NCI's Smoking Cessation at Lung Examination (SCALE) Collaboration

Stephanie R. Land, PhD
Tobacco Control Research Branch
Division of Cancer Control and Population Sciences
National Cancer Institute (NCI)
National Institutes of Health (NIH)

NIH NATIONAL CANCER INSTITUTE

December 2018

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.

van der Alst, 2012; Park, 2015; Marshall, 2016; Fucito, 2016; Ostroff, 2016; Aberle 2017; Flocke, 2017, Hagerman, 2017; Taylor, 2017

* Association for the Treatment of Tobacco Use and Dependence (ATTUD)

Society for Research on Nicotine and Tobacco (SRNT)

RFA-CA-15-011
Smoking Cessation within the Context of Lung Cancer Screening (R01)

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?

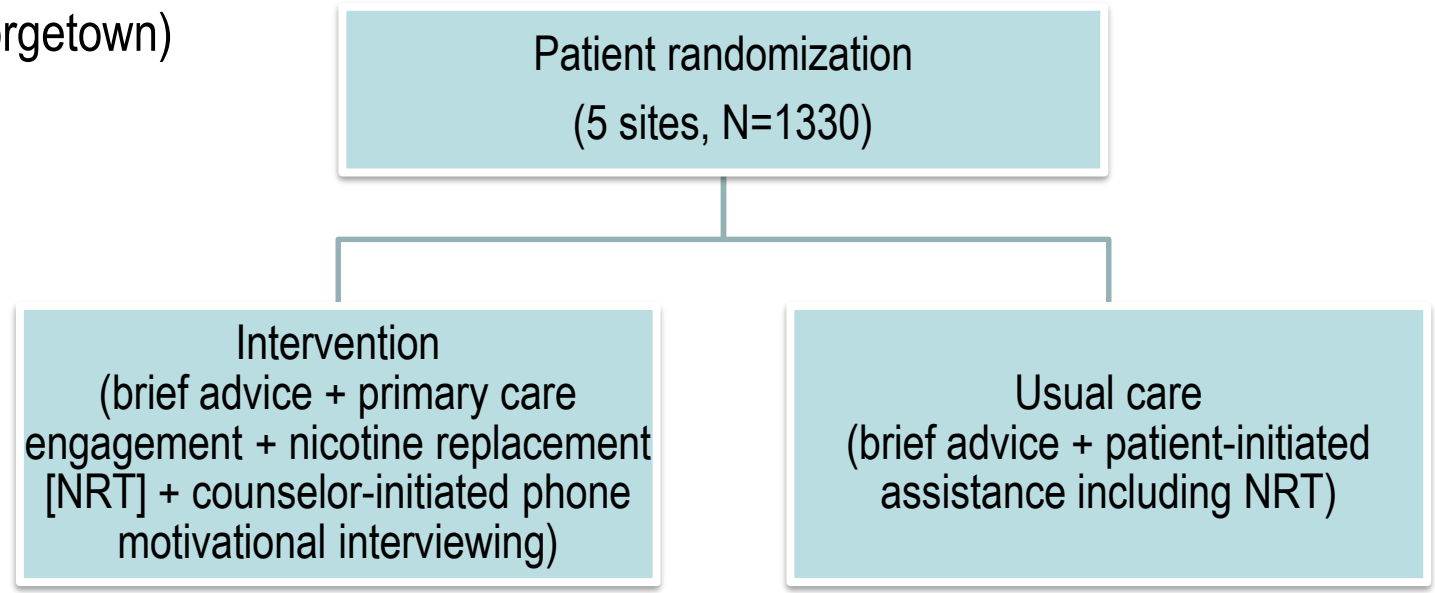
RFA CA-15-011

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

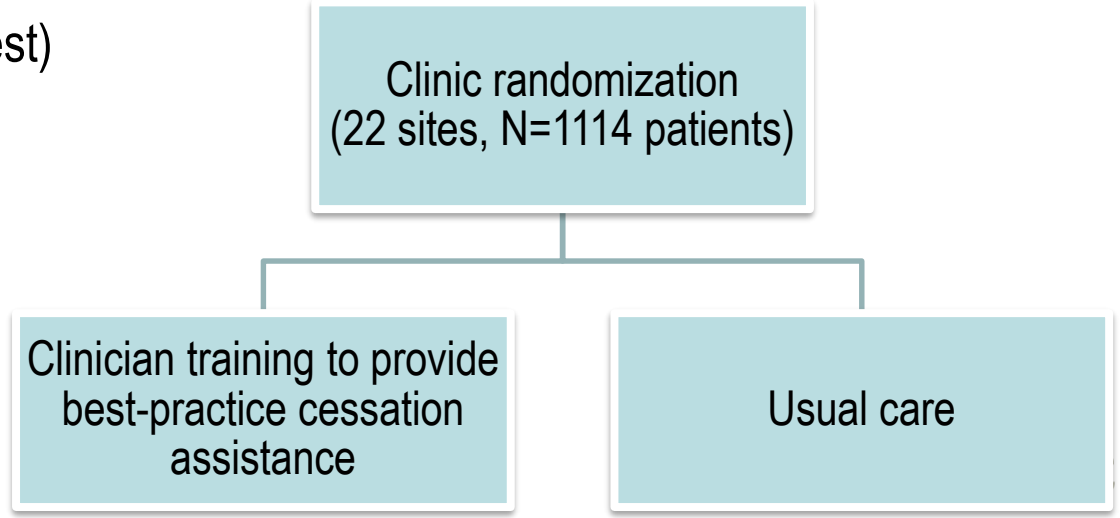
6 R01 awards funded September 2016

RFA-CA-15-011 Trial Designs

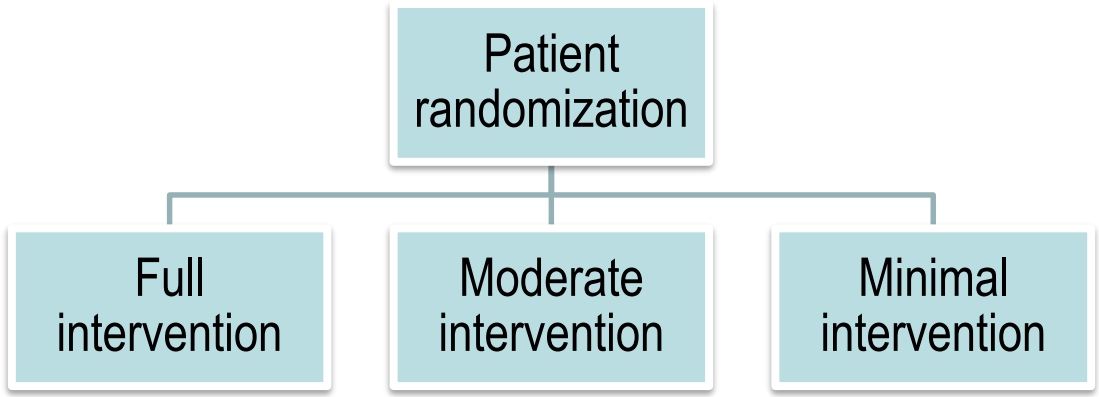
Taylor (Georgetown)



Foley (Wake Forest)



