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# Increasing Low-Dose CT Screening in Primary Care

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## Introduction

Lung cancer was ranked as the second most common cancer diagnosed in 2020 and had the highest death rate compared to all other cancers, excluding nonmelanoma skin cancers (ACS, 2020). The American Cancer Society is projecting that in 2021 alone there will be 235,760 new cases of lung cancer and approximately 131,880 deaths from lung cancer (ACS, 2021). Over 12,000 lives every year could be save by catching lung cancer in its early stages and more than doubling the patient's chance of survival (ACS, 2020). A low dose CT (LDCT) is a yearly screening tool developed to catch lung cancer early in high-risk patients. Guidelines are set forth by the United States Preventative Task Force (UPSTF) outlining populations at a high risk of lung cancer who should be screened for lung cancer via LDCT. Currently, OSF St. Anthony Health Center reports only 2% of the qualified patients have obtained orders for an LDCT despite an effort of provider reminders in exam rooms and educational briefings during staff meetings. The hospital and offices are located in Madison County, Illinois. Approximately 16% of the adults in the county are smokers while the state average is 15% (countyhealthrankings.org, 2020).

## Literature Review

During the review, there were two major barriers noted that decreased the number of screening orders placed. In addition, there was one successful implementation process that was identified more than once and numerous studies that revealed increased provider education increased the number of LDCT orders placed on qualifying patients. The barriers identified were lack of testing/screening knowledge by the patient and by the provider. Coughlin, et al. (2019) conducted a study among three different healthcare settings which involved a total of 614 providers. Nearly 30% of those providers had never ordered an LDCT for qualified patients

while only 6.2% of the 614 providers were able to identify all six LDCT qualifying criteria (Coughlin, et al., 2019). A common finding of why providers were not ordering LDCT's was the lack of the provider's knowledge of knowing the qualifications for the LDCT or insurance coverage. Medicare does cover LDCT screening, as do most insurances, but the majority of providers were unsure and therefore, did not order it (Coughlin, et al., 2019).

The lack of knowledge by the provider flows to a lack of knowledge to the patient. Patient follow through with provider ordered testing is directly associated with ordering providers' practice. (Duong, et. al, 2017). Patients who are educated on the benefits of a screening and encouraged by their primary care provider to obtain the screening have an 85% compliance increase (Nhung, et al., 2015). Raz, et al. (2016) revealed that when surveying 250 PCPs only 15% of their patients asked about LDCT while only 2% of the high-risk patients inquired about it. Other cancers, such as breast, colon, and cervical, have screening rates of 73%, 58%, and 81%, respectively (Duong et al., 2017). The CDC lists the lung screening rate at 12.5% (Richards, et al., 2020). The LDCT tool is a successful method to catch lung cancer early when ordered as suggested per the USPTF guidelines.

## Methods

The purpose of this project was to increase the number of LDCT orders placed for qualified patients to decrease the lung cancer mortality rate. The literature reviewed revealed two successful methods at increasing orders placed and compliance: education and mailed invitations. The biggest factor was patient and provider education. The organization in which this project took place has attempted to increase provider education without success. A patient flier had been attempted but the approval stopped at the compliance level due to HIPAA concerns. Another approach to increasing provider education will be attempted, as well as, patient

education by mailing compliance-friendly invitations and a questionnaire to be completed by current or former smokers during in-office visits.

There were two lunch and learn sessions that were be eligible for 1 CME conducted and offered to providers and clinical staff in the primary care offices that are being targeted. Previously, the education had been to providers only and offered during mandatory meetings. This time the CME and free lunch was used as an incentive to attend. The session included a slide show presented by the project leader and ended with the Oncology Navigator explaining the process in which abnormal scans are handled. This added information helped clarify any unknowns some providers had and wrap up the whole process from order placement to result. A pre and post Likert evaluation to ensure the sessions were educational and beneficial to staff was collected.

