Les coûts du cancer du poumon et de sa prévention

Christos Chouaid

CHI Créteil, Paris XII

Liens d'intérets

Au cours de ces 5 dernières années, j'ai perçu des honoraires ou des financements de la part

AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline, Hoffman la Roche, GSK, Lilly, Pfizer, Amgen, MSD, BMS et Sandoz pour

participation à des congrès, communications, actions de formation, travaux de recherche, participation à des groupes d'experts, rédaction d'articles ou documents, conseils et expertises.

Plan

- Prévention : sevrage tabagique
  - Population générale
  - Populations particulières
- Dépistage
- Composantes prises en charge

Prévention du cancer du poumon

- Rare au début du 20ème siècle
- Aujourd'hui : la plus fréquente maladie mortelle évitable
- Tabac manufacturée
- Esperance de vie
- Nouveaux agents d'exposition
  - arsenic, asbestose, chromates,
  - chlorométhyle éthers, nickel, polycycliques aromatiques
  - hydrocarbures, radon, Pollution

Tabac	90 %
Tabagisme passive	3 à 4%
Expositions professionnelles	9 à 15%
Radon	2 à 10%
Pollution atmosphérique	1 à 2%
Facteurs nutritionnels	10 à 20%
Liés à l' hôte	1 à 4%
Maladies pulmonaires	3 à 4%

Population générale

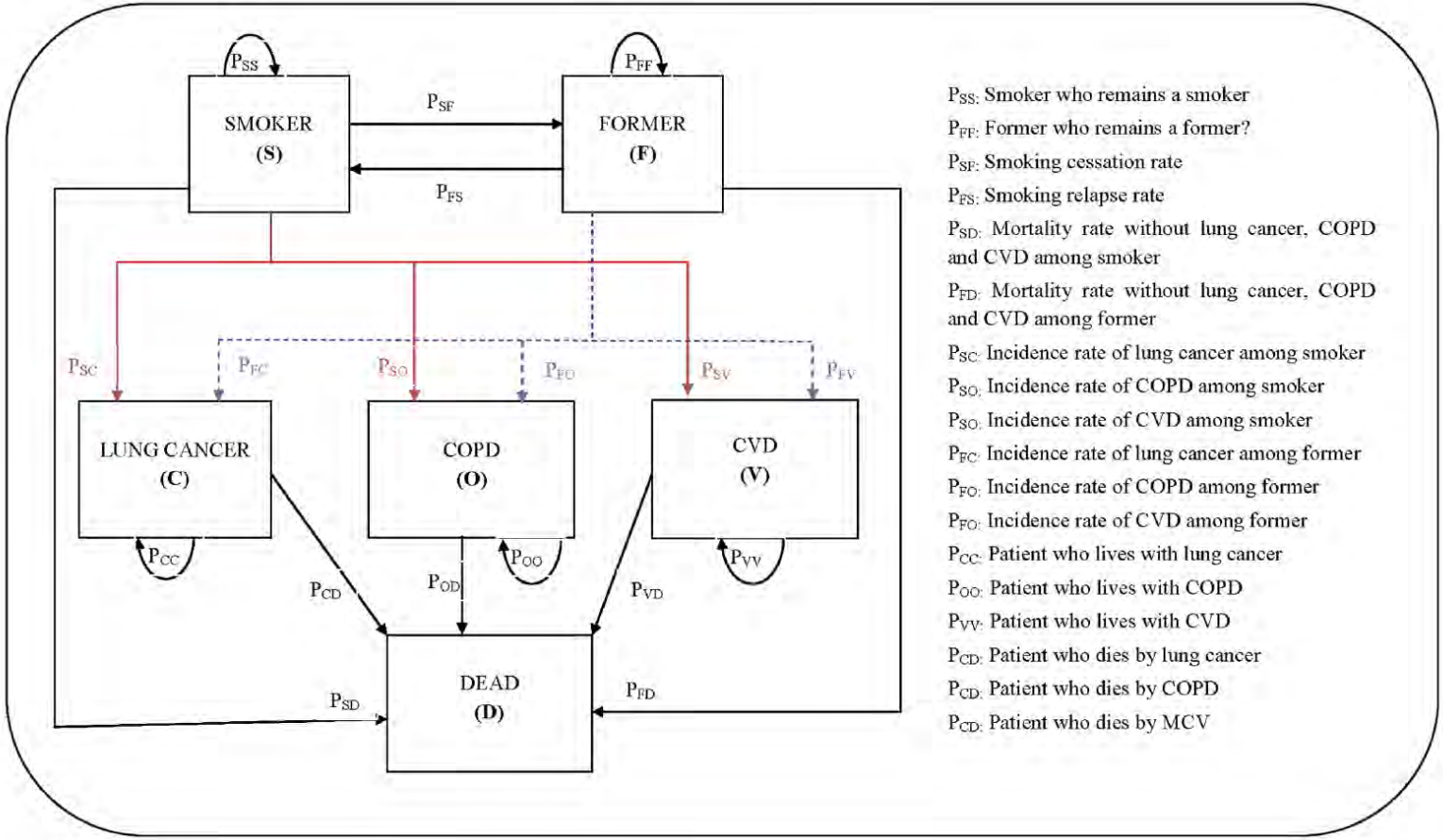
Interventions	Total cost per smoker (2016 $)	Cost assumptions
Pharmacological interventions		
Varenicline (Chantix)	275.01	Starter pack (53 tablets) and continuing pack (56 tablets) provides 1-month supply, with recommended dosage at 0.5 mg once daily for 3 days, then 0.5 mg twice daily for 4 days, then 1 mg twice daily.
Bupropion (Zyban)	221.02	Each pack of 60 tablets provides 1-month supply, with recommended dosage at 150 mg once daily for 6 days, then 150 mg twice daily.
NRT lozenge (Nicorette)	129.12	Each 72 pack of lozenges will provide a 1 week supply if approximately 10 lozenges per day is assumed. Dosage in first 6 weeks is one lozenge every 1 to 2 hours, with a recommendation of at least nine lozenges per day. The estimate is 4 packs are needed per month.
NRT gum (Nicorette)	87.18	Three 100-count packs are needed per month if 10 pieces per day is assumed. Recommended dosage is 2 mg, up to 30 times per day (for smokers <25 cigarettes) or 4 mg, up to 20 times/day (for smokers ≥ 25 cigarettes).
NRT patch (Nicoderm CQ)	42.44	Each pack (Steps 1, 2, or 3) provides a 2-week supply containing 14 patches; the estimate is two packs are needed per month.
NRT inhaler (Nicotrol)	287.02	One inhaler (containing 168 cartridges) needed per month, if a mean of six cartridges per day is assumed.
Average cost of NRT	138.88	Average cost of NRT, excluding lozenges.
Behavioral interventions		
Counseling or MI (in-person, about 4 sessions)	275.13	Average is calculated from costs reported for five 1-hour group sessions and four 30-minute individual sessions.
Counseling or MI (telephone, 1 session)	86.98	Average is calculated from costs reported for one telephone session, duration 15–30 minutes.
Counseling or MI (telephone, about 4 sessions)	254.46	Average is calculated from costs reported for two to six (average of four) 30-minute telephone sessions.
Mailings and follow-up calls only	14.02	Average is calculated from two studies providing costs of mailing letters and other print materials.

