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Kelly, Nancy Ann C. RN, "Impact of an EHR-based tool on COPD Management in Primary Care" (2019). *College of Nursing and Health Sciences Doctor of Nursing Practice (DNP) Project Publications*. 31. <https://scholarworks.uvm.edu/cnhsdnp/31>

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Impact of an EHR-based tool on COPD Management in Primary Care

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Acknowledgements

Dr. Rosemary Dale, PhD APRN

Jennifer Allaire, MSN APRN

Julie O'Shea, RT UVMHC Pulmonary Rehab

Providers and staff of Appletree Bay Primary Care, Burlington, Vermont

There are no relationships, conditions, or circumstances that present a conflict of interest relevant to the content of this presentation

Introduction

Problem
Statement

COPD was 3rd leading cause of death in US in 2012

Disease exacerbations hospitalization costs: \$32.1billion in 2010, \$49billion by 2020

Preventative measures, disease management key to reducing number of exacerbations



Chronic obstructive lung disease associated with smoking, environmental exposures and genetic traits



GOLD (Global Initiative for Obstructive Lung Disease) evidence-based guidelines recognized as standard for COPD treatment; use in clinical practice inconsistent



Primary Care providers 1st line in assessing/treating patients with respiratory symptoms

What we know about COPD and Primary Care



Increase provider awareness of GOLD (2017) treatment guidelines



Implement and assess impact of an EHR-based tool on use of GOLD guidelines during Primary Care COPD visits

Goal

Rationale

COPD patients seen by Primary Care and/or Pulmonologist



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graph TD; A[COPD patients seen by Primary Care and/or Pulmonologist] --> B[Barriers to GOLD use by providers identified: low familiarity, time constraints (Perez, 2011)]; B --> C[EHR-based tools/guidelines shown to improve outcomes among COPD and DM patients (Tersaki, et al., 2015; O'Connor, et al., 2011)];
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Barriers to GOLD use by providers identified: low familiarity, time constraints (Perez, 2011)

EHR-based tools/guidelines shown to improve outcomes among COPD and DM patients (Tersaki, et al., 2015; O'Connor, et al., 2011)

Ethical Considerations

Autonomy:

- decision making by provider maintained base on clinical evaluation of patient symptoms
- Delete/decline use of EHR-based tool

Equity:

- All patients at ATB with diagnosis of COPD are eligible to participate in the study.

Methods

Primary Care office seeing adult patients with varying patient population in Burlington, Vermont over 90 days



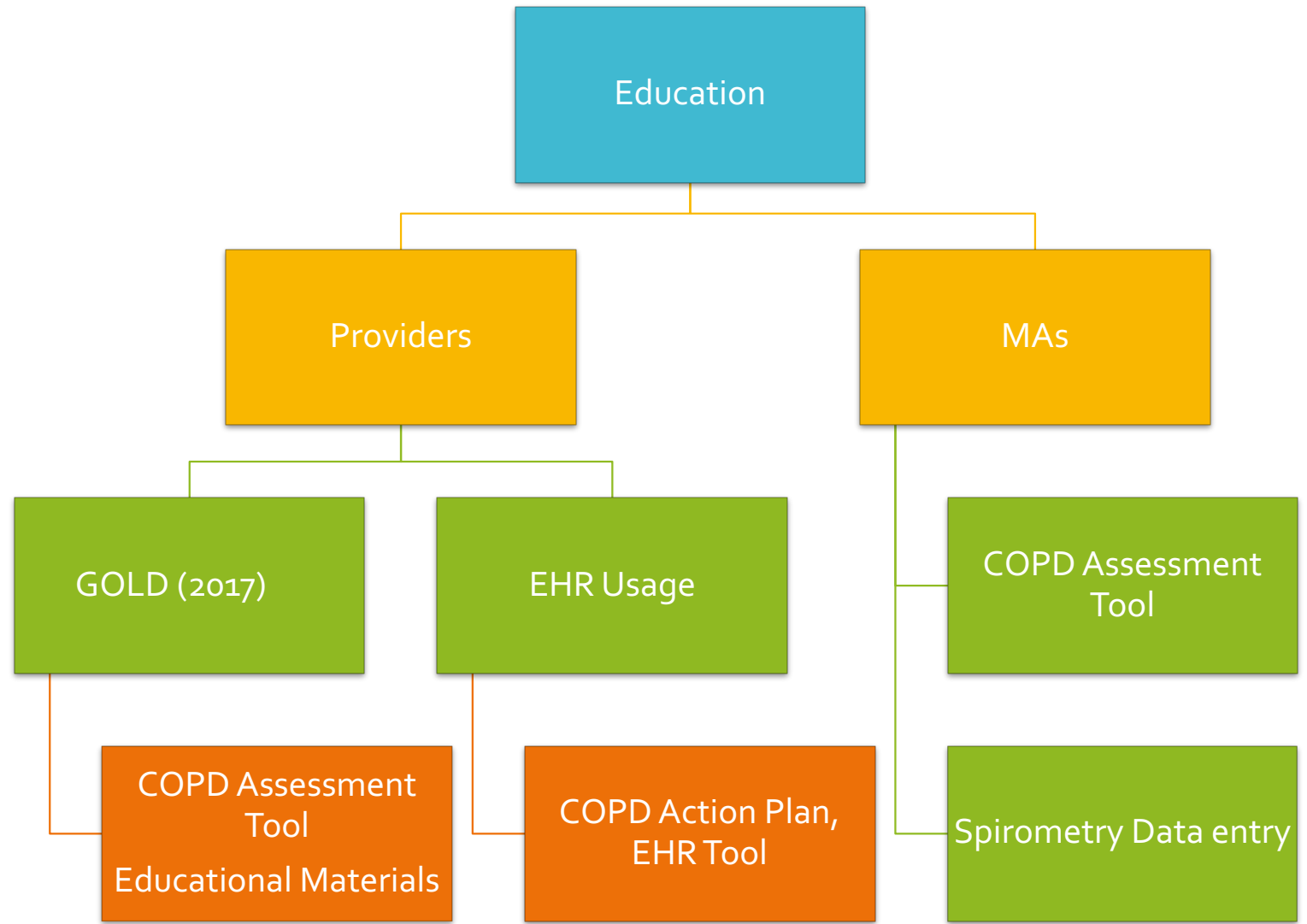
Identified 77 patients with COPD diagnosis (age > 18)



