Lung Cancer Screening

Position of the AAFP

AMERICAN ACADEMY OF
FAMILY PHYSICIANS

STRONG MEDICINE FOR AMERICA

- Presented by Doug Campos-Outcalt MD. MPA, University of Arizona College of Medicine, Phoenix
- AAFP liaison to the USPSTF
- Scientific Analyst for the AAFP CHSP
- No financial or intellectual conflicts

AAFP Recommendations on Clinical Preventive Services

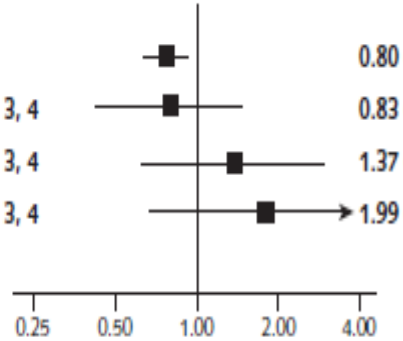
- Found at http://www.aafp.org/patient-care/clinical-recommendations/cps.html
- USPSTF recommendations for screening, counseling and preventive medications (with rare exceptions)
  - HIV testing starting at 18, not 15
  - Lung cancer screening: “I” not “B”
- ACIP recommendations for immunizations
- EGAPP recommendations for genomic prevention issues
  - Only 1 to date

Lung Cancer Screening

- 5 concerns
  - Based largely on one large study
  - Conditions of the NLST unlikely to be replicated in community settings
    - Age of participants and relative health
    - Conservative protocol for working up positive findings
    - Less benefit, more harms
  - Modeling
    - Extended number of tests and age range
  - A current smoker could possible get 25 CT scans
    - Unknown harms from accumulated radiation and follow up for positive findings
  - No cost- benefit analysis

Figure 1. **Trial results for lung cancer mortality.**

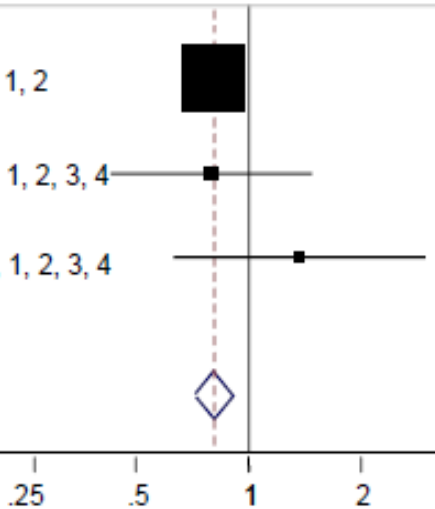
Author, Year (Reference)	Male, %	Follow-up, *y*	Deaths per 100 000 Person-Years, *n*		Mean Age, *y*	Pack-Years, *n*	Screening Intervals, *y*	Relative Risk (95% CI)
			Intervention	Control				
Aberle et al, 2011 (53)	59	6.5	247	309	61	56	0, 1, 2	0.80 (0.73–0.93)
Infante et al, 2009 (39, 40)	100	2.8	527	637	65	47	0, 1, 2, 3, 4	0.83 (0.45–1.54)
Saghir et al, 2012 (60)	56	4.8	154	112	58	36	0, 1, 2, 3, 4	1.37 (0.63–2.97)
Pastorino et al, 2012 (57)*	66	4.4	216	109	57†	39†	0, 1, 2, 3, 4	1.99 (0.80–4.96)



Humphrey LH, et al. Screening for lung cancer with low-dose computed tomography : a systematic review to update the U.S. Preventive Services Task Force recommendation. Annals of Internal Medicine 2013. WWW.annals.org 30 July 2013 obtained from http://www.uspreventiveservicestaskforce.org/uspstf/uspslung.htm

Figure 3. Meta-Analysis of Lung Cancer Mortality

Study, year Sex	F/u (yrs)	In*	Co*	Mean age (yrs) (In vs. Co)	Mean pack-years (In vs. Co)	Screening times (years)	RR (95% CI)
NLST, 2011[54, 72] 59% male	6.5	247	309	61.4	56	0, 1, 2	0.80 (0.73 to 0.93)
DANTE, 2009[51, 61] 100% male	2.8	527	637	64 vs. 65	47.3 vs. 47.2	0, 1, 2, 3, 4	0.83 (0.45 to 1.54)
DLCST, 2012[52] 56% male	4.8	154	112	58	36.4 vs. 35.9	0, 1, 2, 3, 4	1.37 (0.63 to 2.97)
Overall (I-squared = 0.0%, p = 0.406)							0.81 (0.72 to 0.91)



Humphrey L, et al. Screening for Lung Cancer: A Systematic Review to Update the U.S. Preventive Services Task Force Recommendation. Evidence Synthesis No. 105. Ahrq Publication No. 13-05188-EF-1. Rockville, MD: Agency for Healthcare Research and Quality; 2013

