특수상황 금연치료

아주의대 호흡기내과 박주헌

Outline

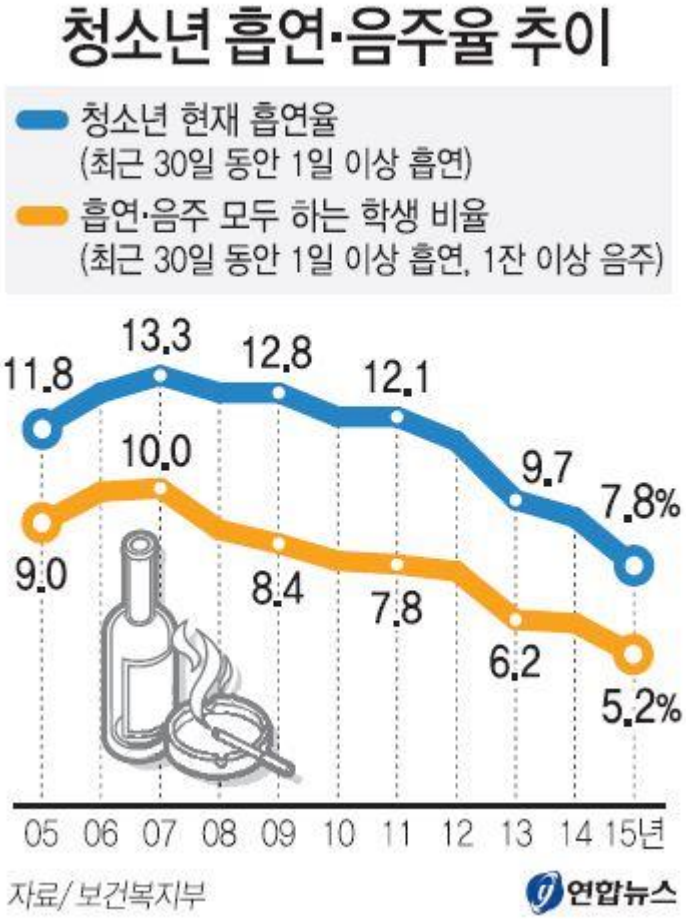
- Adolescents and young people : 영남의대 진현정
- Old age & Hospitalized patients : 아주의대 박주헌
- Co-morbid conditions 울산의대 나승원
- Women : 국민보험공단 일산병원 박선철

  → pregnancy : 동아의대 엄수정
- Psychiatric disease : 카톨릭의대 정조은
- Army & prison : 연세 원주의대 이명규

국내지침서
Adolescents and Young People

- 우리나라 청소년 흡연률은 감소하나 아직 다른 나라에 비해서 높다.
- 청소년 흡연이 성인 흡연을 포함한 국민건강에 미치는 영향이 크므로 소아때부터 지속적인 금연 교육이 필요하다.
- 청소년 흡연자들의 금연을 위해서는 학교 또는 지역 중심의 그룹 또는 개인별 상담과 같은 적절한 심리 사회적 치료 (psycho-social intervention)가 가장 효과적이다.
- 니코틴 대체요법이나 bupropion 과 같은 약물은 근거가 불충분하다.

Adolescents and young people



국내지침서

Adolescents and Young People

- 청소년 흡연율

→ 한국 2005년 11.8%, 2007년 13.3%

→ 캐나다 1.9%, 일본 2.2%

Gwon SH et al. J Korean Acad Nurs. 2016;46:552-561.

- 비밀 유지와 사생활 존중

→ 부모님, 선생님은 참석하지 않는 것이 좋다

→ 동료나 친구가 비흡연자이더라도 함께 참석

Behrakis PK et al. European Network for Smoking and Tobacco Prevention aisbl (ENSP). 2016.

Prediction of Death for Smoking Adolescents

- 2010년 기준 고 3 남학생 흡연시 사망예측

→ 65세가 되면 21.2%가 흡연으로 인해 사망

→ 75세가 되면 27.0%가 흡연으로 인해 사망

Ko S, et al. Estimating smoking-attributable deaths on adolescent in Korea. Health and Welfare Policy Forum; 2013.

Smoking Cessation in Teenagers

- Smoking cessation rate in 4-year period

→15.6% of smokers aged 12-19 years

→ 4.0% per year

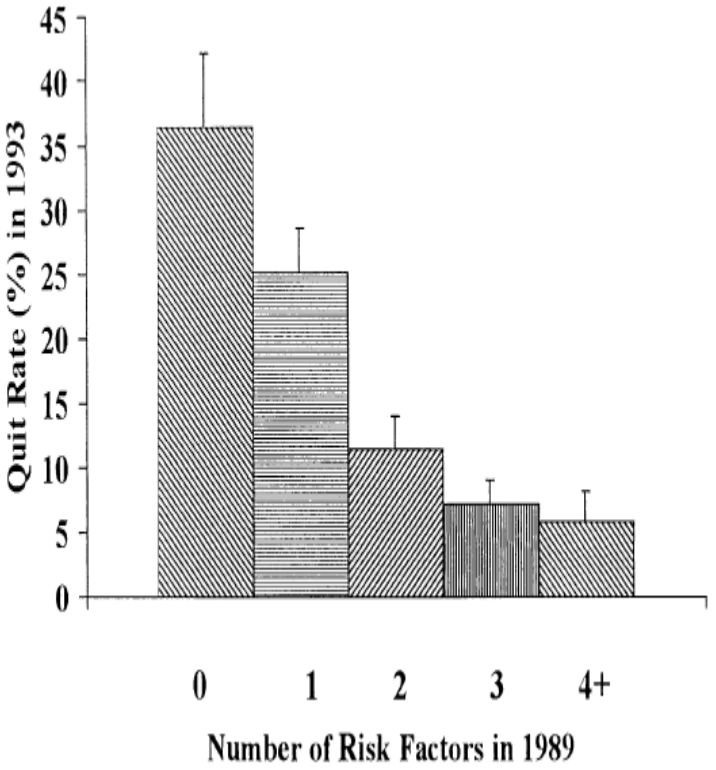
- Rates for failed quitting attempts

→ higher in younger smokers than in adults

MMWR Morb Mortal Wkly Rep 2006;55(50):1351-4.

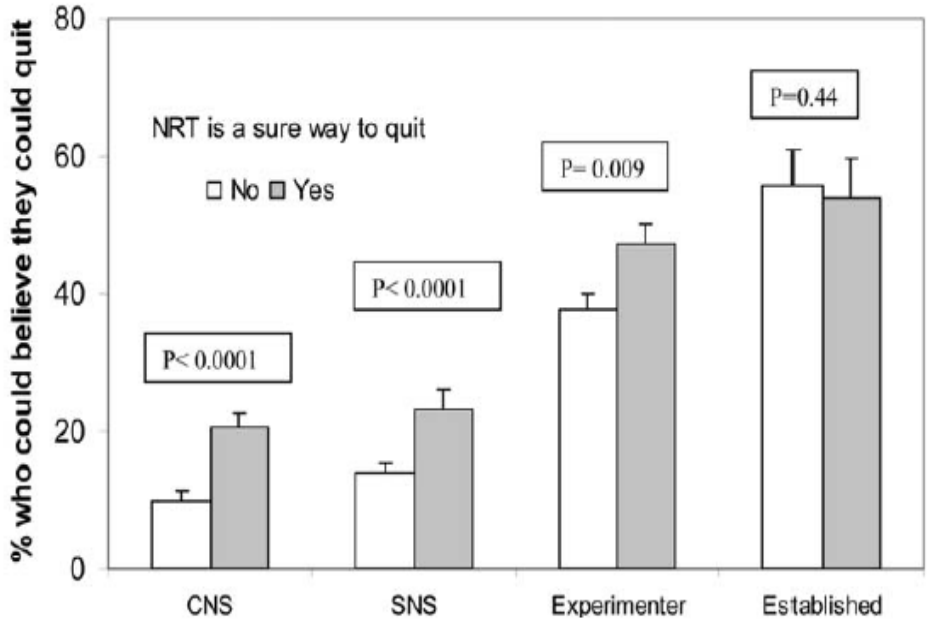
Predictors of Smoking Cessation in U.S. adolescents.

Variable	*N*	% Quit	Adjusted Odds Ratio[a]	95% C.I.[b]
Frequency of smoking				
Daily	378	10.64	1.00	
Non-daily	255	22.92	1.67*	1.03–2.71
Longest quit				
<14 days	158	7.00	1.00	
≥14 days	316	19.49	2.23*	1.14–4.36
Never quit	159	16.39	2.19*	1.06–4.53
Occasional smoking harmful?				
No	355	13.33	1.00	
Yes	278	18.38	1.38	0.85–2.23
Smoking a year from now?				
Yes	378	11.17	1.00	
No	255	22.13	1.67*	1.03–2.73
Mother smokes				
Yes	227	9.76	1.00	
No	406	18.83	1.84*	1.06–3.21
Father smokes				
Yes	202	11.97	1.00	
No	431	17.21	1.09	0.61–1.95
No. of best friends smoking				
5–8	408	12.80	1.00	
0–4	225	20.30	1.24	0.74–2.09
School performance				
Average or below	434	13.56	1.00	0.71–1.82
Above average	199	19.81	1.13	
Depression score				
>85th percentile	154	9.45	1.00	
≤85th percentile	479	17.61	1.87*	1.04–3.35



Am J Prev Med.1999 Apr;16(3):202-7

Adolescents' Perceptions about Quitting and NRT



- CNS ; committed never smoker
- SNS ; susceptible never smoker
- Experimenting smokers

→ Smoked at least 1 cigarette but less than 100 cigarettes in lifetime

- Established Smokers

→ Smoking at least 100 cigarettes in their lifetime

J Adolesc Health 2006; 38(4): 465-8.

Adolescent Smokers' Mindset on Smoking Teenagers

- Young people vastly underestimate the addictive potential of nicotine.
- Adolescent smokers are more likely than nonsmokers to think they can quit at any time.

Al-Delaimy WK et al, J Adolesc Health 2006;38(4):465-8.

Cancer, Cigarette Smoking and Premature Death in Europe

- Teenage smokers who keep on smoking

→ About half will be killed by tobacco.

→ Loss of average 20-25 years of life expectancy

Boyle P et al. Lung cancer 1997 May;17(1):1-60

Teenages & Young Adolescents

- Counselling is vital.

→ Health professionals should ask about smoking and provide a strong antismoking message.

- NRT is recommended to adolescents only with precautions.

  → NRT for one to two weeks

  → Lacking long-term evidence of smoking abstinence

- Bupropion and varenicline are not approved for smokers under 18 years of age.

