LUNG CANCER PATIENT SUPPORT ECHO SESSION 3
BEFORE DIAGNOSIS:
LUNG CANCER SCREENING-NODULE MANAGEMENT

JULY 26, 2018
9:00 AM ET
**TODAY’S AGENDA**

<table>
<thead>
<tr>
<th>Time</th>
<th>Presentation</th>
<th>Presenter(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00-9:10</td>
<td>Welcome, roll call, housekeeping</td>
<td>Kevin Oeffinger, MD, Lead Facilitator</td>
</tr>
<tr>
<td>9:10-9:45</td>
<td>Didactic Presentation: Lung Cancer Patient Support: ECHO Session 2</td>
<td>Maria Chong, MD, Joelle Fathi, DNP, RN, ARNP, CTTS, Deborah Klein, MD</td>
</tr>
<tr>
<td>9:45-10:00</td>
<td>Q &amp; A/Discussion</td>
<td>Facilitated by Kevin Oeffinger</td>
</tr>
<tr>
<td>10:00-10:15</td>
<td>Program/Case Presentation: Northeast GA Medical Center Low Dose CT Follow up</td>
<td>Angie Caton, RN, Alicia Harrison, RN</td>
</tr>
<tr>
<td>10:15-10:25</td>
<td>Q &amp; A/Discussion</td>
<td>Facilitated by Kevin Oeffinger</td>
</tr>
<tr>
<td>10:25-10:30</td>
<td>Conclusion/Next session</td>
<td>Kevin Oeffinger</td>
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*Sessions will be recorded.
*Please mute phones when not speaking. Mute cell phones and try to reduce extraneous noise.
*Remember to e-mail Octavia Vogel by 7/31 if you are requesting CME/CEU credit.
DISCLOSURE

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- The following planners and faculty disclose that they have no financial relationships with any commercial interest.
## FACILITATOR & PRESENTERS

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead Facilitator:</td>
<td>Kevin Oeffinger, MD</td>
<td>Duke Cancer Institute, Durham, NC</td>
</tr>
<tr>
<td>Presenters:</td>
<td>Maria Chong, MD (Radiologist)</td>
<td>Radia Inc., Seattle, WA</td>
</tr>
<tr>
<td></td>
<td>Joelle Fathi, DNP, RN, ARNP, CTTS (Nurse Practitioner)</td>
<td>University of Washington, Seattle, WA</td>
</tr>
<tr>
<td></td>
<td>Deborah Klein, MD (Primary Care)</td>
<td>Swedish Medical Group, Seattle, WA</td>
</tr>
<tr>
<td>Case Presentation:</td>
<td>Angie Caton, BSN, RN, OCN, CHPN (Assistant Manager, Oncology)</td>
<td>Northeast Georgia Medical Center Gainesville, GA</td>
</tr>
</tbody>
</table>
WELCOME FROM SEATTLE!
OBJECTIVES

- Discuss reality for referring Primary Care Providers in approaching patients about lung cancer screening
- Identify key considerations for patients and pragmatic approaches in the lung cancer screening experience
- Determine safe and responsible management of lung nodules and other findings in the setting of lung cancer screening
- Identify approaches in mitigating harms and promoting health in the teachable moment of lung cancer screening
6.8 MILLION AMERICANS ARE ELIGIBLE FOR LUNG CANCER SCREENING

Centers for Disease Control and Prevention, 2018; Jemal & Fedewa, 2017
LESS THAN 5% OF ELIGIBLE PATIENTS ARE SCREENED FOR LUNG CANCER

Jemal & Fedewa, 2017
DECENTRALIZED LUNG CANCER SCREENING PROGRAM

Screening Program/Navigator
Multidisciplinary Team

PCP + Shared Decision Making
Tobacco Cessation
Patient
Radiology
CENTRALIZED LUNG CANCER SCREENING PROGRAM

Screening Program/Navigator
Multidisciplinary Team

- Tobacco Cessation
- Shared Decision Making
- PCP
- Radiology
- Patient
### THE INITIAL DISCUSSION: OBSERVATIONS FROM A PRIMARY CARE SETTING