Two pronged intervention

Education

EHR-based tool (aka SmartPhrase)



Immunization History

Administered	Date(s) Administered
• Tdap Vaccine =>7YO IM	03/02/2006
• Tetanus Vaccine IM, Adsorbed	06/17/2016

Spirometry results:

Spirometry Smartform	4/12/2018
Spirometry Location	Adult Primary Care
FEV1 (pre-albuterol)	2.77
FEV1 % pred (pre-albuterol)	73
FVC (pre-albuterol)	4.92
FVC % pred (pre-albuterol)	97
FEV1/FVC (pre-albuterol) calculated	56.3
FEV1/FVC % predicted (pre-albuterol) calculated	75
FEV1 (post-albuterol)	2.55
FVC (post-albuterol)	5.18
FEV1/FVC (post-albuterol) calculated	49.23
FEV1 Change	-0.22
FEV1 % pred Change	-7.94
FVC Change	0.26
FVC % pred Change	5.28

[REDACTED] was seen today for a follow up ED visit. [REDACTED] currently meets the criteria for COPD. [REDACTED] has had 1 exacerbations in the past year and a COPD Assessment Test score of 6. This yields a Combined Assessment of COPD as Gold 2A, though above results should be interpreted with caution, as per printout results/technique. [REDACTED] reports that [REDACTED] has been smoking Cigars. [REDACTED] has never used smokeless tobacco..

GOLD Recommendations:

Smoking cessation discussed? Yes

Spirometry ordered? Comment: not today- will repeat with exacerbation or at one year
Vaccinations up to date (influenza, PCV-13, PPSV23) No and Comment: will continue to discuss at ROV

Screening required:

Lung Cancer: Yes and Comment: CT chest in April and CT PE protocol in Aug 2018

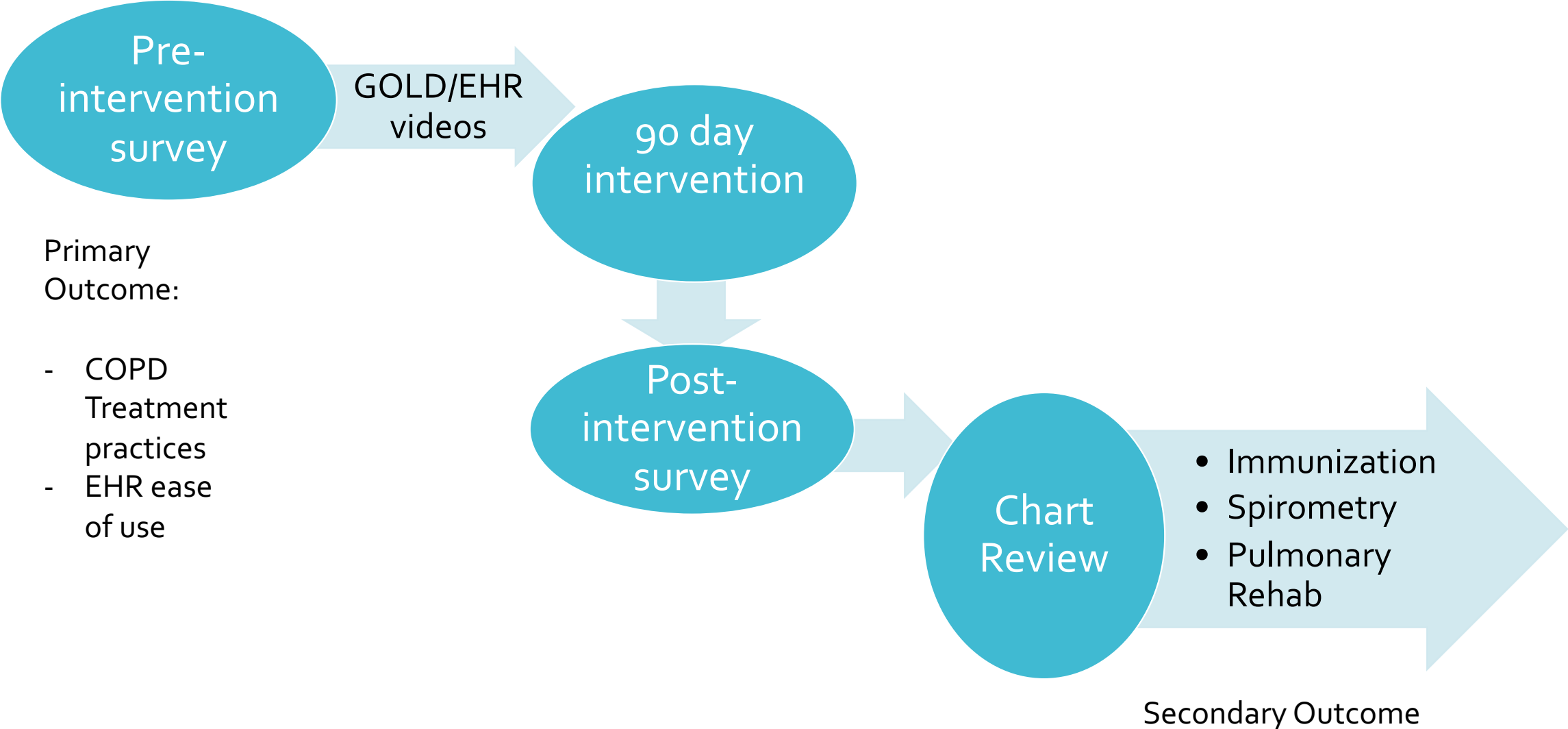
Osteoporosis: No and Comment: not at this time

COPD Action Plan in place? Yes

Pulmonary rehab referral made? No and Comment: discussed today, though pt declines at this time

Referral to CHT (Smoking cessation, social worker) or Better Breathers? No and Comment: discussed today, though patient declines at this time

