Improving Care for Patients with Chronic Obstructive Pulmonary Disease (COPD) in Rural Maine: An IHI Collaborative

American Public Health Association Annual Meeting
November 7, 2007
Washington, DC

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Rural COPD Initiative

- Initiative sponsored by Eastern Maine Healthcare Systems (EMHS) Institute for Medical Improvement (IMI)
  - IMI partners: EMHS; UNECOM Center for Health Policy, Planning and Research; and the Maine Network for Health

- Funding:
  - First year pilot funded by the US Health Resources and Services Administration Rural Outreach Grant (2004-05)
  - Two-year expansion funded by the Maine Health Access Foundation and the US Centers for Disease Control

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Rural COPD Initiative: Goals

- Implement Global Obstructive Lung Disease (GOLD) COPD guidelines into care standards in rural Maine primary care practices
- Use best practice chronic care protocols in change implementation process (Planned Care Model)
- Use Institute for Healthcare Improvement (IHI) Breakthrough Series methods to support practice change for COPD care improvements

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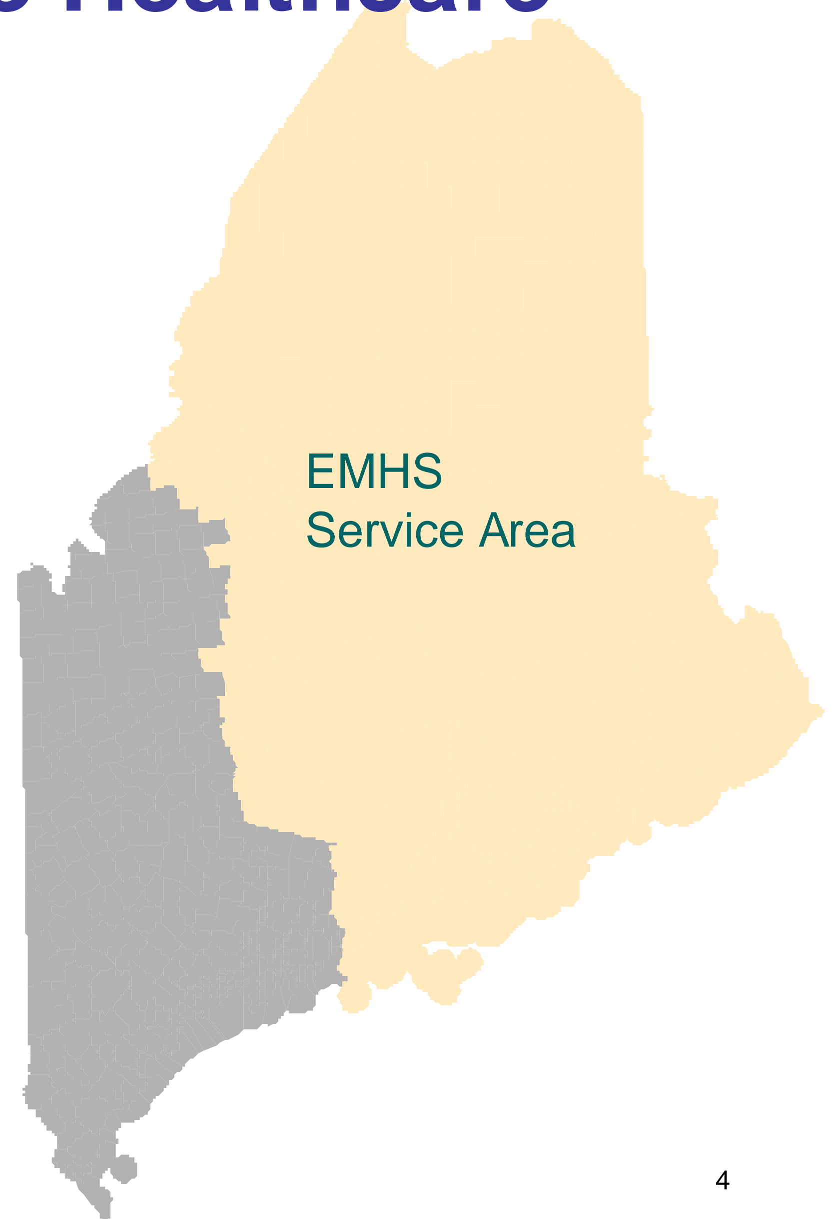
Profile: Eastern Maine Healthcare Systems

