Readmissions Penalty (Panel A) and Median Amount of Penalty (Panel B), According to the Proportion of Hospital’s Patients Who Receive Supplemental Security Income.

Data are from the Medicare Payment Advisory Commission.
**Figure.** Scatterplot of Hospital-Level RSMMs and RSRRs for Acute Myocardial Infarction, Heart Failure, and Pneumonia.

RSMM indicates risk-standardized mortality rate; RSRR, risk-standardized readmission rate. Blue lines are the cubic spline smooth regression lines with RSRR as the dependent variable and RSMM as the independent variable. Tinted areas around the cubic spline regression lines indicate 95% confidence bands. The Pearson correlation coefficient for acute myocardial infarction (n=4566) is 0.03 (95% CI, −0.002 to 0.06); for heart failure (n=4767), −0.17 (95% CI, −0.20 to −0.14); and for pneumonia (n=4611), 0.002 (95% CI, −0.03 to 0.03).
NQF Criteria

Risk models should not obscure disparities in care for populations by including factors that are associated with differences/inequalities in care, such as race, socioeconomic status, or gender (e.g., poorer treatment outcomes of African American men with prostate cancer or inequalities in treatment for CVD risk factors between men and women). It is preferable to stratify measures by race and socioeconomic status rather than to adjust out the differences.
State averages show higher penalties in New Jersey, New York and DC.
COPD and READMISSIONS
The Background

Brian W. Carlin, MD
Assistant Professor of Medicine
Drexel University School of Medicine
Sleep Medicine and Lung Health Consultants
Pittsburgh, Pennsylvania
Brian Carlin, MD
Disclosures

• Speakers’ bureau / Research
  – Glaxo Smith Kline
  – Boehringer Ingelheim
  – Respironics
  – Forest
  – Breathe Technologies
  – PenumoRx

• Organizational
  – National Lung Health Education Program (Chair)
  – National Board for Respiratory Care (Vice President)
BUILDING THE “CASE”

Coronary Heart Disease: -59%
Stroke: -64%
Other CVD: -35%
COPD: +163%
All Other Causes: -7%

Source: NHLBI/NIH/DHHS
COPD Surveillance
Chest 2013

Figure 5. Age-specific rates (per 10,000 US civilian population) of hospitalizations for COPD as the first-listed discharge diagnosis among adults aged ≥25 years, by year—United States, National Hospital Discharge Survey, 1999-2010.
COPD Surveillance
Chest 2013

Figure 7. Age-adjusted rates (per 1,000 Medicare enrollees) of Medicare hospitalizations for COPD as the first-listed discharge diagnosis among Medicare enrollees aged ≥65 years—United States, Medicare Part A hospital claims, 1999-2000 and 2009-2010.
COPD Surveillance

Chest 2013

FIGURE 8. Significant linear change (P < .05) in state-specific age-adjusted rates (per 1,000 Medicare enrollees) of Medicare hospitalizations for COPD as the first-listed discharge diagnosis among Medicare enrollees aged ≥ 65 years—United States, Medicare Part A hospital claims, 1999-2010.
Health Service Use and COPD

Gershon, AJRCCM 2013
## Health Service Use and COPD

Gershon, AJRCCM 2013

<table>
<thead>
<tr>
<th>Type of Health Services Use</th>
<th>Type of Claims</th>
<th>Crude Rate of Health Services Use per 1,000 Person-Years (SE*)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>COPD Population</td>
<td>Non-COPD Population</td>
</tr>
<tr>
<td>Hospitalizations</td>
<td>All-cause</td>
<td>503 (0.45)</td>
</tr>
<tr>
<td></td>
<td>COPD-specific</td>
<td>43 (0.13)</td>
</tr>
<tr>
<td></td>
<td>COPD-attributable comorbidity†</td>
<td>257</td>
</tr>
<tr>
<td>Emergency department visits</td>
<td>All-cause</td>
<td>802 (0.57)</td>
</tr>
<tr>
<td></td>
<td>COPD-specific</td>
<td>55 (0.15)</td>
</tr>
<tr>
<td></td>
<td>COPD-attributable comorbidity†</td>
<td>420</td>
</tr>
<tr>
<td>Ambulatory care visits</td>
<td>All-cause</td>
<td>20,128 (2.86)</td>
</tr>
<tr>
<td></td>
<td>COPD-specific</td>
<td>627 (0.51)</td>
</tr>
<tr>
<td></td>
<td>COPD-attributable comorbidity†</td>
<td>9670</td>
</tr>
</tbody>
</table>
Readmissions
## Rehospitalizations (Medicare)

*Jencks et al, NEJM 2009;360:1418-28*

<table>
<thead>
<tr>
<th>Condition at Index Discharge</th>
<th>30-Day Rehospitalization Rate</th>
<th>Proportion of All Rehospitalizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>21.0</td>
<td>77.6</td>
</tr>
<tr>
<td>Heart failure</td>
<td>26.9</td>
<td>7.6</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>20.1</td>
<td>6.3</td>
</tr>
<tr>
<td>COPD</td>
<td>22.6</td>
<td>4.0</td>
</tr>
<tr>
<td>Psychoses</td>
<td>24.6</td>
<td>3.5</td>
</tr>
<tr>
<td>GI problems</td>
<td>19.2</td>
<td>3.1</td>
</tr>
</tbody>
</table>
Rehospitalizations (Medicare)

Jencks et al, NEJM 2009;360:1418-28

<table>
<thead>
<tr>
<th>Variable</th>
<th>Hazard Ratio (95% Confidence Interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital’s ratio of observed to expected hospitalizations†</td>
<td>1.097 (1.096–1.098)</td>
</tr>
<tr>
<td>National rehospitalization rate for DRG†</td>
<td>1.268 (1.267–1.270)</td>
</tr>
<tr>
<td>No. of rehospitalizations since October 1, 2003</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>1.00</td>
</tr>
<tr>
<td>1</td>
<td>1.378 (1.374–1.383)</td>
</tr>
<tr>
<td>2</td>
<td>1.752 (1.746–1.759)</td>
</tr>
<tr>
<td>≥3</td>
<td>2.504 (2.495–2.513)</td>
</tr>
<tr>
<td>Length of stay</td>
<td></td>
</tr>
<tr>
<td>&gt;2 times that expected for DRG</td>
<td>1.266 (1.261–1.272)</td>
</tr>
<tr>
<td>0.5–2 times that expected for DRG</td>
<td>1.00</td>
</tr>
<tr>
<td>&lt;0.5 times that expected for DRG</td>
<td>0.875 (0.872–0.877)</td>
</tr>
</tbody>
</table>
Rehospitalizations (Medicare)

Jencks et al, NEJM 2009;360:1418-28
<table>
<thead>
<tr>
<th>Description</th>
<th>Group One: COPD Admissions</th>
<th>Group Two: Patients with COPD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All admissions with:</td>
<td>All-cause admissions for patients who had at least one COPD admission in 12 months.</td>
</tr>
<tr>
<td></td>
<td>- MS-DRG 190: COPD with major complications and/or comorbidities (MCC)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- MS-DRG 191: COPD with complications and/or comorbidities (CC)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- MS-DRG 192: COPD without CC/MCC</td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td>12,137 COPD admissions</td>
<td>9,116 patients with 19,157 all-cause admissions</td>
</tr>
<tr>
<td>Exclusions</td>
<td>Admissions missing any of the following:</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>• patient age,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• MS-DRG,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• principal ICD-9 diagnosis, and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• discharge status.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transfers to another facility were excluded from 30-day readmission rate calculations</td>
<td></td>
</tr>
</tbody>
</table>
## Overview of Targeted Chronic Disease Admissions and 30-day Readmissions in SWPA

<table>
<thead>
<tr>
<th>Targeted Condition</th>
<th>Number of Admissions</th>
<th>Index Admission</th>
<th>30-Day Readmissions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Percent of all MS-DRGs</td>
<td>Percent of Medical MS-DRGs</td>
</tr>
<tr>
<td>Heart Failure</td>
<td>13,503</td>
<td>3%</td>
<td>5%</td>
</tr>
<tr>
<td>COPD</td>
<td>12,137</td>
<td>3%</td>
<td>4%</td>
</tr>
<tr>
<td>AMI</td>
<td>4,728</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>Depression</td>
<td>3,477</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Asthma</td>
<td>3,392</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Diabetes</td>
<td>3,029</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Total</td>
<td>40,266</td>
<td>10%</td>
<td>14%</td>
</tr>
</tbody>
</table>
Comorbidities and Readmissions
Figure 2. Common Chronic Conditions with a High Number of Readmissions for the Same Condition within One Year of Initial Discharge, 2009

- **Asthma**
  - With 3+ readmissions: 2.5% (3.5%)
  - With 2 readmissions: 12.4%
  - With 1 readmission: 81.5%
  - With no readmission: 97.5%

- **Diabetes**
  - With 3+ readmissions: 3.5% (3.9%)
  - With 2 readmissions: 13.1%
  - With 1 readmission: 79.5%
  - With no readmission: 99.5%

- **COPD**
  - With 3+ readmissions: 4.2% (5.3%)
  - With 2 readmissions: 16.3%
  - With 1 readmission: 74.3%
  - With no readmission: 99.7%

- **Mental Health Disorders**
  - With 3+ readmissions: 4.7% (5.9%)
  - With 2 readmissions: 16.0%
  - With 1 readmission: 73.4%
  - With no readmission: 99.7%

- **Heart Failure**
  - With 3+ readmissions: 4.6% (6.3%)
  - With 2 readmissions: 19.7%
  - With 1 readmission: 69.5%
  - With no readmission: 100%
Figure 5. 30-Day Readmission Rate by Number of Comorbidities per Patient, 2010
Over 60% of COPD readmissions are for different diagnoses

Reason for Readmission (by DRG and MDC) within 12 months:
- Not COPD or Respiratory on Readmission: 41%
- Respiratory (other than COPD) on Readmission: 21%
- COPD on Readmission: 38%

Most Common Diagnoses for Non-Respiratory Readmission:
- Heart Failure and Shock: 11%
- Septicemia without Mechanical Ventilation 96+ Hours: 5%
- Esophagitis, Gastroenteritis and Miscellaneous Digestive Disorders: 4%
- Cardiac Arrhythmia and Conduction Disorders: 3%
- GI Hemorrhage: 3%
- Psychoses: 3%
- Cellulitis: 3%
- Acute Myocardial Infarction, Discharged Alive: 3%
- Renal Failure: 3%
- Major Gastrointestinal Disorders and Peritoneal Infections: 3%

Top 3 Non-COPD Respiratory-Related Diagnoses (DRG):
- Pulmonary Edema and Respiratory Failure: 25%
- Simple Pneumonia and Pleurisy: 25%
- Respiratory Infections and Inflammations: 12%
Cardiopulmonary co-morbidities

49.5% of COPD discharges have co-morbid CHF and/or CAD.
Summary

• COPD related hospitalizations
  • frequent
  • costly

• Role of comorbidities significant

• Readmission “penalties” for COPD – on the horizon
Summary

• Today’s challenge: solutions to the problem

• Need to provide better quality / better “value” care

• Most importantly need to provide patients:
  • better quality of life
Thank you!!

