Ospedale
"Sacro Cuore - Don Calabria"

Incontri di aggiornamento del Dipartimento Oncologico

Responsabile Scientifico:
Dott.ssa Stefania Gori

10 marzo
5 maggio - 11 maggio
2016

SEDE
CENTRO FORMAZIONE
Ospedale "Sacro Cuore - Don Calabria"
Via Don Angelo Sempreboni, 5 - 37024 Negrar (Verona)

2° INCONTRO - Giovedì 5 maggio 2016

Carcinoma polmonare: fattori di rischio e diagnosi

Sessione 2

Moderatore: A. TERZI

15.50	**Screening:** pro (L. BERTOLACCINI)
16.10	**Screening:** contra (G. PAPPAGALLO)
16.30	Discussione

PRINCIPLES AND PRACTICE OF SCREENING FOR DISEASE

J. M. G. WILSON
Principal Medical Officer, Ministry of Health, London, England

G. JUNGNER
Chief, Clinical Chemistry Department, Sahlgren's Hospital, Gothenburg, Sweden

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GENEVA
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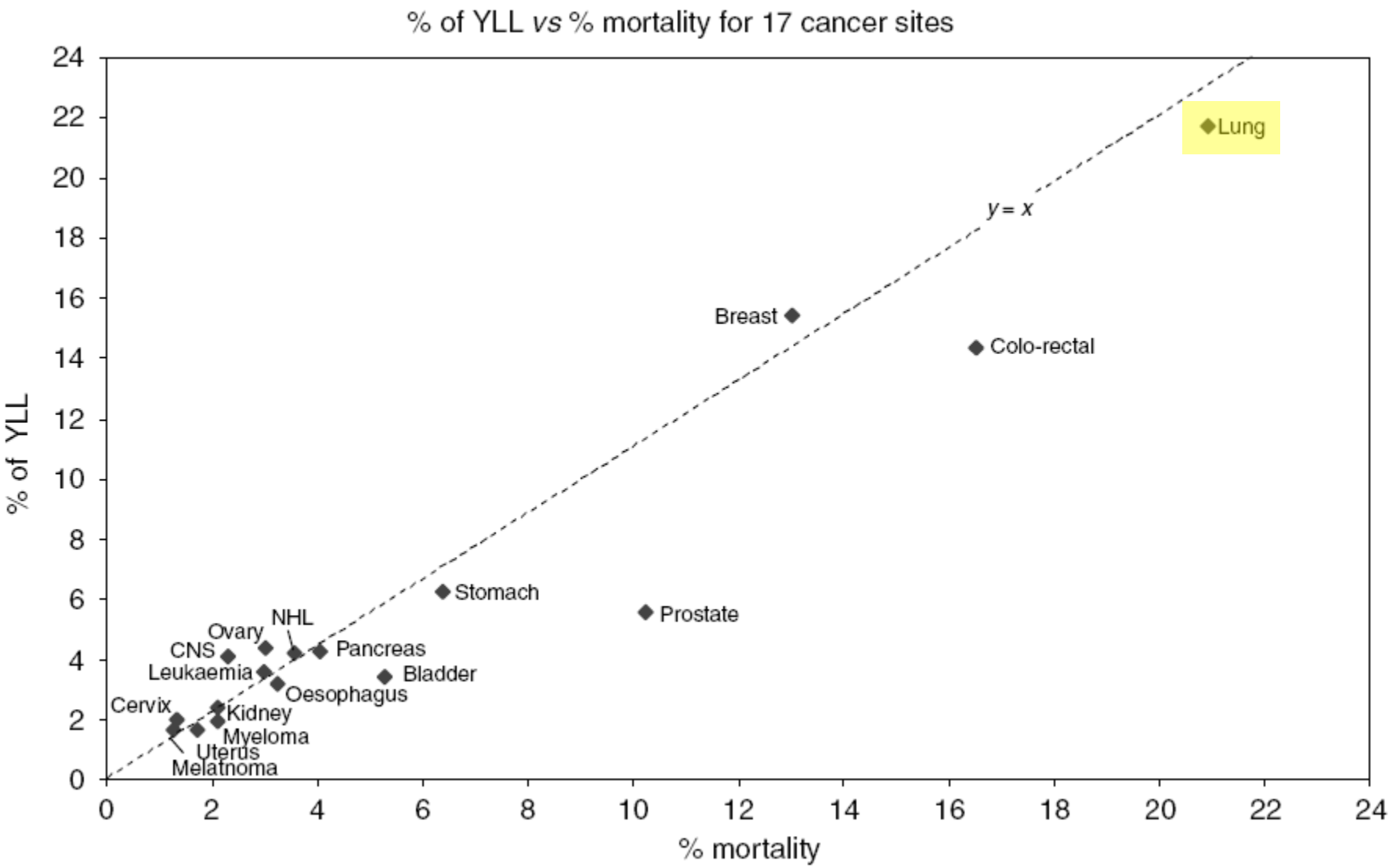
Rilevanza del problema per la salute pubblica

Years of life lost (YLL) from cancer is an important measure of population burden – and should be considered when allocating research funds

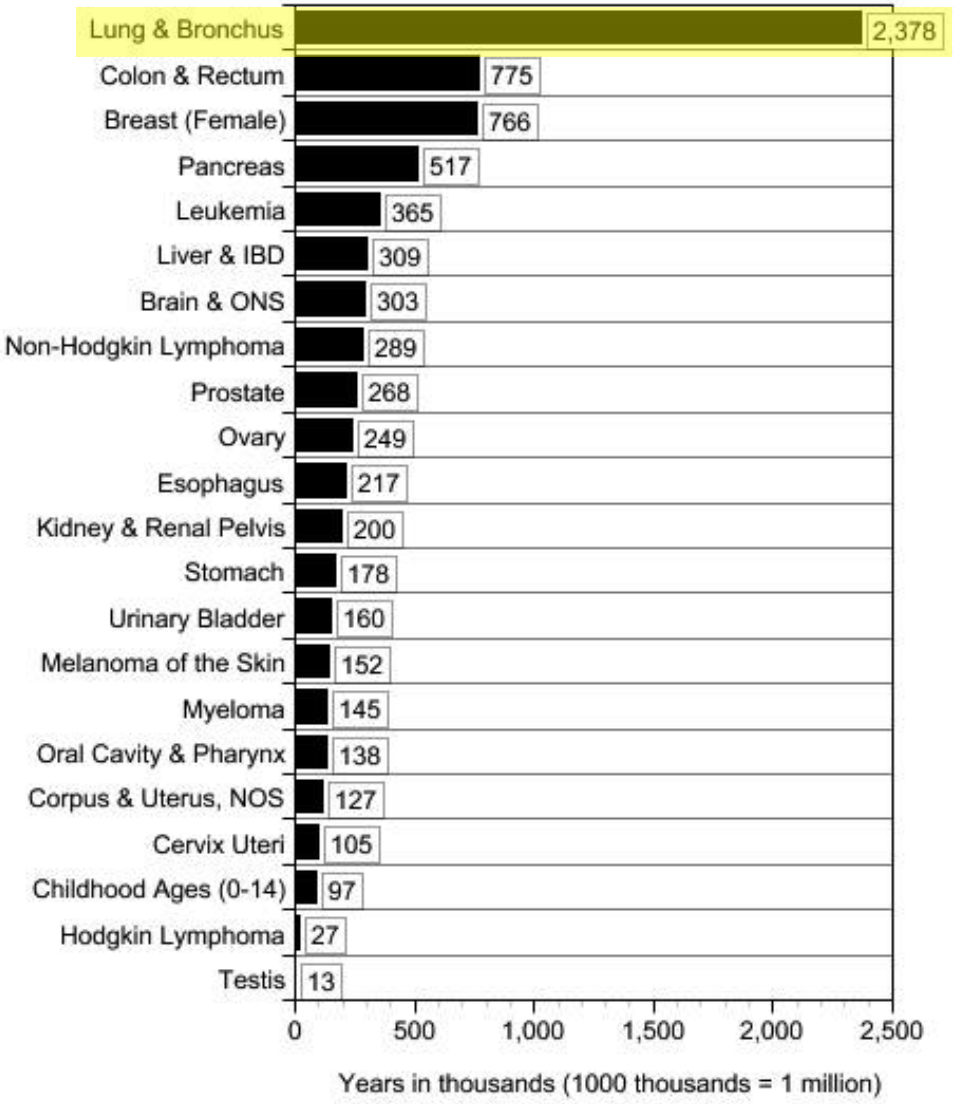
NG Burnet*[,1,2], SJ Jefferies[2], RJ Benson[2], DP Hunt[3] and FP Treasure[3]

