

CHOOSE HEALTH NOT TOBACCO

31 MAY WORLD NO TOBACCO DAY #NoTobacco



Lo screening per il tumore del polmone in una popolazione ad alto rischio: *molti dubbi e poche certezze*

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CONFLITTI DI INTERESSE

Non ho conflitti di interesse di alcun tipo

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Lung cancer screening: qualche riflessione preliminare

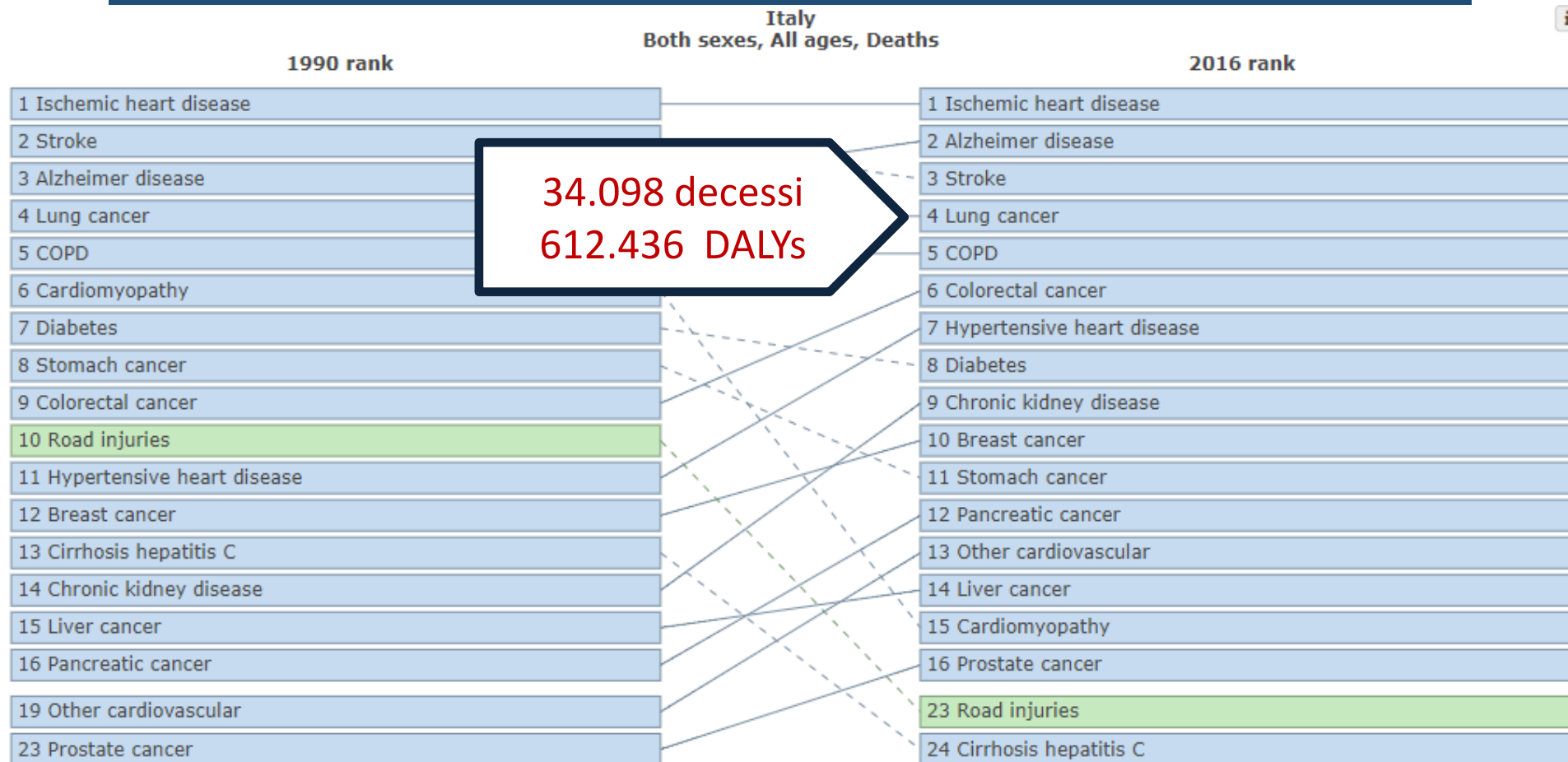
E' il momento di prendere in considerazione l'introduzione di una nuova tecnologia sanitaria

Per affrontare un problema di salute determinato (nel 90% dei casi) dal tabacco: il tumore del polmone

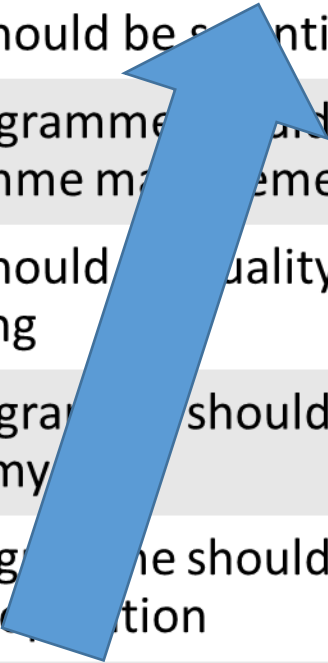
Principi di Wilson e Jungner rivisitati nel 2008

- 1 The screening programme should respond to a recognized need
- 2 The objectives of screening should be defined at the outset
- 3 There should be a defined target population
- 4 There should be scientific evidence of screening programme effectiveness
- 5 The programme should integrate education, testing, clinical services and programme management
- 6 There should be quality assurance, with mechanisms to minimize potential risks of screening
- 7 The programme should ensure informed choice, confidentiality and respect for autonomy
- 8 The programme should promote equity and access to screening for the entire target population
- 9 Programme evaluation should be planned from the outset
- 10 The overall benefits of screening should outweigh the harm

Lung cancer screening



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Lung cancer screening

	N pop	Fum >25 pack-year	Ex-fum > 25 pack-year & < 15 quit	Tot
Donne				
55-64	4.171.945	242.307	304.409	
65-74	3.517.537	126.526	207.448	
TOT	7.689.482	368.832	511.857	880.689
Uomini				
55-64	3.905.180	302.847	432.709	
65-74	3.139.314	156.432	397.459	
TOT	7.044.494	459.279	830.168	1.289.447
Totale				
M+F	14.733.976	828.111	1.342.025	2.170.136

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Contents lists available at [ScienceDirect](#)

