

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



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# DISCLOSURE

The authors report no funding or financial disclosures and no conflicts of interest.

# 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

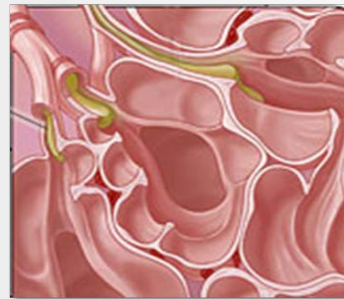
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# What is Chronic Obstructive Pulmonary Disease (COPD)?

- It is a progressive, debilitating lung disease causing air flow 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 3<sup>rd</sup> leading cause of death in United States and becoming 3<sup>rd</sup> 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

# 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 participants 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)

WHOQOL-BREF Questionnaire. (1997). Updated 1/10/2014

# 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



## MY COPD ACTION PLAN

It is recommended that patients and physicians/healthcare providers complete this action plan together. This plan should be discussed at each physician visit and updated as needed.

The green, yellow and red zones show symptoms of COPD. The list of symptoms is not comprehensive, and you may experience other symptoms. In the "Actions" column, your healthcare provider will recommend actions for you to take based on your symptoms by checking the appropriate boxes. Your healthcare provider may write down other actions in addition to those listed here.

### Green Zone: I am doing well today

#### Actions

- Usual activity and exercise level
- Usual amounts of cough and phlegm/mucus
- Sleep well at night
- Appetite is good

- Take daily medicines
- Use oxygen as prescribed
- Continue regular exercise/diet plan
- At all times avoid cigarette smoke, inhaled irritants\*
- \_\_\_\_\_

### Yellow Zone: I am having a bad day or a COPD flare

#### Actions

- More breathless than usual
- I have less energy for my daily activities
- Increased or thicker phlegm/mucus
- Using quick relief inhaler/nebulizer more often
- Swelling of ankles more than usual
- More coughing than usual
- I 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

- Continue daily medication
- Use quick relief inhaler every \_\_\_\_\_ hours
- Start an oral corticosteroid (specify name, dose, and duration)
- \_\_\_\_\_
- Start an antibiotic (specify name, dose, and duration)
- \_\_\_\_\_
- Use oxygen as prescribed
- Get plenty of rest
- Use pursed lip breathing
- At all times avoid cigarette smoke, inhaled irritants\*
- Call provider immediately if symptoms don't improve\*
- \_\_\_\_\_

### Red Zone: I need urgent medical care

#### Actions

- Severe shortness of breath even at rest
- Not able to do any activity because of breathing
- Not able to sleep because of breathing
- Fever or shaking chills
- Feeling confused or very drowsy
- Chest pains
- 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.

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

































































# INSTRUMENT: PARTICIPANT CALENDAR


30 DAY FOLLOW UP CALENDAR


MONTH \_\_\_\_\_


SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
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**NOTES :**


 = good day

 = some problems breathing

 = need help now

 = called for help

 = Hospitalized

 = Emergency Room Visit

# INSTRUMENT: POSTCARD

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!*

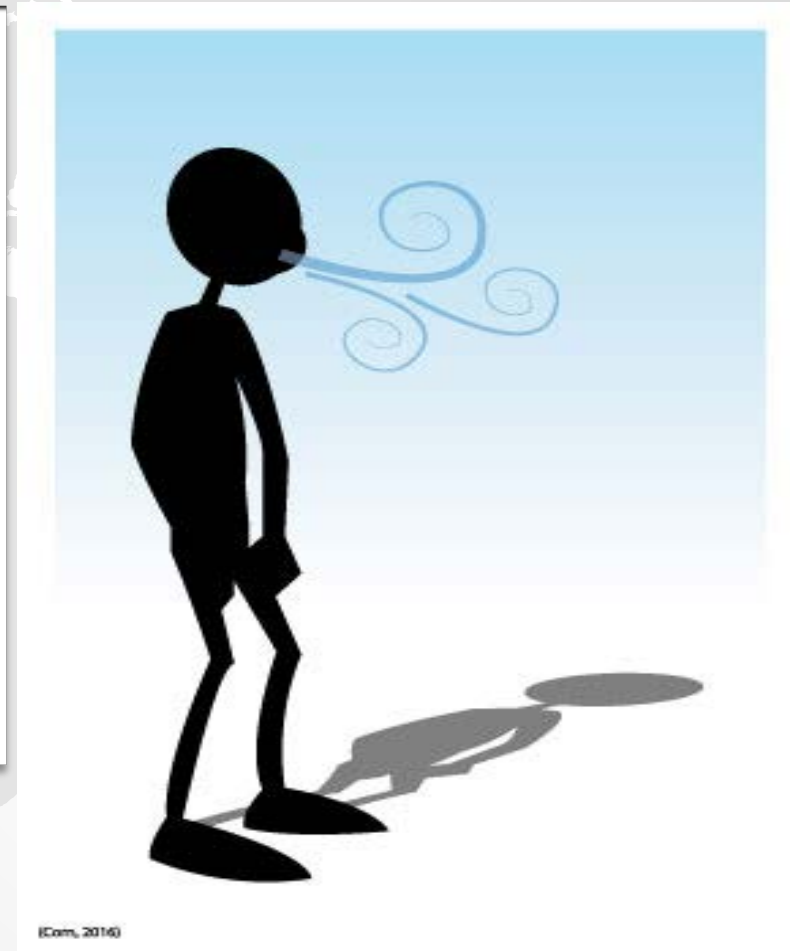
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Research Medical Center