British Journal of Cancer (2005) 92, 241 – 245



Cancer Trends Progress Report – 2011/2012 Update

Person-years of life lost in the U.S. due to cancer, All Races, Both Sexes: 2008



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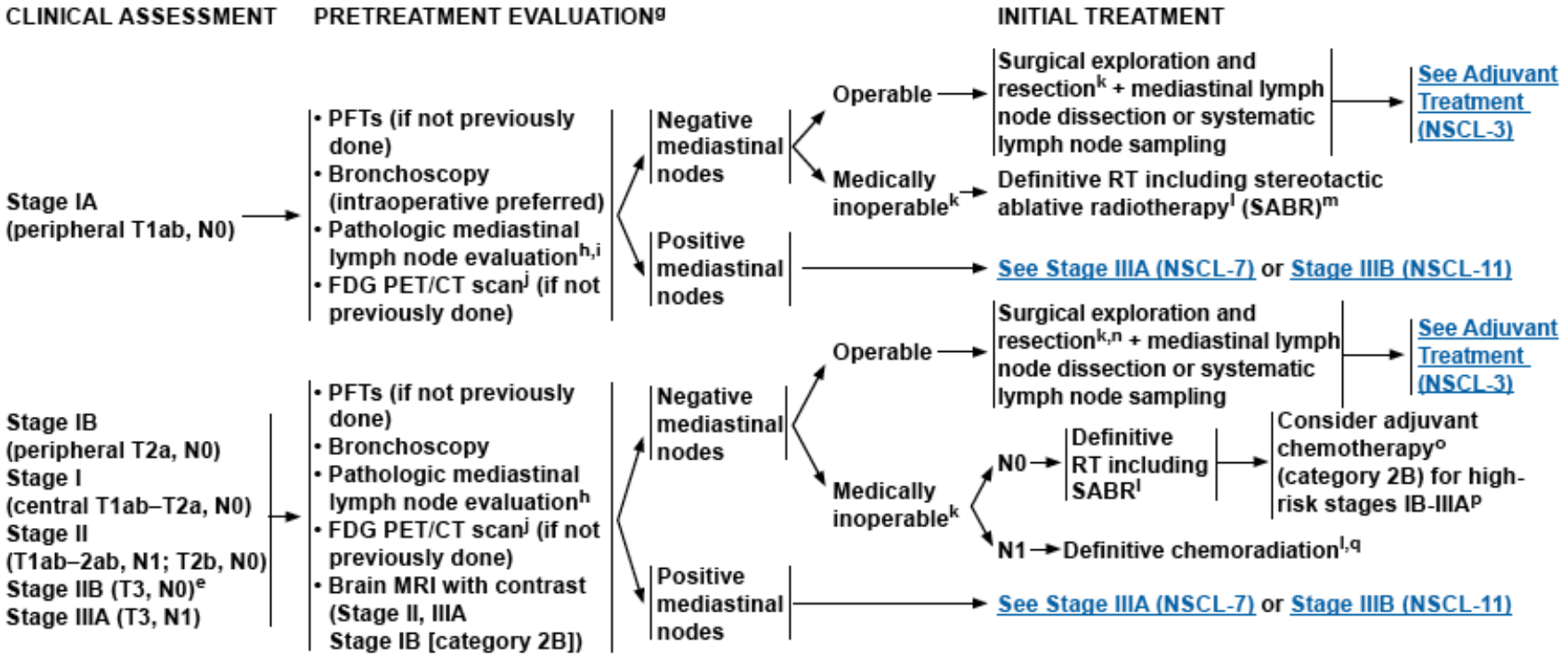
Esistenza di un trattamento di provata efficacia per la malattia oggetto di screening



[e]T3, N0 related to size or satellite nodules.

[g]Testing is not listed in order of priority and is dependent upon clinical circumstances, institutional processes, and judicious use of resources.

[h]Methods for evaluation include mediastinoscopy, mediastinotomy, EBUS, EUS, and CT-guided biopsy.

[i]Solid tumors <1 cm and purely non-solid tumors <3 cm that are CT and PET negative have a low likelihood of positive mediastinal lymph nodes and pre-resection pathologic mediastinal evaluation is optional.

[j]Positive PET/CT scan findings for distant disease need pathologic or other radiologic confirmation. If PET/CT scan is positive in the mediastinum, lymph node status needs pathologic confirmation.

[k]See Principles of Surgical Therapy (NSCL-B).

[l]See Principles of Radiation Therapy (NSCL-C).

[m]Interventional radiology ablation is an option for selected patients.

[n]After surgical evaluation, patients likely to receive adjuvant chemotherapy may be treated with induction chemotherapy as an alternative.

[o]See Chemotherapy Regimens for Neoadjuvant and Adjuvant Therapy (NSCL-D).

[p]Examples of high-risk factors may include poorly differentiated tumors (including lung neuroendocrine tumors [excluding well-differentiated neuroendocrine tumors]), vascular invasion, wedge resection, tumors >4 cm, visceral pleural involvement, and incomplete lymph node sampling (Nx). These factors independently may not be an indication and may be considered when determining treatment with adjuvant chemotherapy.

[q]See Chemotherapy Regimens Used with Radiation Therapy (NSCL-E).

Note: For more information regarding the categories and definitions used for the NCCN Evidence Blocks™, see page EB-1.
Note: All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any cancer patient is in a clinical trial. Participation in clinical trials is especially encouraged.

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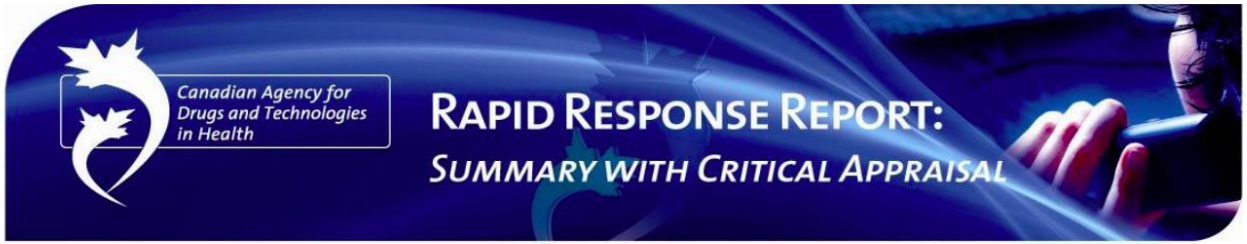
Disponibilità di un test diagnostico attendibile



TITLE: **Low-Dose Computed Tomography for Lung Cancer Screening: A Review of the Clinical Effectiveness, Diagnostic Accuracy, Cost-Effectiveness, and Guidelines**

DATE: 22 September 2015

What is the diagnostic accuracy of low-dose computed tomography for lung cancer screening in high-risk populations?

