Shared Decision-Making for Lung Cancer Screening: A Systematic Review

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Appendix

SEARCH STRATEGIES

Database Search Dates		Search Statement
Embase 01/01/2010-12/06/2023	1	exp lung cancer/ or multiple pulmonary nodules/ or ((lung? or pulmonary) adj3 (adenocarcinoma* or benign or blastoma* or cancer* or carcinoma? or cyst? or hemangioma* or lesion? or malignan* or metasta* or neoplasm* or nodule? or non-malignan* or tumo?r*)).mp.
	2	cancer screening/ or early cancer diagnosis/ or (lung cancer* adj3 screen*).mp.
	3	(early detect* adj3 lung cancer*).mp.
	4	(lung adj5 (low dose computed tomograph* or low dose ct or LDCT)).mp.
	5	or/2-4
	6	1 and 5
	7	decision making/ or shared decision making/ or patient decision aid/ or patient preference/ or ((decision* or choice*) adj3 (aid* or behavio?r* or collaborat* or informed or make* or making or shared or support*)).mp.
	8	exp People by smoking status/ or cigarette smoking/ or vaping/ or electronic cigarette/ or Smoking cessation/ or (e-cigarette? or ever-smoker? or ex-smoker? or never-smoker? or nonsmoker? or non-smoker? or smoker? or smoking cessation or nicotine vaping).ti,ab,kf,kw.
	9	Counseling/ or Interviews/ or Patient education/ or patient participation/ or patient preference/ or ((participant? or patient?) adj3 (choice or counsel* or decide or decision* or discuss* or educat* or engage* or interview* or navigat* or participat* or prefer*)).ti,ab,kf,kw.
	10	or/7-9
	11	6 and 10
	12	case report/ or exp conference paper/ or consensus development/ or editorial/ or letter/ or note/
	13	11 not 12
	14	limit 13 to (books or chapter or conference abstract or conference paper or "conference review" or editorial or letter or note or "preprint (unpublished, non-peer reviewed)")
	15	13 not 14
	16	limit 15 to (english language and yr="2010 -Current")
MEDLINE 01/01/2010-12/06/2023	1	exp Lung Neoplasms/ or Multiple Pulmonary Nodules/ or ((lung? or pulmonary) adj3 (adenocarcinoma* or benign or blastoma* or cancer* or carcinoma? or cyst? or hemangioma* or lesion? or malignan* or metasta* or neoplasm* or nodule? or non-malignan* or tumo?r*)).mp
	2	"Early Detection of Cancer"/ or (early detect* adj3 lung cancer*).mp.
	3	(lung cancer* adj3 screen*).mp.
	4	(lung adj5 (low dose computed tomograph* or low dose ct or LDCT)).mp
	5	Or/2-4
	6	1 and 5
	7	Choice Behavior/ or Decision Making/ or Decision Making, Shared/ or ((decision* or choice*) adj3 (aid* or behavio?r* or collaborat* or informed or make* or making or shared or support*)).mp.

	8	exp Tobacco Smoking/ or Ex-Smokers/ or Non-Smokers/ or Smoking Cessation/ or Smoking/ or Vaping/
	9	(e-cigarette? or ever-smoker? or ex-smoker? or never-smoker? or nonsmoker? or non-smoker? or smoker? or smoking cessation or nicotine vaping).mp.
	10	Health communication/ or Interviews as Topic/ or Patient Education Handout/ or "patient education as topic"/ or Patient Participation/ or Patient Preference/ or Patient Navigation/ or Counseling/
	11	((participant? or patient?) adj3 (choice or counsel* or decide or decision* or discuss* or educat* or engage* or interview* or navigat* or participat* or prefer*)).mp.
	12	Or/ 7-11
	13	6 and 12
	14	case reports/ or comment/ or exp congress/ or editorial/ or letter/ or legislation/ or preprint/ or news/ or festschrift/
	15	13 not 14
	16	Limit 15 to (English language and yr = “2010-current”)
CINAHL 01/01/2010-12/06/2023	1	(MH "Lung Neoplasms+") OR (TI (lung N3 (adenocarcinoma* OR benign OR blastoma* OR cancer* OR carcinoma* OR cyst* OR hemangioma* OR lesion OR malignan* OR metasta* OR neoplasm* OR nodule OR non-malignan* OR tumo?r*) OR AB (lung N3 (adenocarcinoma* OR benign OR blastoma* OR cancer* OR carcinoma* OR cyst* OR hemangioma* OR lesion* OR malignan* OR metasta* OR neoplasm* OR nodule* OR non-malignan* OR tumo?r*))
	2	(MH "Early Detection of Cancer") OR (MH "Cancer Screening")
	3	(TI lung N3 screen)* OR (AB lung N3 screen)*
	4	(TI early N3 detect* N3 "lung cancer*") OR (AB early N3 detect* N3 "lung cancer*")
	5	(TI lung N3 low dose computed tomograph*) OR (TI lung N3 low dose ct) OR (TI lung N3 LDCT) OR (AB lung N3 low dose computed tomograph*) OR (AB lung N3 low dose ct OR (AB lung N3 LDCT)
	6	S2 OR S3 OR S4 OR S5
	7	(MH "Consumer Participation") OR (MH "Counseling") OR (MH "Decision Making, Shared") OR (MH "Decision Making, Patient") OR (MH "Patient Education") OR (MH "Patient Preference") OR (MH "Patient Navigation")
	8	(TI "decision aid*" OR TI “patient choice” OR TI patient counsel* OR TI "patient decision*" OR TI "patient educat*" OR TI "patient interview*" OR TI "consumer participat*" OR TI "patient prefer*" OR TI "shared decision making" OR AB "decision aid*" OR AB "patient choice" OR AB patient counsel* OR AB "patient decision*" OR AB "patient educat*" OR AB "patient interview*" OR AB "consumer participat*" OR AB "patient prefer*" OR AB "shared decision making")
	9	(MH "Ex-Smokers") OR (MH "Non-Smokers") OR (MH "Smoking") OR (MH "Smoking Cessation") OR (MH "Vaping")
	10	S7 OR S8 OR S9
	11	S1 AND S6 AND S10
	12	(MH "Clinical Trials+") OR (MH "Controlled Before-After Studies") OR (MH "Pretest-Posttest Design+") OR (MH “Randomized Controlled Trials”) OR (MH “Double-Blind Studies”) OR (MH “Single-Blind Studies”) OR (MH “Random Assignment”) OR (MH “Cluster Sample”) OR (MH “Crossover Design”) OR (MH “Comparative Studies”) OR (MH "Prospective Studies+") OR (MH "Quasi-Experimental Studies") OR (MH "Case Control Studies+") OR (MH “Placebos”) OR (MH “Sample Size”) OR (TI randomized) OR (TI randomized) OR (AB random*) OR (TI trial) OR (AB assigned) OR (AB

	allocated) OR (AB control W5 group) OR (AB cluster W3 RCT) OR (TI pre N3 post) OR (AB pre N3 post) OR (AB cohort N3 study OR (AB cohort N3 studies)
13	S11 AND S12

STUDIES EXCLUDED DURING FULL-TEXT SCREENING

1. Ahmed A, Verma N, Barreto I, Mohammed T-L, Low-dose Lung Cancer Screening at an Academic Medical Center: Initial Experience and Dose Reduction Strategies. *Academic radiology*. 2018;25(8):1025-1030. *Ineligible intervention.*

2. Azubuike UC, Cooper D, Aplin-Snider C, Using United States Preventive Services Task Force Guidelines to Improve a Family Medicine Clinic's Lung Cancer Screening Rates: A Quality Improvement Project. *Journal for Nurse Practitioners*. 2020;16(10):e169-e172. *Ineligible intervention.*

3. Bhamani A, Horst C, Bojang F, et al, The SUMMIT Study: Utilising a written 'Next Steps' information booklet to prepare participants for potential lung cancer screening results and follow-up. *Lung Cancer*. 2023;176:75-81. *Ineligible intervention.*

4. Bonfield S, Ruparel M, Waller J, Dickson JL, Janes SM, Quaife SL, Preferences for Decision Control among a High-Risk Cohort Offered Lung Cancer Screening: A Brief Report of Secondary Analyses from the Lung Screen Uptake Trial (LSUT). *MDM policy & practice*. 2023;8(1):23814683231163190. *No eligible outcomes.*

5. Brenner AT, Malo TL, Margolis M, et al, Evaluating Shared Decision Making for Lung Cancer Screening. *JAMA internal medicine*. 2018;178(10):1311-1316. *Ineligible population.*

6. Broadbent R, Crosbie P, Armitage CJ, et al, Pilot study of lung cancer screening for survivors of Hodgkin lymphoma. *Haematologica*. 2023. *Ineligible population.*

7. Broadbent R, Seale T, Armitage CJ, Linton K, The development of a decision aid to support Hodgkin lymphoma survivors considering lung cancer screening. *BMC medical informatics and decision making*. 2022;22(1):29. *Ineligible population.*

8. Carter-Bawa L, Walsh LE, Schofield E, Williamson TJ, Hamann HA, Ostroff JS, Lung Cancer Screening Knowledge, Attitudes, and Practice Patterns Among Primary and Pulmonary Care Clinicians. *Nursing research*. 2023;72(1):3-11. *No eligible outcomes.*

9. Caverly TJ, Skurla SE, Robinson CH, Zikmund-Fisher BJ, Hayward RA, The Need for Brevity During Shared Decision Making (SDM) for Cancer Screening: Veterans' Perspectives on an "Everyday SDM" Compromise. *MDM policy & practice*. 2021;6(2):23814683211055120. *Ineligible comparison.*

10. Chalian H, Khoshpouri P, Assari S, Patients' age and discussion with doctors about lung cancer screening; Diminished returns of Blacks. *Aging medicine (Milton (NSW))*. 2019;2(1):35-41. *Ineligible intervention.*

11. Clark SD, Reuland DS, Brenner AT, Pignone MP, What is the effect of a decision aid on knowledge, values and preferences for lung cancer screening? An online pre-post study. *BMJ open*. 2021;11(7):e045160. *Ineligible setting.*

12. Clark SD, Reuland DS, Enyioha C, Jonas DE, Assessment of Lung Cancer Screening Program Websites. *JAMA internal medicine*. 2020;180(6):824-830. *No eligible outcomes.*

13. Cmelzer A, Golden SE, Ono SS, Datta S, Triplette M, Slatore CG, We Just Never Have Enough Time" Clinician Views of Lung Cancer Screening Processes and Implementation. *Annals of the American Thoracic Society*. 2020;17(10):1264-1272. *Ineligible intervention.*

14. Colamonici M, Khouzam N, Dell C, et al, Promoting lung cancer screening of high-risk patients by primary care providers. *Cancer*. 2023;129(22):3574-3581. *Ineligible comparison.*

15. Deros DE, Hagerman CJ, Kramer JA, et al, Change in amount smoked and readiness to quit among patients undergoing lung cancer screening. *Journal of thoracic disease*. 2021;13(8):4947-4955. *Ineligible intervention.*

16. Dharod A, Bellinger C, Foley K, Case LD, Miller D, The Reach and Feasibility of an Interactive Lung Cancer Screening Decision Aid Delivered by Patient Portal. *Applied clinical informatics*. 2019;10(1):19-27. *Ineligible comparison.*

17. Dickinson JA, Grad R, Wilson BJ, et al, Quality of the screening process: An overlooked critical factor and an essential component of shared decision making about screening. *Canadian Family Physician*. 2019;65(5):331-336. *Ineligible publication.*

18. Dignan M, Cina K, Sargent M, et al, Increasing Lung Cancer Screening for High-Risk Smokers in a Frontier Population. *Journal of cancer education : the official journal of the American Association for Cancer Education*. 2023. *Ineligible intervention.*

19. Dobler CC, Midthun DE, Montori VM, Quality of Shared Decision Making in Lung Cancer Screening: The Right Process, With the Right Partners, at the Right Time and Place. *Mayo Clinic proceedings*. 2017;92(11):1612-1616. *Ineligible publication.*

20. Dukes K, Seaman AT, Hoffman RM, et al, Attitudes of Clinicians about Screening Head and Neck Cancer Survivors for Lung Cancer Using Low-Dose Computed Tomography. *The Annals of otology, rhinology, and laryngology*. 2020;129(1):23-31. *Ineligible population.*

21. Eberth JM, Zgodic A, Pelland SC, Wang SY, Miller DP, Outcomes of Shared Decision-Making for Low-Dose Screening for Lung Cancer in an Academic Medical Center. *Journal of cancer education : the official journal of the American Association for Cancer Education*. 2023;38(2):522-537. *Ineligible comparison.*

22. Elliott TE, O'Connor PJ, Asche SE, et al, Design and rationale of an intervention to improve cancer prevention using clinical decision support and shared decision making: A clinic-randomized trial. *Contemporary Clinical Trials*. 2021;102:106271. *Ineligible study design.*

23. Erkmen CP, Mitchell M, Randhawa S, et al, An Enhanced Shared Decision Making Model to Address Willingness and Ability to Undergo Lung Cancer Screening and Follow-Up Treatment in Minority Underserved Populations. *Journal of community health*. 2018;43(1):27-32. *Ineligible comparison.*

24. Golden SE, Ono SS, Melzer A, et al, "I Already Know That Smoking Ain't Good for Me": Patient and Clinician Perspectives on Lung Cancer Screening Decision-Making Discussions as a Teachable Moment. *Chest*. 2020;158(3):1250-1259. *No eligible outcomes.*

25. Golden SE, Ono SS, Thakurta SG, et al, "I'm Putting My Trust in Their Hands": A Qualitative Study of Patients' Views on Clinician Initial Communication About Lung Cancer Screening. *Chest*. 2020;158(3):1260-1267. *Ineligible comparison.*

26. Goodwin JS, Nishi S, Zhou J, Kuo Y-F, Use of the Shared Decision-Making Visit for Lung Cancer Screening Among Medicare Enrollees. *JAMA internal medicine*. 2019;179(5):716-718. *Ineligible comparison.*

27. Green DB, Pua BB, Crawford CB, et al, Screening for Lung Cancer: Communicating With Patients. *AJR American journal of roentgenology*. 2018;210(3):497-502. *Ineligible publication.*

28. Greene PA, Sayre G, Heffner JL, et al, Challenges to Educating Smokers About Lung Cancer Screening: a Qualitative Study of Decision Making Experiences in Primary Care. *Journal of cancer education : the official journal of the American Association for Cancer Education*. 2019;34(6):1142-1149. *Ineligible intervention.*

29. Harry ML, Chrenka EA, Freitag LA, et al, Primary care clinicians' opinions before and after implementation of cancer screening and prevention clinical decision support in a clinic cluster-randomized control trial: a survey research study. *BMC health services research*. 2022;22(1):38. *No eligible outcomes.*

30. Hart K, Tofthagen C, Wang H-L, Development and Evaluation of a Lung Cancer Screening Decision Aid. *Clinical journal of oncology nursing*. 2016;20(5):557-9. *Ineligible publication.*

31. Henderson LM, Benefield TS, Bearden SC, et al. Changes in Physician Knowledge, Attitudes, Beliefs, and Practices regarding Lung Cancer Screening. Ann Am Thorac Soc. Aug 2019;16(8):1065-1069. doi:10.1513/AnnalsATS.201812-867RL. *Ineligible intervention.*

32. Hill PA, Current State of Shared Decision-Making for CT Lung Cancer Screening and Improvement Strategies. *Journal of patient experience*. 2020;7(1):49-52. *Ineligible intervention.*

33. Hoffman RM, Lang JA, Bailey GJ, et al, Implementing a Telehealth Shared Counseling and Decision-Making Visit for Lung Cancer Screening in a Veterans Affairs Medical Center. *Federal practitioner : for the health care professionals of the VA, DoD, and PHS*. 2023;40(Suppl 3):S83-S90. *Ineligible comparison.*

34. Hong Y-R, Wheeler M, Wang R, et al, Patient-Provider Discussion About Lung Cancer Screening by Race and Ethnicity: Implications for Equitable Uptake of Lung Cancer Screening. *Clinical lung cancer*. 2023. *No eligible outcomes.*

35. Housten AJ, Lowenstein LM, Leal VB, Volk RJ, Responsiveness of a Brief Measure of Lung Cancer Screening Knowledge. *Journal of cancer education : the official journal of the American Association for Cancer Education*. 2018;33(4):842-846. *No eligible outcomes.*

36. Hudson JN, Quinn GP, Wilson LE, Simmons VN, Evaluation of Promotional Materials To Promote Low-Dose Computed Tomography (LDCT) Screening to High-Risk Consumers and Health Care Providers. *Journal of cancer education : the official journal of the American Association for Cancer Education*. 2018;33(5):1043-1051. *No eligible outcomes.*

37. Huo J, Chung TH, Kim B, Deshmukh AA, Salloum RG, Bian J, Provider-Patient Discussions About Smoking and the Impact of Lung Cancer Screening Guidelines: NHIS 2011-2015. *Journal of general internal medicine*. 2020;35(1):43-50. *Ineligible intervention.*

38. Huo J, Hong Y-R, Bian J, Guo Y, Wilkie DJ, Mainous AG, Low Rates of Patient-Reported Physician-Patient Discussion about Lung Cancer Screening among Current Smokers: Data from Health Information National Trends Survey. *Cancer epidemiology, biomarkers & prevention : a publication of the American Association for Cancer Research, cosponsored by the American Society of Preventive Oncology*. 2019;28(5):963-973. *No eligible outcomes.*

39. Jallow M, Black G, van Os S, et al, Acceptability of a standalone written leaflet for the National Health Service for England Targeted Lung Health Check Programme: A concurrent, think-aloud study. *Health expectations : an international journal of public participation in health care and health policy*. 2022;25(4):1776-1788. *Non-US study.*

40. Jansak B, Expanding a Comprehensive Lung Cancer Screening Program. *Radiology management*. 2015;37(6):42-6. *Ineligible publication.*

41. Jessup DL, Glover Iv M, Daye D, et al, Implementation of Digital Awareness Strategies to Engage Patients and Providers in a Lung Cancer Screening Program: Retrospective Study. *Journal of medical Internet research*. 2018;20(2):e52. *Ineligible intervention.*

42. Kale MS, Diefenbach M, Masse S, Kee D, Schnur J, Patient impressions of the impact of comorbidities on lung cancer screening benefits and harms: A qualitative analysis. *Patient education and counseling*. 2023;108:107590. *No eligible outcomes.*

43. Kao Y-H, Tseng T-S, Celestin MD, et al, Association Between the 5As and Stage of Change Among African American Smokers Eligible for Low-Dose Computed Tomography Screening. *Preventing chronic disease*. 2021;18:E71. *Ineligible intervention.*

44. Kathuria H, Gunawan A, Spring M, et al, Hospitalization as an opportunity to engage underserved individuals in shared decision-making for lung cancer screening: results from two randomized pilot trials. *Cancer causes & control : CCC*. 2022;33(11):1373-1380. *Ineligible setting.*

45. Lang E, Bell NR, Dickinson JA, et al, Eliciting patient values and preferences to inform shared decision making in preventive screening. *Canadian Family Physician*. 2018;64(1):28-e16. *Ineligible publication.*

46. Lau YK, Caverly TJ, Cherng ST, et al, Development and validation of a personalized, web-based decision aid for lung cancer screening using mixed methods: a study protocol. *JMIR research protocols*. 2014;3(4):e78. *No eligible outcomes.*

47. Lee SJC, Lee J, Zhu H, et al, Assessing Barriers and Facilitators to Lung Cancer Screening: Initial Findings from a Patient Navigation Intervention. *Population health management*. 2023;26(3):177-184. *Ineligible intervention.*

48. Li C-C, Matthews AK, Gao X, Cheung K, Preliminary Testing of A Web-Based Lung Cancer Screening Decision Coaching Tool for Older Chinese American Smokers and Their Providers. *Journal of the National Medical Association*. 2023;115(2):223-232. *Ineligible comparison.*

49. Li C-C, Matthews AK, Wu T, Adaptation and Preliminary Evaluation of a Lung Cancer Screening Decision Tool for Older Chinese American Populations. *Journal of the National Medical Association*. 2020;112(4):433-444. *No eligible outcomes.*

50. Lillie SE, Fu SS, Fabbrini AE, et al, What factors do patients consider most important in making lung cancer screening decisions? Findings from a demonstration project conducted in the Veterans Health Administration. *Lung cancer (Amsterdam, Netherlands)*. 2017;104:38-44. *No eligible outcomes.*

51. Liu B, Dharmarajan K, Henschke CI, Taioli E, State-Level Variations in the Utilization of Lung Cancer Screening Among Medicare Fee-for-Service Beneficiaries: An Analysis of the 2015 to 2017 Physician and Other Supplier Data. *Chest*. 2020;157(4):1012-1020. *No eligible outcomes.*

52. Lopez-Olivo MA, Minnix JA, Fox JG, et al, Smoking cessation and shared decision-making practices about lung cancer screening among primary care providers. *Cancer medicine*. 2021;10(4):1357-1365. *No eligible outcomes.*

53. Lowenstein LM, Escoto KH, Leal VB, et al, Randomized trial of a patient-centered decision aid for promoting informed decisions about lung cancer screening: Implementation of a PCORI study protocol and lessons learned. *Contemporary clinical trials*. 2018;72:26-34. *Ineligible publication.*

54. Lowenstein LM, Godoy MCB, Erasmus JJ, et al, Implementing Decision Coaching for Lung Cancer Screening in the Low-Dose Computed Tomography Setting. *JCO oncology practice*. 2020;16(8):e703-e725. *Ineligible comparison.*

55. Lowenstein LM, Nishi SPE, Lopez-Olivo MA, et al, Smoking cessation services and shared decision-making practices among lung cancer screening facilities: A cross-sectional study. *Cancer*. 2022;128(10):1967-1975. *No eligible outcomes.*

56. Lowenstein M, Vijayaraghavan M, Burke NJ, et al, Real-world lung cancer screening decision-making: Barriers and facilitators. *Lung cancer (Amsterdam, Netherlands)*. 2019;133:32-37. *Ineligible intervention.*