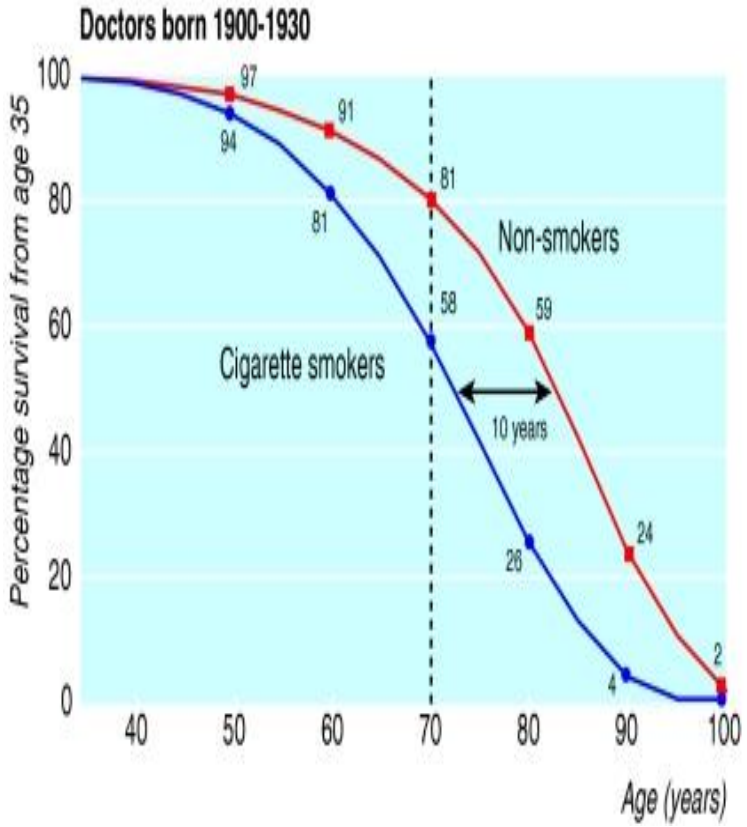
Australian guideline 2011
CDC guideline 2008
Japanese guideline 2012, Circ J 2012; 76 : 1024- 1043

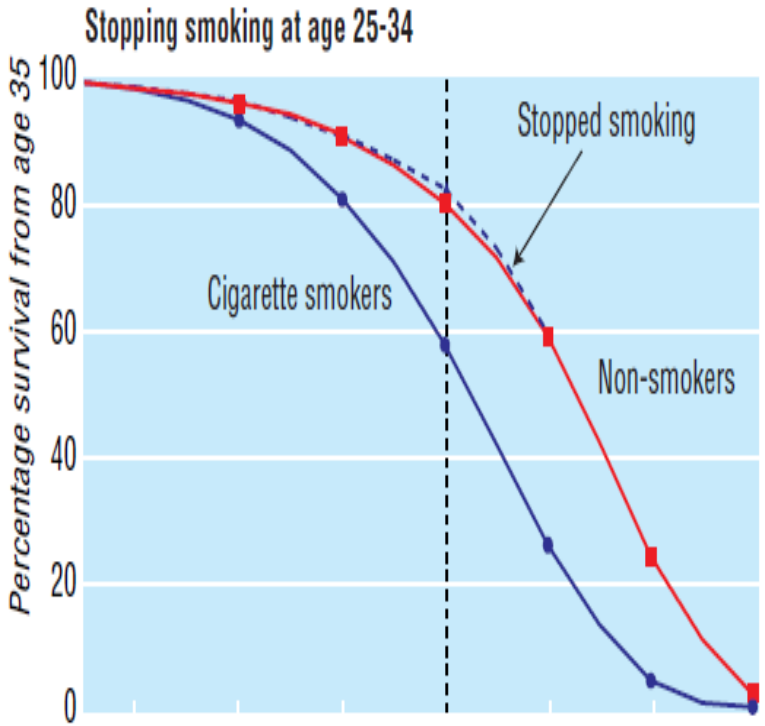
Old age

국내지침서 : Old age

- 고령 흡연자에서 금연은 관상동맥질환, 만성폐쇄성 폐질환, 및 폐암 등으로 인한 사망을 줄인다.
- 고령 흡연자에서 당뇨, 고혈압, 및 고지혈증과 같이 흡연이 만성질환으로 관리되고 치료되어야 한다.
- 고령자에서도 금연치료를 적극적으로 하여야 한다.

Mortality in Relation to Smoking: 50 Years' Observations on Male British Doctors





Doll R BMJ. 2004 Jun 26;328(7455):1519.

Mortality in Relation to Smoking: 50 Years' Observations on Male British Doctors

- Life span extension after smoking cessation

→ 30 years old : 10 years,

almost avoid smoking related death

→ 40 years old : 9 years

→ 50 years old : 6 years

→ 60 years old : 3 years

Doll R BMJ. 2004 Jun 26;328(7455):1519.

Smoking Cessation in Old Age

- Tobacco dependence in older adults → should have the same consideration as treatment of other chronic diseases such as diabetes, hypertension, and hyperlipidemia.

CDC guideline 2008

Andrews JO J Gerontol Nurs 2004;30(12):13-24

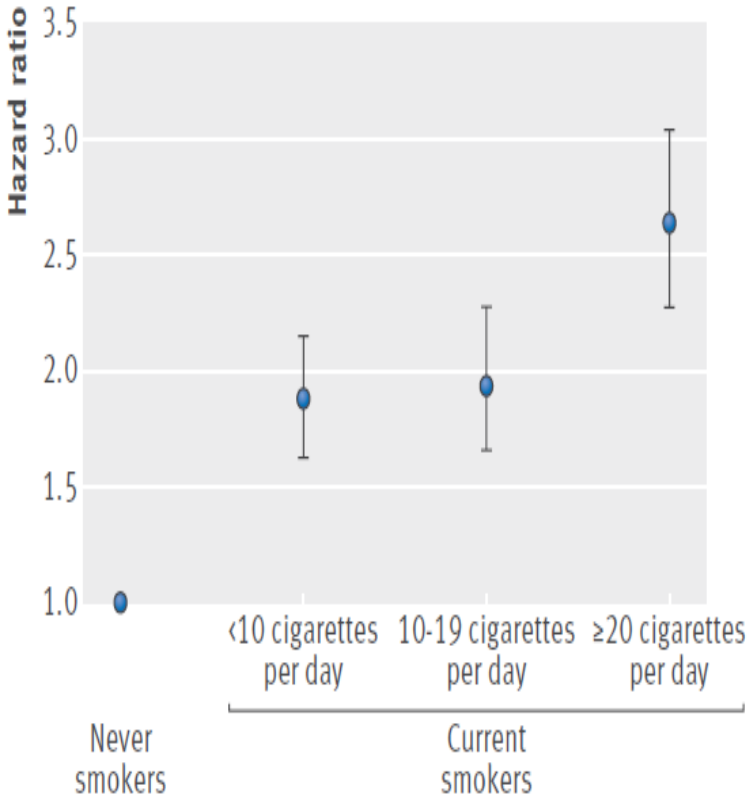
Impact of Smoking on CV mortality among Older Adults

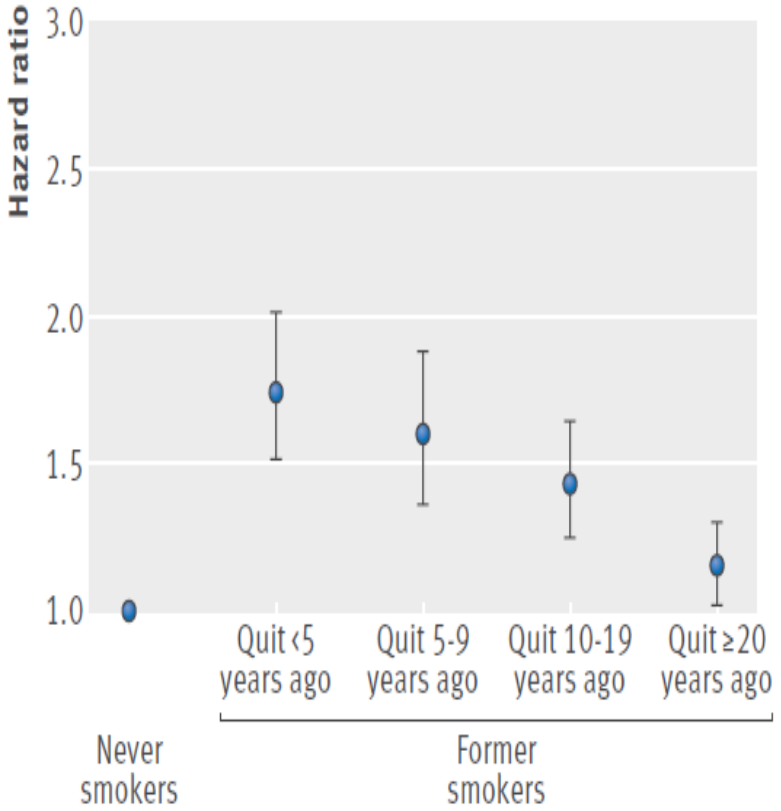
- **25 cohorts in CHANCES consortium**
  → in Europe and north America
  → 503,905 participants aged 60 or older

- **Advance the risk of dying from CV disease**
  → 5.5 years

Mons Ute et al BMJ 2015; 350: h1551

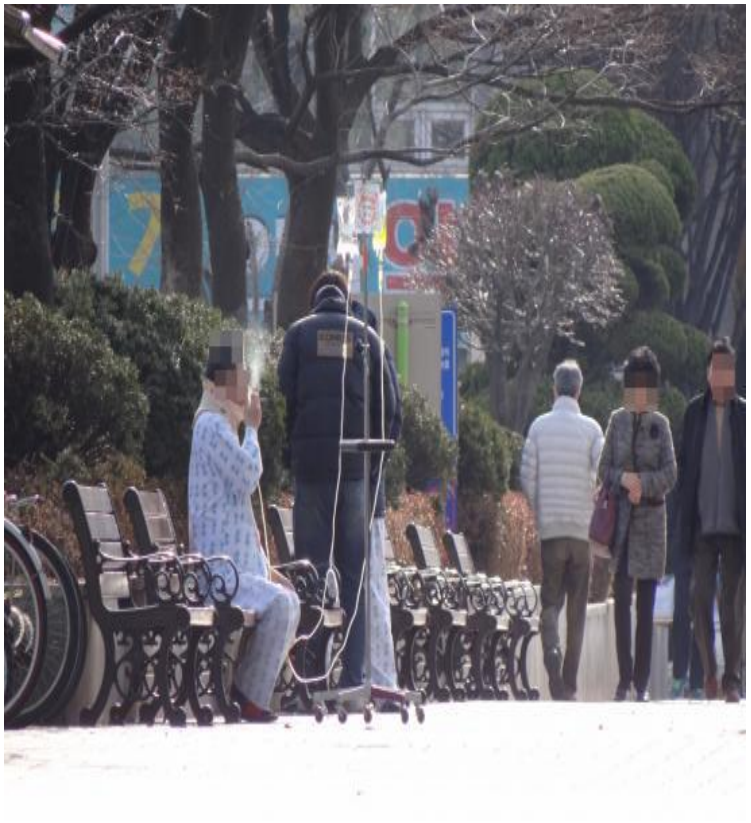
Impact of Smoking on CV mortality among Older Adults