Systematic Review

One systematic review,[5] showed that the false-positive rate was statistically significantly higher with LDCT screening compared with CXR screening (OR 41.77, 95% confidence interval [CI] 5.18 to 336.95).

One systematic review,[11] showed that the PPV was 4.4% considering RCT data and 2.4% considering observational study data.

Randomized Controlled Trial

One RCT,[12] showed that the sensitivity, specificity, PPV, and NPV of lung cancer screening with LDCT were 93.8%, 73.4%, 3.8%, and 99.9% respectively. The sensitivity, specificity, PPV, and NPV of lung cancer screening with CXR were 73.5%, 91.3%, 5.7%, and 99.8% respectively.

Screening for lung cancer: A systematic review and meta-analysis

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Keywords:

Lung cancer

Screening

Systematic review

Primary health care

Word Counts:

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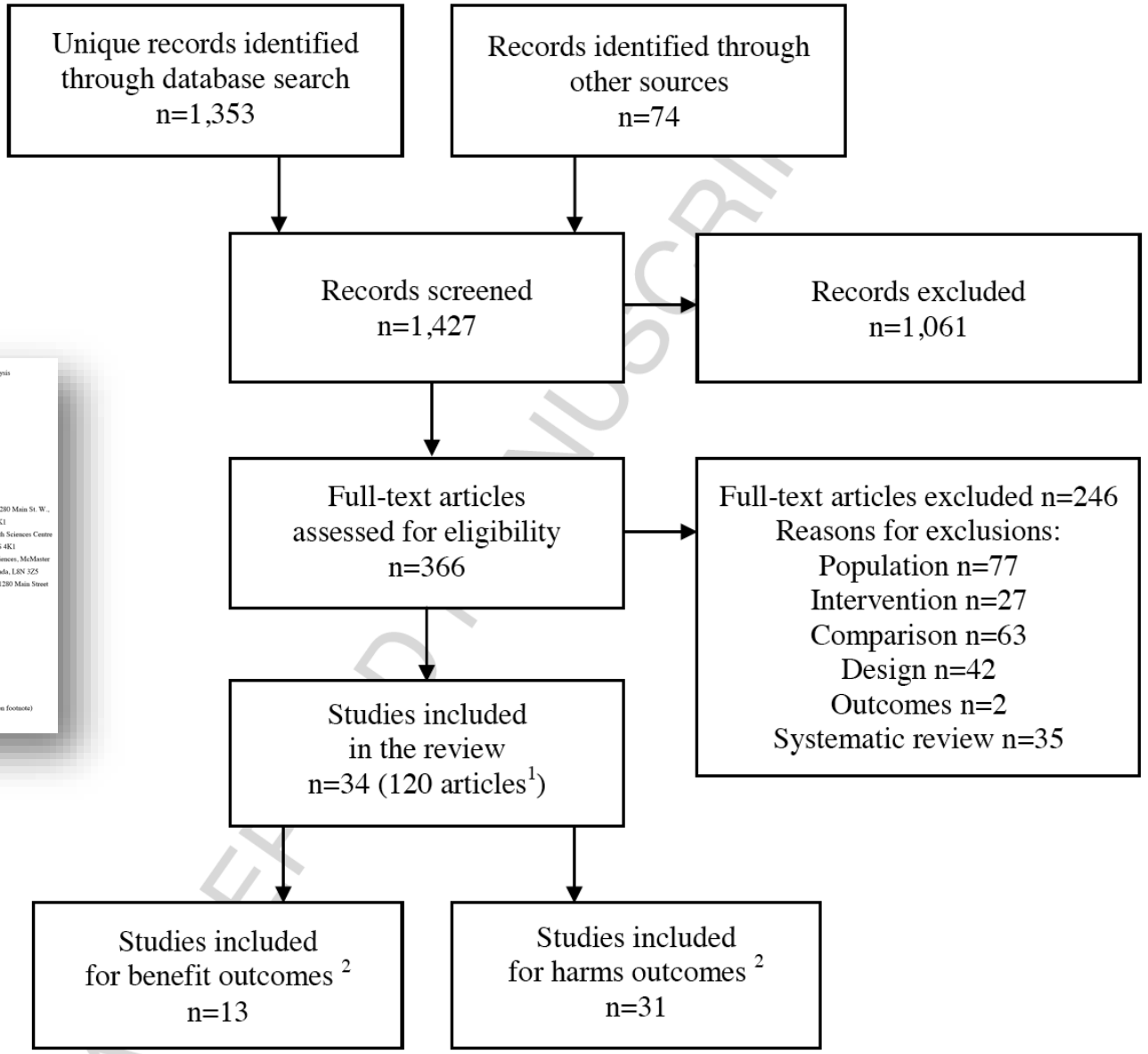
Abstract 278



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[1] Supplemental Files 1 and 2 identify all of the papers.
[2] There was overlap of 10 studies across benefits and harms.

Fig. 1. Search and Selection Flow Diagram

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Abstract 278

False Positives

9 studies (*cutpoint for nodules: >3mm to >8mm*)

- 8469 at least one false positive result / 43943 patients screened (25.3%; 95%CL 0.64 to 69.0%)
- 9.7 (95%CL 4.3 to 15.1) subjects with benign conditions /1000 patients screened
- 5.3 (95%CL 3.9 to 6.7) subjects with benign conditions addressed to major invasive procedure / 1000 patients screened

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False Positives

NLST (*cutpoint for nodules: >3mm*)

- 6130 at least one false positive result / 26309 patients screened (23.3%; 95%CL 22.8 to 23.81%)
- 11.9 (95%CL 10.7 to 13.3) subjects with benign conditions /1000 patients screened
- 6.8 (95%CL 5.9 to 7.9) subjects with benign conditions addressed to major invasive procedure / 1000 patients screened

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"Accesso" alle procedure di diagnosi e terapia

Reduced Lung-Cancer Mortality with Low-Dose Computed Tomographic Screening

The National Lung Screening Trial Research Team*

N Engl J Med 2011;365:395-409.

There are several limitations of the NLST.