57. Maki KG, Liao K, Lowenstein LM, Lopez-Olivo MA, Volk RJ, Factors Associated With Obtaining Lung Cancer Screening Among Persons Who Smoke. *MDM policy & practice*. 2021;6(2):23814683211067810. *Ineligible comparison.*

58. Manners D, Pettigrew S, Lake FR, Piccolo F, McWilliams AM, Brims FJH, Development and evaluation of a consumer information resource, including Patient Decision Aid, for lung cancer screening: a quasi-experimental study. *Translational behavioral medicine*. 2020;10(2):404-412. *Non-US study.*

59. McDonnell KK, Strayer SM, Sercy E, et al, Developing and testing a brief clinic-based lung cancer screening decision aid for primary care settings. *Health expectations : an international journal of public participation in health care and health policy*. 2018;21(4):796-804. *Ineligible comparison.*

60. Meline J, Prigge JM, Dye D, et al, Adapting the design of a Web-based decision support clinical trial during the COVID-19 pandemic. *Trials*. 2021;22(1):734. *Ineligible publication.*

61. Modin HE, Fathi JT, Gilbert CR, et al, Pack-Year Cigarette Smoking History for Determination of Lung Cancer Screening Eligibility. Comparison of the Electronic Medical Record versus a Shared Decision-making Conversation. *Annals of the American Thoracic Society*. 2017;14(8):1320-1325. *No eligible outcomes.*

62. Neil JM, Chang Y, Goshe B, et al, A Web-Based Intervention to Increase Smokers' Intentions to Participate in a Cessation Study Offered at the Point of Lung Screening: Factorial Randomized Trial. *JMIR formative research*. 2021;5(6):e28952. *Ineligible intervention.*

63. Nishi SPE, Lowenstein LM, Mendoza TR, et al, Shared Decision-Making for Lung Cancer Screening: How Well Are We "Sharing"? *Chest*. 2021;160(1):330-340. *Ineligible comparison.*

64. Nunez ER, Caverly TJ, Zhang S, et al, Factors Associated With Declining Lung Cancer Screening After Discussion With a Physician in a Cohort of US Veterans. *JAMA network open*. 2022;5(8):e2227126. *No eligible outcomes.*

65. Owens OL, McDonnell KK, Newsome BR, Humphrey M, Development and testing of "Is Lung Cancer Screening for You?" A computer-based decision aid. *Cancer causes & control : CCC*. 2023;34(3):287-294. *Ineligible comparison.*

66. Parker A, Knapp P, Treweek S, et al, The effect of optimised patient information materials on recruitment in a lung cancer screening trial: an embedded randomised recruitment trial. *Trials*. 2018;19(1):503. *Non-US study.*

67. Poghosyan H, Patient-Provider Discussion About Lung Cancer Screening Is Related to Smoking Quit Attempts in Smokers. *Oncology nursing forum*. 2022;49(2):132-141. *Ineligible intervention.*

68. Quaife SL, Marlow LAV, McEwen A, Janes SM, Wardle J, Attitudes towards lung cancer screening in socioeconomically deprived and heavy smoking communities: informing screening communication. *Health expectations : an international journal of public participation in health care and health policy*. 2017;20(4):563-573. *Ineligible intervention.*

69. Quaife SL, Ruparel M, Dickson JL, et al, Lung Screen Uptake Trial (LSUT): Randomized Controlled Clinical Trial Testing Targeted Invitation Materials. *American journal of respiratory and critical care medicine*. 2020;201(8):965-975. *Non-US study.*

70. Raz DJ, Ismail MH, Sun V, et al, Incorporating lung cancer screening education into tobacco cessation group counseling. *Tobacco prevention & cessation*. 2020;6:12. *Ineligible comparison.*

71. Raz DJ, Wu G, Nelson RA, et al, Perceptions and Utilization of Lung Cancer Screening Among Smokers Enrolled in a Tobacco Cessation Program. *Clinical lung cancer*. 2019;20(1):e115-e122. *Ineligible intervention.*

72. Rennert L, Zhang L, Lumsden B, et al, Factors influencing lung cancer screening completion following participation in shared decision-making: A retrospective study in a U.S. academic health system. *Cancer treatment and research communications*. 2020;24:100198. *Ineligible comparison.*

73. Rivera MP, Henderson LM, Lung cancer screening and shared decision making in cancer survivors: The long and winding road. *Translational Lung Cancer Research*. 2019;8(2):119-123. *Ineligible publication.*

74. Ruparel M, Quaife SL, Ghimire B, et al, Impact of a Lung Cancer Screening Information Film on Informed Decision-making: A Randomized Trial. *Annals of the American Thoracic Society*. 2019;16(6):744-751. *Non-US study.*

75. Schapira MM, Aggarwal C, Akers S, et al, How Patients View Lung Cancer Screening. The Role of Uncertainty in Medical Decision Making. *Annals of the American Thoracic Society*. 2016;13(11):1969-1976. *Ineligible intervention.*

76. Schapira MM, Rodriguez KL, Chhatre S, et al, When Is a Harm a Harm? Discordance between Patient and Medical Experts' Evaluation of Lung Cancer Screening Attributes. *Medical decision making : an international journal of the Society for Medical Decision Making*. 2021;41(3):317-328. *No eligible outcomes.*

77. Seaman AT, Dukes K, Hoffman RM, et al, The complicated 'Yes': Decision-making processes and receptivity to lung cancer screening among head and neck cancer survivors. *Patient education and counseling*. 2018;101(10):1741-1747. *No eligible outcomes.*

78. Sharma A, O'Connor R, Celestino P, Killion S, Griswold-Krupski L, Bansal-Travers M, Focus Groups and In-depth Interviews to Guide the Development of Lung Cancer Screening Informational Materials. *Journal of cancer education : the official journal of the American Association for Cancer Education*. 2019;34(4):712-718. *Ineligible intervention.*

79. Shen J, Crothers K, Kross EK, Petersen K, Melzer AC, Triplette M, Provision of Smoking Cessation Resources in the Context of In-Person Shared Decision-Making for Lung Cancer Screening. *Chest*. 2021;160(2):765-775. *Ineligible intervention.*

80. Shih Y-CT, Xu Y, Lowenstein LM, Volk RJ, Implementation of Shared Decision Making for Lung Cancer Screening Among the Privately Insured Nonelderly. *MDM policy & practice*. 2021;6(1):2381468320984773. *No eligible outcomes.*

81. Shusted CS, Juon H-S, Ruane B, et al, Individual- and neighborhood-level characteristics of lung cancer screening participants undergoing telemedicine shared decision making. *BMC health services research*. 2023;23(1):1179. *No eligible outcomes.*

82. Smith L, Williams RM, Whealan J, et al, Development and Evaluation of Brief Web-Based Education for Primary Care Providers to Address Inequities in Lung Cancer Screening and Smoking Cessation Treatment. *Journal of cancer education : the official journal of the American Association for Cancer Education*. 2023;38(4):1296-1303. *No eligible outcomes.*

83. Tailor TD, Rivera MP, Durham DD, Perera P, Lane L, Henderson LM, Prospective Multisite Cohort Study to Evaluate Shared Decision-Making Utilization Among Individuals Screened for Lung Cancer. *Journal of the American College of Radiology : JACR*. 2022;19(8):945-953. *Ineligible comparison.*

84. Tan NQP, Nishi SPE, Lowenstein LM, et al, Impact of the shared decision-making process on lung cancer screening decisions. *Cancer medicine*. 2022;11(3):790-797. *Ineligible intervention.*

85. Tonge JE, Atack M, Crosbie PA, Barber PV, Booton R, Colligan D, "To know or not to know...?" Push and pull in ever smokers lung screening uptake decision-making intentions. *Health expectations : an international journal of public participation in health care and health policy*. 2019;22(2):162-172. *Non-US study.*

86. van den Bergh KAM, Essink-Bot M-L, van Klaveren RJ, e Koning HJ, Informed decision making does not affect health-related quality of life in lung cancer screening (NELSON trial). *European journal of cancer (Oxford, England : 1990)*. 2010;46(18):3300-6. *Ineligible publication.*

87. Wang GX, Baggett TP, Pandharipande PV, et al, Barriers to Lung Cancer Screening Engagement from the Patient and Provider Perspective. *Radiology*. 2019;290(2):278-287. *Ineligible publication.*

88. Watson J, Broome ME, Schneider SM, Low-Dose Computed Tomography: Effects of Oncology Nurse Navigation on Lung Cancer Screening. *Clinical journal of oncology nursing*. 2020;24(4):421-429. *No eligible outcomes.*

89. Williams LB, Shelton BJ, Gomez ML, Al-Mrayat YD, Studts JL, Using Implementation Science to Disseminate a Lung Cancer Screening Education Intervention Through Community Health Workers. *Journal of community health*. 2021;46(1):165-173. *Ineligible comparison.*

90. Ziller E, Talbot JA, Elbaum M, et al, Engaging At-Risk Rural Residents in Secondary Lung Cancer Prevention. *Journal of primary care & community health*. 2023;14:21501319231163368. *Ineligible intervention.*

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UNDERWAY STUDIES

Study #	Study Title	Status	Total N*
1K08CA289097-01	A community health worker intervention to improve lung cancer screening uptake in community health centers serving Black and Hispanic communities	Active	NR
1U19MD020537-01	Lung Cancer Screening to Improve Equity in Tribal Communities in Oklahoma (Lung-Screen-Tribal OK)	Active	NR
5K08CA283304-02	Facilitation of Information Exchange for Shared Decision Making for Lung Cancer Screening	Active	NR
5R01CA237240-05	A Personalized Digital Outreach Intervention for Lung Cancer Screening	Active	NR
5R01CA251758-04	Addressing racial disparities in lung cancer screening	Active	NR
5R01CA258849-03	Provider Support and Patient Outreach in Lung Cancer Screening	Active	NR
5R01HL158850-03	TELEhealth Shared decision-making COaching for lung cancer screening in Primary care (TELESCOPE)	Active	NR
NCT02430948	Improving Compliance With Medical Testing Guidelines	Completed (no publication)	218
NCT02871739	A Trial Comparing Approaches to Shared Decision Making Skills Training for Clinicians	Completed (no publication)	23
NCT02914899	Informing the Adaptation of a CHW Model to Facilitate Lung Cancer Screening for the Chinese Community	Active, Not Yet Recruiting (no publication)	99
NCT03891602	DECIDE: Developing Tools for Lung Cancer Screening Discussion Improvement	Withdrawn (no publication)	0
NCT03929926	Proactive Outreach and Shared Decision Making in Improving Lung Cancer Screening Rates in Primary Care Patients	Completed (no publication)	2,355
NCT03958253	Lung Cancer Screening Protocol	Completed (no publication)	193
NCT04200534	Centralized Lung Cancer EARly Detection Among Smokers (CLEAR Study)	Recruiting (no publication)	520
NCT04498052	Evaluation of a Scalable Decision Support and Shared Decision Making Tool for Lung Cancer Screening	Active, Not Recruiting (no publication)	12,000
NCT04897568	Shared Decision Making in Rural Primary Care Lung Cancer Screening and Smoking Cessation	Completed (no publication)	118
NCT04940221	Testing Informed Decision Making in Lung Cancer Screening	Completed (no publication)	80
NCT05024955	Evaluating Shared Decision making for Lung Cancer Screening Among Chinese Populations in the United States	Withdrawn (no publication)	0
NCT05491213	TELESCOPE- TELEhealth Shared Decision making COaching	Recruiting (no publication)	420
NCT05679349	Support and Outreach to Increase Screening for Lung Cancer in Patients With a History of Smoking	Recruiting (no publication)	822
NCT05920850	The SHARED, Project, Lung Cancer Screening for African American Men (AAM)	Completed (no publication)	37
NCT06213532	CONNECTing to LungCare	Not Yet Recruiting (no publication)	147

*Estimated enrollment

CONSOLIDATED FRAMEWORK FOR IMPLEMENTATION RESEARCH (CFIR) DOMAINS*

Domain Name **Subdomain Name (If Applicable)** **Construct Name**	**Construct Definition**
I. Innovation Domain *The "thing" being implemented, eg., a new clinical treatment, educational program, or city service*	
A. Innovation Source	The group that developed and/or visibly sponsored use of the innovation is reputable, credible, and/or trustable
B. Innovation Evidence Base	The innovation has robust evidence supporting its effectiveness
C. Innovation Relative Advantage	The innovation is better than other available innovations or current practice
D. Innovation Adaptability	The innovation can be modified, tailored, or refined to fit local context or needs
E. Innovation Trialability	The innovation can be tested or piloted on a small scale and undone
F. Innovation Complexity	The innovation is complicated, which may be reflected by its scope and/or the nature and number of connections and steps
G. Innovation Design	The innovation is well designed and packaged, including how it is assembled, bundled, and presented
H. Innovation Cost	The innovation purchase and operating costs are affordable
II. Outer Setting Domain *The setting in which the Inner Setting exists, eg, hospital system, school district, state. There may be multiple Outer Settings and/or multiple levels within the Outer Setting, eg, community, system, state*	
A. Critical Incidents	Large-scale and/or unanticipated events disrupt implementation and/or delivery of the innovation
B. Local Attitudes	Sociocultural values (*eg*, shared responsibility in helping recipients) and beliefs (*eg*, convictions about the worthiness of recipients) encourage the Outer Setting to support implementation and/or delivery of the innovation
C. Local Conditions	Economic, environmental, political, and/or technological conditions enable the Outer Setting to support implementation and/or delivery of the innovation
D. Partnerships & Connections	The Inner Setting is networked with external entities, including referral networks, academic affiliations, and professional organization networks
E. Policies & Laws	Legislation, regulations, professional group guidelines and recommendations, or accreditation standards support implementation and/or delivery of the innovation
F. Financing	Funding from external entities (*eg*, grants, reimbursement) is available to implement and/or deliver the innovation
G. External Pressure	External pressures drive implementation and/or delivery of the innovation *Use this construct to capture themes related to External Pressures that are not included in the subconstructs below*
1. Societal Pressure	Mass media campaigns, advocacy groups, or social movements or protests drive implementation and/or delivery of the innovation
2. Market Pressure	Competing with and/or imitating peer entities drives implementation and/or delivery of the innovation
3. Performance Measurement Pressure	Quality or benchmarking metrics or established service goals drive implementation and/or delivery of the innovation
III. Inner Setting Domain *The setting in which the innovation is implemented, eg, hospital, school, city. There may be multiple Inner Settings and/or multiple levels within the Inner Setting, eg, unit, classroom, team*	
A. Structural Characteristics	Infrastructure components support functional performance of the Inner Setting

Domain Name **Subdomain Name (If Applicable)** **Construct Name**	**Construct Definition**
	Use this construct to capture themes related to Structural Characteristics that are not included in the subconstructs below
1. Physical Infrastructure	Layout and configuration of space and other tangible material features support functional performance of the Inner Setting
2. Information Technology Infrastructure	Technological systems for tele-communication, electronic documentation, and data storage, management, reporting, and analysis support functional performance of the Inner Setting
3. Work Infrastructure	Organization of tasks and responsibilities within and between individuals and teams, and general staffing levels, support functional performance of the Inner Setting
B. Relational Connections	There are high quality formal and informal relationships, networks, and teams within and across Inner Setting boundaries (*eg*, structural, professional)
C. Communications	There are high quality formal and informal information sharing practices within and across Inner Setting boundaries (*eg*, structural, professional)
D. Culture	There are shared values, beliefs, and norms across the Inner Setting *Use this construct to capture themes related to Culture that are not included in the subconstructs below*
1. Human Equality-Centeredness	There are shared values, beliefs, and norms about the inherent equal worth and value of all human beings
2. Recipient-Centeredness	There are shared values, beliefs, and norms around caring, supporting, and addressing the needs and welfare of recipients
3. Deliverer-Centeredness	There are shared values, beliefs, and norms around caring, supporting, and addressing the needs and welfare of deliverers
4. Learning-Centeredness	There are shared values, beliefs, and norms around psychological safety, continual improvement, and using data to inform practice
Note: Constructs E – K are specific to the implementation and/or delivery of the innovation	
E. Tension for Change	The current situation is intolerable and needs to change
F. Compatibility	The innovation fits with workflows, systems, and processes
G. Relative Priority	Implementing and delivering the innovation is important compared to other initiatives
H. Incentive Systems	Tangible and/or intangible incentives and rewards and/or disincentives and punishments support implementation and delivery of the innovation
I. Mission Alignment	Implementing and delivering the innovation is in line with the overarching commitment, purpose, or goals in the Inner Setting
J. Available Resources	Resources are available to implement and deliver the innovation *Use this construct to capture themes related to Available Resources that are not included in the subconstructs below*
1. Funding	Funding is available to implement and deliver the innovation
2. Space	Physical space is available to implement and deliver the innovation
3. Materials & Equipment	Supplies are available to implement and deliver the innovation
K. Access to Knowledge & Information	Guidance and/or training is accessible to implement and deliver the innovation
IV. Individuals Domain *The roles and characteristics of individuals*	
Roles Subdomain	
A. High-level Leaders	Individuals with a high level of authority, including key decision-makers, executive leaders, or directors
B. Mid-level Leaders	Individuals with a moderate level of authority, including leaders supervised by a high-level leader and who supervise others

Domain Name **Subdomain Name (If Applicable)** **Construct Name**	**Construct Definition**
C. Opinion Leaders	Individuals with informal influence on the attitudes and behaviors of others
D. Implementation Facilitators	Individuals with subject matter expertise who assist, coach, or support implementation
E. Implementation Leads	Individuals who lead efforts to implement the innovation
F. Implementation Team Members	Individuals who collaborate with and support the Implementation Leads to implement the innovation, ideally including Innovation Deliverers and Recipients
G. Other Implementation Support	Individuals who support the Implementation Leads and/or Implementation Team Members to implement the innovation
H. Innovation Deliverers	Individuals who are directly or indirectly delivering the innovation
I. Innovation Recipients	Individuals who are directly or indirectly receiving the innovation
Characteristics Subdomain	
A. Need	The individual(s) has deficits related to survival, well-being, or personal fulfillment, which will be addressed by implementation and/or delivery of the innovation
B. Capability	The individual(s) has interpersonal competence, knowledge, and skills to fulfill Role
C. Opportunity	The individual(s) has availability, scope, and power to fulfill Role
D. Motivation	The individual(s) is committed to fulfilling Role
V. Implementation Process Domain *The activities and strategies used to implement the innovation*	
A. Teaming	Join together, intentionally coordinating and collaborating on interdependent tasks, to implement the innovation
B. Assessing Needs	Collect information about priorities, preferences, and needs of people *Use this construct to capture themes related to Assessing Needs that are not included in the subconstructs below*
1. Innovation Deliverers	Collect information about the priorities, preferences, and needs of deliverers to guide implementation and delivery of the innovation
2. Innovation Recipients	Collect information about the priorities, preferences, and needs of recipients to guide implementation and delivery of the innovation
C. Assessing Context	Collect information to identify and appraise barriers and facilitators to implementation and delivery of the innovation
D. Planning	Identify roles and responsibilities, outline specific steps and milestones, and define goals and measures for implementation success in advance
E. Tailoring Strategies	Choose and operationalize implementation strategies to address barriers, leverage facilitators, and fit context
F. Engaging	Attract and encourage participation in implementation and/or the innovation *Use this construct to capture themes related to Engaging that are not included in the subconstructs below*
1. Innovation Deliverers	Attract and encourage deliverers to serve on the implementation team and/or to deliver the innovation
2. Innovation Recipients	Attract and encourage recipients to serve on the implementation team and/or participate in the innovation
G. Doing	Implement in small steps, tests, or cycles of change to trial and cumulatively optimize delivery of the innovation
H. Reflecting & Evaluating	Collect and discuss quantitative and qualitative information about the success of implementation and/or the innovation *Use this construct to capture themes related to Reflecting & Evaluating that are not included in the subconstructs below*

Domain Name **Subdomain Name (If Applicable)** **Construct Name**	**Construct Definition**
1. Implementation	Collect and discuss quantitative and qualitative information about the success of implementation
2. Innovation	Collect and discuss quantitative and qualitative information about the success of the innovation
I. Adapting	Modify the innovation and/or the Inner Setting for optimal fit and integration into work processes

Notes. *Taken from Damschroder, L.J., Reardon, C.M., Widerquist, M.A.O. et al. The updated Consolidated Framework for Implementation Research based on user feedback. Implementation Sci 17, 75 (2022). https://doi.org/10.1186/s13012-022-01245-0.

