Increasing Offering Rate of Low Dose Computed Tomography (LDCT) Scans for the Early Detection of Lung Cancer in Eligible Patients in a Rural Health Primary Care Clinic

Colton R. Thames, DNP (S), FNP-BC, RN; Laurie Connors PhD (c), DNP, FNP-BC, AGN-BC, AOCNP, FAANP, FAAN

Vanderbilt University School of Nursing

SCHOOL OF NURSING
VANDERBILT UNIVERSITY

Introduction

Lung cancer remains the leading cause of cancer-related deaths in the United States (Torre et. al, 2016). This is largely since lung cancer goes undetected until. To increase the number of referrals, the providers and nursing staff need to be informed of current screening eligibility guidelines; providers and nurses should be properly educated on how to determine pack-year history; providers and nurses should be educated on the efficacy of LDCT vs. traditional radiography, and front office staff should ensure that smokers are properly identified in charts when possible

Topic
- To increase the number of offerings for eligible patients to receive low dose computed tomography (LDCT) scan for the early detection of lung cancer. Eligibility determined by age 50-80, 20 pack year history or quit within last 15 years (Figure 1b)

Problem
- Documented referral/patient decline rate before any intervention for LDCT scans is 1.2% in the clinic, which is far below the national average and the least successful Health Maintenance topic fulfilled at the clinic

Team
- 3 Providers (NP, NP, MD)
- 3 Support Staff (MA, LPN, LPN)
- 3 Front Office Staff

Aim
- To increase documented referral/patient decline from baseline 1.2% to at least 50% by December 31, 2022 in a Rural health clinic in Virginia
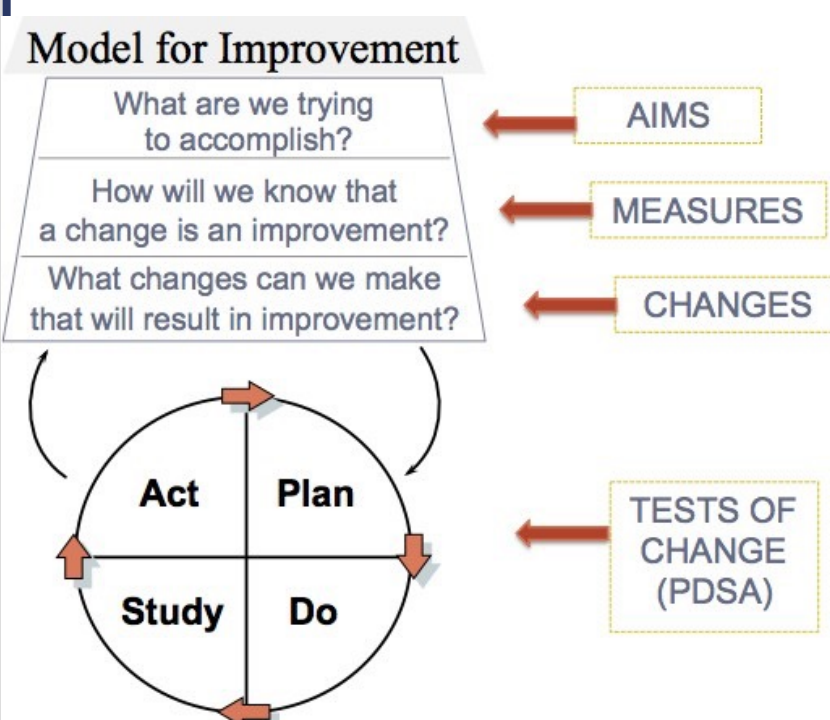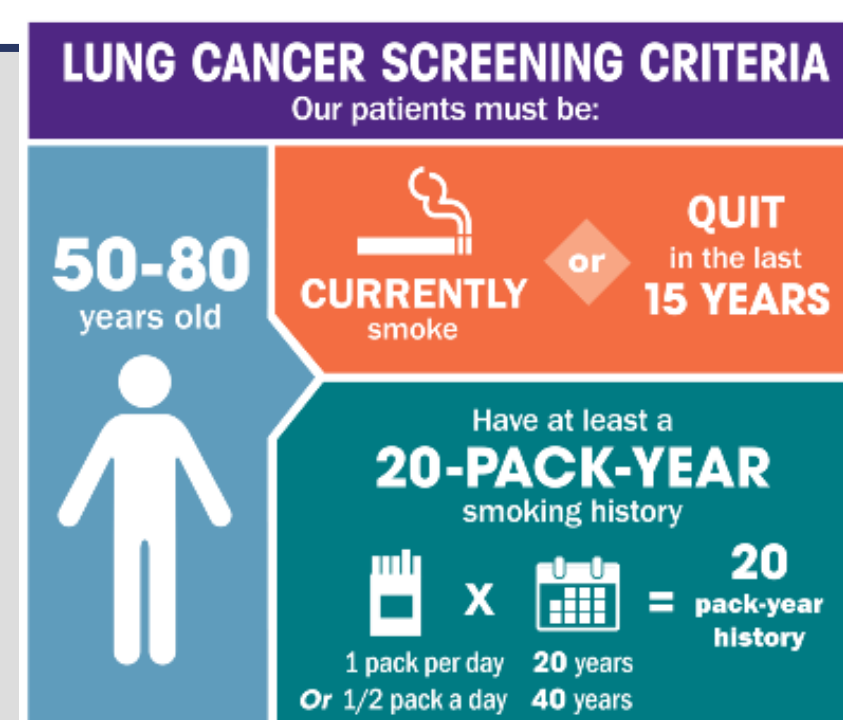

