Reducing the Likelihood of Readmissions Following COPD Exacerbation

Carolyn L. Rochester, M.D.
Director, Yale COPD Program
Section of Pulmonary, Critical Care and Sleep
Yale University School of Medicine
Director, Pulmonary Rehabilitation Program
VA Connecticut Healthcare System
DISCLAIMER:

All health and health-related information within this presentation is intended to be general in nature and should not be considered medical advice. The information provided herein is for informational purposes only. It should not be used as a substitute for a visit with an appropriately qualified and licensed health care professional.
Individualized interventions are needed to improve patient outcomes!
Hospital Readmissions Following COPD Exacerbation

- COPD exacerbations are associated with morbidity, mortality, and healthcare costs
- Overall 30-day readmission rate is 17-30%
- ~1/5 of U.S. Medicare beneficiaries are readmitted within 30 days of hospital discharge at annual cost > $15 billion
- Since 2009, as part of Affordable Care Act, 30 day readmission rates for Congestive Heart Failure (CHF), pneumonia, Myocardial Infarction (MI) publicly reported as quality performance measure; COPD added
- Starting FY 2015, Medicare CMS penalizing hospitals by decreasing reimbursements to those with high unplanned readmission rates

Jencks, NEJM ’09; 360:1418
Krumholz, Cir Cardiovasc Qual Outcome ‘09; 2:407
Baker, Int J COPD ‘13; 8: 551
Factors Associated with Increased Risk of Hospital Readmission

- **Patient Factors**
  - Severe COPD, oxygen (O$_2$) use, respiratory muscle overload at time of discharge (d/c), older age
  - Low socioeconomic status, impaired QOL
  - Marital status
  - Comorbidities
  - Low physical activity levels/functional limitation
  - Prior exacerbation history

- **Provider Factors**
  - No prescription (Rx) of Short Acting Bronchodilator (SABD), Long Acting Bronchodilator (LABD), or Inhaled Corticosteroid (ICS) within 30 days of d/c
  - Oral corticosteroid, antibiotics (Abx) on d/c

- **System Factors**
  - LOS < 2 or > 5 day
  - Lack of follow-up (f/u) post d/c
  - Suboptimal transitions of care

Elixhauser ‘11; AHRQ Sharif, Ann ATS ‘14 Baker, Int J COPD
Steer, Q J Med ’10 Hurst NEJM ’10
Han, Radiol ’11 Turner BMC Pulm Med ’14
Identification of Five COPD Subgroups with Different Prognoses in the ECLIPSE Cohort Using Cluster Analysis

<table>
<thead>
<tr>
<th>Table 3: Longitudinal Outcomes for Each Identified Cluster.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Longitudinal outcomes</strong></td>
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<tr>
<td></td>
</tr>
<tr>
<td>*Died within 3 years (%)</td>
</tr>
<tr>
<td>Median time to COPD exacerbation (days)</td>
</tr>
<tr>
<td>*COPD hospitalization-within 3 years (%)</td>
</tr>
<tr>
<td>COPD exacerbation rate (PPPY)</td>
</tr>
<tr>
<td>COPD hospitalization rate (PPPY)</td>
</tr>
<tr>
<td>Rate of decline in FEV₁ (mL)</td>
</tr>
<tr>
<td>SGRQ total score change at year 3</td>
</tr>
<tr>
<td>Change in 6-minute walk distance (m) at year 3</td>
</tr>
<tr>
<td>Change in emphysema % LAA at year 3</td>
</tr>
</tbody>
</table>
“Relapsing Risk Profile”
Integrating Risk Factors Into Practice

- LACE score – based on variables independently associated with readmission
  - Length of stay (L), Acuity of the admission (A), Comorbidity (C), and number of emergency department visits in 6 months before admission (E)
  - LACE score index ranges from 0 (2.0% expected risk of death or urgent readmission within 30 days) to 19 (43.7% expected risk)
  - The LACE index was discriminative (C statistic .684) and accurate (goodness-of-fit statistic 14.1) at predicting outcome risk