RISK OF BIAS ASSESSMENTS

RANDOMIZED CONTROLLED TRIALS (ROB-2)

Author, Year	Bias from Randomization Process	Bias from Deviation from Intended Interventions (Assignment)	Bias from Deviation from Intended Interventions (Adherence)	Bias from Missing Outcome Data	Bias in Measurement of Outcome	Bias in Selection of Reported Result	Overall Risk of Bias (Low, Some Concerns, High)
Carter-Harris, 2020[46]	Low	Low	Low	Low	Some concerns	Low	Some concerns
Clark, 2022[45]	Low	Some concerns	Low	Low	Low	Low	Some concerns
DiCarlo, 2022[27]	Low	Low	Low	Some concerns	Low	Low	Some concerns
Fraenkel, 2016[50]	Some concerns	Low	Low	Low	Low	High	High
Percac-Lima, 2018[30]	Some concerns	Low	Some concerns	Some concerns	Low	Low	Some concerns
Robichaux, 2023[48]	Low	Low	Low	Low	Low	Low	Low
Schapira, 2023[19]	Low	Low	Low	Low	Low	Low	Low
Sferra, 2021[31]	Low	Low	Low	Some concerns	Low	Low	Some concerns
Sharma, 2018[49]	High	High	Some concerns	High	Low	Low	High
Volk, 2020[41]	Low	Low	Low	Low	Low	Low	Low
Walsh, 2023[35]	Some concerns	Some concerns	Low	Low	Low	Low	Some concerns
Webster, 2023[37]	Low	Low	High	Some concerns	Low	Low	High

NONRANDOMIZED PRE-POST COMPARISON STUDIES (JBI QUASI-EXPERIMENTAL)

Author, Year	Is It Clear in the Study What Is the 'Cause' And What Is The 'Effect' (*ie*, There Is No Confusion About Which Variable Comes First)?	Were the Participants Included in Any Comparisons Similar?	Were the Participants Included in Any Comparisons Receiving Similar Treatment/Care, Other Than the Exposure or Intervention of Interest?	Were There Multiple Measurements of the Outcome Both Pre and Post the Intervention/ Exposure?	Was Follow-Up Complete and If Not, Were Differences Between Groups in Terms of Their Follow-Up Adequately Described and Analyzed?	Were the Outcomes of Participants Included in Any Comparisons Measured in the Same Way?	Were Outcomes Measured in a Reliable Way?	Was Appropriate Statistical Analysis Used?	Overall Risk of Bias (Low, Moderate, High)
Bittner Fagan, 2020[25]	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Moderate
Crothers, 2016[23]	Yes	Yes	No	Yes	Unclear	Yes	Yes	Yes	Moderate
Flores, 2021[32]	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Moderate

Author, Year	Is It Clear in the Study What Is the 'Cause' And What Is The 'Effect' (*ie*, There Is No Confusion About Which Variable Comes First)?	Were the Participants Included in Any Comparisons Similar?	Were the Participants Included in Any Comparisons Receiving Similar Treatment/Care, Other Than the Exposure or Intervention of Interest?	Were There Multiple Measurements of the Outcome Both Pre and Post the Intervention/ Exposure?	Was Follow-Up Complete and If Not, Were Differences Between Groups in Terms of Their Follow-Up Adequately Described and Analyzed?	Were the Outcomes of Participants Included in Any Comparisons Measured in the Same Way?	Were Outcomes Measured in a Reliable Way?	Was Appropriate Statistical Analysis Used?	Overall Risk of Bias (Low, Moderate, High)
Hoffman, 2018[40]	Yes	Yes	Yes	Yes	Yes	Yes	Unclear	Yes	Moderate
Ito Fukunaga, 2022[28]	Yes	Yes	Yes	Unclear	Yes	Yes	Yes	Yes	Moderate
Kukhareva, 2023[29]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Low
Lau, 2015[39]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Low
Lau, 2021[38]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Low
Mazzone, 2017[33]	Yes	Yes	Yes	Yes	Unclear	Yes	Yes	Yes	Moderate
Reuland, 2018[47]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Low
Sakoda, 2020[34]	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Moderate
Strong, 2020[43]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Low
Studts, 2020[44]	Yes	Yes	Yes	Yes	Unclear	Yes	Yes	Yes	Moderate
Volk, 2014[42]	Yes	Yes	Yes	Yes	Unclear	Yes	Yes	Yes	Moderate

NONRANDOMIZED COHORT STUDIES (JBI COHORT)

Author, Year	Were the Two Groups Similar and Recruited From T\the Same Population?	Were the Exposures Measured Similarly to Assign People to Both Exposed and Unexposed Groups?	Was The Exposure Measured in a Valid and Reliable Way?	Were Confounding Factors Identified?	Were Strategies to Deal With Confounding Factors Stated?	Were the Groups/Participants Free of the Outcome At the Start of the Study (Or at the Moment of Exposure)?	Were the Outcomes Measured in a Valid and Reliable Way?	Was The Follow-Up Time Reported and Sufficient to Be Long Enough for Outcomes to Occur?	Was Follow-Up Complete, and if Not, Were the Reasons to Loss to Follow-Up Described and Explored?	Were Strategies to Address Incomplete Follow-Up Utilized?	Was Appropriate Statistical Analysis Used?	Overall Risk of Bias (Low, Moderate, High)
Bittner Fagan, 2023[26]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Unclear	Unclear	Moderate
Goodwin, 2020[54]	Unclear	Yes	Yes	Yes	Yes	Unclear	Yes	Yes	Yes	Unclear	Unclear	High
Tanner, 2019[20]	Yes	Yes	Yes	Yes	Unclear	Unclear	Yes	Yes	Yes	Yes	Yes	Moderate
Studts, 2023[53]	Yes	Yes	Yes	Yes	Yes	Unclear	Yes	Yes	Yes	Unclear	Yes	Moderate

Abbreviations. NA=not applicable.

QUALITATIVE STUDIES (CASP)

Author, Year	Was There a Clear Statement of the Aims of the Research?	Is Qualitative Methodology Appropriate?	Was the Research Design Appropriate to Address the Aims of the Research?	Was the Recruitment Strategy Appropriate to the Aims of the Research?	Was the Data Collected in a Way That Addressed the Research Issue?	Has the Relationship Between Researcher and Participants Been Adequately Considered?	Have Ethical Issues Been Taken Into Consideration?	Was the Data Analysis Sufficiently Rigorous?	Is There a Clear Statement of Findings?	Overall Risk of Bias (Low, Moderate, High)
Abubaker-Sharif, 2022[59]	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	High
Han, 2019[18]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Low
Herbst, 2023[55]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Low
Lowery, 2022[56]	Yes	Yes	Can't Tell	Yes	Can't Tell	No	Yes	Can't Tell	Yes	High

Author, Year	Was There a Clear Statement of the Aims of the Research?	Is Qualitative Methodology Appropriate?	Was the Research Design Appropriate to Address the Aims of the Research?	Was the Recruitment Strategy Appropriate to the Aims of the Research?	Was the Data Collected in a Way That Addressed the Research Issue?	Has the Relationship Between Researcher and Participants Been Adequately Considered?	Have Ethical Issues Been Taken Into Consideration?	Was the Data Analysis Sufficiently Rigorous?	Is There a Clear Statement of Findings?	Overall Risk of Bias (Low, Moderate, High)
Martinez, 2022[57]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Low
Melzer, 2020[60]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Low
Reese, 2022[58]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Low
Schapira, 2022[21]	Yes	Yes	Can't Tell	Can't Tell	Yes	Yes	Yes	Yes	Yes	High
Wiener, 2018[22]	Yes	Yes	Yes	Yes	Yes	No	Yes	Can't Tell	Yes	Moderate

HEALTH CARE PROFESSIONAL-FACING TOOLS OR MATERIALS

TOOLS FOR CLINICIAN USE DURING SDM CLINIC VISIT TO HELP GUIDE DISCUSSION WITH THE PATIENT

Appendix Table 1. Detailed Characteristics for Studies Evaluating Tools for Clinician Use

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
Han, 2019[18] Low Pre-post 3 months NR Maine Cancer Foundation, & the Maine Lung Cancer Coalition, an initiative jointly supported by the Bristol Myers Squibb Foundation, Maine Cancer Foundation, and Maine Economic Improvement Fund	**Inclusion:** Ages 55–80 with ≥30-pack-year smoking history, who either currently smoke or quit ≤15 years ago **Exclusion:** NR	The prescreening SDM counseling was provided by 2 pulmonary physicians during 40-minute consultation visits, guided by a brief 1-page decision aid. The decision aid was modeled on the ‘‘Option Grid’’ approach and utilized a ‘‘Frequently Asked Questions’’ format. Used PLCOm2012 risk calculator. N = 60 **Age** Mean (SD): 63.2 (5.2) **Gender** Female: 41% **Race/Ethnicity:** NR **Education:** NR **Insurance Status:** NR **Smoking Status** Currently smoke: 51% Pack years, mean (SD): NR **Clinic**	NA	**Receipt of lung cancer screening (3 mo)** Count (%)
Ito Fukunaga, 2022[28] Moderate	**Inclusion:** Age 55–80, ≥ 30 pack-year smoking history, currently smoking, or else non-smoking for ≤ 15 years	A single-page, paper-based, encounter decision aid with a FAQ format designed to guide a structured conversation between	NA	**Decisional conflict/regret (0 days)** DCS

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
Pre-post 0 days NR Outcomes Research Grant from the Maine Cancer Foundation; the Maine Lung Cancer Coalition (jointly supported by the Bristol Myers Squibb Foundation, Maine Cancer Foundation, and the Maine Economic Improvement Fund); the National Heart, Lung, and Blood Institute through Grant 1K12HK138049-01	**Exclusion:** NR	the patient and clinician, which focused on explaining key benefits and harms of LDCT screening, using data from the National Lung Screening Trial (NLST). N = 23 **Age** Mean (SD): 65.8 (NR) **Gender:** Female: 43% **Race/Ethnicity** Black/African American: 1.6% White: 86.6% Hispanic: 6.2% **Education:** NR **Insurance Status:** NR **Smoking Status:** NR **Clinic**		**Knowledge of screening benefits & harms (0 days)** Author-developed questionnaire
Kukhareva, 2023[29] Moderate Controlled clinical trial 120 days NCT04498052 Agency for Healthcare Research and Quality [Grants R18HS026198 and R18HS028791]; VA HSR&D Career Development Award [Grant CDA 16-151]	**Inclusion:** Patients who completed at least one primary care office visit during the study period, met 2013 USPSTF criteria for LCS (55-80 years of age, ≥30-pack-year smoking history, current tobacco use or quit smoking in the last 15 years), had not undergone chest CT scan imaging (low dose or otherwise) in the past year, and had not declined screening in the past 3 years **Exclusion:** History of lung cancer before the visit date, chest CT scan imaging carried out in the past year, or structured EHR data from the past 3 years indicating the patient decided against screening	Pre-implementation of a clinician-facing EHR prompts and an EHR-integrated SDM tool N = 1090 **Age** Mean (SD): 65.2 (6.6) **Gender** Female: 42% **Race/Ethnicity** Black/African American: 1.6% White: 86.6% Hispanic: 6.2% **Education:** NR **Insurance Status** Private: 30.3	Post-implementation of a clinician-facing EHR prompts and an EHR-integrated SDM tool N = 1026 **Age** Mean (SD): 65.3 (6.6) **Gender** Female: 43% **Race/Ethnicity** Black/African American: 1.7% White: 87.9% Hispanic: 5.6% **Education:** NR **Insurance Status**	**Receipt of lung cancer screening (120 days)** Stratified by race/ethnicity & gender

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
		Public: 65.2 None: 4.5 **Smoking Status** Currently smoke: 52.7% Pack years, mean (SD): NR **Clinic**	Private:29.3 Public: 67.6 None: 3 **Smoking Status** Currently smoke: 54.1% Pack years, mean (SD): NR **Clinic**	
Sferra, 2021[31] Some concerns RCT 6 months NR Temple University Fox Chase Cancer Center/HC Regional Comprehensive Cancer Health Disparity Partnership, Award #U54 CA221704 from the National Cancer Institute of National Institutes of Health	**Inclusion:** Ages 55 and 80, smoking history of at least 30 pack years, actively smoking or quit smoking within the past 15 years, at least a sixth-grade reading level, as assessed by the Rapid Estimate of Adult Literacy in Medicine criteria **Exclusion:** Symptoms suggestive of lung cancer, such as hemoptysis or unexplained weight loss, previous lung cancer, previous cancer of any origin with active treatment within the past 5 years or any comorbidity or condition that precluded them from lung cancer treatment	A directed SDM discussion utilizing Option Grids (www.optiongrid.org), an information sheet to guide a physician–patient encounter to compare lung cancer screening options. N = 128 **Age** Mean (SD): 64.0 (NR) **Gender** Female: 71% **Race/Ethnicity** Black/African American: 55.5% White: 35.9% Hispanic: 6.3% **Education** High school or greater: 68% **Insurance Status:** NR **Smoking Status:** NR **Clinic**	A directed SDM discussion utilizing shouldiscreen.com; the physician navigated the patient through the website N = 109 **Age** Mean (SD): 64.0 (NR) **Gender** Female: 51% **Race/Ethnicity** Black/African American: 68.8% White: 21.1% Hispanic: 8.3% **Education** High school or greater: 57.8% **Insurance Status:** NR **Smoking Status:** NR **Clinic**	**Quality of communication (6 mo)** CollaboRATE **Knowledge of screening benefits & harms (6 mo)** Author-developed 14-question survey based on Lau et al. knowledge questionnaire **Decisional conflict/regret (6 mo)** Ottawa Decision Regret Scale
Tanner, 2019[20] Moderate Cohort	**Inclusion:** Eligibility for LCS based on the USPST 2014 screening recommendations; identified via EMR **Exclusion:** NR	In-person SDM visit using a paper decision aid and a personalized risk assessment for developing lung cancer over the next 6 years using the Prostate, Lung, Colorectal and Ovarian (PLCO) Cancer Screening Trial modified	Telephone-based SDM appointment, including the same counseling and risk assessment provided to intervention group	Receipt of lung cancer screening (1 mo) Proportion of participants Decisional conflict/regret (1 mo) DCS

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
1 month NR Veterans Affairs Health Services Research and Development Pilot Grant and an American Cancer Society Institutional Research Grant		2012 calculator + shouldiscreen.com N = 69 **Age** Mean (SD): 64.1 (6) **Gender** Female: 52.2% **Race/Ethnicity** Black/African American: 28.5% White: 64.2% Native American or Alaska Native: 0% Hispanic: 5.1% **Education** High school or greater: 86.9% **Insurance Status:** NR **Smoking Status:** NR **Clinic**	N = 68 **Age** Mean (SD): 65.2 (6.2) **Gender** Female: 5.9% **Race/Ethnicity** Black/African American: 27.9% White: 63.2% Native American or Alaska Native: 2.9% Hispanic: 5.9% **Education** High school or greater: 92.6% **Insurance Status:** NR **Smoking Status:** NR **Home**	Satisfaction with decision (1 mo) Satisfaction With Decisions scale

Abbreviations. CT=computed tomography; DCS=Decisional Conflict Scale; EHR=electronic health record; EMR=electronic medical record; FAQ=frequently asked questions; LCS=lung cancer screening; LDCT=low-dose computed tomography; Mo=month; NA=not applicable; NR=not reported; PLCO=Prostate, Lung, Colorectal, and Ovarian Cancer Screening Trial; RCT=randomized controlled trial; SD=standard deviation; SDM=shared decision making; USPSTF=United States Preventative Services Task Force.

Appendix Table 2. Detailed Results for Studies Evaluating Tools for Clinician Use

Author, Year Study Design Risk of Bias	Measurement Instrument	Intervention	Comparator	Results
Quality of Communication				
Sferra, 2021[31] RCT Some concerns	CollaboRATE	Baseline mean (SD): NR Follow-up: 97.4	Baseline mean (SD): NR Follow-up: 98.6	P = 0.6
Decisional Conflict/Regret				
Ito Fukunaga, 2022[28] Pre-post Moderate	DCS (0=no decisional conflict to 100=extremely high decisional conflict)	Baseline mean (SD): 35.0 (25.8) Follow-up: 0.2 (1.0)	NA	"All changes in DCS total & subscale scores were significant (p <0.001)."
Sferra, 2021[31] RCT Some concerns	Ottawa Decision Regret Scale (0=no decisional regret to 100=extremely high decisional regret)	Baseline mean (SD): NR Follow-up: 6.0	Baseline mean (SD): NR Follow-up: 10.0	P = 0.02
Tanner, 2019[20] Cohort Moderate	DCS (0=no decisional conflict to 100=extremely high decisional conflict)	Baseline mean (SD): NR Follow-up: 11.3 (3.4)	Baseline mean (SD): NR Follow-up: 12.1 (3.4)	NR
Receipt of Lung Cancer Screening				
Han, 2019[18] Pre-post Low	Count (%) of recipients	60/60 (100)	NA	NR
Kukhareva, 2023[29] CCT Moderate	Overall count (%) of recipients	48/1090 (4.4)	182/1026 (17.7)	OR (95% CI): 4.7 (3.1, 7.1) P < 0.001
	Count (%) of recipients, stratified by race/ethnicity	Non-Hispanic White - 43/944 (4.6) Non-Hispanic Black - 1/17 (5.9) Hispanic - 2/68 (2.9) Other - 2/61 (3.3)	Non-Hispanic White - 159/902 (17.6) Non-Hispanic Black - 5/17 (29.4) Hispanic - 9/57 (15.8) Other - 9/50 (18.0)	NR
	Count (%) of recipients, stratified by gender	Female 18/458 (3.9) Male 30/632 (4.7)	Female 74/441 (16.8) Male 108/585 (18.5)	NR
Tanner, 2019[20]	Count (%) of recipients	61/69 (88.4)	60/68 (88.2)	NR

Cohort Moderate				
Knowledge of Screening Benefits and Harms				
Ito Fukunaga, 2022[28] Pre-post Moderate	2 author-developed questionnaires	"Five out of eighteen respondents (28%) correctly identified the absolute mortality reduction from lung cancer screening as 1%, while 18 out of 22 respondents (82%) correctly identified the rate of abnormal LDCT as 25%. Among all participants, four (17%) answered both questions correctly, and three (13%) answered both incorrectly or did not answer."	NA	NR
Sferra, 2021[31] RCT Some concerns	Author-developed 14-question survey based on Lau et al. knowledge questionnaire	Baseline mean (SD): NR Follow-up: 67.4	Baseline mean (SD): NR Follow-up: 62.4	NR
Satisfaction With Decision				
Tanner, 2019[20] Cohort Moderate	Satisfaction with Decisions scale	Baseline mean (SD): NR Follow-up: 26.7 (2.8)	Baseline mean (SD): NR Follow-up: 24.6 (5.6)	NR

Abbreviations. CI=confidence interview; DCS=Decisional Conflict Scale; LDCT=low-dose computed tomography; NA=not applicable; NR=not reported; OR=odds ratio; RCT=randomized controlled trial; SD=standard deviation.

TOOLS FOR LCS NAVIGATOR USE TO HELP GUIDE SDM DISCUSSION

Appendix Table 3. Detailed Characteristics for Studies Evaluating Tools for LCS Navigator Use

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding Source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
Bittner Fagan, 2020[25] Moderate Pre-post 90 days NR Institutional Development Award (IDeA) from the National Institute of General Medical Sciences of the National Institutes of Health under grant number U54-GM104941 and the Physician's Professionalism Council of Christiana Care Health System	**Inclusion:** Ages 55-80, currently or formerly smoked with at least a 30 pack-year history, has not quit smoking for more than 15 years, and has not have received a LDCT scan within the last year **Exclusion**: NR	A phone-based appointment with a decision counselor who reviewed the educational materials that were mailed and guided the patient through decision counseling session using an online software application, the Decision Counseling Program© (DCP). N = 20 **Age:** NR **Gender** Female: 45% **Race/Ethnicity** Black/African American: 20% White: 75% Hispanic: 5.3% **Education:** NR **Insurance Status** Private: 35% Public: 60% None: 5% **Smoking Status** Currently smoke: 55% Pack years, mean (SD): 49.7 (21.4) **Clinic; Community**	No DCP N = 8 **Age:** NR **Gender** Female: 75% **Race/Ethnicity** Black/African American: 12.5% White: 87.5% Hispanic: 0% **Education:** NR **Insurance Status** Private: 37.5% Public: 62.5% None: 0% **Smoking Status** Currently smoke: 100% Pack years, mean (SD): 21.4 (7.9) **NA**	**Receipt of lung cancer screening (90 days)** Proportion **Decisional conflict/regret (30 days)** Author Developed 5-point Likert scale (0 = "strongly agree" to 4 = "strongly disagree"); stratified by people who currently smoked

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding Source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
Bittner Fagan, 2023 [26] Moderate Cohort 1 year NR NIH, State of Delaware, University of Delaware, Christiana Care Health System, Nemours, Delaware State University, and Medical University of South Carolina	**Inclusion:** Between 55-80 years of age, had at least a 30-pack year smoking history, had no symptoms consistent with cancer, and had not undergone an LDCT scan of the lungs within the last year. **Exclusion:** Those with limited life expectancy or prohibitive comorbid conditions, had participated in prior studies on lung cancer screening, were already enrolled in the health system screening program, or had had a CT scan of the chest in the last year.	Telephone-delivered SDM with a decision counselor (not a physician, nurse practitioner, or physician assistant) using Decision Counseling Program ®, an online interactive decision aid; and a second SDM conversation at a visit either with their PCP or with the centralized lung cancer screening program. N = 64 **Age** Mean (SD): 64.2 (6.1) **Gender** Female: 50% **Race/Ethnicity** Asian: 1.6% Black/African American: 17.2% White: 79.6% Hispanic: 1.6% **Education:** NR **Insurance Status** Private:42.2% Public: 54.7% None: 3.1% **Smoking Status** Currently smoke: NR Pack years, mean (SD): 44.2 (15.9) **Clinic**	The control group, who had declined study participation, represents usual care and therefore SDM for lung cancer screening may or may not have occurred with a provider. N = 16 **Age** Mean (SD): 63.3 (5.9) **Gender** Female: 50% **Race/Ethnicity** Asian: 0% Black/African American: 6.3% White: 93.7% Hispanic: 0% **Education:** NR **Insurance Status** Private: 25% Public: 68.7% None: 6.3% **Smoking Status** Currently smoke: NR Pack years, mean (SD): 51.1 (16.2) **NA**	**Receipt of lung cancer screening (1 year)** Count
DiCarlo, 2022[27] Some concerns RCT	**Inclusion:** Patients in participating practices who had not been screened with LDCT and were potentially eligible for LCS, using basic eligibility criteria consistent with the USPSTF, CMS, and National	Outreach contact + decision counseling N = 302	Outreach contact only N = 297	**Receipt of lung cancer screening (280 days)** Count (%)

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding Source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
280 days NR A grant from Bristol-Myers Squibb Foundation entitled, “Engaging a Learning Community to Increase Lung Cancer Screening in Vulnerable Populations,” and by the Cancer Center Support Grant 5P30CA056036–17 of the Sidney Kimmel Cancer Center	Comprehensive Cancer Center Network guidelines **Exclusion**: NR	**Age:** NR **Gender** Female: 49% **Race/Ethnicity** Asian: 17% Black/African American: 28% White: 50% Native American or Alaska Native: 0% Hispanic: 3% **Education:** NR **Insurance Status:** NR **Smoking Status** Currently smoke: 23% Pack years, mean (SD): NR **Clinic**	**Age:** NR **Gender** Female: 46% **Race/Ethnicity** Asian: 17% Black/African American: 30% White: 46% Native American or Alaska Native: 0% Hispanic: 4% **Education:** NR **Insurance Status:** NR **Smoking Status** Currently smoke: 22% Pack years, mean (SD): NR **Clinic** Usual care N = 1748 **Age:** NR **Gender** Female: 55% **Race/Ethnicity** Asian: 8% Black/African American: 32% White: 56% Native American or Alaska Native: <1% Hispanic: 2% **Education:** NR **Insurance Status** Private: 35% Public: 60% None: 5% **Smoking Status**	

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding Source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
			Currently smoke: 21% Pack years, mean (SD): NR **Clinic**	
Percac-Lima, 2018[30] Some concerns RCT 1 year NCT02705365 American Cancer Society: Cancer Control Career Development Award for Primary Care Physicians (CCCDAA-14-012-01-CCCDA) and Lazarex Cancer Foundation	**Inclusion:** Ages 55–77 years old who were identified as people who currently smoke in the EMR **Exclusion:** Patients who had any chest CT performed in the previous 18 months and those not receiving care in one of the 5 community health centers	A patient navigation program - navigators contacted patients to determine LCS eligibility, introduce SDM, schedule appointments with primary care physicians, and help overcome barriers to obtaining screening and follow-up. N = 400 **Age** Mean (SD): 61.8 (5.4) **Gender** Female: 47% **Race/Ethnicity** Asian: 4.5% Black/African American: 4.5% White: 77.8% Hispanic: 6.5% **Education** High school or greater: 80.8% **Insurance Status** Private:32% Public: 67.9% None: 0.3% **Smoking Status** Currently smoke: 100% Pack years, mean (SD): NR **Clinic**	Usual care N = 800 **Age** Mean (SD): 62.4 (5.7) **Gender** Female: 55.3% **Race/Ethnicity** Asian: 2.8% Black/African American: 3.1% White: 83.3% Hispanic: 5.1% **Education** High school or greater: 80% **Insurance Status** Private:35% Public: 65% None: 0% **Smoking Status** Currently smoke: 100% Pack years, mean (SD): NR **Clinic**	**Receipt of lung cancer screening (1 yr)** Count (%) **Receipt of additional tests/procedures for identified findings (1 yr)** Count (%)

Abbreviations. CMS=Centers for Medicare & Medicaid Services; CT=computed tomography; EMR=electronic medical record; LCS=lung cancer screening; LDCT=low-dose computed tomography; NR=not reported; PCP=primary care provider; RCT=randomized controlled trial SD=standard deviation; SDM=shared decision-making; USPSTF=United States Preventative Services Task Force; Yr=year.