Preventive Medicine

journal homepage: www.elsevier.com/locate/ypmed



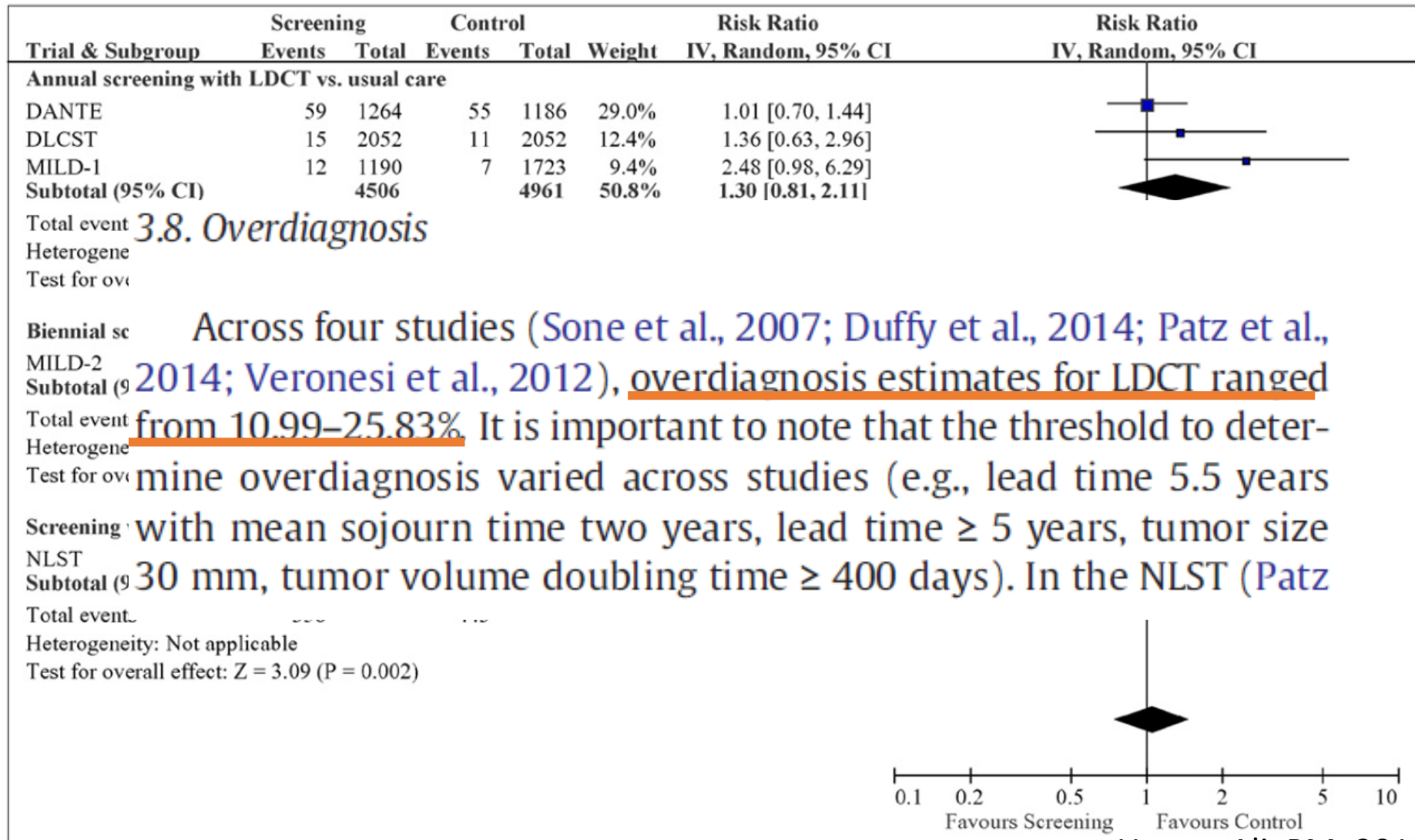
Review Article

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

Muhammad Usman Ali ^{a,c}, John Miller ^d, Leslea Peirson ^{a,b}, Donna Fitzpatrick-Lewis ^{a,b}, Meghan Kenny ^{a,c},
Diana Sherifali ^{a,b,*}, Parminder Raina ^{a,c,*}



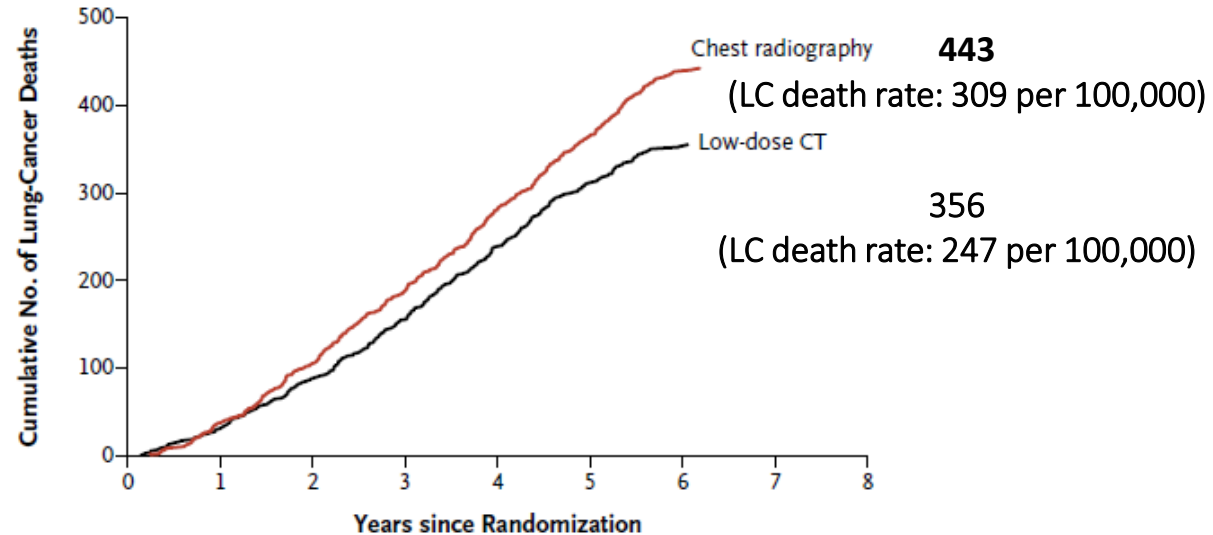
Tac spirale: effetto su mortalità per tumore del polmone



Efficacia nel NLST

NLST, USA

B Death from Lung Cancer



NLST: 53,454 subjects	LDTC	CRX
after a positive screening test	649 (61%)	279 (28%)

LC mortality: Relative reduction of **20.0% (95%CI: 6.8-26.7)**

Overall mortality: Relative reduction of

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

The National Lung Screening Trial Research Team*

the diagnosis after screening phase was over		
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La controversia sullo screening del tumore della mammella

- I. La revisione Cochrane di Goetzsche e Jorgensen del 2011-2013
- II. La risposta dell'EuroScreen Working Group
- III. L'Independent UK Panel on Breast Cancer Screening

La controversia sulla sovradiagnosi

Screening tumore della mammella

Attore	Efficacia	Sovradiagnosi
Cochrane Collaboration	15%	45%
Euroscreen Group	35%	4%
UK Independent panel	20-25%	9-14%

