Understanding Individual Variables That Influence Lung Cancer Screening and the Nurse’s Role

Lisa Carter-Harris, PhD, RN, ANP-C & Susan M. Rawl, PhD, RN, FAAN
Indiana University School of Nursing
Indianapolis, Indiana, USA
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Estimated Cancer Deaths Worldwide

- Breast
- Colorectal
- Lung

World Health Organization, 2017
U.S. Estimated Cancer Deaths by Site

American Cancer Society Cancer Facts & Figures, 2017
Background

- Until recently, an effective screening test to identify lung cancer at an earlier stage did not exist.
- U.S. National Lung Screening Trial (N=53,454)
- Led to an official recommendation (Grade B) by the U.S. Preventive Services Task Force for long-term smokers in 2013.
The Need to Balance Benefits and Risks

- False Positives, Over-Diagnosis, Radiation Exposure
- Early Detection
Decision-Making in Lung Cancer Screening is Key

- Shared decision-making is particularly important within contexts where one best solution does not exist.
- This is the case in lung cancer screening – where benefits are present, but risk and uncertainty exists and is patient specific.
- Understanding variables that may or may not influence screening participation at the individual level is essential.
Conceptual Model on Lung Cancer Screening Participation

Expanded Health Belief Model

Psychological Variables

Precaution Adoption Process Model

Carter-Harris, Davis & Rawl, *Research & Theory in Nursing Practice* (2016)
Figure 1. Conceptual Model for Lung Cancer Screening Participation

Antecedents

Psychological Variables (perceived smoking-related stigma, medical mistrust, cancer fatalism, lung cancer worry, lung cancer fear)

Demographic and Health Status Characteristics (age, gender, race/ethnicity, income, insurance status, education, smoking status, family history of lung cancer)

Cognitive Variables (knowledge: lung cancer and lung cancer screening)

Healthcare Provider Recommendation

Social and Environmental Variables (social influence, media exposure)

Mediators

Lung Cancer Screening Health Beliefs (perceived risk, perceived benefits, perceived barriers, self-efficacy)

Stage of Adoption (unaware, unengaged, undecided, decided not to act, decided to act, action, maintenance)

Shared Decision-Making Process (patient-provider discussion including healthcare provider recommendation, quality of communication, time, discussion or risks vs benefits, and quality of the patient-provider relationship)

Proximal Outcome

Shared Decision-Making Outcomes

Preference-Concordant Decision Reached (to be screened, not to be screened, undecided/delayed decision)

Distal Outcome

Lung Cancer Screening Participation

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Role of Nursing

- **Nursing** is uniquely poised to foster shared decision-making in lung cancer screening decisions through patient education.

- But we must first understand:
  - Knowledge
  - Risk Perception
  - Health Beliefs
Purposes of this Study

- Describe long-term smokers’ knowledge and perceptions of lung cancer risk and screening; and
- Examine relationships between individual health beliefs (risk, benefits, barriers, self-efficacy) and lung screening behavior.
Pieces of the Puzzle

Focus Groups

- 4 focus groups (N=26)
  - 2 recently screened
  - 2 screening naïve
  - Audio recorded
  - Thematic content analysis

National Survey

- Screening-eligible individuals (N=497)
  - Assessed sociodemographic & health status characteristics, knowledge, stigma, and health beliefs

Intervention Development
Pieces of the puzzle...

Carter-Harris et al. *Health Expectations* (2016)
Carter-Harris et al. *Cancer Nursing* (2016)
Participants consistently described perceived smoking-related stigma

- Many participants described feeling smoking-related stigma from younger health-care providers, describing them as “people that don’t know the culture we grew up in”.

- Others were represented by one quote: “making me feel like an idiot or stupid for smoking”.

Carter-Harris et al. Health Expectations (2016)
Results from Focus Group Discussions

Participants also described mistrust of the healthcare system:

- Reporting uncertainty about the value of lung cancer screening, comparing “new machines to screen [is like a] scam”.