Sevrage tabagique en population générale

	Treatment		Control		Weight				
Variable	**Quits**	**Total**	**Quits**	**Total**	**%**	**M-H fixed OR (95% CI)**	**NNT**	**Cost per smoker, $**	**Cost per quit, $**
Pharmacological interventions[a]									
Bolliger,[13] 2000	21	200	17	200	14.20	1.26 (0.65, 2.47)	50	5,166.43	258,321.69
Wennike,[14] 2003	19	205	7	206	5.90	2.90 (1.19, 7.07)	17	1,046.16	17,784.72
Hatsukami,[16] 2004	20	295	16	299	13.80	1.29 (0.65, 2.53)	70	1,436.62	100,563.46
Batra,[17] 2005	22	184	8	180	6.60	2.92 (1.26, 6.74)	13	1,046.16	13,600.08
Rennard,[18] 2006	17	215	3	214	2.60	6.04 (1.74, 20.92)	15	3,444.29	51,664.34
Ebbert,[11] 2015	205	760	74	750	50.60	3.37 (2.53, 4.50)	6	1,650.05	9,900.32
Hughes,[31] 2011	15	107	8	111	6.30	2.10 (0.85, 5.18)	15	550.02	8,250.26
Etter,[15] 2004[b]	31	265	25	269	0.00	1.29 (0.74, 2.26)	42	833.29	34,998.10
Carpenter,[32] 2011[b]	68	426	60	423	0.00	1.15 (0.79, 1.67)	56	64.56	3,615.36
Jardin,[33] 2014[b]	8	53	3	51	0.00	2.84 (0.71, 11.40)	11	85.78	943.58
Pooled NRT inhaler[c]	38	415	20	414	–	2.00 (1.14, 3.51)	45	4,901.22	218,643.58
Pooled NRT gum[c]	41	389	15	386	–	2.91 (1.58, 5.36)	15	1,046.16	15,571.05
Pooled varenicline[c]	220	867	82	861	–	3.23 (2.46, 4.25)	7	1,529.05	10,688.05
Pooled pharmacological	**319**	**1,966**	**133**	**1,960**	**100.00**	**2.72 (2.19, 3.37)**	**10**	**2,021.79**	**19,510.24**
Behavioral interventions[d]									
Glasgow,[19] 2009	11	164	7	156	71.10	1.53 (0.58, 4.05)	45	268.48	12,081.40
Davis,[34] 2011	0	109	1	109	15.90	0.33 (0.01, 8.20)	–	86.98	–
Catley,[35] 2016[e]	11	204	0	51	8.00	6.12 (0.35, 105.62)	19	275.13	5,227.51
Huang,[36] 2016	2	72	0	76	5.00	5.43 (0.26, 114.97)	36	275.13	9,904.75
Danan,[37] 2016[b]	63	948	49	981	0.00	1.35 (0.92, 1.99)	61	101.00	6,160.75
Klemperer,[38] 2016[b,e]	35	371	10	189	0.00	1.86 (0.90, 3.85)	24	254.46	6,107.03
Pooled behavioral	**24**	**549**	**8**	**392**	**100.00**	**1.90 (0.86, 4.23)**	**47**	**240.48**	**11,415.74**
Combination interventions[f]									
Carpenter,[20] 2003	4	32	3	35	7.20	1.52 (0.31, 7.40)	25	1,108.42	27,710.51
Carpenter,[21] 2004[c]	83	409	9	207	27.20	5.60 (2.75, 11.39)	6	462.78	2,776.69
Chan,[39] 2011[c]	74	928	10	226	42.30	1.87 (0.95, 3.68)	28	552.89	15,481.05
Joseph,[22] 2008	9	78	9	74	23.30	0.94 (0.35, 2.52)	–	2,098.83	–
Pooled combination	**170**	**1,447**	**31**	**542**	**100.00**	**2.64 (1.76, 3.97)**	**16**	**928.59**	**14,662.36**

Cost Effectiveness of Free Access to Smoking Cessation Treatment in France Considering the Economic Burden of Smoking-Related Diseases

Benjamin Cadier[1,2,3], Isabelle Durand-Zaleski[1,2,3], Daniel Thomas[4], Karine Chevreul[1,2,3]*



P_{SS}: Smoker who remains a smoker
P_{FF}: Former who remains a former?
P_{SF}: Smoking cessation rate
P_{FS}: Smoking relapse rate
P_{SD}: Mortality rate without lung cancer, COPD and CVD among smoker
P_{FD}: Mortality rate without lung cancer, COPD and CVD among former
P_{SC}: Incidence rate of lung cancer among smoker
P_{SO}: Incidence rate of COPD among smoker
P_{SO}: Incidence rate of CVD among smoker
P_{FC}: Incidence rate of lung cancer among former
P_{FO}: Incidence rate of COPD among former
P_{FO}: Incidence rate of CVD among former
P_{CC}: Patient who lives with lung cancer
P_{OO}: Patient who lives with COPD
P_{VV}: Patient who lives with CVD
P_{CD}: Patient who dies by lung cancer
P_{CD}: Patient who dies by COPD
P_{CD}: Patient who dies by MCV

Cost Effectiveness of Free Access to Smoking Cessation Treatment in France Considering the Economic Burden of Smoking-Related Diseases

Benjamin Cadier[1,2,3], Isabelle Durand-Zaleski[1,2,3], Daniel Thomas[4], Karine Chevreul[1,2,3]*

Parameters	Value	Uncertainty	Source
Participation rate			
Full coverage	7.30%	[5%,73%]	[19]–Expert
€50 coverage	3.75%	Fixed	
Number of attempts covered	4	2 or 6	[32]
Frequency of attempts	Biennial	annual or quadrennial	Expert
Cessation rate			
Full coverage	7.04%	CI95: [5.64%; 9.47%]	[21]
€50 coverage	2.60%		[61]
Relapse rate	Included in cessation rate	NA	
Incidence rate			[1,4,37]
Lung cancer	Life table		
COPD	Life table		
CVD	Life table		
Mortality rate			
Lung cancer			
All ages	2 years	External validation	[40]
COPD		External validation	[41]
Smokers			
age < 70	18 years		
age = 70–79	10 years		
age ≥80	3 years		
Former smokers			
age < 70	20 years		
age = 70–79	15 years		
age ≥80	5 years		
Non-smokers			
age < 80	20 years		
age ≥80	5 years		
CVD		External validation	[42–44]
age < 65	15 years		
age = 65–74	6 years		
age = 75–84	3 years		
age ≥85	1 years		

Cost Effectiveness of Free Access to Smoking Cessation Treatment in France Considering the Economic Burden of Smoking-Related Diseases

Benjamin Cadier[1,2,3], Isabelle Durand-Zaleski[1,2,3], Daniel Thomas[4], Karine Chevreul[1,2,3]*

Parameters	Value	Uncertainty
Cost of strategies		
Full coverage		
Doctors	€132	
Drugs	€201	[€120- €220]
€50 coverage		
Doctors	€14	Fixed
Drugs	€50	Fixed
Cost offset		
Lung cancer	€13 872	Fixed
COPD	€6 562	Fixed
CVD	€7 976	Fixed
Inflation rate		
GP visits	+0.23%	1.32%
Drugs	2.19%	-5.38%
Chronic diseases	-1.50%	+1.50%
Discount rate	3%	0% or 6%

