Creating a **Quality Care Pathway** for **COPD** *Which Reduces Readmission Rates*

Flambeau Hospital
A Service of Marshfield Clinic and Ministry Health Care

COPD
(Chronic Obstructive Pulmonary Disease)

- COPD is a progressive life-threatening lung disease that causes breathlessness (initially with exertion) and predisposes to exacerbation and serious illness
- One in five patients hospitalized for COPD exacerbations are readmitted
- Acute exacerbations of COPD are responsible for up to 70% of COPD related health care costs. Hospital readmissions account for over 15 billion in direct costs annually
- Given the high patient burden and financial impact, COPD was added to the Medicare Hospital Readmission Reductions Program in 2015, resulting in financial penalties for COPD readmissions within 30 days of hospital discharge

FLAMBEAU HOSPITAL
Park Falls, WI



- Critical Access Hospital in Park Falls
- 24 Hour Emergency Department and Urgent Care
- 3 Doctors/41 Nurses/3 Pharmacists
- 25 Beds
- Average Census = 3 - 4 Patients
- Average Length of Stay = 2 - 3 Days

COPD Readmissions
Our Journey

- Influx of COPD Readmissions March - May 2017
- Development of a multi-disciplinary COPD Steering Committee comprised of Quality, Case Management, Pharmacy, Nursing, Respiratory Therapy and Occupational Therapy
- Identified
  - *Patients were being discharged only after a few days in the hospital*
  - *Patients were still receiving IV Steroids and IV antibiotics on day of discharge*
  - *Patients lacked post hospitalization follow-up*
- Collaboration/Discussion with MD's
- Hiring of a COPD Educator
- Development of the COPD Pathway that was rolled out January 2018

COPD Pathway Success

- In 2017, there were twenty COPD 30-day readmissions
- In 2018, there were three COPD 30-day readmissions
- In 2019, there were zero COPD 30-day readmissions, one 3-month readmission, and one 6-month readmission

2017-2019

Conclusions

- Multidisciplinary approach is the key
- Patients need to be transitioned to PO steroids and antibiotics before day of discharge
- Patients need to stay in the hospital until all discharge criteria is met
- Post hospitalization follow-up is extremely important
- Success of pathway has brought huge cost savings to the hospital and higher quality of care being delivered to COPD patients

The Pathway

The COPD pathways is a multidisciplinary approach to providing quality care to patients with COPD. The focus is on reducing the chance of being readmitted to the hospital. References include the Cold Standards of COPD care, the American Lung Association, the McKesson hospital discharge criteria.

1. Upon admission, patient receives assignment to pathway based on COPD diagnosis

COPD Exacerbation Path

FIRST DAY
IV Steroids ___ IV Antibiotics ___ Nebs ___ Oxygen ___Chest Vest if indicated per CPT ___
BIPAP ___ ABGs ___ Up in Chair x 3 Daily ___ ___ ___ Education with Respiratory ___
COPD Zone and Smoking Cessation ___ Nicotine patch ___

SECOND DAY
Change to PO Steroids ___ PO Antibiotics ___ BIPAP ___ Nebs ___
Chest Vest if indicated per CPT ___ Wean Oxygen ___ Walk x 3 Daily ___ ___ ___
Up in chair, more than in bed ___ Respiratory continuing education as above ___
Therapy COPD Education/Teaching ___

MILD/MODERATE
COPD Gold Standard Stage 1-2 (FEV 1 50-80% of normal)

THIRD DAY
Continue PO Steroids ___ PO Antibiotics ___ Nebs ___ DC Chest Vest? ___
Wean Oxygen ___ Up in Chair more than bed ___ Walking x 3 ___ ___ ___
Respiratory going over Pulm Rehab and home regime - home oxygen
Home neb, NIV, Inhaler instruct, Nicotine replacement ___
Respiratory talk with family/support system if needed ___
Discharge Criteria Checklist ___ Assess need for OT and/or PT Functional Screen ___
Pharmacy to assess PT current medication list for discrepancies and deficiencies ___

FOURTH DAY
PO Steroids ___ PO Antibiotics ___ Nebs ___ Oxygen if needed ___
Respiratory going over any questions and reevaluating before discharge ___
Home Oxygen, NIV, and Neb set ups scheduled thru Respiratory/Case Management ___
Administer Influenza Vaccine if indicated ___

SEVERE
COPD Gold Standard Stage 3 (FEV 1 30-50% or less)