Appendix Table 4. Detailed Results for Studies Evaluating Tools for LCS Navigator Use

Author, Year Study Design Risk of Bias	Measurement Instrument	Intervention	Comparator	Results
Decisional Conflict/Regret				
Bittner Fagan, 2020[25] Pre-post	Author-developed 5-point Likert scale (0 = "strongly agree" to 4 = "strongly disagree")	-0.57 (18.2)	NA	P = 0.69
	Author-developed 5-point Likert scale (0 = "strongly agree" to 4 = "strongly disagree"), stratified by current smoking status	Currently smoke: -7.55 Formerly smoke: 7.81	NA	Currently smoke: *p* = 0.25 Formerly smoke: *p* = 0.75
Receipt of Lung Cancer Screening				
Bittner Fagan, 2020[25] Pre-post	Count (%) of recipients	9/20	0/8	NR
Bittner Fagan, 2023[26] Cohort Moderate	Count (%) of recipients within 1 year of SDM appointment	29/64 (45.3)	0/16 (0)	NR
DiCarlo, 2022[27] RCT Some concerns	Count (%) of recipients	33/599 (5.5)	31/1748 (1.8)	HR (95% CI): 3.28 (1.98, 5.41) *p* = 0.001
Percac-Lima, 2018[30]RCT Some concerns	Count (%) of recipients	94/400 (23.5)	69/800 (8.6)	P < 0.001
Receipt of Additional Tests/Procedures for Identified Findings				
Percac-Lima, 2018[30]RCT Some concerns	Count (%) of recipients	*"In the intervention group, 12 (12.8%) patients had Lung-RADS 3 findings and required a 6–month follow up compared to 6 (8.7%) in the control group. Seven (7.4%) in the intervention group and 6 (9.6%) in control patients had Lung-RADS 4 finding and required immediate follow-up...The number of additional diagnostic tests post-screening was similar in both groups: in the navigated group 2 patients had a PET CT, 3 repeat chest CT, 1 an abdominal CT, 1 brain MRI, and 1 patient had a mediastinoscopic biopsy. Among screened patients in the usual care group 4 had a PET CT, 5 repeat chest CT, and 1 an abdominal CT. Eight lung cancers were diagnosed in intervention patients (2%) compared to 4 in control patients (0.5%). Three patients (2 in the intervention group and 1 in the control group) were diagnosed with lung cancer after a screening CT and had surgical resection. One patient with stage 1 disease had only a surgical resection. Two patients with stage 3*		

Author, Year Study Design Risk of Bias	Measurement Instrument	Intervention	Comparator	Results
		disease received surgery followed by chemotherapy and chemotherapy with radiation. Six of nine cancers identified after a diagnostic chest CT were stage 4."		

Abbreviations. CI=confidence interval; CT=computed tomography; HR=hazard ratio; MRI=magnetic resonance imaging; NA=not applicable; NR=not reported; PET=positron emission tomography; RADS=Reporting and Data System; RCT=randomized controlled trial.

PATIENT-FACING TOOLS OR MATERIALS

TOOLS FOR PATIENT USE DURING OR PRIOR TO A SDM CLINIC VISIT

Appendix Table 5. Detailed Characteristics for Studies Evaluating Tools for Use During or Prior to an SDM Clinic Visit

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding Source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
Flores, 2021[32] Moderate Pre-post 0 days NR American Cancer Society Institutional Research Grant Award 128592-IRG-15-171-04	**Inclusion:** Ages 55 to 77 years, smoking history of ≥ 30 pack-years, or diagnosis of schizophrenia spectrum disorder or bipolar disorder **Exclusion:** Cognitive deficits severe enough to preclude a participant's ability to provide consent, presence of a guardian for medical decision making, history of lung cancer, or already enrolled in an LCS program	Two 30-minute educational sessions, one led by a radiologist focused on LCS, and one led by a mental health clinician focused on smoking cessation (later adapted into a single session) N = 15 **Age** Mean (SD): 61.3 (3.7) **Gender** Female: 40% **Race/Ethnicity** White: 86% Native American or Alaska Native: 14% Hispanic: 7% **Education** High school or greater: 53% **Insurance Status** Private: NR Public: 86% None: NR **Smoking Status** Current Smoker: 67% Pack years, mean (SD): NR **Clinic**	NA	**Distress/anxiety (0 days)** Author-developed question about their lung cancer worry **Quality of communication (0 days)** Author-developed question: "Overall, I was satisfied with the education sessions."

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding Source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
Mazzone, 2017[33] Moderate Pre-post 1 month NR None	**Inclusion:** Patients referred to lung cancer screening program by primary care or specialty provider **Exclusion:** NR; authors state that 7 patients were excluded for smoking history, 1 for their age, & 1 had undergone a CT scan in the past 12 months	Counselling and SDM visit including an author developed 6-min narrated video slideshow describing the benefits and harms of lung cancer screening with the use of a decision aid (http://www.shouldiscreen.com) N = 423 **Age** Mean (SD): 64.4 (NR) **Gender** Female: 33.9% **Race/Ethnicity:** NR **Education** High school or greater: 89.5% **Insurance Status:** NR **Smoking Status** Current Smoker: 45.2% Pack years, mean (SD): 53 (NR) **Clinic**	NA	**Receipt of lung cancer screening (1 mo)** Count **Quality of communication (1 mo)** Author-developed survey **Knowledge of screening benefits & harms (1 mo)** Author-developed survey
Sakoda, 2020[34] Moderate Pre-post 14 months NR National Cancer Institute (K07 CA188142)	**Inclusion:** Participants were class attendees from June 2017 to August 2018, who completed surveys administered immediately before and after the class **Exclusion:** NR	Patients attend a group education class led by clinician specialists before a personal shared decision making visit is scheduled. Key aspects, including the eligibility criteria and potential benefits and harms, are presented. A risk assessment is personalized and discussed at the SDM visit if a patient chooses to continue with screening. The importance of smoking abstinence is stressed to encourage current smokers to quit. Patient education materials and a decision worksheet handout are provided to support the learning process. N = 680	Screening eligible participants from the education class	**Knowledge of screening benefits & harms (14 mo)** Author-developed survey

Author, Year Risk of Bias Study Design Follow-Up Duration Trial ID Funding Source	Inclusion/Exclusion Criteria	Intervention: Detailed Intervention Characteristics Participants Randomized Demographics Setting	Comparator(s): Detailed Comparator Characteristics Participants Randomized Demographics Setting	Eligible Outcomes & Measures Reported (Time Points)
		Age Median (IQR): 64.3 (59, 69) **Gender** Female: 40.2% **Race/Ethnicity** Asian: 10.7% Black or African American: 3.9% White: 75.9% Hispanic: 6.9% **Education:** NR **Insurance Status:** NR **Smoking Status** Current Smoker: 54.7% Pack years, mean (SD): NR **Community**	N = 269 **Age** Median (IQR): 64 (60, 69) **Gender** Female: 40.2% **Race/Ethnicity** Asian: 7.8 % Black or African American: 2.3% White: 82.9% Hispanic: 6.2% **Education:** NR **Insurance Status:** NR **Smoking Status** Current Smoker: 50.9% Pack years, mean (SD): NR **Community**	
Schapira, 2023[19] Low RCT 9 months NCT02899754 Veteran's Affairs HSR&D (HX001898-01A2)	**Inclusion:** Age 55 to 80 years, active smokers or those who quit smoking within the past 15 years, history of at least 30 pack-years of smoking, and an upcoming appointment in primary care within 3 weeks **Exclusion:** A cancer diagnosis, except for nonmelanoma skin cancer or prostate cancer not requiring active treatment, and a primary care clinician assessment of life expectancy less than 2 years	Lung Cancer Screening Decision Tool (LCSDecTool) is an online tool that provides an overview of LCS using a simulated patient-clinician dialogue, interactive knowledge boxes, a pictograph representing LCS outcomes, a value elicitation exercise, smoking cessation advice, mental health resources, and the option to request a referral to a smoking cessation clinic or to a behavioral health clinician to support smoking cessation efforts N = 69	Web-based 10-page guide that provided general information on cancer prevention and the USPSTF screening guidelines for breast, colon, cervical, and lung cancer	**Receipt of lung cancer screening (9 mo)** Count (%) **Decisional conflict/regret (3 mo)** DCS total, decisional conflict scale developed by Brehaut et al. (stratified by race/ethnicity) **Distress/anxiety (3 mo)** State Trait Anxiety Index (stratified by race/ethnicity)

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding Source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
		Age Median (IQR): 64 (61, 69) **Gender** Female: 11.6% **Race/Ethnicity** Black or African American: 60.9% White: 37.7% Hispanic: 1.4% **Education** High school or greater: 95.7% **Insurance Status:** NR **Smoking Status** Current Smoker: 73.9% Pack years, median (IQR): 40.5 (35, 50) **Clinic**	N = 71 **Age** Median (IQR): 64 (62, 70) **Gender** Female: 4.2% **Race/Ethnicity** Black or African American: 46.5% White: 50.7% Hispanic: 4.2% **Education** High school or greater: 98.4% **Insurance Status:** NR **Smoking Status** Current Smoker: 57.7% Pack years, median (IQR): 45 (39, 54) **Clinic**	**Knowledge of screening benefits & harms (3 mo)** NR
Walsh, 2023[35] Some concerns RCT 2 months NCT03862001 Tobacco Related Diseases Research Program 26IR-0006; National Institute on Aging of the NIH award no. P30AG015272	**Inclusion:** Age 55-80, smoked at least 30 pack-years in lifetime, quit smoking within the last 15 years if a former smoker, English speaker, no prior history of lung cancer, did not have a lung cancer screening test within the last year, PCP does not object to patient's participation, and have a scheduled visit at University of California, San Francisco (UCSF) internal medicine clinics **Exclusion:** Speaking a language other than English, has a history of lung cancer, had a lung cancer screening test within the last year, and PCP objects to patient's participation (taken from clinicaltrials.gov)	LungCare was administered on a touch tablet in waiting room prior to primary care appt. The product includes a 5-minute animated video and a risk and preference assessment… After completion, the patient was provided 2 printed reports, 1) an individualized patient report and 2) an individualized report to hand to their physician designed to efficiently prompt patient-physician discussion N = 34 **Age** Mean (SD): 66.7 (6.3) **Gender** Female: 47% **Race/Ethnicity**	Usual care N = 32 **Age**	**Receipt of lung cancer screening (1 wk)** Count (%) **Knowledge of screening benefits & harms (1 wk)** Author-developed set of 10 true/false questions

Author, Year Risk of Bias Study Design Follow-Up Duration Trial ID Funding Source	Inclusion/Exclusion Criteria	Intervention: Detailed Intervention Characteristics Participants Randomized Demographics Setting	Comparator(s): Detailed Comparator Characteristics Participants Randomized Demographics Setting	Eligible Outcomes & Measures Reported (Time Points)
		Asian: 3% Black or African American: 29% White: 65% **Education** High school or greater: 89.5% **Insurance Status:** NR **Smoking Status** Current Smoker: 27% Pack years, mean (SD): NR **Clinic**	Mean (SD): 64.9 (5.7) **Gender** Female: 56% **Race/Ethnicity** Asian: 6% Black or African American: 31% White: 59% **Education** High school or greater: 94% **Insurance Status:** NR **Smoking Status** Current Smoker: 28% Pack years, mean (SD): NR **Clinic**	

Abbreviations. CT=computed tomography; DCS=Decisional Conflict Scale; EHR=electronic health record; HSR&D=Health Services Research & Development; IQR=interquartile range; LCS=lung cancer screening; Mo=month; NA=not applicable; NIH=National Institute of Health; NR=not reported; PCP=primary care provider; RCT=randomized controlled trial; SD=standard deviation; SDM=shared decision-making; USPSTF=United States Preventative Services Task Force; Wk=week.

Appendix Table 6. Detailed Results for Studies Evaluating Tools for Use During or Prior to an SDM Clinic Visit

Author, Year Study Design Risk of Bias	Measurement Instrument	Intervention	Comparator	Results
Quality of Communication				
Flores, 2021[32] Pre-post Moderate	Count (%) of participants who responded to the question: "Overall, I was satisfied with the education sessions."	Strongly agree or agree: 14/15 (93) Neither agree nor disagree: 1/15 (7)	NA	NR
Mazzone, 2017[33] Pre-post Moderate	Author-developed questionnaire	"Of the 66 patients who provided comments about the visit, 57 were positive (*eg*, “good presentation helped me to make an informed choice”; "Excellent! No unnecessary pressure—honest, highly intelligent, and sensitive to needs of my whole life”), and nine comments were negative (*eg*, “information regarding harms of screening is confusing”; “boring”)."	NA	NR
Decisional Conflict/Regret				
Schapira, 2023[19] RCT Low	DCS overall	Baseline mean (95% CI): NR Follow-up: 24.2 (20.8, 27.6)	Baseline mean (95% CI): NR Follow-up: 27.5 (23.3, 31.7)	-2.9 (-8.9, 3.0) P = 0.33
	DCS overall, stratified by race/ethnicity	Baseline mean (95% CI): NR Follow-up: 25.3 (20.5, 30.0)	Baseline mean (95% CI): NR Follow-up: 25.9 (19.5, 32.3)	-1.0 (-9.0, 7.1)
	A decisional conflict scale developed by Brehaut et al.	Baseline mean (95% CI): NR Follow-up: 32.5 (30.1, 35.0)	Baseline mean (95% CI): NR Follow-up: 34.3 (31.9, 36.7)	-2.0 (-5.6, 1.5) P = 0.26
	A decisional conflict scale developed by Brehaut et al., stratified by race/ethnicity	Baseline mean (95% CI): NR Follow-up: 32.9 (29.5, 36.2)	Baseline mean (95% CI): NR Follow-up: 32.7 (29.0, 36.3)	-0.5 (-5.5, 4.4) P = 0.83
Distress/Anxiety				
Flores, 2021[32] Pre-post Moderate	State Trait Anxiety Index	Baseline mean (SD): 1.8 (0.9) Follow-up: 2.4 (1.2)	NA	0.57 P = 0.03
Schapira, 2023[19] RCT Low	State Trait Anxiety Index	Baseline mean (95% CI): NR Follow-up: 36.6 (33.6, 39.7)	Baseline mean (95% CI): NR Follow-up: 38.2 (33.9, 42.4)	-0.7 (-5.1, 3.6) P = 0.74
	State Trait Anxiety Index, stratified by race/ethnicity	Baseline mean (95% CI): NR Follow-up: 36.5 (32.2, 40.8)	Baseline mean (95% CI): NR Follow-up: 36.0 (29.1, 43.0)	1.3 (-5.1, 7.6) P = 0.69
Receipt of Lung Cancer Screening				
Mazzone, 2017[33] Pre-post Moderate	Count (%) of recipients	400/423 (94.6)	NA	NR
Schapira, 2023[19] RCT Low	Count (%) of recipients	31/69 (44.9)	18/71 (25.4)	Between-group difference (95% CI): 18.8 (4.4, 33.2) P = 0.02
Walsh, 2023[35] RCT	Count (%) of recipients	11/34 (32)	4/32 (13)	P = 0.01

Author, Year Study Design Risk of Bias	Measurement Instrument	Intervention	Comparator	Results
Some concerns				
Knowledge of Screening Benefits and Harms				
Mazzone, 2017[33] Pre-post Moderate	Author-designed questionnaire	Authors do not report a composite knowledge score but instead report change in knowledge for age range, smoking, and benefits & harms of screening. They also report these results stratified by education level.	NA	NR
Sakoda, 2020[34] Pre-post Moderate	Author-designed questionnaire	"Response patterns were similar for those identified as screening-eligible, with slightly larger pre-post increases in the proportion of correct responses to most statements."		
Schapira, 2023[19] RCT Low	NR	Baseline mean (95% CI): NR Follow-up: 6.2 (5.6, 6.8)	Baseline mean (95% CI): NR Follow-up: 5.1 (4.4, 5.8)	1.1 (0.1, 2.0) P = 0.01
Walsh, 2023[35] RCT Some concerns	Author-developed questionnaire of 10 true/false questions	Baseline mean (SD): NR Follow-up: 6.5 (1.7)	Baseline mean (SD): NR Follow-up: 5.5 (1.4)	P < 0.01

Abbreviations. CI=confidence interval; DCS=Decisional Conflict Scale; NA=not applicable; NR=not reported; RCT=randomized controlled trial; SD=standard deviation; SDM=shared decision-making.