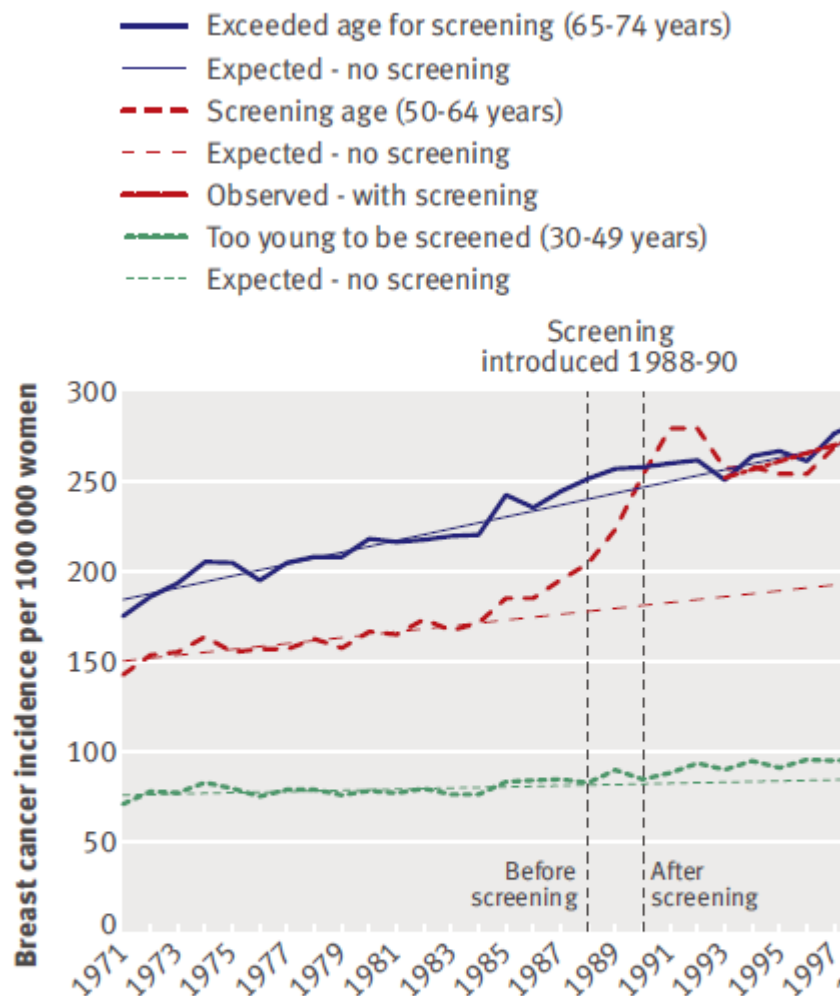


Fig 2 | Incidence of invasive breast cancer per 100 000 women in UK

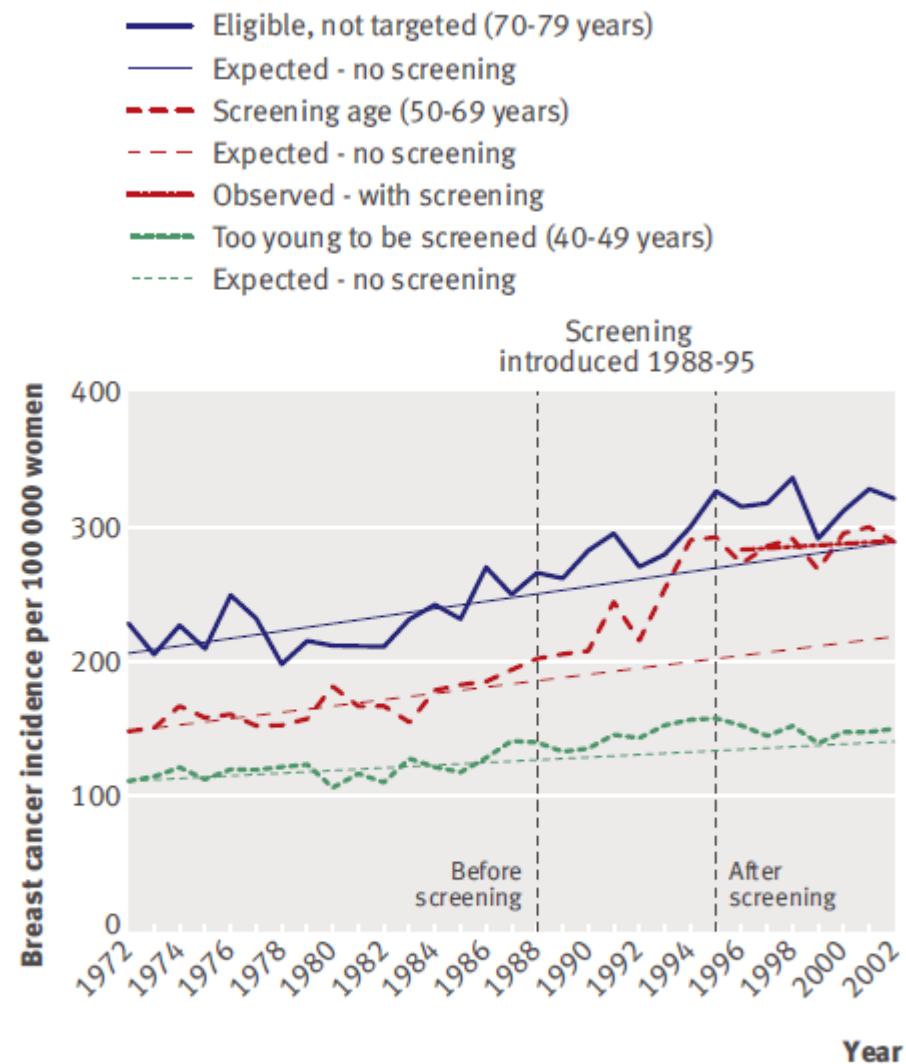
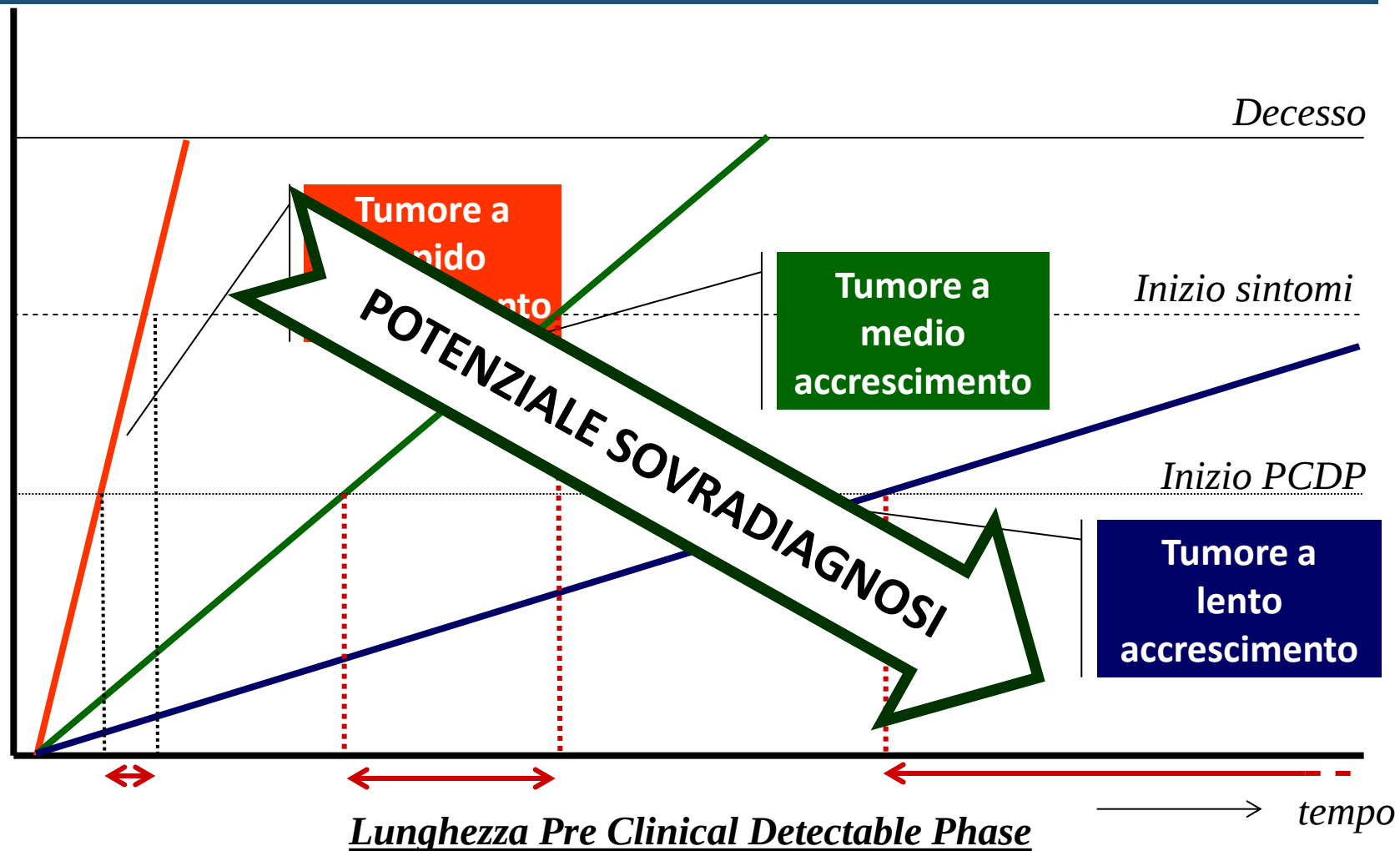