Van Walraven, CMAJ ‘10; 182(6)551-7
Risks Prediction Models for Hospital Readmission: A Systematic Review

- MEDLINE, CINAHL databases and Cochrane Library searched
- 30 studies of 26 unique models met the inclusion criteria
- Conclusion: most current readmission risk prediction models perform poorly
- Although most models incorporated variables for medical comorbidity and use of prior medical services, few examined variables associated with overall health and function, illness severity, or social determinants of health

Kansagara D, JAMA ‘11; 306(15)1688-98
Reducing Hospital Readmissions for COPD

Good News

Bad News
The Basics

- Learn about exacerbation history
  - Nature, frequency, typical symptoms, history of hospitalization
- Identify and address triggers (and identify “dyspnea crisis”) and risk factors
- Smoking cessation
- Influenza vaccination
  - Also reduce risk of acute coronary syndrome hospitalizations in elderly COPD patients
- Pneumococcal vaccine
- Optimize pharmacotherapy

Poole, Cochrane Database Syst Rev ‘06
Sung, Vaccine ‘14; 32(30):3843-9
www.goldcopd.com, 2017
Jones, Ther Adv Resp Dis ‘15; 1-13
Tashkin NEJM ‘08, 359:1543
Rennard, Respir Res ‘11; 12:1465
Albert, NEJM ‘11; 365:689
Optimization of Pharmacotherapy

- Use of maintenance COPD medications
- Maintenance medications reduce exacerbation risk:
  - Long-acting $\beta$-agonists
  - Long-acting anticholinergics
  - Inhaled corticosteroids
  - Combination inhalers: dual class bronchodilators or bronchodilator/ICS
  - Phosphodiesterase-4 (PDE4) inhibitors
  - Azithromycin

www.goldcopd.com, 2017
Jones, Ther Adv Resp Dis ‘15; 1-13
Tashkin NEJM ‘08, 359:1543
Rennard, Respir Res ‘11; 12:1465
Albert, NEJM ‘11; 365:689
Pharmacotherapy and Reduction of Exacerbation Risk

Retrospective cohort study, 1827 pts
National Healthcare Database: Triple combination Rx→ adjusted Hazard Ratio (HR) 0.85 for hospital admissions c/w combination inhaled corticosteroid and long-acting beta-2-agonist (ICS/LABA) (p = .04)

Niewoehner, Ann Int Med ’05; 143:317
Aaron, Ann Int Med ’07; 146:545
(Short, Chest ’11; epub ahead of print)
Addressing Anxiety and Depression

- Only 27-33% of patients with COPD and depression are treated for it

- Systematic review, 24 studies
  - 20 studies found anxiety/depression to increase risk of being hospitalized
  - 4 qualitative studies: patients reported anxiety/depression as important factors affecting ability to cope

Fan, Arch Int Med ‘07; 167(21)2345
Pooler, Int J COPD ‘14; 9:315-30
Non-invasive Ventilation (NIV)

- Respiratory muscle overload at discharge predicts hospital readmission \(^1\)
- Initial treatment with NIV compared with endotracheal tube (ETT) \(^2\)
  - 25,628 patients hospitalized with Acute Exacerbations of COPD (AECOPD), 420 U.S hospitals, (Premier Inpatient Database)
  - No difference in 30 days all cause or COPD-specific readmissions

1. Gonzalez, Chest ’08; 133:941-7;
2. Lindenauer, JAMA ’14; 174(12)1982
Non-invasive Ventilation (NIV)

- Retrospective analysis, multifaceted respiratory therapist (RT)-led program for 397 patients hospitalized ≥ 2x in previous year
  - NIV, med reconciliation, O₂, ongoing RT-led care
  - Proportion of patients readmitted ≥ 2x decreased to 2.2% in the year following the intervention (p < .0001)