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Referral for lung cancer screening</strong></td>
<td></td>
</tr>
<tr>
<td>Cost</td>
<td>Feelings</td>
</tr>
</tbody>
</table>
TRANSLATING LUNG CANCER SCREENING TO THE OFFICE VISIT

- **Initial discussion**: Brief introduction and determination of the patient’s interest.
- **Follow up discussion**: Undistracted, dedicated shared decision-making encounter

  - **Where**: primary or specialty care, lung cancer screening program
  - **When**: preventive, acute, hospital, or specialty care visit
  - **Who**: primary care provider, specialist, nurse-educator, behavioral health specialist

- **Not a one-time conversation.**
- **Medical care is a continuum.**
Longitudinal care with an established primary care provider-patient relationship may be important for preventive health services.

Doescher, Saver, Fiscella, & Franks, 2004; Murugan, Spigner, McKinney, & Wong, 2018; Donahue, Ashkin, & Pathman, 2005
Primary care provider office visit

- First approach ~3 minutes
- Confirmation of tobacco history ~30 seconds – 2 minutes
- 6% - 30% of the visit, not including tobacco cessation counseling
- Competing health priorities

Hoffman et al., 2015; Volk & Foxhall, 2015
Lung cancer screening program visits

- Shared decision-making visit ~ 30-60 minutes
- Imaging with low-dose CT
- Follow up after imaging
- Follow up visit with primary provider for incidental significant findings

Hoffman et al., 2015
First question is always about cost and insurance coverage
2 patients who declined screening cited cost as an issue
2 patients who delayed screening cited cost as one of the reasons for delay
1 patient who delayed screening accepted when it was covered by Medicare

Hoffman et al., 2015
STIGMA AND EMOTIONAL AROUSAL: PATIENTS HAVE FEELINGS

**Stigma**
- “I’ve done this to myself”
- “I’m ashamed I can’t quit smoking”

**Fear**
- “I’ll learn I have cancer”
- “I’ll learn I’ve harmed myself”

**Misperceptions**
- “Screening reduces my risk of getting lung cancer”
- “Screening will show that smoking hasn’t harmed me”

Carter-Harris, Brandzel, Wernli, Roth, & Buist, 2017; Zeliadt et al., 2015
CONFLICTS AND DISTRACTIONS
PROVIDERS HAVE FEELINGS

- The focus should be on tobacco treatment
- False reassurance
- This may cost my patient more than she can afford
- Competing health priorities
- My patient may be falsely reassured by a negative result
- My patient may think negative results mean he can keep smoking
- My patient will not consider other smoking harms
- My patient will skip her colonoscopy if she has lung cancer screening

Eberth et al., 2018; Hoffman et al., 2015; Volk & Foxhall, 2015
## RELATIONSHIP
6 SELECTED PATIENTS

<table>
<thead>
<tr>
<th>Patient</th>
<th>Years in my practice</th>
<th>Tobacco history</th>
<th>Comorbidities</th>
<th>Response to offer of referral</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1 - 71 yo M</td>
<td>25 years</td>
<td>50 pk-yrs</td>
<td>COPD, DM, HTN, PVD, AAA, GERD</td>
<td>Declined annually, 2013-2018</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Current smoker, 1 ppd</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#2 - 73 yo M</td>
<td>24 years</td>
<td>100 pk-yrs</td>
<td>COPD, DJD, dyslipidemia</td>
<td>Declined annually 2013-2017 No longer a candidate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Quit 2008</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#3 - 74 yo F</td>
<td>24 years</td>
<td>90 pk-yrs</td>
<td>COPD, HTN, CKD, lung nodules</td>
<td>Accepted referral in 2015 after annual offer 2013-2015</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Quit 2006</td>
<td></td>
<td></td>
</tr>
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### RELATIONSHIP
**6 SELECTED PATIENTS**