The analytics department was consulted to extract data for the local OSF primary care database. The patients who were extracted were either current or former smokers and over the age of 50. Next, the Community Relations and Marketing director as consulted to assist in making approved education fliers to be sent to the patients. The goal of the flier was to include key facts on the importance of the LDCT and the qualifying factors. The organization already had some fliers made but they were edited to meet the goal and include information for the LDCT Screening event. The fliers also recommended that patients contact their insurance to confirm eligibility. Patients were encouraged to contact their provider via MyChart, phone, or in-person to inquire about the LDCT if they were interested. All providers were to be notified that the invitational flier is being mailed and to be prepared for an influx of questions regarding the LDCT. At the time of notification, providers were also to be given an additional Frequently Asked Questions (FAQ) form regarding the LDCT and the qualifying factors.

Within the organization's electronic health record an alert, known as a Best Practice Alert (BPA), was added to pop-up and alert the provider that the patient may be eligible for the LDCT. This pop-up included a link for an easy 2-click ordering process. If the provider denies it, the alert will occur again when the chart is accessed by another clinician. The only way to prevent the alert from occurring was to order the test or note why the order was not being placed.

Lastly, a questionnaire with checkboxes was provided to all former or current smokers who presented for an in-office appointments. This questionnaire had the qualifying criteria and the patient was told "select all that apply" when answering the questions. Medical Office Assistants provided this to the patient at the end of the rooming process to complete while waiting for the provider. This was then reviewed by the provider and order placed, if necessary.

## Evaluation

The analytics department was a major component for the evaluation process. A list of qualifying factors for an LDCT based on the USPTF guidelines was given to the analytic team contact. A report was run before starting for the number of patients who qualify for an LDCT, a number of how many have had orders placed, and a number of who have had the LDCT completed. The report included the three primary care offices in the local organization. The offices consist of 13 providers: 7 Advanced Practice Providers and 6 Physicians. The same report was ran monthly for 4 consecutive months. The reports were compared at the end to evaluate the interventions impact. A Likert scale was also used to obtain information from all involved providers and clinical staff to obtain their thoughts of the interventions implemented. A pre-educational session and post-educational session evaluation form was collected. The evaluation form not only evaluated the lunch and learn session but also the provider and the clinical support staffs knowledge and opinion on the ordering process.

Overall, the Likert scale and analytical data reviewed all showed a positive increase of LDCT orders and provider education. The mailing fliers were halted due to an unforeseen barrier but the project was still successful. Increase the provider education encouraged them to place the orders for the benefit of the patient. Also, creating the BPA did help with the ordering process and make it easier for the provider to place the order. The questionnaire served as a great patient education tool as it brought light the risks of lung cancer and how the patient's habits would/had effected their long-term health. They also served as a great conversation starter to inform patients of what an LDCT is and the benefits of them.

## Impact on Practice

The immediate impact on practice was very evident has the LDCT order placements increased every month which the project was taking place. The number by the end of the four month long project total was higher than the total of LDCT orders placed the preceding calendar year. The providers verbalized a better understanding of the LDCT criteria and patients were becoming more informed. Clinical support staff verbalized to project leader that they had noticed patients calling with LDCT questions and requesting the test to be ordered or they were calling patients with results nearly every day. There were incidental findings noted which led to PET scans and early diagnosis of cancer with a greater prognosis. The long-term effect of this project will only benefit patients by detecting lung cancer, and possible incidental findings, in an early stage and decreasing the mortality of lung cancer. In future practice, it would be recommended to continue with the BPA and periodic lunch and learn sessions and to also continue pushing for mailing fliers to patients.

## Conclusions

In conclusion, this project was successful at increasing LDCT awareness but increasing education to patients and providers. The orders did increase and evidence of the benefit was noted via the results and the numerous positive screenings and routine follow ups for monitoring nodules. The fliers were unable to be mailed but this is still a recommended method if given the time to get everything together and pushed out. A project of this type requires long-term follow up and multiple departments. It is recommended that oncology navigators and the hospital affiliate work with primary care offices to continue the education process for all involved.

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