Cessation at lung cancer screening: Rationale

Estimated years of life saved for each individual
- With low-dose CT (LDCT) screening: 0.03 years saved
- With smoking cessation (ages 55-64, general population): 4+ years

Offering cessation with LDCT improved the cost-effectiveness of LDCT 20-45% (simulation model).
What we do know about cessation services for LDCT participants

• Guidelines for cessation at LDCT have been published by ATTUD* and SRNT.#
• Possibly not effective: (a) self-help materials or (b) a single counseling session.
• Possibly effective: (a) primary care provider assisting or arranging follow-up, or (b) multi-session tailored telephone counseling.
• Existing cessation services in LDCT are inadequate.
• Barriers to providing cessation services include lack of patient motivation, lack of reimbursement, clinician time & resources.

A key question is how to provide cessation service in this setting.

* Association for the Treatment of Tobacco Use and Dependence (ATTUD)
# Society for Research on Nicotine and Tobacco (SRNT)
Overarching research question

What are the key components and characteristics of a successful cessation program at low-dose CT lung cancer screening?

Outcome: long-term cigarette smoking abstinence
Examples of research questions

• Does the success of specific cessation methods differ by:
  – individual characteristics?
  – exam results? *If scan is unremarkable, is patient less likely to quit smoking?*

• How do approaches compare with respect to intervention fidelity, patient reach, cost, cost-effectiveness, ease of delivery?
RFA CA-15-011

- Innovative intervention or implementation focus
- Developing/testing delivery models
- Comparative design
- Common measures
- Dissemination

6 R01 awards funded September 2016
RFA-CA-15-011 Trial Designs

Taylor (Georgetown)

Patient randomization
(5 sites, N=1330)

Intervention
(brief advice + primary care engagement + nicotine replacement [NRT] + counselor-initiated phone motivational interviewing)

Usual care
(brief advice + patient-initiated assistance including NRT)

Foley (Wake Forest)

Clinic randomization
(22 sites, N=1114 patients)

Clinician training to provide best-practice cessation assistance

Usual care
RFA-CA-15-011 Trial Designs

<table>
<thead>
<tr>
<th>PI, Institution, Number of patients (N)</th>
<th>Full</th>
<th>Moderate</th>
<th>Minimal</th>
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</thead>
<tbody>
<tr>
<td>Hays (Mayo) N=1650</td>
<td>Counseling + web + text message</td>
<td>Web + text</td>
<td>Usual care</td>
</tr>
<tr>
<td>Cinciripini (MD Anderson) N=630</td>
<td>Integrated care with LDCT clinicians + quitline + pharmacotherapy</td>
<td>Quitline + NRT</td>
<td>Quitline</td>
</tr>
</tbody>
</table>
RFA-CA-15-011 Trial Designs

Ostroff (Sloan-Kettering): Factorial design (18 clinics, N=1080)

- Motivational interviewing (yes/no)
- NRT lozenge (yes/no)
- NRT patch (yes/no)
- Message framing (gain/loss)

Toll (MUSC): 2x2 design (2 clinics, N=616)

- NRT (yes/no)
- Message framing (gain/neutral)
Smoking Cessation at Lung Examination (SCALE) Collaboration

• 9 Trials (6 RFA-funded trials and 3 additional projects)
• Share data and methods using common measures for cross-project research

1. Joseph (U Minnesota)
2. Park/Rigotti/Haas (Partners/MGH)
3. Zeliadt (Fred Hutchinson)
SCALE Measures Special Collection

• Demographics and personal experiences
• Family medical history
• Psychological variables (depression, perceived personal risk, lung cancer worry)
• Smoking behavior and attitudes
• Implementation of cessation intervention
• Medical outcomes
• Organizational characteristics

https://cancercontrol.cancer.gov/brp/tcrbSCALEcollaboration.html
SCALE Progress

• 7 of 9 trials are enrolling
• 1,712 patients enrolled as of 12/2018
• Joseph et al “Lung Cancer Screening and Smoking Cessation Clinical Trials. SCALE (Smoking Cessation within the Context of Lung Cancer Screening) Collaboration” AJRCCM, 2018
• Annual grantees meetings; monthly conference calls
• SRNT 2019 abstracts
• Shared data have been submitted from 6 of 9 projects
Discussion

• Goal is that SCALE will produce set of cessation packages and information about which are best for a given LDCT clinic.
• Uptake of lung cancer screening, and of LDCT participants in cessation, are barriers.
• There remains a need for other research related to cessation and LDCT.
Cancer control & population science research needs regarding smoking and lung screening

• Observational studies of smoking behavior changes among real world LDCT participants
  – Changes in risk perception, lung cancer worry, cessation motivation of LDCT participants
  – Investigate concern that screening could discourage cessation for some patients; or, cessation services could discourage screening participation.