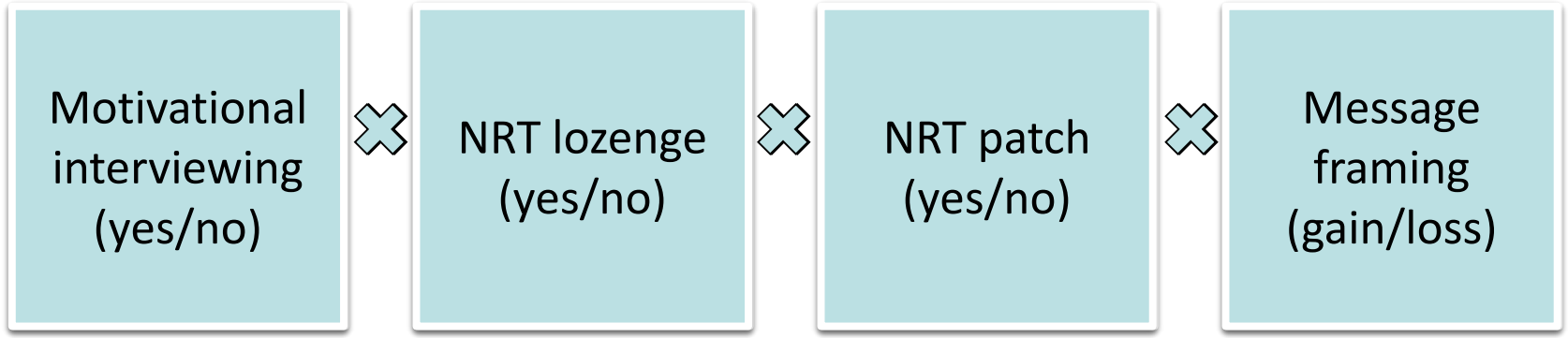
RFA-CA-15-011 Trial Designs



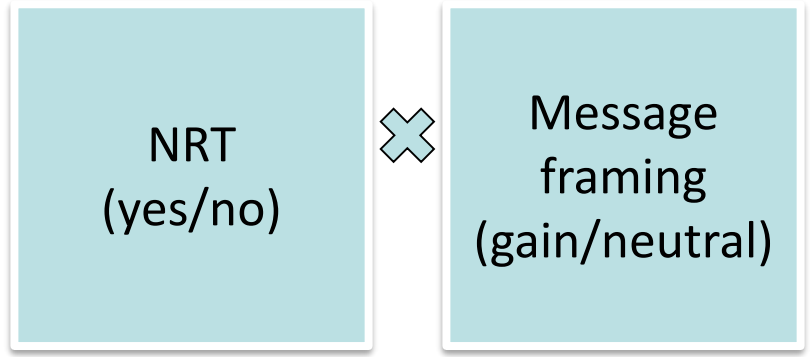
PI, Institution, Number of patients (N)	Full	Moderate	Minimal
Hays (Mayo) N=1650	Counseling + web + text message	Web + text	Usual care
Cinciripini (MD Anderson) N=630	Integrated care with LDCT clinicians + quitline + pharmacotherapy	Quitline + NRT	Quitline