Mons Ute et al BMJ 2015; 350: h1551

Hospitalized Patients

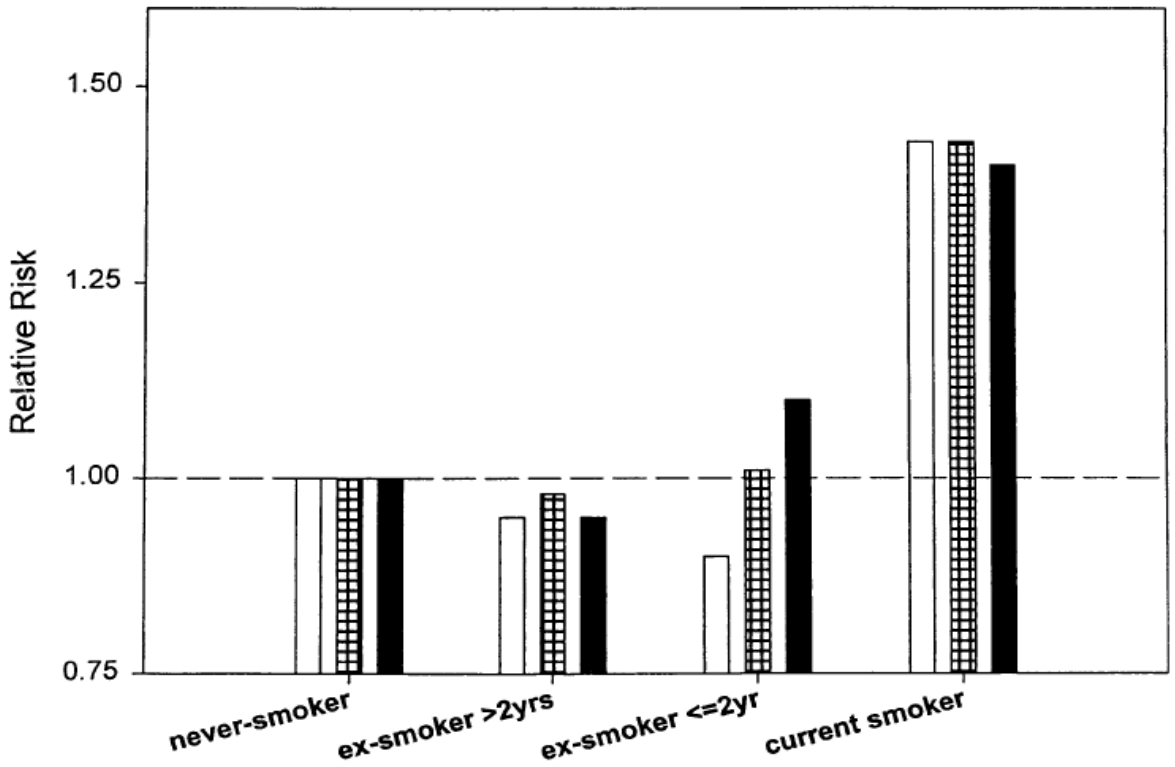


국내지침서 : Hospitalized Patients

- 입원기록지에 흡연 여부 문서화
- 흡연상태가 입원 문제 목록 및 퇴원 진단 기록
- 입원중 금단증상을 치료
- 입원 중 금연과 퇴원 후 금연 유지에 대하여 조언과 도움을 제공한다.
- 퇴원후 흡연 상태에 대한 추적관찰

→ 추가적 외래 치료를 한 달 이상 제공

Relationship of current and past smoking to mortality and morbidity in patients with left ventricular dysfunction.



Open box : hospitalization due to heart failure
Hatched box : myocardial infarction
Solid box : mortality.

Suskin N et al, J Am Coll Cardiol 2001;37(6):1677-82.

Relationship of current and past smoking to mortality and morbidity in patients with left ventricular dysfunction.

- Current nonsmokers (ex- or never-smokers)
  → 30% lower mortality
- Enalapril treatment : 19% mortality reduction
- Metoprolol treatment : 34% mortality reduction
- Spironolactone : 30% mortality reduction

Suskin N et al, **J Am Coll Cardiol 2001;37(6):1677-82**.
MERIT-HF Investigators. Lancet 1999;353:2001–7.
Pitt B et al, N Engl J Med 1999; 341:709 –17.
The SOLVD Investigators. N Engl J Med 1991;325:293–302.

Smoking Cessation Counseling in Post-myocardial Infarction

- Observational study of inpatients

→ 2971 U.S. acute care hospitals in 1994-95.

- Medicare beneficiaries (n=16,743).

→ current smokers over age 65,

→ admitted with acute myocardial infarction

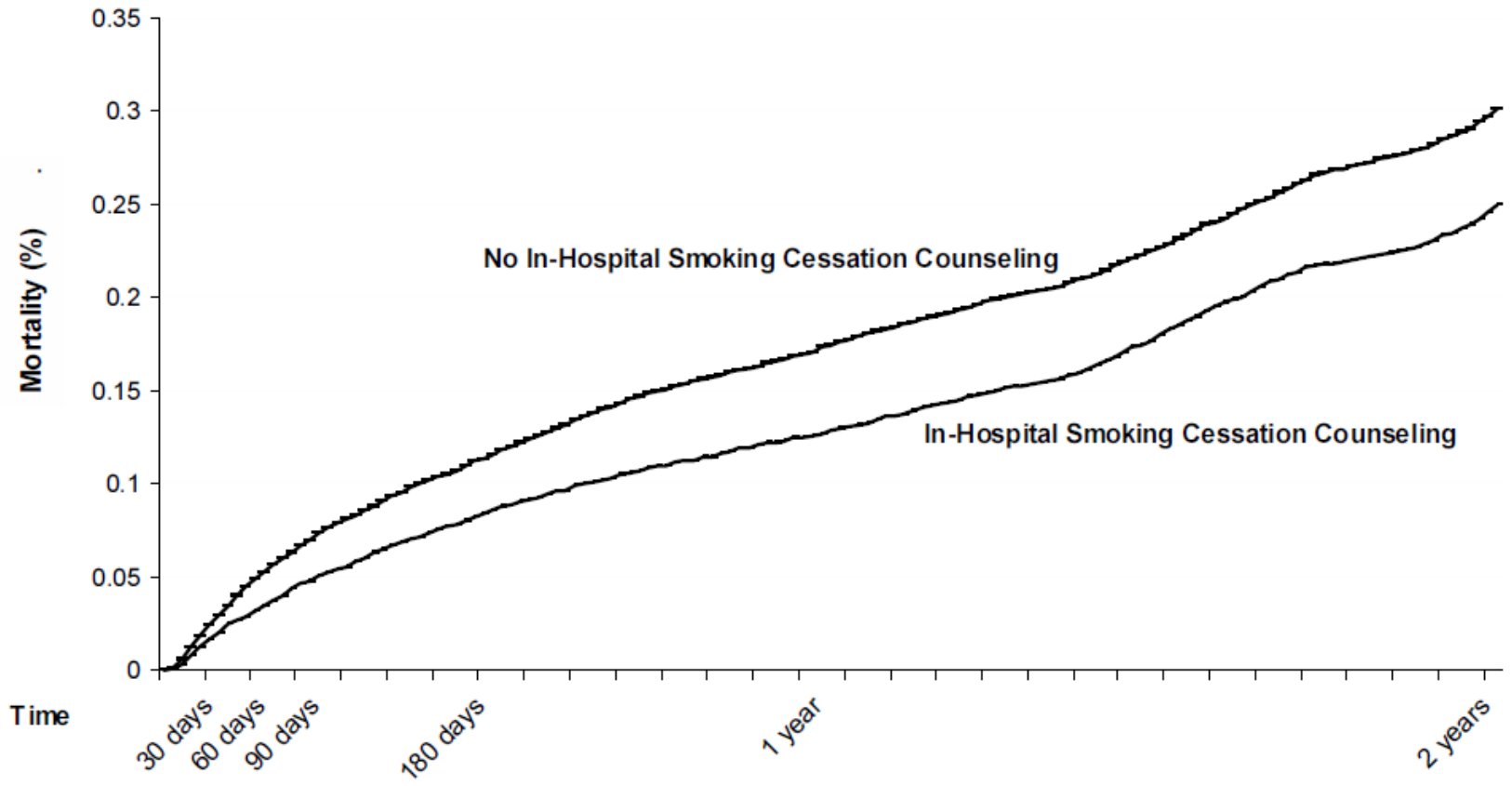
- Outcome

→ early (30, 60-day) mortality

→ late (1, 2-year) mortality

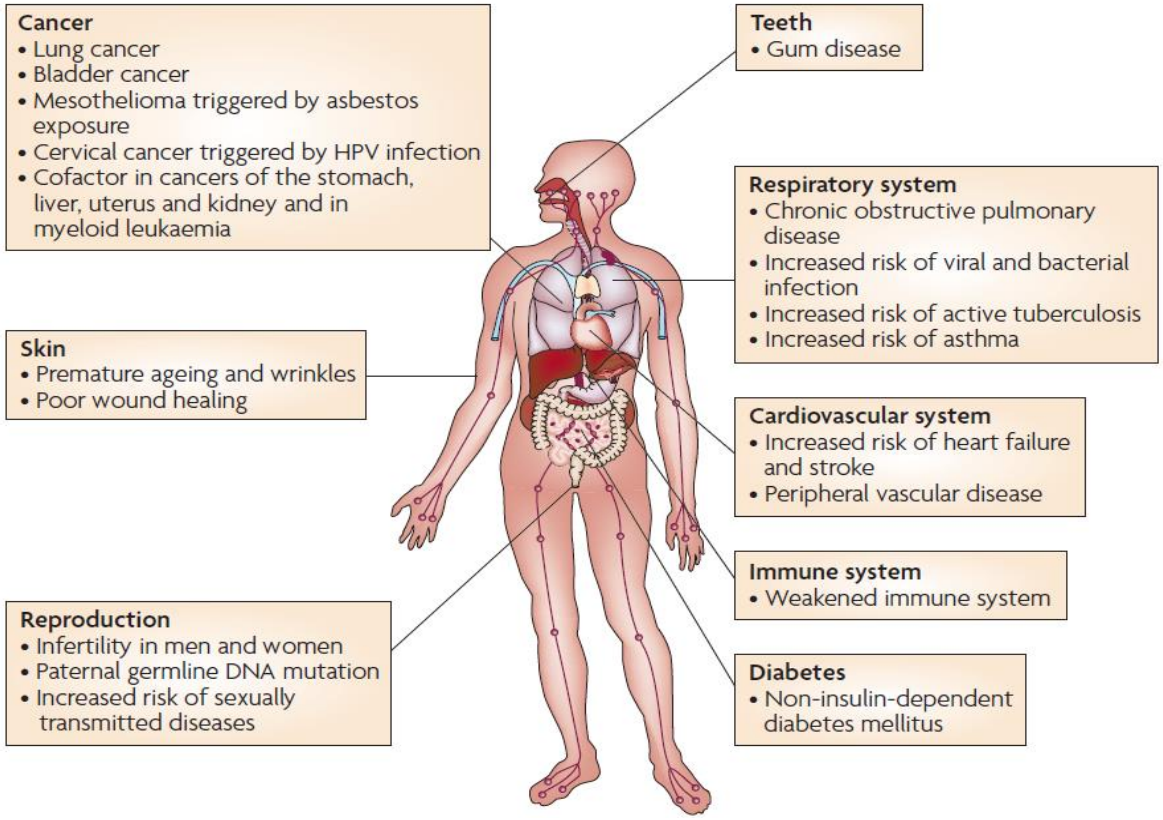
Houston TK et al, Am J Med 2005;118(3):269-75. 677-82.

Smoking Cessation Counseling in Post-myocardial Infarction



Houston TK et al, Am J Med 2005;118(3):269-75. 677-82.

