Partnership for the Prevention and Early Detection of Lung Cancer

MPRO’s Michigan Cancer Control Initiative & Hills & Dales General Hospital’s Lung Cancer Screening Program

Low dose CT (LDCT) Lung Cancer Screening
Hills and Dales General Hospital Radiology Department

Peggy Davidson, ARRT (CT) (R) (M), RDMS (ABD) (BR) RDCS Director of Radiology

Trisha Meinhard, BBS Manager of Physician Practices
National Lung Screening Trial (NLST), 2002-2010

- Low-dose helical computed tomography (LDCT) vs. standard chest X-ray
- 53,454 former or current heavy smokers: ages 55-74
- Participants randomly assigned to 3 annual screens with either LDCT or X-ray

Results

- Participants who received LDCT scans had a 15-20% lower risk of dying from lung cancer than participants who received standard chest X-rays
- Adenocarcinomas and squamous cell carcinomas detected more frequently at the earliest stage by LDCT compared to chest X-ray

U.S. Preventive Services Task Force Recommendation

<table>
<thead>
<tr>
<th>Population</th>
<th>Recommendation</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults Aged 55-80, with a History of Smoking</td>
<td>The USPSTF recommends annual screening for lung cancer with LDCT in adults aged 55 to 80 years who have a 30 pack-year smoking history and currently smoke or have quit within the past 15 years. Screening should be discontinued once a person has not smoked for 15 years or develops a health problem that substantially limits life expectancy or the ability or willingness to have curative lung surgery</td>
<td>B</td>
</tr>
</tbody>
</table>

As a result of NLST evidence, lung cancer screening with LDCT has been designated as a Grade B recommendation by USPSTF

Grade B = USPSTF recommends this service, there is moderate certainty that the benefit of this service is moderate to substantial
Facility Information

- Cat Scan department accredited by the American College of Radiology
- Designated Lung Cancer Screening Facility by the American College of Radiology

What is a LDCT Lung Screening?

A low dose lung cancer screening is a non-contrast Cat Scan exam that is performed on patients who are at risk of developing lung cancer.
Program Preparation

1. Reviewed all CMS guidelines for LDCT
2. Joined NRDR (National Radiology Data Registry)
3. Prepared patient history sheet
4. Developed documentation process for information to be entered into the NRDR
5. Set up ordering and scheduling process
6. Set up steering committee

Program Preparation

- Selected Cat Scan Technologist as a champion for performing and completing all documentation for LDCT screening exams
- Set up LDCT screening protocols according to standards set by the American College of Radiology
Education for Providers

- Education packets for providers contain:
  - Procedure benefits and requirements
  - Billing requirements
  - Ordering requirements
  - Availability of smoking cessation programming
  - Benefits of LDCT vs. chest X-ray
- Explanation of Lung Rad assessment and follow up process

Counseling and Shared Decision-Making Visit

Before the first lung cancer LDCT screening occurs, the patient must receive a written order for LDCT lung cancer screening during a lung cancer screening counseling and shared decision-making visit

_Counseling and Shared Decision-Making visits must include the following elements and be appropriately documented in the patient's medical record_
Elements of a Written Order for LDCT Lung Cancer Screening

1. Patient's date of birth
2. Calculated pack-year smoking history (number)
3. Current smoking status, and for former smokers, the number of years since quitting smoking
4. A statement that the patient is asymptomatic (no signs or symptoms of lung cancer)
5. The National Provider Identifier (NPI) of the ordering practitioner

Elements of a Counseling and Shared Decision-Making Visit

• Conducted by a physician or qualified non-physician practitioner
• Determination of patients’ eligibility for screening as stated above
• “Shared decision-making” includes:
  o Use of one or more decision aids
  o Benefits and harms of screening
  o Follow-up diagnostic testing
  o Over-diagnosis and treatment
Elements of a Counseling and Shared Decision-Making Visit

- Counseling on importance of beginning or maintaining tobacco smoking abstinence
- Provide information about tobacco cessation interventions
- If appropriate, furnish a written order for lung cancer screening with LDCT

CPT Code – Counseling and Shared Decision-Making Visit

- CPT Code to bill – G0296

G0296 Definition:
Counseling visit to discuss need for lung cancer screening using low dose CT scan. Service is for eligibility determination and shared decision making.
ICD-10 Diagnosis Code – Tobacco Use

• Counseling charge must be billed with
  ICD-10 diagnosis code Z87.891

Z87.891 Definition:
  Personal history of tobacco use/
  personal history of nicotine dependence.