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</thead>
<tbody>
<tr>
<td>#4 - 68 yo F</td>
<td>23 years</td>
<td>33 pk-yrs, Current smoker 10-20 cig/day</td>
<td>COPD, CAD, HTN, depression, BMI 50, prediabetes, a-fib, lung nodules</td>
<td>Accepted referral immediately 9/2013</td>
</tr>
<tr>
<td>#5 - 66 yo F</td>
<td>17 years</td>
<td>45 pk-yrs Current smoker, 2-3 cig/day</td>
<td>COPD, CAD, HTN, pernicious anemia, hypothyroidism, lung nodules</td>
<td>Accepted referral 2014. Offered referral 8/2013, 10/2014,</td>
</tr>
<tr>
<td>#6 - 68 yo F</td>
<td>15 years</td>
<td>40 pk-yrs Quit 8/2015</td>
<td>CAD, DJD, lung nodules</td>
<td>Accepted referral immediately 8/2014</td>
</tr>
</tbody>
</table>
WHAT HAPPENS BEFORE LUNG CANCER SCREENING

- Relationship Between patient and provider
- Time Spent by both patient and provider
- Cost Considered by both patient and provider
- Emotional arousal, conflicts and distractions affect both patient and provider

Referral for lung cancer screening
VOLUMES OF LUNG NODULES
## Nodule Prevalence

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>24.2% of LDCT scans</td>
<td>Pulmonary nodules present</td>
</tr>
<tr>
<td>3.5% of nodules</td>
<td>Positive for cancer</td>
</tr>
<tr>
<td>96.5% of nodules</td>
<td>NO cancer</td>
</tr>
</tbody>
</table>

Aberle et al., 2011
EVIDENCE OF PSYCHOLOGICAL DISTRESS IN THE SETTING OF LUNG NODULE DETECTION

WHAT THE HECK IS A NODULE?

- Did not understand the language.
- Did not understand the implications of the findings.
- Found the term “nodule” baffling.
- Most over estimated the risk of cancer at 50/50 when their real risk was 3%.
- Most people sought outside opinion and care.
- Most patients did not have adequate knowledge.
- The info they obtained was misleading and inaccurate.
- Patients were fearful and used active avoidance to cope

Slatore et al., 2013; Wiener, Gould, Woloshin, Schwartz, & Clark, 2013
A patient-centered approach whereby the patient receives high-quality screening that includes more benefit than risk.

Tanoue, Tanner, Gould, & Silvestri, 2015
Dedicated radiologists with expertise in reading lung screenings
Quality imaging and interpretation
Adherence to low-radiation protocols
Standardized technologist training
American College of Radiology
Modeled after BI-RADS
Each LDCT is assigned a Lung-RADS Category
  Assign most suspicious nodule for LDCT follow-up
Each category estimates likelihood of malignancy
# LUNG-RADS & CLINICAL IMPLICATIONS

**Lung-RADS Categories**

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 &amp; 2</td>
<td>negative</td>
</tr>
<tr>
<td>3</td>
<td>needs short f/u</td>
</tr>
<tr>
<td>4A</td>
<td>suspicious</td>
</tr>
<tr>
<td>4B/4X</td>
<td>suspicious</td>
</tr>
<tr>
<td>0</td>
<td>incomplete</td>
</tr>
</tbody>
</table>

**Recommendations**

- Annual LDCT
- 6 month follow up
- 3 month follow up
- Further evaluation with diagnostic CT w/wo contrast, FDG PET/CT, or biopsy.
- Can not adequately assess due to underlying condition or waiting for comparison

Fintelmann et al., 2015
MODIFIER CATEGORIES

- **X:** Additional imaging features that increase suspicion (spiculation, rapid growth, lymphadenopathy)
- **C:** History of Lung Cancer
- **S:** Presence of non-cancer related significant findings (emphysema, coronary artery disease, extra pulmonary mass, aneurysms)

Fintelmann et al., 2015; Martin, Kanne, Broderick, Kazerooni, & Meyer, 2017
Benign Features
- Internal fat
- Benign calcification
- Stability

Malignant Features
- Spiculation
- Malignant calcification
- Vascular convergence
- Bronchus leading into nodule

Features that drive greater concern for malignancy
- Identification of nodules (lobe/segment)
- Apical nodules more concerning for malignancy
- Characterization of nodules (size, attenuation, composition, benign features, malignant features) typically drive classification

Gould et al., 2013; McWilliams et al., 2013
LIMITATIONS OF LUNG-RADS

- Cystic/cavitary nodules
- Increasing attenuation but stable sized nodules
- Peri-fissural/subpleural nodules (i.e. intrapulmonary lymph nodes)
- Pleural effusions
- Hilar lymphadenopathy/mass
- GGO (infection/inflammatory)
CT: CT LUNG SCREEN

EXAM
CT LUNG SCREEN

EXAM DATE: [DATE].