bwcmd@yahoo.com
COPD 2013

Major Determinants of COPD Related 30 Day Readmissions

Byron Thomashow M.D.
Professor of Medicine
Columbia University Medical Center
Medical Director Jo-Ann LeBuhn Center for Chest Disease
New York-Presbyterian Hospital
Chairman of Board COPD Foundation
Conflict of Interest

- Consultant Boehringer Ingelheim
- Advisory Board: GSK, Novartis, Forrest, Intermune, AstraZeneca
2011 BRFSS Data

- Nationally 6.3% of responders reported COPD dx
- Prevalence in 45-54 age group 6.6%
- Prevalence in 55-64 age group 9.2%
- 70% of COPD sufferers are in workforce
- Women reported higher COPD rates: 6.7% vs 5.2%
- 24.9% of those with COPD never smoked
- Health disparities in COPD: 9.9% reported in individuals with income less than $25,000

MMWR November 2012
COPD 2013

- 15 million Americans diagnosed
- Estimates suggest 12 million more undiagnosed
- BRFSS: 43.2% saw physician re COPD in last year
- BRFSS: 17.7% ER visit or hospitalization in last year
- COPD is now 2nd leading cause of disability in US
- COPD is now 3rd leading cause of death in US
- Cost of care now over 50 billion dollars a year
Initiatives to Reduce Readmissions

- Hospital Readmission Reduction Program (HRRP) designed to reduce all-cause readmissions by aligning payment to outcomes.
- Outcome measurement is hospital-specific, risk-standardized all-cause 30-day excess readmission ratio following index hospitalization for AMI, CHF, or pneumonia.
- Underperforming hospitals incur a reduction of 1% or less in Medicare base reimbursements for inpatient services for all diagnosis related groups starting fiscal year 2013, cap of 2% 2014, 3% 2015.
- For year 1- 70% of hospitals penalized, 9% received full 1% penalty.

Hospital Readmission Reduction Program (HRRP)

- Year 2
- 2225 hospitals (66%) penalized, 1154 no penalty
- 1075 hospitals higher penalty, 1371 lower penalty
- 18 hospitals maximum 2% penalty, 154-1% or more
- The average penalty 0.38% down from 0.42% year 1
- 77% of safety net hospitals with most poor patients compared to 36% of hospitals with fewest poor
- HRRP will require expansion of public reporting and will supplement readmission measures: COPD exacerbations, hip replacement and knee replacement recently added as next core measures.

Source: Kaiser Health News analysis of data from the Centers for Medicare & Medicaid Services
Factors Contributing to COPD Readmissions

- Severity of the COPD
- Poor adherence to guidelines: pharmacologic
- Comorbidities
- Poor adherence to guidelines: nonpharmacologic
- Social issues
- Post hospital syndrome
AECOPD and Airflow Obstruction

Figure 1. Association of Disease Severity with the Frequency and Severity of Exacerbations during the First Year of Follow-up in Patients with Chronic Obstructive Pulmonary Disease.

Patients with two or more exacerbations during the year were considered to have frequent exacerbations. An exacerbation requiring hospitalization was classified as severe. Disease severity was classified according to the stages of disease defined by the Global Initiative for Chronic Obstructive Lung Disease (GOLD). P<0.001 for both comparisons.

Hurst JR et al. NEJM 2010;363:1128-38 (ECLYPSE)
Factors Contributing to COPD Readmissions

- Severity of the COPD
- Poor adherence to guidelines: pharmacologic
- Comorbidities
- Poor adherence to guidelines: nonpharmacologic
- Social issues
- Post hospital syndrome
COPD Exacerbations
Preventative Measures: Pharmacologic

- Inhaled long acting beta agonists
- Inhaled long acting anticholinergics
- Inhaled corticosteroids
- Phosphodiesterase inhibitors
- Mucolytics/Antioxidants
- Macrolides
Americans with Obstructive Lung Disease Receive 55% of Appropriate Health Care

4058 EPISODES OF CARE

Mularski RA et al. Chest 2006; 130(6):1844-1850
<table>
<thead>
<tr>
<th></th>
<th>NYC</th>
<th>Community</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong># of hospitalizations</strong></td>
<td>1638</td>
<td>731</td>
</tr>
<tr>
<td><strong>Admission</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systemic Steroids</td>
<td>27.9%</td>
<td>25.3%</td>
</tr>
<tr>
<td>Inhaled Steroids (IS)</td>
<td>26.7%</td>
<td>25.0%</td>
</tr>
<tr>
<td>Bronchodilators (BD)</td>
<td>65.0%</td>
<td>73.1%</td>
</tr>
<tr>
<td>Oxygen</td>
<td>30.2%</td>
<td>34.8%</td>
</tr>
<tr>
<td><strong>No maintenance inhaled Rx</strong></td>
<td>30.6%</td>
<td>29.1%</td>
</tr>
<tr>
<td><strong>Discharge</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systemic Steroids</td>
<td>66.8%</td>
<td>70.1%</td>
</tr>
<tr>
<td>Inhaled Steroids (IS)</td>
<td>40.4%</td>
<td>51.5%</td>
</tr>
<tr>
<td>Bronchodilators (BD)</td>
<td>77.2%</td>
<td>71.9%</td>
</tr>
<tr>
<td>Oxygen</td>
<td>35.9%</td>
<td>47.3%</td>
</tr>
<tr>
<td><strong>No maintenance inhaled Rx</strong></td>
<td>25.3%</td>
<td>22.1%</td>
</tr>
</tbody>
</table>
NYP Healthcare System COPD Study

- Five acute care institutions
  - Three urban hospitals
  - Two sub-urban, community hospitals
- Sample Timeframe – 2010 Discharges
- Sample Specifications – CMS COPD definition
## Cohort Characteristics

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2005-2006 (NYC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of hospitalizations</td>
<td>1543</td>
<td>1653</td>
</tr>
<tr>
<td>Number of patients</td>
<td>1180</td>
<td>1285</td>
</tr>
<tr>
<td>Mean age – years ± SD</td>
<td>72.4 ± 13</td>
<td>72.2 ± 13</td>
</tr>
<tr>
<td>Male gender – number (%)</td>
<td>483 (41%)</td>
<td>736 (45%)</td>
</tr>
<tr>
<td>Median LOS – days (IQR)</td>
<td>4 (3-7)</td>
<td>5 (3-7)</td>
</tr>
<tr>
<td>Deaths (in hospital)</td>
<td>7 (0.5%)</td>
<td>59 (3.6%)</td>
</tr>
<tr>
<td>Race:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>204 (17%)</td>
<td>360 (22%)</td>
</tr>
<tr>
<td>Asian</td>
<td>17 (1%)</td>
<td>70 (4%)</td>
</tr>
<tr>
<td>Caucasian</td>
<td>647 (55%)</td>
<td>854 (52%)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>250 (21%)</td>
<td>300 (18%)</td>
</tr>
<tr>
<td>Other</td>
<td>62 (5%)</td>
<td>69 (4%)</td>
</tr>
<tr>
<td>Admission Source: Emergency Dept.</td>
<td>1134 (96%)</td>
<td>1601 (97%)</td>
</tr>
<tr>
<td>Prior History of COPD</td>
<td>948 (81%)</td>
<td>1376 (83%)</td>
</tr>
</tbody>
</table>
## In-Hospital Evaluation and Management

<table>
<thead>
<tr>
<th>Evaluation</th>
<th>2010</th>
<th>2005-2006 (NYC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spirometry</td>
<td>38 (3%)</td>
<td>68 (4%)</td>
</tr>
<tr>
<td>ABG / O₂ Saturation</td>
<td>764 (65%)</td>
<td>1239 (75%)</td>
</tr>
<tr>
<td>Sputum culture</td>
<td>213 (18%)</td>
<td>330 (20%)</td>
</tr>
<tr>
<td>Pulmonary Consult</td>
<td><strong>641 (54%)</strong></td>
<td>-</td>
</tr>
<tr>
<td>Noninvasive Ventilation</td>
<td>228 (19%)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Drug Therapy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systemic Steroids</td>
<td>1044 (88%)</td>
<td>1407 (85%)</td>
</tr>
<tr>
<td>Bronchodilators</td>
<td>1130 (96%)</td>
<td>1550 (94%)</td>
</tr>
<tr>
<td>Antibiotics</td>
<td>965 (82%)</td>
<td>1316 (80%)</td>
</tr>
</tbody>
</table>
## Admission and Discharge Medications*

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2005-2006 (NYC)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Admission</td>
<td>Discharge</td>
</tr>
<tr>
<td>Systemic Steroids</td>
<td>294 (25%)</td>
<td>836 (71%)</td>
</tr>
<tr>
<td>Antibiotics</td>
<td>196 (17%)</td>
<td>560 (47%)</td>
</tr>
<tr>
<td>Oxygen or Non-invasive Ventilation</td>
<td>333 (28%)</td>
<td>466 (39%)</td>
</tr>
<tr>
<td>Long-acting Bronchodilators</td>
<td>610 (52%)</td>
<td>729 (62%)</td>
</tr>
<tr>
<td>(LAMA, LABA, or LABA + IS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any inhaled therapy</td>
<td>922 (78%)</td>
<td>1061 (90%)</td>
</tr>
<tr>
<td>(SABD, IS, S, SF or Tio)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No inhaled therapy</td>
<td>258 (22%)</td>
<td>119 (10%)</td>
</tr>
</tbody>
</table>

* Data are presented as No. (%).
## Outcomes

<table>
<thead>
<tr>
<th>Disposition*</th>
<th>2010</th>
<th>2005-2006 (NYC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home</td>
<td>1214 (81%)</td>
<td>826 (74%)</td>
</tr>
<tr>
<td>Rehab/Skilled nursing facility</td>
<td>290 (19%)</td>
<td>188 (18%)</td>
</tr>
<tr>
<td>Deaths (in hospital)</td>
<td>7 (0.5%)</td>
<td>59 (4%)</td>
</tr>
<tr>
<td># total admissions that are readmissions</td>
<td><strong>363 (24%)</strong></td>
<td><strong>368 (22%)</strong></td>
</tr>
<tr>
<td># patients with 1 or more readmission</td>
<td>234 (20%)</td>
<td>226 (18%)</td>
</tr>
<tr>
<td># pts w/ 2 readmissions</td>
<td>68 (6%)</td>
<td>-</td>
</tr>
<tr>
<td># pts w/ 3 readmissions</td>
<td>29 (2%)</td>
<td>-</td>
</tr>
<tr>
<td># pts w/ 4 readmissions</td>
<td>16 (1%)</td>
<td>-</td>
</tr>
<tr>
<td>Max # readmissions</td>
<td>7 (in 1 year)</td>
<td>-</td>
</tr>
</tbody>
</table>

*For all admissions*
Medications by Readmission Status

Comparing discharge medications in 2010 of those readmitted at least once to those not readmitted during the year (only index admissions).