Smoking Cessation in Co-morbid conditions



Stämpfli MR, Anderson GP. Nat Rev Immunol. 2009 May;9(5):377-84

Patients with Co-morbidities

- 금연치료를 만성질환관리 프로그램에 포함하여 시행
- 암 환자 & COPD 환자

→ 니코틴 의존도가 높아서 개별화된 프로그램이 필요

→ 약물치료와 행동중재의 복합치료가 필요

- 심혈관질환 발생 급성기

→ 반드시 흡연을 중단해야 함

→ 발생 48시간 이내에는 니코틴대체요법은 금기

- 당뇨

→ 흡연은 당뇨병 발생 위험을 증가시킴

→ 금연은 혈당조절에 효과적이며 합병증 발생을 줄임

Patients with Co-morbidities

- 천식 환자

→ 흡연은 증상과 폐기능을 악화, 치료제의 효과를 감소

→ 흡연 천식환자에게 금연이 1차 치료로서 권고되어야 함

- 결핵

→ 흡연은 감염과 발병의 위험을 증가

→ 항결핵치료의 효과를 감소시킴

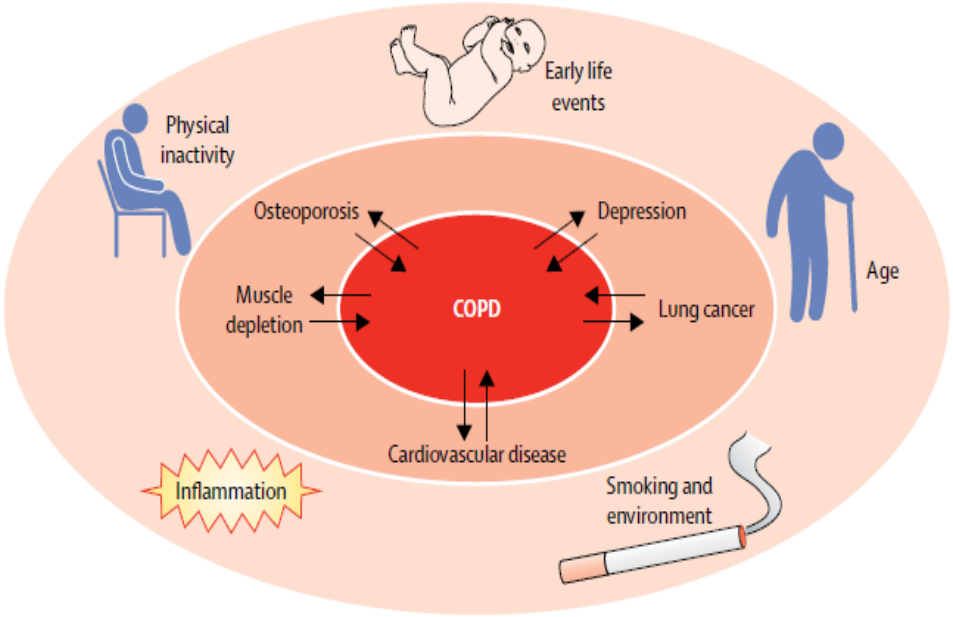
COPD

- Key components to reduce the burden

→ Smoking cessation programmes

→ Increasing physical activity

→ Early detection and treatment of comorbidities



Rabe KF. Lancet. 2017 May 13;389(10082):1931-1940

The effects of a smoking cessation intervention on 14.5-year mortality: a randomized clinical trial.

- Setting:

→ 10 clinical centers in the US and Canada.

- Patients:

→ 5887 middle-aged volunteers

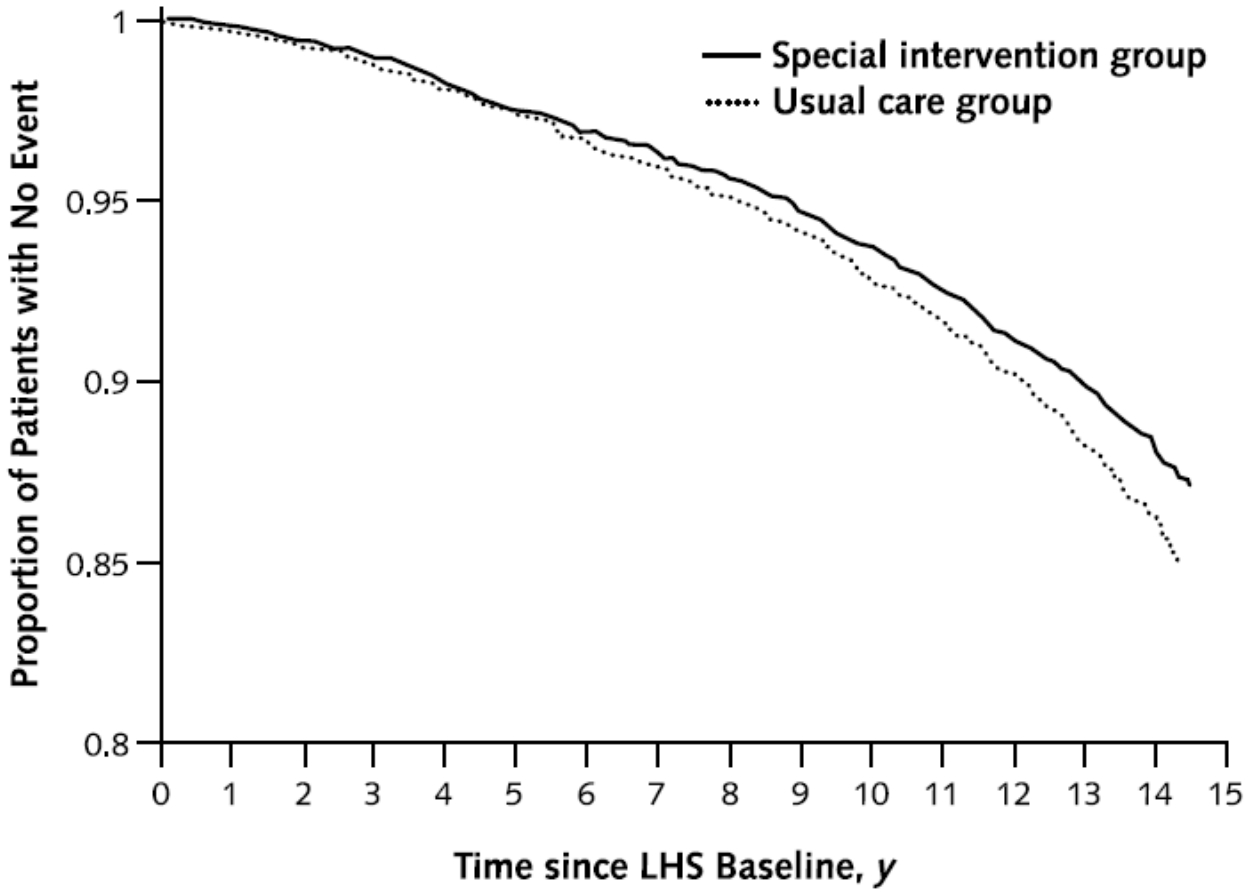
→ Symptomatic airway obstruction

- Measurements:

→ All-cause mortality

Anthonisen NR et al. Ann Intern Med 2005 Feb 15;142(4):233-9.

The effects of a smoking cessation intervention on 14.5-year mortality: a randomized clinical trial.



Anthonisen NR et al. Ann Intern Med 2005 Feb 15;142(4):233-9.

Improved outcomes in ex-smokers with COPD: a UK primary care observational cohort study

- The Hampshire Health Record Analytical Database
- 16,479 patients with COPD (70.1±11.1 years)
- Measurements

→ All-cause mortality

→ Respiratory-cause unplanned hospital admission

→ Respiratory-cause emergency department attendance

- Multivariable Cox regression

Josephs L et al. Eur Respir J. 2017 May 23;49(5).

Cox Regression Analysis

Outcome	Active smokers[¶] (n=5787)	Ex-smokers (n=8941)		
		Hazard ratio	95% CI	p-value
Time to death (from any cause)				
Univariate	1.00	1.31	1.19–1.43	<0.001
Adjusted[#]	1.00	0.78	0.70–0.87	<0.001
Time to first respiratory cause admission				
Univariate	1.00	1.03	0.95–1.12	0.486
Adjusted[#]	1.00	0.82	0.74–0.89	<0.001
Time to first respiratory cause ED attendance				
Univariate	1.00	0.83	0.74–0.92	<0.001
Adjusted[#]	1.00	0.78	0.70–0.88	<0.001

Josephs L et al. Eur Respir J. 2017 May 23;49(5).

Improved outcomes in ex-smokers with COPD: a UK primary care observational cohort study

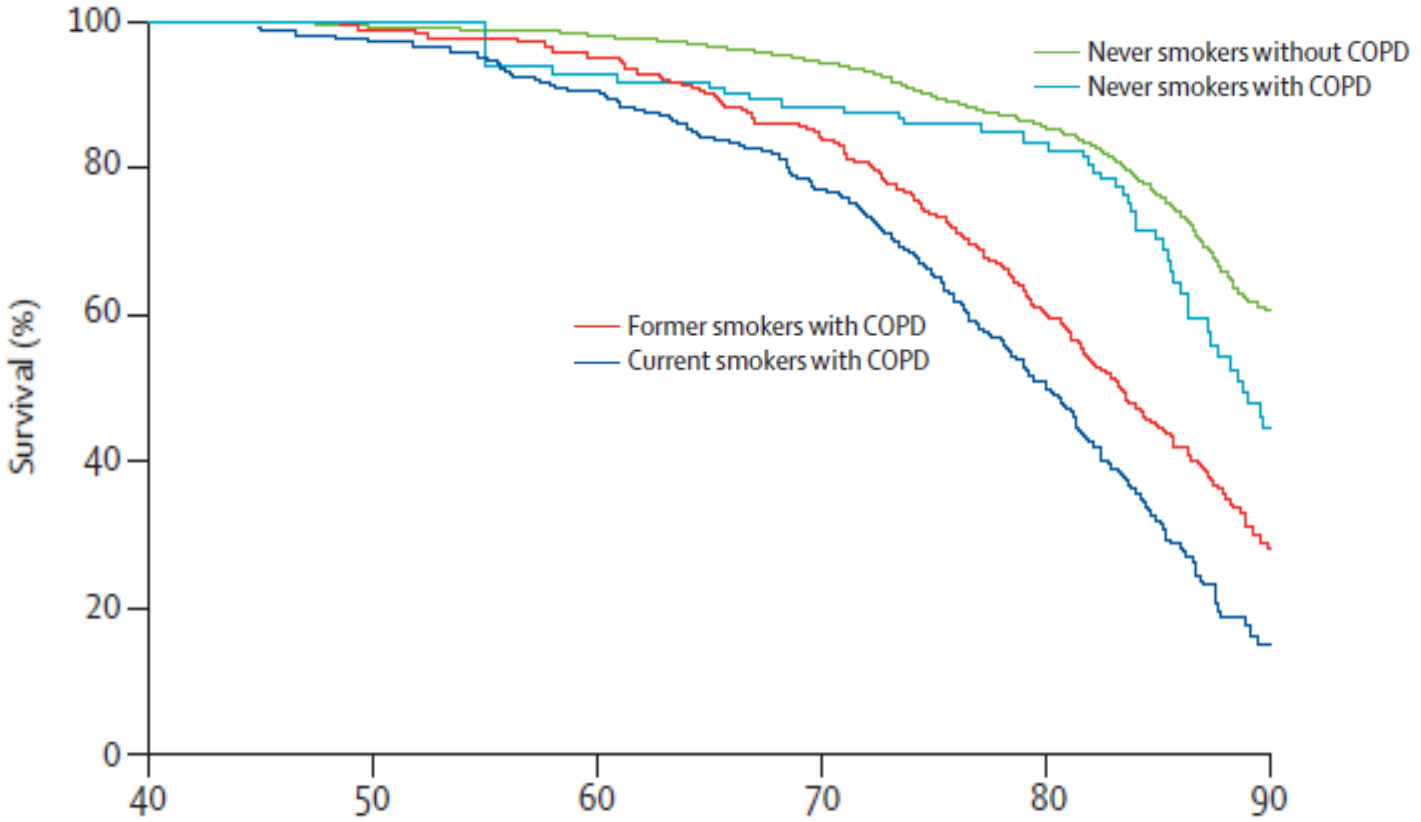
- Better outcomes in ex-smokers

→ Reduced mortality and use of health services

→ Emphasizing the importance of effective smoking cessation support, regardless of age or lung function.