TOOLS OR MATERIALS FOR PATIENT EDUCATION ABOUT SCREENING AND TO POTENTIALLY GENERATE SDM VISITS

Appendix Table 7. Detailed Characteristics for Studies Evaluating Tools for Patient Education to Generate SDM

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
Carter-Harris, 2020[46] Some concerns RCT 3 months NR Indiana University Purdue University at Indianapolis Developing Diverse Researchers with Investigative Expertise Pilot Grant, American Cancer Society Institutional Research Grant, and Indiana University School of Nursing Pilot Grant	**Inclusion:** Ages 55-80 years, 30 pack-year tobacco smoking history, current smoker or former smoker who quit within the past 15 years, not diagnosed with a condition that would be contraindicated for lung cancer screening, and not diagnosed with lung cancer **Exclusion:** NR	LungTalk is a computer-tailored decision support tool (audio, video, and animation segments) that is designed to increase knowledge and awareness about the option to screen, or not, for lung cancer and to prepare screening-eligible individuals to engage in shared decision making about lung cancer screening with their clinician. Messages are tailored by smoking status. N = 31 **Age** Mean (SD): 61.2 (4.8) **Gender** Female: 52% **Race/Ethnicity** Black or African American: 19% White: 77% **Education** High school or greater: 97% **Insurance Status** Private: 37% Public: 50% None: NR **Smoking Status** Current Smoker: 51.6% Pack years, mean (SD): 47.6 (21.9) **Community**	Viewed generic information sheet online about lung cancer screening developed by the American Cancer Society N = 29 **Age** Mean (SD): 63.2 (5.5) **Gender** Female: 52% **Race/Ethnicity** Black or African American: 14% White: 88% **Education** High school or greater: 100% **Insurance Status** Private: 25% Public: 53% None: NR **Smoking Status** Current Smoker: 55.2% Pack years, mean (SD): 49.9 (16.6) **Community**	**Quality of communication (1 wk)** Author-developed questionnaire **Knowledge of screening benefits & harms (1 wk)** Knowledge of Lung Cancer and Lung Cancer Screening scale

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
Clark, 2022[45] Some concerns RCT 0 days NCT04432753 Health Resources & Services Administration–funded primary care research fellowship at the University of North Carolina at Chapel Hill (T32-HP14001)	**Inclusion:** 55–80-year-old current and former smokers who quit within the last 15 years with a 30 pack year minimum **Exclusion:** NR	A four-and-a-half-minute video decision aid, covering the benefit and harms of screening, including information on incidental findings which was 31 seconds in length N = 173 **Age** Mean (SD): 64.5 (6.5) **Gender** Female: 49.7% **Race/Ethnicity** Black or African American: 20.2% White: 69.4% Hispanic: 7.5% **Education** High school or greater: 96% **Insurance Status** Private: 29% Public: 71% None: 6.4% **Smoking Status** Current Smoker: 72.3% Pack years, mean (SD): NR **Community**	The control group viewed the same decision aid as the intervention arm however the information regarding incidental findings was not included N = 175 **Age** Mean (SD): 64.4 (6.1) **Gender** Female: 53.1% **Race/Ethnicity** Black or African American: 14.9% White: 76.6% Hispanic: 8% **Education** High school or greater: 96% **Insurance Status** Private: 34.1% Public: 60.9% None: 6.9% **Smoking Status** Current Smoker: 68.6% Pack years, mean (SD): NR **Community**	**Knowledge of screening benefits & harms (0 days)** Author-developed questionnaire
Crothers, 2016[23] Moderate Pre-post 0 days NR	**Inclusion:** Ages 50–74, current or former smokers for at least 20 pack-years **Exclusion:** Cognitive or language limitations (*eg*, expressive language limitations, non-English speaking) or known malignancy (except nonmelanoma skin cancers)	1) A web-based tool (www.shouldiscreen.com) and 2) an educational paper pamphlet (http://www.prevention.va.gov/preventing_diseases/screening_for_lung_cancer.asp) N = 45 **Age** Median (IQR): 61 (57, 61)	NA	**Knowledge of screening benefits & harms (0 days)** Author-developed questionnaire

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
Lung Cancer Discovery Grant from the American Lung Association, K05 CA104699, and by resources from the Veteran's Affairs Portland Health Care System		**Gender** Female: 29% **Race/Ethnicity** Asian: 4% Black or African American: 31% White: 58% Native American or Alaska Native: 2% Native Hawaiian or Other Pacific Islander: 4% Hispanic: 2% **Education** High school or greater: 73% **Insurance Status** Private: 11% Medicare: 67% Medicaid: 42% None: 2% **Smoking Status** Current Smoker: 76% Pack years, median (IQR): 37 (23, 54) **Clinic**		

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
Fraenkel, 2016[50] High RCT 0 days NR The National Science Foundation NSF SES-1047757; the National Institute of Arthritis and Musculoskeletal and Skin Diseases, part of the National Institutes of Health, under award number AR060231-01	**Inclusion:** English-speaking, not scheduled for follow-up of a pulmonary nodule, did not have a history of lung cancer **Exclusion:** NR	Numbers only N = 84 **Age** Mean (SD): 61.2 (9.4) **Gender** Female: 58.3% **Race/Ethnicity** White: 90.5% Hispanic: 4.8% **Education:** NR **Insurance Status:** NR **Smoking Status** Current Smoker: 11.9% Pack years, mean (SD): NR **Clinic**	Numbers + icon arrays N = 86 **Age** Mean (SD): 59.6 (8.7) **Gender** Female: 52.3% **Race/Ethnicity** White: 93% Hispanic: 5.8% **Education:** NR **Insurance Status:** NR **Smoking Status** Current Smoker: 5.8% Pack years, mean (SD): NR **Clinic** Numbers + a set of slides illustrating LDCT scans of 250 people in random order that displayed the number of normal scans, false-positive lung nodules, cancers found leading to a life saved, and cancers found leading to death despite treatment N = 83 **Age** Mean (SD): 61.8 (8.1) **Gender** Female: 51.8% **Race/Ethnicity** White: 92.8% Hispanic: 4.8% **Education** High school or greater: 73%	**Knowledge of screening benefits & harms (0 days)** Author-developed questionnaire

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
			Insurance Status: NR **Smoking Status** Current Smoker: 7.1% Pack years, mean (SD): NR **Clinic**	
Hoffman, 2018[40] Moderate Pre-post 0 days NCT02282969 Patient-Centered Outcomes Research Institute (PCORI) Award (CER-1306-03385) and The University of Texas MD Anderson Cancer Center Duncan Family Institute for Cancer Prevention and Risk Assessment, National Cancer Institute of the National Institutes of Health under Award Number R25CA057730, and by a Cancer Center Support Grant CA016672	**Inclusion:** English-speaking men and women aged 55 to 80 years with no history of lung cancer, who were current smokers or had quit within the past 15 years **Exclusion:** NR	A patient decision aid video, "Lung Cancer Screening: Is It Right for Me?" viewed online N = 31 **Age** Mean (SD): 61.5 (4.7) **Gender** Female: 50% **Race/Ethnicity** Black or African American: 30% White: 63.3% Hispanic: 3.3% **Education** High school or greater: 100% **Insurance Status** Private: 36.7% Public: 46.6% None: NR **Smoking Status** Current Smoker: 60.7% Pack years, mean (SD): 30.4 (18.9) **Clinic**	NA	**Decisional conflict/regret (0 days)** DCS – Values Clarity subscale **Participant need for additional information (0 days)** 10-point VAS – “How informed about lung cancer screening?” **Knowledge of screening benefits & harms (0 days)** 12-item measure
Lau, 2015[39] Low Pre-post	**Inclusion:** Current or former smokers, aged 45–80, with no previous history of lung cancer and no chest CT in the previous year at the time of recruitment	www.shouldiscreen.com (initial development study) N = 60 **Age**	NA	**Concordance of decision (0 days)** Ottawa Decision Support Framework

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
0 days NR Elizabeth A. Crary Fund of the University of Michigan Comprehensive Cancer Center	**Exclusion:** NR	Mean (SD): 60.6 (7.3) **Gender** Female: 50% **Race/Ethnicity** Black or African American: 12% White: 88% **Education** High school or greater: 98% **Insurance Status:** NR **Smoking Status** Current Smoker: 27% Pack years, mean (SD): 24.1 (23.9) **Community**		**Decisional conflict/regret (0 days)** DCS **Knowledge of screening benefits & harms (0 days)** Ottawa Decision Support Framework
Lau, 2021[38] Low Pre-post 6 months NR The National Cancer Institute under award no. P30CA046592; the University of Michigan Rogel Cancer Center, Cancer Control and Population Sciences Research Program: Outreach and Health Disparities Grant; Career Development Award from Veterans Affairs' Health Services Research and Development Service (CDA 16-151)	**Inclusion:** African American community members from the east side of Detroit, MI, current/former smokers, aged 45-77 years, did not have a history of lung cancer, and did not participate in any prior testing of the tool **Exclusion:** NR	A modified version of shouldiscreen.com, a web-based decision aid, was used to include the following: basic information about low-dose computed tomography screening, education about lung cancer risk factors, and a lung cancer risk calculator that computes a personalized risk based on the PLCOm2012 model N = 74 **Age** Mean (SD): 62.7 (6.8) **Gender** Female: 48.6% **Race/Ethnicity** Black or African American: 100% **Education** High school or greater: 80.9% **Insurance Status:** NR **Smoking Status** Current Smoker: 68.9% Pack years, mean (SD): NR	NA	**Concordance of decision (0 days)** Determined by the first question from the DCS: Which option do you prefer? A) I prefer to screen; B) I prefer not to screen; C) Unsure **Decisional conflict/regret (0 days)** DCS **Knowledge of screening benefits & harms (0 days)** Derived from the 10-item Ottawa Decision Support Framework

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
Reuland, 2018[47] Low Pre-post 3 months NCT03077230 Grant from NCI (P30-CA16086) to the Lineberger Comprehensive Cancer Center, and the Cancer Prevention and Control Intervention Research, an initiative of the University Cancer Research Fund and the UNC Lineberger Comprehensive Cancer Center, the North Carolina Translational and Clinical Sciences Institute at the University of North Carolina (Grant No. 1UL1TR001111; UNC IRB#s 14–1813 and 14–2012)	**Inclusion:** Active patients at an academic internal medicine practice ages 55–80 who were current or former smokers **Exclusion:** Patients with lung cancer, cancer treatment with chemotherapy or radiation withinn18 months; recent hemoptysis or unexplained weight loss, or any chest CT within 18 months; those who clearly did not meet USPSTF smoking history requirements; & those deemed inappropriate for screening based on comorbidities	SAILS Decision Aid (https://vimeo.com/192026567/7754172812) - Participants viewed the 6-min video at the clinic on a tablet computer N = 50 **Age** Mean (SD): 63 (NR) **Gender** Female: 48% **Race/Ethnicity** Black or African American: 30% White: 58% **Education** High school or greater: 50% **Insurance Status** Private: 28% Public: 38% None: 8 % **Smoking Status** Current Smoker: 46% Pack years, mean (SD): 52 (NR) **Clinic**	NA	**Receipt of lung cancer screening (3 mo)** Count **Receipt of additional tests/procedures for identified findings (3 mo)** Count **Knowledge of screening benefits & harms (0 days)** Author-developed questionnaire
Robichaux, 2023[48] Low RCT 6 months NR National Institutes of Health's National Heart, Lung, and Blood Institute grant T32 HL007741 23	**Inclusion:** Age 50-80 years old with current or past commercial tobacco smoking documented in the electronic health record **Exclusion:** Received a CT (low dose or otherwise) of the chest in the last 12 months	All participants were mailed a letter from the clinic indicating they may be eligible for a new health service along with instructions for scheduling an appointment, a clinic-logo branded facemask, and a LCS brochure. Posts were also made on existing social media accounts for the clinic about LCS. Patients in the intensive outreach group also receiving a follow-up text message and a second mailing that contained a bundle of traditional medicine and a story book about traditional tobacco that had been developed by the Great Lakes Inter-Tribal Council	All participants were mailed a letter from the clinic indicating they may be eligible for a new health service along with instructions for scheduling an appointment, a clinic-logo branded facemask, and a LCS brochure. Posts were also made on existing social media accounts for the clinic about LCS	**Receipt of lung cancer screening (6 mo)** Count of scans ordered and completed

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
(CR), the National Center for Advancing Translational Science grant UL1TR002494 (AB), and the University of Minnesota Program in Health Disparities Research		N = 234 **Age** Mean (SD): 61.3 (7.6) Median (IQR): 60 (44, 79) **Gender** Female: 57.3% **Race/Ethnicity** Native American or Alaska Native: 100% **Education:** NR **Insurance Status** Private: 0% Public: 70.5% None: NR **Smoking Status** Current Smoker: 62.4% Pack years, mean (SD): NR **Locality** Rural: 3% **Clinic**	N = 235 **Age** Mean (SD): 60.5 (7.2) Median (IQR): 59 (50, 78) **Gender** Female: 57.4% **Race/Ethnicity** Native American or Alaska Native: 100% **Education:** NR **Insurance Status** Private: 0% Public: 71.1% None: NR **Smoking Status** Current Smoker: 62.6% Pack years, mean (SD): NR **Locality** Rural: 2.5% **Clinic**	
Sharma, 2018[49] High RCT 4 months NR A fellowship by the Cancer Prevention and Research Institute of Texas grant award, RP170259; and by the MD Anderson Cancer Center	**Inclusion:** Callers to the New York State Smokers Quitline (NYSSQL) who resided in New York state but outside of Erie and Niagara counties, current/former smokers, ages of 55-79, had a smoking history of at least 30-pack-years or quit smoking within the past 15 years, agreed to be re-contacted for a 4-month follow-up survey, and able to communicate in English	A brochure about LCS with a tear-off feature to promote contact with their health care provider, along with in-depth messaging regarding LCS over the telephone from quit line staff N = 500 **Age** Mean (SD): NR (6.3) Median (IQR): 62 (NR) **Gender** Female: 54.2% **Race/Ethnicity**	The same brochure about LCS with a tear-off feature to promote contact with their health care provider N = 500 **Age** Mean (SD): NR (5.6) Median (IQR): 61 (NR) **Gender** Female: 53.2%	**Receipt of lung cancer screening (4 mo)** Count

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
Support Grant, CA016672, funded by the National Cancer Institute	**Exclusion:** NR	Black or African American: 12% White: 67.6% Hispanic: 7.4% **Education:** NR **Insurance Status** Private: 17.4% Public: 77.8% None: NR **Smoking Status** Current Smoker: 72.2% Pack years, median (SD): 45.0 (20.1) **Community**	**Race/Ethnicity** Black or African American: 12% White: 68.8% Hispanic: 5.2% **Education:** NR **Insurance Status** Private: 18.4% Public: 72.2% None: NR **Smoking Status** Current Smoker: 72.2% Pack years, median (SD): 45.0 (21.4) **Community**	
Strong, 2020[43] Low Pre-post 0 days NR NR	**Inclusion:** Adults living in the Commonwealth of Virginia, ages of 55-77, current smokers or former smokers who quit in the past 15 years **Exclusion:** People who were never smokers, underwent lung cancer screening with LDCT, or had been diagnosed and/or treated for lung cancer	A Youtube educational video on lung cancer screening. Participants engaged in a single independent viewing. N = 31 **Age** Mean (SD): 60.9 (NR) Median (IQR): 59 (NR) **Gender** Female: 61.3% **Race/Ethnicity** Black or African American: 3.2% White: 93.5% **Education** High school or greater: 100% **Insurance Status** Private: NR Public: 35.5% None: NR **Smoking Status** Current Smoker: 35.5% Pack years, mean (SD): NR	NA	**Knowledge of screening benefits & harms (0 days)** LCS-12

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting** **Community**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
Studts, 2020[44] Moderate Pre-post 0 days NR Grant from the National Institutes of Health (R21CA139371) as well as assistance from the Behavioral and Community-Based Research Shared Resource Facility of the University of Kentucky Markey Cancer Center (P30CA177558)	**Inclusion:** English-speaking individuals 45 years of age or older who were former or current smokers with at least a 20 pack-year history and without a history of lung cancer **Exclusion:** NR	A brief educational narrative coupled with an exercise on decisional regret administered through a website N = 210 **Age** Mean (SD): 61.7 (8.46) **Gender** Female: 52% **Race/Ethnicity** Black or African American: 24% White: 46% Hispanic: 28% **Education** High school or greater: 88% **Insurance Status** Private: 67% Public: 59% None: NR **Smoking Status** Current Smoker: NR Pack years, mean (SD): 40.0 (20.1) **Community**	NA	**Decisional conflict/regret (0 days)** Modified DCS – LL Overall (stratified by age, race/ethnicity, SES/education, & current smoking status) **Participant need for additional information (0 days)** Modified DCS – LL Informed subscale

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
Volk, 2014[42] Moderate Pre-post 0 days NR NR	**Inclusion:** Patients from a tobacco treatment program at a large cancer center who had no history of lung cancer **Exclusion:** History of lung cancer	A 6-minute video "Lung Cancer Screening: Is It Right for Me?" intended to be used in the primary care setting. N = 52 **Age** Mean (SD): 58.5 (NR) **Gender** Female: 65.4% **Race/Ethnicity** Black or African American: 19.2% White: 74.8% Hispanic: 6% **Education:** NR **Insurance Status:** NR **Smoking Status** Current Smoker: 44.2% Pack years, mean (SD): 30.0 (NR) **Clinic**	NA	**Quality of communication (0 days)** Author-developed questionnaire **Knowledge of screening benefits & harms (0 days)** Author-developed knowledge questionnaire

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
Volk, 2020[41] Low RCT 6 months NCT02286713 Award CER-1306-03385 from the Patient-Centered Outcomes Research Institute; award P30CA016672 from the National Institutes of Health, National Cancer	**Inclusion:** Tobacco quit line clients from 13 states (ages 55-77 years) who reported a 30-plus pack-year smoking history **Exclusion:** Clients with a history of lung cancer	A 9.5-minute narrated video, Lung Cancer Screening: Is It Right for Me? It included information about eligibility and smoking history, lung cancer epidemiology and risk factors, undergoing a CT scan, depictions of the magnitude of mortality reduction, harms, and smoking cessation N = 259 **Age:** NR **Gender** Female: 60.6% **Race/Ethnicity** Black or African American: 23.9% White: 71.4% Native Hawaiian or Other Pacific Islander: 0% Hispanic: 2.7% **Education** High school or greater: 84.2% **Insurance Status** Private: NR Public: NR None: 7.7% **Smoking Status** Current Smoker: NR Pack years, mean (SD): 47.0 (NR) **Community**	Standard education N = 257 **Age:** NR **Gender** Female: 63.4% **Race/Ethnicity** Black or African American: 29.6% White: 68.9% Native Hawaiian or Other Pacific Islander: 0.4% Hispanic: 0.4%% **Education** High school or greater: 86.1% **Insurance Status** Private: NR Public: NR None: 7.7% **Smoking Status** Current Smoker: NR Pack years, mean (SD): 49.0 (NR) **Community**	**Receipt of lung cancer screening** **(6 mo)** Count **Quality of communication** **(1 wk)** Author-developed questionnaire adapted from the Ottawa Acceptability Measure **Decisional conflict/regret** **(1 wk)** DCS – Informed & Values Clarity subscales **Knowledge of screening benefits & harms (6 mo)** Questionnaire developed by Lowenstein et al.
Webster, 2023[37] High RCT 4 months	**Inclusion:** 50–80 years old, a 20+ pack-year smoking history, English-speaking, never screened or screened ≥12 months ago for lung cancer, no history of lung cancer, no household members enrolled in the study, and	Patients were provided with a link to shouldiscreen.com (via text, email or mail) when they contacted the quit line for smoking cessation N = 146 **Age**	Patients were provided with a print LCS brochure (via mail or email) when they contacted the quit line for smoking cessation N = 152 **Age**	**Receipt of lung cancer screening** **(4 mo)** Count **Quality of communication (NR)** Author-developed measure

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
NCT05046951 American Lung Association, #686977	willing to be contacted by research staff about trial participation **Exclusion:** NR	Mean (SD): 61.6 (6.8) **Gender** Female: 64.4% **Race/Ethnicity** Black or African American: 52.1% White: 40.4% Hispanic: 1.4% **Education** High school or greater: 78.7% **Insurance Status** Private: 30.9% Public: 55.4% None: 1.4% **Smoking Status** Current Smoker: 100% Pack years, mean (SD): 64.0 (37.4) **Community**	Mean (SD): 61.8 (5.8) **Gender** Female: 67.8% **Race/Ethnicity** Black or African American: 56.3% White: 41.7% Hispanic: 2% **Education** High school or greater: 75% **Insurance Status** Private: 22.1% Public: 52.3% None: 7.4% **Smoking Status** Current Smoker: 100% Pack years, mean (SD): 63.0 (34.7) **Community**	**Decisional conflict/ regret (1 mo, 4 mo)** Health Care Decisions scale **Satisfaction with decision (1 mo, 4 mo)** 5-point Likert scale **Participant need for additional information (NR)** Author-developed measure **Distress/anxiety (NR)** Author-developed measure **Knowledge of screening benefits & harms (1 mo, 4 mo)** Author-developed measure with 9 true/false questions

Abbreviations. CT=computed tomography; DCS=Decisional Conflict Scale; DCS-LL=Decisional Conflict Scale – Low Literacy; IQR=interquartile range; LCS=lung cancer screening; LDCT=low-dose computed tomography; Mo=month; NA=not applicable; NCI=National Cancer Institute; NR=not reported; RCT=randomized controlled trial; SD=standard deviation; SES=socioeconomic status; UNC=University of North Carolina; USPSTF=United States Preventative Services Task Force; VAS=visual analog scale; Wk=week.