Patient Criteria for LDCT Lung Screening

• To qualify for LDCT Lung Screening patients
  must meet the following criteria:
  o 55 to 77 years of age
  o Be asymptomatic
    • Meaning no signs or symptoms of lung cancer
  o Have a tobacco smoking history of at least 30
    pack-years
    • 1 pack-year = 1 pack per day for 1 year
    • 1 pack = 20 cigarettes
  o Be a current smoker or have quit within the last
    15 years
LDCT Orders by Paper or EHR

Patient name: ____________________________  Birthdate: ____________________________

Ordering date: ___________________________  Ordering Physician: ________________________

Procedure Requested: Low Dose CT Chest Lung Cancer Screening
Reason for exam: Screening for Lung Cancer

Please complete the following patient history/assessment:

Age is 55-77? Yes or No
Currently smoking? Yes or No
Tobacco smoking history of 30 pack-years or more? Yes or No
Has the patient been offered “Tobacco Cessation” counseling? Yes or No
CT Chest within past year? Yes or No
Asymptomatic, no clinical signs or symptoms of lung cancer? Yes or No
Patient is oxygen dependent? Yes or No
Does patient have a Pacemaker/Defibrillator? Yes or No
Does the patient have metal implants in the spine? Yes or No
What is the patient current weight? _______________
What is the patient’s current height? _______________

By signing this order, I am certifying that the patient participated in the “Shared Decision –Making” visit and has received “Lung Cancer Screening” counseling? Yes or No

Physician Signature______________________________

LDCT Costs and Codes

• Cost of LDCT scan - $235 plus the radiologist reading fee
• CPT code G0297
• If the patient needs to come back for a follow up exam: CPT 71250 (CT without contrast)
**Lung Questionnaire**

Name:__________________________________          MRN:___________          Phone:___________________

Address:_____________________________________________________          S.S. #:___________________

City:_____________________________        State:___________________          Zip:_____________________  

Age:_____ D.O.B.______________        Gender:   M   /   F Race:___________________

Prior Study:   Y  /  N Weight:____________ Pregnant:   Y   /   N

Current Height:______ Tallest Height:______ Height Loss:______________

COPD:  Y  /  N      Emphysema:  Y  / N   Pulmonary Fibrosis:  Y  / N   Coronary Artery Disease:  Y  /  N

Congestive Heart Failure:  Y  / N PVD:  Y  / N          Lung CA:  Y  /  N          Other CA:  Y  /  N

Smoking Status:  

- Smoker  
- Former Smoker  
- Never Smoker  
- Smoker: Status Unknown

Number of packs per day:__________    Number of years since quit:_______________

Smoking Cessation Provided: Y  /  N Documentation on Shared Decision Making:  Y  /  N

Radon Exposure:  Y  /  N Tobacco Use:  Y  / N             Alcohol Use:  Y  /  N

Physical Activity:  

- None  
- Occasional  
- Frequent

Level of Education:  

- 8th grade or less  
- High School Certificate  
- PGM  
- Associates  
- Bachelors  
- Unknown

Occupational Exposure:  

- Silica  
- Cadmium  
- Asbestos  
- Arsenic  
- Beryllium  
- Chromium  
- Diesel Fumes  
- Nickel

History of Cancers:  

- Prior Lung CA  
- Lymphoma  
- Head and Neck  
- Bladder  
- Other_____________________

Family History:  

- Lung CA in 1st degree relative  
- Family HX of Lung CA  
- 2nd Hand Smoke Exposure

Surgical History:________________________________________________________________________

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**Lung-RADS Version 1.0 Assessment Categories**