<table>
<thead>
<tr>
<th>Medication Type</th>
<th>Not readmitted (N=305)</th>
<th>Readmitted at least once (N=80)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-acting Bronchodilators (SABD)</td>
<td>80.3%</td>
<td>96.3%</td>
</tr>
<tr>
<td>Long Acting Beta Agonists (LABA)</td>
<td>1.3%</td>
<td>1.3%</td>
</tr>
<tr>
<td>Long Acting Muscarinic Antagonists (LAMA)</td>
<td>31.5%</td>
<td>43.8%</td>
</tr>
<tr>
<td>Inhaled Steroids (IS) alone</td>
<td>13.4%</td>
<td>13.8%</td>
</tr>
<tr>
<td>LABA + IS</td>
<td>55.7%</td>
<td>71.3%</td>
</tr>
<tr>
<td>Maintenance Therapy (IS, LAMA, LABA, LABA+IS)</td>
<td>71.8%</td>
<td>81.3%</td>
</tr>
<tr>
<td>Any inhaled therapy (SABD, IS, S, SF or Tio)</td>
<td>92.8%</td>
<td>97.5%</td>
</tr>
</tbody>
</table>
Factors Contributing to COPD Readmissions

- Severity of the COPD
- Poor adherence to guidelines: pharmacologic
- Comorbidities: Only 30% of 30 day readmits same as for index admission
- Poor adherence to guidelines: nonpharmacologic
- Social issues
- Post hospital syndrome
Total Number of Co-Morbidities

Barr et al AmJMed 2009;122,348-355

- 19%
- 47%
- 27%
- 6%
- 1%
- 30%
- 53%
- 14%
- 2%
- 0%
- 10%
- 20%
- 30%
- 40%
- 50%
- 60%

Household (N=1,003) vs Patient Org (N=2,029)

p < .001
COPD and Co-Morbidities
COPD Foundation Study

- Arthritic pains 70%
- GERD 63%
- Sinus disease 58%
- Heart disease 54%
- Hypertension 52%
- Hyperlipidemia 51%
- Depression 38%
- Cataracts 32%
- Osteoporosis 30%
- Sleep apnea 20%
- Diabetes 18%

Barr et al AmJMed 2009;122,348-355
What Do COPD Patients Die From?

# NewYork-Presbyterian Healthcare System
## Readmission Characteristics – 2010

**Columbia and Allen data only**

<table>
<thead>
<tr>
<th></th>
<th>Readmitted</th>
<th>Not readmitted</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. hospitalizations</td>
<td>259</td>
<td>383</td>
<td></td>
</tr>
<tr>
<td>No. patients</td>
<td>102</td>
<td>383</td>
<td></td>
</tr>
<tr>
<td>Readmission rate, %</td>
<td>21.0%</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Median Charlson Index (IQR)¹</th>
<th>Readmitted</th>
<th>Not readmitted</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlson Index = 1-2</td>
<td>29.4%</td>
<td>46.2%</td>
<td>0.046</td>
</tr>
<tr>
<td>Charlson Index = 3-4</td>
<td>37.3%</td>
<td>30.0%</td>
<td></td>
</tr>
<tr>
<td>Charlson Index ≥ 5</td>
<td>33.3%</td>
<td>23.8%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Median COTE Index (IQR)²</th>
<th>Readmitted</th>
<th>Not readmitted</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>COTE Index = 1</td>
<td>39.2%</td>
<td>55.6%</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>COTE Index = 2-3</td>
<td>16.7%</td>
<td>26.4%</td>
<td></td>
</tr>
<tr>
<td>COTE Index ≥ 4</td>
<td>44.1%</td>
<td>18.0%</td>
<td></td>
</tr>
</tbody>
</table>
Factors Contributing to COPD Readmissions

- Severity of the COPD
- Poor adherence to guidelines: pharmacologic
- Comorbidities
- Poor adherence to guidelines: nonpharmacologic
- Social issues
- Post hospital syndrome
COPD Exacerbations
Preventative Measures: Nonpharmacologic

- Smoking cessation
- Immunizations-influenza vaccine
- Pulmonary Rehabilitation
- Lung Volume Reduction Surgery
Prevention of COPD Exacerbations: Influenza Vaccination

### Effect of Rehabilitation after Exacerbation on Rehospitalization

- **5 studies, 250 subjects**
- **Followup 12-76 weeks**
- **Total rehospitalizations=71**
- **Odds ratio = 0.22**

#### Study or Subgroup

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Experimental Events</th>
<th>Total</th>
<th>Control Events</th>
<th>Total</th>
<th>Weight</th>
<th>Odds Ratio M-H, Random, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behnke 2000</td>
<td>3</td>
<td>14</td>
<td>9</td>
<td>12</td>
<td>16.7%</td>
<td>0.09 [0.01, 0.56]</td>
</tr>
<tr>
<td>Eaton 2009</td>
<td>11</td>
<td>47</td>
<td>15</td>
<td>50</td>
<td>29.9%</td>
<td>0.71 [0.29, 1.77]</td>
</tr>
<tr>
<td>Man 2004</td>
<td>2</td>
<td>20</td>
<td>12</td>
<td>21</td>
<td>18.1%</td>
<td>0.08 [0.02, 0.45]</td>
</tr>
<tr>
<td>Murphy 2005</td>
<td>2</td>
<td>13</td>
<td>5</td>
<td>13</td>
<td>16.2%</td>
<td>0.29 [0.04, 1.90]</td>
</tr>
<tr>
<td>Seymour 2010</td>
<td>2</td>
<td>30</td>
<td>10</td>
<td>30</td>
<td>19.0%</td>
<td>0.14 [0.03, 0.72]</td>
</tr>
</tbody>
</table>

#### Total (95% CI)

- **Total events: 20**
- **51**

#### Heterogeneity

- Tau² = 0.61; Chi² = 8.15, df = 4 (P = 0.09); I² = 51%
- Test for overall effect: Z = 3.06 (P = 0.002)
## In-Hospital Evaluation and Management*  

<table>
<thead>
<tr>
<th>Smoking Cessation</th>
<th>2010</th>
<th>2005-2006 (NYC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking Status Assessed</td>
<td>1151 (98%)</td>
<td>1564 (95%)</td>
</tr>
<tr>
<td>Identified as Active Smokers</td>
<td>337/1151 (29%)</td>
<td>518/1564 (33%)</td>
</tr>
<tr>
<td>Cessation Counseling Provided to Active Smokers</td>
<td>311/337 (92%)</td>
<td>248/516 (48%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pneumococcal Vaccination</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumococcal Status Assessed</td>
<td>954 (80%)</td>
<td>1287 (78%)</td>
</tr>
<tr>
<td>Eligible for Pneumococcal Vaccination</td>
<td>385/954 (40%)</td>
<td>596/1287 (46%)</td>
</tr>
<tr>
<td>Pneumococcal Vaccination Provided</td>
<td>110/385 (29%)</td>
<td>299/596 (50%)</td>
</tr>
<tr>
<td>Patient Refused Vaccination</td>
<td>161/385 (42%)</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Influenza Vaccination</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitalizations when Influenza Vaccination Offered#</td>
<td>688 (58%)</td>
<td>539 (33%)</td>
</tr>
<tr>
<td>Influenza Status Assessed</td>
<td>554/688 (81%)</td>
<td>427/539 (79%)</td>
</tr>
<tr>
<td>Eligible for Influenza Vaccination</td>
<td>250/554 (45%)</td>
<td>206/427 (48%)</td>
</tr>
<tr>
<td>Influenza Vaccination Provided</td>
<td>83/250 (33%)</td>
<td>105/206 (51%)</td>
</tr>
<tr>
<td>Patient Refused Vaccination</td>
<td>112/250 (45%)</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Referral</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulmonary Rehabilitation</td>
<td>33 (3%)</td>
<td>-</td>
</tr>
</tbody>
</table>

* Data are presented as No. (%).  
# Influenza Vaccination period was defined as October 15th to January 31st.
Date of Admission

Admission Date/Time: 9/23/2010 12:46:03 PM

Reason for Admission

Reason for Admission: 

Date of Discharge

Discharge Date: 

Provider

NOTE: An attending must co-sign the final document. Click document info tab at left, check the co-signature box and choose an attending.

Attending of Record:

Discharge Diagnosis: Include health problems pertinent to admission

Procedures
COPD

- Does the patient have COPD?  ○ Yes  ○ No

Stroke Quality Measures

- Was this patient diagnosed with a stroke or TIA during this hospitalization?  ○ Yes, ischemic stroke/TIA  ○ Yes, ICH and/or SAH  ○ No

Transplant UNOS Data

- Did this patient have a solid organ transplant in this admission?  ○ Yes  ○ No

Discharge Disposition

- ○ Home  ○ Against medical advice  ○ Expired  ○ Deceased  ○ Other healthcare related facility  ○ Other

Wound Care

- SITE #1

- Cleanse with

- Apply

- Cover with

- Keep dressing dry for

- Frequency of dressing change

- Additional Sites  ○ SITE #2  ○ SITE #3  ○ SITE #4

- Other Information

- Patient Educational Handouts Given  ○ Yes  ○ No  ○ NA

Devices

- Please document if your patient is going home with any devices below (e.g., PICC, Drains, IV Lines, VAD’s, PEG...etc)

- Device #1  ○ Device #2  ○ Device #3  ○ Device #4

- Patient Educational Handout Given:  ○ Yes  ○ N/A
## COPD

- **Does the patient have COPD?**
  - Yes
  - No

Guidelines suggest that FDA approved maintenance COPD medications is indicated for people with moderate, severe or very severe COPD. Was this patient discharged on COPD maintenance medication?
- Yes
- No
- Not indicated

### Which Medication? (All that apply)
- Tiotropium
- Fluticasone/Salmeterol 250/60
- Budesonide/Formoterol 16/4.5
- Salmeterol
- Formoterol
- Albuterol
- Other

Guidelines suggest that a rehabilitation program be initiated for people with moderate, severe or very severe COPD. Has this patient been referred?
- Yes, I have referred this patient to pulmonary rehab.
- Patient counseled. Referral deferred to outpatient provider. I do not believe this is indicated at this time.

### Transplant UNOS Data
- Did this patient have a solid organ transplant in this admission?  
  - Yes
  - No

### Discharge Disposition
- Home
- Against medical advice
- Discharged
- Other healthcare related facility
- Other

### Wound Care
- **SITE #1**
- Cleanse with
- Apply
- Cover with
- Keep dressing dry for
- Frequency of dressing change

- Additional Sites
  - SITE #2
  - SITE #3
  - SITE #4

### Other Information:

- Patient Educational Handouts Given:  
  - Yes
  - No
  - NA
Factors Contributing to COPD Readmissions

- Severity of the COPD
- Poor adherence to guidelines: pharmacologic
- Comorbidities
- Poor adherence to guidelines: nonpharmacologic
- Social issues
- Post hospital syndrome
COPD hospitalizations for Medicare beneficiaries by state 1995-2006

Holt JB, Zhang X, Presley-Cantrell L, Croft JB
National Center for Chronic Disease Prevention and Health Promotion, CDC

Int J COPD DOI: http://dx.doi.org/10.2147/COPD.S19945
COPD hospitalizations for Medicare beneficiaries by Health Service Area

Holt JB, Zhang X, Presley-Cantrell L, Croft JB
National Center for Chronic Disease Prevention and Health Promotion, CDC

Int J COPD DOI: http://dx.doi.org/10.2147/COPD.S19945
2008- Across 15 states, over 190,000 index COPD admissions, 20.5% 30 day all cause readmission rate.