- RCT, 116 patients with persistent hypercapnia (PaCO₂ > 53 mmHg) 2-4 weeks after AECOPD
  - N=59: supplemental O₂ alone (median 1 l/min flow)
  - N=57: supplemental O₂ plus NIV (bilevel, median pressures 24/6 cm H₂O, back up rate 14)
  - Median time to readmission or death 4.3 months vs 1.4 months (O₂ alone); p=.002

1. Coughlin, J Clin Sleep Med 2015; epub
2. Murphy, JAMA 2017; 317(21)2177-86
Oral Nutritional Supplementation and Readmissions

- Medicare patients > 65 years, hospitalized with primary diagnosis of COPD (Premier research database)
- Sample of 10,322 hospitalizations with Oral Nutritional Supplementation (ONS) provided and 368,097 hospitalizations- no ONS provided
- ONS use:
  - 21.5% (1.9 day) decrease in Length of Stay (LOS)
  - 13.1% decrease in probability of 30-day readmission
  - 12.5% decrease in hospital costs

Thornton-Snider, Chest ‘15, epub ahead of print
Post-discharge Follow-up and Readmissions

- Retrospective cohort study, 62,746 fee-for-service Medicare beneficiaries hospitalized for COPD over 10 year period (Sharma, Arch Int Med ‘10; 170:1664-70)
  - 66.9% had f/u with PCP or pulmonologist within 30 days
  - Those who had f/u visit:
    - reduced risk of ER visit (HR 0.86; 21.7% vs. 26.3%, p < .001)
    - reduced risk of readmission (HR 0.91; 18.9% vs. 21.45, p < .001)

- Population-based study in Canada (Sin, Am J Med ‘02; 112:120-5)
  - 25,256 patients with ≥ 1 ER visit for COPD/asthma over 1 year
  - 31% (7829) had office f/u within 30 days
  - F/u visits: 23% fewer repeat ER visits in subsequent 90 days

- Population-based retrospective cohort study (Gavish, Chest ‘15)
  - 195 patients hospitalized for COPD
  - 44.1% had f/u with pulmonologist in 30 days
  - NOT attending f/u associated with higher risk of re-hospitalization within 90 days (OR 2.91)
Pulmonary Rehabilitation (PR)

“A comprehensive intervention based on a thorough patient assessment followed by patient-tailored therapies which include, but are not limited to, exercise training, education and behavior change, designed to improve the physical and psychological condition of people with chronic respiratory disease, and to promote the long-term adherence to health-enhancing behaviors”

Spruit MA, Am J Respir Crit Care Med ‘13; 188:e13-64
Goals of Pulmonary Rehabilitation

1. Reduce/minimize symptom burden
2. Maximize exercise performance
3. Promote autonomy
4. Increase participation in everyday activities
5. Enhance health-related quality of life
6. Effect long-term health-enhancing behavior
PR is a Cost-effective Therapy for COPD

1. Telehealth for chronic disease £92,000/QALY
2. Triple Therapy £7,000-£187,000/QALY
3. LABA £8,000/QALY
4. Tiotropium £7,000/QALY
5. Pulmonary Rehabilitation £2,000-8,000/QALY
6. Stop Smoking Support with pharmacotherapy £2,000/QALY
7. Flu vaccination £1,000/QALY in “at risk” population

Essential Components of PR

- Structured and supervised exercise training program (individualized)
- Patient education/behavioral program
  - Collaborative self-management
- Patient assessment and outcomes measures
  - Exercise capacity
  - Dyspnea
  - Health status
  - Impact on psychological comorbidity
  - Other

Spruit, AJRCCM ‘13; 188:e13-64
Bolton, Thorax ‘13; 68Suppl2; ii1-30
Marciniuk, Can Respir J ‘10; 17:159-68
Ries, Chest ‘07; 131:4S-42S
Rochester, AJRCCM ‘15
Benefits of PR

- Improved exercise capacity
  - Increased limb muscle strength and endurance
- Reduced dyspnea, leg fatigue
- Improved ability to perform activities of daily living
- Improved emotional function
- Enhanced self-efficacy, knowledge, and collaborative self-management
- Improved health-related quality of life
- Reduced hospitalizations and unscheduled healthcare visits
- Potential for increased daily physical activity levels