Methods

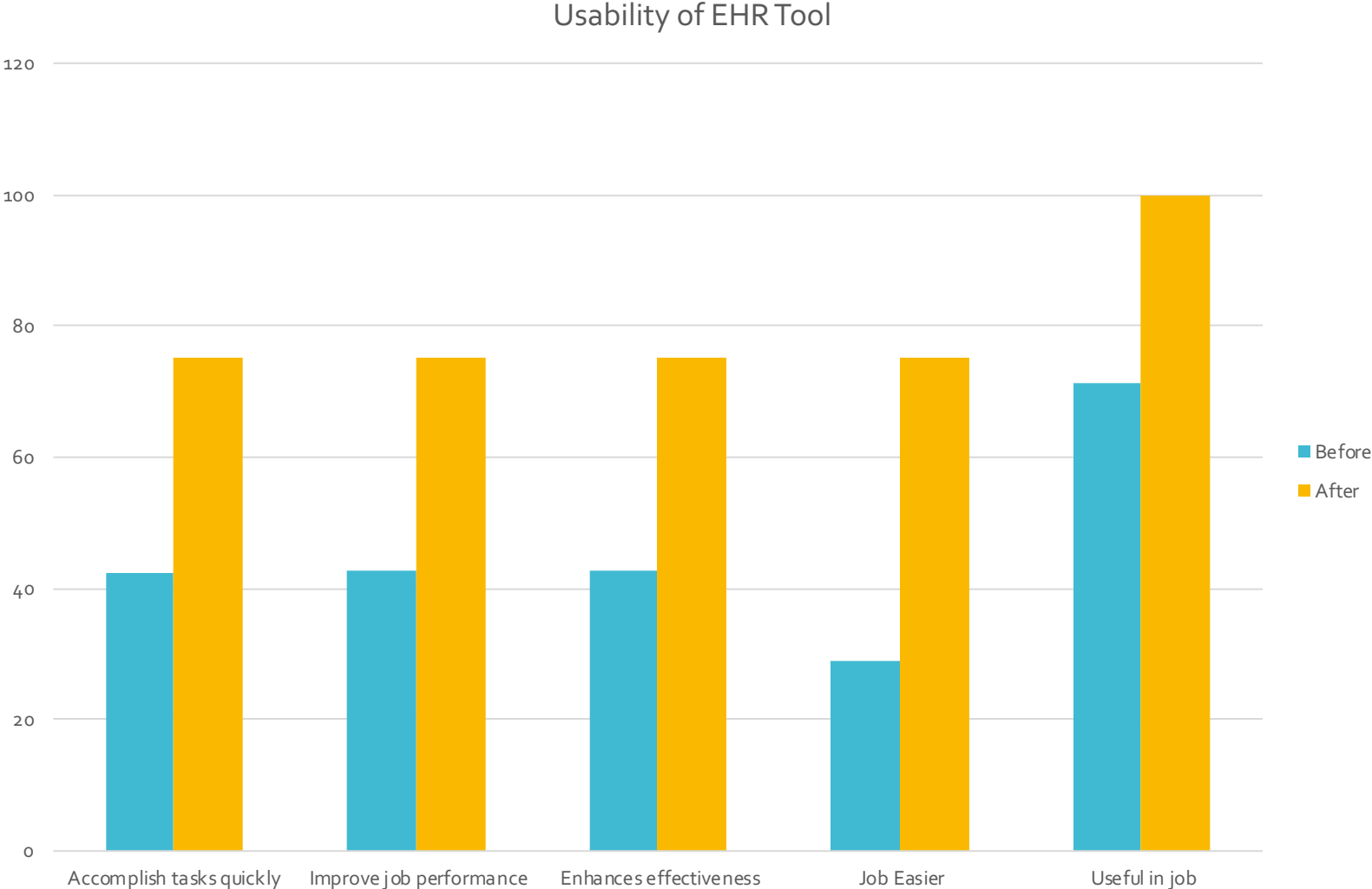


Results

Provider Survey

Spirometry Frequency	Increased frequency to Wellness and Exacerbation visits
COPD Action Plans	COPD Action plans: Increase frequency to Wellness and Exacerbation visits
Pulmonary Rehab Referrals	No significant change, resistance by patients to participate
Smart Phrase Ease of Use	Easier Job: 28.5% to 75% Enhance Effectiveness: 42.8% to 75%

Usability of EHR tool



Results

Chart Review

51/77 pts seen
109 visits
23 COPD visits

Immunizations	%pts seen/n
- Influenza	37.2% (19)
- PCV ₁₃	1.9% inc (1)
- PPSV ₂₃	1.9% inc (1)
Spirometry Rates	3.9% inc (2) ** not including 17 results acquired from chart review prior to EHR integration
Pulmonary Rehab referrals	3.9% inc (2)

Interpretation and Identified Needs

Change in spirometry rate/accessibility noted during quarters spanning 90 day period of intervention

COPD focused annual visit

Research to identify barriers to Pulmonary Rehab

PNA Vaccination program

Limitations

Small population and short-duration limits generalizability

Vaccination rates may not reflect vaccinations received out-of-state and/or not reflected in EHR immunization history

Variable provider schedules: "drop in" lunch hours for support

Pt identification for MAs; weekly review of scheduled patients.

Conclusions

EHR-based tool
beneficial tool for
providers with
possible expansion
to other chronic
diseases (HTN, DM)

Educational Videos
potential use:

- Home Health/Visiting Nurse organizations
- New providers/students at practice
- Case Management, ACO (OneCare)

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