• Population level benefits of LDCT coupled with cessation services
  – Cessation and implications for mortality among LDCT participants

Borondy Kitts, 2016
Cancer control & population science research needs regarding smoking and lung screening

- Barriers to providing cessation services for LDCT participants
- Interventions to increase motivation to quit smoking at the time of LDCT
- Cessation interventions in primary care for LDCT-eligible patients, leveraging shared decision-making
- Best timing of cessation intervention during LDCT referral through follow-up and repeat scans
- Which individuals should/can be engaged in delivering cessation interventions?

See also: Research priorities stakeholder survey from American Thoracic Society (Kathuria and Wiener, 2017)
Contact:
Stephanie.land@nih.gov
Stay connected with us!

Sign up for our NCI Behavioral Research Program email updates at: cancercontrol.cancer.gov/brpsubscribe
Follow us on Twitter: @NCIBehaviors
Smoking cessation at lung cancer screening: potential for benefit

- Low-dose computed tomography (LDCT) screening in high-risk individuals: 20% reduced lung cancer mortality relative to chest x-ray
- Trials indicate 50% of those screened are smokers; up to 90% continue.
- For LDCT participants, quitting smoking is associated with reduced mortality.

**Estimated years of life saved for each individual**
- With LDCT screening: 0.03 years saved
- With smoking cessation (ages 55-64, general population): 4+ years

Cessation at lung cancer screening

Estimated years of life saved for each individual

• With LDCT screening: 0.03 years saved
• With smoking cessation (ages 55-64, general population): 4+ years

• U.S. Preventive Services Task Force encourages incorporating cessation.
• CMS requires (for reimbursement for lung cancer screening)
  – pre-screening cessation counseling at referral
  – cessation intervention available at imaging facility
• American College of Radiology (ACR) Lung Cancer Screening Center designation requires attestation that cessation is addressed.
Cessation at lung cancer screening

**Estimated years of life saved for each individual**

- With LDCT screening: 0.03 years saved
- With smoking cessation (ages 55-64, general population): 4+ years
- LDCT might or might not be associated with increased cessation.
- In the National Lung Screening Trial (NLST):
  - higher baseline motivation to quit, quitting self-efficacy, lung cancer worry, perceived advantages of quitting predicted cessation.
- Positive LDCT findings are associated with increased cessation.
- Offering cessation with LDCT improved the cost-effectiveness of LDCT 20-45% (simulation model).

Ostroff, 2001; Cox, 2003; Townsend, 2005; Styn, 2009; Ashraf, 2009; van der Aalst, 2010; Villanti, 2013; Tammemagi, 2014; Deppen, 2014; Slatore, 2014; Park, 2015; Piñeiro, 2016; Fucito, 2016; Kaufman, 2017
SCALE Collaboration Investigators

- Cinciripini (MD Anderson)
- Foley/Chiles (Wake Forest)
- Hays/Midthun (Mayo)
- Joseph (U Minnesota)
- Ostroff/Shelley (Memorial Sloan Kettering)

- Park/Rigotti/Haas (Partners/MGH)
- Taylor (Georgetown)
- Toll (MUSC)
- Zeliadt (Fred Hutchinson)
RFA-CA-15-011
Intervention Intensity

- Integrated care with LDCT clinicians + quitline + pharmacotherapy (Cinciripini)
- Motivational interviewing + message frame (gain/loss) + NRT (Ostroff)
- Counseling + web + text message (Hays)
- Train clinicians to provide state-of-the-art cessation assistance (Foley)
- Brief advice + primary care engagement + NRT+ counselor-initiated phone motivational interviewing (Taylor)
- Brief counseling + NRT+ personalized, gain-framed messages in video + print x 9 weeks (Toll)
- Comparison interventions are subcomponents of full intervention, or usual care
# RFA-CA-15-011: Integration and Tailoring for LDCT Setting

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
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</table>
| Taylor (Georgetown)| Brief advice from LDCT patient navigator  
NRT at LDCT clinic  
Teachable moment: intervene after screening result |
| Hays (Mayo)         | Recruited at end of LDCT shared decision-making visit (if electing LDCT)  
Session with a tobacco treatment specialist before LDCT screening  
Brief advice in LDCT clinic  
Adding LDCT-specific content to the BecomeAnEx website  
BecomeAnEx Text Messages will include 1-yr LDCT reminder |
| Foley (Wake Forest)| Training LDCT clinicians  
Implementation toolkit for other LDCT clinics |
| Ostroff (Sloan-Kettering)| First counseling & NRT at LDCT screening  
Messages tailored to LDCT |
| Cinciripini (MD Anderson)| Integrated care from LDCT clinicians in LDCT clinic |
| Toll (MUSC)         | Gain-framed messaging tailored to LDCT setting |