Cost Effectiveness of Free Access to Smoking Cessation Treatment in France Considering the Economic Burden of Smoking-Related Diseases

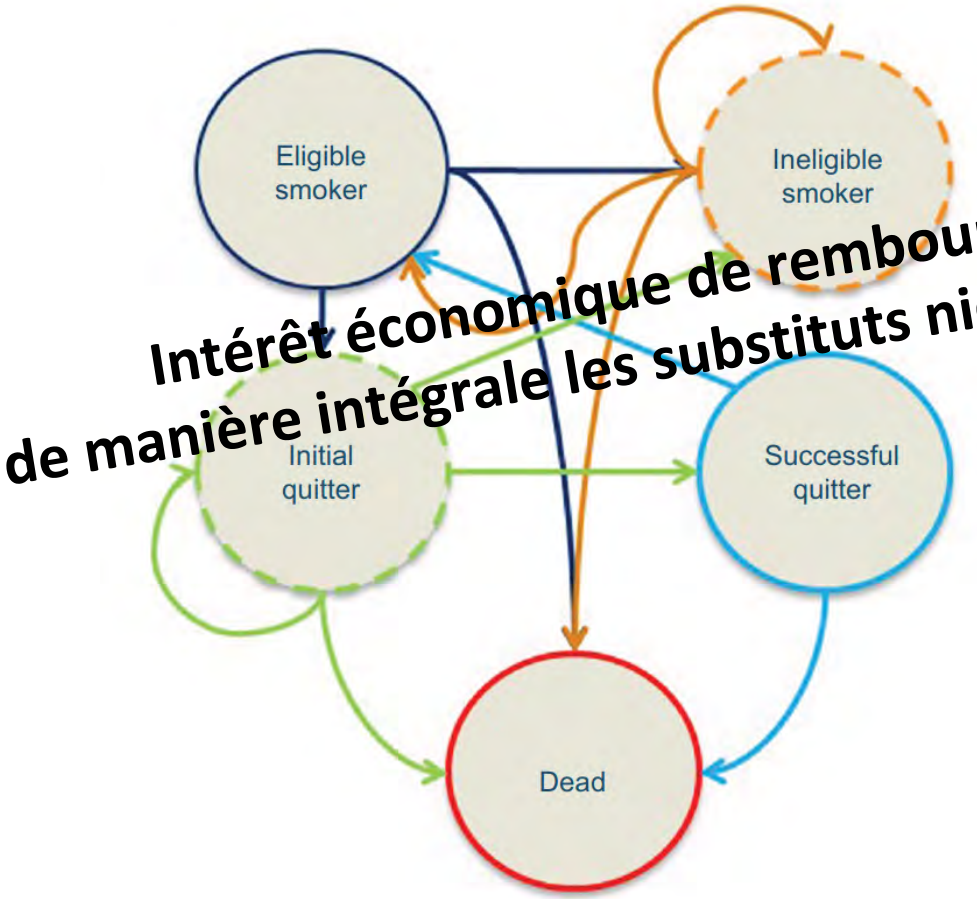
Benjamin Cadier[1,2,3], Isabelle Durand-Zaleski[1,2,3], Daniel Thomas[4], Karine Chevreul[1,2,3]*

PLOS ONE

Age	Men	Women
15–24	€6,999	€8,391
25–34	€3,797	€4,642
35–44	€2,520	€3,138
45–54	€2,601	€3,056
55–64	€4,050	€4,345
65–74	€7,872	€7,551

Intérêt économique de rembourser de manière intégrale les substituts nicotiniques

Perspective US

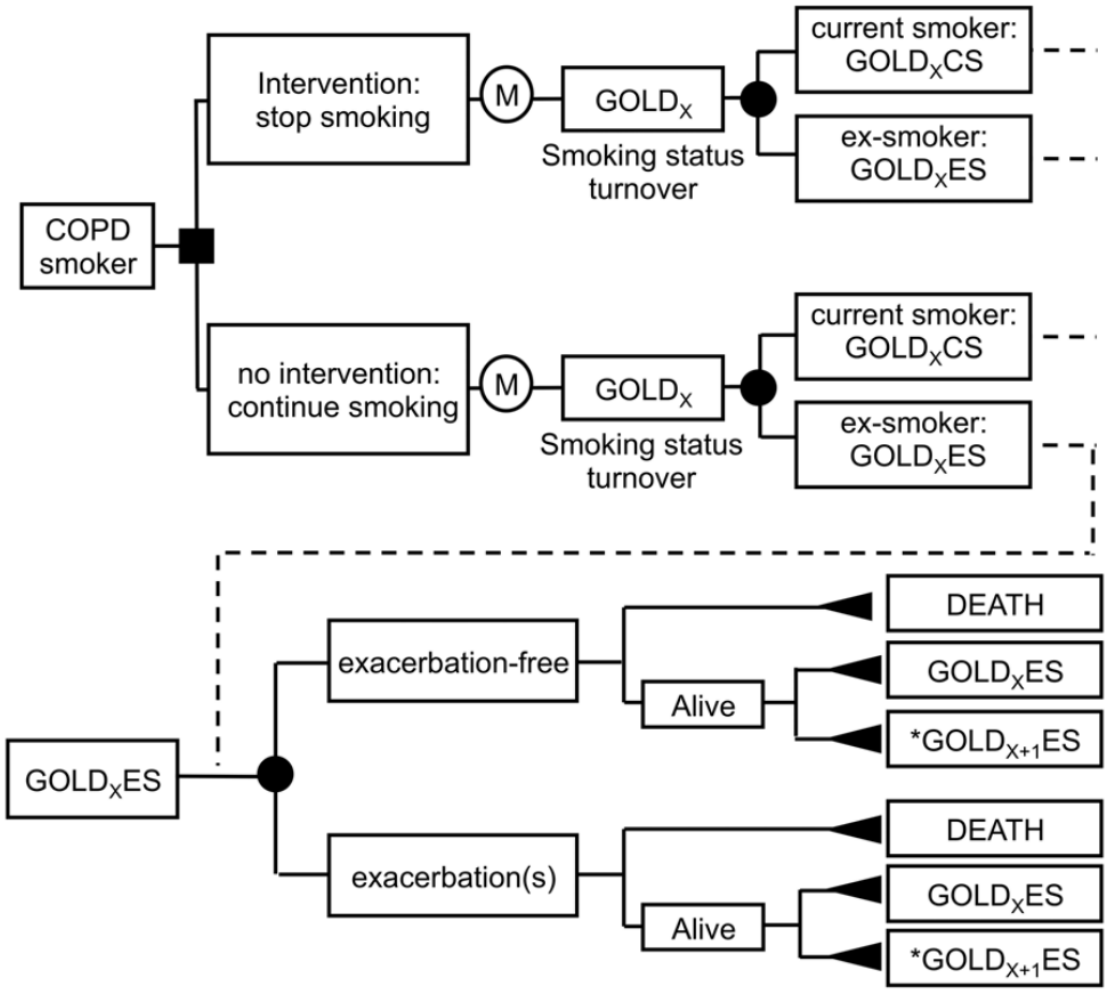


Intérêt économique de rembourser de manière intégrale les substituts nicotiniques