**Release date: April 28, 2014**

<table>
<thead>
<tr>
<th>Category</th>
<th>Category Description</th>
<th>Category</th>
<th>Findings</th>
<th>Management</th>
<th>Probability of Malignancy</th>
<th>Estimated Population Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incomplete</td>
<td>-</td>
<td>0</td>
<td>Prior chest CT examination(s) being located for comparison Additional lung cancer screening CT images and/or comparison to prior chest CT examinations is needed</td>
<td>n/a</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Negative</td>
<td>No solitary and definitely benign nodules</td>
<td>1</td>
<td>No lung nodules</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative</td>
<td>Nodule(s) with specific calcifications: complete, central, popcorn, concentric rings and fat containing nodules</td>
<td>1</td>
<td>Nodule(s)</td>
<td>Continue annual screening with LDCT in 12 months</td>
<td>&lt;1%</td>
<td>90%</td>
</tr>
<tr>
<td>Benign Appearance or Behavior</td>
<td>Nodule(s) with a very low likelihood of becoming a clinically active cancer due to size or lack of growth</td>
<td>2</td>
<td>Nodule(s):</td>
<td></td>
<td>&lt;1%</td>
<td>90%</td>
</tr>
<tr>
<td>Benign Appearance or Behavior</td>
<td>(≤ 6 mm) OR (new &lt; 4 mm)</td>
<td>2</td>
<td>Start follow-up</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benign Appearance or Behavior</td>
<td>(≥ 6 mm total diameter or baseline screening Non solid nodule(s) (GGN))</td>
<td>2</td>
<td>Start follow-up</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benign Appearance or Behavior</td>
<td>(≤ 20 mm OR (≥ 20 mm and unchanged or slowly growing)</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benign Appearance or Behavior</td>
<td>Category 3A nodule unchanged for 3-12 months</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Probable Benign</td>
<td>Probably benign finding(s): short term follow-up suggested: includes nodules with slow likelihood of becoming a clinically active cancer</td>
<td>3</td>
<td>Subcategories</td>
<td>6 month LDCT</td>
<td>1-2%</td>
<td>5%</td>
</tr>
<tr>
<td>Probable Benign</td>
<td>(≥ 6 to &lt; 8 mm OR New &gt;6 mm OR New &gt;4 mm)</td>
<td>3</td>
<td>Start follow-up</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Probable Benign</td>
<td>(≥ 6 mm total diameter with solid component OR New &lt;6 mm OR New &gt;4 mm)</td>
<td>3</td>
<td>Start follow-up</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Probable Benign</td>
<td>(≥ 20 mm OR (≥ 20 mm and unchanged or slowly growing)</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

American College of Radiology (ACR) Lung Assessment Categories (0-3)
### Lung-RADS Version 1.0 Assessment Categories

**Release date: April 28, 2014**

<table>
<thead>
<tr>
<th>Category</th>
<th>Category Description</th>
<th>Category</th>
<th>Findings</th>
<th>Management</th>
<th>Probability of Malignancy</th>
<th>Estimated Population Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suspicious</td>
<td>Findings for which additional testing and/or tissue sampling is recommended</td>
<td>4A</td>
<td>Solid nodule(s):</td>
<td>3 month LDCT; PET/CT may be used when there is a ≥8 mm solid component</td>
<td>≥15%</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>≥8 to &lt; 15 mm at baseline OR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Growing ≥8 mm DR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>New ≥8 to &lt; 15 mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Part solid nodule(s):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>≥8 mm with solid component ≥6 mm to &lt; 8 mm OR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>With a new or growing &lt; 4 mm solid component</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4B</td>
<td>Solid nodule(s):</td>
<td>Chest CT with or without contrast, PET/CT and/or tissue sampling depending on the probability of malignancy and comorbidities. PET/CT may be used when there is a ≥8 mm solid component</td>
<td>&gt; 15%</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>≥15 mm OR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>New or growing, and ≥8 mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Part solid nodule(s):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>with A solid component ≥8 mm DR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A new or growing ≥4 mm solid component</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>Category 3 or 4 nodules with additional features or imaging findings that increases the suspicion of malignancy</td>
<td>AX</td>
<td>Category 3 or 4 nodules with additional features or imaging findings that increases the suspicion of malignancy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Modifier – may add on to category 3-4 coding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>As appropriate to specific finding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prior Lung Cancer</td>
<td>Modifier for patients with a prior diagnosis of lung cancer who return to screening</td>
<td>C</td>
<td>Modifier – may add on to category 3-4 coding</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Follow Up**

