CHRONIC OBSTRUCTIVE PULMONARY DISEASE DISCHARGE INSTRUCTIONS AND QUALITY OF LIFE EVALUATION: A FEASIBILITY STUDY

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DISCLOSURE

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OBJECTIVES:

• The learner will be able to identify two components that can improve self-management knowledge for patients with chronic obstructive pulmonary disease (COPD)

• The learner will be able to describe two ways to evaluate patient outcomes following implementation of a COPD action plan

• The learner can explain two factors that can impair outcomes among patients with COPD
EMPLOYER: RESEARCH MEDICAL CENTER

Kansas City, Missouri, United States
What is Chronic Obstructive Pulmonary Disease (COPD)?

- It is a progressive, debilitating lung disease causing airflow limitation
- Characterized by shortness of breath and limited activity tolerance
- Involves acute exacerbations and lung infections, which are a source of morbidity and mortality.
BACKGROUND:

- COPD is the 3rd leading cause of death in United States and becoming 3rd globally
- Tremendous burden to patients/families, employers and the health care system
- Patients experience frequent hospital admissions and readmissions
- Low socioeconomic status and comorbidities are common characteristics

LITERATURE REVIEW

- Few studies examined COPD action plans compared to action plans for asthma (69/400, respectively)
- Few studies conducted in the critical care setting
- Mixed results: some have fewer hospitalizations following education
- Quality of Life (QOL) is sometimes improved following COPD education
- Most education is done as an outpatient

Gershon, Dolmage, Stephenson, & Jackson (2012); Jalota & Jain (2016); Labrecque, Rabhi, Laurin, Favreau, Moullec, Lavoie, & Julien (2011); Pleasants, Riley & Mannino (2016).
RESEARCH QUESTION

What is the outcome of using the modified American Lung Association’s COPD Action Plan in terms of self-rated knowledge and assessment of QOL in a cohort of patients discharged after hospitalization for an exacerbation of COPD (ECOPD) or COPD?
METHODS

• Prospective feasibility study that took place on a Progressive Care Unit (PCU)

• Conducted on adult participates hospitalized with an exacerbation of COPD (ICD J44.1) or COPD (J44.9)

• Administered American Lung Association’s COPD Action Plan (a copy given to each participant, a 30 day calendar, and a postcard sent as reminder of the call)

• Utilized the World Health Organization Quality of Life-BREF (WHOQOL-BREF) questionnaire (after action plan reviewed and at 30 day call back)

INTERVENTION

• The Principle Investigator (PI) and one trained nurse delivered the COPD Action Plan in the privacy of each participant’s room

• The WHOQOL-BREF was administered by the (PI) after review of the action plan

• An agreed upon time and day was set for the 30 day follow up call to readminister the WHOQOL-BREF
INTERVENTION: COPD ACTION PLAN

**American Lung Association**

**My COPD Action Plan**

**Green Zone: I am doing well today**
- Usual activity and exercise level
- Usual amount of cough and phlegm/mucus
- Sleep well at night
- Appetite is good

**Actions**
- Take medicines as prescribed
- Use oxygen as prescribed
- Continue regular exercise/diet plan
- A 12-hour period after cigarette smoke, inhaler or irritants

**Yellow Zone: I am having a bad day or a COPD flare**
- More breathless than usual
- I have less energy for my daily activities
- Increased or thicker phlegm/mucus
- Using quick-relief inhaler/budesonide more often
- My breath sounds more than usual
- More coughing than usual
- Feel like I have a "chest cold"
- Poor sleep and my symptoms woke me up
- My appetite is not good
- My medicine is not helping

**Actions**
- Continue daily medication
- Use quick-relief inhaler/budesonide as needed
- Start on an additional corticosteroid (specifics vary, doses and intervals)
- Start on oral corticosteroids (specifics vary, doses and intervals)
- Use oxygen as prescribed
- Get plenty of rest
- Use personal fans for cooling
- At all times avoid cigarette smoke, inhaler or irritants
- Call provider immediately if symptoms don’t improve

**Red Zone: I need urgent medical care**
- Severely shortness of breath even at rest
- Not able to do any activity because of breathing
- Not able to sleep because of breathing
- Tense or bluish skin
- Feeling confused or very drowsy
- Chest pain
- Coughing up blood

**Call 911 or seek medical care immediately**
- While getting help, immediately do the following:

*The American Lung Association recommends that the providers select this action for all patients.*
INSTRUMENT: PARTICIPANT CALENDAR

30 DAY FOLLOW UP CALENDAR

MONTH

SUNDAY  MONDAY  TUESDAY  WEDNESDAY  THURSDAY  FRIDAY  SATURDAY

NOTES:

= good day
= some problems breathing
= need help now
= called for help
= hospitalized
= emergency room visit

HCA MIDWEST HEALTH

MUSC MEDICAL UNIVERSITY OF SOUTH CAROLINA
Hello, this is a reminder to:

- Daily check how you feel (use the color zones on the COPD Action Plan)
- Remember to keep your scheduled appointments with your doctor (or healthcare provider)

Thank You!

Pat Conley, PhD RN PCCN
Research Medical Center
MEASUREMENTS

- WHOQOL-BREF scoring was done per published handbook
- Reach, Effectiveness-Adoption, Implementation and Maintenance (RE-AIM) framework was used to evaluate outcomes of the study
- Research Electronic Data Capture (REDCap) used for data entry
- Statistical analyses were then performed using the Statistical Package for the Social Sciences (SPSS 23.0).
- Descriptive statistics were calculated for each variable.
RESULTS
# RESULTS: DEMOGRAPHICS

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age in years (n = 50)</strong></td>
<td>49 (Minimum)</td>
<td>84 (64.5)/9.5 (Maximum (Mean +/- SD))</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td>Female 26 (52%)</td>
<td>Male 24 (48%) (Frequency/Percent)</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td>AA (African American or Black) 18 (36%)</td>
<td>W (White) 32 (64%)</td>
</tr>
<tr>
<td><strong>Smoker</strong></td>
<td>Yes 19 (39.6%)</td>
<td>No 29 (60.4%)</td>
</tr>
<tr>
<td><strong>Home oxygen</strong></td>
<td>Yes 19 (38%)</td>
<td>No (62%)</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td>Single 28 (56%)</td>
<td>Married 17 (34%)</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td>Some high school 34 (69.4%)</td>
<td>Some college 10 (20.4%)</td>
</tr>
<tr>
<td><strong>Primary diagnosis</strong></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td><strong>International Classification of Diseases- 10th revision (ICD-10)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute respiratory failure J96.20</td>
<td>10</td>
<td>20%</td>
</tr>
<tr>
<td>Acute exacerbation of COPD (AECOPD) J44.1</td>
<td>4</td>
<td>8%</td>
</tr>
<tr>
<td><strong>Secondary diagnosis</strong></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>COPD J44.9</td>
<td>19</td>
<td>38%</td>
</tr>
<tr>
<td>Exacerbation of COPD (ECOPD) J44.1</td>
<td>13</td>
<td>26%</td>
</tr>
</tbody>
</table>
# RESULTS: RE-AIM

<table>
<thead>
<tr>
<th>RE-AIM Dimension</th>
<th>Measurements</th>
<th>Results/Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reach</td>
<td>Feasibility to recruit predetermined goal sample size of PCU participants (n = 50).</td>
<td>-Initial recruitment (n = 50) in hospital</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Retention: (n = 13) completed in-hospital and 30-day follow-up via phone calls: 1 in hospital drop out, 2 reported deaths, 34 did not complete study because of no answer, refused, too sick or moving</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>Measured by outcomes and perception of benefit.</td>
<td>-Qualitative comments from participants, three themes emerged comments.</td>
</tr>
<tr>
<td></td>
<td>Participants’ perceived benefits of the COPD Action Plan on 30 day follow up (survey and qualitative results).</td>
<td>1. <strong>Perceptions about Delivery of COPD Action Plan</strong> reflected an appreciation of knowledge gained, “Person to person is always good” and “No one (before) took the time to go over this with me.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. <strong>Consequences of Decline related to COPD</strong>, “When real hot out, slow deep breaths still don’t help.”</td>
</tr>
<tr>
<td>One trained PCU nurse</td>
<td>One trained PCU nurse completed a questionnaire of rated and perceived benefit of the discharge intervention for participants with COPD.</td>
<td>-Rated questions on satisfaction with discharge protocol by participants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Trained nurse rating on COPD Action Plan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gave moderate rating for acceptability and ease in delivery of the action plan</td>
</tr>
<tr>
<td>RE-AIM Dimension</td>
<td>Measurements</td>
<td>Results/Comments</td>
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<td>------------------</td>
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</table>
| **Adoption**     | - QOL results determined no significant change in domain scores: psychological, environmental, social and physical  
                    - Participants scores of satisfaction  
                    - Trained PCU nurse scores/ratings | Wilcoxon signed-ranks test of mean QOL scores indicated no statistical significance in domains between in hospital and 30 day follow-up. |
| **Rate satisfaction with COPD** |  |  |
| **Action**       |  |  |
| **Plan and delivery:** High = 4 (30.8%); Moderate = 9 (69.2%); Low = 0 (0%) |  |
| **Health care utilization on 30 day follow-up** |  |  |
| **Number of Emergency Department Visits:** 12 (99%) no ED visits; 1 (1%) ED visits for insulin reaction |  |  |
| **Number of Hospitalizations:** 12 (99%) none; 1 (1%) hospitalized 2 days, for COPD |  |  |
| **Number of times called #911 since discharge:** 0 (100%) none |  |  |
| **Number of office visits:** 5 (40%) no visits, 7 (55%) scheduled visits; 1 (5%) problem (not COPD related) |  |  |
| **- Acceptance and ease of delivery of the action plan, rated moderate.** |  |  |
# RESULTS: RE-AIM

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</thead>
<tbody>
<tr>
<td><strong>Implementation</strong>&lt;br&gt;Consistency in delivery (fidelity) of the COPD discharge procedure, feedback from participants, and the nurse’s recommendations.</td>
<td>-Trained PCU nurse score supported implementation&lt;br&gt;-Observed consistency in delivery of discharge instructions</td>
<td>Is action plan as a benefit for patients with COPD? Response was ‘Yes’ Length of time to deliver action plan = 15 minutes</td>
</tr>
<tr>
<td><strong>Maintenance</strong>&lt;br&gt;Determined following completion of this study, based on quantitative and qualitative results.</td>
<td>-Results will be submitted to hospital management</td>
<td>-Clinical manager of PCU has approved use of the modified ALA COPD Action Plan on the PCU</td>
</tr>
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</table>
## RESULTS: WHOQOL-BREF DOMAINS SCORES

<table>
<thead>
<tr>
<th></th>
<th>In hospital</th>
<th>30 day follow-up</th>
<th>Difference Between in-hospital means and 30 day follow-up</th>
<th>p values* Wilcoxon Signed Ranks Test</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N = 49</strong></td>
<td>N=13</td>
<td>N=13</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mean ±SD (Median)</strong></td>
<td><strong>Mean ±SD (Median)</strong></td>
<td><strong>Mean ±SD (Median)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Physical domain score</strong></td>
<td>49.3 ±16 (50.0)</td>
<td>55.8 ±21.4 (53.6)</td>
<td>+1.4 ±14.3</td>
<td>p = .78</td>
</tr>
<tr>
<td><strong>Psychological domain score</strong></td>
<td>64.8±16.7 (66.7)</td>
<td>70.8 ±18.9 (79.2)</td>
<td>+4.8 ±16.8</td>
<td>p = .40</td>
</tr>
<tr>
<td><strong>Social Relations domain score</strong></td>
<td>60.0±20.3 (66.7)</td>
<td>55.8 ±21.4 (50.0)</td>
<td>-1.3 ±17.6</td>
<td>p = .79</td>
</tr>
<tr>
<td><strong>Environment domain score</strong></td>
<td>70.2±14.6 (71.9)</td>
<td>72.4 ±12.4 (68.8)</td>
<td>-2.4 ±13.5</td>
<td>p = .59</td>
</tr>
</tbody>
</table>
STUDY LIMITATIONS

• 50 participants enrolled and 13 responded to 30 day follow up call

• Participants needed the PI to sit next to them and read the QOL questionnaire and record their scores

• Participants returned 2 completed calendars.
CONCLUSIONS

- Recruitment of sample was feasible
- Participants were satisfied with the action plan (concise, colored coded)
- Acute respiratory failure was most frequent admitting diagnosis
- Well-timed teaching opportunity in the critical care setting
- Further research is needed to examine outcomes of discharge instructions among patients on other critical care units
“Science knows no country, because knowledge belongs to humanity, and is the torch that illuminates the world.”

Louis Pasteur
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Lungs. (clip art). https://www.google.com/search?q=free+clip+art+of+lungs&tbm=isch&tbo=u&source=univ&sa=X&ved=0ahUKEwji-r-D3uDVAhXDzVQKHsRODxgQSAQIAhIA&biw=1422&bih=693

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