Josephs L et al. Eur Respir J. 2017 May 23;49(5).

Mortality Based on Smoking in COPD



Tomsen et al. Lancet repsir med 2013; (7) ; 543-550

Does Smoking Increase the Risk of TB Disease?

- Prospective cohort of 42,655 persons (≥ 65 years) from 2000 to 2002 in Hong Kong

- Annual TB rates per 100,000 ($p < 0.001$)

→ 735 among current smokers

→ 427 among ex-smokers

→ 174 among never-smokers

Leung CC et al, Am J Respir Crit Care Med. 2004;170(9):1027-33.

Does Smoking Increase the Risk of TB Disease?

- TB risk compared to never-smokers

→ HR 2.63 for smokers

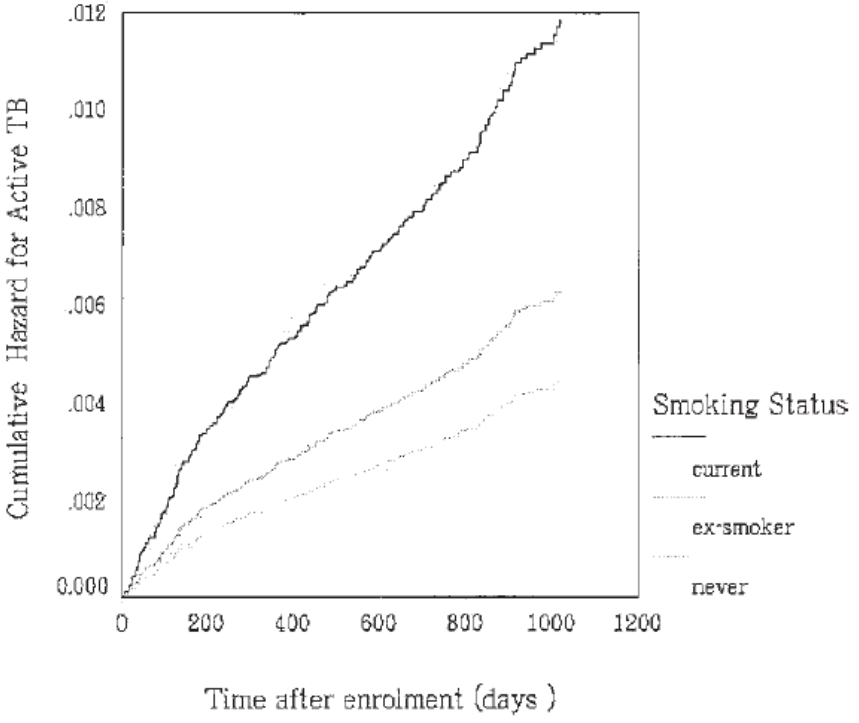
→ HR 1.41 for ex-smokers

→ p < 0.001

- Excess risk (current smokers vs Non-Sm) of pulm TB

→ Adjusted HR, 2.87;

→ p < 0.001



Leung CC et al, Am J Respir Crit Care Med. 2004;170(9):1027-33.

Second lung cancers in patients after treatment for an initial lung cancer

- Survivors smoking cigarettes continuously

→ Increased risk of a second lung cancer.

- The risk of a second lung cancer in patients who survived resection of non-small-cell lung cancer

→ 1%-2% per patient per year.

- Median survival from diagnosis of a second lung cancer

→ Between 1 and 2 years

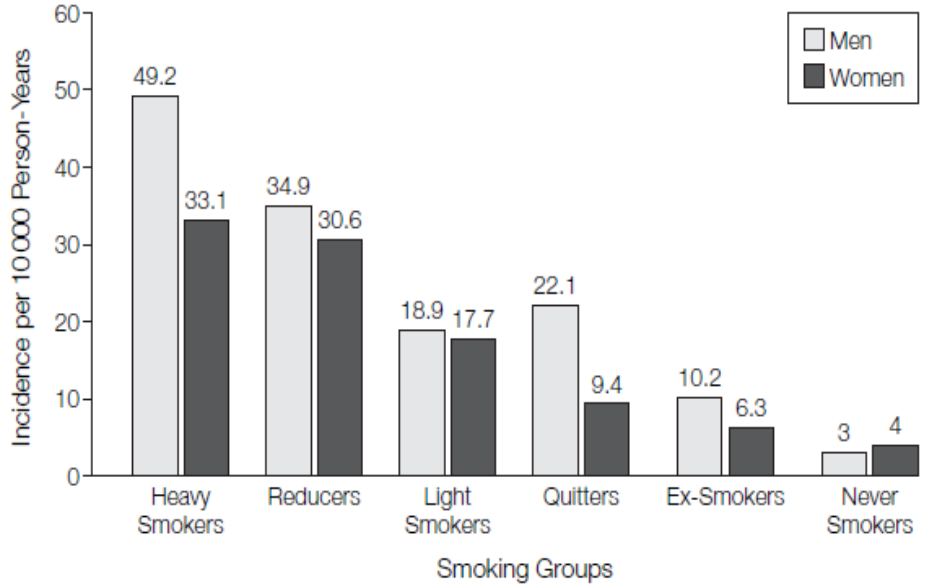
→ 5-year survival of approximately 20%

Johnson BE. J Natl Cancer Inst. 1998;90(18):1335-45.

31 years follow-up from the Copenhagen Centre for Prospective Population Studies

11,151 men and 8563 women (N = 19,714) aged 20 to 93 years

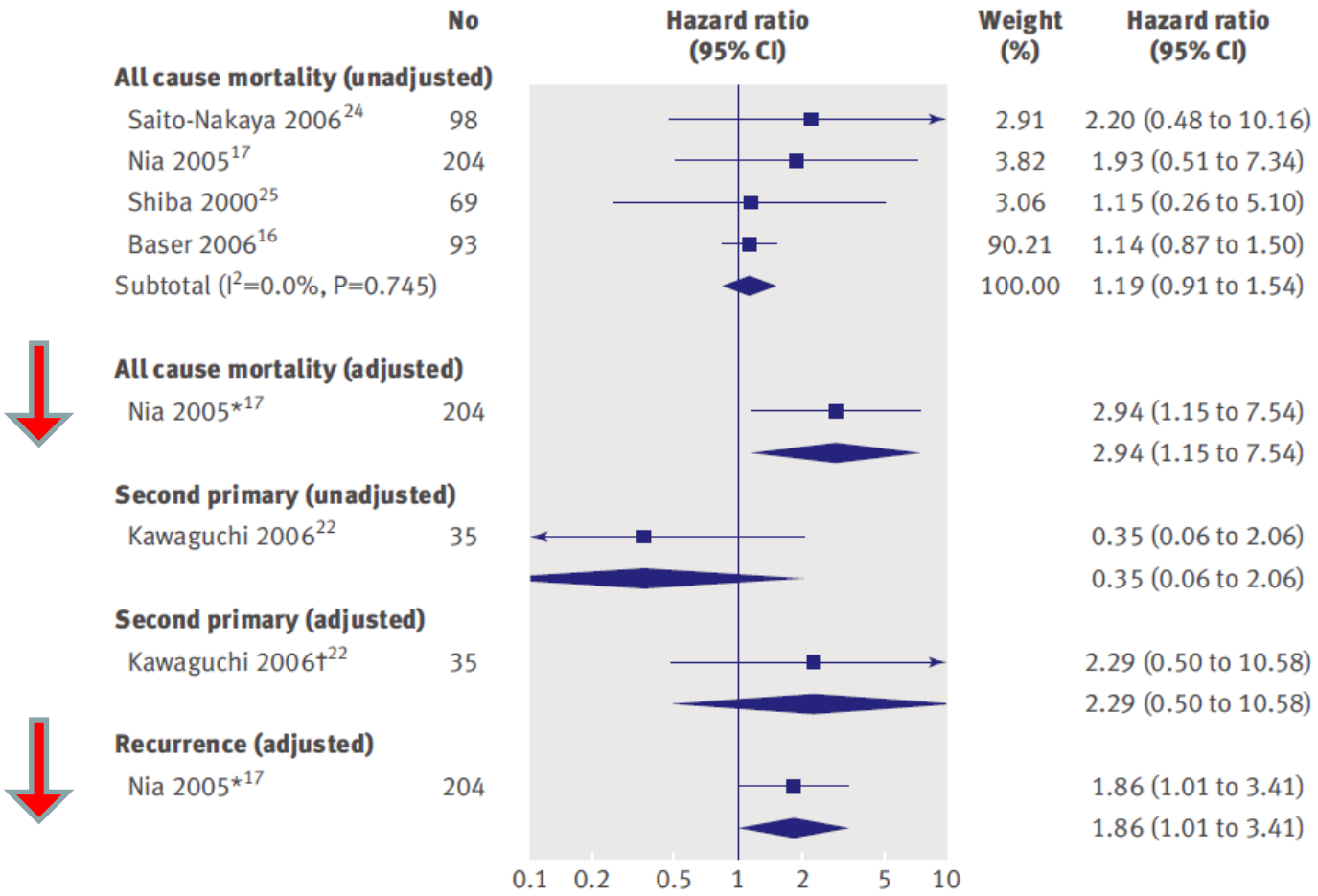
Figure. Age-Standardized Incidence Rates of Lung Cancer



Continued heavy smokers (> or =15 cigarettes/d),
Reducers (reduced from > or =15 cigarettes/d by minimum of 50% without quitting)
Continued light smokers (1-14 cigarettes/d),