- Rounding with providers
- Rounding with all staff associated with program
- Bi-monthly LDCT steering committee meeting to review scheduling, billing, ordering, results, quality and follow-up
A Note on Coverage

- Medicare coinsurance and Part B deductible are waived for this preventative service
- Medicare Patients will not have a financial responsibility for the counseling or lung cancer screening LDCT scan

Patient Population Demographics

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Clinic A</th>
<th>Clinic B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unique Patients</td>
<td>4,051</td>
<td>1,733</td>
</tr>
<tr>
<td>Total Encounters</td>
<td>3,892</td>
<td>8,358</td>
</tr>
<tr>
<td>Male</td>
<td>38%</td>
<td>50%</td>
</tr>
<tr>
<td>Female</td>
<td>62%</td>
<td>50%</td>
</tr>
<tr>
<td>Medicare</td>
<td>16%</td>
<td>31%</td>
</tr>
<tr>
<td>Medicaid</td>
<td>18%</td>
<td>11%</td>
</tr>
<tr>
<td>Self-Pay</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Private Payer</td>
<td>65%</td>
<td>56%</td>
</tr>
<tr>
<td>≤ 50 years old</td>
<td>64%</td>
<td>31%</td>
</tr>
<tr>
<td>&gt; 50 years old</td>
<td>36%</td>
<td>69%</td>
</tr>
</tbody>
</table>
## LDCT Clinic Registry

<table>
<thead>
<tr>
<th>Age</th>
<th>Sex</th>
<th>Pack Years</th>
<th>Last CT Chest</th>
<th>Next Appt.</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>73</td>
<td>F</td>
<td>50</td>
<td></td>
<td>2/23/16</td>
<td>Had scan on 7/20/16</td>
</tr>
<tr>
<td>67</td>
<td>M</td>
<td>35</td>
<td>open order</td>
<td>4/11/17</td>
<td>If he doesn't get regular CT done and receives cessation counseling, could get LDCT scan</td>
</tr>
<tr>
<td>62</td>
<td>F</td>
<td>30</td>
<td>12/15/2015</td>
<td>4/3/17</td>
<td>Pl. requested scan 6 months ago but was not eligible then. If she doesn't have a regular CT chest and gets counseling for quitting she can have it.</td>
</tr>
<tr>
<td>55</td>
<td>F</td>
<td>15.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>F</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>F</td>
<td>8.75</td>
<td></td>
<td>2/21/17</td>
<td></td>
</tr>
<tr>
<td>61</td>
<td>M</td>
<td>100</td>
<td>9/22/2016</td>
<td>3/2/17</td>
<td></td>
</tr>
<tr>
<td>61</td>
<td>M</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>70</td>
<td>M</td>
<td>63</td>
<td></td>
<td>3/22/17</td>
<td>Had LDCT 10/27/16</td>
</tr>
<tr>
<td>61</td>
<td>F</td>
<td>30</td>
<td></td>
<td></td>
<td>Had LDCT 1/24/17</td>
</tr>
<tr>
<td>74</td>
<td>M</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>57</td>
<td>F</td>
<td>14</td>
<td></td>
<td></td>
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<tr>
<td>57</td>
<td>F</td>
<td>45</td>
<td></td>
<td>3/14/17</td>
<td></td>
</tr>
<tr>
<td>62</td>
<td>M</td>
<td>45</td>
<td></td>
<td>7/11/17</td>
<td></td>
</tr>
<tr>
<td>65</td>
<td>F</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>66</td>
<td>M</td>
<td>40</td>
<td></td>
<td></td>
<td>Had LDCT 11/15/16</td>
</tr>
</tbody>
</table>

## Program Growth

**May 2016**

Average of 3 to 4 patients per month

**Today**

Average of 8 to 10 patients per month
Program Growth

- Lessons learned during program development
- ≤10 patients screened per month seems like a small number though, within the context of patient eligibility, is quite a few patients and growing

Forming a Partnership
MPRO’s Michigan Cancer Control Initiative

Julee Campbell, MPH
Clinical Quality Consultant

Tesia Looper, MSA
Senior Clinical Quality Consultant

Who is MPRO?