HISTORY: [Age]-year-old patient with [Past-pack]-year smoking history. Currently smoking: [Yes/No]. [Years since quitting:] [ ].

COMPARISON: [None].

TECHNIQUE: CT examination of the entire thorax without contrast was performed using low-dose technique. Thin section coronal, axial, sagittal and MIP axial images were obtained.

In accordance with CT protocol optimization, one or more of the following dose reduction techniques were utilized for this exam: automated exposure control, adjustment of mA and/or KV based on patient size, or use of iterative reconstructive technique.

FINDINGS:

Nodules:
Right upper lobe: [None.]
Right middle lobe: [None.]
Right lower lobe: [None.]
Left upper lobe: [None.]
Left lower lobe: [None.]

Emphysema: [None.]
Pleura: [Unremarkable.]
Aorta: [Unremarkable.]
Mediastinum: [Unremarkable.]
Coronary calcifications: [None.]
Other pulmonary findings: [None.]
Other extrapulmonary findings: [None.]

IMPRESSION:
Lung-RADS ASSESSMENT CATEGORY: [0, 1, 2, 3, 4A, 4B, or 4X] - [Incomplete, Negative, Benign appearance or behavior, Probably benign, or Suspicious.]

Probability of malignancy: []

RECOMMENDATION:
[Recommended follow up based on Lung-RADS guidelines.]
ESSENTIAL COMPONENTS OF LUNG NODULE MANAGEMENT

- All previous CT scans reviewed with evidence of nodule change
- Structured reporting & follow-up recommendations
- Adherence to lung nodule management guidelines and size thresholds
- Mechanisms that ensure adherence to annual and follow-up scans
- Direct engagement with multidisciplinary expertise

Aberle et al., 2011; Gould et al., 2013; Mazzone et al., 2018
LUNG CANCER SCREENING IS NOT JUST LUNG CANCER SCREENING!
# Prevalence of Incidental Findings on LDCT

<table>
<thead>
<tr>
<th>Incidental Findings</th>
<th>Rate of Occurrence</th>
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<tr>
<td>Coronary artery calcifications</td>
<td>56%</td>
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<tr>
<td>Emphysema</td>
<td>50.6%</td>
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<tr>
<td>Bronchial wall thickening</td>
<td>39.4%</td>
</tr>
<tr>
<td>Aortic calcification</td>
<td>20.6%</td>
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<tr>
<td>Aortic dilation</td>
<td>8.1%</td>
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<tr>
<td>Hiatal hernia</td>
<td>9.5%</td>
</tr>
<tr>
<td>Liver cyst</td>
<td>6.8%</td>
</tr>
<tr>
<td>Mediastinal adenopathy</td>
<td>2.8%</td>
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<tr>
<td>Renal cyst</td>
<td>2.5%</td>
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Morgan, Choi, Reid, Khawaja, & Mazzone, 2017
# TOBACCO RELATED FINDINGS ON LDCT

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Morgan, Choi, Reid, Khawaja, & Mazzone, 2017
LUNG CANCER SCREENING MUST BE WELL ORCHESTRATED
SCREENING NAVIGATORS ARE CRITICAL

- Critical role in:
  - Patient relationship
  - Safe and reliable navigation of patients through steps of diagnostic workup and referrals
  - Warm hand-off in transitions of care
  - Maintenance of performance measures and reporting
  - Educating and health promotion

- Nurse
- Nurse Practitioner
- Physician Assistant
- Non-clinical Support Staff
LUNG CANCER SCREENING AS A HEALTH PROMOTION OPPORTUNITY

- Capture high risk populations in screening
- Teachable moment
- Opportunity for prevention
- Harm reduction & health improvement
- Behavior modification and pharmacotherapy

Tammemagi, Berg, Riley, Cunningham, & Taylor, 2014; Westmaas et al., 2015
ADDRESSING BEHAVIOR CHANGE

Touch points with patients

Shared decision making visit

Initial screen & annual follow-up

Follow-up for other findings

Independent cessation visit
SCREENING IS A LONG-TERM COMMITMENT

EARLY DETECTION SAVES LIVES BUT WE HAVE TO GET THE RIGHT PEOPLE TO SCREENING AND KEEP THEM COMING BACK!
THANK YOU!