- recognized medical institutions

  for example, the mortality associated with surgical resection, which was much lower in the NLST than has been reported previously in the general U.S. population (1% vs. 4%)

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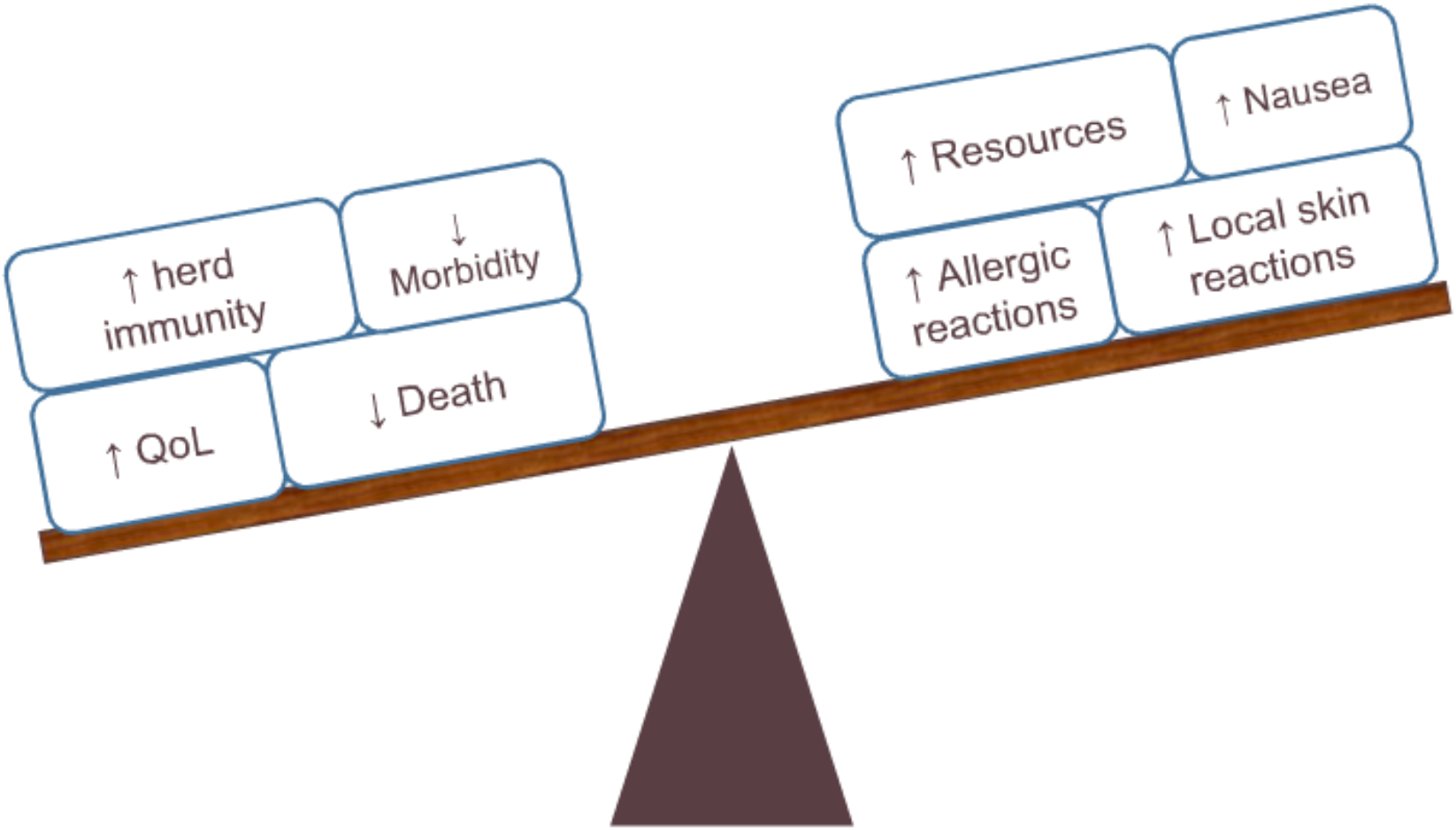
Bilancio positivo tra benefici e "danni"

Consequences: desirable and undesirable



Benefits and Harms of CT Screening for Lung Cancer

A Systematic Review

JAMA. 2012;307(22):2418-2429

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Joshua N. Mirkin, BA	Donald A. Berry, PhD	Graham A. Colditz, MD, DrPH	Anita L. Sabichi, MD	Amir Qaseem, MD, PhD, MHA
Thomas K. Oliver, BA	Otis W. Brawley, MD	Michael K. Gould, MD, MS	Rebecca Smith-Bindman, MD	Frank C. Detterbeck, MD

Randomized Controlled Trials Identified in the Search of the Literature

Source	No. Randomized (% Screened or Followed Up at Baseline)		Screening With LDCT[a]		Study Duration		No. of Screens, Planned/ Completed (at Last Report)[c]	Participant Characteristics			
	LDCT	Control	Collimation, mm	Nodule Size Warranting Workup, mm[b]	Years of Accrual	Planned Follow-up From Baseline, y		Male, %	Age Range, y	Smoking History Eligibility (Current or Former) Pack-years[d]	Smoking History Eligibility (Current or Former) Years Since Quit
LDCT vs Usual Care (No Screening)											
NELSON,[18] 2009	7907 (95)[e]	7915 (100)[e]	0.75	≥4.6, >9.8	2004-NR[e]	10	3/2	84	50-75	>15	≤10
DLCST,[19,20] 2012	2052 (100)	2052 (100)	0.75[f]	≥5, >15	2004-2006	10	5/5	55	50-70	≥20	<10[g]
ITALUNG,[21] 2009	1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NR	4/1[illegible]	[illegible]	[illegible]	[illegible]	<10
DANTE,[22] 2009	[illegible]	119[illegible]	5	[illegible]ny, ≥6	200[illegible]	NR	5/5	[illegible]0	[illegible]-74	≥20	<10
Garg et al,[16] 2002	92 (100)[j]	98 (100)[j]	5	Any, >10	2001-NR[j]	NR	2/1	75	50-80	≥30	NR[k]
LDCT vs Chest Radiograph											
NLST,[23,24] 2011	26 722 (98)	26 732 (97)	≤2.5	≥4	2002-2004	>7	3/3	59	55-74	≥30	≤15
LSS,[25,26] 2005	1660 (96)	1658 (93)	5	Any[l]	2000	2	2/2[m]	59	55-74	≥30	<10
Dépiscan,[27] 2007	385 (86)[n]	380 (77)	1-1.5	>5, ≥10	2002-2004	NR	3/1	71	47-76	≥15	<15

HETEROGENEITY!

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Mortality Due to All Causes, Lung Cancer, and All Causes Other Than Lung [illegible] rials

No meta-analysis!

Source	Events, No. (%)		Rate of Events per 100 000 Person-years		Relative Risk (95% CI)	No. Needed to Screen to Prevent 1 Event
	LDCT	Control	LDCT	Control		
All-Cause Mortality						
DANTE,[22] 2009	46 (3.6)	45 (3.8)	NR	NR	0.97 (0.80-1.20)[a,b]	635
NLST,[23] 2011	1877 (7.0)	2000 (7.5)	1303[b]	1395[b]	0.93 (0.86-0.99)	219
DLCST,[19] 2012	61 (3.0)	42 (2.0)	NR	NR	1.19 (1.01-1.40)	NR
Lung Cancer–Specific Mortality						
DANTE,[22] 2009	20 (1.6)	20 (1.7)	NR	NR	0.97 (0.71-1.32)[a,b]	954
NLST,[23] 2011	356 (1.3)	443 (1.7)	247	309	0.80 (0.73-0.93)	320
DLCST,[19] 2012	15 (0.7)	11 (0.5)	NR	NR	1.15 (0.83-1.61)	NR
Mortality Not Due to Lung Cancer						
DANTE,[22] 2009	26 (2.0)	25 (2.1)	NR	NR	0.99 (0.75-1.30)[b]	1898[b]
NLST,[23] 2011	1521 (5.7)	1557 (5.8)	1056[b]	1086[b]	0.99 (0.95-1.02)[b]	755[b]
DLCST,[19] 2012	46 (2.2)	31 (1.5)	NR	NR	1.20 (1.00-1.44)[b]	NR