- Seven hospital system serving 500,000+ residents in Northern, Eastern, and Central Maine
  - 40% of State's population
  - 70% of Maine's geography



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EMHS Serves a Rural, Aging Population

- Maine ranks 2nd nationwide for percentage of residents age 65+ living in rural areas (55.8%).*
  - Comparison: 21.7% in US
- In some counties served by EMHS, up to 22% of residents are age 65+
  - Comparison: 14% in Maine and 12% in US
- Rural, aging population presents challenges for chronic care delivery

* AARP, Across the States: Profiles of Long-term Care, 2002

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2001 EMHS Community Health Need Assessment Report

- Current and former smoking is the main risk factor for COPD
  - 25% of Northeastern Maine population currently smoke
  - Approximately half of population are current or former smokers.
  - Over 40% of patients diagnosed with COPD continue to smoke
- COPD hospitalization rates are high to very high throughout the service area compared to the State and US

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EMHS COPD Collaborative

- Followed IHI's Breakthrough Series Collaborative Model
  - Three Learning Sessions
  - Two Action Periods with support from staff
  - Support and resources for practices
    - Practice visits, email, tools, registry and flow chart
- Used the Planned Care Model

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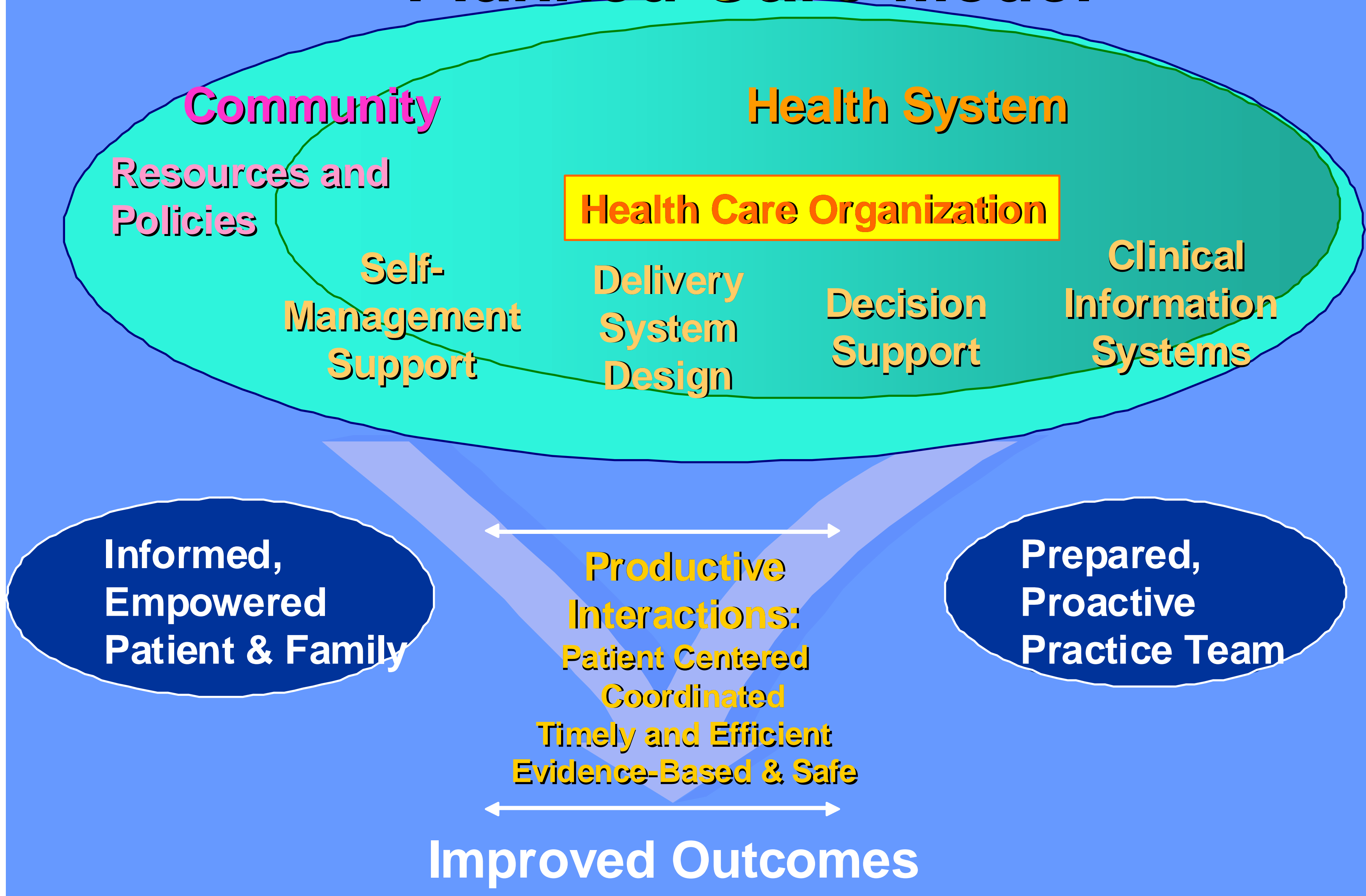