Baker CK, 2018

Simulation-Based Estimates of Effectiveness and Cost-Effectiveness of Smoking Cessation in Patients with Chronic Obstructive Pulmonary Disease

Kokuvi Atsou[1,2], Christos Chouaid[1,2,3], Gilles Hejblum[1,2,4]*



Simulation-Based Estimates of Effectiveness and Cost-Effectiveness of Smoking Cessation in Patients with Chronic Obstructive Pulmonary Disease

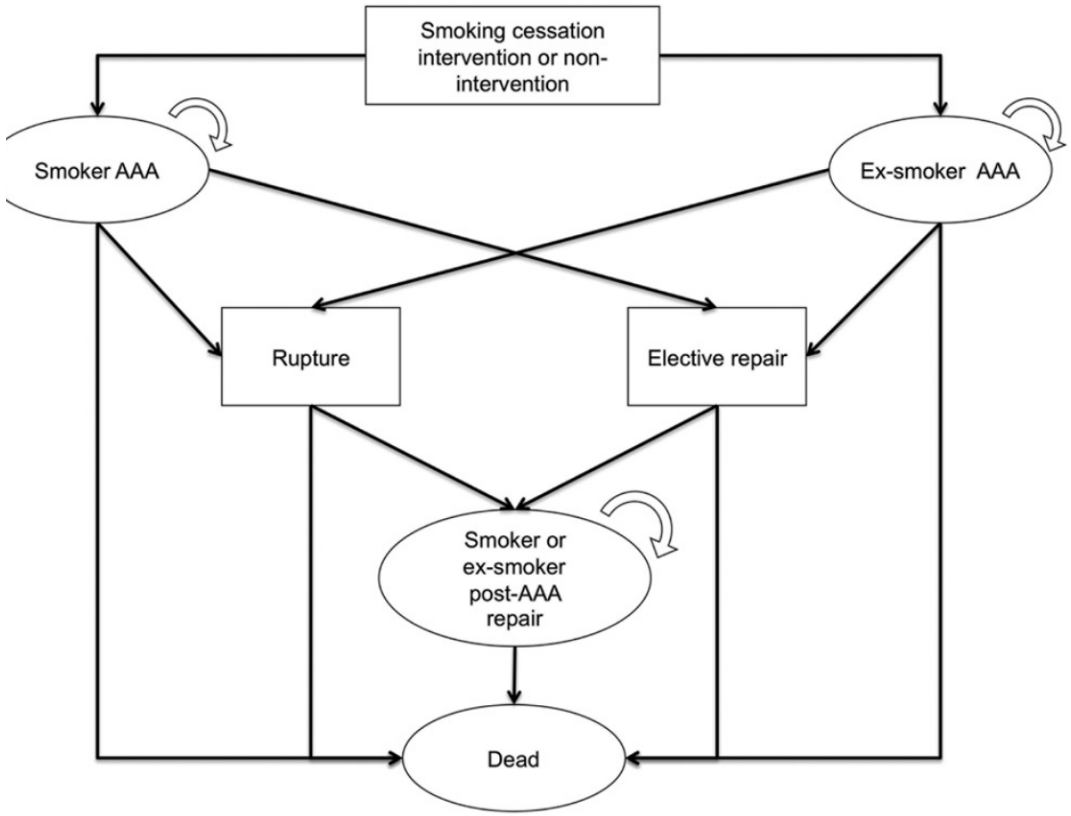
Kokuvi Atsou[1,2], Christos Chouaid[1,2,3], Gilles Hejblum[1,2,4]*

PLoS one

	Cost† (£) per patient		Life-years per patient		QALY per patient		ICER (£/QALY)
	Continuous smokers	Sustained quitters‡	Continuous smokers	Sustained quitters‡	Continuous smokers	Sustained quitters‡	
All stages combined	27834	−1661	15.60	2.73	8.471	1.225	−1356
GOLD1	12196	−2967	19.96	3.17	11.426	1.434	−2070
GOLD2	30810	−3070	14.31	2.67	7.495	1.183	−2594
GOLD3	47021	3588	10.34	2.02	5.348	0.969	3703
GOLD4	72654	11530	9.83	1.92	4.142	0.657	17546

Cost-effectiveness of intensive smoking cessation therapy among patients with small abdominal aortic aneurysms

Kevin Mani, MD, PhD,[a,b] **Anders Wanhainen, MD, PhD,**[a] **Jonas Lundkvist, RPh, PhD,**[c] and **David Lindström, MD, PhD,**[d] *Uppsala, Sweden; London, United Kingdom; and Stockholm, Sweden*



Cost-effectiveness of intensive smoking cessation therapy among patients with small abdominal aortic aneurysms

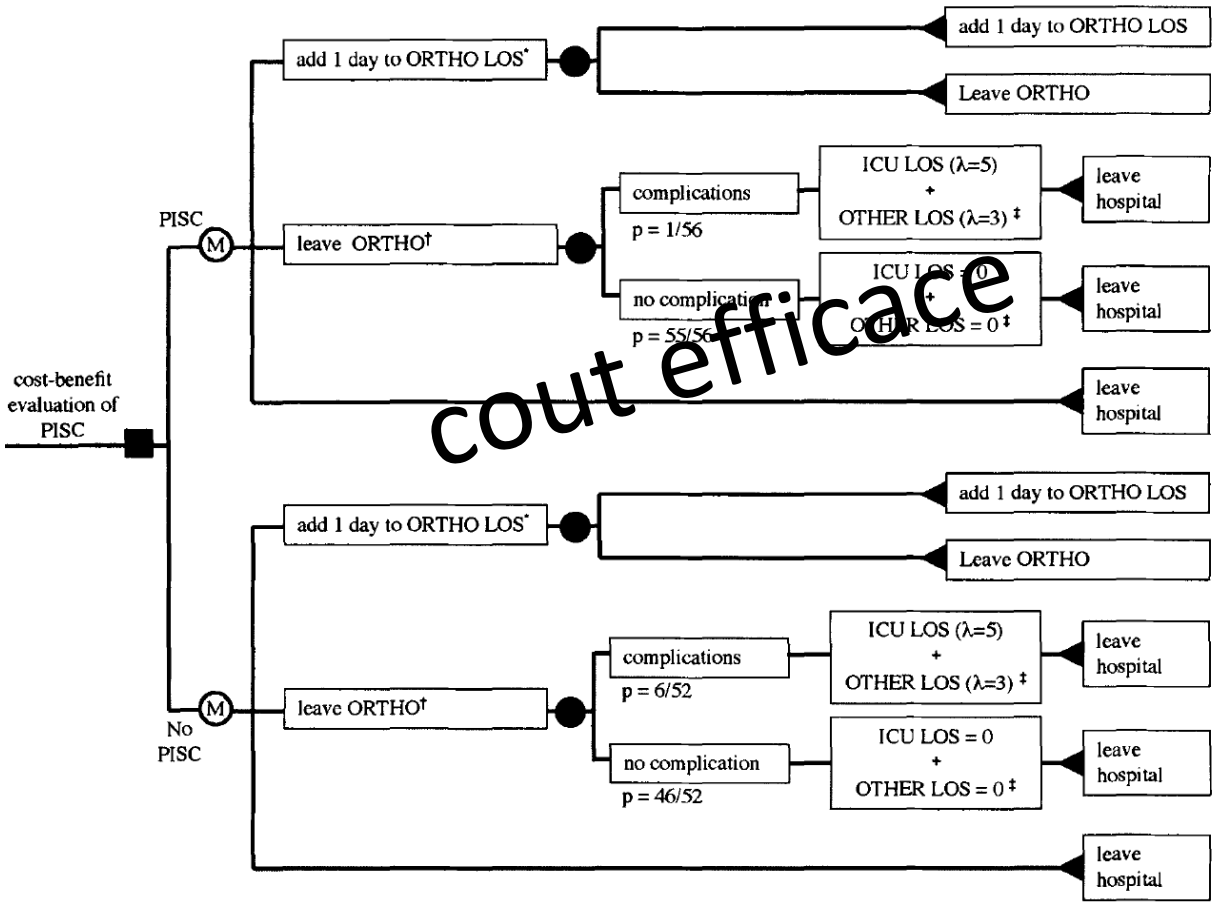
Kevin Mani, MD, PhD,[a,b] **Anders Wanhainen, MD, PhD,**[a] **Jonas Lundkvist, RPh, PhD,**[c] and **David Lindström, MD, PhD,**[d] *Uppsala, Sweden; London, United Kingdom; and Stockholm, Sweden*