Trial & Subgroup	Screening Events	Screening Total	Control Events	Control Total	Weight	Risk Ratio IV, Random, 95% CI
Annual screening with LDCT vs. usual care						
DANTE	59	1264	55	1186	29.0%	1.01 [0.70, 1.44]
DLCST	15	2052	11	2052	12.4%	1.36 [0.63, 2.96]
MILD-1	12	1190	7	1723	9.4%	2.48 [0.98, 6.29]
Subtotal (95% CI)		**4506**		**4961**	**50.8%**	**1.30 [0.81, 2.11]**
Total events	86		73			
Heterogeneity: $Tau^2 = 0.08$; $Chi^2 = 3.34$, df = 2 (P = 0.19); $I^2 = 40\%$						
Test for overall effect: Z = 1.08 (P = 0.28)						
Biennial screening with LDCT vs. usual care						
MILD-2	6	1186	7	1723	7.3%	1.25 [0.42, 3.70]
Subtotal (95% CI)		**1186**		**1723**	**7.3%**	**1.25 [0.42, 3.70]**
Total events	6		7			
Heterogeneity: Not applicable						
Test for overall effect: Z = 0.40 (P = 0.69)						
Screening with LDCT vs. CXR						
NLST	356	26722	443	26732	42.0%	0.80 [0.70, 0.92]
Subtotal (95% CI)		**26722**		**26732**	**42.0%**	**0.80 [0.70, 0.92]**
Total events	356		443			
Heterogeneity: Not applicable						
Test for overall effect: Z = 3.09 (P = 0.002)						

MILD-1 = uses data from intervention arm that received annual LDCT screening; MILD-2 = uses data from intervention arm that received biennial LDCT screening

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Abstract 278

Death from invasive follow-up testing

7 studies

- 11.2 (95%CL 5.1 to 17.3) deaths / 1000 patients undergoing invasive follow-up testing

NLST

- 14.9 (95%CL 9.2 to 24.0) deaths / 1000 patients undergoing invasive follow-up testing
- 0.6 (95%CL 0.4 to 0.9) deaths / 1000 patients screened

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Keywords:
Lung cancer
Screening
Systematic review
Primary health care

Word Counts:
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Abstract 278

Major complications from invasive follow-up testing

4 studies

- 52.0 (95%CL 15.8 to 88.3) major complications / 1000 patients undergoing invasive follow-up testing

NLST

- 78.1 (95%CL 63.5 to 95.7) major complications / 1000 patients undergoing invasive follow-up testing
- 3.2 (95%CL 2.6 to 3.9) major complications / 1000 patients screened

Reduced Lung-Cancer Mortality with Low-Dose Computed Tomographic Screening

The National Lung Screening Trial Research Team*

N Engl J Med 2011;365:395-409.

There are several limitations of the NLST.

- screening attrition

Because more participants in the radiography group missed one or two screenings, the radiography group had more time in which a lung cancer could metastasize before it was detected.

Reduced Lung-Cancer Mortality with Low-Dose Computed Tomographic Screening

The National Lung Screening Trial Research Team*

N Engl J Med 2011;365:395-409.

There are several limitations of the NLST.

- "healthy-volunteer" effect

  which can bias results such that they are more favorable than those that will be observed when the intervention is implemented in the community

Evidence of a Healthy Volunteer Effect in the Prostate, Lung, Colorectal, and Ovarian Cancer Screening Trial

P. F. Pinsky[1], A. Miller[2], B. S. Kramer[3], T. Church[4], D. Reding[5], P. Prorok[1], E. Gelmann[6], R. E. Schoen[7], S. Buys[8], R. B. Hayes[9], and C. D. Berg[1]

Am J Epidemiol 2007;165:874–881

	Prostate, Lung, Colorectal, and Ovarian Cancer Screening Trial		National Health Interview Study	
	Men ($n = 76,704$) (%)	Women ($n = 78,234$) (%)	Men (%)	Women (%)
Smoking status				
Current smoker	12	10	21	18
Regular physical activity	85	84	56	52
Education				
College degree	41	30	25	16
Medical diagnosis				
Cancer	2	7	8	10
Diabetes	9	7	14	13
Myocardial infarction, coronary heart disease, stroke	15	7	19	10
Hypertension	34	34	42	44

Reduced Lung-Cancer Mortality with Low-Dose Computed Tomographic Screening

The National Lung Screening Trial Research Team*

N Engl J Med 2011;365:395-409.

There are several limitations of the NLST.

- radiographic screening as comparator

  the choice of radiography precludes a direct comparison of low-dose CT with community care (care that a participant usually receives)

Screening by Chest Radiograph and Lung Cancer Mortality

The Prostate, Lung, Colorectal, and Ovarian (PLCO) Randomized Trial

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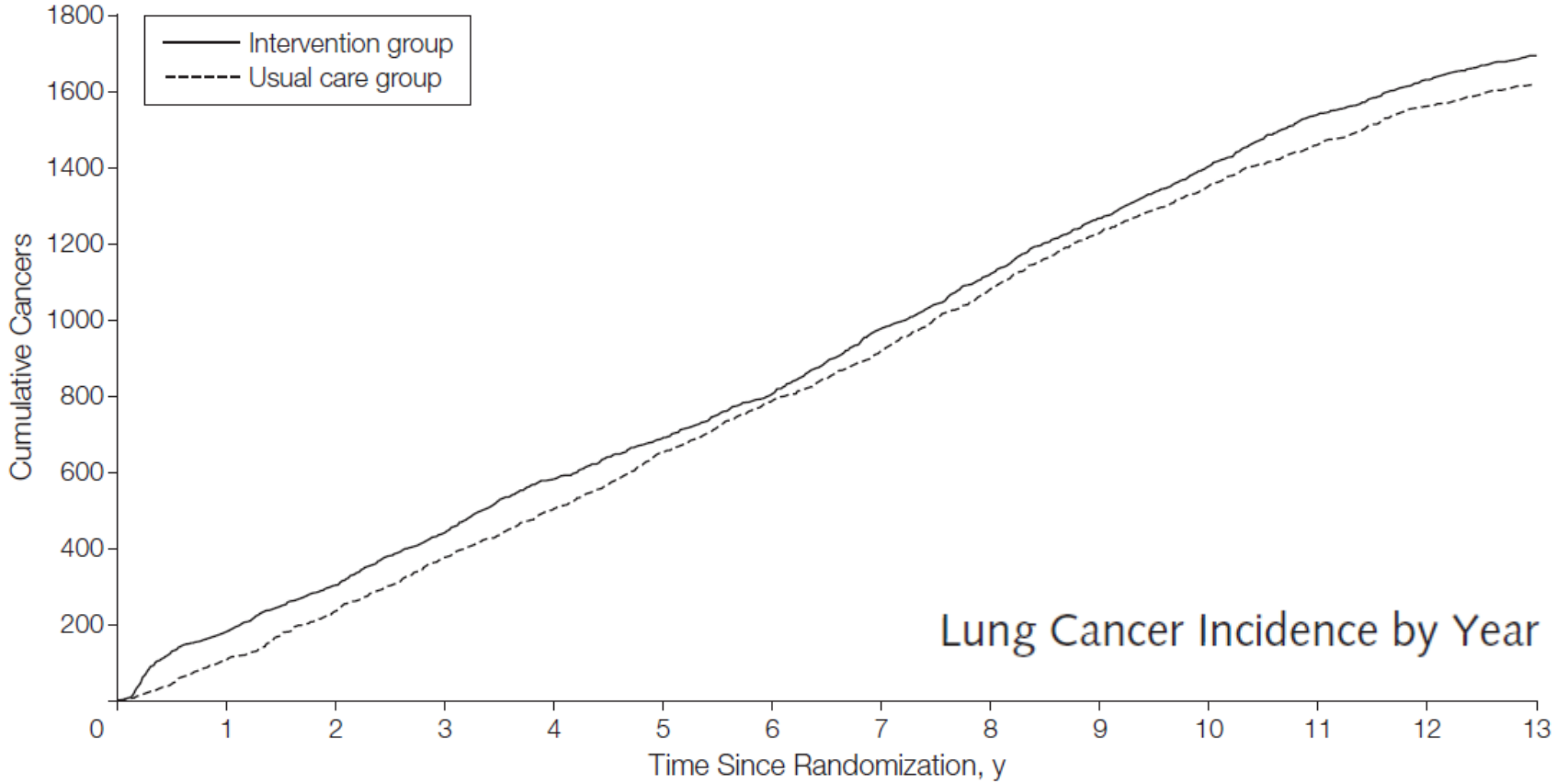
Christine D. Berg, MD
for the PLCO Project Team