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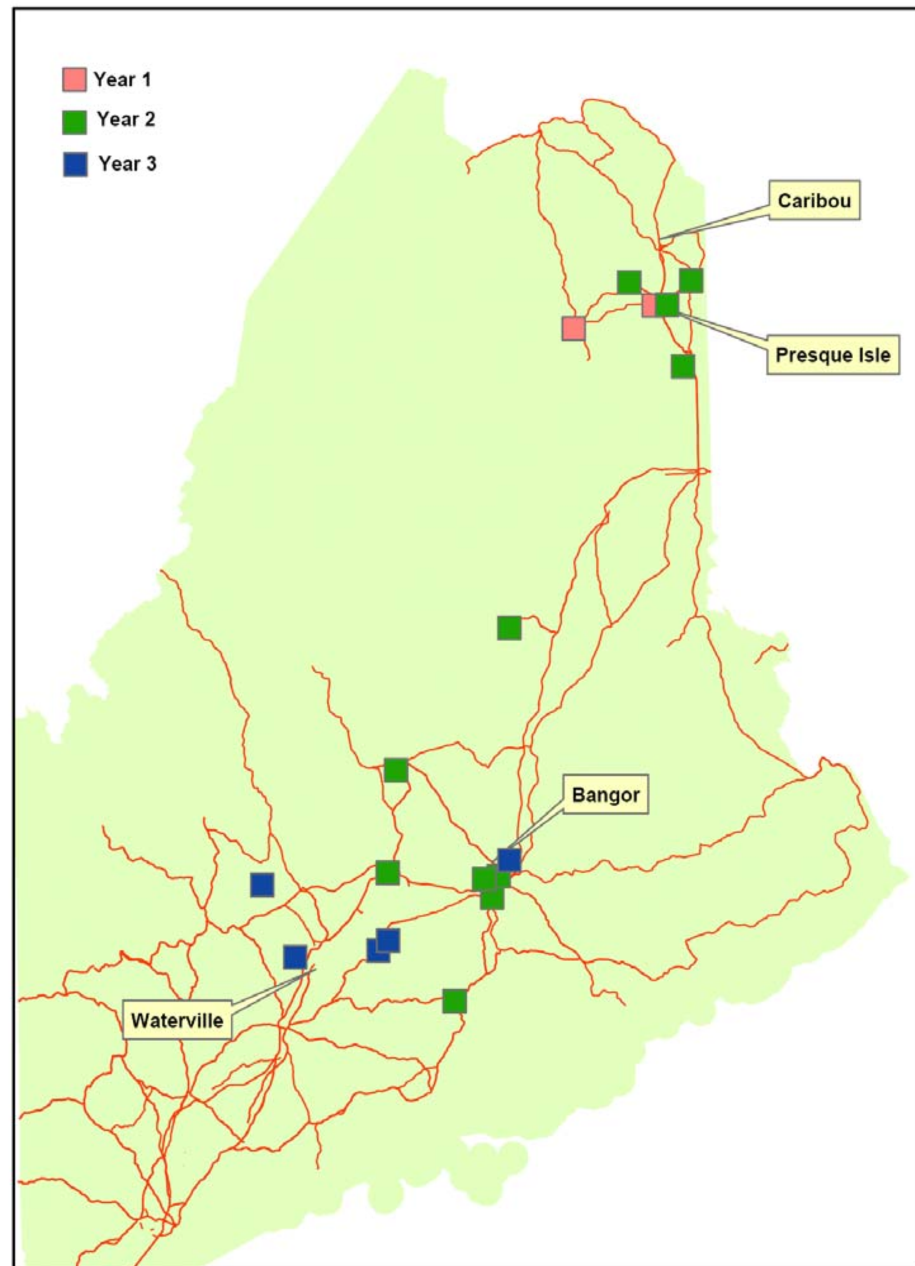
Three years, Three Collaboratives