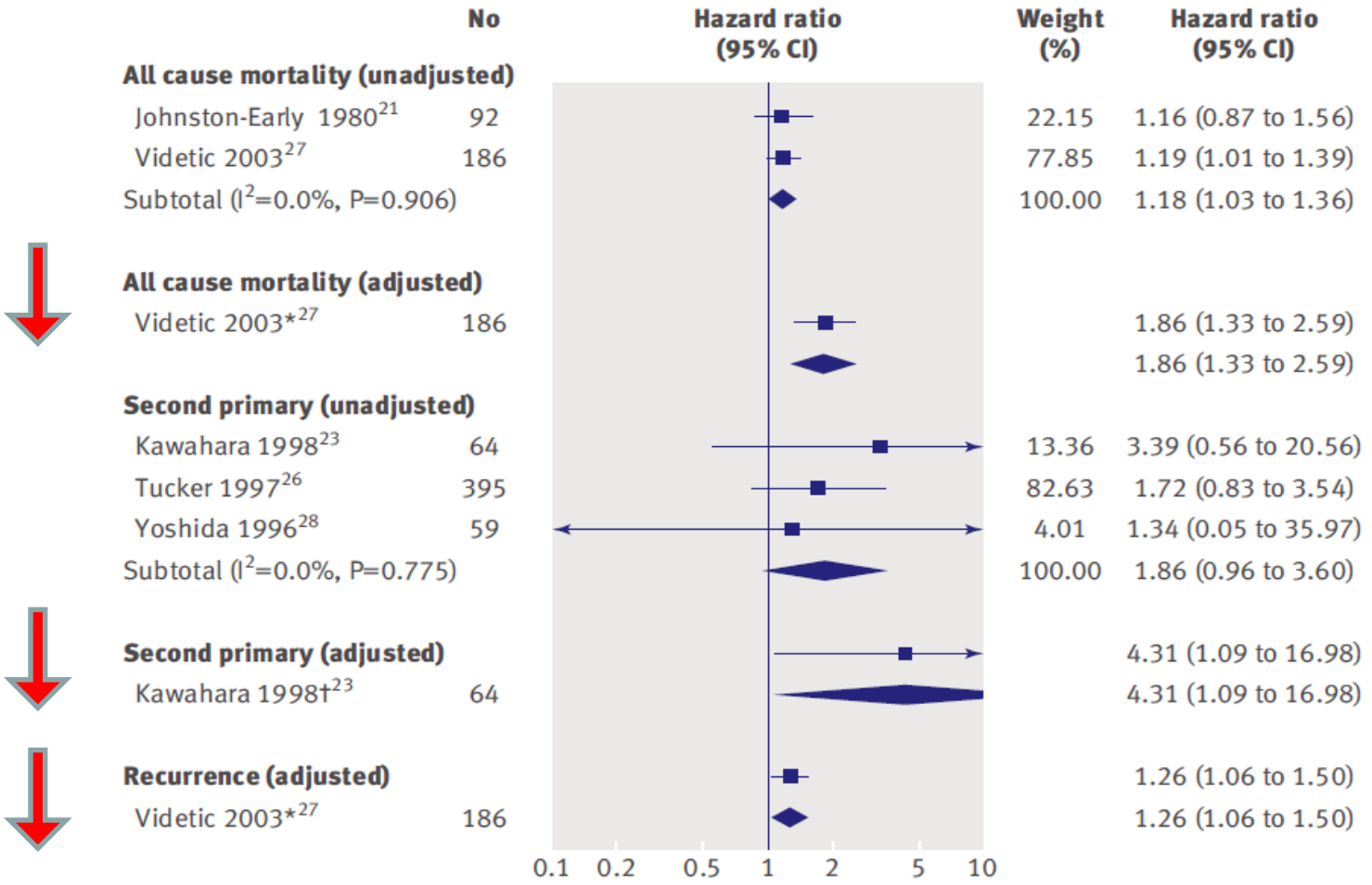
Godtfredsen NS JAMA. 2005;294(12):1505-1510

Influence of smoking cessation after diagnosis of non-small cell lung cancer



Parsons et al. BMJ 2010

Influence of smoking cessation after diagnosis of small cell lung cancer



Parsons et al. BMJ 2010

Smoking Cessation in Women

국내지침서 : Women

- 여성의 금연은 남성에 비해 심리적, 행동적 의존이 높으며 신체 호르몬 변화에도 영향을 받는다.
- 부프로피온, 니코틴 대체요법, 바레니클린 등의 치료에 효과를 보이며, 정신사회학적 치료 및 운동 치료도 효과가 있다.
- 특수 상황에 처한 여성의 경우 맞춤 금연 치료가 필요하다.

Smoking Cessation in Women

20~30대 미혼 흡연 여성

→ 친구가 흡연을 하는 경우가 **93.4%,**

→ 가족이 흡연을 하는 경우가 **74.4%**

Kim OS et al. Journal of Korean Academy of Adult Nursing 2001;13:509-16.

Smoking Cessation in Women

- Assistance: self-help, counseling, and/or nicotine replacement therapy (NRT)

- Success rate of smoking cessation

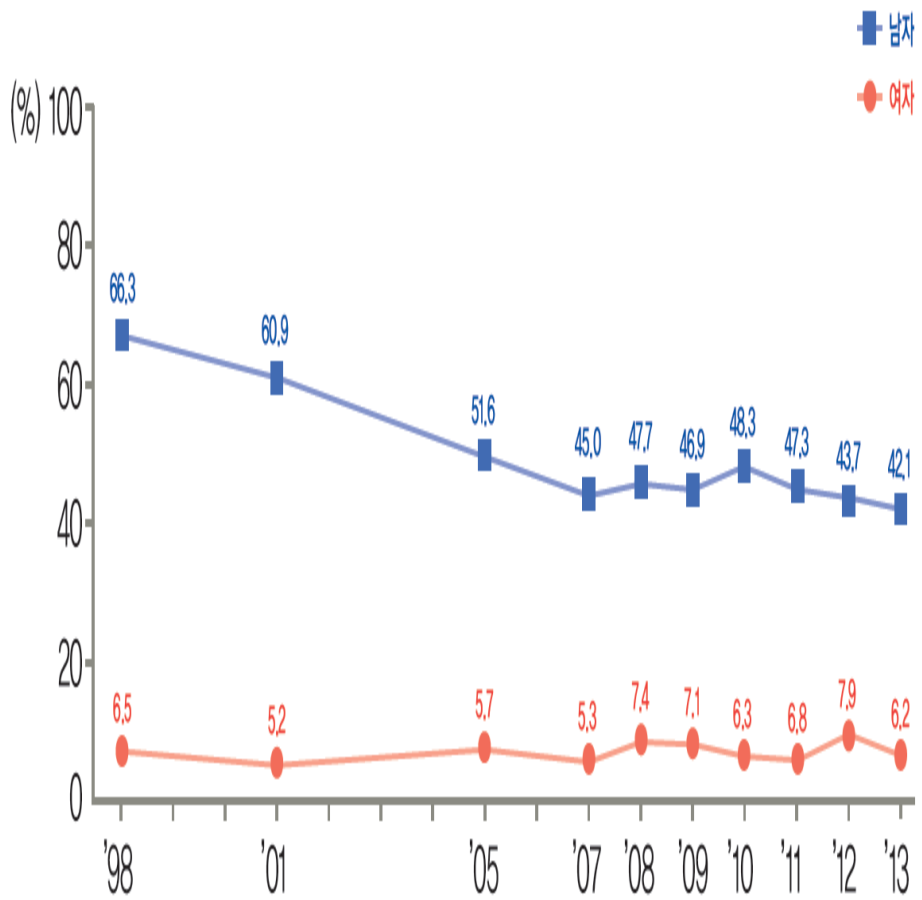
→ Those who used assistance ; 15.2%

→ Those who did not ; 7.0%

- Women : more likely to use assistance than men

Zu S, Am J Prev Med. 2000 May;18(4):305-11.

Smoking Rate of Women
Korean National Health Survery



- 2005 : 5.7%
  2014 : 5.7%

- Smoking rate by urine cotinine :
  X 2.36

Korea Institute for Health and Social Affairs 2009

Effect of Smoking on Δ FEV1

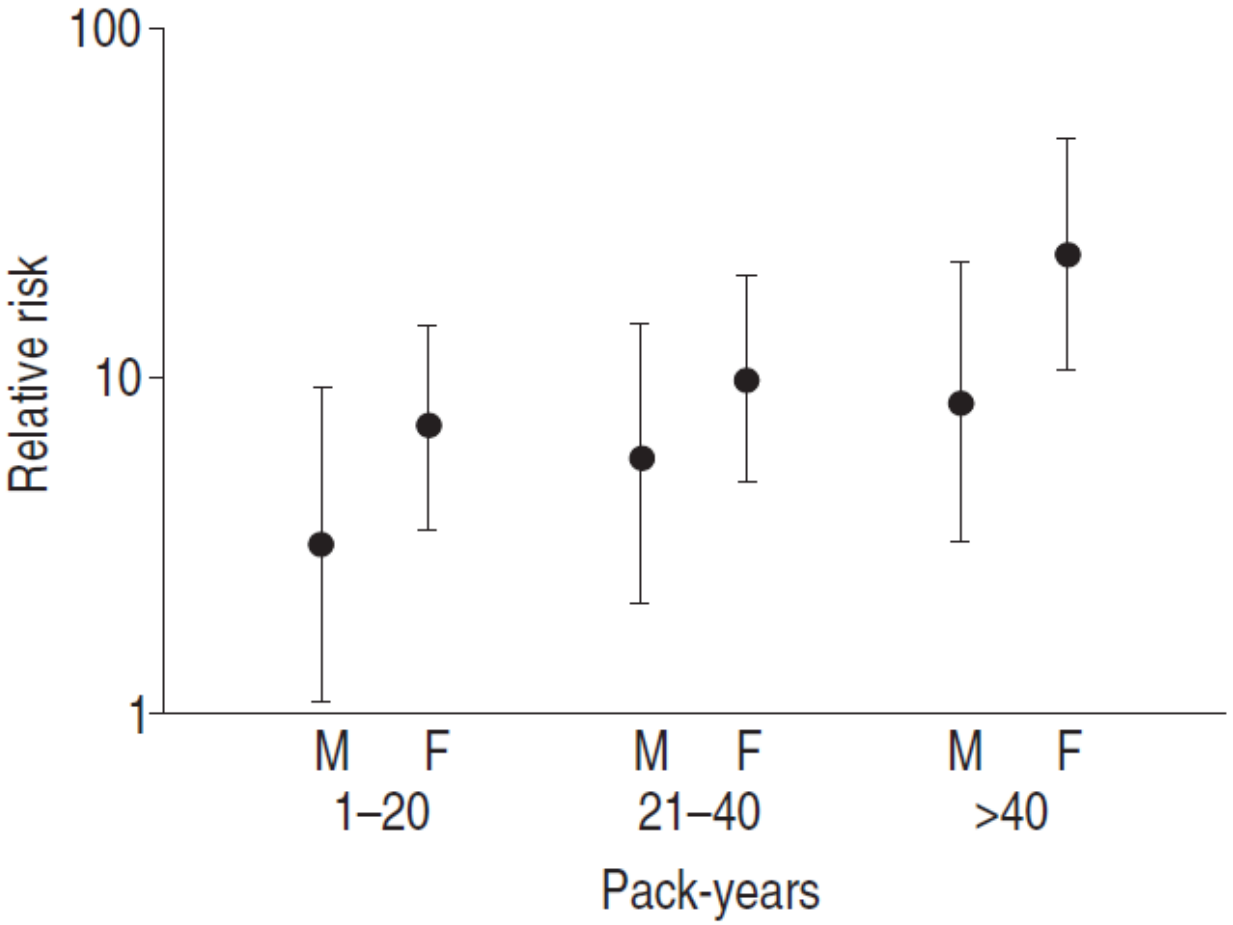
Copenhagen City Heart Study (CCHS)
estimated mL/year

	Women (n=5020)	Men (n=3328)
• Pack – yr (inhaler)*	-7.4	-6.3
• Pack – yr (non-inhaler)*	-2.6	-1.0
• Age*	-24.7	-37.7

* P<0.05

Prescott et al ERJ 1997

Relative Risk of Hospitalization for COPD



Prescott et al ERJ 1997

Decline in the risk of myocardial infarction among women who stop smoking

- Subjects

→ 910 patients who had their first myocardial infarction with those of 2,375 controls

- Case-control study of women from 25 to 64 years of age.