JAMA. 2011;306(17):1865-1873



Overdiagnosis in Cancer

H. Gilbert Welch, William C. Black

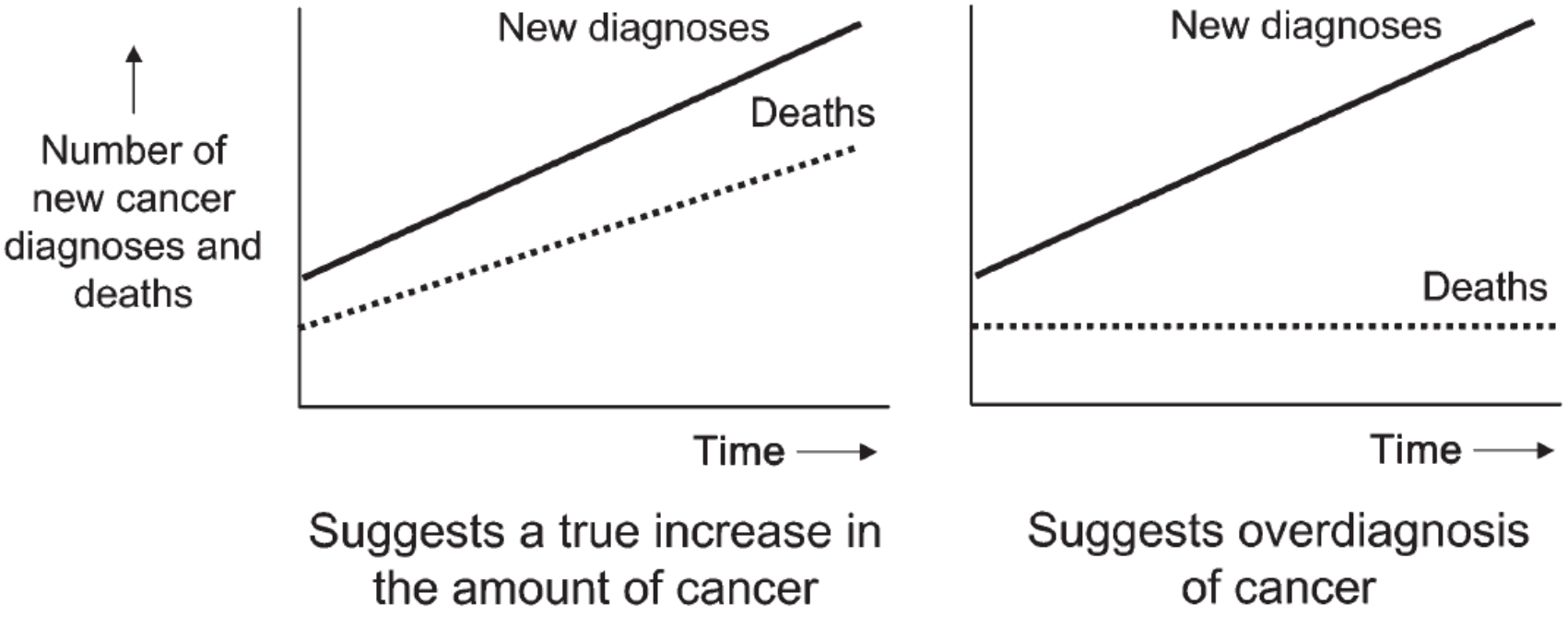
J Natl Cancer Inst 2010;102:605–613

the diagnosis of a "cancer" that would otherwise not go on to cause symptoms or death

two prerequisites for cancer overdiagnosis to occur:

the existence of a silent disease reservoir

activities leading to its detection (particularly cancer screening)



e&p DIAGNOSI PRECOCE DEL TUMORE POLMONARE anno 40 (1) gennaio-febbraio 2016

Quando ricerca e raccomandazioni cliniche sono in (momentanea) contraddizione: la valutazione dello screening del tumore polmonare per soggetti ad alto rischio in Europa e negli Stati Uniti

Eugenio Paci

La valutazione della sovradiagnosi è a tutt'oggi soprattutto una questione epidemiologica, legata alla stima dell'eccesso di diagnosi di cancro successiva allo screening, poiché tali diagnosi non sono compensate nel tempo da una riduzione nel numero dei casi di tumore identificati dopo l'interruzione dello screening stesso.

La capacità di identificare quali siano le lesioni sovradiagnosticate all'atto della diagnosi è al momento impossibile e oggetto solo di ricerca mirata a differenziare, con indicatori prognostici, la probabilità di progressione.

Five-year Lung Cancer Screening Experience:

CT Appearance, Growth Rate
Location, and Histologic Feat
61 Lung Cancers

Radiology: Volume 242: Number 2—F

Changes in size expressed as volume-doubling time (VDT), may help to distinguish aggressive cancer from cases that are unlikely to become symptomatic.

Tumor VDTs were, on average, longer than 1 year, and the range of growth rates was wide. Of 48 tumors with calculable VDTs, 13 had a VDT longer than 400 days (observed most commonly in women) and could be considered overdiagnosed; this is a confounding factor in lung cancer screening.

Screening and early detection of lung cancer

J. Vansteenkiste[1*], C. Dooms[1], C. Mascaux[2] & K. Nackaerts[1]

Annals of Oncology 23 (Supplement 10): x320–x327, 2012

current problems with CT screening

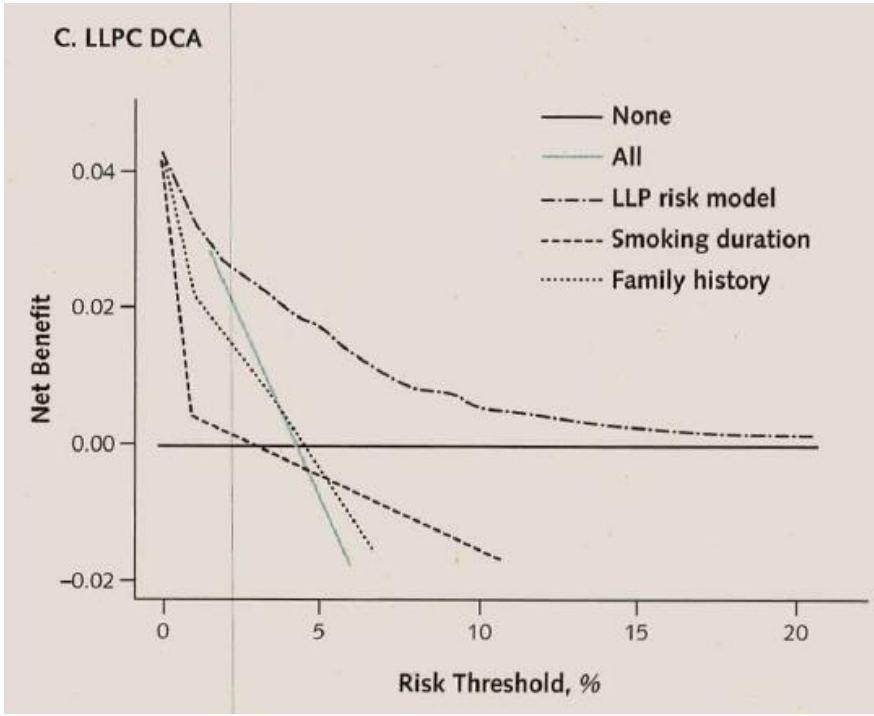
- Variability in the choice of the at-risk populations in the different RCT screening protocols.