Appendix Table 8. Detailed Results for Studies Evaluating Tools for Patient Education to Generate SDM

Author, Year Study Design Risk of Bias	Measurement Instrument	Intervention	Comparator	Results
Quality of Communication				
Carter-Harris, 2020[46] RCT Some concerns	Author-developed questionnaire	Satisfaction n (%)* Not at all satisfied: 0 (0) Somewhat satisfied: 1 (3) Satisfied: 7 (23) Very satisfied: 22 (73) Preparedness n (%)* Somewhat prepared: 4 (13) Prepared: 10 (33) Very prepared: 16 (53)	Satisfaction n (%)* Not at all satisfied: 1 (3) Somewhat satisfied: 4 (14) Satisfied: 16 (55) Very satisfied: 8 (28) Preparedness n (%)* Somewhat prepared: 6 (21) Prepared: 6 (21) Very prepared: 17 (59)	"Satisfaction with the LungTalk intervention was significantly higher than with the nontailored lung screening information sheet. Individuals in both groups felt "prepared" or "very prepared" to have a discussion with their clinician about lung screening, with no significant differences between the 2 intervention groups on preparedness (*p*=0.52)."
Volk, 2014[42] Pre-post Moderate	Author-developed questionnaire	"More than 94% of patients viewed the entire video, would recommend it to others, felt it held their interest, and wanted to view similar videos about health care decisions. Ratings of the amount of information in the aid, length, and clarity were highly favorable. Most patients (78.8%) believed that people would be more interested in screening after viewing the decision aid."	NA	--
Volk, 2020[41] RCT Low	Author-developed questionnaire adapted from the Ottawa Acceptability Measure	"Only 10 of 228 participants (4.4%) felt that the PDA was too long, whereas 53 of 228 (23.2%) wanted more information. In addition, 198 of 227 participants (87.2%) indicated that the PDA included enough information to help a person make a decision about lung cancer screening."	--	NR
Webster, 2023[37] RCT High	Author-developed questionnaire	"Did you find that any parts of the materials were confusing or difficult to understand? n (%) A little bit: 34 (29.8) Moderately: 4 (3.5) Extremely: 0 (0) "Did the materials prepare you to talk to your doctor about what matters most to you?" n (%) Not at all: 9 (5)	"Did you find that any parts of the materials were confusing or difficult to understand?" n (%) A little bit: 19 (21.1) Moderately: 4 (4.4) Extremely: 0 (0) "Did the materials prepare you to talk to your doctor about what matters most to you?" n (%) Not at all: 10 (4.4)	"No significant group differences"

Author, Year Study Design Risk of Bias	Measurement Instrument	Intervention	Comparator	Results
Decisional Conflict/Regret				
Hoffman, 2018[40] Pre-post Moderate	DCS - Values Clarity Subscale (0="feels extremely clear about personal values" to 100="feels extremely unclear about personal values"	Baseline mean (SD): NR Follow-up: 3.9 (NR)	NA	NR
Lau, 2015[39] Pre-post Low	DCS (0=no decisional conflict to 100=extremely high decisional conflict)	Baseline mean (SD): 46.3 (29.7) Follow-up: 15.1 (25.8)	NA	P < 0.001
Lau, 2021[38] Pre-post Low	DCS (0=no decisional conflict to 100=extremely high decisional conflict)	Baseline mean (SD): 17.5 (11.4) Follow-up: 8.9 (9.6)	NA	8.6 P < 0.001
Studts, 2020[44] Pre-post Moderate	Modified DCS-LL Overall	Baseline mean (SD): 47.6 (27.2) Follow-up: 18.3 (22.2)	NA	29.3 P < 0.0001
Volk, 2020[41] RCT Low	DCS: Informed Subscale (0=feels extremely informed to 100=feels extremely uninformed)	Baseline mean (95% CI): NR Follow-up: 27.1 (23.8, 30.4)	Baseline mean (95% CI): NR 42.1 (38.1, 46.0)	-14.9 (-20.1, -9.7) P < 0.001
	DCS - Values Clarity Subscale (0="feels extremely clear about personal values" to 100="feels extremely unclear about personal values"	Baseline mean (95% CI): NR Follow-up: 17.6 (14.2, 21.0)	Baseline mean (95% CI): NR Follow-up: 31.7 (27.4, 35.9)	-14.1 (-19.5, -8.7) P < 0.001
Webster, 2023[37] RCT High	Satisfaction with Decisions scale (1=low satisfaction to 5=high satisfaction)	Baseline mean (SD): 2.9 (1.1) 1 mo follow-up: 3.2 (1.0) 4 mo follow-up: 3.2 (0.9)	Baseline mean (SD): 2.7 (1.1) 1 mo follow-up: 3.2 (1.1) 4 mo follow-up: 3.2 (1.1)	"No significant group differences"
Concordance of Decision With Patients' Values & Preferences				
Lau, 2015[39] Pre-post Low	Ottawa Decision Support Framework – Participants who preferred to be screened & were eligible for screening + participants who did not wish to be screened & not eligible for screening	Baseline n (%): 14 (23.7) Follow-up: 35 (59.3)	NA	P < 0.001
Lau, 2021[38] Pre-post Low	Determined by the first question from the Decisional Conflict Scale: Which option do you prefer? A) I	Baseline mean (SD): 0.21 (0.41) Follow-up: 0.33 (0.47)	NA	0.12 P < 0.016

Author, Year Study Design Risk of Bias	Measurement Instrument	Intervention	Comparator	Results
	prefer to screen; B) I prefer not to screen; C) Unsure			
Distress/Anxiety				
Webster, 2023[37] RCT High	Author-developed question: "Did the materials make you nervous or fearful about either LCS or about lung cancer?"	N (%) Only a little: 26 (22.8) Somewhat: 18 (15.8) Very much: 18 (15.8)	N (%) Only a little: 28 (31.1) Somewhat: 9 (10) Very much: 10 (11.1)	"No significant group differences"
Receipt of Lung Cancer Screening				
Reuland, 2018[47] Pre-post Low	Count (%) of recipients	10/50 (20)	NA	NR
Robichaux, 2023[48] RCT Low	Count (%) of scans ordered and completed	18/234 (7.7)	22/235 (9.4)	P = 0.63
Sharma, 2018[49] RCT High	Count (%) of participants who received LCS	23/500 (4.6)	18/500 (3.6)	P = 0.68
Volk, 2020[41] RCT Low	Count (%) of participants who received LCS	57/259 (22)	68/257 (26.5)	NR
Webster, 2023[37] RCT High	Completed LDCT	11.0%	11.2%	P > 0.8
Receipt of Additional Tests/Procedures for Identified Findings				
Reuland, 2018[47] Pre-post Low	Count of recipients	"One [LungRADS] was category 4a... [and] the recommended 3-month follow-up scan showed resolution of the nodule."	NA	NR
Knowledge of Screening Benefits and Harms				
Carter-Harris, 2020[46] RCT Some concerns	Knowledge of Lung Cancer and Lung Cancer Screening scale (higher score=higher knowledge)	Baseline mean (SD): 3.9 (1.5) Follow-up: 6.3 (1.3) Within-group difference: 2.4 (1.5), P < 0.01	Baseline mean (SD): 3.7 (1.5) Follow-up: 4.8 (1.3) Within-group difference: 1.1 (1.2), P < 0.01	NR
Clark, 2022[45] RCT Some concerns	Author-developed questionnaire (5 true/false questions & 1 multiple choice question)	Baseline mean (SD): NR Follow-up: 5.3 (NR) Difference: 2.8	Baseline mean (SD): NR Follow-up: 5.1 (NR) Difference: 2.6	NR

Author, Year Study Design Risk of Bias	Measurement Instrument	Intervention	Comparator	Results
		N (%) of participants who answered questions correctly 164/173 (94.8)	N (%) of participants who answered questions correctly 129/175 (73.5)	95% CI: -28.4, -13.8% P < 0.01
Crothers, 2016[23] Pre-post Moderate	Author-developed questionnaire (20 true/false questions)	--	NA	"Most notable was improvement in knowledge about possible harms associated with screening: the proportion answering these items correctly increased from 69 to 93% overall (P = 0.002)… However, knowledge of benefits did not change as much. More participants endorsed that screening lowered one's chances of "getting lung cancer" at the end of the focus group discussions, increasing from 25% before to 50% after focus group attendance."
Fraenkel, 2015[50] RCT High	Author-developed questionnaire (3 multiple choice questions)	Numbers only Within-group difference in model-estimated mean (SE): 0.7 (0.01)	Numbers + icon array Within-group difference in model-estimated mean (SE): 1.2 (0.01) Numbers + slides Within-group difference in model-estimated mean (SE): 1.0 (0.01)	"Average knowledge differed between the 3 formats (overall difference between means, P = 0.001). Knowledge was greater in the numbers + icon array and the numbers + experience formats when compared with the numbers-only format (difference between means [95% CI]= 0.5 [0.2–0.7] and 0.3 [0.01–0.6], respectively)."
Hoffman, 2018[40] Pre-post Moderate	LCS-12 (12 true/false questions; overall maximum score=12)	Baseline mean (SD): 5.7 (NR) Follow-up: 9.6 (NR)	NA	3.9 (2.9) P < 0.001
Lau, 2015[39] Pre-post Low	Ottawa Decision Support Framework (overall maximum score=14)	Baseline mean (SD): 7.5 (1.9) Follow-up: 10.9 (2.2)	NA	NR
Lau, 2021[38] Pre-post Low	Derived from the 10-item Ottawa Decision Support Framework (overall maximum score=13)	Baseline mean (SD): 5.7 (1.9) Follow-up: 7.1 (2.3)	NA	1.4 P < 0.001
Reuland, 2018[47] Pre-post Low	9-item author-developed questionnaire (overall maximum score=9)	Baseline mean (SD): 2.6 (NR) Follow-up: 5.5 (NR)	NA	2.8 (95% CI 2.1, 2.6) P < 0.001
Strong, 2020[43] Pre-post Low	LCS-12 (12 true/false questions; overall maximum score=12)	Baseline mean (SD): 5.3 (2.9) Follow-up: 8.2 (2.0)	NA	-2.9 (96% CI -3.9, -1.9) t-test score: -5.96

Author, Year Study Design Risk of Bias	Measurement Instrument	Intervention	Comparator	Results
Volk, 2014[42] Pre-post Moderate	11-item author-developed knowledge measure	Baseline mean (SD) % of correct responses: 25.5% (20.7) Follow-up: 74.8% (20.2)	NA	Authors do not report an overall p-value, but do report p-values at the individual question level ($p < 0.01$ for each question)
Volk, 2020[41] RCT Low	16-item questionnaire developed by Lowenstein et al.	Mean (95% CI) no. of correct responses: 49.9 (47.5, 52.3)	Mean (95% CI) no. of correct responses: 40.0 (37.6, 42.4)	9.9 (95% CI 6.5, 13.3) P < 0.001
Webster, 2023[37] RCT High	Author-developed questionnaire (based on literature; 9 true/false questions)	Baseline mean (SD) percent correct: 62.7 (14.3) 1 mo follow-up: 67.0 (15.0) 4 mo follow-up: 66.4 (12.9)	Baseline mean (SD) percent correct: 63.4 (14.3) 1 mo follow-up: 64.5 (14.4) 4 mo follow-up: 65.7 (12.4)	NR
Satisfaction With Decision				
Webster, 2023[37] RCT High	5-point Likert – "To what extent is this statement true for you at this time: 'I am satisfied with my decision about whether to undergo screening or not.'"	"Strongly agree or agree" Baseline n (%): NR 1 mo follow-up: 110 (93.2) 4 mo follow-up: 99 (90.8) "Neither agree/disagree, disagree, or strongly disagree" Baseline n (%): NR 1 mo follow-up: 8 (6.8) 4 mo follow-up: 7 (6.6)	"Strongly agree or agree" Baseline n (%): NR 1 mo follow-up: 96 (85.7) 4 mo follow-up: 93 (86.1) "Neither agree/disagree, disagree, or strongly disagree" Baseline n (%): NR 1 mo follow-up: 16 (14.3) 4 mo follow-up: 15 (13.9)	$p < 0.10$ at 4 months print vs. web
Participant Need for Additional Information				
Hoffman, 2018[40] Pre-post Moderate	10-point VAS, "How informed do you feel about lung cancer screening?"	Baseline mean (SD): NR Follow-up: 8.7 (1.6)	NA	NR
Studts, 2020[44] Pre-post Moderate	Modified DCS-LL Informed (2 questions; lower scores = more informed)	Baseline mean (SD): 52.2 (30.5) Follow-up: 16.9 (24.5)	NA	35.3 P < 0.0001
Webster, 2023[37] RCT High	Count (%) of participants who answered the question, "Would you say that the materials contained…" with the response 'too little information'	5 (5.6)	6 (5.3)	"No significant group differences"

Notes. *Percentages may not add to 100% due to rounding.

Abbreviations. CI=confidence interval; DCS=Decisional Conflict Scale; DCS-LL=Decisional Conflict Scale – Low Literacy; LCS=lung cancer screening; LDCT=low-dose computed tomography; Lung-RADS=Lung CT Screening Reporting & Data System; NA=not applicable; NR=not reported; PDA=patient decision aid; RCT=randomized controlled trial; SD=standard deviation; SE=standard error; VAS=visual analog scale.

OTHER STUDIES EVALUATING SDM FOR LUNG CANCER SCREENING

Appendix Table 9. Detailed Characteristics for Other Studies Evaluating SDM for Lung Cancer

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding Source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
Goodwin, 2020[54] High Cohort 3 months NR Cancer Prevention and Treatment Institute of Texas grant RP160674	**Inclusion:** A 20% random sample of national Medicare data to determine enrollees aged 55 to 80 years who had a separate visit for SDM (Current Procedural Terminology [CPT] code G0296) from January 1, 2016, to September 30, 2018, with complete insurance enrollment 1 year prior **Exclusion:** NR	SDM conversation (with different types of clinician specialties (family practice, internal medicine, pulmonary radiologist, nurse practitioner, physician assistant, other) N = 11,699 **Age:** NR **Gender** Female: 46.9% **Race/Ethnicity** Black or African American: 6% White: 90.9% Hispanic: 2% **Education:** NR **Insurance Status** Private: NR Public: 78.5% None: NR **Smoking Status:** NR **Clinic**	LDCT scan only N = 7522 **Age:** NR **Gender** Female: 48.4% **Race/Ethnicity** Black or African American: 6% White: 88.4% Hispanic: 2% **Education:** NR **Insurance Status** Private: NR Public: 79.3% None: NR **Smoking Status**: NR **Clinic**	**Receipt of lung cancer screening (3 mo)** Count (%) (stratified by race/ethnicity & clinical setting)

Author, Year **Risk of Bias** **Study Design** **Follow-Up Duration** **Trial ID** **Funding Source**	**Inclusion/Exclusion Criteria**	**Intervention:** **Detailed Intervention Characteristics** **Participants Randomized** **Demographics** **Setting**	**Comparator(s):** **Detailed Comparator Characteristics** **Participants Randomized** **Demographics** **Setting**	**Eligible Outcomes & Measures Reported (Time Points)**
Studts, 2023[53] Moderate Cohort 15 months NR NR	**Inclusion:** "The extracted Colorado All Payer Claims Database (APCD) dataset included all health claims, procedural codes, and dates of services from January 1, 2012, to December 31, 2018, for individuals with claims for a LCS specific low-dose computed tomography scan (LDCT), with the use of International Classification of Diseases (ICD) codes S8032 and G0297... This analysis was limited to individuals who had an index LDCT prior to October 1, 2017, with a complete 15 months of follow-up time available in the Colorado APCD dataset. Individuals with a SDM claim within 90 days preceding the index LDCT, identified with an ICD code of G0296, were classified as having had a SDM consultation." Exclusion: NR	Documentation of a SDM consultation (ICD code G0296) N = 2476 **Age:** NR **Gender** Female: 45% **Race/Ethnicity:** NR **Education:** NR **Insurance Status** Private: 30% Public: 70% None: NR **Smoking Status:** NR **Locality** Rural: 3% **Clinic**	No documentation of a SDM consultation N = 4717 **Age:** NR **Gender** Female: 48% **Race/Ethnicity:** NR **Education:** NR **Insurance Status** Private: 22% Public: 78% None: NR **Smoking Status:** NR **Locality** Rural: 8% **Clinic**	**Adherence to subsequent screening (15 mo)** Count (%) of participants with complete follow-up who had an SDM claim

Abbreviations. LDCT=low-dose computed tomography; Mo=month; NR=not reported; SDM=shared decision-making..

Appendix Table 10. Detailed Results for Included Other Studies Evaluating SDM for Lung Cancer

Author, Year Study Design Risk of Bias	Measurement Instrument	Intervention	Comparator	Results
Receipt of Lung Cancer Screening				
Goodwin, 2020[54] Cohort High	Count (%) of recipients	7522/11699 (64.3)	NA	NR
	Count (%) of Black/African American recipients	710/11699 (6.1)	447/7522 (5.9)	LDCT rate (95% CI): 63.0 (59.3, 66.5) OR (95% CI): 0.87 (0.72, 1.06)
	Count (%) of Hispanic recipients	229/11699 (2)	144/7522 (1.9)	LDCT rate (95% CI): 62.9 (56.3, 69.2) OR (95% CI): 0.86 (0.62, 1.20)
	Adjusted odds ratios (95% CI) for receipt of LDCT by type of clinician conducting the SDM (vs family practice)	--	--	Internal medicine: 1.18 (1.01-1.36) Pulmonary: 0.84 (0.70-1.01) Radiologist: 9.09 (4.16-19.85) Nurse practitioner: 1.70 (1.42-2.05) Physician assistant: 1.40 (1.08-1.80) Other: 1.27 (0.97-1.66)
Adherence to Subsequent Screening				
Studts, 2023[53] Cohort Moderate	Count (%) of participants with complete 15-months follow-up who had an SDM claim	178/2476 (7)	245/4717 (5)	“Individuals with a documented SDM consultation had 25% higher odds of adherence to annual LCS than those without SDM documentation (OR, 1.25; 95% CI, 1.01-1.54)."

Abbreviations. LCS=lung cancer screening; LDCT=low-dose computed tomography; NA=not applicable; NR=not reported; OR=odds ratio; SDM=shared decision-making.

STUDIES ASSESSING BARRIERS AND FACILITATORS

Appendix Table 11. Study Characteristics and Outcomes for Included Studies Evaluating Barriers and Facilitators of SDM and LCS

Sample Size Study Description	CFIR Domain → Construct	Barrier/Facilitator
Abubaker-Sharif, 2022[59] (High RoB)		
N=16 Physicians Qualitative interviews about SDM in general, used DCP to serve as an example decision aid to facilitate SDM	Innovation → Adaptability	"...crucial to take **patient health literacy** levels into account, having meaningful conversations with patients can be challenging...explaining downstream repercussions and risk of radiation, you really need to change and **tailor to somebody's understanding** of those effects."
		Suggestion that **tools should be available in multiple languages**
	Innovation → Complexity	Understanding the **importance of shared decision making and it's complexity** (involves patient education, the elicitation of personal values, and clarification of preference, knowing participant risk to help guide conversation)
		"Many interviewees felt that the **decision counseling process represents a standardized approach** to having a conversation about LCS that would help to ensure LCS information is presented and discussed with all patients."
	Inner Setting → Access to Knowledge and Information	**Physician knowledge**: increased education about LCS, more information about how to assess patient eligibility for LCS and refer eligible patients for screening services, who was responsible for contacting referred patients to schedule a screening appointment, and how patients could manage costs associated with screening.
	Inner Setting → Culture	"SDM about LCS is **challenging to implement in practice** with certain patients...it is not productive to suggest screening to some patients who have not been adherent to other cancer screening recommendations. For [receptive] patients...physicians realize that it is necessary to make time to address the need for annual screening, the safety of the screening exam, and the cost of LDCT."
	Individuals → Innovation Recipients	Perceived patient knowledge: **belief that patient awareness of LCS and screening guidelines is limited**.
		Patient Barriers to the Uptake of Lung Cancer Screening: **patient worries and concerns** about undergoing LCS (*eg*, they may not want to know); **engaging current smokers is especially challenging** ("the fear of finding lung cancer seems to be enough to prevent smokers from undergoing screening, but not enough to motivate them to stop smoking.")
Han, 2019[18] (Low RoB)		
N=17 Patients Pre-post study of SDM decision aid, interviews conducted on content	Individuals → Innovation Recipients	**Patients perceptions about personalized risk calculators** used in SDM tools: Disbelief of personalized cancer risk information; Uncertainty about personalized cancer risk information; Lack of influence of personalized risk information
Herbst, 2023[55] (Low RoB)		
N=15 Clinicians/ Leadership	Outer Setting → External Pressure → Performance Measurement Pressure	"**Perceived pressure** to demonstrate the value of the LCS coordinator role"
	Inner Setting → Access to Knowledge and Information	"Participants had **little or no knowledge** of VA's whole health initiative"

Sample Size Study Description	CFIR Domain → Construct	Barrier/Facilitator
Qualitative interviews conducted to inform SDM implementation plan	Inner Setting → Available Resources	"**Time constraints** in primary care"
	Inner Setting → Communications	"**Lack of communication** about LCS goals or structure…flexibility led to confusion about how to implement elements of the LCS program, including SDM"
	Inner Setting → Culture → Recipient Centeredness	**Limiting information about the harms of screening** ("Clinicians...emphasized the benefits of LCS and were careful not to share information that might make patients hesitant about screening.")
		Perceived value of LCS limiting need for SDM ("The data supports so strongly that [LCS] is beneficial, that it doesn't seem like there's much of a decision.")
		"Perception that **SDM is already happening**"
	Inner Setting → Relative Priority	Comparison to other preventive screenings ("...unaware of SDM being recommended for other screenings; therefore, **participants questioned its value for LCS**.)
		"**Insufficient priority of LCS** in relation to competing demands"
	Inner Setting → Structural Characteristics → IT Infrastructure	"No **systematic prompts** to trigger LCS discussions"
	Individuals → Capability	"**Conflation** of SDM and patient education"
	Individuals → Innovation Deliverers	"**Personal experiences** that influence their thinking about LCS" (*ie*, promote screening)
	Individuals → Innovation Recipients	Patients **not actively engaging** in the LCS conversation ("patients generally agree to LCS")
	Individuals → Need	Patient's **smoking history making LCS compulsory** ("patients' smoking history as the rationale to bypass SDM and proceed directly to LCS, despite guidelines recommending SDM for all patients eligible for LCS.")
Lowery, 2022[56] (High RoB)		
N=33 Physicians Investigating 2 different implementation strategies of Decision Precision	Innovation → Design	"Having to **input clinical data** on risk factors **into the tool** was seen as a significant barrier to tool use as it **added more time to the visit**."
	Outer Setting → External Pressure → Performance Measurement Pressure	"Most PCPs reported needing 1 to 2 minutes to discuss LCS but frequently voiced not having even 1 to 2 minutes during a visit because of…**organizational priorities (*eg*, performance measures)**."
	Inner Setting → Available Resources	"**Limited time in the clinic** was perceived as a key barrier by almost all the PCPs."
	Inner Setting → Relative Priority	"Most PCPs reported needing 1 to 2 minutes to discuss LCS but frequently voiced not having even 1 to 2 minutes during a visit because of **patient-specific needs that were a higher priority** (*eg*, acute complaints) …"
Martinez, 2022[57] (Low RoB)		
N=10/30 Providers/ Patients Qualitative interviews to understand how attitudes	Outer Setting → Local Attitudes	"...difficulties with the integration of LCS-LDCT ordering into the current EHR system noting that **key variables**, *eg*, smoking history, **are often missing or inaccurate**."
	Inner Setting → Available Resources	"Use of a **decision aid** handout **would benefit providers and patients**"
	Inner Setting → Structural Characteristics → IT Infrastructure	"...**difficulties with the integration** of LCS-LDCT ordering **into the current EHR** system..."