Figure 1a
PDSA Cycle

Figure 1b
Screening Guidelines

Methods

- *Education to be given on screening eligibility guidelines, how to calculate pack-year history, and the benefits of LDCT compared to traditional chest radiography (in addition to verbal education of those topics) along with encourage front office staff to determine smoking status before patients are seen for wellness visits.*

PDSA Cycle (Figure 1b)
- **Plan** – Reinforce lung cancer screening guidelines for low dose computed tomography (LDCT) scans for both Medicare/Medicaid and private insurance patients via education to providers and staff of the clinic.
- **Do** – Notice an increase of documented referrals or document patient decline after education cards have been distributed.
- **Study** – All opened encounters will be evaluated for one month for all patients with eligible smoking history (20-30 pack years) document and in chart.
- **Act** – Adopt, Adapt, or Abandon future reinforcement of education as it relates to lung cancer screenings with LDCT scans.

Measures
- Number of charts with document patient referrals made or patient decline. Measurement simply consists of N1 (pre-intervention) and N2 (post-intervention)

Results

Pre-intervention documented referrals/ patient decline was 2.8% and post-intervention rate was 48.3% (Table 1)

Statistical Significance
- There was a 2000% increase in documented referrals/patient decline after change was made
- Regardless, the 50% goal (Aim) was not achieved

Clinical Significance
- Though the Aim was not met, the number of patients at least being offered LDCT scan drastically improved, which even if only 1 patient is helped by this change, it would be worth the change.

Implications for Practice

Results show a positive effect of the change. The "offered" rate increase from N1=2.3% to N2=48.2%, a 2000% increase (Table 1). While this did fall short of the aim of N2=50%, there was a substantial increase.

Strengths – there was a clear need for clarification of eligibility requirements for providers to understand, as well as a need for more clear and inclusive documents.

Weaknesses – it was not determined how many eligible patients were offered LDCT scans in N1 but documentation of decline did not occur. Therefore, some of the positive change could just be improved documentation.

This change could be further adapted to include both improved documentation and increasing number of LDCT offerings, or two separate projects.

Pre-Intervention	Post-Intervention
Eligible N1= 260 (100%)	Eligible N2=29 (100%)
Offered N1= 6 (2.3%)	Offered N2=14 (48.3%)

Table 1
Results Pre-Intervention (N1) and Post-Intervention (N2)

References

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