RFA-CA-15-011 Trial Designs

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



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

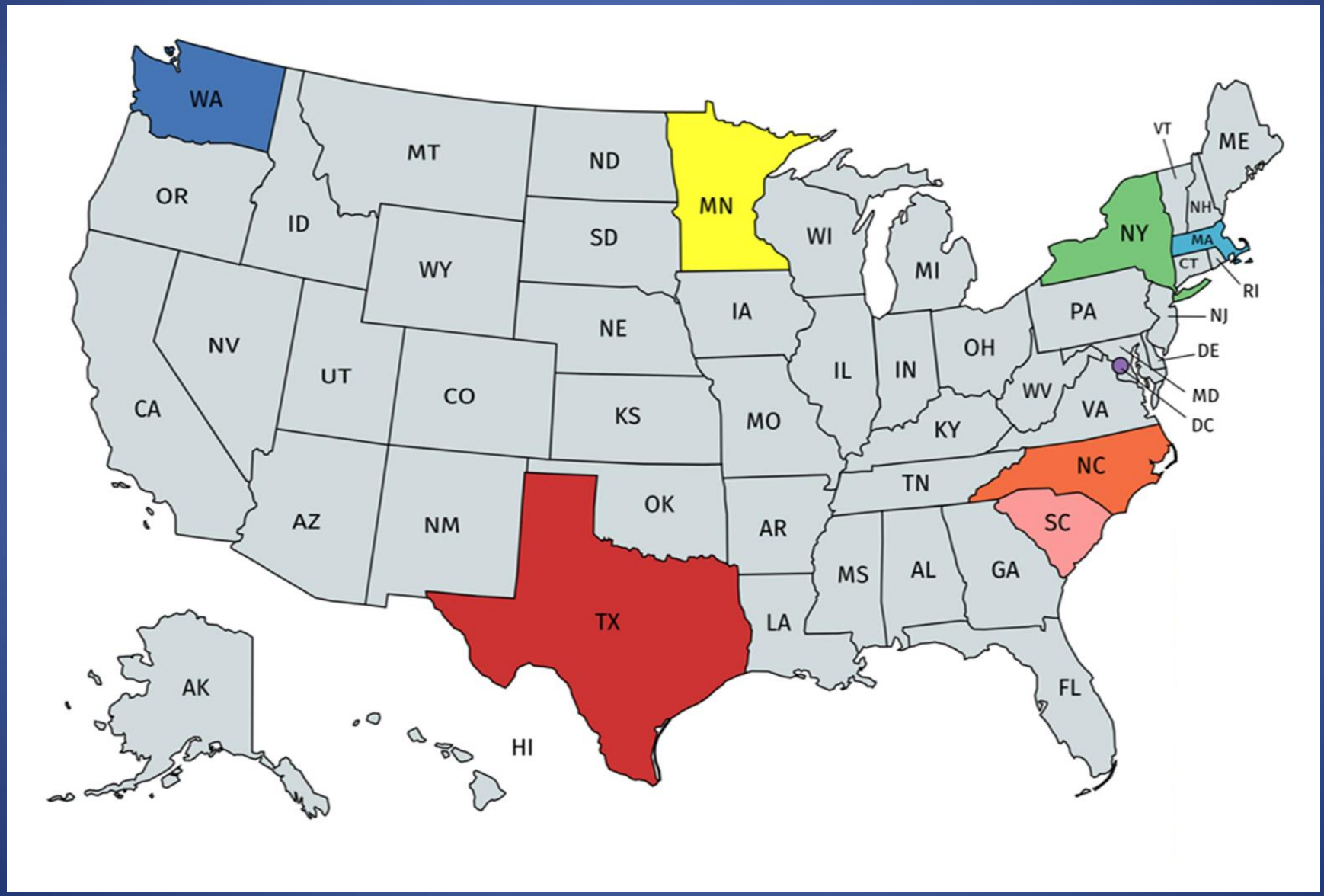


Smoking Cessation at Lung Examination (SCALE) Collaboration

- 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 Investigators



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/tcrb/scale-collaboration.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 grantee 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
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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

Townsend, 2005; Ashraf, 2009; van der Aalst, 2010; Aberle 2011; Ma, 2013, Tammemagi, 2014; Black 2014, Jha 2013; de Koning, 2014, Meza, 2016.

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

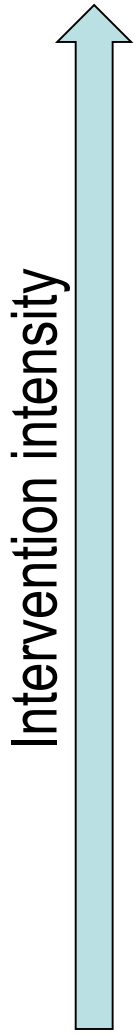
- LDCT might or might not be associated with increased cessation.
- In the National Lung Screening Trial (NLST):
  - higher baseline motivation to quit, quitting self-efficacy, lung cancer worry, perceived advantages of quitting predicted cessation.
- Positive LDCT findings are associated with increased 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

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