Variable	*Nonintervention*	*Intervention*	*Difference*
Cost, €			
Smoking cessation intervention	0	225	225
Pre-op follow-up of small AAA	2268	2317	49
Intact AAA repair	8311	8232	−79
Ruptured AAA repair	1420	1330	−90
Follow-up after AAA repair	1693	1672	−21
Total cost	13,692	13,776	84
Effect			
Life years	10.891	11.015	0.124
Quality-adjusted life-years	8.630	8.720	0.090

ICER : 940 euros / Qaly

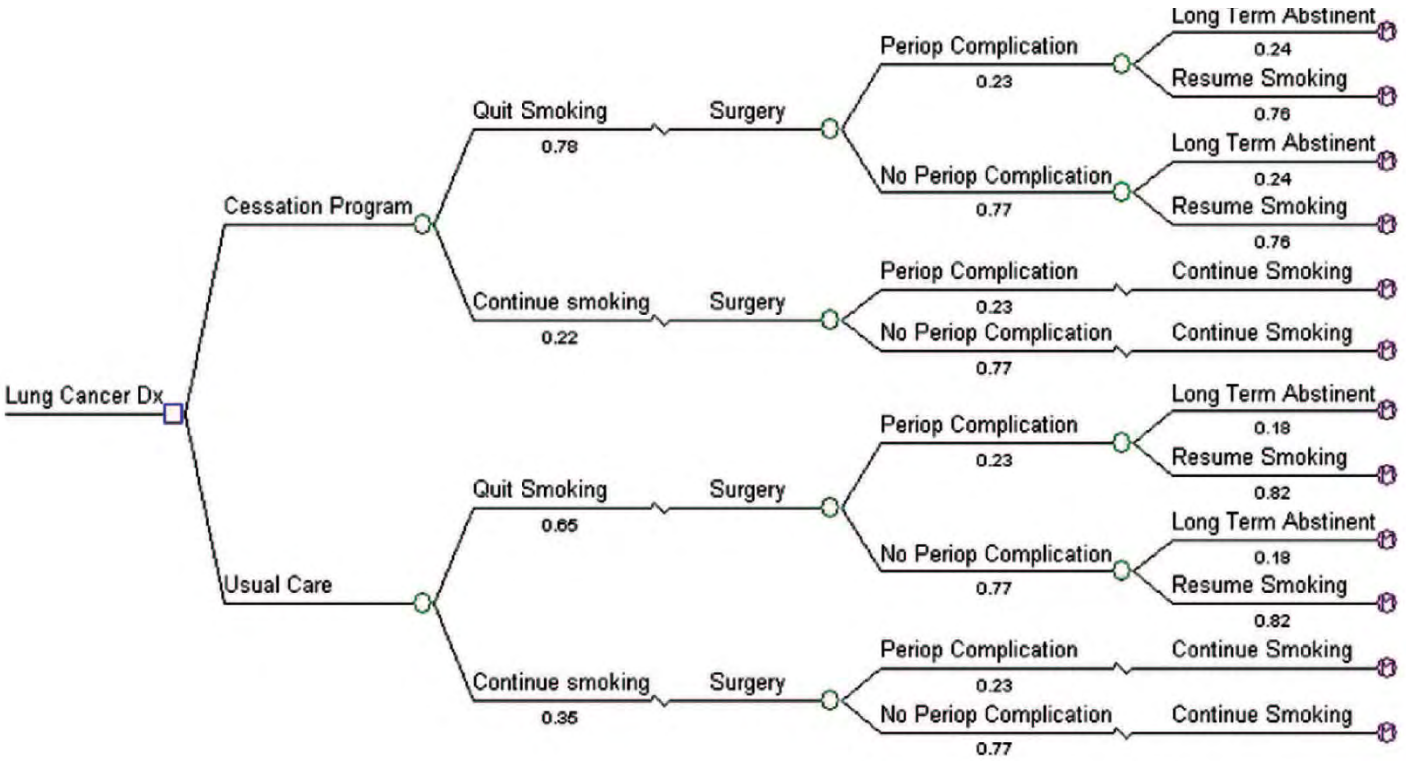
Cost-Benefit Analysis of a Simulated Institution-Based Preoperative Smoking Cessation Intervention in Patients Undergoing Total Hip and Knee Arthroplasties in France*

Gilles Hejblum, PhD; Kokuvi Atsou, MS; Bertrand Dautzenberg, MD; and Christos Chouaid, MD



Cost-Effectiveness of a Smoking Cessation Program Implemented at the Time of Surgery for Lung Cancer

Christopher G. Slatore, MD, MS,† David H. Au, MD, MS,*† and William Hollingworth, PhD‡*



Cost-Effectiveness of a Smoking Cessation Program Implemented at the Time of Surgery for Lung Cancer

Christopher G. Slatore, MD, MS,† David H. Au, MD, MS,*† and William Hollingworth, PhD‡*

Parameter	Base Case (Range)	References
Smoking cessation program costs		
Cost per visit		19, 20
99401 (G0375)	$13	
99402 (G0376)	$25	
Nicotine patches (8 wk supply)	$123.96	21
Total	$199.96 ($50–$450)[a]	
Smoking cessation program effectiveness		
Program abstinence rate 3 mo postsurgery[b]	19% (12–62%)	11
Usual care abstinence rate 3 mo postsurgery[b]	12%	11
Program abstinence rate at time of surgery[c]	78%	11
Usual care abstinence rate at time of surgery[c]	65%	11
Perioperative complications		
Recent quitters	23% (23–63%)	23, 24
Current smokers	23%	23, 24
Surgical costs		
No complications	$17,859	27
Perioperative pulmonary complications	$30,896	26
Yearly mortality		
Recent quitters	5.1%	9
Current smokers	17.6% (10–55%)	9
Utility scores		
Recent quitters	0.64 (0.47–0.99)	8, 28, 29
Current smokers	0.49	8, 28, 29

	End of Year		
Start of Year	**Smoker**	**Nonsmoker**	**Dead**
Smoker	0.824	0	0.176
Nonsmoker	0	0.949	0.051
Dead	0	0	1