Spruit, AJRCCM ‘13; 188:e13-64
Rochester, Clin Chest Med ‘14; 35;369-89
<table>
<thead>
<tr>
<th>PR and HC Utilization</th>
<th>Type</th>
<th>Patient “n”</th>
<th>FEV1%</th>
<th>Timing</th>
<th>#Exac.</th>
<th>Urgent Visits</th>
<th>#Hosp.</th>
<th>Hosp d. or LOS</th>
<th>HC Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cote ERJ ‘05</td>
<td>Pre-post</td>
<td>116</td>
<td>32</td>
<td>stable</td>
<td></td>
<td></td>
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<tr>
<td>Cecins ‘08</td>
<td>Pre-post</td>
<td>187</td>
<td>41 ± 19</td>
<td>stable</td>
<td></td>
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<tr>
<td>Hui Chest ‘03</td>
<td>Pre-post</td>
<td>36</td>
<td>43</td>
<td>stable</td>
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<tr>
<td>CPRC JCR ‘04</td>
<td>Pre-post</td>
<td>521</td>
<td>44</td>
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<td></td>
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<tr>
<td>Raskin JCR ‘06</td>
<td>Pre-post</td>
<td>128</td>
<td>44</td>
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<tr>
<td>Rasekaba CRD ‘09</td>
<td>Pre-post</td>
<td>53</td>
<td>range</td>
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<td></td>
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<tr>
<td>Griffiths Lancet ‘00</td>
<td>RCT</td>
<td>200</td>
<td>39</td>
<td>stable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Guell Chest ‘00</td>
<td>RCT</td>
<td>60</td>
<td>35 ± 14</td>
<td>stable</td>
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<td></td>
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<tr>
<td>Man BMJ ‘04</td>
<td>RCT</td>
<td>34</td>
<td>41.7</td>
<td>peri-AE</td>
<td>Trend</td>
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<td>Trend</td>
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<tr>
<td>Seymour Thorax ‘10</td>
<td>RCT</td>
<td>60</td>
<td>52 ± 20</td>
<td>peri-AE</td>
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<tr>
<td>Eaton Respirol ‘09</td>
<td>RCT</td>
<td>97</td>
<td>36</td>
<td>peri-AE</td>
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<td>No Diff.</td>
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<tr>
<td>Ko Respirol ‘09</td>
<td>RCT</td>
<td>60</td>
<td>46 ± 20</td>
<td>peri-AE</td>
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<td>No Diff.</td>
<td>No Diff.</td>
<td>No Diff.</td>
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</table>
PR Reduces Healthcare Utilization

9 Centers: 521 pts

11 Centers: 128 pts

Table 2 - CHANGES IN HEALTHCARE UTILIZATION AFTER PULMONARY REHABILITATION (n = 128)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Range</th>
<th>Sum</th>
<th>P*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitalizations, ED visits, ECF days</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospitalizations</td>
<td>-0.25</td>
<td>-4–2</td>
<td>-32</td>
<td>.017</td>
</tr>
<tr>
<td>Hospitalizations (respiratory)</td>
<td>-0.17</td>
<td>-3–2</td>
<td>-21</td>
<td>.008</td>
</tr>
<tr>
<td>Hospital days</td>
<td>-2.18</td>
<td>-106–30</td>
<td>-271</td>
<td>.015</td>
</tr>
<tr>
<td>Hospital days (respiratory)</td>
<td>-1.98</td>
<td>-106–34</td>
<td>-254</td>
<td>.016</td>
</tr>
<tr>
<td>ICU days</td>
<td>-1.58</td>
<td>-110–1</td>
<td>-202</td>
<td>.0007</td>
</tr>
<tr>
<td>ED visits</td>
<td>-0.16</td>
<td>-6–4</td>
<td>-21</td>
<td>.10</td>
</tr>
<tr>
<td>ECF weeks</td>
<td>-0.14</td>
<td>-27–19</td>
<td>-18</td>
<td>.82</td>
</tr>
<tr>
<td>Physician and healthcare providers visits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physician</td>
<td>-2.4</td>
<td>-26–14</td>
<td>-298</td>
<td>&lt; .0001</td>
</tr>
<tr>
<td>Skilled nursing</td>
<td>-0.1</td>
<td>-42–48</td>
<td>-9</td>
<td>.52</td>
</tr>
<tr>
<td>Physical therapy</td>
<td>-1.1</td>
<td>-32–18</td>
<td>-136</td>
<td>.027</td>
</tr>
<tr>
<td>Home-health aide</td>
<td>0.17</td>
<td>-8–38</td>
<td>21</td>
<td>.57</td>
</tr>
</tbody>
</table>