Fig 4 | Incidence of invasive breast cancer per 100 000 women in New South Wales, Australia

Storia naturale e screening



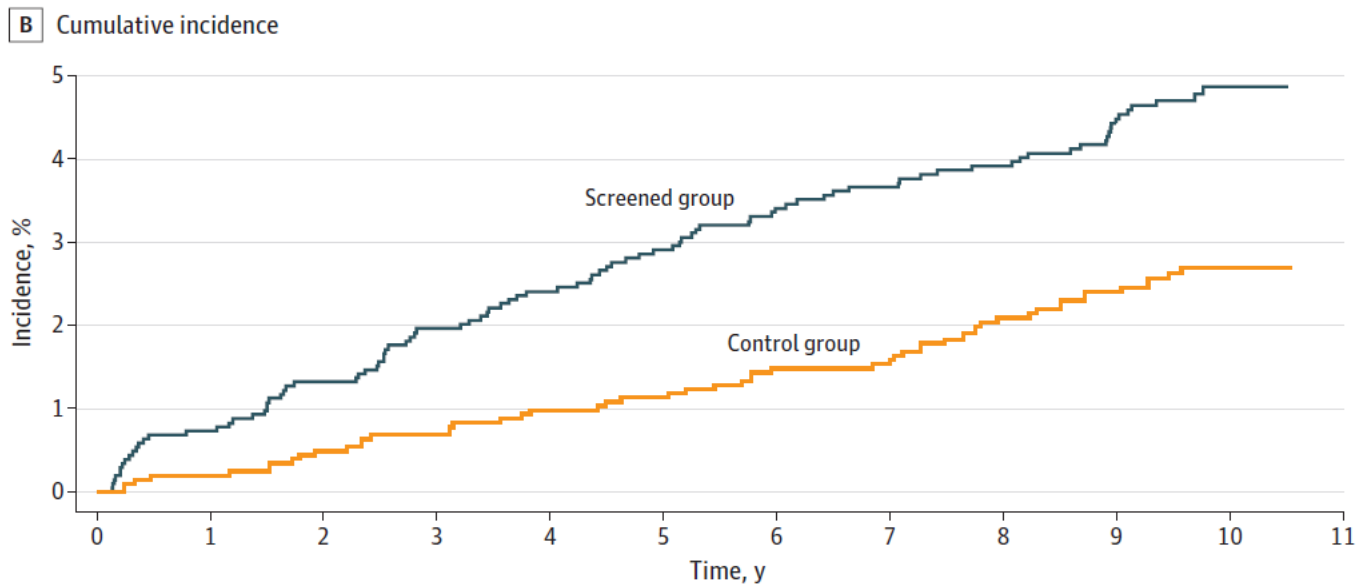
Costo/efficacia screening tumore del polmone

Author	Year	Screening Type	Outcome metric	Incremental Cost [2014 US\$]	Incremental Effect	ICER	[2014 US\$]
Shmueli	2011	One Time	QALY	86 [90.51]	0.0591	1464	[1540.78]
Marshall	1999	One Time	LY	260 [369.46]	0.0438	5940	[8440.65]
Marshall	1999	Repetitive	QALY	960 [1364.15]	0.0491	19533	[27756.11]
Chirikos	2000	Repetitive	LY	76500 [105170.25]	1.582	48357	[66479.97]
Mahadevia	2001	Repetitive	QALY	4600 [6148.99]	0.039	116300	[155462.54]
Beinfeld	2001	One Time	LY	2513 [3359.22]	0.016	151000	[201847.32]
Manser	2002	Repetitive	QALY	1649 [1623.64]	0.016	105090	[103473.51]
McMahon	2006	Repetitive	QALY	1778–3637 [2087.88–4270.88]	0.009–0.022	144000–207000	[16909.26–243077.31]
Pyenson	2012	Repetitive	LY	NR	NR	18862	[19448.76]
Villantini	2012	Repetitive	QALY	1546 [1594.09]	0.055	28240	[29118.50]
Black	2014	Repetitive	LY and QALY	1631 [1799.77]	0.0316 and 0.0201	52000 and 81000	[57380.69] and [89381.46]
Pyenson	2014	Repetitive	LY	16053	0.87	18452	
Field	2016	One time	LY		0.01-0.04	6325 POUNDS	
Bocconi\ICH	2018	Repetitive	LY	254.95	0.087	2943	

TAC SPIRALE: sintesi

- Le prove di efficacia cominciano ad essere convincenti
 - -20% mortalità per tumore polmonare
 - NNS=320
 - Confermata da risultati recenti
 - MILD+DANTE -11% (Eur J Cancer Prev, Infante, 2017)
 - MILD 10aa FU -39% (Ann Onc, Pastorino, 2019)
 - NELSON Trial 10aa FU -26%/-39% M/F (dati non pubblicati)
- Costo efficacia: variabile da $\approx 3000\text{€}$ a $\approx 150000 \times \text{LY}$
- Sovradiagnosi:
 - fra 11% a 26% in LCST (Prev Med, Usman, 2016)
 - 53% in LCST – vs no screening, modello per 5 screen e 5 aa di FU (JAMA Int Med Patz, 2014)
 - Sovradiagnosi/morte prevenuta=1.38 in LCST (JAMA Int Med Patz, 2014)
 - 67% in DLCST vs no screening (JAMA Int Med, Heleno, 2018)

TAC SPIRALE: sintesi



TAC SPIRALE: sintesi

L'esame falso positivo (96%), che effetto avrà sul benessere del soggetto?