Cost-Effectiveness of a Smoking Cessation Program Implemented at the Time of Surgery for Lung Cancer

Christopher G. Slatore, MD, MS,† David H. Au, MD, MS,*† and William Hollingworth, PhD‡*

TABLE 3. Markov Analysis for Cumulative QALY's and Life Years and Costs Effectiveness by Year After Surgery

	Program		Usual Care			
Year[a]	QALYs	Life Years	QALYs	Life Years	Cost/QALY[b]	Cost/life Year[b]
1	0.48	0.924	0.47	0.920	$16,415	$45,629
2	0.89	1.71	0.87	1.69	$7,441	$12,455
3	1.25	2.38	1.20	2.34	$4,649	$6,120
4	1.55	2.95	1.49	2.89	$3,344	$3,813
5	1.82	3.44	1.73	3.36	$2,609	$2,703

[a] Utilizes half-cycle correction

Cost-utility analysis of smoking cessation to prevent operative complications following elective abdominal colon surgery

Audrey S. Kulaylat [a], Christopher S. Hollenbeak [a, b, c], David I. Soybel [a, *]

The American Journal of Surgery

Non cout efficace

Plan

- Prévention : sevrage tabagique
  - Population générale
  - Populations particulières
- Dépistage
- Composantes prises en charge

Lung Cancer Screening Program Is Cost Effective in French Setting: A Model Based Study.

Table 1: French target population

55-74 years*	Total	Men	Women
Current smokers	3 922 459	2 109 105	1 812 377
Smokers quit within the past 15 years	1 628 682	853 755	784 735
Target population	**5 551 141**	**2 962 860**	**2 597 112**

Table 2: Comparison of NLST population and French target population

	NLST Arm LDCT n=26 722	NLST Arm X-Ray n=26 732	Target French population n=5 551 141
	n (%)	n (%)	%
Sex			
Men	15770 (59)	15762 (59)	53,4%
Women	10952 (41)	10970 (41)	46,8%
Age			
< 60 years	11442 (42,8)	11424 (42,7)	36,5%
60-75 years	15279 (57,2)	15305 (57,3)	63,5%
≥ 75 years	1 (< 0,1)	3 (< 0,1)	0,0%
Smoking status			
Smokers quit within the past 15 years	13860 (51,9)	13832 (51,7)	29,3%
Current smokers	12862 (48,1)	12900 (48,3)	70,7%

Table 3 : efficacy, costs and cost efficacy of the program applied in 1000 subjects of the target population

Efficacy		**No screening**	**Screening**
Nb of cancers		19	30
	Stages I/II	8 (41.5%)	21 (69.5%)
	Stages III/IV	11 (58.5%)	9 (30.8%)
Survival (years)*			
	Stade I/II	33	88
	Stade III/IV	13	11
Year life gained (LYG)			**52**

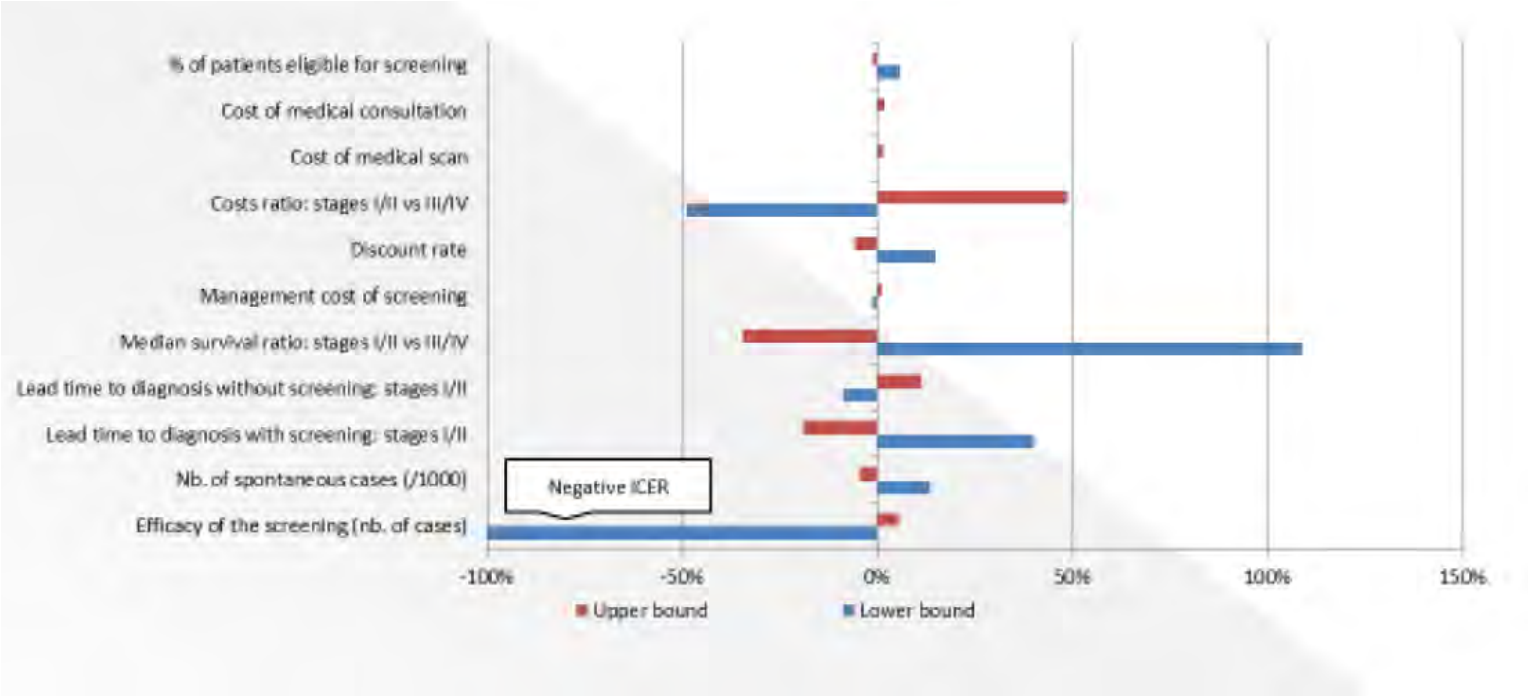
Costs	**No screening**	**Screening**
Stages I/II	551 648 €	1 464 012 €
Stages III/IV	607 895 €	507 256 €
Program cost		56 029 €
Total costs	1 159 543 €	2 101 521 €
Screening over costs		**941 978 €**
ICER per LYG		**17 969€**

* Median survival 4.2 years for stage I/II and 1.2 years for stages III/IV (exponential model)

Chouaid et al. WLCC, 2016

Lung Cancer Screening Program Is Cost Effective in French Setting: A Model Based Study.