ED indicates Emergency Department; ECF, extended care facility; ICU, intensive care unit.
*From signed rank test.

California PR Collaborative Group
JCR 2004; 24:52-62

Northeast PR Consortium
JCR 2006; 26:231-6
Reduction In Exacerbation Frequency and Hospitalization following Participation in PR

PR Reduces Readmission Risk Following COPD Exacerbation

- 160 patients with severe COPD
- Outpatient PR started within 4 weeks of a hospitalization for AECOPD (4 week supervised, 3 week unsupervised)
- Significant gains in incremental shuttle walk test, endurance shuttle walk test and chronic respiratory disease questionnaire.
- Fewer admissions in the 12 months post-PR as compared with pre-PR

Revitt, Respirology ’13;18:1063-8
Pulmonary Rehabilitation and Readmissions After AECOPD

Systematic review: 9 trials, 432 participants
(Puhan, Cochrane Database Syst Rev 2011)

42% reduction in chance of hospital admission (OR.22) over median 25 weeks f/u

Prevention of Acute Exacerbations of COPD
ACCP-Canadian Thoracic Society Guideline (Chest 2015; 147: 894-942):
PR recommended to prevent AECOPD in pts with moderate, severe, or very severe COPD with history of exacerbation within ≤ 4 weeks (Grade 1C)
## Factors Associated with Readmission That Can Be Addressed In PR

<table>
<thead>
<tr>
<th>Factor</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of previous exacerbations</td>
<td>Identify/address triggers, identify/manage “dyspnea crises,” enhance patient efficacy to prevent/manage exacerbations</td>
</tr>
<tr>
<td>Smoking, vaccinations, pharmacotherapy, supplemental O₂</td>
<td>Address smoking cessation, liaison with healthcare providers to ensure medical therapies optimized</td>
</tr>
<tr>
<td>Anxiety, depression</td>
<td>Screen for psychological co-morbidity, specialty referral as needed</td>
</tr>
<tr>
<td>Post-discharge f/u</td>
<td>Ensure patient has scheduled f/u and encourage attendance</td>
</tr>
<tr>
<td>Physical Activity (PA) Levels</td>
<td>Improve exercise tolerance and promote PA in daily life</td>
</tr>
</tbody>
</table>
Pulmonary Rehabilitation

Prevent Exacerbations and/or Reduce their Severity

Increase Physical Activity

(Lightgray) Impact Disease Progression ?

Lung Function Decline
Hospitalizations

Improve Disease Understanding and Self-management

Identify Co-morbidities

Reduce Non-exacerbation Readmissions ?

Prevent Functional Status Decline and Hasten recovery From Exacerbations
Change in Physical Activity over Time and Hospital Readmissions

- 543 patients, moderate-severe COPD
- Self-reported PA levels (mostly walking) assessed, reevaluated at 2 year f/u, then assessed hospital admissions over the subsequent 3 years
- Most patients maintained same PA level over 2 year
- Patients with no regular PA, low PA or who decreased PA levels had increased rates of hospitalization
- Patients with moderate-high PA or who increased PA over time had lower hospitalization rates

Esteban, Respirology ‘14; 19:330-8
Self-Management

- Help patients acquire skills needed to manage medications, guide health-promoting behavior change, & provide emotional support to increase self-efficacy for coping and managing disease