Readmission rates 22% higher in lower income areas: 7.8% of patients in poorer areas vs 6.4% of patients in wealthier areas.

Readmission rates higher among African Americans: 8% vs 7.2 percent of Caucasians, 6.1% among Hispanics, Asian and pacific Islander patients.

Costs were consistently higher (18% higher) for readmissions than index admission

Readmissions: Social Issues

- Hospital concentration on length of stay and safety issues rather than pre or post discharge issues.

- Lack of assessment of feasibility of following discharge instructions including understanding any change in medication and education on self care.


- Lack of formal transition to community provider or hospital follow to ensure primary care appointment.

- Prescribing guideline suggested medications does not guarantee filling prescription or taking the medication.
Factors Contributing to COPD Readmissions

- Severity of the COPD
- Poor adherence to guidelines: pharmacologic
- Comorbidities
- Poor adherence to guidelines: nonpharmacologic
- Social issues
- Post hospital syndrome
The “Post-Hospital Syndrome”

- Sleep deprivation
- Nutritional issues
- Aspiration risks
- Deconditioning
- Inadequately addressed pain or discomfort
- Cognitive issues- sleep/stress/medications
- “Marginal clothing”

Krumholz NEJM 2013:368;2;100-102
COPD Discharge Bundle

- Referral to smoking cessation if active smoker
- Referral to rehabilitation
- Instruction on appropriate use of inhalers
- A written personalized action plan including at least one maintenance COPD medication
- A phone call within 48 hours of discharge
- A VNS home visit
- A visit with health care provider within 2 weeks of discharge

Aim of COPD Initiative: Improve inpatient care and transition to outpatient care
Reducing Readmissions

- No simple answer
- Optimize medical therapy
- Address social issues
- Address comorbidities
- Address “Post-Hospital Syndrome”
- Move away from “Disease Centered” to more “Patient Centered Care”
Research addressing readmissions following COPD exacerbations

Peer-reviewed published evidence

October 11, 2013

Jerry A. Krishnan, M.D., Ph.D.
Professor of Medicine and Public Health
Section of Pulmonary, Critical Care, Sleep, & Allergy
Division of Epidemiology and Biostatistics
Associate Vice President, Population Health Sciences
University of Illinois Hospital & Health Sciences System
Conflicts of interest

• Pharmaceutical industry
  – None

• Consultant
  – eMAXHealth – epidemiology of eosinophilic asthma
  – Adelphi Values – development of symptom-based PRO for asthma
  – American Thoracic Society / European Respiratory Society – co-chair for COPD exacerbations guidelines

• Research funding
  – Patient Centered Outcomes Research Institute
  – National Institutes of Health
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- Simon Pickard

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- Mark Williams
- Ravi Kalhan
- Jamie Sullivan
- Byron Thomashow

COPD Foundation

University of Illinois Hospital & Health Sciences System

- Bruce Schatz
- Barry Pittendrigh
- Nina Bracken
- Hélène Gussin
Outline

• Tale of 3 studies

• Lessons learned
All cause readmissions after COPD exacerbations added to CMS Hospital Readmissions Reductions Program (FY 2015)
Evidence-based programs do not address COPD specific needs

- Examples:

- Do not address COPD specific needs
  - $O_2$ therapy, inhaler / nebulizer technique, CPAP or BiPaP

SMH, 2012
Jack, 2009
Coleman, 2006
Naylor, 1994
Hansen, 2011
Systematic review of published literature

• 951 titles and abstracts

• 6 clinical trials
  – 1 study conducted in US, rest in Europe or Asia
  – No studies examined 30-day readmissions as primary outcome
  – Heterogeneity of populations, interventions, comparators, outcomes, settings, timeframe (PICOTS)

• Tale of 3 studies

Prieto-Centurion V (2013) in review
Glasgow supported self-management trial (GSuST) for patients with moderate to severe COPD: randomised controlled trial

C E Bucknall consultant respiratory physician¹, G Miller research fellow¹, S M Lloyd biostatistician², J Cleland professor of medical education³, S McCluskey senior research nurse¹, M Cotton consultant respiratory physician¹, R D Stevenson consultant respiratory physician¹, P Cotton professor of learning and teaching⁴, A McConnachie deputy director²

¹Department of Respiratory Medicine, Glasgow Royal Infirmary, Glasgow G4 0SF, UK; ²Robertson Centre for Biostatistics, University of Glasgow, Glasgow; ³Division of Medical and Dental Education, School of Medicine, University of Aberdeen, Aberdeen, UK; ⁴Undergraduate Medical School, University of Glasgow
Setting and patients

- 6 Acute Glasgow hospitals and Lanarkshire hospitals
- Patients recently discharged from hospital following AE-COPD
  - FEV<70%, FEV1/FVC<70%
  - Excluded: hx of asthma, or left HF, active cancer, confusion/poor memory

Bucknall CE, BMJ 2012
 Intervention

• Both groups
  – “Long term treatment optimized”
  – Inhaler technique teaching
  – Offered smoking cessation advice and pulmonary rehabilitation

• Control group
  – Managed by their physician

• Intervention group – “supported self-management”
  – 4 home visits over 2 mos, then q6 weeks, plus PRN
  – Diary cards to record Sx, then initiate tx with Abx X 7 days and prednisone X 5 days based on algorithm

Bucknall CE, BMJ 2012
Results

- N=464, 232/group
- Baseline - balanced
  - Mean 69 YO
  - 37% men
  - FEV1 40% pred
  - 41% lived alone
  - 39% current smoker
  - 59% hosp for COPD past 12 mos
  - 7% LTOT

- Enrolled /intervention began median 29 days after DC
- Only 42% in intervention group learned to self-manage using diary cards
  - Predictors
    - Younger patients
    - Living with others

Bucknall CE, BMJ 2012
Hospitalized or death from COPD, %

Intervention v control: 48% vs. 47%,
Relative hazard 1.05 (0.8 to 1.38)

Bucknall CE, BMJ 2012
Lesson #1: Interventions to prevent re-hospitalizations may have no effect

- Intervention too late
  - 29 days after DC
- Intervention too weak
  - 42% able to self-manage
- Intervention incomplete
  - No home exercise program
- Measurement error
  - COPD-specific vs. all-cause
  - Power - Relative hazard 1.05 (0.8 to 1.38)
Integrated care prevents hospitalisations for exacerbations in COPD patients

A. Casas*, T. Troosters†, J. Garcia-Aymerich‡, J. Roca*, C. Hernández*, A. Alonso*, F. del Pozo*, P. de Toledo‡, J.M. Antó‡, R. Rodríguez-Roisín*, M. Decramer† and members of the CHRONIC Project

ABSTRACT: Hospital admissions due to chronic obstructive pulmonary disease (COPD) exacerbations have a major impact on the disease evolution and costs. The current authors postulated that a simple and well-standardised, low-intensity integrated care intervention can be effective to prevent such hospitalisations.

Therefore, 155 exacerbated COPD patients (17% females) were recruited after hospital discharge from centres in Barcelona (Spain) and Leuven (Belgium). They were randomly assigned to either integrated care (IC; n=65; age mean ± sd 70 ± 9 yrs; forced expiratory volume in one second (FEV1) 1.1 ± 0.5 L, 43% predicted) or usual care (UC; n=90; age 72 ± 9 yrs; FEV1

Casas A, ERJ 2006
Setting and patients

- Two tertiary hospitals in Barcelona/Spain and Leuven/Belgium

- Patients
  - Hospitalized for AE-COPD
  - Excluded
    - Not living in area
    - Severe comorbid illness
    - Logistical limitations (e.g., no phone)
    - Admitted to nursing home

Casas A, ERJ 2006
Intervention

- **Usual care**
  - Managed by their physician

- **Integrated Care**
  - 2 hr education by RN before DC
    - COPD, use of meds/non meds, tx for exacerbations
    - Customized treatment plan
  - Barcelona – Home visit primary care team (MD, nurse, social worker) within 72 h of DC
  - Leuven – Home visits by GPs. Study physician contacted GPs to provide additional recommendations.
  - Phone calls q1 week X 4, then at 3 and 9 months to reinforce self-management
  - RN case manager at call center, web access to medical records

Casas A, ERJ 2006
Results

- N=155, 65 intervention, 90 usual care

- Baseline
  - Mean 70 YO
  - 83% men
  - FEV1 42% pred
  - 26% current smoker
  - 17% LTOT

- Intervention began before DC

HR for readmission IC v UC: 0.55 (95% CI 0.34-0.87)

No differences in deaths, IC v UC: 19 v 16%

Casas A, ERJ 2006
Lesson #2: Interventions can prevent re-hospitalizations

• Why did the intervention succeed?
  – Timing of intervention (prior to DC)?
  – Enhanced self-management (but not reported)?
  – Expertise of providers at home visits?

• Co-treatment bias (lack of masking)

Casas A, ERJ 2006
BREATH Trial  Study #3

A Comprehensive Care Management Program to Prevent Chronic Obstructive Pulmonary Disease Hospitalizations

A Randomized, Controlled Trial

Vincent S. Fan, MD, MPH; J. Michael Gaziano, MD, MPH; Robert Lew, PhD; Jean Bourbeau, MD, MSc; Sandra G. Adams, MD, MS; Sarah Leatherman, MS; Soe Soe Thwin, PhD, MS; Grant D. Huang, PhD, MPH; Richard Robbins, MD; Peruvemba S. Sriram, MD; Amir Sharafkhaneh, MD; M. Jeffery Mador, MD; George Sarosi, MD; Ralph J. Panos, MD; Padmarshri Rastogi, MD; Todd H. Wagner, PhD; Steven A. Mazzucca, PhD; Colleen Shannon, MPH; Cindy Colling, RPH, MS; Matthew H. Liang, MD, MPH; James K. Stoller, MD, MS; Louis Flore, MD, MPH; and Dennis E. Niewoehner, MD

Courtesy of D. Niewoehner, MD  Ann Intern Med 2012;156:673-683
BREATH Trial: Study Design

- RCT, VA Cooperative Studies Program, of case-manager facilitated self-management vs. usual care
  - Target **960 patients at 20 sites**; prematurely terminated <50% enrollment

- Patients hospitalized for COPD in past 12 months

- Intervention
  - “Living Well with COPD” (4 individual and 1 group sessions)
  - Written action plan with refillable antibiotic and prednisone prescriptions
  - Case manager made call 1/mo X 3 mos, then q3 mos; plus PRN by patient

- Primary outcome – COPD related re-hospitalization

Ann Intern Med 2012;156:673-683
BREATH Trial: Study sites

N = 426 of 960 enrolled across 20 sites

Ann Intern Med 2012;156:673-683

Courtesy of D. Niewoehner, MD
BREATH Trial: Results

Hospitalization for COPD
HR = 1.13 [95% CI, 0.70 to 1.80], P = 0.62

All cause mortality
HR = 3.00 [95% CI, 1.46 to 6.17], P = 0.003

Courtesy of D. Niewoehner, MD

Ann Intern Med 2012;156:673-683
BREATH Trial
Was the Education Program Effective?