The ICER per LYG was 17 969 euros on the base case scenario



Chouaid et al. WLCC, 2016

Estimating the Cost-Effectiveness of Lung Cancer Screening with Low-Dose Computed Tomography for High-Risk Smokers in Australia

Stephen Wade, PhD,[a] Marianne Weber, PhD,[a,b,*] Michael Caruana, PhD,[a]
Yoon-Jung Kang, PhD,[a] Henry Marshall, PhD,[c,d] Renee Manser, PhD,[e,f]
Shalini Vinod, MD,[g] Nicole Rankin, PhD,[a] Kwun Fong, PhD,[c,d] Karen Canfell, DPhil[a,b,h]

Strategy	Cost	Benefit	Incremental Cost	Incremental Benefit	ICER
Overall					
LDCT screening	AU$2205		AU$1564		
Life-years		7.459		0.0113	AU$138,000
QALY		5.587		0.0067	AU$233,000
No screening	AU$640		–		
Life-years		7.447		–	–
QALY		5.580		–	–
Current smokers					
LDCT screening	AU$2358		AU$1526		
Life-years		7.364		0.0190	AU$80,500
QALY		5.514		0.0124	AU$123,000
No screening	AU$832		–		
Life-years		7.345		–	–
QALY		5.502		–	–
Past smokers					
LDCT screening	AU$2063		AU$1601		
Life-years		7.547		0.0038	AU$423,000
QALY		5.654		0.0011	AU$1,480,000
No screening	AU$461		–		
Life-years		7.543		–	–
QALY		5.653		–	–

Estimating the Cost-Effectiveness of Lung Cancer Screening with Low-Dose Computed Tomography for High-Risk Smokers in Australia

Stephen Wade, PhD,[a] Marianne Weber, PhD,[a,b,*] Michael Caruana, PhD,[a] Yoon-Jung Kang, PhD,[a] Henry Marshall, PhD,[c,d] Renee Manser, PhD,[e,f] Shalini Vinod, MD,[g] Nicole Rankin, PhD,[a] Kwun Fong, PhD,[c,d] Karen Canfell, DPhil[a,b,h]

- Nombre de FP et modalités de prise en charge
- Impact psychologique
- Participation de la population : plus faible chez les fumeurs
- Modifier les critères ?

Cost Effectiveness of Chest Scan Screening for Lung Cancer
in Asbestos Occupationally Exposed Subjects:
A Model Based Study.

APEXS cohort[1,2]: 6453 workers with occupational exposure to asbestos (inclusion Oct 2003 -Dec 2005) with at inclusion a CT scan centrally reviewed

Cohort followed without specific assessment until December 2012 (information collected: occurrence of lung cancer and vital status .

[1]**Pairon JC**, AJRCCM 2014, [2]**Pairon JC**, JNCI 2013

Cost Effectiveness of Chest Scan Screening for Lung Cancer in Asbestos Occupationally Exposed Subjects: A Model Based Study.

The model estimated life-years, costs and incremental cost-effectiveness ratio (ICER) for screening with low-dose CT compared to no screening in a population with APEXS cohort characteristics.

Life-years gained were based on the efficacy of NLST trial applied to APEXS cohort, adjusted to sex and age.

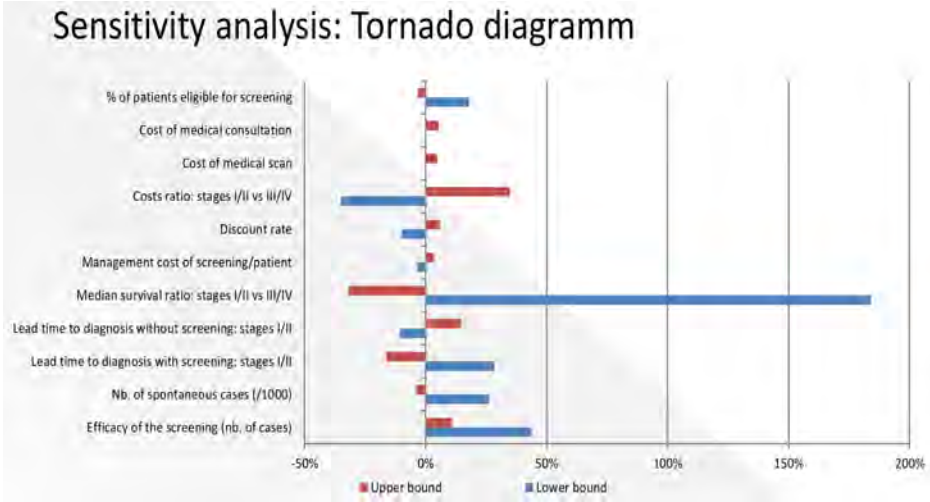
Costs were limited to directs costs, from the payer perspective.

Sensitivity analysis based on several assumptions of screening program efficacy were done.

Vella-Boucaud, Chouaid, WLCC 2016

Cost Effectiveness of Chest Scan Screening for Lung Cancer in Asbestos Occupationally Exposed Subjects: A Model Based Study.

Compared with no screening,
screening with low-dose CT,
over a period of 2 years,
for 1000 subjects of APEXS cohort
cost 312 645 €
provide 9.4 additional life-years.



ICER was 33 102 € per life year-gained.

Vella-Boucaud, Chouaid, WLCC 2016

Cost Effectiveness of Chest Scan Screening for Lung Cancer in Asbestos Occupationally Exposed Subjects: A Model Based Study.

LUCSO-1

Asbestos-exposed subjects at high risk of lung cancer: subjects aged from 55 to 74 years eligible for the low-dose chest CT lung cancer screening trial based on their exposure to lung carcinogens and the cumulative duration of exposure (Expert consensus)

Occupational exposure	Level of exposure or disease	Cumulative duration of exposure	Current smoking or cessation for less than 15 years
Asbestos	Intermediate	≥ 10 years	≥ 30 pack-years
	High	< 5 years	≥ 30 pack-years
	High	≥ 5 years	≥ 20 pack-years
	Asbestosis		≥ 20 pack-years
	Pleural plaques		≥ 30 pack-years
Other carcinogens*		≥ 10 years	≥ 30 pack-years
Co-exposures			
2 carcinogens		≥ 10 years	≥ 20 pack-years
≥ 3 carcinogens		≥ 10 years	≥ 10 pack-years

* aluminium production, coal gasification, coal tar pitch, coke production, soot, X-rays and gamma rays, radon, iron ore mines, plutonium, iron and steel foundries, painting profession, rubber industry, arsenic and arsenic compounds, nickel compounds, chromium VI compounds, beryllium, cadmium and cadmium compounds, bis(chloromethyl) ether, chloromethyl methyl ether, cobalt metal with tungsten carbide.
Special cases: Crystalline silica (the presence of silicosis is necessary for inclusion in the group at high risk of lung cancer, regardless of the duration of exposure); diesel engine exhaust (high-level exposure defined by use in underground mines, tunnel construction or maintenance in underground mines is necessary for inclusion in the group at high risk of lung cancer).