Sample Size Study Description	CFIR Domain → Construct	Barrier/Facilitator
and barriers impact effective implementation and uptake of screening	Individuals → Capability	**Provider difficulties with eligibility criteria**: "Because of the multiple criteria for LCS-LDCT, providers noted that they frequently had to take the time to look up eligibility criteria before recommending LCS-LDCT to patients."
	Individuals → Innovation Recipients	"Half of respondents felt strongly that the **most important factor** influencing their decision to do the screening was a **physician recommendation**."
		"A family medicine provider admitted that **patient's "probably [did] not" understand** all the pros and cons of screening."
		Frequency in which SDM about LSC should be attempted; which patients may be most receptive to screening.
Melzer, 2020[60] (Low RoB)		
N=24 Clinicians Qualitative interviews to examine current communication practices and barriers to SDM for LCS at facilities with established LCS programs	Innovation → Adaptability	Tailoring of information: "All clinicians agreed that **some degree of tailoring of information** was necessary but interpreted the idea of tailoring in different ways. The judgments that contributed to how clinicians tailored the communication were implicit; no clinician indicated that they ask a patient how much or what kind of information they preferred."
		Information exchange: All clinicians agreed that "adequate" information was a necessary part of the process and that **this information should be provided at the patient's level of health literacy**.
	Inner Setting → Available Resources	"Providers in all roles indicated that **time was a significant issue**, as SDM was perceived to be a lengthy process."
	Individuals → Innovation Recipients	Patient Values: Clinicians of all roles agreed that **ensuring a screening decision in line with a patient's values** is key
		"Lack of patient engagement in the process of decision making was a barrier identified by all clinician types. A large number of patients, particularly older patients, requested a firm recommendation."
		"All clinicians indicated that the screening decision rests with the patient and felt they made it clear that screening was optional. However, some clinicians noted a **perception that many patients "don't want a choice.**" Despite PCPs indicating that LCS is offered as a choice, LCS-Cs felt that many patients did not perceive it that way and **felt obligated to follow their PCP's recommendation**."
		Screening Decision and Anxiety: All but one PCP reported that **nearly all patients accept screening readily when offered.** PCPs felt that "decliners" were in two groups: decliners of screening tests in general and those who felt anxious or "(didn't want) to know" about lung cancer.
Reese, 2022[58] (Low RoB)		
N=14 Physicians Qualitative interviews conducted after physician-facing decision aid integrated into the EHR	Innovation → Evidence Base	"While many participants believed screening was important, several were **surprised by the low specificity of low-dose CT** scans and the **frequency with which false positive** findings result in unnecessary procedures and major complications."
	Innovation → Design	"Most participants thought **providing patients with access to an educational module**, possibly outside the encounter, **would enable shared decision making**."
	Outer Setting → External Pressure → Performance Measurement Pressure	"The **incentives and outcomes** of shared decision making were **conflicting**, due primarily to clinic **performance measures for screening**."
	Outer Setting → Local Attitudes	"Most participants perceived **smoking history documentation in the EHR as inaccurate** or insufficient for documenting and ordering low-dose CTs."
	Inner Setting → Available Resources	"While most participants believed that shared decision making should be used more often for a variety of cancer screenings, the **time required to have this type of conversation** during an encounter **was a primary barrier**."

Sample Size Study Description	CFIR Domain → Construct	Barrier/Facilitator
	Inner Setting → Relative Priority	"Most participants believed that **screening would not be the primary reason for the encounter** and that reminders would be needed to use the decision aid."
	Inner Setting → Structural Characteristics → IT Infrastructure	"Most participants thought they would use the decision aid to support shared decision making, if it was **integrated with the EHR** to obtain patient information. Furthermore, integrating the decision aid in the EHR would facilitate reminders, documentation, and patient education."
		"Most participants believed that screening would not be the primary reason for the encounter and that **reminders would be needed to use the decision aid**."
	Individuals → Capability	"A majority of participants were **unaware of reimbursement requirements** and were **concerned of insurance issues** with ordering a low dose CT."
Schapira, 2022[21] (High RoB)		
N=42 Veteran patients Usability study of the LCSDecTool, qualitative outcomes to implementation of this tool in VA clinics	Innovation → Design	"the LCSDecTool was generally easy to use; however, **specific navigation challenges** remained"
		"users sought **more detailed descriptions** about the LCS process, some noted **difficulty understanding medical terms** used in the LCSDecTool"
	Individuals → Innovation Recipients	**Negative affective responses** of using the tool (worry about cancer risk or learning about harms is scary), ease of understanding, genuineness of tool (scripted dialog), tool **evoked Veteran struggles with prior efforts at smoking cessation**
		"**Low baseline awareness and knowledge about LCS** that increased after use of the LCS decision support tool"
Wiener, 2018[22] (Moderate RoB)		
N=36/49 Clinicians/ Patients Qualitative interviews to characterize experiences of patients and clinicians from early adopting LCS programs	Innovation → Adaptability	Clinicians reported **variable degrees of information sharing with patients**, some offering comprehensive description while other provided limited information. Those who provided limited information did so for varying reasons: uncertain of patients comprehension; worried patients might be overwhelmed; some clinicians didn't provide harms information because of their own personal beliefs
	Individuals → Innovation Deliverers	Clinicians reported **mixed experiences with decision aids**. Some found that they facilitated discussion and improved patient comprehension, others believed decision aids with specific risk information served as a barrier to engaging patients.
	Individuals → Innovation Recipients	Clinicians discussed the **challenges of engaging patients in deliberation**
		Information Sharing, Patients: Echoing clinician reports, **patient accounts reflected a range of information received about LCS**. Some reported receiving minimal information (not told indication for CT, not told about harms and then experienced an unexpected outcome), while other reported successful information sharing.
		Patients also noted barriers to deliberation. Mirroring clinician accounts, some patients reported simply accepting their clinician's strong recommendation without significant deliberation, for some it evoked an emotional response, hindering engaging in deliberation. Others recalled successful deliberation, and felt questions and concerns were addressed.
		Many **patients did not mention decision aids** when recounting communication and decision-making about LCS. **Those who did reported mixed impressions**, some were positive and found decision aids useful while others found them excessively detailed and information on harms off-putting

Abbreviations. CFIR=Consolidated Framework for Implementation Research; CT=computed tomography DCP=Decision Counseling Program; EHR=electronic health record; IT=information technology; LCS=lung cancer screening; LCS-C=lung cancer screening coordinators; LDCT=low-dose computed tomography; PCP=primary care physicians; RoB=Risk of Bias; SDM=shared decision-making; VA=Veterans Affairs.

PEER REVIEW COMMENTS AND RESPONSES

Comment #	Reviewer #	Comment	Author Response
Are the objectives, scope, and methods for this review clearly described?			
1	1	Yes	
2	2	Yes	
3	3	Yes	
4	5	Yes	
5	6	Yes	
6	7	Yes	
7	8	Yes	
Is there any indication of bias in our synthesis of the evidence?			
8	1	No	
9	2	No	
10	3	No	
11	5	No	
12	6	No	
13	7	No	
14	8	No	
Are there any published or unpublished studies that we may have overlooked?			
15	1	No	
16	2	No	
17	3	No	
18	5	Yes - I'm aware of other studies related to barriers/facilitors for SDM 1. Crothers K, Kross E, Reisch LM, et al. Patients' Attitudes Regarding Lung Cancer Screening and Decision Aids: A Survey and Focus Group Study. Ann Am Thorac Soc. Sep 21 2016;doi:10.1513/AnnalsATS.201604-289OC 2. Eberth JM, McDonnell KK, Sercy E, et al. A national survey of primary care physicians: Perceptions and practices of low-dose CT lung cancer screening. Prev Med Rep. Sep 2018;11:93-99. doi:10.1016/j.pmedr.2018.05.013 3. Henderson LM, Benefield TS, Bearden SC, et al. Changes in Physician Knowledge, Attitudes, Beliefs, and Practices regarding Lung Cancer Screening. Ann Am Thorac Soc. Aug 2019;16(8):1065-1069. doi:10.1513/AnnalsATS.201812-867RL 4. Hoffman RM, Sussman AL, Getrich CM, et al. Attitudes and Beliefs of Primary Care Providers in New Mexico About Lung Cancer Screening Using Low-Dose	Thank you for the list of articles. Our search identified 8 of these articles, 2 of which (Crothers and Wiener) are detailed in our report. The remaining 6 were excluded at abstract screening as they addressed LCS as a whole and not specifically SDM for LCS, therefore were out of scope. One article (Henderson) was not captured by our search and we have reviewed. Similar to the other articles, it is outside of scope as it is focused on LCS as a whole and not SDM for LCS.

Comment #	Reviewer #	Comment	Author Response
		Computed Tomography. Prev Chronic Dis. Jul 09 2015;12:E108. doi:10.5888/pcd12.150112 5. Kanodra NM, Pope C, Halbert CH, Silvestri GA, Rice LJ, Tanner NT. Primary Care Provider and Patient Perspectives on Lung Cancer Screening. A Qualitative Study. Ann Am Thorac Soc. Nov 2016;13(11):1977-1982. doi:10.1513/AnnalsATS.201604-286OC 6. Simmons VN, Gray JE, Schabath MB, Wilson LE, Quinn GP. High-risk community and primary care providers knowledge about and barriers to low-dose computed topography lung cancer screening. Lung Cancer. Apr 2017;106:42-49. doi:10.1016/j.lungcan.2017.01.012 7. Triplette M, Kross EK, Mann BA, et al. An Assessment of Primary Care and Pulmonary Provider Perspectives on Lung Cancer Screening. Ann Am Thorac Soc. Jan 2018;15(1):69-75. doi:10.1513/AnnalsATS.201705-392OC 8. Volk RJ, Foxhall LE. Readiness of primary care clinicians to implement lung cancer screening programs. Prev Med Rep. 2015;2:717-9. doi:10.1016/j.pmedr.2015.08.014 9. Wiener RS, Koppelman E, Bolton R, et al. Patient and Clinician Perspectives on Shared Decision-making in Early Adopting Lung Cancer Screening Programs: a Qualitative Study. J Gen Intern Med. Jul 2018;33(7):1035-1042. doi:10.1007/s11606-018-4350-9	
19	6	No	Thank you.
20	7	No	Thank you.
21	8	Yes - https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2819704	Thank you, this article was published after our initial search dates. We have reviewed the article, and while it may meet our inclusion criteria, we do not feel it would change our overall conclusions. Additionally, SDM is only one component of a multi-faceted intervention, it may be difficult to determine what effect (if any) SDM had in the results reported.
Additional suggestions or comments can be provided below.			
22	1	Page 1, Line 21: SDM acronym should be spelled out prior to first use (Shared Decision Making)	Thank you.
23	1	Page 4, Line 31: should Veterans' Affairs simply be Veterans Affairs, without the apostrophe?	Thank you.
24	1	Page 5, Lines 21-27: This reads like a complicated run on sentence, especially the last part of the sentence...should this be broken into two sentences?	Thank you, we have updated.
25	1	Page 5, Line 52: recommend comma after "process"	Thank you.
26	1	Page 6, Line 16 vs. 17: recommend Oxford comma after "screening"	Thank you.
27	1	Page 6, Lines 36-38: it may be helpful to explain why this estimate of 1-1.5M Veterans is larger than the 900,000 estimate listed earlier on this pate from the	The difference is most likely due to revised and expanded population eligibility in the 2021 USPSTF

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		2016 study...changes in Veteran enrollment? Aging of the Veteran population such that more established enrollees from 2016 now meet USPSTF criteria for LCS? We are left to speculate on this disparity as written.	recommendations compared with the 2013 recommendations. We clarified that the 1-15M Veterans eligible is related to the 2021 expanded recommendations.
28	1	Page 14, Lines 37-38: Recommend adding a descriptor for length of time of the YouTube video (as all other listed videos have a length of time descriptor)	Study authors simply state the intervention was a YouTube video, no link or run time were provided.
29	1	Pages 14-15, Table 2 Overall: if allowed, and available, could web URL links be provided to as many of the tools listed here? Why is ShouldIScreen the only link provided? Are the others proprietary such that there are rights management issues with providing web links, or are these simply not available?	As not all authors provided links or access to their tools we were unable to provide links to all tools. To underscore this issue, we have added a sentence in the report to note that web URL links are provided when available.
30	1	Page 16, Lines 28-37: There is a significant discovery here, that is not highlighted in the Executive Summary Conclusions or elsewhere. Essentially, when a SMD tool is integrated into the EHR, the impact on LCS adoption is quite significant...this reinforces Human Centered Design Principles that we see in so many other aspects of clinical work...namely, if something is integrated into EHR workflows, it is completed/used by busy, overburdened clinicians. If it is not, is it not completed/used to nearly the same amount. This is a really important discovery that seemingly is buried in page 16 of the ESP report...recommend more emphasis on this finding in other aspects of the report.	We agree that this is one of many important findings. Rather than selecting a single finding or providing a lengthy text list of findings in the executive summary we elected to report all certainty of evidence ratings in a single table. This table includes the mode of delivery, outcome, study design and number of enrollees and a summary statement.
31	1	Page 20, Lines 25-49: Also here are some very important discoveries on enhanced LCS adoption using these specific tools for non-clinicians...may warrant more emphasis within discussion section of report as the findings were quite significant...food for thought	We plan to leave as written. The report focuses on SDM. The studies noted that SDM tools plus care coordination may result in increased receipt of LCS compared with usual care. (low COE). It is not clear about the independent effect of SDM tools on LCS rates given the additional roles of care coordinators to facilitate LCS beyond what would occur in usual care. The findings are also summarized in Table 1 in the Executive Summary and the section specific Certainty of Evidence ratings tables.
32	1	Page 28, Lines 13-14: should highlighted yellow section be removed?	Thank you.
33	1	Pages 28-29, Table 9: as with Table 2, could length of time descriptors be added where appropriate, as well as web URLs for any of these tools, if available and allowed to be shared within the ESP document? Just trying to help readers navigate to these tools if they wish to explore in more detail.	Thank you for the comment. When made available by authors we have included the tool URLs.
34	1	Page 29, Line 32: should the bolded text section be removed?	Thank you.
35	1	Page 58, Lines 51-52. I believe the acronym for CBOC is Community Based Outpatient Clinic, not Community Based Outreach Clinic	Thank you. We have corrected.
36	2	Page 1, line 16: the use of "health care provider" to categorize strategies, that is further divided into clinician and non-clinician categories, is confusing. It seems like a non-clinician should not be categorized as a health care provider? Later in	We have updated to " professional", rather than provider for consistency. We also changed non-clinicians to read: "LCS navigators" to help

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		the document (Table 1) it categorizes tools as Health care Professional-Facing. Suggest using health care professional instead of health care provider when referring to strategies as well as tools.	differentiate a less specific and potentially confusing term of “non-clinicians”.
37	2	Page 1, line 21: define SDM. May want to introduce SDM earlier--in line 12, "Shared decision making (SDM) strategies…"	Thank you.
38	2	Page 1, line 23: How are care coordinators or navigators distinct from non-clinicians? Suggest clarifying how these strategies are different from healthcare provider-facing strategies.	Please see explanation for item 36.
39	2	Page 12, line 51: If the authors did not report a tool as a decision aid, was it classified as an educational tool? Or were those tools not identified as decision aids all identified by authors as educational tools?	To be considered a decision aid the authors were required to specifically state that. If they did not we classified the tools as educational tools. We rarely had access to the listed tools and could not evaluate whether any noted tool met decision aid standards, relying on author definition.
40	2	Page 13, line 40, footnote: why are the IPDAS standards only for RCTs? Is this because all RCTs that were included used IPDAS standards?	Thank you for noticing this. We reviewed and determined that this was placed in error and have removed the footnote.
41	2	Page 19, line 21: Would highlight the Importance column in Table 4 and also in subsequent tables (Tables 8, 11, 12, 13, 16). This Importance column contains summary information that is useful for readers.	Importance column “bolded” as suggested.
42	2	Page 28, line 21: Recommend highlighting the Importance column	Done in bold.
43	2	Page 36, line 21: Recommend highlighting the Importance column	Done in bold.
44	2	Page 38, line 28: Recommend highlighting the Importance column	Done in bold.
45	2	Page 39, line 32: Typo: should be (3.9%), not (3/9%)	Thank you.
46	2	Page 40, line 21: Recommend highlighting the Importance column	Done in bold.
47	2	Page 46, line 5: Recommend highlighting the Importance column	Done in bold.
48	2	Page 47, line 32: should be United States "Preventive," not "Preventative"	Thank you. Corrected.
49	2	Page 59, line 45 - page 60, line 12: Important points about being consistent in shared decision making expectations across screening recommendations and the need for systems-level approaches to refine who may benefit from LCS.	Thank you. We do not believe changes are requested/needed.
50	3	Great job!!!!!!!!!!!!!!!!!!!!!!	Thank you.
51	3	1. Please do not use the term “smoker” as it is pejorative and stigmatizing. Please consider using “people who currently/formerly used cigarettes” or other patient-centered language.	Thank you. We have changed this throughout to read: “people who currently/formerly smoked.”
52	3	2. In the Key Findings and other relevant areas, please note how many times shouldIscreen.com was studied. I believe it’s the “most” but still a minority of studies evaluated it.	Thank you. Done.

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53	3	3. Re the Conclusion in the Exec Summary statement, “While most studies reported on knowledge, few …..”. Please consider changing “reported on knowledge” to a more quantitative statement, if possible. For example, “While most studies found small/medium/large improvements in LCS knowledge, few….”.	We did not have any established minimally important differences to reference and how to define a small/medium/large improvement in decisional conflict is a large undertaking that would require expert consensus. Furthermore, knowledge was not ranked by partners and TEP members as a “critical” or “important” outcome for decision making. Finally, studies varied widely in how they assessed knowledge and the range of possible scores. It would be extremely challenging and potentially misleading to summarize effect magnitude across these studies and scales. The sentence used is also meant as a lead-in to the more clinically relevant outcomes of interest that we did assess for certainty of evidence and desired to highlight. We thus leave unchanged.
54	3	4. In Table 1 Exec Summary, is it possible to include references for the studies?	As part of the ESP report template and brand we do not include references in the executive summary. All references can be found in the full report.
55	3	5. In Table 1 Exec Summary, is it possible to include a quantitative statement re the magnitude of an effect for the “high certainty” studies if there was an effect? For example, re Decisional Conflict for the “Lung Cancer Screening: Is It Right for Me?” study, instead of “less”, can you say, “…results in a small/medium/large improvement in decisional conflict/regret”?	We can only provide the direction of effect in our GRADE certainty of evidence statements. We did not have any established minimally important differences to reference and how to define a small/medium/large improvement in decisional conflict is a large undertaking that would require expert consensus.
56	3	6. For suggestions #2 through #5, please consider changing in the full summary as well.	We have carried out any changes in the Executive Summary to the full report.
57	3	7. In Table in the Main Report, can you clarify what “not described as meeting IPDAS standards” means? Does it mean the authors reported, it did NOT meet IPDAS standards” or “the authors did not report whether it met IPDAS standards”? Also, add IPDAS and a reference to the abbreviations at the bottom of the Table.	The original writing is accurate. To be considered meeting IPDAS standards the authors were required to specifically state that. If they did not we noted that the tools were “not described as meeting IPDAS standards”. We rarely had access to the listed tools and did not evaluate whether any noted tool met IPDAS standards, relying on author definition.
58	3	8. In the Results section and Tables in the Main Report, is there a way to include the magnitude of change in knowledge, decision conflict/regret, etc.? Do some of the instruments report the minimally clinically important difference? Alternatively, is there a way to include the total score in the report? For example, in Table 4, it says the Ottawa decision regret was better by 4 points for shouldiscreen.com. However, this difference would be important to contextualize that there are 100 points available.	Please see our response to comment #55 regarding minimally important differences. Where possible we updated in the text to include the total possible scale score.

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59	5	General comments The authors should be commended for drafting a comprehensive, well-written, and thoughtful assessment of SDM for LCS. They appropriately highlight the rationale for conducting SDM, characterize the various approaches to implementing SDM, and identify many important gaps in the literature.	Thank you.
60	5	A striking finding to me is that apparently only one study (Percac-Lima) addressed follow-up of an abnormal LDCT. I think this is critical omission in current studies and an issue for future research. While adherence with annual screening is necessary for a successful screening program, cancer mortality will be reduced only if abnormal findings are fully evaluated—and patients with early-stage cancers receive curative treatment. I think the importance of tracking adherence with these downstream processes should be further emphasized in the report. Adherence with diagnostic evaluations and treatment are outcomes that may well be impacted by SDM.	Thank you. We note this in the key messages. It is also listed in the summary certainty of evidence ratings table where we conclude: “the evidence is very uncertain on the effect of SDM on LCS adherence”. Of note, studies were not designed or intended to evaluate longer term LCS adherence (or follow-up of abnormal findings including adherence with diagnostic evaluations and treatment on an initial or subsequent LCS). We added a phrase in the results section and conclusion emphasizing this issue.
61	5	Given the most recent CMS determination that telehealth is an acceptable delivery strategy (and can be delivered by “auxiliary” personnel), a future research issue should be to compare clinic-based vs. telehealth SDM interventions, particularly those delivered by non-clinicians. Although this may be considered part of creating better SDM strategies, I suggest that the research agenda also include determining what knowledge elements are most useful for informing screening decisions and to encourage investigators to use validated instruments to measure this outcome.	Thank you. We have added these suggestions to the future research issue section (though as per above we have changed the term “non-clinician”).
62	5	Specific comments 8.31: I think readers would like to know what the report authors consider to be harms from SDM; possibilities could include increasing anxiety/distress or decisional conflict, or regret. The discussion (56.15) mentions that the harms of SDM are not well known. However, I did not find any previous comments about harms in the combined KQ2 and KQ3 results sections explicitly supporting that statement.	Thank you. We have revised the document to provide a separate section for KQ3: “Harms of the communication strategies, tools, and/or approaches. Our protocol defined outcome for this was: “author defined harms”. No studies reported this. Based on discussion with our operational partners and TEP we defined additional harms as anxiety and decisional regret. These results are listed in KQ2. We note both of these points in our KQ3 very brief summary. One could also include outcomes such as resource allocation, time, and cost. These outcomes were listed under KQ2. We have now included a statement in the beginning of the KQ2 section to note that no studies reported on these (and some other outcomes). This is also noted in the discussion and a future research need. We revised the discussion to note that harms and burden (patient as well as clinician/health system) burden …. Are not well understood. Harms and burden of SDM for all

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			potentially eligible individuals for LCS was not reported beyond measures of patient anxiety or decisional regret. We added to our key findings bullets: As noted above, studies did not report on many other outcomes of interest including: smoking behaviors; resource allocations/usage (*eg*, clinician time, clinical staff/patient time, medical media support, IT support); cost or cost effectiveness.
63	5	2.27: LCS is meant to identify—and treat—lung cancer early to reduce mortality.	Thank you. We revised the sentence to read: Lung cancer screening (LCS) is meant to reduce lung cancer mortality through early identification and treatment of lung cancer.
64	5	2.30: I think the comment about "adherence to initial and follow-up screening (including evaluation of abnormal findings on LCS)" could be more clearly stated. I interpret "follow-up screening" as referring to annual screening. Evaluation of abnormal findings is part of the screening process, though distinct from "screenings."	Thank you. We clarified to read: "… adherence to initial and subsequent screening as well as evaluation and treatment of abnormal findings on LCS…"
65	5	3.21: Harms particularly arise from invasive diagnostic testing.	We add "invasive diagnostic testing". Harms come from multiple sources as we note in the sentence.
66	5	4.57: Consider explaining the difference between decision aid and educational tool.	Thank you, we have added.
67	5	5:59. References 6 and 7 should be for the 2015 and 2022 CMS determinations, respectively. I think the report should note that the 2015 determination expected licensed independent practitioners to conduct a clinic-based visit while the 2022 determination allows non-clinicians to deliver SDM and supports telehealth.	Thank you. We added this.
68	5	8:6. As above, I think receipt of additional tests/procedures following abnormal scans are also important adherence outcomes. The discussion does mention "or subsequent evaluations" in the context of adherence; I suggest using this more complete description throughout the report.	We agree that receipt of additional tests/procedures (and subsequent evaluations) is an important outcome and a measure of overall adherence to LCS. In this report, LCS adherence was defined as "adherence to subsequent screening". We also had as an outcome of interest: "receipt of additional tests/procedures for identified findings" though these were not reported. We have also included determining if patients adherence to subsequent evaluations as an important outcome.
69	5	11.28: I may have missed this, but I did not find the disqualifying factors for excluding the 2,683 citations based on title/abstract review.	We do not capture the reason for exclusion at the abstract triage level. We exclude if the population, intervention, setting, or time frame do not meet the inclusion criteria.
70	5	12.17: Missing period after "…included studies"	Thank you.