COPD Knowledge

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>1 year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usual care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

P = 0.71

Self-efficacy

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>1 year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usual care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

P = 0.044

Courtesy of D. Niewoehner, MD

Ann Intern Med 2012;156:673-683
Lesson #3: Interventions to prevent re-hospitalizations may be harmful

Possible causes:

1. Chance

2. Imbalance in baseline characteristics
   - Fewer married (44% v 52%) in intervention group
   - More with HF (20 vs. 15%) in intervention group

3. Intervention harmful (e.g., delay in seeking care)

Courtesy of D. Niewoehner, MD

Ann Intern Med 2012;156:673-683
Lessons learned

1. Some educational interventions may not work
2. Some educational interventions may work
   • Why?
3. Some educational interventions may be harmful
   • “Quality improvement” programs not based on evidence may be injurious - include a control group?
“... there are things we know we know…. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns—the ones we don’t know we don’t know.”

Donald Rumsfeld
On preventing re-hospitalizations for COPD
COMMUNITY-BASED DEMONSTRATION PROJECTS ADDRESSING COPD READMISSIONS

Keith T. Kanel, MD, MHCM, FACP
Chief Medical Officer
Director, Primary Care Resource Center Project
Pittsburgh Regional Health Initiative

October 11, 2013
Status of Community-Based Research in COPD Readmissions

• Paucity of reports describing COPD-specific readmission initiatives

• Clinical programs do not commonly appear in mainstream medical journals

• No central registry for care transitions research

• New awareness for COPD readmission issues prompted by addition of COPD measures to the 2014 CMS Inpatient Quality Reporting (IQR) program and the Hospital Readmission Reduction Program (HRRP)

• CMS Innovation Center: “Hundreds of programs” on readmissions affecting COPD patients!
Modular Approach to Readmission Reduction: The Building Blocks of Successful Programs

- COPD Guidelines and Evidence-Based Studies
  - GOLD Criteria
  - COPD Foundation Guidelines
  - ACP Guidelines, etc.

- Leveraging Health System Networks
  - Integrated Delivery Systems, Payer Networks
  - Regional Health Impr. Collaboratives
  - “Natural Networks”, etc.

- Primary Care Redesign
  - Patient-Centered Medical Home
  - Wagner Chronic Care Model, etc.

- Care Transition Models
  - Project BOOST
  - Project RED
  - Coleman model, etc.

- Institutional readmissions solutions based on combinations of these modules, customized for culture, resources, organizational structure
## Care Transition Models from the Medical Literature

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>VALIDATED POPULATION</th>
<th>INPATIENT CONTACT</th>
<th>OUTPATIENT FOLLOW-UP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project RED (Re-Engineered Discharge)</td>
<td>All ages</td>
<td>Discharge RN</td>
<td>Pharmacist phone call at 2-4 days</td>
</tr>
<tr>
<td>Project BOOST (Better Outcomes for Older Adults Through Safe Transitions)</td>
<td>Seniors</td>
<td>Care team</td>
<td>Phone call 72 hours</td>
</tr>
<tr>
<td>Coleman Model (Care Transitions Intervention)</td>
<td>High-risk seniors</td>
<td>Coach</td>
<td>1 home visit 3 phone calls</td>
</tr>
<tr>
<td>Naylor Model (Transitional Care Model)</td>
<td>High-risk seniors</td>
<td>RN or APN</td>
<td>APN home visit and phone calls; 60-day follow-up</td>
</tr>
<tr>
<td>Disease-Specific Clinics (e.g., Heart Failure Centers)</td>
<td>Targeted Diseases</td>
<td>RN, APN, physician</td>
<td>Telemetry; Office Visits</td>
</tr>
</tbody>
</table>

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Phase 1 (2009): Single COPD Nurse Care Managers

**HOSPITAL-BASED: UPMC St. Margaret**
- Focus was on care transitions
- Performed admission root cause analysis
- “Rounded” on inpatients
- Supported multiple practices
- Interaction with specialists

**OFFICE-BASED: WPAHS Forbes Regional**
- Focus was on maintenance care
- Fewer nurse visits to hospital
- Limited to one group practice

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Nearly Half of COPD Discharges In Southwest Pennsylvania Also Have Cardiac Disease

PHC4-provided hospital discharges between Oct. 1, 2007 and Sept. 30, 2008 (n=408,924)

49.5% of COPD discharges have co-morbid CHF and/or CAD
Phase 2 (2011): **Primary Care Resource Center (PCRC)**

- **Nurse led coordination** of COPD, CHF, and CAD patients under direction of PCPs
- Located within the hospital
- A place where vital primary care **ancillary services** can be centralized and coordinated
- A way for small-practice PCPs to share resources as a "**virtual PCMH**"
- Customized to reflect each hospital’s community and culture

<table>
<thead>
<tr>
<th>Care Coordination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Education</td>
</tr>
<tr>
<td>Group Visits</td>
</tr>
<tr>
<td>Smoking Cessation Classes</td>
</tr>
<tr>
<td>Pharmacist Consultation</td>
</tr>
<tr>
<td>Nutrition Counseling</td>
</tr>
<tr>
<td>Inhaler Instruction</td>
</tr>
<tr>
<td>“Better Breathing” Classes</td>
</tr>
<tr>
<td>Diagnostic Spirometry</td>
</tr>
<tr>
<td>Anticoagulation Clinic</td>
</tr>
<tr>
<td>End-of-Life Planning</td>
</tr>
<tr>
<td>Home Monitoring Hub</td>
</tr>
</tbody>
</table>
PCRC Focus on Care Coordination for Three Target Chronic Diseases

- **Initial focus**: engagement of target disease patients at admission, to **immediately suppress readmission** and build an accurate database

- **Later focus**: proactive **population management** of enrolled patients (check-ins, reminders to see physicians, etc.)
PCRC Clinical Team

PCRC Pharmacist (1)
• Medication reconciliation
• Motivational interviewing
• High-hazard medication focus
• Call patients within 72 hours

Nurse Care Managers (3)
• Engage every target patient at point-of-admission
• Root cause analysis
• Review inhaler technique
• 30 minutes patient education
• Enter data into customized EHR
• Spirometry
• Coordinate with PCP and specialists
• Prepare for “perfect” discharge

After discharge
• Home visit within 7 days
• Longitudinal care coordination

© 2013 Pittsburgh Regional Health Initiative
First PCRC Opening at Monongahela Valley Hospital
July 2012
Monongahela Valley Hospital PCRC

Examination Room
Monongahela Valley Hospital PCRC

Conference Room
Monongahela Valley Hospital PCRC

PCRC Team Office
In first 11 months, over **500 COPD patients** identified through an admission algorithm, engaged by a PCRC Nurse Care Manager, and entered into EHRs of hospital and the PCP physician network.
Impressive Reduction in COPD Hospitalizations At 6 Months

COPD 30-Day All-Cause Readmission Rates
Monongahela Valley Hospital PCRC

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Readmission Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>4th Quarter 2011</td>
<td>22.3%</td>
</tr>
<tr>
<td>4th Quarter 2012</td>
<td>11.8%</td>
</tr>
</tbody>
</table>

© 2013 Pittsburgh Regional Health Initiative
Phase 3 (2012): The Primary Care Resource Center Project

- $10.4 million award from CMS Innovation Center to create 6 PCRCs at community hospitals in Pennsylvania and West Virginia between 2012-2015

- Targets:
  - 19,000 Medicare beneficiaries with COPD/CHF/CAD
  - 40% reduction in 30-day all-cause readmission rate
  - 10% reduction in new admission rate
  - 450 healthcare workers trained in Lean
  - 5% reduction in Medicare total-cost-of-care spend ($41 million)
Hospitals in Primary Care Resource Center Project

1. Monongahela Valley Hospital
2. Wheeling Hospital
3. Indiana Regional Medical Center
4. Conemaugh Memorial Medical Center
5. Uniontown Hospital
6. Butler Memorial Hospital
7. Sharon Regional Medical Center
Creating a COPD Care Management Team: 
*What Core Competencies are Needed?*
Confidence Self-Assessment of 22 PCRC Nurse Care Managers and Pharmacists

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Rating Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I can perform a brief tobacco intervention and know how to refer a patient to</td>
<td>4.23</td>
</tr>
<tr>
<td>2. I can accurately determine when a COPD exacerbation is occurring.</td>
<td>4.00</td>
</tr>
<tr>
<td>3. I can identify six or more risk factors associated with COPD.</td>
<td>3.95</td>
</tr>
<tr>
<td>4. I can educate patients about COPD so they can effectively perform activities of COPD.</td>
<td>3.91</td>
</tr>
<tr>
<td>5. I understand roles of respiratory medication and how they function in the lung.</td>
<td>3.82</td>
</tr>
<tr>
<td>6. I understand the pathology and pathophysiology of COPD.</td>
<td>3.77</td>
</tr>
<tr>
<td>7. I can identify and educate patients on how to manage co-morbid conditions like COPD.</td>
<td>3.77</td>
</tr>
<tr>
<td>8. I can determine when hospitalization for a COPD exacerbation is necessary</td>
<td>3.77</td>
</tr>
<tr>
<td>9. I can recognize the symptoms of depression / anxiety and effectively educate</td>
<td>3.73</td>
</tr>
<tr>
<td>10. I understand criteria for oxygen therapy and effectively teaching patients the</td>
<td>3.68</td>
</tr>
<tr>
<td>11. I can screen patients for COPD.</td>
<td>3.55</td>
</tr>
<tr>
<td>12. I can properly educate a patient on proper inhaler technique for all devices.</td>
<td>3.55</td>
</tr>
<tr>
<td>13. I understand the role of Alpha-1 Antitrypsin deficiency.</td>
<td>2.91</td>
</tr>
<tr>
<td>14. I can analyze a spirometry test and determine the presence and stages of COPD.</td>
<td>2.68</td>
</tr>
<tr>
<td>15. I can accurately perform a spirometry test.</td>
<td>2.45</td>
</tr>
</tbody>
</table>

Scale: Definitely confident = 5, Definitely not confident = 1
Performed: August 2013
COPD Educator Program at PRHI

CURRICULUM

• Pathology of COPD
• Establishing Diagnosis
• Pharmacology
• Inhaler Training
• Non-pharmacological Modalities
• Oxygen
• Exacerbations
• Spirometry Training
Spirometry Training for Care Managers and Pharmacists
Motivation Interviewing and Behavioral Health Screening

- Methods used to consolidate strength of motivation to change
- Skill building: open-ended questions, affirmations, reflective listening, summarizing, avoidance of righting reflex
- Behavioral health and substance abuse screening: AUDIT, DAST, PHQ-9
Creation of the “Perfect Discharge Bundle”

Standard established the every COPD patient have the following:

- **Every** COPD patient must demonstrate inhaler self-administration proficiency to a PCRC Nurse Care Manager before discharge

- **Every** patient must have a root cause analysis performed at admission, that is specifically addressed in the discharge plan

- **Every** patient has 30 minutes of education about their disease

- **Every** patient must have medication reconciliation performed by a skilled pharmacist

- **Every** patient has established PCP follow-up at discharge, and the PCP receives a report within 72 hours

- **Every** patient is called at 72 hours after discharge

- **Every** patient is offered a home visit within 5 days by the PCRC Team
Summary

• There is a compelling demand for COPD readmission reduction programs

• Cross-training nursing and pharmacy personnel to manage co-morbidities and behavioral issues appear to be important for success

• A centralized registry to identify Best Practices will expedite development of the most effective model
Thank You

For More Information:

Keith T. Kanel, MD
Chief Medical Officer
Pittsburgh Regional Health Initiative

kkanel@prhi.org

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TRANSITIONAL CARE MODEL

A Journey From Evidence to Impact

Mary D. Naylor, Ph.D., RN
Marian S. Ware Professor in Gerontology
Director, NewCourtland Center for Transitions and Health
University of Pennsylvania School of Nursing
Perspectives on Chronic Illness Care in the US

• Older Adults*
• Family Caregivers
• Health Care Clinicians
• Society

* In recent studies, COPD was documented as primary health problem for 15% of enrolled patients; 25% had COPD as one of a cluster of chronic conditions.
Transitional Care

Range of time limited services and environments that are designed to ensure health care continuity and avoid preventable poor outcomes among at risk populations as they move from one level of care to another, among multiple health care team members and across settings such as hospitals to homes.
Published Evidence

• 21 RCTs of diverse “hospital to home” innovations targeting primarily chronically ill older adults

• 9/21, + impact on at least one measure of rehospitalization plus other health outcomes

• Effective interventions
  • Multidimensional and span settings
  • Use inter-professional teams with primarily nurses, as “hubs”

(Naylor, et al., 2011. THE CARE SPAN--The Importance of Transitional Care in Achieving Health Reform. Health Affairs, 30(4):746-754.)
Different Goals of Evidence-Based Interventions

• Address gaps in care and promote effective “hand-offs”

• Address “root causes” of poor outcomes with focus on longer-term value
Transitional Care Model

- Screening
- Engaging Older Adult & Caregivers
- Managing Symptoms
- Educating/ Promoting Self-Management
- Collaborating
- Assuring Continuity
- Coordinating Care
- Maintaining Relationship

www.transitionalcare.info
Unique Features

Care is delivered and coordinated…

…by same advanced practice nurse (APN) supported by team

…in hospitals, SNFs, and homes

…seven days per week

…using evidence-based protocol

…supported by decision support tools
Core Components

• Holistic, person/family centered approach
• Nurse-coordinated, team model
• Protocol guided, streamlined care
• Single “point person” across episode of care
• Information/decision support systems that span settings
• Focus on increasing value over long term
Hospital to Home Findings*

- BETTER CARE
  - Decreased symptoms,
  - Improved function,
  - Enhanced quality of life

- BETTER HEALTH
  - Enhanced access,
  - Reduced errors,
  - Enhanced care experience


TCM's Impact on Total Health Care Costs*

<table>
<thead>
<tr>
<th></th>
<th>TCM Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>at 52 weeks***</td>
<td>$7,636</td>
<td>$12,481</td>
</tr>
<tr>
<td>at 26 weeks**</td>
<td>$6,661</td>
<td>$3,630</td>
</tr>
</tbody>
</table>

* Total costs were calculated using average Medicare reimbursements for hospital readmissions, ED visits, physician visits, and care provided by visiting nurses and other healthcare personnel. Costs for TCM care is included in the intervention group total.


Barriers to Widespread Adoption

• Organization of care
• Regulatory challenges
• Quality and financial incentives
• Culture of caring
Translating Evidence Into Practice

Penn research team formed partnerships with Aetna Corporation and Kaiser Permanente to test “real world” applications of research-based model of care among high risk elders.

Funded by The Commonwealth Fund and the following foundations: Jacob and Valeria Langeloth, The John A. Hartford, Gordon & Betty Moore, and California HealthCare; guided by National Advisory Committee (NAC)
Tools of Translation

• Patient screening and recruitment
• Preparation of TCM nurses and teams (e.g., online seminar)
• Documentation and quality monitoring (clinical information system)
• Quality improvement (case conferences grounded in root cause analysis)
• Evaluation
Project Goals (Aetna)

- Test TCM in defined market
- Document facilitators and barriers
- Present findings to Aetna decision makers
- Widely disseminate findings
Findings (Aetna)

- Improvements in all quality measures
- Increased patient and physician satisfaction
- Reductions in rehospitalizations through 3 months
- Cost savings through one year
- All significant at p<0.05

Would cognitively impaired hospitalized older adults and their caregivers benefit from TCM?

Funding:
Marian S. Ware Alzheimer Program, and National Institute on Aging, R01AG023116, (2005-2011)
Cognitive Deficits at Baseline

24.9% also had delirium (+ Confusion Assessment Method)
Time to First Readmission

- TCM: 93.4%, 79.8%, 67.9%, 53.1%, 0%
- ASC/RNC: 78.6%, 63.7%, 50%, 25%, 0%

COPD Readmissions Summit, 2013
Mean Number of All-Cause Rehospitalizations Through Six Months

Days

Mean No Rehospitalizations

APN

ASC/RNC

P=.0049
Would do we know about effects of transitions among elderly long-term care recipients over time?

Funding:
National Institute on Aging, National Institute of Nursing Research, R01AG025524, (2006-2011)
Bothersome Physical Symptoms Present at Baseline*

- Aching: 64%
- Shortness of Breath: 56%
- Pain: 41%

(* Symptom Bother Scale)
Depressive Symptoms* Through One Year

Categorized Depression Score Distribution Over Time

- (0-4)
- (5-9)
- (10+)

<table>
<thead>
<tr>
<th>Time (m)</th>
<th>(0-4)</th>
<th>(5-9)</th>
<th>(10+)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0m</td>
<td>11%</td>
<td>26%</td>
<td>63%</td>
</tr>
<tr>
<td>3m</td>
<td>7%</td>
<td>32%</td>
<td>61%</td>
</tr>
<tr>
<td>6m</td>
<td>6%</td>
<td>30%</td>
<td>63%</td>
</tr>
<tr>
<td>9m</td>
<td>6%</td>
<td>28%</td>
<td>65%</td>
</tr>
<tr>
<td>12m</td>
<td>5%</td>
<td>32%</td>
<td>63%</td>
</tr>
</tbody>
</table>

(* GDS-SF)
Does the TCM add Value to the Patient Centered Medical Home?

Funding:
Gordon and Betty Moore Foundation, Rita and Alex Hillman Foundation and the Jonas Center for Nursing Excellence (2011-2014)
Study Aims

• In collaboration with Patient Centered Medical Homes and guided by an Advisory Committee, the Penn team is:

  • Comparing outcomes of PCMH+TCM, a new care delivery approach, to those achieved by the PCMH only
  • Using lessons learned and findings to advance larger scale effort
Modifications to TCM

- Collaboration (co-management) with PCMH
- Focus on patient’s and family caregiver’s goals
- Emphasis on prevention of acute resource use (ED visit, index hospitalization) and continuity of care when acute event occurs
The TCM...

• Focuses on transitions of high-risk cognitively intact and impaired older adults across all settings

• Has been “successfully” translated into practice

• Has been recognized by the Coalition for Evidence-Based Policy as an innovation meeting “top-tier” evidence standards
Implementation Progress

- *Aetna* – expansion of TCM proposed as part of Aetna’s Strategic Plan
- *University of Pennsylvania Health System* – adopted TCM; IBC and Aetna reimbursing for services
- *Other health care systems & communities* – adopting or adapting
- Informing ACA implementation
Major Affordable Care Act Provisions

• CMS - Center for Medicare and Medicaid Innovation
  ▪ Community-Based Care Transitions Program
  ▪ Multi-Payer Patient-Centered Medical Home
  ▪ Shared Savings Program (ACOs)
  ▪ Bundled Payments
• CMS - Transitional Care Payment Codes
• CMS - Hospital Readmissions Reduction Program
Key Lessons

• Solving complex problems will require multidimensional solutions
• Evidence is necessary but not sufficient
• Change is needed in structures, care processes, and health professionals’ roles and relationships to each other and the people they support
• Carpe Diem!
Getting Patients Back on Their Feet Faster

Study Says Care Before and After Discharge From the Hospital Saves Money, Spurs Recovery

By JUDY LUCY
Special to The Washington Post

C
cilford Lynd Sr. is breathing easier these days. In the heat of the summer, he's feeling strong enough to paint a bocce ball court he built for his great-granddaughter. "I can always find something to do," said Lynd, a 79-year-old retired meat cutter who lives in Philadelphia. "I have lawn chairs that need new webbing, and I'm refinishing an end table for my grandson."

Lynd would have had trouble tackling these projects a year ago. In July 1998, he was hospitalized with congestive heart failure. He was readmitted in September. "The last time I went in, I had been to church on Sunday morning. I stopped by to see my youngest daughter, who is our family doctor's office manager. When she saw that I could hardly breathe—my lungs were filled up with so much fluid I was panting—she took me right to the hospital."

Congestive heart failure is a chronic debilitating disease. Typically, patients like Lynd are in and out of the hospital. They suffer fatigue, shortness of breath, fluid buildup in their lungs, sleeplessness. The heart muscle is weakened, unable to do its job pumping blood to the lungs and through the rest of the body.

Without proper care, Lynd's condition would have deteriorated. But he was able to take advantage of a research project at the University of Pennsylvania School of Nursing that patients who received intensive at-home follow-up did significantly better. Compared to a control group that received standard discharge care, the patients receiving intervention by trained professionals had fewer readmissions to the hospital, saving Medicare an average of $3,000 per patient during the six months after their original admission.

The study depended on "advanced practice" nurses with training in geriatrics to assess the patients' physical, emotional and social condition in the hospital and determine what support services would be needed at home.

Collaborating with physicians, family members and other health professionals, the nurses designed individual discharge plans for every patient. They taught patients and the people who would be involved in their care at home about prescribed medications and dietary requirements. They recommended levels of exercise and activity and made follow-up medical appointments. They pointed out potential symptoms and early warning signs of complications that might occur.

Home visits were an integral part of the program. The program's nurses were also available by telephone. All in all, they acted as the go-betweens for patients and the rest of the medical community. They talked to the patients' doctors when questions or problems arose. They helped patients enroll in supplemental insurance plans and arranged for additional in-home care services. They also found support services for the patients'
It Takes A Village for Successful Care Transitions

Mark V. Williams, MD, FACP, MHM
Professor & Chief, Division of Hospital Medicine
Northwestern University Feinberg School of Medicine
Principal Investigator, Project BOOST

And thanks to:
Jeff Greenwald, MD, SFHM
Associate Professor, Harvard School of Medicine
Inpatient Clinician Educator Service, Massachusetts General Hospital
Co-investigator, Project BOOST

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  - NMFF
  - Northwestern University
- Salary Support
  - BlueCross BlueShield
  - AHRQ
- SHM for Project BOOST
- Elsevier – Royalties for textbook
- Honoraria for Presentations
  - Kaplan, QuantiaMD
Goals of BOOST

Philosophy:
There’s a lot more to care transitions than readmissions. Being readmitted is only one bad thing that might happen after a discharge. BOOST was built with this philosophy in mind.