Figure 2. **Trial results for all-cause mortality.**

Author, Year (Reference)	Male, %	Follow-up, *y*	Deaths per 100 000 Person-Years, *n*		Mean Age, *y*	Pack-Years, *n*	Screening Intervals, *y*	Relative Risk (95% CI)
			Intervention	Control				
Aberle et al, 2011 (53)	59	6.5	1142	1216	61	56	0, 1, 2	0.93 (0.86–0.99)
Infante et al, 2009 (39, 40)	100	2.8	1212	1433	65	47	0, 1, 2, 3, 4	0.85 (0.56–1.27)
Saghir et al, 2012 (60)	56	4.8	625	429	58	36	0, 1, 2, 3, 4	1.46 (0.99–2.15)
Pastorino et al, 2012 (57)*	66	4.4	558	310	57†	39†	0, 1, 2, 3, 4	1.80 (1.03–3.13)

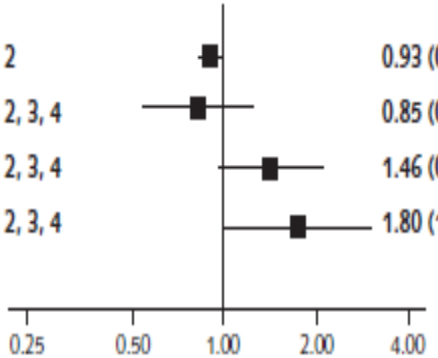


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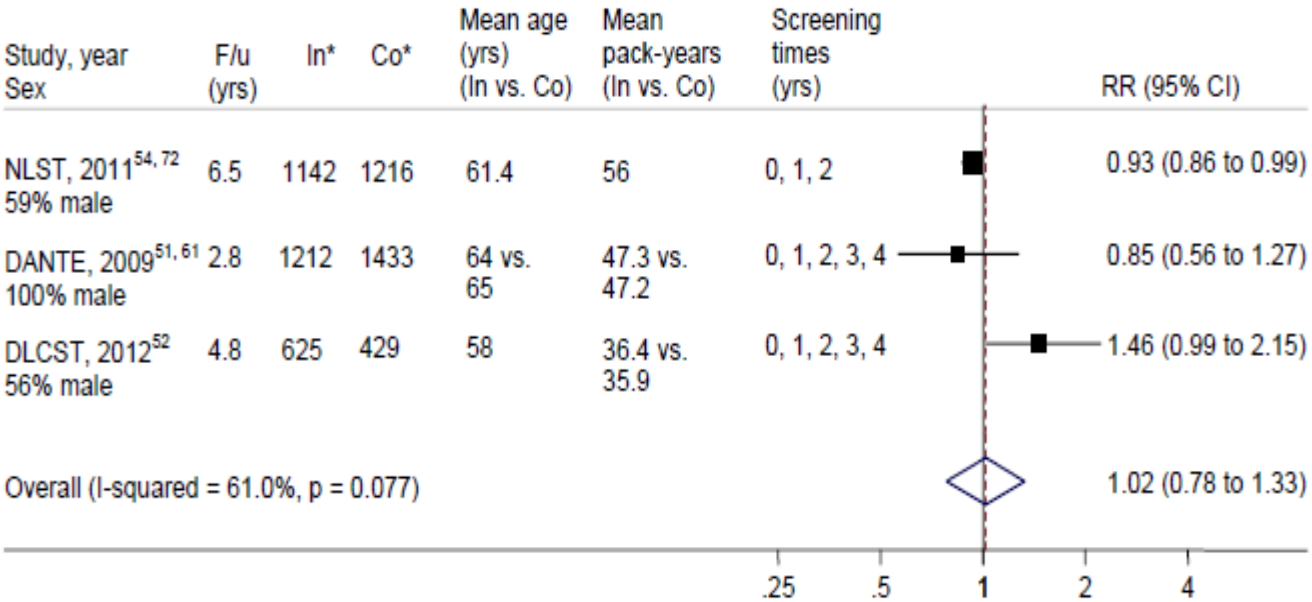
Figure 4. Meta-Analysis of All-Cause Mortality



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Three Options Considered by the CHPS

- B recommendation for 3 annual tests for those who meet criteria, with either “C” or “I” for further exams
- C recommendation
- I statement (Insufficient evidence)

I Statement Chosen

- Felt there was not enough evidence available to assess the harms.
- Not confident the benefits in community settings would equal the NLST

Suggestions Made by the AAFP to the USPSTF During Comment Period

- Restrict the recommendation to clinical settings that have a high rate of diagnostic accuracy using LDCT, appropriate follow up protocols for positive results, clear criteria for performing invasive procedures, and low complication rates from these invasive procedures.
- Consider better risk/benefit patient profiling to minimize the number of CT scans