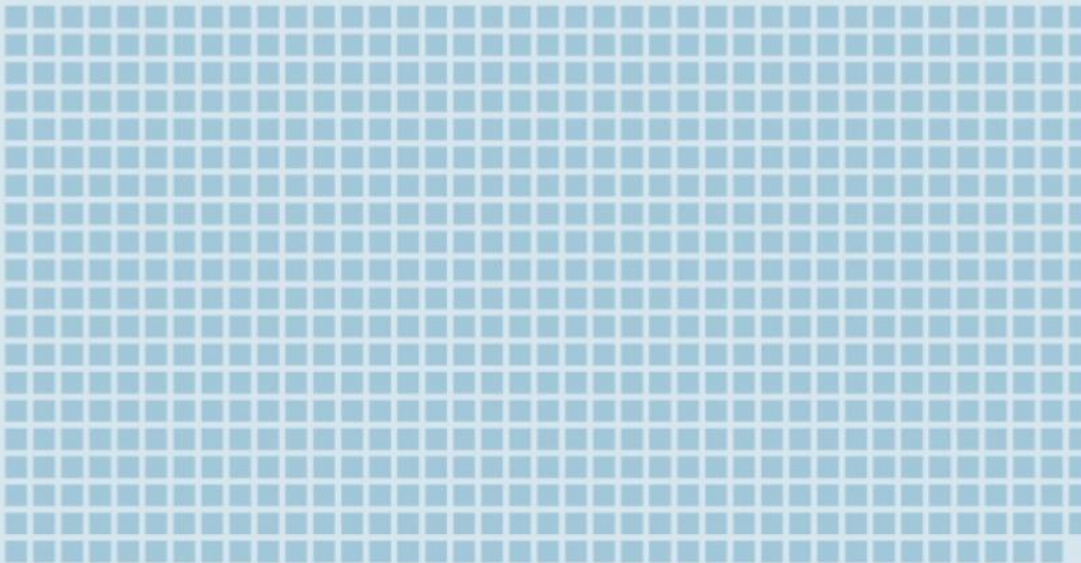
An important limitation of this analysis is the assumption that a positive CT scan result would have negligible impact on the patient's quality of life. Even small adjustments to the patient's quality of life became cost prohibitive, highlighting the importance for education both before and after a screening CT scan to minimize patient anxiety. Given the dramatic cost

TAC SPIRALE: sintesi

Screen time

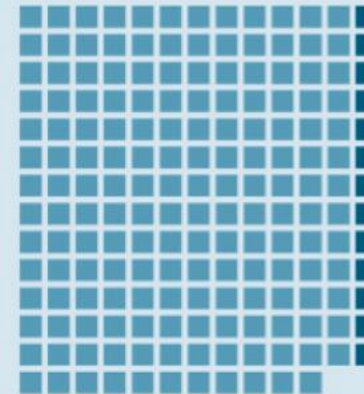
If 1,000 eligible individuals are scanned three times for lung cancer

779 will have normal scans



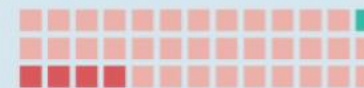
Source: International Agency
for Research on Cancer

180 will need an extra scan
but will not have lung cancer



13 will need
an invasive
procedure
to rule out
lung cancer

41 will be diagnosed with lung cancer



3 will not die
as a result

4 cancers would never have caused
the person harm (overdiagnosis)

Stima del costo dello screening in Italia

- Basati sui costi stimati per NLST (Medicare 2009; NEJM, Black, 2014)
 - 2 stime:
 - Differenza fra costi c/screening vs costi s/screening (include il trattamento)
 - Solo costo TC screening (include approfondimenti)
- Convertiti in Euro (maggio 2019)
- Popolazione target: 2.270.000
 - 55-74 anni di età
 - fumatori attuali di >25 pacchetti di sigarette/anno
 - ex-fumatori da <di 15 aa, di >25 pacchetti di sigarette/anno
- Aderenza: 60%

Table 2. Costs per Person.*

Cost	CT Screening	Radiographic Screening	No Screening
	U.S. \$		
Total	3,074	1,911	1,443
Screening	1,130†	336	0
Workup	835	645	512
Treatment	1,106	931	931
Surgery	736	470	470
Chemotherapy	282	351	351
Radiation therapy	88	110	110
Radiation-induced lung cancer	3	0	0

* Costs include those for time and travel, which were \$101 for each screening visit, each workup visit, and each surgical visit. The cost for time and travel for each radiation therapy visit was \$175 and for each chemotherapy visit, \$381.

† The cost of CT screening includes that of addressing potentially clinically significant incidental findings.

Costo dello screening in Italia

Costo per screenato	1443	1000
Popolazione target	2.270.000	2.270.000
Aderenza	60,0%	60,0%
Costo annuale screening	1.965.366.000	1.362.000.000
	Δ c/screening s/screening	solo TC screening

Opportunità etica

Possiamo essere confidenti che lo screening con TAC spirale sia efficace, e costo/efficace
ma sorgono due questioni:

1° - in un Sistema a risorse **FINITE**,
DA DOVE LI PRENDIAMO 1.362.000.000 €?

2° - Siamo certi che sia etico investire su una tecnologia immatura quando...

l'Italia non ha mai investito su interventi molto più maturi?

Interventi più maturi...