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71	5	12.29; 58.37: The 2016 Crothers study decision aid did not use the current VA decision (which I helped develop in 2023). They likely used the patient decision aid ("Screening for Lung Cancer") that was developed for VA demonstration project that began in 2013. I did confirm with Dr. Slatore that the current VA decision aid is available.	Thank you. We have revised to state in the Policy implications (VA Specific) section: A single study (Crothers) assessed a tool developed by VA and referenced in VA guidance for LCS. However, that study was not conducted in a Veteran population.
72	5	13.40/53: I'm confused by the number of studies reported in the IPDAS section. The superscript refers to "only for RCTs" (of which there were 12). However, 21 studies are listed: 13 meeting criteria, 8 not.	The foot note indicating that the IPDAS criteria refers only to RCTs was placed in error. It applies to the 21 trials with information available.
73	5	17.12; 31.10: Consider stratifying decision satisfaction results by the screening decision.	Data are not available for this. We have not changed.
74	5	20.26: What is meant by "completed at least one LCS appointment"? Does this refer to having a counseling visit or undergoing LDCT?	An LCS appointment refers to an individual undergoing LCS with LDCT.
75	5	24.45 (27.31): Should be 18.8 percentage point difference—not percent.	Thank you.
76	5	26 (Table 7): Improved participant knowledge is often cited as a benefit of SDM—and was the most consistently positive outcome in the cited literature. I'm curious as to why CoE was not rated for this outcome. Was it due to being considered a less important outcome and/or that the measures were heterogeneous/flawed?	We conducted a rating exercise with our TEP and operational partners to identify the most critical outcomes for GRADE assessment, to include at a minimum 1 harm outcome. Knowledge, while most frequently reported, was not one of the outcomes rated highly by our TEP or OP.
77	5	28.22: Typo. Delete Table 8.	Thank you.
78	5	28.34. Consider describing intervention as …including incidental findings information.	Thank you we have added the descriptor.
79	5	29. 4: Consider identifying the developer of YouTube video.	Information was not available. We revised Table 9 to read as authors described: "brief educational video about lung cancer screening that was hosted on YouTube"
80	5	29.36: Should read +12 percentage points, not +12%.	Thank you.
81	5	38.45: Clarify in the findings column that the reference group is family physicians	Thank you we have updated.
82	5	48.59. The intervention group for Sharma study is actually a brochure with phone-based in-depth messaging.	Thank you. We have updated.
83	5	51.18-37: What is the heading for the table on the top of page 51? Should it be patient facing preparatory?	This is a continuation of the table on the previous page (Table 18) we have updated the table with the appropriate heading.
84	5	52.3: Other barriers (see list of additional publications) include clinicians lack of awareness about guidelines and trial results and lack of training in SDM.	Thank you. We reviewed the list of provided publications
85	5	56.21: Should the line read, "Few studies provided information whether THEIR INTERVENTION met criteria…."?	Thank you.

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86	5	56.21: Clarify whether you mean to say that studies addressed neither adherence with annual exams nor follow up of abnormal exams. Current wording is unclear.	We have updated to clarify.
87	5	58.9: Clarify: adherence with what?	Thank you.
88	5	58.37: As above, current VA was not used in cited reference. Having retired from the VA, I do not have access to the VA guidance site that houses the new decision aid. You might consider providing a link for VA readers.	We have modified this to include the link for the current VA guidance site and tool. Contact with the VA guidance site program manager suggests that an updated link and tool will likely be available soon.
89	5	59.45: Indeed, no other USPSTF grade A or B recommended screenings has led to a CMS requirement for SDM. However, no other USPSTF recommended screening programs target high-risk patients nor involve as potentially high-risk invasive diagnostic procedures or treatments. I'd be cautious about trying to extrapolate strategies from other screening programs to lung cancer. I am also aware that the Medicare advisory board recommended against covering LCS because they were uncertain that it could be implemented as effectively and safely in community practice as it was in NLST. An additional important facilitator for screening programs is that referring clinicians have confidence that their patients will receive high-quality imaging interpretations, diagnostic procedures, and treatment.	Thank you. We agree with several of the reviewers thoughtful and informed your concerns. Nonetheless, the overall assessment of the USPSTF is a "B" recommendation for population of interest. This indicates that that the USPSTF determined that there was at least moderate certainty of moderate net benefit of their screening recommendation given population, intervention and outcomes of interest. Issues regarding applicability and implementation for LCS is not too dissimilar to other cancer screening modalities including mammography for breast cancer and colonoscopy or CT colonography for colorectal cancer.
90	5	61-64: Several references are garbled or incomplete: 4, 6, 9, 14, 6	Thank you, we have updated our citation software so these citation appear complete.
91	6	I appreciated the comprehensive and very clear evidence synthesis provided in this report. My comments are below, with comments regarding content or methods provided first, followed by minor comments related to typographical errors.	Thank you.
92	6	PDF page 11, line 32 (also on PDF page 24, line 5): "The following were ranked the top 6 of clinical importance and CoE ascertained: receipt of lung cancer screening…". Should this be "receipt of lung cancer screening among those who agreed to screening? It feels antitithetical to the nature of shared decision-making (SDM) to imply that the goal of SDM is to increase screening uptake; rather it should be to support the patient in coming to a decision that best matches the medical evidence AND their goals and preferences, acknowledging that sometimes that means a high-quality SDM conversation will result in the patient deciding not to get screened.	The outcome of interest was overall receipt of LCS. We agree the other stated concerns. We have also noted that LCS is unique in that despite the USPSTF issuing a "B" recommendation indicating that there is at least moderate certainty of moderate net benefit that SDM is required or indicated prior to LCS despite the overall implication that clinicians should recommend LCS for eligible individuals.
93	6	PDF page 13, Table 1: Row subheader: "Tools for non-clinician (eg, LCS coordinator)" – this example is confusing to me as especially in VA, LCS coordinators ARE typically clinicians such as nurses, NPs, or PAs. Should this instead read "Tools for non-physician (eg, LCS coordinator)" or "Tools for clinicians other than primary care provider (eg, LCS coordinator)"? Similar comment for PDF page 29, line 58.	We have clarified this to use the term "LCS navigator" rather than non-clinician.

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94	6	PDF page 39, line 36: Is there something missing here? It states that 57 of 66 in the Mazzone study stating: [followed by a series of what appear to be individual, write-in quotes]. Is there some other category that 57 of 66 participants responded?	Thank you.
95	6	PDF page 70: First sentence of discussion does not make sense, and the first portion of it is not accurate.	We have reviewed the comments and section.
96	6	PDF page 73, line 28: "Future research is needed to enhance implementation by identifying and reducing barriers and encouraging facilitators to both SDM and LCS." Consider citing ATS/VA HSR&D statement on research priorities regarding implementation of shared decision making for LCS (PMID: 35289730).	Thank you. We have added the citation.
97	6	PDF page 73, line 53: "If a main goal of LCS is to have eligible patients receive LCS, reducing barriers to the screening process are needed and may involve reducing barriers inherent with formal shared decision making in eligible individuals." While I appreciate the sentiment being expressed here, it does not seem to be supported by the evidence presented in this review, which largely found that interventions intended to support SDM for LCS tended to result in increased LCS uptake compared with usual care. Thus my read of this evidence synthesis is that formal SDM processes do not appear to serve as a barrier to LCS uptake.	Thank you, we have updated and clarified our statement.
98	6	PDF page 91, Appendix – underway studies: It appears clinicaltrials.gov was the source for identifying underway studies. It may also be useful to check VA's newly funded and ongoing studies webpages or NIH reporter to identify other studies not captured through clinicaltrials.gov.	Thank you for the recommendation, we reviewed these repositories and updated our text and appendix table.
99	6	Appendix Tables describing the included studies are excellent, supplying the key information about each study clearly and concisely.	Thank you.
100	6	Minor/typographical: PDF page 26, line 23: Incomplete sentence starting with "While the cohort by Tanner…"	Thank you.
101	6	PDF page 38, line 51: Typo "SMD" instead of "SDM"	Thank you.
102	6	PDF page 43, line 18, Typo – should read "no difference in receipt"	Thank you.
103	6	PDF page 53, line 32: Typo – should 3/9% be 3.9%?	Thank you.
104	6	PDF page 53, line 38: Suggest avoiding the term "smokers" and replacing with person first language (e.g., people who smoke)	Thank you. We have updated.
105	6	PDF page 55, line 16: Typo: should read "distress/anxiety" or "distress or anxiety"	Thank you.
106	7	This is an excellent, timely, and well-written systematic review of SDM interventions for lung cancer screening. I have the following comments:	Thank you.
107	7	* Period of the search is appropriate given publication of the NLST and subsequent updated recommendations and guidelines	Thank you.

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108	7	* Impressive that qualitative studies were included in the review.	Thank you.
109	7	* I assume studies did not report measures of fidelity - ie, how well the intervention was delivered as intended.	Thank you, your assessment is correct.
110	7	* The point about not being able to assess the quality of the tool is important as some may have been promotional/encouraging of screening rather than presenting LCS as a decision.	Thank you.
111	7	* Table 1, does "Person" mean "In person" ?	This was meant to denote that the intervention was delivered by a person.
112	7	* Just an observation that doesn't need to be addressed by the authors - many developers cite IPDAS as guiding development of their tools, but it's often entirely unclear how the applied IPDAS if a development paper was not also published.	Thank you. We agree. No changes.
113	7	* A clarifying point, several of the tools grouped as "for clinician use" (eg, Option Grid) are actually tools used during the clinical encounter where both patients and clinicians use an aid. Consider describing these as "encounter" tools rather than clinician tools. Same point for "non-clinician use".	Yes, we agree it's possible patients were also viewing the tools. However, this wasn't clearly reported in most studies, and some studies included telephone visits. For clarity for the reader, we have added the following information for this section: *"Tools described below were used during an in-person or phone encounter with a healthcare professional. These tools are all described as "healthcare professional-facing", though it's possible the patients were also viewing the tools during in-person visits. This was not clearly reported in most studies, therefore we have referred to these as "healthcare professional-facing" tools throughout for consistency."*
114	7	The authors should be commended for this is an impressive, comprehensive review of a challenging literature on SDM interventions for LCS.	Thank you.
115	8	Overall, this was a really well-researched review. My largest concerns revolve around the definition of SDM, confusion between decision support interventions and SDM, and a slight lean against SDM. But it is an excellent and thorough review and a resource I will use in the future (when made public). Excellent work and thank you for your contribution to the literature and the fields of MDM and lung cancer screening.	Thank you
116	8	Below i highlight some areas where i have suggestions that i hope are useful.	Thank you.
117	8	On Page 2 (Line 38), the authors define SDM. However, they failed to include a key component—the need for patients to describe their values, goals, and preferences and use that information in their decision-making process with their clinician. Right now, it is focused exclusively on the best available medical/scientific evidence, and that is NOT shared decision-making.	We have added this to the background in both the executive summary and full report as well as the discussion.

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118	8	On page 4 where you describe the study design (partgraph starting on line 45) it would be helpful to include citations of each or have a table describing each study with their study design characteristics.	We include study characteristics and design for each study in the appendix tables.
119	8	I am a little concerned about defining educational tools as a SDM tool. Usually they only provide knowledge (medical/scientific) and don't discuss the role of patient prefernces/goals/values and the importance of the patient voice. (Page 5, line 5)	We empathize with the reviewer's concerns, however we used as broad a definition as possible regarding what constituted a shared decision tool in order to be as broad as possible. Secondly, authors often did not report if their tool was a decision aid or an educational tool, nor did they provide examples of the tools or the components including whether they discuss the role of patient preferences/goals/values and the importance of the patient voice making it impossible for the team to assess whether the tool met the requirements to be a decision aid.
120	8	In Table 1, citations of the studies would be valuable so people can review themselves or find the articles to inform their work.	While we understand the desire for the citations, it is ESP standard that we do not include citations in the executive summary. This table is a compilation of each of the GRADE tables reported in each section of the Results. In those tables we provide the citations.
121	8	Page 20: The authors describe results, but typically don't include citations (e.g., line 17: Three studies reported on receipt of lung cancer screening, 3 reported on decisional conflict/regret, 2 reported on patient knowledge, 1 reported on quality of communication, and 1 reported on satisfaction with decision. It would be helpful if each of these assertions had a citation accompanying I would also refer to Table 3 in this section (I loved Table 3—well done!). Note on page 34 (e.g., lines 5-20) you do use the convention I suggest. However, there are multiple places where this lack of citations occur (e.g., page 46, line 40 and several other places). I think it is much better for the reader for you to cite everywhere where you make an assertion of a study did this or that.	Thank you, we have addressed and updated with citations.
122	8	Page 24 (Line 34+): The authors write: "Two RCTs18,29 and 1 pre-post study32 captured the number of individuals that completed a first LCS appointment, with all 3 finding that exposure to SDM increased uptake of LCS." Was it exposure to SDM to was it exposure to a decision support tool (I don't think the studies compared level of SDM and outcomes—but likely the intervention. Presence of a decision aid does not ensure, unfortunately, SDM.	We agree that presence of a decision aide or decision support tool does not ensure SDM. In discussion with our partners and TEP we considered decision-aides or educational tools being acceptable for SDM. We noted in the "overview of included studies" section the following: *Assignment of the intervention to either the decision aid or educational tool category (or whether they met criteria for shared/informed medical decision-making or would meet CMS criteria) was not always feasible, as not all authors provided a copy or access to the tested*

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			intervention. As such, we relied on author report of the tool as a decision aid or educational tool; we refer throughout the text to both as SDM tools. Similarly, we did not assess the accuracy of information provided in any of the SDM tools or concordance with current US-based national LCS recommendations. We also added this issue to the limitations section of our report.
123	8	Page 24 (line 51+): Authors reported 94.6% of individuals attending and completing the SMD visit completed an LCS visit.32. Typo should be SDM. Also, I would not necessarily call a clinical visit a SDM visit—again, just because you get a tool does not mean the visit will result in SDM.	Thank you. Fixed. We recognize that receiving a tool does not necessarily mean the visit will result in SDM. As noted above we used a broad categorization of SDM.
124	8	Page 30 (Line 9+) Refers to the Health Care Decisions scale to measure decisional conflict/regret. Please cite the scale. I had never heard of it so I googled it and could not find it easily—so reference is definitely needed. I was concerned if it really measured decisional conflict/regret, but since I could not find it, I could not assess it. It is highly unusual not to use the decisional conflict scale to measure decisional conflict (though even I admit the scale is flawed)	Added as: DOI 10.1177/0272989X9601600114.
125	8	On page 30, the authors report overall numbers for those who report from a little to very nervous in several places. That is not really useful for a reader—I assume it's any nervousness (for example) vs. none. But feeling a little nervous vs. very nervous is very different.	We agree that greater granularity of "nervousness severity" would be useful. However, authors did not provide this information.
126	8	Page 31-32: Is there a better way to describe knowledge findings—right now it reads as a very long laundry list (and you put the results so nicely in tables). Could you just indicate which there were differences vs. no difference with citations?	We appreciate the concerns. We do have directionality of findings in Table 10. We have elected not to change the text as we are uncertain how to better describe findings (and knowledge was not a "prioritized clinical outcome"
127	8	Page 39, line 8: "Four studies (3 RCTs and one cohort study) evaluated SDM compared with usual care. All found higher LCS with SDM." The next paragraph does the same thing: "The other two RCTs included (or primarily evaluated) care coordinators or patient navigators in addition to SDM." Again, did the studies evaluate SDM, or did they evaluate a decision support tool (decision aid or patient education tool)? I think there is a common conflating of SDM and decision tool that should not occur. I am trying to catch all of them (not to nag, but to help you correct them), but a close review by the authors is needed.	Thank you for this note and others. We agree this is an important distinction. However, based on discussions with our Operational Partners and TEP we took a broad approach to included tools that we categorized as SDM. We noted that of 31 eligible and included studies, 21 (68%) used author described "decision aides". Of these, 13 (62%, or 42% of all eligible studies) were author described decision aid that met IPDAS standards. Little additional information was provided as to how they met those standards, what components were met and whether values and preferences were addressed. We have highlighted this as an evidence gap and future research need.

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128	8	Page 56 (line 11+): Thus, prior to LCS, clinicians are encouraged to provide patients with information about risks and benefits including the importance of screening adherence and smoking cessation (ie, SDM). This is most definitely not SDM. First, it only refers to the clinicians telling patients information—nothing about the patient sharing their goals/values. Second, emphasizing the importance of screening is not engaging in shared decision making—it's trying to convince people what to do, not engaging them in a shared decision making.	Thank you. We have changed this to state: Thus, prior to LCS, clinicians are encouraged to provide patients with information about risks and benefits including the importance of screening adherence and smoking cessation as well as eliciting and supporting patient preferences and values in the decision (*ie,* SDM).
129	8	Page 57 : A repository of published tools that SDM researchers could review and critique would be very helpful in understanding what has been tested in these at-risk populations. Is this what you were thinking? https://decisionaid.ohri.ca/AZinvent.php This might not contain all of the LCS—but probably many.	Thank you. Agree. We have added this to the future research need section.
130	8	Page 57 (line 49): Some studies did not base their interventions on recognized criteria for informed medical decision making. Do you mean informed MDM or SDM? They are very different. You might want to clarify why now describing informed vs. shared if you meant to do so.	Thank you. Changed for consistency to read SDM rather than MDM.
131	8	Page 58 (Line 19+) Mode of delivery/timing A final challenge to synthesizing the evidence is the variation in when study authors choose to administer the tool and the method in which they choose to deliver the intervention. The testing of timing and mode of administration is necessary and does provide useful information. However, the variation in delivery mode and timing changes further complicates synthesizing the evidence. I understand this comment—but you might also highlight that this is a fascinating research question in it's own—when is the best time to present a decision support intervention? Is a patient vs. clinician based tool more effective? Is before or during visit most valuable?	Thank you. Added.
132	8	Page 59 (line 1_) "Given that LCS is recommended and underutilized among eligible individuals, the most important LCS facilitator may not be to define and refine the "best SDM" method. Rather, a critical facilitator is to enhance methods for accurate and efficient identification, communication and referral of LCS eligible individuals for screening, as well as to ensure LCS adherence and follow-up. As a corollary, strategies are needed to avoid unnecessary or even harmful referral of either ineligible individuals or those who are unlikely to adhere or follow-up." I am not sure how you meant this section to be interpreted, but how I did was that you do not believe that this should be a shared decision and that the clinicians should just get people into screening because it is underutilized.	Thank you. This is a challenging area. *We note that if a main goal is to have eligible patients receive LCS than reducing barriers to the screening process are needed and may involve reducing barriers inherent with formal SDM in eligible individuals.* And we then note *that consistent with a USPSTF B recommendation, clinicians should generally recommend LCS in eligible individuals…* We stand by this statement though have added *This includes improving efficiencies and reducing patient, clinician, health system burden of SDM implementation.* The current guideline recommends, and many performance measures assess, LCS for eligible individuals (B recommendation; moderate certainty of net benefit) rather than SDM (typically

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			emphasized for “C” recommendations where assessed net benefit is “small” and likely to vary based on preferences and values. We agree that SDM is important, including for LCS, and that for any screening in asymptomatic individuals a test should only be performed in individuals who are aware of benefits and harms and is consistent with their preferences and values. Beyond the clinical benefits and harms to patients of LCS are the health system burden and costs especially of referring ineligible individuals or those who are unlikely to adhere to initial or subsequent LCS or follow-up of abnormal findings. Thus LCS is one area (though one could argue that similar situations occur for mammography for breast cancer or colonoscopy for colorectal cancer screening) that despite an overall assessment of “moderate certainty of moderate net benefit” that SDM would be particularly valuable.
133	8	You highlight the need to standardize methods and measures—which I strongly agree with. You could reference the SUNDAE recommendations to strengthen your argument: https://pubmed.ncbi.nlm.nih.gov/29269567/	Thank you, we have added this citation to our statement in the limitations.