Reality:
What people care about right now… is readmissions.

1 in 5 Medicare patients rehospitalized in 30 days
Half never saw outpatient doc
70% of surgical readmissions—chronic medical conditions
Costs $17.4 billion
Rates of Rehospitalization within 30 Days after Hospital Discharge


Health Affairs 2010; 29:57-64

By Vincent Mor, Oma Intrator, Zhanlian Feng, and David C. Grabowski

The Revolving Door Of Rehospitalization From Skilled Nursing Facilities

1 in 4 readmitted within 30 days

ABSTRACT Almost one-fourth of Medicare beneficiaries discharged from the hospital to a skilled nursing facility were readmitted to the hospital within thirty days; this cost Medicare $4.34 billion in 2006. Especially in an elderly population, cycling into and out of hospitals can be emotionally upsetting and can increase the likelihood of medical errors related to care coordination. Payment incentives in Medicare do not encourage providers to coordinate beneficiaries’ care. Revising these incentives could achieve major savings for providers and improved quality of life for beneficiaries.
After Hospitalization:  
A Dartmouth Atlas Report on Post-Acute Care for Medicare Beneficiaries

• “striking variation in 30-day readmission rates across hospital referral regions and academic medical centers.”
• Little progress reducing readmission rates over the five-year period 2004 to 2009.
• Readmission rates increased for the nation and for many regions and hospitals.
• Early follow-up with clinicians fell short in most regions of the country and at most hospitals.
• Rates of ER visits after discharge varied up to twofold across regions

• QIO Study Community
• ED Utilization
• Readmissions Not disease focused
Observational study of 6,955,461 Medicare FFS hospitalizations for HF; 1993 and 2006, with 30-day f/u.
- Mean age = 80
- 52% Htn, 38% DM, 37% COPD
- LOS 8.8 days down to 6.3
- Discharges to SNF increased from 13% to 20%
- Discharge to home decreased from 74% to 67%
- 30 day readmission increased from 17.2% to 20.1%
- Post-discharge mortality increased from 4.3% to 6.4%
- In-hospital mortality declined from 8.5% to 4.3%
- 30-day mortality declined from 12.8% to 10.7%

A Requirement to Reduce Readmissions
Take Care of the Patient, Not Just the Disease

Mark V. Williams, MD

Booster the discharge process to improve outcomes and reduce unnecessary readmissions
**Brief Primer on BOOST**

- Funded in 2007 by The John A. Hartford Foundation.
- Better Outcomes for Older Adults through Safe Transitions
- Development of discharge transitions toolkit, workbook, and online resource room
- Identifies risk factors for failed transitions, standardizes interventions, improves patient preparation for discharge, and ensures access to aftercare.
- Initial 6 sites enrolled 2008 and then 24 more.
- Now over 160 sites
- Partnerships with Beacon, BlueCross BlueShield, QIOs, state hospital associations
- Better Outcomes by Optimizing Safe Transitions

**BOOST Tools/Resources**

**Tools**
- Risk assessment tool – 8Ps
- Discharge preparedness assessment
- Patient-centered discharge education tools
- Teach Back communications training

**Resources**
- Workbook
- Data collection tools
- Mentors
- Webinars
- Listserv access
- Online community
- Web-based resources
- ROI calculator
- Newsletters

Go to the Website!
www.hospitalmedicine.org/BOOST
The 8Ps

TARGET Assessment Tool – The 8Ps
Tool for Addressing Risk: a Geriatric Evaluation for Transitions

- Prior hospitalization
- Problem medications and Polypharmacy
- Psychological (depression)
- Principal diagnosis
- Poor health literacy
- Patient support
- Palliative care
- Physical function (Phrailty)

- Risk Specific Checklist

DPET

- Discharge Patient Education Tool
- DIAGNOSIS
  - I had to stay in the hospital because: ________
  - The medical word for this condition is: ________
  - I also have these medical conditions: ________

- TESTS
  - While I was in the hospital I had these tests: which showed:

- TREATMENT
  - While I was in the hospital I was treated with: The purpose of this treatment was:
BOOST Future State
Adapted from Chris Kim, MD

On Admission:
- Readmission risk factor screen – 8Ps
- Discharge needs analysis
- General assessment of preparedness
- Medication reconciliation
- Readmit root cause analysis (if needed)

During Hospitalization:
- Interprofessional rounds to develop safe transition plan
- Initiate readmission risk reduction interventions
- Develop a patient-centered transitional care plan
- Educate patient & caregiver using Teach Back
- Engage patient/caregiver and aftercare providers

At Discharge:
- Schedule post-discharge appointment
- Patient friendly discharge instructions
- Handoffs (hospital to aftercare)
- Medication reconciliation
- Reinforce education

Post-Discharge:
- Post-discharge follow-up phone call
- Post-discharge follow-up appointment
- Transmit discharge summary to PCP

Does it work?

Costs

$
We think so

- Volunteer sample of 11 out of 30 hospitals
  - Vary in geography, size and academic affiliation
- Pre-post changes in same hospital readmission rates
  - BOOST vs Control Units
- Readmission rate declined 14.7% to 12.7% in 12 months
  - Relative reduction of 13.6%
  - No change in control units (14.0 vs 14.1%)

Illinois Results – Control Units

30-Day Readmission Rate in 6 Control Units
(p = 0.2664)

- Observed Rate
- Fitted Rate
- 95% Lower CI
- 95% Upper CI

Preliminary
Results – Intervention Units

30-Day Readmission Rate in 6 BOOST Units
(p = 0.0092)

25% Decrease

Preliminary

May 2013

May 2013

www.hospitalmedicine.org/thecentr

BOOST(183)  State Collaboratives
Mentored Implementation

- Leverages expertise of external physician mentors
  - “Prophets” (external content and process experts)
- Coach QI teams
- Resource to develop local experts to help inter-professional frontline teams to redesign care processes and improve patient care.
- Recognized by The Joint Commission and the National Quality Forum with the 2011 John M. Eisenberg Award for Innovation in Patient Safety and Quality at the National Level.

Why Does PMI Work?

- Direct collaboration with external physician mentor
  - overcome motivational and educational hurdles
  - increase organizational acceptance and implementation of change.
- Balances support while challenging the local QI team to meet clearly expressed goals
- Influence senior leadership and medical staff.
- Transfers management skills
Themes

• Change is hard... Changing care transitions is REALLY hard (...and slow).
  — Corollary: Mentors can help.
• There’s leadership support and then there’s LEADERSHIP SUPPORT.
• Teamwork is critical. Break those silos!
  — Corollary: Don’t be hospitalcentric.
• Respect workflow...but EMRs are not the solution.
• The prepared and educated patient and caregiver are your best allies.
• Pilots sites not pilot services.
• Small organizations are more nimble!

NEW CONCEPT
Health information, advice, instructions, or change in management

The Teach Back Method

Assess patient comprehension / Ask patient to demonstrate

Explain new concept / Demonstrate new skill

Clarify and tailor explanation

Patient recalls and comprehends / Demonstrates skill mastery

Re-assess recall and comprehension / Ask patient to demonstrate

Adherence / Error reduction

Thanks, Doctor. I feel like you really understand me.

Jeff Greenwald  jlgreenwald@partners.org  Mark Williams  markwill@nmh.org

BOOST@hospitalmedicine.org

www.hospitalmedicine.org/BOOST
To partner with families, children and adults with special health care needs and disabilities and those who support them in the community to achieve their aspirations for independence, health, inclusion, dignity and quality of life.
# The Coordinating Center’s Expertise

<table>
<thead>
<tr>
<th>CMS Agreement</th>
<th>MCO Care Coordination</th>
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<tbody>
<tr>
<td>West Baltimore</td>
<td></td>
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<tr>
<td>Readmission Reduction Collaborative (WBRRC)</td>
<td></td>
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<table>
<thead>
<tr>
<th>Medicaid Waivers</th>
<th>Infants and Toddlers Program</th>
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<tr>
<td>Living at Home (LAH)</td>
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<tr>
<td>Rare and Expensive Case Management (REM)</td>
<td></td>
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<tr>
<td>Model Waiver</td>
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<tr>
<td>Autism Waiver</td>
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| Housing and Community Planning         |                             |
| Aging and Health Services              |                             |
| Strategic Initiatives and Partnerships |                             |

---

The Coordinating Center
West Baltimore Readmission Reduction Collaborative

The Community Care Transition Program (CCTP) Site in Maryland – 2012
CMS Community Care Transition Program (CCTP)

- Goal - 20% reduction in 30 day all cause hospital readmissions
- 102 sites approved nationally
- Requires a Community Based Organization (CBO)
- Uses Evidence Based Care Transition Intervention matching hospitals’ Root Cause Analysis findings
- Technical assistance from CMS, Delmarva (QIO), Mathematica, Lewin and Palmetto
- Participation in national learning collaborative and peer-to-peer forums

Program Partners

- The Coordinating Center (CBO)
- Bon Secours Hospital
- University of Maryland Midtown Campus Hospital
- University of Maryland Medical Center Main Campus
- Baltimore City Office on Aging (Maryland Access Point program)
## Profile of West Baltimore

<table>
<thead>
<tr>
<th></th>
<th>Southwest Baltimore</th>
<th>Baltimore City</th>
<th>Maryland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployment</td>
<td>43%</td>
<td>34%</td>
<td>23%</td>
</tr>
<tr>
<td>Median HH Income</td>
<td>$23,070</td>
<td>$30,078</td>
<td>$56,250</td>
</tr>
<tr>
<td>Infant Mortality Rate</td>
<td>18.0</td>
<td>11.7</td>
<td>7.9</td>
</tr>
<tr>
<td>(per 1,000 live births)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Life Expectancy</td>
<td>64.2</td>
<td>70.9</td>
<td>77.5</td>
</tr>
</tbody>
</table>

Sources: U.S Census Bureau, Maryland Department of Planning, Maryland Department of Health and Mental Hygiene, Baltimore City Health Department
### Mortality Rate Comparison (per 10,000)

<table>
<thead>
<tr>
<th></th>
<th>Southwest Baltimore</th>
<th>Baltimore City</th>
<th>Maryland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Disease</td>
<td>39.1</td>
<td>28.9</td>
<td>21.9</td>
</tr>
<tr>
<td>Cancer</td>
<td>27.7</td>
<td>23.4</td>
<td>19.2</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>9.8</td>
<td>5.2</td>
<td>0.96</td>
</tr>
<tr>
<td>Stroke</td>
<td>6.5</td>
<td>5.8</td>
<td>4.9</td>
</tr>
<tr>
<td>Diabetes</td>
<td>5.8</td>
<td>3.6</td>
<td>2.6</td>
</tr>
<tr>
<td>Chronic Lower Respiratory Disease</td>
<td>4.9</td>
<td>3.9</td>
<td>4.0</td>
</tr>
</tbody>
</table>

CLRD includes COPD, emphysema, bronchitis, and asthma.