QUALITY IMPROVEMENT
Evidence based, data-driven quality improvement insights

REVIEW SERVICES
Thoughtful, impartial utilization review and dispute resolution services

CONSULTING SERVICES
Innovative problem solving solutions and technical assistance

“HELPING HEALTHCARE GET BETTER”
Project Partners

CDC
Michigan Department of Health & Human Services
American Cancer Society
Michigan Cancer Consortium

Initiative Objectives

Increasing Community Awareness for Early Detection
Provider and Community Education
Leveraging EHR and Data
Personalized Technical Assistance
Evidence-Based Interventions

Michigan Cancer Control Initiative
Initiative Components

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Percentage Increase Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast Cancer</td>
<td>+5%</td>
</tr>
<tr>
<td>Cervical Cancer</td>
<td>+5%</td>
</tr>
<tr>
<td>Colorectal Cancer</td>
<td>+10%</td>
</tr>
<tr>
<td>Lung Cancer Smoking Cessation</td>
<td>+10%</td>
</tr>
<tr>
<td>Lung Cancer Screening (LDCT)</td>
<td>+10%</td>
</tr>
</tbody>
</table>

Percentage Increase Goals:

- 2nd most commonly diagnosed to prostate cancer in men and breast cancer in women
- 2016 estimates (US):
  - 224,390 new cases, 158,080 deaths (70.5%)
- 2016 estimates (Michigan):
  - 8,440 new cases, 6,030 deaths (71.5%)
- In 2012, less than 20% of lung cancer cases were diagnosed in the localized stage
Health Disparities

- Lower SES households are more likely to be current smokers
- African American men have the highest rate of new cases and of death due to lung cancer
- Michigan has higher rates of smoking among adults compared to national average (23.3% vs. 19.6%)
Technical Assistance
Implementing Evidence-Based Interventions  |  Sharing Best Practices

Patient Reminders

• Utilizing EHR
  o Targeted messaging through patient portals
  o Retrospective identification of eligible patients

• Updating current patient recall methods
  o Letters, emails, texting, widgit
Provider Reminders

- Utilizing EHR
  - Updating and implementing **clinical decision support (CDS)** and **point-of-care alerts** based on patient criteria
  - Implementing and refining practice-wide **screening protocols**

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Resources & Small Media

- Updated screening **recommendations**
- Current **news** and **legislation** relating to cancer screening
- **Financial assistance** resources
- **Provider- and patient-facing tools**
Educational Sessions

- Targeting providers for ongoing education
  - Prevention & screening
  - Best practices
  - Strategies for implementation
  - Financial assistance resources
- Session recordings available
  - https://www.youtube.com/user/MPROQIO

Resource Spotlight:

Patient Version

Provider Version

Educational Session Schedule
Michigan Cancer Control Initiative, MPRO
Provider Assessment & Feedback

- Benchmark screening data on multiple levels:
  - Provider
  - Practice
  - Health System
  - All Participants
- Focus and individualize technical assistance

Partnership and Future Directions

Hills & Dales General Hospital and MPRO
Smoking Cessation

• Sharing best practices to engage more patients in the Hills & Dales Freedom From Smoking Program
  o Sessions for hospital employees
  o Involving friends and family in session activities
  o Future programming held in primary care offices
  o Sharing educational and statistical resources

Lung Cancer Screening

• Establishing eligible patient denominators
  o Developing registry of patients meeting lung cancer screening criteria
  o Targeting reminders and screening education to these patients
  o Recapturing patients for annual screening
Lung Cancer Screening

- Provider education around mode of screening
  - Promoting LDCT over traditional chest X-ray
  - Screening decision tools and resources to guide shared decision making visit
  - Providing guidance on how to refer patients to Hills & Dales Lung Cancer Screening Program

Questions?

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Julee Campbell, MPH
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References

15. Michigan Cancer Control Initiative Webinar Schedule. MPRO. http://media.wix.com/ugd/5c9d3d_000ca8eb677d4889a349b4b021d990.pdf