Typically includes:

- Action plans
- Education
- Strategies for problem solving, goal setting, resources utilization, and other skills
Self-Management for Patients With COPD

23 studies, 3189 participants comparing Self-Management (SM) vs. Usual Care (UC)
9 studies (n =1749): decreased probability of respiratory-related hospitalization (OR.52)
6 studies (n = 1365): decreased probability of all-cause hospitalization (OR.6)

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Self-management</th>
<th>Control</th>
<th>Odds Ratio M-H,Random,95% CI</th>
<th>Weight</th>
<th>Odds Ratio M-H,Random,95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bourbeau 2003</td>
<td>31/96</td>
<td>48/95</td>
<td></td>
<td>17.3%</td>
<td>0.47 [0.26, 0.84]</td>
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<tr>
<td>Coultas 2005a</td>
<td>6/49</td>
<td>3/26</td>
<td></td>
<td>3.4%</td>
<td>1.07 [0.24, 4.68]</td>
</tr>
<tr>
<td>Coultas 2005b</td>
<td>5/51</td>
<td>2/25</td>
<td></td>
<td>2.5%</td>
<td>1.25 [0.23, 6.94]</td>
</tr>
<tr>
<td>Gallefoss 1999</td>
<td>3/31</td>
<td>4/31</td>
<td></td>
<td>2.9%</td>
<td>0.72 [0.15, 3.54]</td>
</tr>
<tr>
<td>Khdour 2009</td>
<td>11/71</td>
<td>30/72</td>
<td></td>
<td>10.5%</td>
<td>0.26 [0.12, 0.57]</td>
</tr>
<tr>
<td>Koff 2009</td>
<td>1/19</td>
<td>2/19</td>
<td></td>
<td>1.2%</td>
<td>0.47 [0.04, 5.70]</td>
</tr>
<tr>
<td>Monnikhof 2003</td>
<td>15/127</td>
<td>16/121</td>
<td></td>
<td>11.5%</td>
<td>0.88 [0.41, 1.87]</td>
</tr>
<tr>
<td>Ninot 2011</td>
<td>5/18</td>
<td>3/20</td>
<td></td>
<td>2.9%</td>
<td>2.18 [0.44, 10.83]</td>
</tr>
<tr>
<td>Rea 2004</td>
<td>18/83</td>
<td>20/52</td>
<td></td>
<td>11.2%</td>
<td>0.44 [0.21, 0.95]</td>
</tr>
</tbody>
</table>
SM Implemented Immediately Following AECOPD

Systematic review:
7 studies included, all had action plans, education and ≥ 2 SM skills taught

At 12 months:
- Positive effect on knowledge and management of AECOPD
- No significant difference in number of patients readmitted to hospital
- No difference in QOL, mortality, exercise capacity, primary care use
Disease Management Programs Can Be Beneficial

- Randomized Controlled Trial (RCT), 5 VA sites, 743 patients
- Disease management intervention vs. usual care
  - 1.5 hour education session (RT):
    - Observed inhaler technique
    - Medication review and adjustment
    - Smoking cessation counseling
  - Action plans for exacerbation and monthly telephone call (TC) f/u

![Graph showing comparison between Usual Care and Disease Management (Dis. Mgmt.)](image)
Reducing Hospital Readmissions for COPD

Good News

Bad News
The Bad News

- COPD is under-diagnosed \(^1,2,3,4\)
- Many practitioners do not adhere to evidence-based treatment guidelines \(^5,6\)
- Non-adherence to prescribed medical Rx is a major problem \(^7,8,9,10\)
- Pulmonary rehabilitation is under-utilized \(^11,12\)
  - Low referral rates
  - Poor patient uptake and adherence rates
- Patients report many barriers to physical activity \(^13\)
  - Health-related, environment-related, self-related
- Role of self-management programs controversial—increased mortality signal in study by Fan et al. \(^14\)