- Number of practices 19
- Number of clinicians 41
- Number of participants 95

Presque Isle--Bangor--
Waterville



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COPD Collaborative Goals

- 90% of COPD patients >age 45 with one or more risk factors (e.g., tobacco smoking, occupational exposures, etc.) will have evidence of documented **spirometry results and disease severity classification** (Stage 0-4).
- 100% of COPD patients will have chart **documentation of smoking status**.
  - Smoking cessation counseling will be provided at each office visit for current smokers.
- 90% of all patients have ever had a **pneumococcal vaccine** and have had an **influenza vaccination** within the past 16 months.

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COPD Collaborative Goals (cont)

- 90-100% of patients will have documented **diet and exercise counseling** or referral to exercise program.
- 80-90% of all patients will have documented **self-management goals and patient education** in the office record at each office visit.
- 100% or all COPD patients with FEV1 =< 65% (at baseline or repeat) will have a **referral to a pulmonary rehab program**.

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Tools and Resources

- Three IHI collaborative sessions
- Pre/Post Practice "Infrastructure" Assessments
- Pre/Post Patient Care Assessments (Chart Reviews)
- Community Resources (American Lung Association of Maine)
- Two patient focus groups (Presque Isle/Bangor)
- COPD Registry provided by the Maine Network for Health

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Patient Focus Groups

- Goal: Learn more about the management of COPD through patient insight about:
  - Access to care
  - Disease knowledge/health education needs
  - Adherence with provider recommendations
  - Links with community resources
- Recruited from COPD Collaborative practices
  - 1 focus group held first year, 2 held second year
  - Included patients and supporters
- Information used to provide information to inform practice change objectives and strategy to meet targets

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Highlights of Major Focus Group Findings

- Adequate patient access to health care
  - Insurance, transportation, office hours, length of visit, ability to get appointments were adequate
- Inadequate knowledge about COPD
  - Not familiar with term "COPD" or with treatment and prognosis
  - Have not received written materials and not aware of where to get more information

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Highlights of Major Focus Group Findings (Cont)

- Patients limited in their ability to self-manage
  - Don't always communicate medication concerns to doctor
  - Not likely to ask provider for clarification
  - Provider concern/advice on exercise/diet is infrequent and not always directly linked to COPD
- Limited awareness/access to community resources
  - Limited number of patients have gone through pulmonary rehab
  - Most would like more access to COPD support group, buddy systems, group medical visits

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Recommendations: Supporting Self-Management