- Basati su evidenze di effectiveness
- Prevenzione primaria, cioè mirati a *ridurre l'esposizione al tabacco, non i suoi danni*
- Che prevengono «tutti» i danni, non solo il tumore del polmone
 - Il tumore polmonare rappresenta il 39,4% della mortalità attribuibile al fumo (Prev Med, Gallus, 2011)

1 - Stoptober

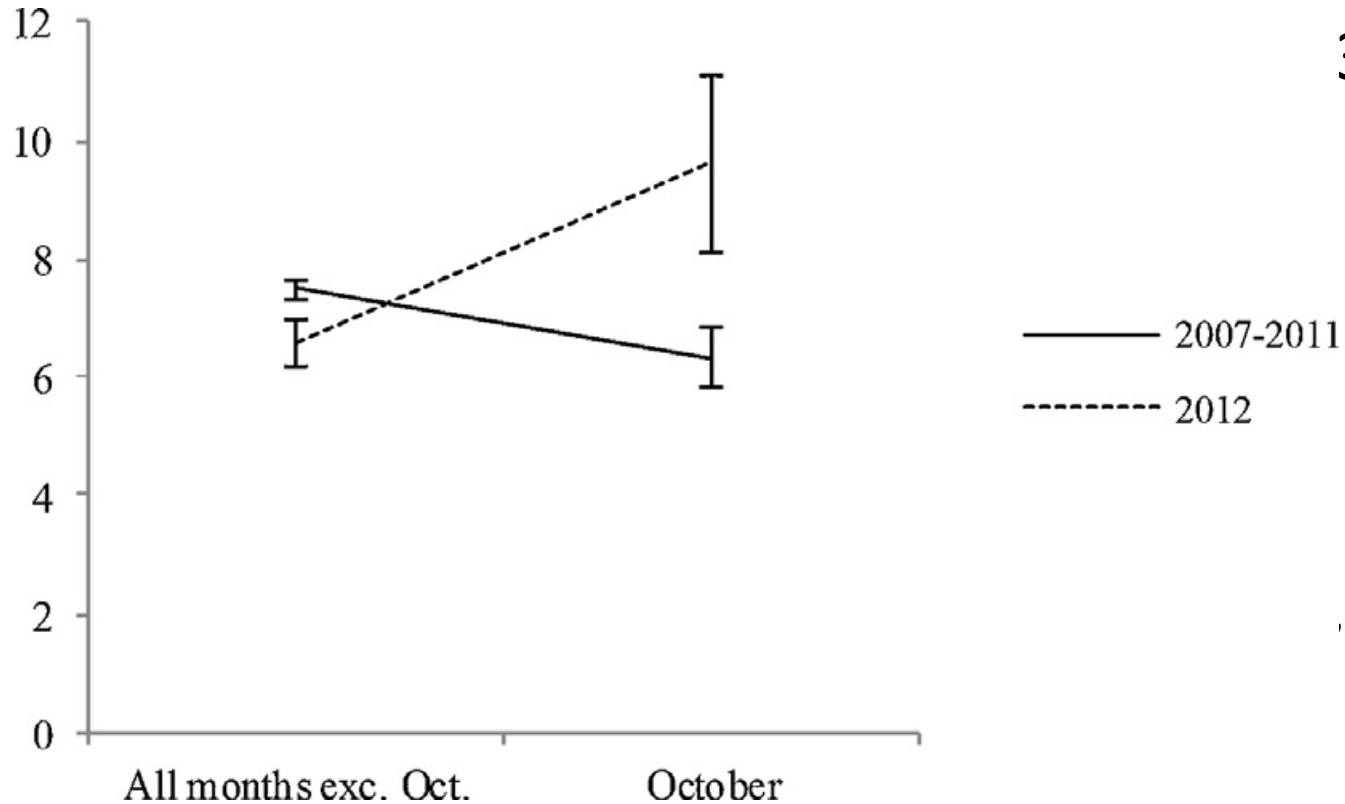
- Campagna di Social Marketing che invita a non fumare durante 28 giorni a ottobre
- Basata su 3 teorie
 - ***Social Contagion Theory***: social networks possono diffondere attitudini e comportamenti.
 - ***SMART Goals***: obiettivi intermedi, quando quelli definitivi sono difficili. Cessare per 28 gg...
 - ***PRIME Theory***: il sistema motivazionale è instabile input variabili. Le campagne devono mirare a tutto il sistema motivazionale piuttosto che un singolo elemento

STOPTOBER UK

- Campagna di mass media e supporti alla cessazione:
 - digital tools
 - Quitlines
 - Postal quitting pack
 - websites providing brief advice
- Costi: £ 5,8 million
- Valutazione di STOPTOBER UK 2012

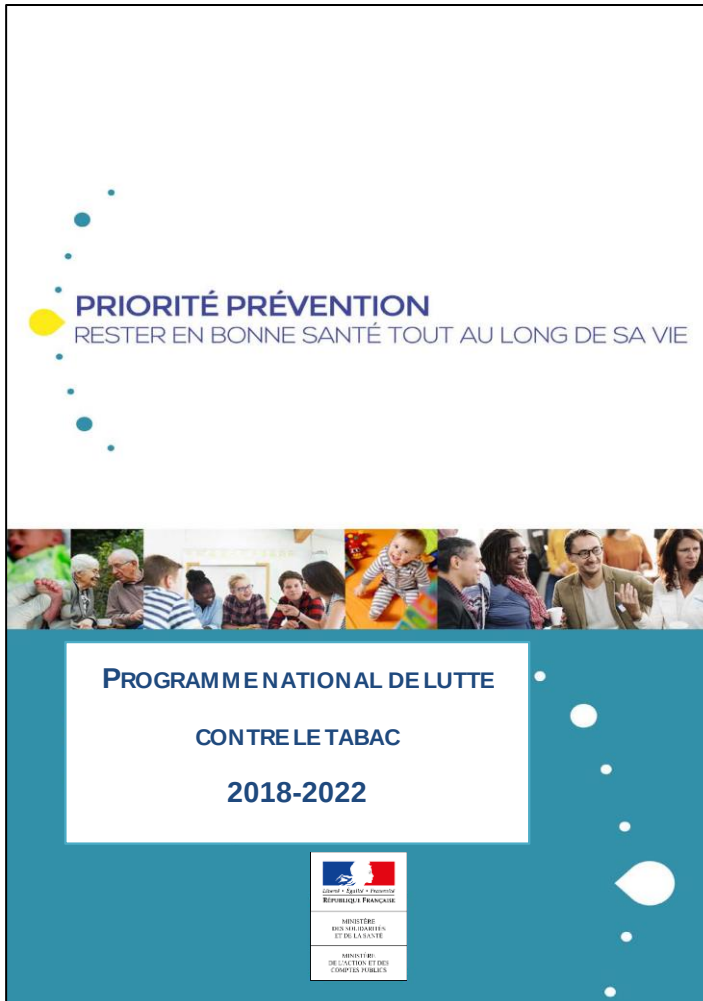
Stoptober UK

- 4% of past year smokers attempting to quit in past month
- 1% of past year smokers attempting to quit in past month
- 2% of past year smokers attempting to quit in past month
- 1% of past year smokers attempting to quit in past month
- 1% of past year smokers attempting to quit in past month



37)