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# 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

Age in years (n = 50)	49 (Minimum)	84 (64.5/9.5) Maximum (Mean +/-SD)
Gender	Female 26(52%)	Male 24(48%) (Frequency/Percent)
Race	AA (African American or Black) W (White)	18 (36%) 32 (64%)
Smoker	Yes 19 (39.6%)	No 29 (60.4%)
Home oxygen	Yes 19 (38%)	No (62%)
Marital Status	Single Married Divorced	28 (56%) 17 (34%) 5 (10%)
Education	Some high school Some college	34(69.4%) 10(20.4%)
<b>Primary diagnosis</b>	Frequency	Percent
<b>International Classification of Diseases- 10<sup>th</sup> revision (ICD-10)</b>		
Acute respiratory failure J96.20	10	20%
Acute exacerbation of COPD (AECOPD) J44.1	4	8%
<b>Secondary diagnosis</b>		
COPD J44.9	19	38%
Exacerbation of COPD (ECOPD) J44.1	13	26%



# RESULTS: RE-AIM

RE-AIM Dimension	Measurements	Results/Comments
<p><b>Reach</b></p> <p>Feasibility to recruit predetermined goal sample size of PCU participants (n = 50).</p>	<p>-Initial recruitment (n =50) in hospital</p>	<p>-<b>Retention:</b> (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</p>
<p><b>Effectiveness</b></p> <p>Measured by outcomes and perception of benefit.</p> <p><b>Participants'</b> perceived benefits of the COPD Action Plan on 30 day follow up (survey and qualitative results).</p> <p>One <b>trained PCU nurse</b> completed a questionnaire of rated and perceived benefit of the discharge intervention for participants with COPD.</p>	<p>-Qualitative comments from participants, three themes emerged comments.</p> <p>-Rated questions on satisfaction with discharge protocol by participants</p> <p>-Trained nurse rating on COPD Action Plan</p>	<p>1. <b>Perceptions about Delivery of COPD Action Plan</b> 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."</p> <p>2. <b>Improved Self-Management Skills</b>, "Doing exceptionally well. Eating healthy and stopped smoking."</p> <p>3. <b>Consequences of Decline related to COPD</b>, "When real hot out, slow deep breaths still don't help."</p> <p><b>Do you think the discharge COPD Action Plan taught you to better take care of your respiratory symptoms and when to seek help?</b> (n = 13)  <b>Yes = 12 (92.3%); No = 1 (7.7%)</b></p> <p>Gave moderate rating for acceptability and ease in delivery of the action plan</p>





# RESULTS: RE-AIM

RE-AIM Dimension	Measurements	Results/Comments
<p><b>Adoption</b>                      Individuals willing to implement discharge instructions (one setting).                      Rated responses and 30 day outcomes of health care utilization and QOL outcomes.</p>	<p>-QOL results determined no significant change in domain scores:                      psychological, environmental, social and physical</p> <p>-Participants scores of satisfaction</p> <p>-Trained PCU nurse scores/ratings</p>	<p>Wilcoxon signed-ranks test of mean QOL scores indicated no statistical significance in domains between in hospital and 30 day follow-up.</p> <p><b>Rate satisfaction with COPD Action Plan and delivery:</b> High = 4 (30.8%); Moderate = 9(69.2%); Low = 0 (0%)                      Health care utilization on 30 day follow-up  <b>Number of Emergency Department Visits:</b>                      12 (99%) no ED visits; 1 (1%) ED visits for insulin reaction  <b>Number of Hospitalizations:</b>                      12(99%) none;                      1(1%) hospitalized 2 days, for COPD  <b>Number of times called #911</b> since discharge:                      0 (100%) none  <b>Number of office visits:</b>                      5(40%) no visits, 7(55%) scheduled visits;                      1(5%) problem (not COPD related)</p> <p>-Acceptance and ease of delivery of the action plan, rated moderate.</p>

# RESULTS: RE-AIM

RE-AIM Dimension	Measurements	Results/Comments
<b>Implementation</b> Consistency in delivery (fidelity) of the COPD discharge procedure, feedback from participants, and the nurse's recommendations.	-Trained PCU nurse score supported implementation -Observed consistency in delivery of discharge instructions	Is action plan as a benefit for patients with COPD? Response was 'Yes' Length of time to deliver action plan = 15 minutes
<b>Maintenance</b> Determined following completion of this study, based on quantitative and qualitative results.	-Results will be submitted to hospital management	-Clinical manager of PCU has approved use of the modified ALA COPD Action Plan on the PCU