THIRD DAY
PO Steroids ___ PO Antibiotics ___ Wean Oxygen ___ DC BIPAP ___ Nebs ___
Chest Vest if indicated per CPT ___ Up in Chair x 3 ___ ___ ___
Walking x 3 ___ ___ ___ Education in Respiratory ___ Consider Swing bed ___
Respiratory talk with family/support system if needed ___
Evaluate for home 02 and NIV ___
Assess need for OT and/or PT Functional Screen ___
Pharmacy to assess PT current medication list for discrepancies and deficiencies ___

FOURTH DAY
PO Steroids ___ PO Antibiotics ___ Wean Oxygen ___ Chest Vest if indicated per CPT ___ Nebs ___ Up in chair more than bed ___ Walk x 3 daily ___ ___ ___
Respiratory instruct on home regime-home oxygen, NEB, NIV, Inhaler ___
Pulmonary Function test scheduled for Pulmonary Rehab referral ___
Discharge Criteria Checklist ___

FIFTH DAY
PO Steroids ___ PO Antibiotics ___ Oxygen ___ DC Chest Vest ___ Nebs ___
Up in chair more than bed ___ Walk x 3 daily ___ ___ ___
Respiratory reinforcing Pulm Rehab and home regime ___
Administer Influenza Vaccine if indicated ___
Discharge Criteria Checklist ___

- *Admission is day 1 unless admission is after 1800*
- *Call backs from Respiratory/Case Management next day and then weekly x 2 weeks.*
- *Ask about inhaler and can the patient afford the inhaler?*

2. Daily rounding includes multi-disciplinary approach

Case Management
- Qualifications to be placed on the pathway
- Daily Multidisciplinary Rounding
- COPD Rounding Care Plan
- Criteria for Respiratory Swing Bed
- COPD Swing Bed Rounding Care Plan
- COPD Discharge Criteria Checklist

Nursing
- Dyspnea Scale
- COPD Education
- Process for identifying COPD patients
- Patient goals

Respiratory Therapy/COPD Education
- Work with Pharmacy and Nursing to assess inhaler home regimen
- Chest Vest Therapy
- Assess need for PFT's, Pulmonary Rehab, home nebulizers, and NIV's
- COPD Education Folder
- COPD Zone Information
- Work with patients and home medical companies to assist with getting respiratory equipment in the home
- Post hospitalization follow-up
- Tracking of COPD admissions
- Better Breathers Club

3. Swing bed admission recommendations for exacerbation

Criteria For Respiratory Swing Bed

Respiratory Condition (one of any of the following)
1. COPD with dyspnea
2. Hypoxia on room air within three days prior to admission to swing bed
   a. *02 sat 89-91% and less than baseline without chronic respiratory disease*
   b. *02 sat 85-89% and less than baseline with chronic respiratory disease*

Respiratory interventions (need a minimum of 2)
1. Chest vest therapy at least twice per day
2. Nebulizer at least twice per day
3. Oxygen therapy adjustment and oximetry daily

These interventions will qualify the patient for at least one week of swing bed for Medicare Qualified Patients. Please contact Case Management to determine if patient will qualify for swing bed. Patients may also qualify for 2 days of patient or caregiver education.

4. Multi-disciplinary clinicians continue to follow daily checklists

COPD Exacerbation Multi-Disciplinary Care Coordination

COPD Discharge Guidelines
1. Patient reestablished (or established) on home medication & broncho-dilator therapy for 24 hours before discharge
2. Inhaled short-acting beta2-agonist therapy is required no more than QID
3. If previously ambulatory, patient is able to ambulate baseline distance
4. Clinically stable for 24 hours
5. Patient demonstrates understanding of medications, treatment plan, and has received smoking cessation education
6. DME arrangements made (oxygen, nebulizer, NIV)
7. Assessment for criteria for pulmonary rehab completed by CPT & arrangements made if applicable.