National programme to fight tobacco



First generation born in 2014 becoming adults as non smokers in 2032

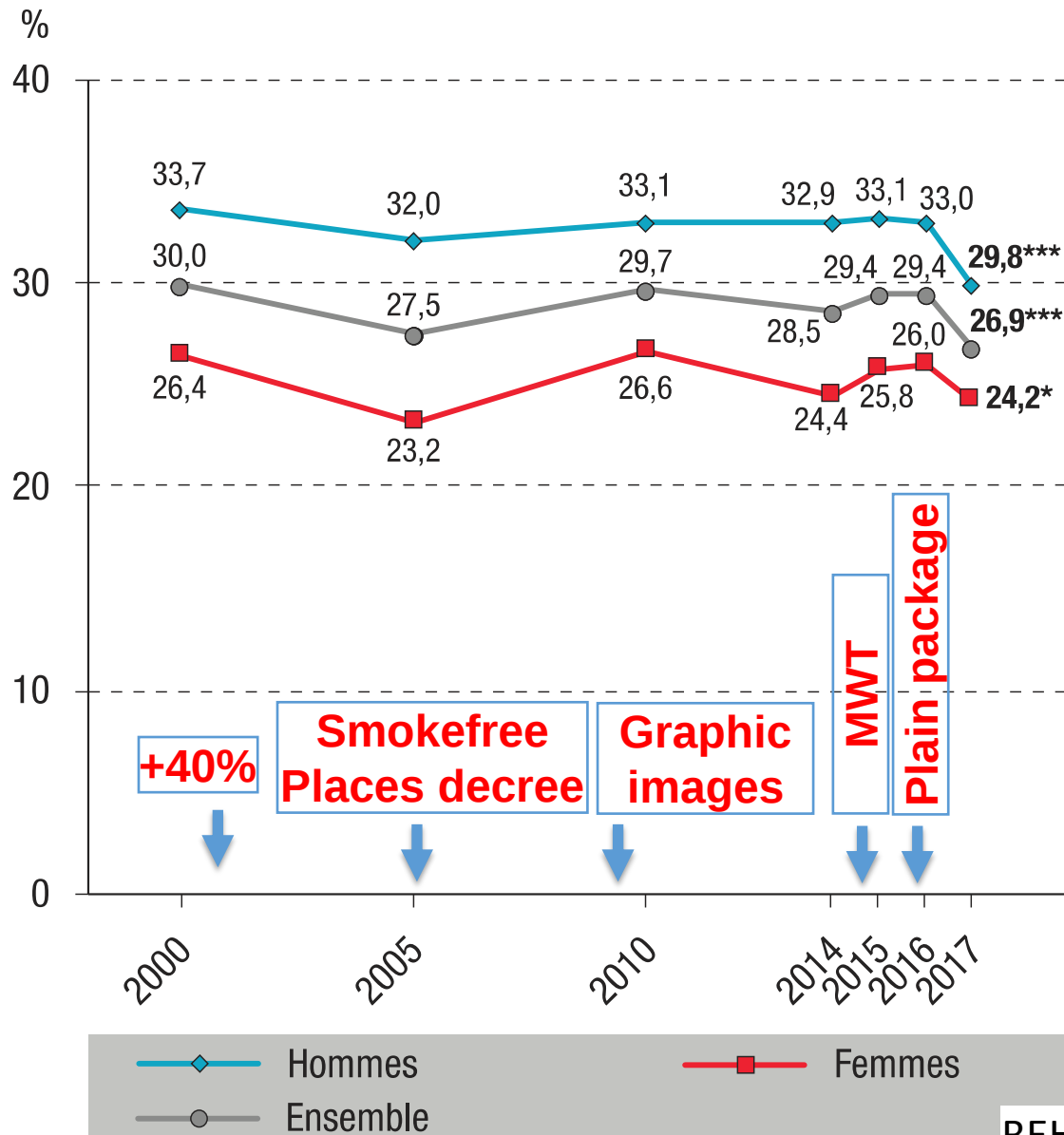
Raise the price to the pack of cigarettes to 10 euros in 2020 starting 1/2 euro in march 2019

Creation of a tobacco fund by a tax the turnover of the tobacco distribution companies (100 millions euros)

Mois sans tabac (Stoptober France)

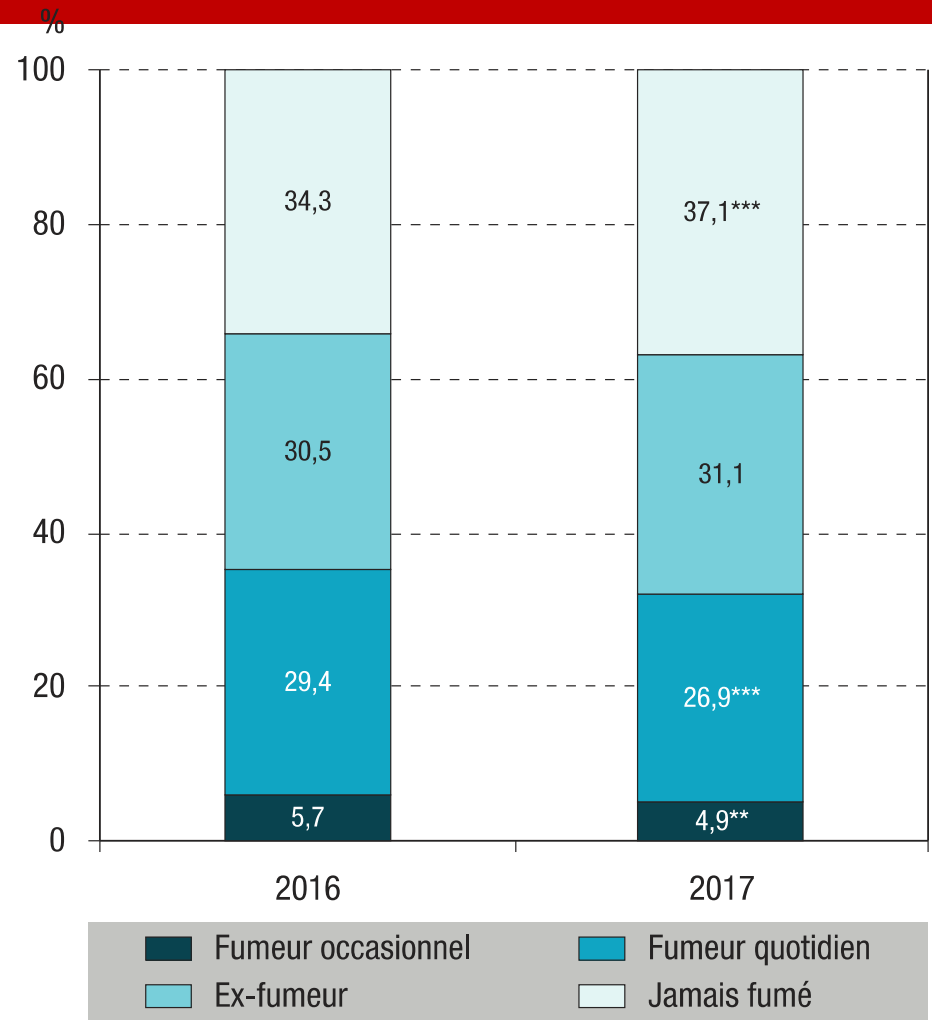
- 15.9% of smokers at the launch of *Mois sans tabac* [14.9%-17.1%] made a QA in the last quarter of 2016, i.e. about **2 millions people**,
- 18.4% of them [15.5%-21.3%], i.e. **380,000 people**, reported their QA was related with *Mois sans tabac*
- Smokers who made a QA in relation with *Mois sans tabac* **more often used an external assistance** (67 % vs 43 %).
- Cost: € 8 million

DAILY SMOKING prevalence 18-75 Years



one million less of daily smokers (2017 vs 2016)

- + 2,8% never smokers
- 2,5% daily smokers
- 0,8% occasional smokers



Sources : Baromètres santé 2016 et 2017, Santé publique France.