Sources: U.S Census Bureau, Maryland Department of Planning, Maryland Department of Health and Mental Hygiene, Baltimore City Health Department
Root Cause Analysis Findings

High Risk Patients with Medicare fee for service (Part A and B)

- High Risk (2009 Medicare and hospital data) Diagnoses
  - Congestive Heart Failure (CHF)
  - Chronic Obstructive Pulmonary Disease (COPD)
  - AMI (Acute Myocardial Infarction)
  - Septicemia (often related to Pneumonia)
  - End Stage Renal Disease (ESRD)
  - Bipolar
  - Major Depression
  - Psychosis
  - Cellulitis *
  - History of frequent readmissions *
  - Diabetes *

(*Added since implementation based on hospital input and CMS approval)
Selected Quality Measures

Outcomes
- 30 Day All Cause re-admission rate

Activities
- 7 and 14 Day post discharge physician follow up visit rates

Pre and post activation measures
- Person’s engagement in 4 pillars linked to readmission

Enrollment participation and refusal rates and degree of completion of intervention

Monitor trends in “stepping out” of coaching model

The Coordinating Center
CARE TRANSITIONS INTERVENTION (CTI)

Evidence Based Model
http://www.caretransitions.org/
Coleman Care Transitions Intervention (CTI)

- Involves skill transfer vs. doing role

- Research showed reduction in 30-day hospital readmissions (http://www.caretransitions.org/)

- Reduction in 90-day and 180-day readmissions (sustained effect of coaching)

- Net cost savings of $300,000 for 350 patients/12 months

- Adopted by many Community Care Transition sites nationally
Coordinating Center’s Choice of the CTI Model for WBRRC

- Builds a needed pathway for the enrollee between hospital and home

- Uses licensed and non licensed professionals as Transition Coaches
  - Cost effective
  - Good match with The Center’s existing and successful staffing model used for Care Coordination

- Non licensed professionals well suited for the problem solving strategy effective in coaching
CTI focus is on Four Pillars

- **Medication** self-management
- Use of **Personal Health Record**
- Follow-up with **physician** in 7 – 14 days
- Knowledge of “red flags” or **early warning signs/symptoms** and how to respond
Care Transitions in Action

- Transition Liaison identifies eligible patients in hospital

- Transition Coach works with person for 30 days
  - Identifies a motivating personal goal, starting with first visit in hospital
  - Makes follow up visit in home within 72 hours
  - Conducts three phone calls at key points over 30 days

- Transition Coach works to build skills, confidence and provide tools to support *SELF-CARE*
  - Model behavior on handling common problems
  - How to reconcile pre and post hospital medications
  - Practice or “role-play” physician encounter
Enhanced Support for WBRRC Clients

- Referrals to Aging and Disability Resource Centers (ADRC) for clients in their home jurisdictions for longer term services and supports

- Extra support dollars for essential services specifically related to preventing readmissions
  - Arrange for food or meals when critical
  - Enroll in essential transportation programs to access medical follow up
  - Provide disposable cell phones with limited minutes
  - Emergency payment for prescriptions
## Coordinating Center Outcome Data To Date

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Frequency of Diagnosis</th>
<th>% of Occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMI</td>
<td>89</td>
<td>6.01</td>
</tr>
<tr>
<td>Bipolar</td>
<td>110</td>
<td>7.43</td>
</tr>
<tr>
<td>Cellulitis</td>
<td>45</td>
<td>3.04</td>
</tr>
<tr>
<td>CHF</td>
<td>302</td>
<td>20.41</td>
</tr>
<tr>
<td>Chronic Renal Failure</td>
<td>74</td>
<td>5.00</td>
</tr>
<tr>
<td><strong>COPD</strong></td>
<td><strong>312</strong></td>
<td><strong>21.08</strong></td>
</tr>
<tr>
<td>Diabetes</td>
<td>8</td>
<td>0.54</td>
</tr>
<tr>
<td>Diabetes &gt; 1 Hospital or ED visit per year</td>
<td>191</td>
<td>12.91</td>
</tr>
<tr>
<td>ESRD</td>
<td>247</td>
<td>16.69</td>
</tr>
<tr>
<td>Frequently Readmitted Patient &gt; 2 in 6 months</td>
<td>14</td>
<td>0.95</td>
</tr>
<tr>
<td>Major Depression or other depression</td>
<td>208</td>
<td>14.05</td>
</tr>
<tr>
<td>Other Bacterial Skin Infection</td>
<td>20</td>
<td>1.35</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>199</td>
<td>13.45</td>
</tr>
<tr>
<td>Psychosis</td>
<td>83</td>
<td>5.61</td>
</tr>
<tr>
<td>Septicemia</td>
<td>87</td>
<td>5.88</td>
</tr>
</tbody>
</table>

Total Patients: 1,482
Trends since January, 2013

- Lack of working phones is frequent communication barrier
- Mental Illness is the reality of a segment of WBRRC clients and part of the readmission risk
- Transition Coach daily presence in hospitals creates a “rippling effect”
  - Improves collaboration with inpatient and outpatient hospital services that address community health issues and reduce preventable readmissions
- Collaboration with W. Baltimore Health Enterprise Zone (HEZ) to optimize community efforts
Quarterly meetings between one participating hospital and SNFs are effective in identifying avoidable causes of hospital readmissions.

Primary care practices offering more flexibility for scheduling follow up appointments after discharge.

Coordinating Center starting to use real time hospital admission data from CRISP to monitor WBRRC clients discharged across state.
Mrs. Smith’s Story
…and the Four Pillars

**Personal Goal:** Keeping her medication readily available and be well enough to go back to work as a cook.

**Follow up Apt:** Did not have PCP. Missed first apt. at community clinic, next available was one month later. Coach found an alternate clinic to take her sooner.

**Medications:** Trouble with transportation to pharmacy. In problem solving, coach found local pharmacy that delivered.
Mrs. Smith’s Story, cont’d.

**Personal Health Record**  Client appreciated that PHR helped her keep medications and questions straight, despite ADD condition.

**Red Flags**  Client and Coach reviewed triggers, which client admitted ignoring. Client said she had additional problems with depression and ADD. As result, she got apt. with an outpatient mental health clinic that provided transportation.

**OUTCOME**  Client remained out of hospital for at least 30 days.
For More Information Contact:

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Patient Perspective
Reducing Readmissions

John W. Walsh
President
COPD Foundation
REALITY CHECK

Average time off from work = 1 day per work week

Failure to exercise
Breathlessness
Exercise limitation
Emotional burden on family
Low self-esteem
Muscle wasting

Nearly ½ U.S and over ⅓ of EU respondents and reported high levels of lost productivity

Affordable Care Act

Osteoporosis 2-19%
Depression 18-22%
Heart disease 46-58%
Diabetes 12-25%
High blood pressure 50-55%
WHAT DO PATIENTS SAY?

Stress moving from cocoon of the hospital to home alone was great even with a supportive family.

It’s so overwhelming… you don’t know what to ask.

My homecare provider didn’t understand nebulizers and oxygen.

They sent me home with temporary equipment then I didn’t know how to use what they delivered.
HOW WE CAN HELP - PATIENT RESOURCES

COPD FOUNDATION

866-316-2673
Peer-to-Peer

COPD 101 Educational Video Series

Have questions about living with Chronic Obstructive Pulmonary Disease (COPD)?
¿Tiene Ud. dudas o preguntas acerca de cómo vivir con EPOC (Enfermedad Pulmonar Obstructiva Crónica)?

WebMD

COPD Reference Guide (RPG)

TRANSLATED PATIENT EDUCATIONAL MATERIALS

Peer-to-Peer

Drive4COPD
What Does PCORI Fund?

Chad Boult, MD, MPH, MBA
Director, Improving Healthcare Systems Program
October 11, 2013
What Is PCORI Looking For?

PCORI supports high-quality research
- that produces **trusted information**
- that will **improve health care and outcomes**
- that patients and their families **care about**
Which Outcomes Do Patients Care About?

Examples:
- Health
- Relief from symptoms
- Health-related quality of life
- Function (ability to do what they want to do)
- Safety from medical harm
- Admission/re-admission to hospitals
- Survival
Two Parallel Solicitation Processes

- Investigator-initiated ("broad") funding announcements
  - Broad topic areas announced twice a year
  - PCORI solicits applications to answer questions posed by investigators

- Stakeholder-initiated ("targeted") funding announcements
  - Specific questions suggested by patients, clinicians, and other stakeholders
  - PCORI solicits applications to answer these questions
Investigator-Generated ("Broad") Funding Announcements

Figure 1: Traditional Process

Investigator-Generated Research Just One Part of the Process

- PCORI issues broad funding announcements
- Researchers partner with stakeholders to generate questions
- Researchers, stakeholders apply review criteria in their applications
- Peer review prioritizes applications by level of alignment with criteria

Diverse Research Portfolio answering key questions for patients and clinicians
Broad PFAs

The current cycle opened September 16, applications are due December 16, awards will be made in May 2014.

The next cycle will open in February 2014, applications will be due in May 2014.

Overall, PCORI:

- Has approved 197 awards totaling $303 million through broad PCORI funding announcements (PFAs).
- Will award more than $400 million in 2013 and upwards of $500 million in 2014.
Stakeholder-initiated ("Targeted") Funding Announcements

Topics submitted through PCORI’s website www.pcori.org/questions

Topics posed at PCORI-sponsored workshops

Topics identified by IOM, NIH, AHRQ, and other organizations and associations

Topics submitted by PCORI staff members
Advisory Panels Prioritize the Top 10–20 Questions

Advisory panels (21 people) include patients, caregivers, stakeholders, and researchers. Meetings are webcast to the public and archived.

Before meeting, panelists receive a “topic brief” to provide background information on each of the questions to be prioritized.

Panelists meet in person, using discussion and software, to prioritize the top questions for possible funding announcements in the future.
Targeted PCORI Funding Announcements

Following approval by PCORI’s board, PCORI staff members develop solicitations (PFAs) for applications for contracts to conduct research to answer the highest-priority questions.

Merit review of submitted applications
- By scientists, patients, caregivers, and stakeholders.
Early Targeted PFAs

The first “targeted” funding announcements were posted this past summer:

- Treatment Options for African Americans and Hispanics/Latinos with Uncontrolled Asthma
- Preventing Serious Injuries from Falls in the Elderly.

After Board approval, the next ones should be posted in early 2014.
Get Involved

Patients, stakeholders, and researchers can participate in PCORI’s internal processes through [pcori.org/get-involved](pcori.org/get-involved):

- Submit questions for possible future PFAs.
- Apply to be a member of an advisory panel.
- Apply to be a member of a merit review panel.

Investigators can apply for funding at [pcori.org/funding-opportunities/funding-center](pcori.org/funding-opportunities/funding-center).