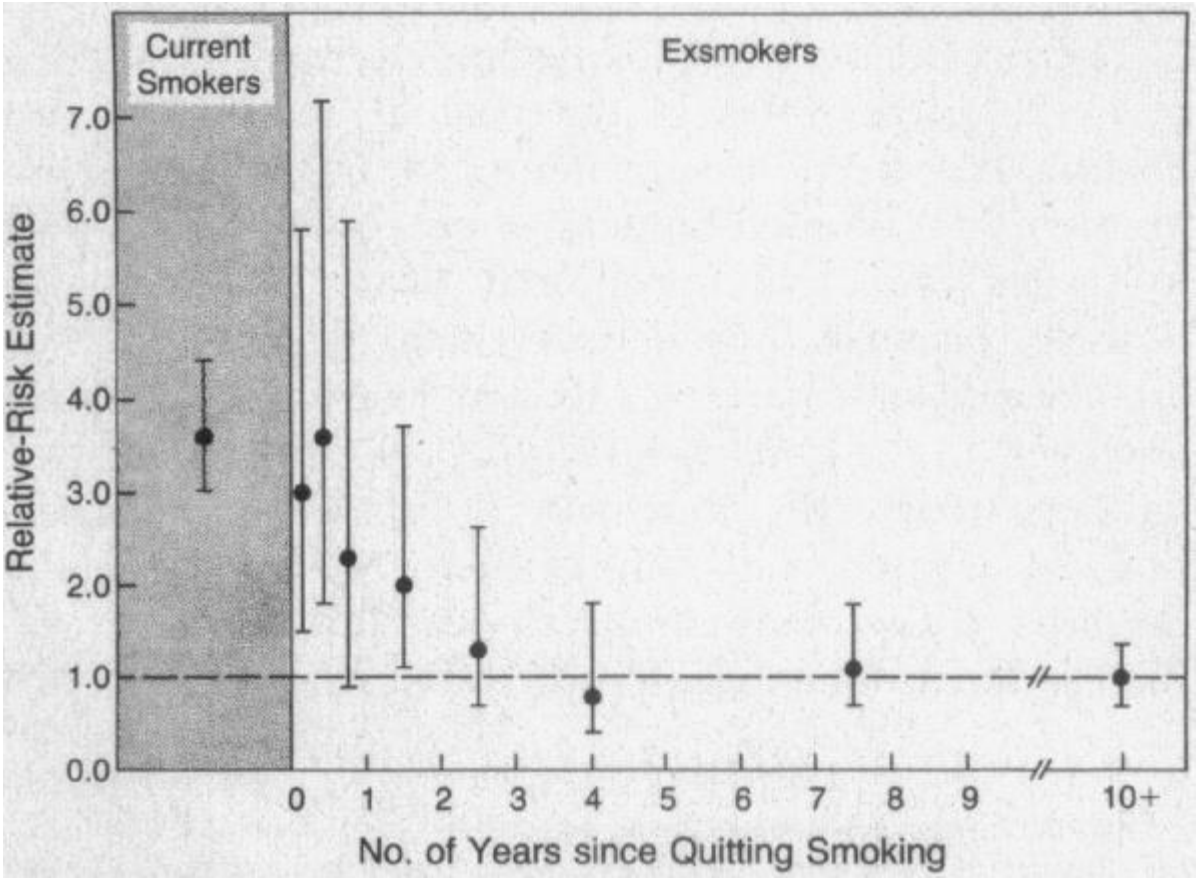
Rosenberg et al. N Engl J Med.1990 Jan 25;322(4):213-7.

Relative Risk of MI in Women

Smoking Status	No. of Case Patients	No. of Controls	Age-Adjusted Relative Risk Estimate	95% Confidence Interval
Never smoked	191	940	1.0*	—
Current smoker	570	885	3.6	3.0–4.4
Exsmoker	149	550	1.2	1.0–1.7

Rosenberg et al. N Engl J Med.1990 Jan 25;322(4):213-7.

Decline in the risk of myocardial infarction among women who stop smoking



Rosenberg et al. N Engl J Med.1990 Jan 25;322(4):213-7.

Smoking Cessation in Pregnancy

Hazards of Smoking in Pregnancy

Pregnancy loss
- spontaneous abortion
- fetal demise
- stillbirths

Premature rupture of membranes
- preterm
- term

Premature labour and delivery

Placental abruption

Placental previa

Hypertension

Pre-eclampsia

Fetal toxicity

Growth retardation

Neurotoxicity

Cleft palates and cleft lips

Pulmonary effects

Postnatal outcomes

Sudden infant death syndrome

Premature infants, especially very low birth weight infants

Hyperviscosity in the newborn

Elevated blood pressure during infancy and childhood

Behavioural, psychiatric, and cognitive outcomes of childhood

Mental retardation

Childhood cancers

Medical conditions associated with passive smoking in childhood[a]
- sudden infant death syndrome
- deaths due to respiratory illnesses
- asthma
- pneumonia and other respiratory illnesses
- otitis media
- burns and fire deaths

Dempsey DA et al. Drug Saf 2001;24(4):277-322

Smoking Cessation in Pregnancy

- 19 to 27% of pregnant women in the US

→ smoke cigarettes

Adams EK et al, MMWR 1997; 46: 1048-50

- Psychosocial interventions

→ Counseling, health education, feedback, incentives, social support

→ Smoking cessation rate in late pregnancy ↑

→ Reduced low birthweight and preterm births

Chamberlain C et al. Cochrane Database Syst Rev 2017; 2:CD001055.

Pharmacotherapy for Smoking Cessation in Pregnancy

- General principles

→ The lowest dose necessary to minimize fetal exposure

→ If possible, delaying therapy until the second trimester to avoid the period of embryogenesis when the fetus is most sensitive to teratogens.

Pharmacotherapy for Smoking Cessation in Pregnancy

- First-line drug options

→ Nicotine replacement therapy and bupropion

→ No RCT about the safety and efficacy of these drugs

- Varenicline

→ No information on the safety in human pregnancy

→ Teratogenic effects have not been observed in animal studies.

Smoking Cessation in Pregnancy

- No evidence on NRT for smoking cessation in pregnancy

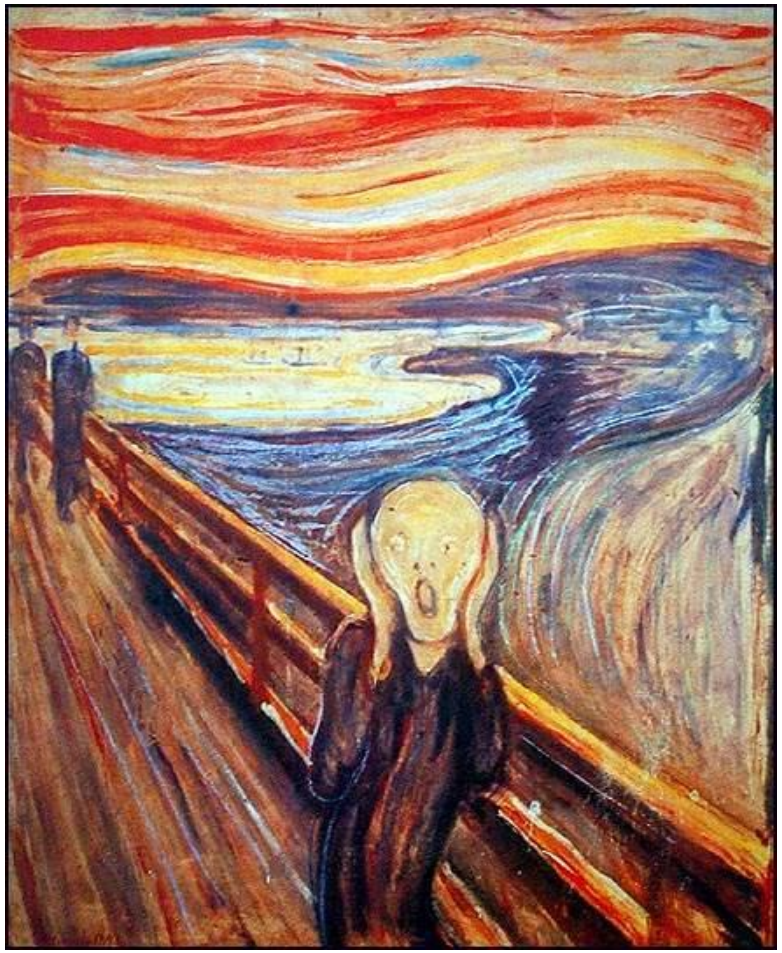
  Cochrane Database Syst Rev 2015 Dec 22;(12):CD010078.

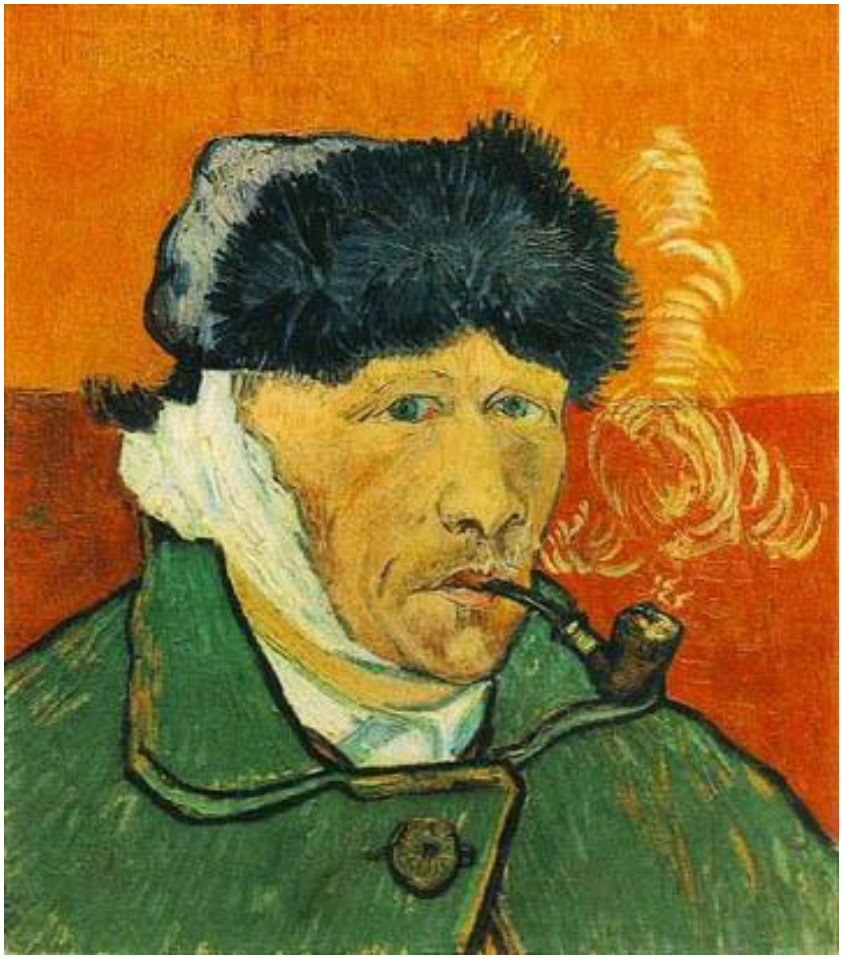
- Animal studies

→ Nicotine may be toxic to the developing central nervous system,

Cochrane Database Syst Rev 2009 Jul 8;(3):CD001055.