- Provide useful educational materials on minimizing complications, monitoring symptoms, and when to seek help
- Provide timely follow-up when prescribing new treatments
- Work with patients to develop self-management goals and steps
- Identify and refer patients to community resources
- Explore alternate ways of supporting patients – written goals and action plans, group office visits, support groups, buddy systems
- Build shared responsibility between providers and patients

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Practice Infrastructure Assessment

- Identifies areas where changes can be targeted to improve COPD care delivery
- Based on Assessment of Chronic Illness Care (ACIC, www.improvingchroniccare.org) and Planned Care model
- Survey tool administered at baseline and at end of Collaborative to evaluate changes in practices

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Practice Infrastructure Assessment

- Categories include:
  - How is care organized? (e.g., healthcare improvement teams)
  - Are evidence-based guidelines for COPD used?
  - What types of patient education and self-management materials and services are offered?
  - Is practice's care integrated with community service providers and programs?
  - What sort of information system does the practice have in place to assist is delivery of EB care?

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Practice Infrastructure Assessment: Survey

PRIMARY CARE SITE DATA COLLECTION FORM
COPD PRACTICE INFRASTRUCTURE ASSESSMENT

Name of reviewer:		Number of physician FTEs in practice:	
Name of Primary Care Site:		Number of mid-level FTEs in practice:	
Name of informant:		Number of nurse FTEs in practice:	
Date:	/ /	Total number of staff FTE estimate:	

INSTRUCTIONS: This survey is designed to evaluate the system of care in place at your practice for patients with Chronic Obstructive Pulmonary Disease (COPD). Please read each question carefully. Please answer from the perspective of the entire practice but feel free to comment if there are components that individual providers use on their own. For the statements that request additional information, please comment in the extra box space available and indicate the condition(s) that the information applies to.

Section A: Organization of the System of Care	
1a. Does the practice have a structured healthcare improvement team? 1b. IF YES, describe the team (e.g., organization, composition, delegated responsibilities, resources, strategy).	Yes___ No___
Section B: Practice Use of Evidence-based Guidelines	
2a. Does the practice use protocols based on evidence-based guidelines for screening, diagnosis, treatment, or management of COPD patients?	Yes___ No___
2b. IF YES, where are these protocols located? (e.g., in exam rooms, in patient charts, etc.)	Attached to Patient Chart ___ Exam Rooms ___ Part of an Electronic Chart ___ Flow Chart ___ Other (specify) ______________________________
3a. Does the practice employ a system that reminds providers/staff of specific guidelines/treatment protocols when a patient with COPD has a scheduled visit? (e.g., Disease registry, Flow Chart, etc.) 3b. IF YES, what methods does the practice employ for reminding providers/staff?	Yes___ No___ Disease registry ___ Electronic Chart ___ Tickler sheet ___ Other ___ Flow Chart ___

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Patient Care Assessment

- Chart reviews
  - Provides information on how well providers are doing in delivering best practice patient care of COPD
  - Provides indicators of health outcomes for patients with COPD
- COPD registry
  - Keeps track of data on COPD patients and progress toward Collaborative goals
- Electronic Medical Records (EMR)
  - Some practices use EMRs to collect information on patient care
  - This data was used to help track progress toward Collaborative goals

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Measuring Patient Care

- Pre/Post Design
  - Pre: random selection of charts of patients who visited the practice ***prior to*** Collaborative
  - Post: selected charts of COPD patients seen by the practice ***during*** the Collaborative

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Chart Review Tool

Clinical Characteristics	In Record?		Comments:
Hospitalization for pulmonary disease as the primary or secondary discharge diagnosis? (past 12 months)	Y	N	Primary discharge diagnosis: ________________ Secondary discharge diagnosis: ______________
Number of times the patient been hospitalized for pulmonary disease? (past 12 months)			# of hospitalizations: ________
Emergency Department visit for pulmonary disease as the primary or secondary discharge diagnosis? (past 12 months)	Y	N	
Number of times the patient visited the Emergency Department for pulmonary disease? (past 12 months)			# of ED visits: ________
Documented spirometry results at **most recent visit**?	Y	N	FEV1 / FVC (%): ________ FEV1: _______
If no, record the spirometry results from the most recent previous visit.			FEV1 / FVC (%): ________ FEV1: _______
Assessment of physical activity tolerance?	Y	N	
If yes, has there been an increase in tolerance?	Y	N	
COPD flow sheet in chart (or some variation of a COPD management tool)?	Y	N	
Sticker or other type of "flag" that identifies chart as belonging to a COPD patient?	Y	N	