You may email questions to: Joelle Fathi, thirsk@uw.edu


Northeast Georgia Medical Center Low Dose CT Follow-Up

Alicia Harrison, RN, Lung Cancer Navigator
Angie Caton, BSN, RN, OCN, CHPN, Assistant Manager Oncology
LDCT Screening Program at NGMC
18 Lung Cancers Diagnosed since July 2016
5 Incidental Cancers diagnosed

Lung Cancer Stages Diagnosed at NGMC through LDCT screenings since 2016
- Stage I: 69%
- Stage II: 12%
- Stage III: 13%
- Stage IV: 6%

Lung Cancer Types Diagnosed at NGMC through LDCT screenings since 2016
- Squamous: 50%
- Adenocarcinoma: 28%
- Large cell: 5%
- Neuroendocrine/Carcinoid: 11%
- Small cell: 6%
LDCT Screening Program at NGMC

- Screening program began in 2016
- 3 Screening Sites at NGMC Facilities
  - Gainesville
  - Braselton
  - Barrow
- Total Scans to Date - 949
- 2016- 239
- 2017- 450
- 2018 YTD – 260
LDCT Screening Program at NGMC
Diagnostic Follow Up

Techniques Utilized for Diagnostic Follow-Up 2016 - present
- Percutaneous: 56%
- Surgical: 33%
- Bronchoscopy: 7%
- Unknown: 4%

Techniques Utilized with Benign Findings 2016-present
- Percutaneous: 86%
- Bronchoscopy: 14%
NGMC LDCT Program Chest Board

- Began in 2017 in response to concerns with patient follow-up with high volumes of LDCTs each month
- Held Monthly at 5:30 p.m. to 6:30 p.m.
- Pulmonologist led and supported by Oncology Services Team
- All LDCT cases from previous month, with special attention to 4a, 4b, and 4x findings, are presented for review and discussion
  - Attended by Pulmonology, Medical Oncology, Radiology, Pathology, Thoracic Surgery, Nurse Navigators, and Tumor Registry
NGMC Chest Board Follow-Up Process

- Send letter to referring physician with either:
  - Guidelines for LDCT follow-up
  - Chest board recommendations if different from guidelines
  - Follow-up with referring physician regarding recommendations/guidelines

- Sends patient reminders/letters for next scheduled scan based on recommendations
Case Study

• A. L. 73 y/o; 50 pack year history & quit 3 months prior to LDCT scanning
• LDCT recommended by primary care MD
  – RAD 4a
• Presented in Chest Board – July 2017
• Needle biopsy
  – + for poorly differentiated large cell NSCLC
• PET scan
  – Mass SUV 3.2; confined to chest/right lower lobe
Case Study

- Surgery
  - Right lower lobectomy & lymph node dissection
  - 1.1cm with one positive lymph node
  - Stage IIA

- Completed 4 cycles of Carboplatin/Taxol

- Originally agreed to a clinical trial but decided not to enroll after treatment was completed
Challenges for Chest Board

• Communication of LDCT program results to primary care MDs and organizational leaders
• Minority populations
• Primary care MDs moving to next steps prior to chest board recommendations
  – Lung cancer nurse navigator workload with three sites and the volume of scans
  • Communication of recommendations on a timely basis
Thank you for your time.
Any questions email andria.caton@nghs.com
CME Credit

We are able to offer 1.5 hours of CME credit for the June ECHO session.

If you would like CME credit please email your name to Octavia Vogel at ovogel@cancer.org by July 31.
JOIN US NEXT MONTH FOR LUNG CANCER PATIENT SUPPORT
ECHO SESSION 3
TOBACCO CESSION
AUGUST 30, 2018
9:00 AM ET

Presenters:
Jamie Ostroff, Ph.d.
Angela Criswell, M.A.
Tom Houston, M.D.

Case Presentation: