Richard M. Hoffman, MD, MPH
University of Iowa Carver College of Medicine
Holden Comprehensive Cancer Center

Challenges of Implementation: the Primary Care Perspective
Disclosures

- Consultant, Healthwise®, developing cancer screening decision support tools
- Consultant, Agency for Health Research and Quality (AHRQ) lung cancer screening decision aid
Key issues for primary care practice

- Evidence
  - National Lung Screening Trial (NLST)
- Guidelines
  - United States Preventive Services Task Force (USPSTF)
- Implementation concerns
- Current practices for lung cancer screening
- Facilitating implementation
Primary data sources

- New Mexico interviews (2014)¹
  - Knowledge, Attitudes, and Practices
    - Lung cancer screening and smoking cessation
- Literature review
  - South Carolina surveys (2015)²
  - Texas surveys (2014)³
  - North Carolina surveys (2013)⁴
  - France surveys (2012)⁵
  - National Cancer Institute surveys (2007)⁶
  - Centers for Disease Control interviews (2009)⁷

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New Mexico (2014)
  - Limited awareness

South Carolina (2015)
  - 41% believed low-dose computed tomography (LDCT) reduced lung cancer mortality

France (2012)
  - 18% knew that LDCT showed efficacy
### Perspectives on NLST results

#### Screened (1000 People)

**Benefits Added by Screening**

- **18 People Died** from lung cancer in a group of 1000 people who are screened. This was **3 FEWER DEATHS** from lung cancer compared to the **NOT SCREENED** group.

**Harms Added by Screening**

- **365 in 1000 People Screened** experienced a **FALSE POSITIVE** result.
- **25 of those false positive results led to an INVASIVE PROCEDURE.**
- **3 People** developed a **MAJOR COMPLICATION** from the invasive procedure.

#### Not Screened (1000 People)

- **21 People Died** from lung cancer in a group of 1000 people who were not screened. This was **3 ADDITIONAL DEATHS** from lung cancer compared to the group that was screened.
Efficacy

- New Mexico (2014)
  - Perceived absolute mortality benefit as small

- South Carolina (2015)
  - 76% agreed/strongly agreed that benefits outweigh risks

- North Carolina (2013)
  - Only 42% rated screening as very/moderately effective in reducing lung cancer mortality
    - Perceived lung cancer screening to be less effective than screening for breast or colorectal cancer
Number needed to screen to prevent a cancer death

- Lung cancer (LDCT): 320 over 7 years
- Colorectal cancer (flexible sigmoidoscopy): 871 over 12 years (Schoen RE. NEJM 2012; 366:2345)
Perspectives on NLST results

- False positive rate very high

Potential solutions

- Applying Lung-RADS classification system (NLST) (Pinsky PF. Ann Intern Med 2015;162:485)
  - Could reduce false positive rate ~ 15 percentage points
  - Could decrease sensitivity ~10 percentage points

- Applying risk calculators to identify nodules most likely to be malignant (McWilliams A. NEJM 2013;369:910)
  - Risk based on nodule appearance/size, age, gender, family history of lung cancer, lung disease
    - Excellent discrimination
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Awareness of USPSTF guideline (2014)

- 49% to 86% survey respondents aware of guidelines (South Carolina [2013], Texas [2015], North Carolina [2015])
  - Highest awareness
    - Targeting heavy current or former smokers
    - Second-hand smoke exposure not a screening criterion
  - Lowest awareness
    - Screening interval
    - Stopping age
  - Some thought chest radiograph recommended
Perspectives on USPSTF guideline

Evidence

- New Mexico (2014)
  - Only “B” rating
    - Single study with homogeneous population
    - Based on only 7 years of NLST follow-up

- South Carolina (2015)
  - 57% strongly agreed/agreed that “the scientific evidence is strong enough to warrant a screening guideline”
Concerns about screening guidelines

- New Mexico (2014)
  - Task Force recommendations have changed over time
    - Breast, prostate cancer screening
  - Global view of overall benefits, risks, and costs for all screening programs
Validity of concerns

- Potential changes to guidelines
  - Increase screening interval following negative prevalence screen (Patz EF. Lancet Oncol 2016;17:590)
  - Risk-based models to target screening may be more efficient (Katki HA. JAMA 2016; Kovalchik SA. NEJM 2013;369:245)
- Implementing Task Force recommendations
  - Primary care providers need 7.4 hours a day to deliver preventive services (Yarnall KSH. Am J Public Health 2003;93:635)
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Implementation concerns

- Levels
  - Patient
  - Provider
  - System
  - Societal
Implementation concerns

- Patient level
  - Adequate insurance
    - Out-of-pocket costs for diagnostic testing and treatment
  - Harms
    - Psychological stress
    - Radiation exposure
    - Invasive diagnostic procedures
    - Incidental findings
Implementation concerns

Provider level

- Complex algorithm for follow up
- Competing demands
- Unconvinced by evidence
- Skepticism about guidelines
- Uncertain about insurance and Medicare coverage
- Not being asked for screening by patients
Implementation concerns

- Counseling about LDCT screening
  - Complex issues
    - Abnormal results that do not clearly suggest cancer
    - Risks and downstream consequences
  - Educating patients important
    - Providers need education about evidence and guidelines
    - Providers need support for decision making
      - Implementation toolkits and decision aids
        - Address low literacy and limited English proficiency
Cancer screening discussions often failed to adequately inform and engage patients (Hoffman RM. Med Decis Making 2010;30:50S)

- Unbalanced presentation of benefits and harms
- Patients have limited knowledge
- Patient preferences not routinely elicited

Centers for Medicare & Medicaid Services mandate that providers engage patients in shared decision making

- Facilitate by using decision aids
Malpractice

- Engaging patients in shared decision making
  - “Establishes a higher burden of proof for patients attempting to claim that they were not adequately informed of risks or alternatives.”
    (Moulton B. J Law Med Ethics Spring 2010)
  - If a competent patient signs a written acknowledgment of [engaging] in shared decision making with the use of a certified decision aid, then signature constitutes...evidence...[of]...an informed consent.
    (Washington state (ESSB 5930))
Implementation concerns

- Malpractice
  - Rationales for not offering screening
    - Not eligible (age, smoking history)
    - Not healthy enough
    - “Guidelines are guidelines”
      - Not convinced that benefits outweigh harms
  - Standard of care uncertain
    - Good documentation crucial
Implementation concerns

- Smoking cessation
  - Providers usually inquire about tobacco use and counsel for cessation
  - Smoking cessation interventions should be part of a screening program
Smoking cessation and screening

- **Teachable moment when motivation to quit is enhanced** (Taylor KL. Lung Cancer 2007;56:125)
- **Screening alone will not affect smoking** (Slatore CG. Ann Am Thorac Soc 2014;11:619)
- **Abnormal findings may facilitate cessation** (Hagerman CJ. J Psychosoc Oncol 2015;33:703; Tammemägi MC. JNCI 2014;106:1)
- **Primary care tobacco cessation efforts (NLST)** (Park ER. JAMA Intern Med 2015;175:1509)
  - Assisting and then arranging follow up was effective
  - Most providers offered less intensive interventions--not effective
Smoking cessation and screening

- Misconceptions about screening in VA
  - Screening can prevent lung cancer
  - “Lucky” smokers can continue smoking
- National Cancer Institute research agenda
Implementation concerns

- System level
  - Help finding available centers
    - New Mexico may lack infrastructure to support high-quality screening programs
    - American Cancer Society (Wender R. CA Cancer J Clin 2013;63:107)
      - If the patient is not willing or able to travel to [a high-volume, high-quality screening and treatment center]...screening is not recommended
  - Support from electronic health record
Implementation concerns

- Societal level
  - Ethical issues
    - Health equity: latest advances should be offered to underserved communities
    - Unethical to screen patients unable to afford follow-up care
    - Unfair to use societal resources such that non-smokers pay to screen smokers
Implementation concerns

- Societal level
  - Economic
    - Not convinced that screening is cost effective
    - More appropriate to allocate resources towards younger populations
      - Supported interventions targeting smoking cessation/prevention
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- **Current practices for lung cancer screening**
- Facilitating implementation
Current screening practices

- New Mexico (2014)
  - Some ordered baseline chest radiographs for smokers
    - None ordered LDCT
- South Carolina (2015)
  - 73% reported discussing LDCT
    - 59% referred 0 or 1 patient in past year
  - Many recommended screening chest radiograph
Current screening practices

- Texas (2015)
  - 56% planning to offer screening
    - < 50% able to refer to high-quality programs, identify eligible patients, or engage in shared decision making
      - 10% had a formal lung cancer screening program in their practice

- North Carolina (2013)
  - More providers offered chest radiographs (21%) than LDCT (12%)
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Facilitating implementation

- Clarifying primary care provider’s role
  - Identifying appropriate patients
    - Comorbidity
    - Need guidance for screening “other” risk groups
  - Achieving shared decision making
    - Decision support tools to educate providers and patients
    - Navigators
  - Arranging follow-up
    - Need guidance for surveillance imaging and referrals for invasive diagnostic procedures
Facilitating implementation

- Expectations of the health care system
  - Electronic health record support
    - Identifying eligible subjects (accurately capturing smoking history)
    - Appropriate templates for consults, notes
  - Performance measure
  - Malpractice support
  - Minimizing financial burden on patients
Confidence that screening can be safely, efficiently, and effectively implemented

- Access to high volume, high-quality screening programs
- Access to effective smoking cessation interventions
- Evolving screening and practice guidelines
  - Intervals, age to stop
  - Targeting high-risk groups
  - Strategies for reducing false positives
Facilitating implementation

- Confidence that screening can be safely, efficiently, and effectively implemented
  - Population-based data
    - Uptake/adherence for screening/surveillance imaging and undergoing invasive diagnostic procedures
    - Benefits—increased detection of early-stage lung cancers and receipt of curative treatments, reduced mortality, decreased smoking
    - Harms—complications from diagnostic procedures and treatments, outcomes of incidental findings
Thank you