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COPD Registry

- Data <u>management</u> system
- Data from flow sheet are entered into database ("mirrors" flow sheet)
- Allows individual teams to run own reports on specific measures to monitor improvement
- Allows us (evaluators) to periodically analyze data across all teams/practices

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University of NEW ENGLAND

The Center for Health Policy, Planning and Research

Flow Sheet

File

COPD Care Flow Sheet

Last Name: First Name: DOB

"At the first visit, identify the patient's current smoking status and exposure to second hand smoke"

Tobacco Status (Check one best statement)

- ☐ Currently Using Tobacco
- ☑ Quit Date: 1/1/1994
- ☐ Never Smoked

Tobacco Type (Check all that apply)

- ☐ Cigarette
- ☐ Cigar
- ☐ Other

Tobacco Use

Amount/Day: 0

Age began: 0

Exposure: (environmental, occupational)

Quit History: (Dates, success, challenges, etc.)

Vaccinations Dates

Last Influenza Vaccine 10/24/2005

Pneumococcal vaccine 11/17/2004

Spirometry:

	Date	FEV1 % of predicted		FVC % of predicted		Stage
Baseline		0	%	0	%	0
Repeat		0	%	0	%	0

Date	Item	Done	Notes
9/25/2006		☐	
	Flu Vaccine (Annual)	☑	10/24/05
	Smoking Status (Each visit)	☑	non smoker
	Tobacco Cessation (Ask, Advise, Assess, Assist, Arrange)	☐	
	Tobacco Cessation (Tobacco Helpline 1-800-207-1230)	☐	
	Tobacco Cessation (Fax Referral to Tobacco Helpline)	☐	
	Tobacco Cessation (Smoking Cessation packet given)	☐	
	Tobacco Cessation (Nicotine replacement therapy)	☐	
	Tobacco Cessation (Cessation meds - lupriopion, Chantix)	☐	
	Respiratory Education materials (Give written materials)	☐	
	Respiratory Education materials (Review general respiratory education)	☐	
	Respiratory Education materials (Meds)	☐	5/24/06 discussion of flovent
	Self-management goals (Discuss each visit)	☐	last discussion of asthma is 5/24/06
	Self-mx (Goal sheet given/discussed)	☐	
	Diet and Exercise (See handout)	☐	
	Pulmonary Rehab. Referral (See Criteria FEV1<65%)	☐	
	Living Will (Discuss and document once if stage 3 or 4)	☐	
	Other	☑	peak flow 300/400/440 charted 8/30/06

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Exports to Flow Sheet…

COPD Care Flow Sheet

Last Name ________ First Name ________ DOB ________

"At the first visit, identify the patient's current smoking status and exposure to second hand smoke"

Tobacco Status (one best statement)

- ☐ Currently using Tobacco
- ☑ Quit (Date: 1/1/1994)
- ☐ Never smoked

Tobacco Type (check all that apply)

- ☐ Cigarette
- ☐ Cigar
- ☐ Other

Tobacco Use

Amount/Day: 0

Age began: 0

Other exposures ________ (environmental, occupational)

Quit History (Dates, success, challenges, etc.) ________

Vaccinations

Date: 10/24/2005 (Last influenza vaccine)

Date: 11/17/2004 (Last pneumococcal vaccine)

Spirometry:

Baseline Date		FEV1 % of predicted	0 %	FVC % of predicted	0 %	Stage:	0
Repeat Date		FEV1 % of predicted	0 %	FVC % of predicted	0 %	Stage:	0