Date ____ Date ____ Case Managements	COPD Day 3 Date ____ Treatment Plan	Date ____ Date ____ Case Managements	COPD Day 4 Date ____ Treatment Plan
Concerns/Barriers to Discharge __ Comorbidities	__ PO Steroids __ PO Antibiotics __ Pharmacy Referral __ Nebs __ Chest vest __ Target 02 stat_____ __ Dyspnea scale _____ __ Wean oxygen __ Home 02 eval __ Activity: __ Walk 3x/day __ Up in chair more than in bed __ Assess need for NIV, home nebulizer, pulmonary rehab, pulmonary function testing __ COPD education: Home regime: 02, nebulizers, Inhaler, nicotine replacement __ Assess need for family/support system education __ Consider swing bed if not progressing __ Consider Home Health referral __ Pharmacy Med Assessment	Concerns/Barriers to Discharge	__ Chest vest __ PO Steroids __ PO Antibiotics __ Pharmacy consult with patient/family __ Nebs __ Target 02 stat_____ __ Dyspnea scale _____ __ Oxygen if needed __ Home 02 eval __ Activity assessment (back to baseline) __ Yes __ No __ Assess need for therapy __ Home Needs Set up __ Nebulizer __ Oxygen __ NIV __ Pulmonary Rehab __ Pulmonary Function Testing __ COPD education of home regime __ Consider swing bed if not progressing __ Assess Discharge Guidelines __ If sever COPD: Continue chest vest, increase activity. Anticipate discharge Day 5 if stable
Barriers to Discharge __ No barriers __ Unable to teach back __ Unable to care for self __ Inability to ambulate __ Home environment (not conducive to care) __ Fever __ Culture pending __ IV antibiotics __ Lab abnormality __ Vital sign abnormality __ NPO __ Not tolerating diet __ Nausea, vomiting __ Pain uncontrolled __ Other _____		**Barriers to Discharge** __ No barriers __ Unable to teach back __ Unable to care for self __ Inability to ambulate __ Home environment (not conducive to care) __ Fever __ Culture pending __ IV antibiotics __ Lab abnormality __ Vital sign abnormality __ NPO __ Not tolerating diet __ Nausea, vomiting __ Pain uncontrolled __ Other _____	
Discharge Plan __ Barriers resolved __ Continue plan __ Updated Plan _____		**Discharge Plan** __ Barriers resolved __ Continue plan __ Updated Plan _____	
Disciplines Present: __ RN __ CPT __ Dietary __ IP RN __ Quality RN __ PT __ OT __ Pharmacy __ Case Manager Initials: _____Time:_____		**Disciplines Present:** __ RN __ CPT __ Dietary __ IP RN __ Quality RN __ PT __ OT __ Pharmacy __ Case Manager Initials: _____Time:_____	

New COPD Multi-Disciplinary Care Coordination Form must be initiated when patient change to swing bed.

5. Discharge remains the ultimate goal

Laminated goals for patients placed daily in their room
SAMPLE:
FOURTH DAY GOALS
Medications Reviewed ____ Breathing Treatments ____ Chest Vest Therapy ____
Oxygen If Needed ____ Up in Chair, And Walking 3 Times Daily ____ ____ ____
Assess Home Oxygen Need ____
Home Needs Discussed W/Case Management ____
Pulmonary Function Test/ Pulmonary Rehab Referral Discussed with Respiratory Therapy ____ Target Oxygen Range ____

COPD Discharge Criteria Checklist
1. Patients re-established (or established) on home medication and bronchodilator therapy for 24 hours before discharge
2. Inhaled short-acting beta2-agonist therapy is required no more than QID
3. If previously ambulatory, patient is able to ambulate baseline distance
4. Clinically stable for 24 hours
5. Patient demonstrated understanding of medications (consider pharmacy consult), treatment plan and smoking cessation
6. Assessment for durable medical equipment such as oxygen, nebulizers, NIV have been completed and arrangements made
7. Assessment for criteria for pulmonary rehab completed by CPT and arrangements made if applicable

6. Pharmacy consultation aides in discharge process

Pharmacy Consultation
- Occurs upon discharge with every COPD patient
- Focus on the new medications (antibiotics and steroids) the patient will be discharged on
- Excellent time to go through inhaler technique with the patient
- Demo inhalers are important for teaching -Can contact the manufacturer for samples
- Ask the patient if they foresee any barriers to picking up their medications

Discharge Medication List
- Check to make sure the physician has continued antibiotics and steroids if needed
- Watch for antibiotic and steroid duration
- Does the patient need nebulizers

7. Respiratory therapy/COPD education continues after Discharge

Flambeau Hospital COPD Discharge Follow-Up Phone Call

Flambeau Hospital COPD Discharge Follow-Up Phone Call

Patient Name: _____ MHN: _____
Phone: _____
Discharge Date: _____
1st follow up phone call done on _____ Smoking? Yes _____ No _____
___ 2nd Follow up _____
___ 3rd Follow up _____
Pulmonary Function Test scheduled: Yes ____ No ____ Date setup: _____

Hello, my name is _____, and I'm calling from Flambeau Hospital Respiratory Dept.
I'm checking in because I wanted to see how you are doing with your COPD management and plan.