Poject - LUCSO-1: French pilot trial of **LU**ng **C**ancer **S**creening with low-dose computed tomography in a population exposed to **O**ccupational lung carcinogens planned to start in 2017 (PI: Pr Pairon – Dr Delva)

Combiner dépistage et sevrage tabagique

Scenario	Incremental cost ($billions Canadian) (a)	Life Years gained (a)	Quality Adjusted Life Years gained (a)	ACER (ΔCost/ΔQALY) (Canadian dollars) (a)
Annual No cessation	$2.7	130,000	51,000	$52,000
Annual with smoking cessation at 22.5% & $440	2.8	224,000	117,000	24,000
Annual with smoking cessation rate 0.5 × 22.5%	2.9	177,000	85,000	34,000
Annual with smoking cessation rate 1.5 × 22.5%	2.7	271,000	150,000	18,000
Annual with smoking cessation rate 3.0 × 22.5%	2.6	411,000	248,000	10,000
Annual with smoking cessation cost 0.5 × $440	2.7	224,000	117,000	23,000
Annual with smoking cessation cost 1.5 × $440	2.9	224,000	117,000	25,000
Annual with smoking cessation cost 3.0 × $440	3.3	224,000	117,000	28,000

Biennial lung cancer screening in Canada with smoking cessation—outcomes and cost-effectiveness

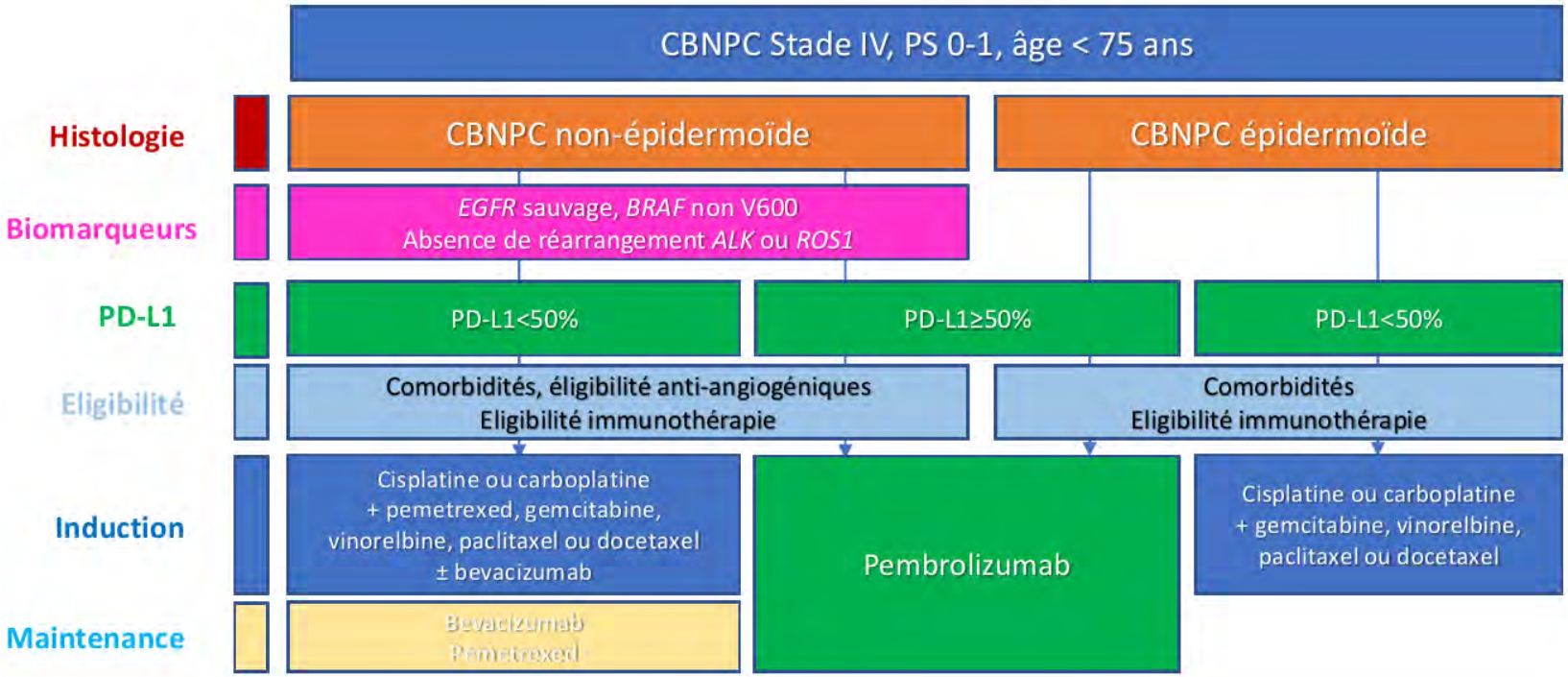
Lung Cancer 101 (2016) 98–103

Couts de la prise en charge du cancer du poumon

Cout de prise en charge d'un cancer du poumon en France (euros)

2002	20 184	
2009	39 708	Docetaxel
2011	60 000	Bevacizumab
2013	100 000	Crizotinib
2017	120 000	Immunotherapie

Chouaid, BMJ 2004, Chouaid,CMRO 2007, Vergnenegre, JTO 2011



TKI de 3ème génération EGFR et ALK > 5 000 euros par mois

Immunothérapie > 6 000 euros par mois

Focus sur quelques postes

- Transports
  - Proches de 4 milliards d'euros,
  - 4,8 % par an
  - 40% en taxis conventionnées non règlementés
- Médicaments :
  - Biosimilaires, génériques
  - Contrat d'amélioration de la qualité et de l'efficience des soins (CAQES),

Coûts de la fin de vie cancer du poumon

Table 3. Mean Cost for Aggressive or Nonaggressive Care (in euros, €)

	All N=79 740	Nonaggressive Care N=34 114	Aggressive Care N=45 626	p
Global Cost	€650,027,155	€217,495,327	€432,531 827,€	
Mean	€8,152	€6,376	€9,480	<0.001
SD	€5,117	€2,898	€5,946	
Minimum	€346	€405	€346	
Maximum	€91,537	€31,780	€91,537	
Hospitalization				
Mean	€7,288	€6,229	€8,080	<0.001
SD	€3,826	€2,752	€4,296	
ICU supplement				
Mean	€647	€92	€1,063	<0.001
SD	€2,309	€546	€2,948	
Radiotherapy				
Mean	€10	€6	€14	<0.001
SD	€118	€84	€138	
Chemotherapy				
Mean	€180	€39	€285	<0.001
SD	716	€330	€888	
IMD				
Mean	€27	€11	€38	<0.001
SD	€281	€137	€352	

Bylicki, WLCC 2018

Coûts de la fin de vie cancer du poumon

Table 5. Comparison of EOL-Care Costs in 7 Countries (Bekelman et al[4])

Country	Canada	UK	Germany	Netherlands	Norway	USA	France
Deaths, n	4,467	21,092	3,577	1,354	1,400	44,942	79,749
Females, %	45%	44%	38%	29%	42%	48%	30%
Age, mean	77.4	77.7	76.3	75.9	76.3	76.7	66.9
In the last 30 DOL							
>1 hospitalization	61%	51%	58%	45%	65%	49%	49%
≥1 ICU stays	8.5%	—	3.8%	4.2%	—	24.9%	12%
Emergency room	62%	49%	33%	—	—	45%	—
Chemotherapy	5.9%	—	17%	16%	5.7%	12.1%	23%
Cost of medical care in US dollars ($) or euros (€)							
Mean Cost	$7,434	$3,239	$5,274	$3,121	$6,320	$6,915	€8,152 ($9,289)

Bylicki, WLCC 2018

Conclusion

- Importance de la prévention
- Arrêt du tabac : la meilleure des actions de santé Publique
- Le dépistage dans un cadre organisé et évalué
- Réflexions sur certain postes de dépenses
  - Transports
  - Médicaments
  - Hospitalisations diagnostiques et de fin de vie
  - Organisation des filières de soins