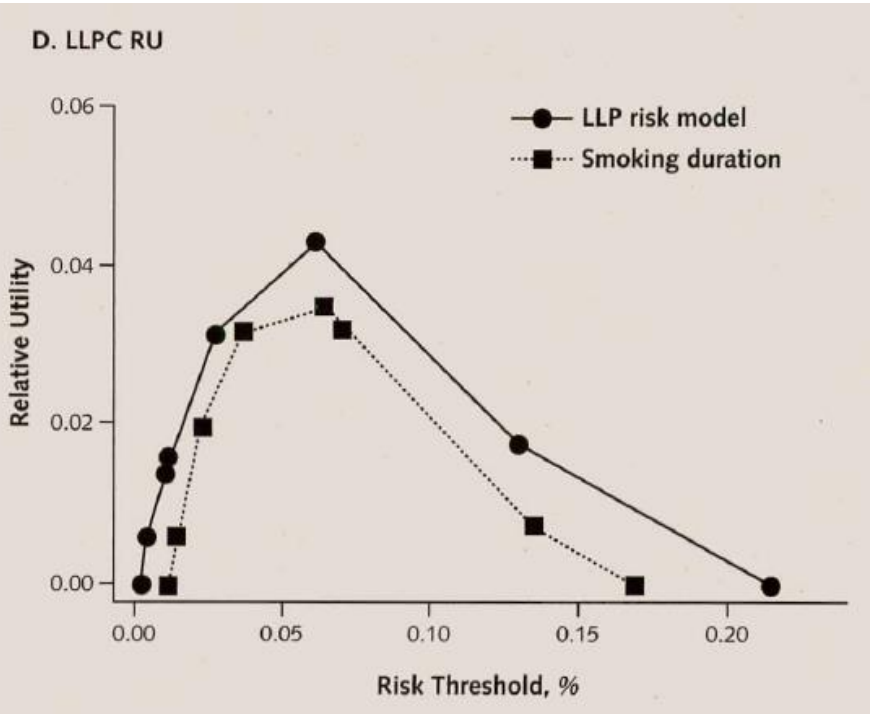
> The underlying risk for lung cancer varied substantially between the studies. The NLST,[23] LSS,[25] and study by Garg et al[16] generally focused on higher risk; DLCST,[19] ITALUNG,[21] and DANTE[22] on both higher and intermediate risk; and NELSON[18] and Dépiscan[27] on a broad range of risk among participants.
>
> JAMA, June 13, 2012—Vol 307, No. 22

Predictive Accuracy of the Liverpool Lung Project Risk Model for Stratifying Patients for Computed Tomography Screening for Lung Cancer

A Case–Control and Cohort Validation Study

Olaide Y. Raji, PhD; Stephen W. Duffy, MSc; Olorunshola F. Agbaje, PhD; Stuart G. Baker, ScD; David C. Christiani, MD, MPH; Adrian Cassidy, PhD; and John K. Field, PhD, FRCPath





Screening and early detection of lung cancer

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current problems with CT screening

- Variability in the choice of the at-risk populations in the different RCT screening protocols.
- Variability in radiological standards for LDCT screening technology, image acquisition and use of computer-aided interpretation.

Benefits and Harms of CT Screening for Lung Cancer

A Systematic Review

JAMA. 2012;307(22):2418-2429

Peter B. Bach, MD, MAPP	Christopher G. Azzoli, MD	Tim Byers, MD, MPH	James R. Jett, MD	Douglas E. Wood, MD
Joshua N. Mirkin, BA	Donald A. Berry, PhD	Graham A. Colditz, MD, DrPH	Anita L. Sabichi, MD	Amir Qaseem, MD, PhD, MHA
Thomas K. Oliver, BA	Otis W. Brawley, MD	Michael K. Gould, MD, MS	Rebecca Smith-Bindman, MD	Frank C. Detterbeck, MD

Nodule Dete

Detection rate: 3%-30%

Source	Round of Screening[b]	No. of Participants (%) Noncalcified Lung Nodules Over Study Threshold[c]	Lung Cancer Nodules	Benign Nodules	Nodules Not Lung Cancer	Diagnosed With Lung Cancer Over Entire Study Period[d]
LDCT vs Usual Care (No Screening)						
NELSON,[18] 2009	Baseline	1570 (21)	70 (0.9)	1500 (20)	1500 (96)	124 (1.6)
	Year 1	570 (8)	54 (0.7)	516 (7)	516 (91)	
DLCST,[19,20] 2009	Baseline	179 (9)	17 (0.8)	162 (8)	162 (91)	70 (3.4)
	Year 1	NR	11 (0.6)	NR	NR	
	Year 2	NR	13 (0.7)	NR	NR	
ITALUNG,[21] 2009	Baseline	426 (30)	20 (1.5)	406 (29)	406 (95)	20 (1.5)
DANTE,[22] 2009	Baseline	226 (18)	47 (3.7)	179 (14)	179 (79)	60 (4.7)
Garg et al,[16] 2002	Baseline	3 (3)	2 (2.2)	1 (1)	1 (33)	2 (2.2)
LDCT vs Chest Radiographs						
NLST,[23,24] 2011	Baseline	6561 (25)	270 (1.0)	6291 (24)	6291 (96)	1060 (4.0)
	Year 1	6901 (28)	168 (0.6)	6733 (27)	6733 (98)	
	Year 2	4054 (17)	211 (0.9)	3843 (16)	3843 (95)	
LSS,[25,26] 2005	Baseline	316 (19)	30 (1.8)	286 (18)	286 (91)	40 (2.5)
	Year 1	360 (26)	8 (0.6)	352 (25)	352 (98)	
Dépiscan,[27] 2007	Baseline	81 (24)	7 (2.4)	74 (22)	74 (91)	8 (2.4)

Screening and early detection of lung cancer

J. Vansteenkiste[1*], C. Dooms[1], C. Mascaux[2] & K. Nackaerts[1]

Annals of Oncology 23 (Supplement 10): x320–x327, 2012

current problems with CT screening

- Variability in the choice of the at-risk populations in the different RCT screening protocols.
- Variability in radiological standards for LDCT screening technology, image acquisition and use of computer-aided interpretation.
- Variability in the number and time intervals of the screening rounds, important to minimise possible harms by radiation exposure risk for screening participants.

Screening for lung cancer: A systematic review and meta-analysis

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Abstract 278

Substantial variability was observed across studies in terms of samples, tests, outcomes, comparators, follow-up, locations and timing.

Interventions varied based on available technology and access to screening expertise and equipment at the time of each study.