More Bad News

- COPD is often misdiagnosed ( > 25%)
  - Chart diagnoses are often incorrect
  - Many things masquerade as COPD exacerbation
  - Issue particularly problematic in underserved patient populations ¹
  - Misdiagnosis of COPD is often associated with obesity and cardiac disease ², ³

- Hospital readmissions result from a myriad of things other than just COPD exacerbation ⁴, ⁵

¹ Ghattas, Int J COPD ‘13; 8:545-9; ² Collins, Chest ‘14; 146;1513, ³ Guder, Eur J Heart fail ‘14; 16:1273; ⁴ Jencks, NEJM ‘09; ⁵ Rosen, Med Care ‘14; 52:243
Pulmonary Rehabilitation is Underutilized!

Current availability of PR services is ≤ 1.2% of individuals with COPD

AACVPR Survey: 389 respondents:

Number of patients in PR program per year:

- 17%: 10-25
- 35.6%: 25-50
- 28.4%: 51-100
- 12.1%: > 100

< 10% of all hospital discharges complete early post discharge PR

Early Rehabilitation Intervention to Enhance Recovery During Hospital Admission for an Exacerbation of Chronic Respiratory Disease: an RCT

RCT: 60 hospitalized patients, outpatient PR within 2 weeks hospital d/c vs. UC - no difference in readmission rate at 12 months

(Ko, Respirology ’11; 16:617)
Patients Often Lack Access to PR

- Insufficient infrastructure and inadequate program commissioning
- Geographic inaccessibility
- Limitations on patient candidacy
  - Disease type, severity
- Limitations on eligibility over time
- Limited number of PR health professionals

Patients Report Many Barriers to Participation


This official policy statement of the American Thoracic Society (ATS) and the European Respiratory Society (ERS) was approved by the ATS Board of Directors, October 2015, and by the ERS Science Council, September 2015

Am J Respir Crit Care Med Vol 192, Iss 11, pp 1373–1386, Dec 1, 2015
Integrated Care Programs Can Reduce Readmissions

155 patients hospitalized with AECOPD:
- Integrated care (IC) vs. UC
- Individual tailored action plan, Registered Nurse (RN) care manager and web-based call center

Single center controlled study
- IC (n = 91) vs. UC (n = 81) (Gold stage III-IV patients)
- IC program (“COPD home”): education including practice sessions, self management plan, home visits, call center for patient support (RN), TC f/u
- 12.6% reduction in hospital admissions in 1st year f/u
- 46.5% reduction in 2nd year f/u
- trend toward shorter survival time in the IC group....(HR 1.33)
What Else Can Be Done?

- Improve transitions of care $^{1,2}$
  - Pre-discharge planning (standard process/checklist)
  - Communication re-admission to outpatient providers
  - Timely, organized, and accessible d/c info
  - Medication reconciliation and safety assessment
  - Patient education: “teach-back,” written instructions, and/or “transition coaches”
  - Care coordination inpatient $\rightarrow$ outpatient: formal handoffs
  - Engage community support
  - Advance care planning
  - Symptom assessment and Rx post-d/c; early outpatient f/u
- Patient-centered medical homes: community-based multidisciplinary transitional care program $^3$

Relationship Between COPD Readmissions and Other Measures of Hospital Quality

- Data from 2015 Center for Medicare Service (CMS) files, 3705 hospitals nationwide.
- Compared COPD readmission rates to other measures of quality.

Rinne, AJRCCM 2017; 196:47-55
Reducing Hospital Readmissions for COPD

**Good News**

- Immunizations
- Meds
- NIPPV
- PR
- Self Mgmt.
- Post-d/c f/u
- Disease Management, Integrated Care

**Bad News**

- Underdiagnosis
- Under-utilization of available Rx
- Poor Adherence to Rx
- System Inefficiencies
- Multiple Reasons for Readmissions
- Misdiagnosis

**Multiple Reasons for Readmissions**

- System Inefficiencies
- Poor Adherence to Rx
- Under-utilization of available Rx
- Underdiagnosis
- Misdiagnosis
Thank You For Your Attention!