Carter-Harris et al. Health Expectations (2016)
## Lung Health Survey Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Scale Range</th>
<th>Screened/ Intend to Screen (n=146), Mean (SD); Median (Range)</th>
<th>Non-screened (n=350), Mean (SD); Median (Range)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Risk</td>
<td>3-12</td>
<td>6.55 (2.47); 6 (2-12)</td>
<td>6.51 (2.17); 6 (2-12)</td>
<td>0.8428</td>
</tr>
<tr>
<td>Perceived Benefits</td>
<td>6-24</td>
<td>18.07 (4.14); 18 (3-24)</td>
<td>16.68 (4.55); 18 (2-24)</td>
<td>0.0016</td>
</tr>
<tr>
<td>Perceived Barriers</td>
<td>17-68</td>
<td>33.05 (10.07); 34 (14-65)</td>
<td>35.03 (8.58); 36 (7-55)</td>
<td>0.0387</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>9-36</td>
<td>30.38 (5.29); 32 (8-36)</td>
<td>28.55 (6.55); 29 (1-36)</td>
<td>0.0012</td>
</tr>
</tbody>
</table>

Values are mean (SD); median (range); p-values are from Wilcoxon nonparametric test.
What does this mean and why is it important?

- Patient-specific health beliefs and other patient-specific variables are important in understanding lung cancer screening behavior.
- Nursing is important to primary and secondary prevention.
- Nursing is an integral component in the patient education process related to cancer screening.
- Nursing-delivered interventions tailored on salient variables and integrated into the primary care visit to support patient-provider discussions about, and decisions related to, lung cancer screening are needed.
Role of Nursing

- **Educator**
  - Enhance shared decision-making

- **Navigator**
  - Decrease system-level barriers common to lung cancer screening (e.g., scheduling, location, etc.)

- **Intervener**
  - Decrease patient-level barriers to screening after decision to screen
  - Smoking cessation for current smokers
Next Steps…

Enhances Patient-Provider Discussions About Lung Cancer Screening
Used pre-clinic visit

Tailors (smoking status and stage of readiness)

Educates beyond lung screening to include lung health broadly

Brief smoking cessation counseling

Computer-tailored Decision Support
About You...

Please tell us if you currently smoke or have quit smoking?

I currently smoke  I quit smoking
Cigarette Smoke: What It Does

Welcome
Lung Diseases
  Cigarette Smoke
    Lung Cancer
    No Symptoms
    Symptoms
Talk About It
Summary

Emphysema
Cigarette Smoke: What It Does

Welcome
Lung Diseases
Cigarette Smoke
Lung Cancer
No Symptoms
Symptoms
Talk About It
Summary

Emphysema

Oxygen
Carbon Monoxide
Lung Scan
What I Would Like To Talk About

I would like to talk about (choose up to 3):
- My personal risk of lung cancer.
- More information about the lung scan.
- Benefits of lung screening.
- False positives, over-diagnosis, and radiation exposure.
- What my doctor recommends for me.
- How long I would have to do yearly lung scans.
- Ways to stop smoking.
- Other

Please click the right arrow when you are ready.
Thank you for completing LungTalk. We hope this was helpful in learning more about your lungs, lung health, and the option of lung screening.

You qualify for a lung scan if...

- you are 55 to 77 years old (although some insurance plans cover scans up to age 80)
- you currently smoke or have quit smoking in the past 15 years
- you have a long smoking history

Is getting a lung scan right for you?

It’s important to know there are advantages as well as things to consider with having a lung scan like:

**Advantages of a Lung Scan**

- Finding lung problems early, including possible cancer
- Exposure to a lower-dose of radiation than a regular CAT scan
- Non-invasive and easy to perform

**Things to Consider with a Lung Scan**

- Finding a spot that may or may not be cancer that needs more tests to find out
- Being diagnosed with something that would never hurt you because it grows very slowly
- Increased worry and anxiety if a spot is found while waiting for results

It is important to talk with your doctor or nurse practitioner to help decide if having a lung scan is right for you.

Here are some questions you may want to ask your doctor to start a conversation about having a lung scan:

1. Is a lung scan right for me?
2. If I choose to have a lung scan, what may happen?
4. What my doctor recommends for me.
5. How long I would have to do yearly lung scans.
References

1) American Cancer Society *Cancer Facts & Figures 2017*, Atlanta, GA


Thank you!

For More Information:
Dr. Lisa Carter-Harris
Twitter: @drCarterHarris
lcharris@iu.edu