For estimation of overdiagnosis, the study design and the threshold to determine overdiagnosis varied considerably across studies.

Computed Tomography Screening for Lung Cancer without a Smoking Cessation Program—Not a Cost-Effective Idea

W. K. Evans, MD, FRCPC, and Michael C. Wolfson, PhD

Journal of Thoracic Oncology • Volume 6, Number 11, November 2011

Smoking cessation alone is substantially more cost-effective than CT screening alone and is more cost-effective than smoking cessation combined with CT screening albeit with greater benefits.

Clearly, no CT screening program should be mounted without being tightly linked to a smoking cessation program.

If the introduction of lung screening programs were to result in current smokers believing that screening absolves them of the need to stop smoking, the overall effect could be very adverse.

Cost-Effectiveness of Computed Tomography Screening for Lung Cancer in the United States

Pamela M. McMahon, PhD,† Chung Yin Kong, PhD,*† Colleen Bouzan, MS,* Milton C. Weinstein, PhD,‡§ Lauren E. Cipriano, BSc, BA,*‖ Angela C. Tramontano, MPH,* Bruce E. Johnson, MD,‡¶ Jane C. Weeks, MD, MS,‡# G. Scott Gazelle, MD, MPH, PhD*†§*

(*J Thorac Oncol.* 2011;6: 1841–1848)

Annual CT Screening vs. No Intervention: Sensitivity Analyses in Cohorts of Men and Women Aged 50 Yr

Scenario	$/QALY Compared with No Intervention, Men Age 50 Yr	$/QALY Compared with No Intervention, Women Age 50 Yr
Base case[a]	$149,000	$137,000

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Scenario	$/QALY Compared with No Intervention, Men Age 50 Yr	$/QALY Compared with No Intervention, Women Age 50 Yr
Base case[a]	$149,000	$137,000
Screen participation increases cessation rate to 4%	$105,000	$97,000

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Scenario	$/QALY Compared with No Intervention, Men Age 50 Yr	$/QALY Compared with No Intervention, Women Age 50 Yr
Base case[a]	$149,000	$137,000
Screen participation increases cessation rate to 6%	$73,000	$40,000
Screen participation increases cessation rate to 4%	$105,000	$97,000

Cost-Effectiveness of Computed Tomography Screening for Lung Cancer in the United States

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Annual CT Screening vs. No Intervention: Sensitivity Analyses in Cohorts of Men and Women Aged 50 Yr

Scenario	$/QALY Compared with No Intervention, Men Age 50 Yr	$/QALY Compared with No Intervention, Women Age 50 Yr
Base case[a]	$149,000	$137,000
Screen participation increases cessation rate to 6%	$73,000	$40,000
Screen participation increases cessation rate to 4%	$105,000	$97,000
Screen participation cuts cessation rate in half to 1.5%	$880,000	$1,034,000

PRINCIPLES AND PRACTICE
OF SCREENING FOR DISEASE

J. M. G. WILSON
Principal Medical Officer, Ministry of Health, London, England

G. JUNGNER
Chief, Clinical Chemistry Department, Sahlgren's Hospital, Gothenburg, Sweden

WORLD HEALTH ORGANIZATION
GENEVA
1968

(1) The condition sought should be an important health problem.
(2) There should be an accepted treatment for patients with recognized disease.
(3) Facilities for diagnosis and treatment should be available.
(4) There should be a recognizable latent or early symptomatic stage.
(5) There should be a suitable test or examination.
(6) The test should be acceptable to the population.
(7) The natural history of th ndition, including development from latent to declared diseas e adequately understood.
(8) There should h
(9) The cost of ca patients diagn to possible ex
(10) Case-finding s and for all" p

"Accettazione" della procedura diagnostica

Attitudes towards screening for lung cancer among smokers and their non-smoking counterparts

Gerard A Silvestri, Paul J Nietert, James Zoller, Cindy Carter, David Bradford

Thorax 2007;**62**:126–130. doi: 10.1136/thx.2005.056036

Table 2 Cancer beliefs and willingness to be screened for lung cancer

Characteristic	Never smokers (n = 925)	Former smokers (n = 517)	Current smokers (n = 559)	All subjects (n = 2001)	Smokers v non-smokers Odds ratio* (95% confidence interval)
Told by doctor that he/she is at high risk of developing lung cancer (%)	0.9	4.9†	21.7†,‡,§	7.7	14.7 (9.6 to 22.5)
Belief that he/she is at risk for lung cancer (%)					
Yes	2.8	7.7†	23.1†,‡,§	9.5	6.95 (4.99 to 9.67)
No	90.8	77.4†	36.2†,‡,§		0.08 (0.06 to 0.10)
Not sure	6.9	14.9†	40.8†,‡,§		7.21 (5.59 to 9.30)
Belief that early detection of lung cancer results in a good chance of surviving (%)	58.8	54.0	48.7†,§	54.7	0.65 (0.53 to 0.79)
In making decision to be screened:					
Screening convenience is important (%)	28.9	32.3	29.4	30.0	1.06 (0.85 to 1.32)
Risk of disease is important (%)	87.7	80.9†	56.4†,‡,§	77.2	0.21 (0.17 to 0.27)
Screening accuracy is important (%)	92.4	86.9†	70.9†,‡,§	85.0	0.24 (0.19 to 0.32)
Screening cost is important (%)	36.1	38.3	51.5†,‡,§	41.0	1.98 (1.61 to 2.42)
Willingness to consider for cancer/pay for test/undertake follow-up					
Willingness to consider screening for lung cancer (%)	87.6	86.1	71.7†,‡,§	82.8	0.30 (0.23 to 0.39)
Willing to pay $200 for lung cancer screening test (%)	51.3	45.6†	27.5†,‡,§	43.2	0.26 (0.20 to 0.33)
Willing to pay $300 for lung cancer screening test (%)	26.9	20.3†	10.9†,‡,§	19.5	0.29 (0.20 to 0.42)
Willing to have surgery for lung cancer (%)	69.2	62.5†	50.5†,‡,§	62.2	0.39 (0.31 to 0.48)

The findings suggest that there may be substantial obstacles to the successful implementation of a mass-screening programme for lung cancer that will target cigarette smokers.

High-risk older smokers' perceptions, attitudes, and beliefs about lung cancer screening

Janine K. Cataldo[1,2]

Cancer Medicine 2016; 5(4):753–759

Using binary logistic regression, a predictive model of factors to explain LDCT agreement was produced. This is a cross-sectional, national, online survey of 338 older smokers (≥55 years) with a ≥30 pack-year smoking history. Over 82% of the sample believed that a person who continues to smoke after the age of 40 has at least a 25% chance of developing lung cancer and 77.3%

Using chi-square analyses, six variables that were significant at the 0.10 level were selected for inclusion in model development. Four of the independent variables made a unique statistically significant contribution to the model: perceives accuracy of the LDCT as an important factor in the decision to have a LDCT scan; believes that early detection of LC will result in a good prognosis; believes that they are at high risk for lung cancer; and is not afraid of CT scans. Of note, only 10.9% believed that a negative CT scan result would mean that they could continue to smoke.

Screening for lung cancer: A systematic review and meta-analysis

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Abstract 278

High quality evidence showed that in selected high-risk individuals, LDCT screening significantly reduced lung cancer mortality and all-cause mortality.

However, for its implementation at a population level, the current evidence warrants the development of standardized practices for screening with LDCT and follow-up invasive testing to maximize accuracy and reduce potential associated harms