# RESULTS: WHOQOL-BREF DOMAIN SCORES

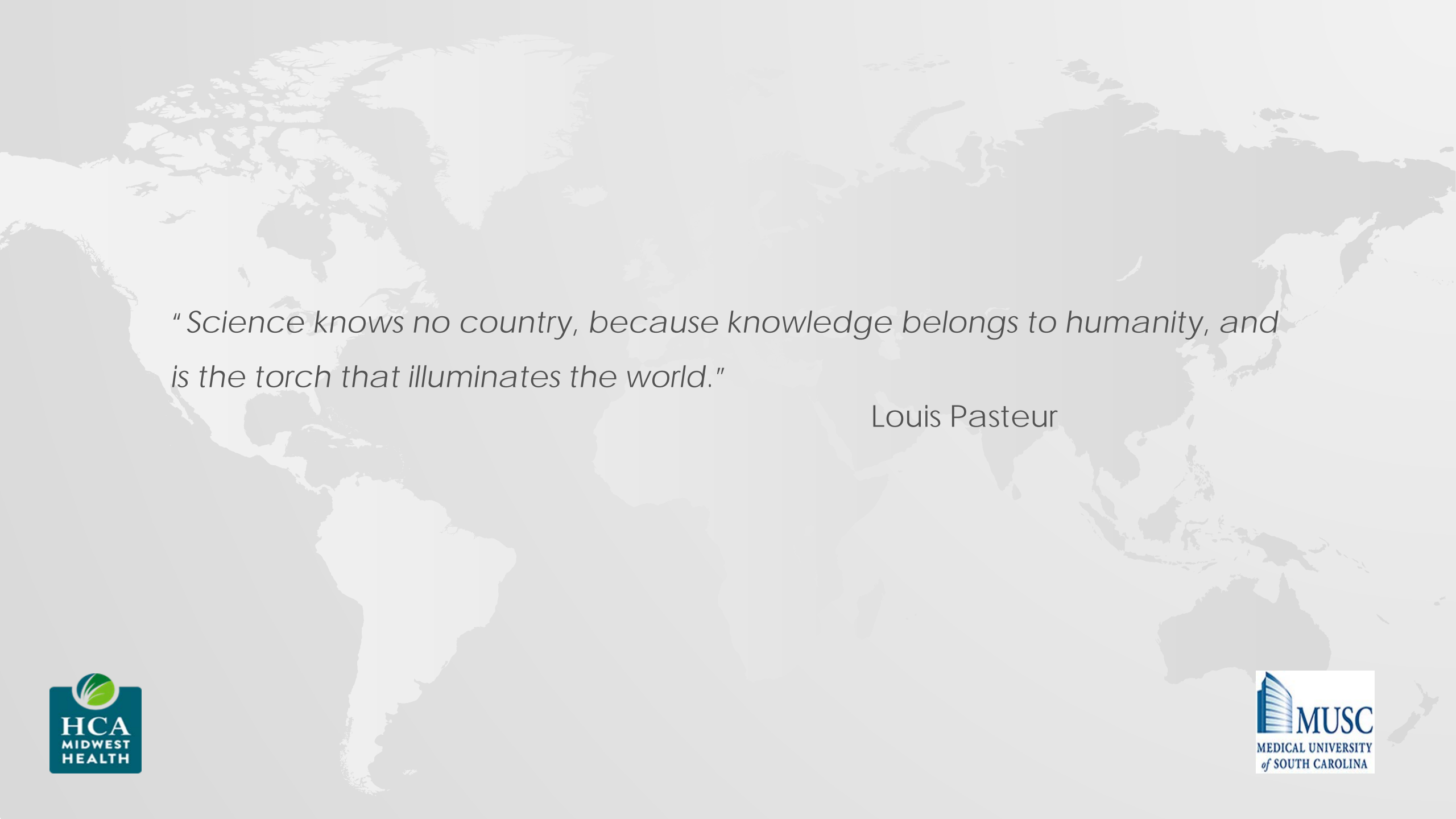
	In hospital  N = 49  Mean $\pm$ SD (Median)	30 day follow-up  Mean (Median) SD N=13  Mean $\pm$ SD (Median)	Difference Between in- hospital means and 30 day follow-up  N= 13  Mean $\pm$ SD	<i>p</i> values*  Wilcoxon Signed Ranks Test 0.05
<b>Physical domain score</b>	49.3 $\pm$ 16 (50.0)	55.8 $\pm$ 21.4 (53.6)	+1.4 $\pm$ 14.3	<i>p</i> = .78
<b>Psychological domain score</b>	64.8 $\pm$ 16.7 (66.7)	70.8 $\pm$ 18.9 (79.2)	+4.8 $\pm$ 16.8	<i>p</i> = .40
<b>Social Relations domain score</b>	60.0 $\pm$ 20.3 (66.7)	55.8 $\pm$ 21.4 (50.0)	-1.3 $\pm$ 17.6	<i>p</i> = .79
<b>Environment domain score</b>	70.2 $\pm$ 14.6 (71.9)	72.4 $\pm$ 12.4 (68.8)	-2.4 $\pm$ 13.5	<i>p</i> = .59

# 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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