In-Patient Smoking Cessation – A Quality Improvement Project

Shannon Harris DNP, FNP-BC, TTS, Lori Prewitt Moore, DNP, FNP-BC, RN, CHSE, Tochie Lofton, DNP, RN, ACNS-BC,CMSRN, Aphry Olafsen RRT & Robert Percy MD

Project Purpose

The purpose of this project was to demonstrate that in-patient, smoking cessation education would prepare the patient for a serious attempt to quit smoking.

Aim

*The aim of this project was to explore inpatient, smoking-cessation strategies to mitigate smoking-related hospitalizations

Objectives

*Use a validated tool to evaluate the level of nicotine dependence
*Address any disparities in the literature on in-patient smoking cessation programs
*Foster the growth of cognitive-behavior meditations for self-management of nicotine dependence
*Improve quality of life
*Save healthcare dollars

Background & Significance of the Problem

*Alabama is ranked 11th in the nation for active smokers
*Cigarette smoking is the leader in preventable disease and death in the US and is the cause of death for more than 480,000 US citizens
*The US healthcare system spends greater than $300 billion annually on cigarette smoking related illnesses
*COPD readmission rate increased to 40%
*Approximately 90 inpatient smokers daily
*No inpatient smoking cessation program, nor an out-patient program offered locally.
*There is a strong push from healthcare legislation to improve smoking cessation programs
*Lifetime quit rates for addicted smokers are only 3%–7% with nicotine replacement therapy (NRT) & current on-line smoking cessation programs

Methodology

Type of Project: Quality improvement
Setting: Non-profit , 669 bed hospital with five ICUs, and a comprehensive cardiovascular program

Size: Out of the 659 participants only 104 were able to be contacted after discharge (n=104)
Recruitment: Convenience Sampling
Inclusion Criteria: >18 years old, who smoked cigarettes
Exclusion Criteria: >18 years old, non-smokers
Implementation Period: January 2019, through May 2019

Fagerstrom Nicotine Dependency Tool (FNDT)

Fagerstrom Test for Nicotine Dependence (FTND)

Question	Answer	Pts
How many cigarettes do you smoke daily? (This question addresses tolerance.)	≤10 11–20 20–30 >30	0 1 2 3
How soon after awakening do you smoke? (This question addresses withdrawal.)	≤5 min 6–30 min 31–60 min >60 min	3 2 1 0
Which cigarette would be the most difficult to give up? (This question addresses withdrawal.)	First in AM/ Any other	1 0
Is it hard to refrain from smoking where it is forbidden?	Yes/no	1/0
Do you smoke even though you are sick in bed all day?	Yes/no	1/0
Do you smoke more often in the first few hours of the day, compared to the rest of the day? (Addresses withdrawal.)	Yes/no	1/0

Range is 0-10; FTND can assess past smoking with changes in wording.