(Except for "Date of Visit", A ✓ will indicate done)

Date of Visit (enter each visit date)	09/25/06						
Flu Vaccine (Annual)	X						
Tobacco Status (✓ each visit)	X						
Tobacco Cessation (✓ below each visit if tobacco used)							
Ask, Advise, Assess, Assist and Arrange							
Give Tobacco Helpline # (1-800-207-1230)							
Fax Referral to Tobacco Helpline							

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Reports Created

ALL COPD Results

1) Goal: 90% of COPD patients > age 45 with one or more risk factors (tobacco smoking, occupational dusts and chemicals, indoor air pollution, outdoor air pollution, second hand smoke) will have evidence of being assessed for COPD by the presence of documented spirometry results and classification by severity (Stage 0-4)

Total COPD Patients: 91
Total Spirometry Patients: 41

Percent: 45.1 %

Total COPD Patients: 91
Total Stage Patients: 0

Percent: 0.0 %

2) Goal: 100% of visits will show documentation of COPD patients smoking status. Smoking cessation counseling will be done at each office visit to those patients who continue to smoke.

2a) Tobacco Status

Total Visits: 120
Total Tobacco Status Checked: 27

2b) Tobacco Cessation

Total smoker Visits: 47
Total Tobacco Cessation Counseling: 21

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Results: Three Years of COPD Collaboratives

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Office Practice Changes

- COPD Flow Sheet & Registry
- Spirometry and Staging
- Maine Tobacco Helpline Fax referral form
- Patient Self Management Goals Worksheet
- Tobacco Counseling and Treatment
- Group visits

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Practice Infrastructure Changes

- The Collaborative significantly increased the number of practices that:
  - Have formal healthcare improvement teams
  - Used protocols founded on evidence-based guidelines for COPD care
  - Have system in place to remind providers to use evidence-based protocols
  - Provide training and education to staff on evidence-based Have specific patient self-management tools for COPD
  - Have a COPD disease registry
  - Engage in goal setting with COPD patients

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Changes in Patient Care for COPD

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Practice Means:
% COPD patients with following activities documented in chart:

	Target (%)	Pre Mean (%)	Post Mean (%)	Difference (%)	P-value
Spirometry results	**90**	39	49	+10	**0.031***
Staging by COPD severity	**90**	13	26	+13	0.080
Influenza vaccine (annual)	**90**	41	67	+26	**0.002***
Pneumonia vaccine (ever)	**90**	49	65	+16	**0.043***
Diet/exercise counseling	**90**	34	55	+21	**0.019***
Referral to pulmonary rehab	**100**	7	12	+5	**0.048***

* Practice mean has increased significantly at 95% confidence level (Paired Sampled T-Tests)

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Practice Means:
% COPD patients with following activities documented *at each visit*

	Target (%)	Pre Mean (%)	Post Mean (%)	Difference (%)	P-value
Documentation of smoking status	**100**	57	62	+6	0.472
Self-management goals	**80**	29	53	+24	**0.031***
Respiratory education	**80**	23	40	+17	0.051
Smoking cessation counseling (smokers only)	**100**	40	72	+32	**0.001***

* Significant at 95% confidence level using Paired Sampled T-Tests

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Summary of Findings

- Significant improvements have occurred in most areas of patient care
- Some practices met targets
  - Practices not meeting targets in aggregate.
- External factors sometimes made progress difficult at some practices
  - Flu/pneumococcal vaccine supply
  - Access/use of spirometry
  - Distance from pulmonary rehab

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Lessons Learned

- Focus groups and patient panels clarify patient barriers
- Electronic registry or well-developed paper flow sheet is essential for keeping track of patient care
- Spirometry demonstrations are valuable
- Practices need training on use spirometry equipment and on staging
- Can’t always trust staging data in chart

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Lessons Learned

- Collaborative model allows practices to focus on making changes and to learn from successes/failures of other practices
- Implementing change requires strong teams
- Physician leadership is crucial

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