Les * indiquent une évolution significative entre 2016 et 2017 :

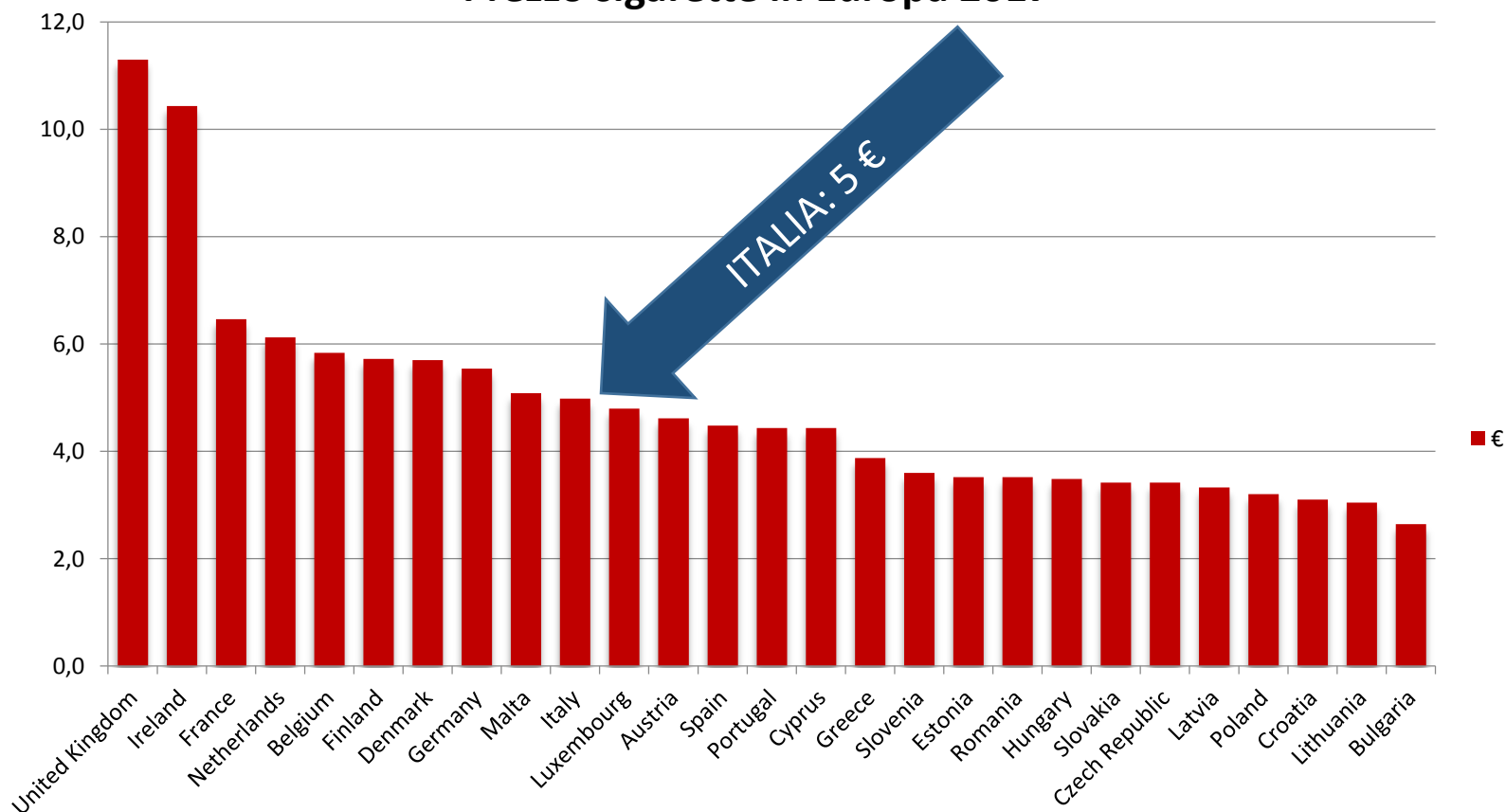
** $p < 0,01$; *** $p < 0,001$.

2 – Aumento del prezzo dei prodotti del tabacco

- Ogni aumento di prezzo del 10% dei prodotti del tabacco determina:
 - una riduzione media della prevalenza del 3,7%
 - una riduzione media dei consumi del 2,8%

Aumento del prezzo dei prodotti del tabacco

Prezzo sigarette in Europa 2017



Aumento del prezzo dei prodotti del tabacco

	+0,50 € (mln €)	+0,25 € (mln €)	+0,10 € (mln €)
Imposte dirette 20	14.000	14.000	14.000
Perdite da riduzior	420	210	84
Incremento da aur	1.358	690	278
Totale imposte co	15.778	14.900	14.362
Introito netto	1.778	900	362
Numero fumatori in meno	451.400	225.700	90.280

Conclusioni – 1/6

Ci sono evidenze che lo screening con TAC spirale a bassa dose *è efficace nel ridurre la mortalità del tumore del polmone*, e la mortalità totale.

Considerare l'implementazione dello screening è *premature* per 4 ragioni:

Conclusioni – 2/6

1. Mancano *certezze sul rapporto fra benefici* (riduzione della mortalità) *e possibili danni* (sovradiagnosi, falsi positivi)
2. E' necessario avviare un complesso *processo di trasferimento* che preveda, ad esempio:
 - lo sviluppo del protocollo
 - la stima dei costi nel contesto organizzativo
 - eventuali studi pilota per rispondere a quesiti specifici
 - un HTA

Conclusioni – 3/6

3. identificare in modo trasparente *in quale intervento/politica disinvestire* per trovare i fondi necessari
 - in questa fase per avviare il processo di trasferimento

Conclusioni – 4/6

4. vi sono *interventi efficaci di prevenzione primaria che non sono mai stati implementati* in italia
 - *STOPTOBER ITALIA* ($\approx 1.000.000$ di cessazioni e $\Downarrow\Downarrow\Downarrow$ la prevalenza)
 - *L'aumento di 50cents del prezzo* del tabacco ($\Downarrow\Downarrow$ 300000 i fumatori)

Conclusioni – 5/6

La prevenzione I^{ria} è eticamente più vantaggiosa della prevenzione II^{ria}

La priorità alla II^{ria} è giustificata se le cause sono sconosciute (mammella p.e.)... ma per il polmone???

la sfiducia nella prevenzione I^{ria} è dovuta alla carenza di valutazione e di rigore

Conclusioni – 6/6

Stoptober ha prove di efficacia sufficienti

E L'AUMENTO DELLA TASSAZIONE
POTREBBE FINANZIARE LO SCREENING!

Grazie!

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