	2nd Call Back	3rd Call Back	Comments
Are you using your COPD Zones for management? If so, what zone are you in today? ____ Red ____ Yellow ____ Green If yellow - call your provider If red - call Physician immediately, go to ER, or dial 911			
How is your breathing today? Use Dyspnea Scale if shortness of breath Are you: ____ Breathless ____Wheezing ____ Coughing			
Are you up and around as usual? Are you able to do your normal activities			
Are you using your oxygen, C-Pap, NIV?			
Are you taking your medications as your doctor ordered? Can you tell me how you are taking them?			
How often are you using your "rescue" inhaler?			
If applicable: If the patient is still smoking: Are you smoking? Are you interested in smoking cessation? (refer to their PCP or tip line)			

Callers initials _____ _____

Thank you for speaking to me today. If you have additional questions, please call me at the Respiratory Therapy 715-762-7481
I was unable to reach the patient....*why and associated details _____

2nd flu _____ Initials _____
3rd flu _____ Initials _____

COPD Zones for Management + Dyspnea Scale

COPD Zones for Management

GREEN ZONE	**I am doing well today** • Usual activity and exercise level • Usual amounts of cough and phlegm/mucus • Sleep well at night • Appetite is good • I only get breathless with strenuous exercise • I get short of breath when hurrying on level ground or walking up a slight hill	**Actions** • Take daily medications • Use Oxygen as prescribed • Continue regular exercise/diet plan • At all times avoid cigarette smoke, inhaled irritants • Keep all physician appointments
YELLOW ZONE	**I am having a bad day or a COPD Flare*** **If you have any of the following:** • More short of breath • I have less energy for my daily activities • Increased cough or mucus production • Change in color of mucus • Using rescue inhaler more often • Swelling of ankles more than usual • I feel like I have a "chest cold" • Poor sleep and symptoms wake me up • My appetite is not good • My medicine is not helping • I have to stop for breath when walking at my own pace on level ground	**Actions** • Your symptoms may indicate that you need an adjustment of your medications **Call your Provider** Name: _____ Phone: _____ My rescue inhaler is: _____
RED ZONE	**MEDICAL ALERT** • 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 • I am too breathless to leave the house or I am breathless when dressing or undressing	**Actions** • This means that you need to be evaluated by a physician right away **Go to the nearest Emergency Room or dial 911**

Dyspnea Scale

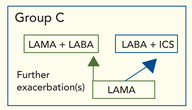
1	2	3	4
Baseline Breathing	Some Shortness of Breath	Moderate Shortness of Breath	Sever Shortness of Breath