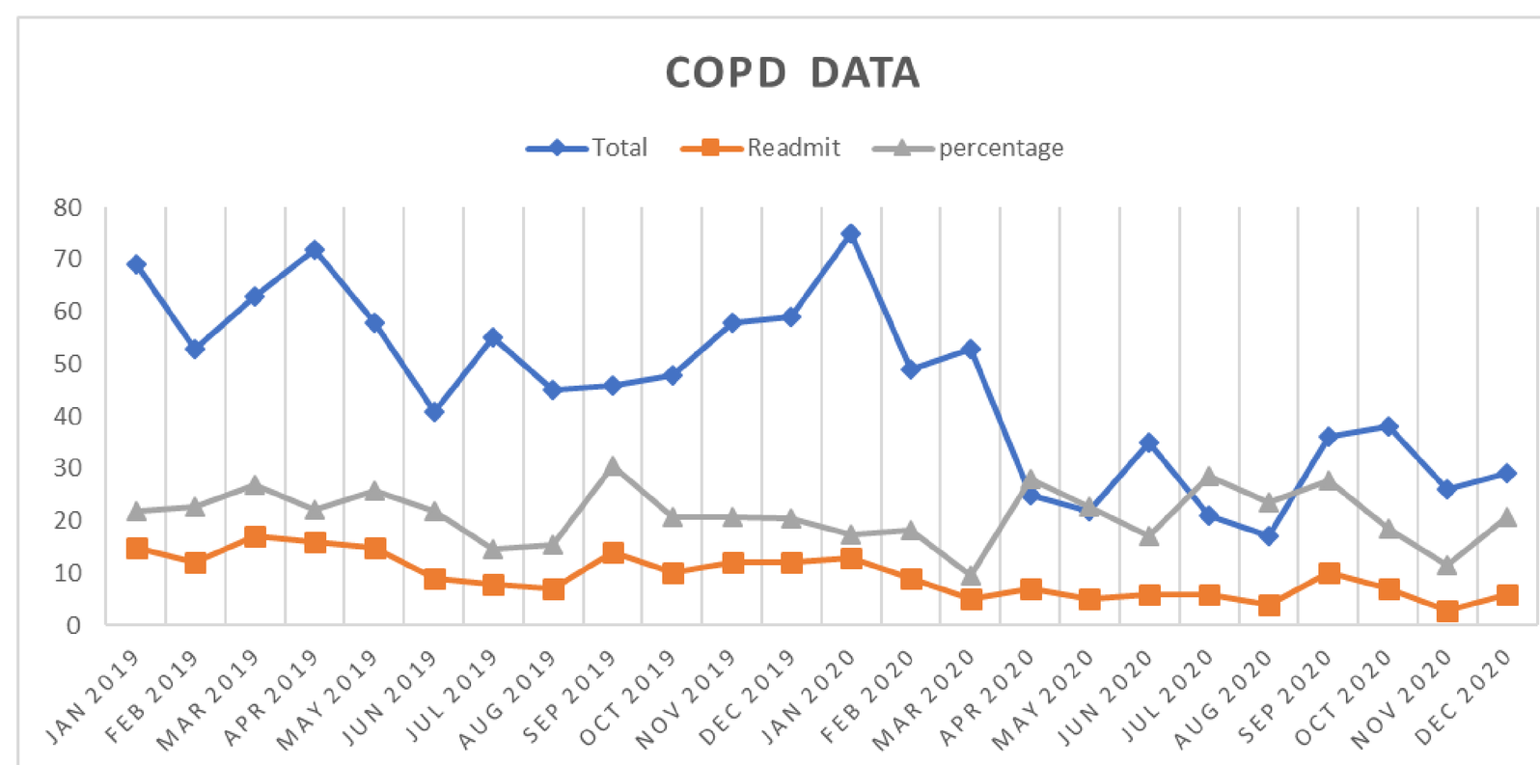
Interventions & Data Collection

*A list of admitted smokers was created within the EMR
*The FNDT was given to each participant and a nicotine dependency score was given.
*Scores of 0 as no dependency, 1–3 as low dependency, 4–6 as moderate dependency, and 7–10 as severe dependency were given after taking the FNDT
*The HMSCC was used to determine the frequency and type of tobacco cessation coaching needed according to the nicotine dependency level.
*The HMSCC was used to determine if the participant wished to have NRT and/or pharmaceutical therapy initiated.
*A comparison of collected data was performed, including active smoker nicotine dependence using the MFNDT, HMSCC, and 30-day readmissions, for three months following implementation compared to the previous years' data during the same 3 months.
*The outcome of this project was aimed at reducing < 60-day active smoker readmissions and increasing successful smoking cessation attempts.

Harris-Moore Smoking Cessation Chart

Dependence Level	Nicotine Replacement	Cessation
High	• Chantix starter pack • Chantix 12 week Rx with option to extend another 12 weeks • Nicotine Patch 21 mcg & taper • None	• Intensive cessation IP counseling • Follow-up phone call Q 2 weeks • Clinic visit Q month X ○ Assess Fagerstrom, CO, cravings, and life stressors • Quitter's support group monthly at ProHealth
Moderate	• Chantix starter pack • Chantix 12 week Rx with option to extend another 12 weeks • Nicotine Patch 21 mcg & taper • None	• Brief cessation IP counseling • Follow-up phone call Q 4 weeks • Clinic visit Q month X 3 ○ Assess Fagerstrom, CO, cravings, and life stressors • Quitter's support group monthly at ProHealth
Moderate to Low	• Chantix starter pack • Chantix 12 week Rx with option to extend another 12 weeks • Nicotine Patch 21 mcg & taper • None	• Brief cessation IP counseling • Follow-up phone call or email exchange Q 4 weeks • Quitter's support group monthly at ProHealth
Low	• Chantix starter pack • Chantix 12 week Rx with option to extend another 12 weeks • Nicotine Patch 21 mcg & taper • None	• Brief cessation IP counseling • Follow-up phone call or email exchange Q 4 weeks • Quitter's support group monthly

COPD Readmissions Results and Anova



Comparing COPD 30 Day Readmissions During a 5 month Period Using One-Way Anova	Jan-May 2019	Jan-May2021	Total
N	5	5	10
$\sum X$	76	39	115
Mean	15.2	7.8	11.5
$\sum X^2$	1174	349	1523
Standard Deviation	2.1679	3.3466	4.7199

Result Details

Source	SS	df	MS	
Between-treatments	136.9	1	136.9	F = 17.22013
Within-treatments	63.6	8	7.95	
Total	200.5	9		

The *f*-ratio value is 17.22013. The *p*-value is .00321. The result is significant at $p < .05$.

Results

*659 participants
*104 were able to be contacted for follow-up after discharge
*104 participants were given the FNDT at two weeks and four weeks via phone call
*Scores were compared to the in-patient score.
*Average FNDT score reduction was 3% at two weeks and 4% at four weeks.
*Another phone call was made at 12 weeks, and eight had quit smoking.
*January 1, 2019, through May 30, 2019, 264 COPD patients were admitted to the hospital and 50 patients were readmitted within 30 days of discharge. The average was 15.2% (mean= 15.2, SD=2.16).
*January 1, 2020, through May 30, 2020, a year after the implementation phase, 210 COPD patients were admitted to the hospital and 34 of those were readmitted within 30 days after discharge. The average of readmissions over the 4-month period was 7.8% (mean=7.8, SD= 3.34).
*A statistically significant decrease in COPD 30-day readmissions from 2019-2020 was found. The *f-ratio* value is 17.22013. The p-value is .00321. The result is significant at p< .05. (Significance set as p<0.05, 95% confidence interval

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