Other Tools + Resources

COPD Orderset

☑ Medications			
☐		tiotropium (tiotropium Cap INH)	18 mcg, Inhaler, INH, DAILY RT administer 2 puffs per capsule with spacer
☐		fluticasone (fluticasone Inhaler 110 mcg/inh)	2 inh, Inhaler, INH, BID RT with spacer, rinse mouth after use
☐		fluticasone-salmeterol (fluticasone-salmeterol Inhaler 250 mcg-50 mcg/inh)	1 inh, Inhaler, INH, BID RT rinse mouth after use
☐		fluticasone-salmeterol (fluticasone-salmeterol Inhaler 500 mcg-50 mcg/inh)	1 inh, Inhaler, INH, BID RT rinse mouth after use
		IV Antibiotics - Without Pseudomonal Risk Factors	
☐		levoFLOXacin (levoFLOXacin IVPB)	750 mg, Soln-IV, IV Piggyback, q24hr, infuse over: 90 minute(s), duration: 7 day(s)
		OR	
☐	⇔	ceFTRIAXone	1 GM, Powder-Inj, IV Piggyback, q24hr, infuse over: 30 minute(s), duration: 7 day(s)
		PLUS	
☐	⇔	azithromycin (azithromycin IVPB)	500 mg, Powder-Inj, IV Piggyback, q24hr, infuse over: 60 minute(s), duration: 5 day(s)
		IV Antibiotics - With Pseudomonal Risk Factors	
☐		ceFTAZidime	2 GM, Powder-Inj, IV Piggyback, q8hr, duration: 7 day(s), Administer over 30 minute(s)
☐		cefepime	1 GM, Powder-Inj, IV Piggyback, q8hr, duration: 7 day(s), Administer over 30 minute(s)
☐		piperacillin-tazobactam	4.5 GM, Powder-Inj, IV Piggyback, q8hr, duration: 7 day(s), Administer over 4 hour(s)
		Oral Antibiotics	
☐		levoFLOXacin	500 mg, Tab, Oral, DAILY, duration: 7 day(s) avoid multivalent cations - milk/antacids
☐	⇔	azithromycin	500 mg, Tab, Oral, ONCE
☐	+1 day ⇔	azithromycin	250 mg, Tab, Oral, DAILY, duration: 4 dose(s)
☐		amoxicillin-clavulanate (amoxicillin-clavulanate Tab 8...)	875 mg, Tab, Oral, BID, duration: 10 day(s), (based upon amoxicillin component)
☐		doxycycline	100 mg, Cap, Oral, BID, duration: 10 day(s) avoid multivalent cations - milk/antacids
Nebulization			
☐		albuterol-ipratropium (albuterol-ipratropium NEB 2.5 ...	3 mL, Soln, NEB, q6h RT
☐		albuterol (albuterol NEB)	2.5 mg, Soln, NEB, q2h RT
☑		albuterol (albuterol NEB)	2.5 mg, Soln, NEB, q4h RT PRN for shortness of breath or wheezing
Steroids			
☐		methylPREDNISolone (methylPREDNISolone sodium s...	125 mg, Powder-Inj, IV Push, ONCE
		Then	
☐	+8 hr	methylPREDNISolone (methylPREDNISolone sodium s...	40 mg, Powder-Inj, IV Push, q8hr, duration: 3 day(s)
		OR	
☐		predniSONE	40 mg, Tab, Oral, BID, duration: 3 day(s)
Smoking Cessation Medications			
☐		nicotine (nicotine Patch 7 mg/24 hr)	1 patch(es), Patch, Transdermal, DAILY
☐		nicotine (nicotine Patch 14 mg/24 hr)	1 patch(es), Patch, Transdermal, DAILY
☐		nicotine (nicotine Patch 21 mg/24 hr)	1 patch(es), Patch, Transdermal, DAILY
Diagnostic Test/Procedures			
☐		EKG	T;N, Routine, SOB, COPD, Dyspnea
☐		Echo Complete w Color and Doppler	T;N, Routine, Reason: COPD, Dyspnea
☐		XR Chest 2 Views*** (Chest XR 2 Views***)	T;N, Routine, Reason: COPD, dyspnea
☐		XR Chest 1 View (Chest XR 1 View)	T;N, Routine, Reason: COPD, dyspnea
☐		CT Chest w Cont** (Chest CT w Contrast)	T;N, Routine, Reason: COPD, dyspnea
☐		NM Lung Scan V/Q (VQscan Nuc Med)	T;N, Routine, Reason: COPD, dyspnea
Respiratory Therapy			
		If NO prior spirometry documentation:	

Inhaler Review

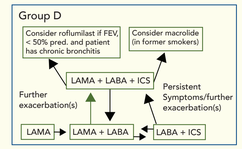


LAMA

Tiotropium (Spiriva®) - Inhalation capsule (Handihaler®) or inhalation spray (Respimat®) once daily
Glycopyrrolate (Seebri Neohaler®) - Inhalation capsule twice daily
Umeclidinium (Incruse Ellipta®) - Inhalation powder once daily
Aclidinium (Tudorza®) - Inhalation aerosol powder twice daily

LABA + ICS

Budesonide+formoterol (Symbicort®) - Inhalation aerosol liquid twice daily
Fluticasone propionate+Salmeterol (Advair®) - Inhalation disk (Diskus®), inhalation aerosol liquid (HFA®), or inhalation powder (Respiclick®) twice daily
Mometasone+formoterol (Dulera®) - Inhalation aerosol powder twice daily
Fluticasone furoate+vilanterol (Breo Ellipta®) - Inhalation powder twice daily



LAMA + LABA

Vilanterol+Umeclidinium (Anoro Ellipta®) - Inhalation powder once daily
Olodaterol+Tiotropium (Stiolto®) - Inhalation spray once daily
Indacaterol+glycopyrrolate (Utibron®) - Inhalation capsule twice daily
Formoterol+glycopyrrolate (Bevespi®) - Inhalation aerosol powder twice daily

LAMA + LABA + ICS

Fluticasone furoate+umeclidinium+vilanterol (Trelegy®) - Inhalation powder once daily

For more Information Contact: Kim Bortz, Senior Director of Quality, Flambeau Hospital
715.762.7580
bortz.kimberly@marshfieldclinic.org