Prevalence of Smoking in Psychiatric Disease





국내 지침서
Psychiatric Disease

- 흡연자 : 많은 정신질환 동반

→ 금연 유지율이 낮고 재흡연율이 높아짐

→ 집중적이고 심층적인 치료 및 추적이 필요

→ 정신건강의학과와의 협진 .

- 니코틴 및 금연치료에 사용되는 약물

→ 기존 정신질환으로 복용하는 약물의 대사에 영향

- Varenicline

→ 우울한 기분, 자살사고, 감정 및 행동 변화

→ 기분, 행동 변화 및 우울증에 대한 병력청취

Prevalence of Smoking in Psychiatric Disease

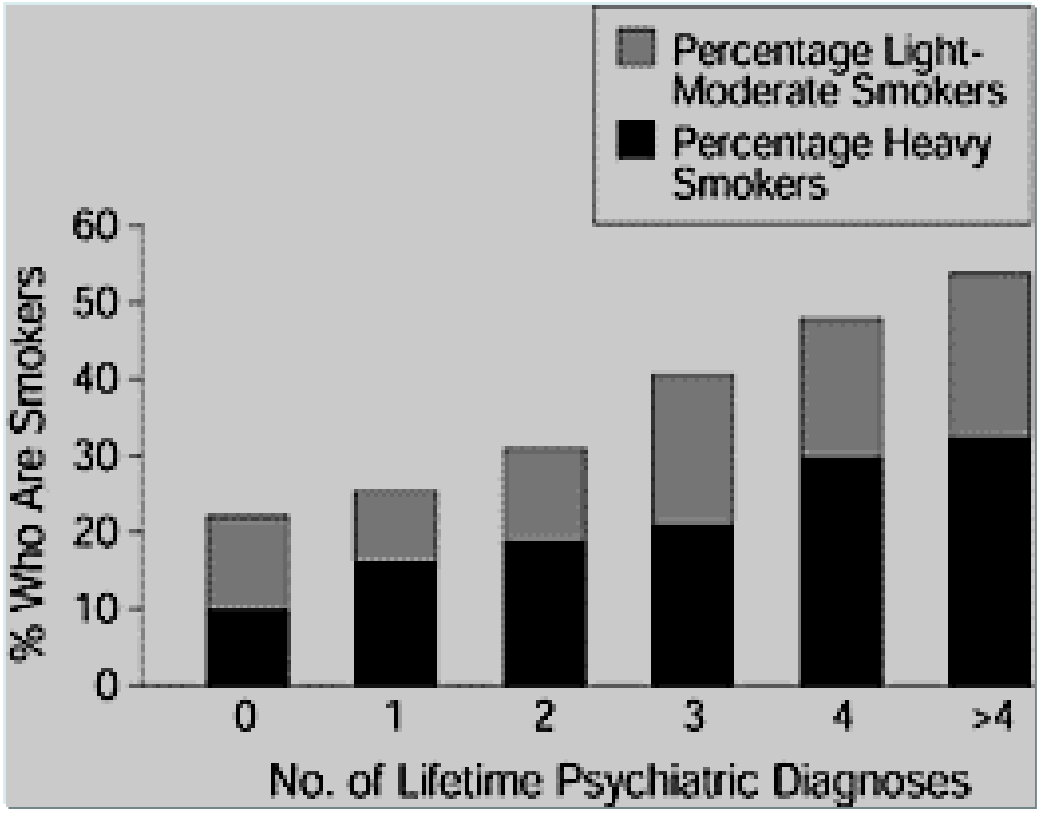
- Patients with mental illness

→ twice as likely to smoke as other persons

- Bipolar disorder : 55~88%
- Alcoholics and drug addicts : more than 70%
- Anxiety disorder : 45.3%

Lasser K et al JAMA 2000;284(20):2606-10.
Prochaska JJ et al. Psychiatr Serv. 2004;55(11):1265-70.
Poirier MF Biol Psychiatry. 2002;26(3):529-37.

Prevalence of Smoking in Psychiatric Disease



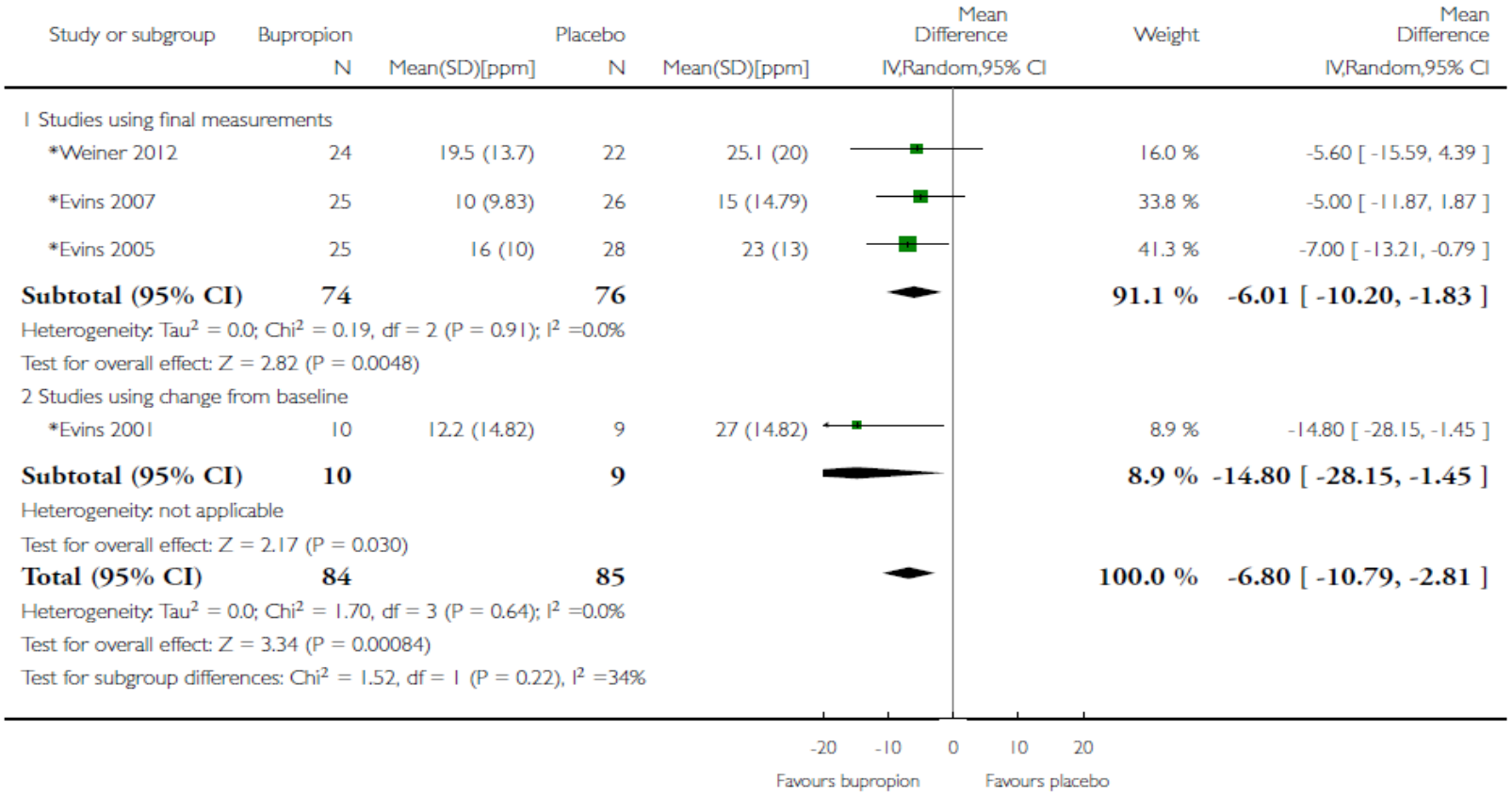
Lasser K et al JAMA 2000;284(20):2606-10.

Problems on Smoking Cessation in Psychiatric Disease

- Higher treatment failure rate
- Lower treatment rate
- Higher mortality

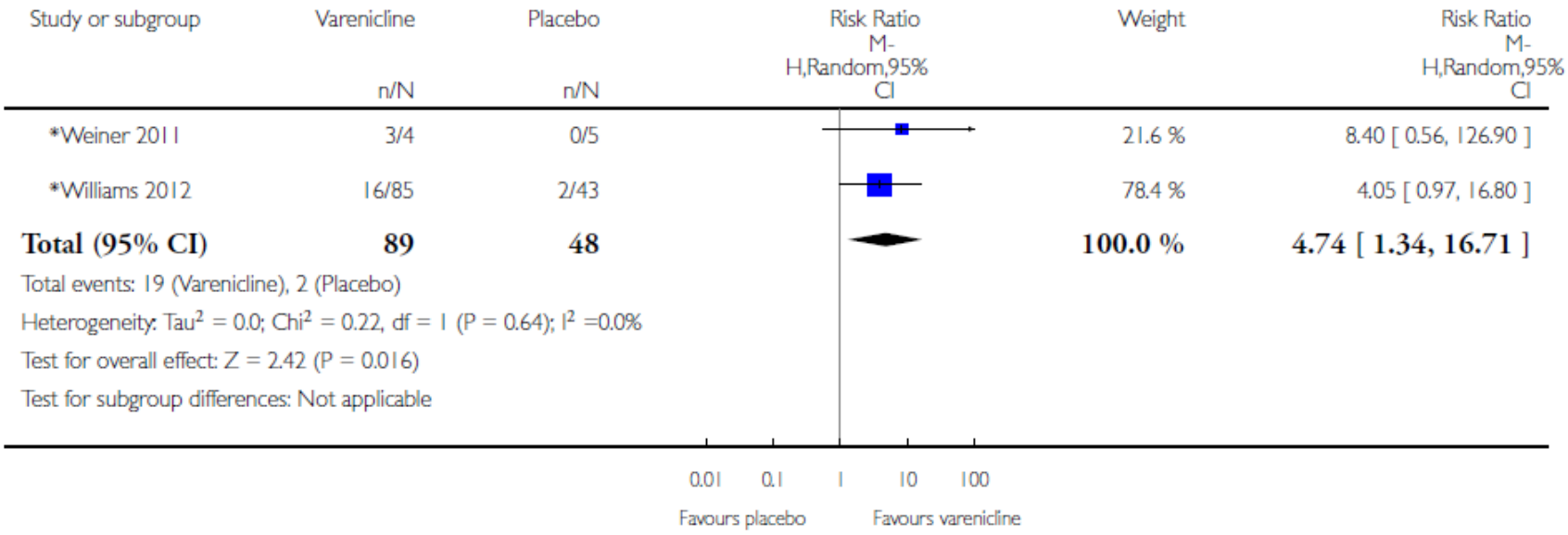
Glassman AH et al, JAMA. 1990;264(12):1546-9.

Bupropion versus placebo Abstinence in schizophrenia



Cochrane Database Syst Rev. 2013 Feb 28;(2):CD007253

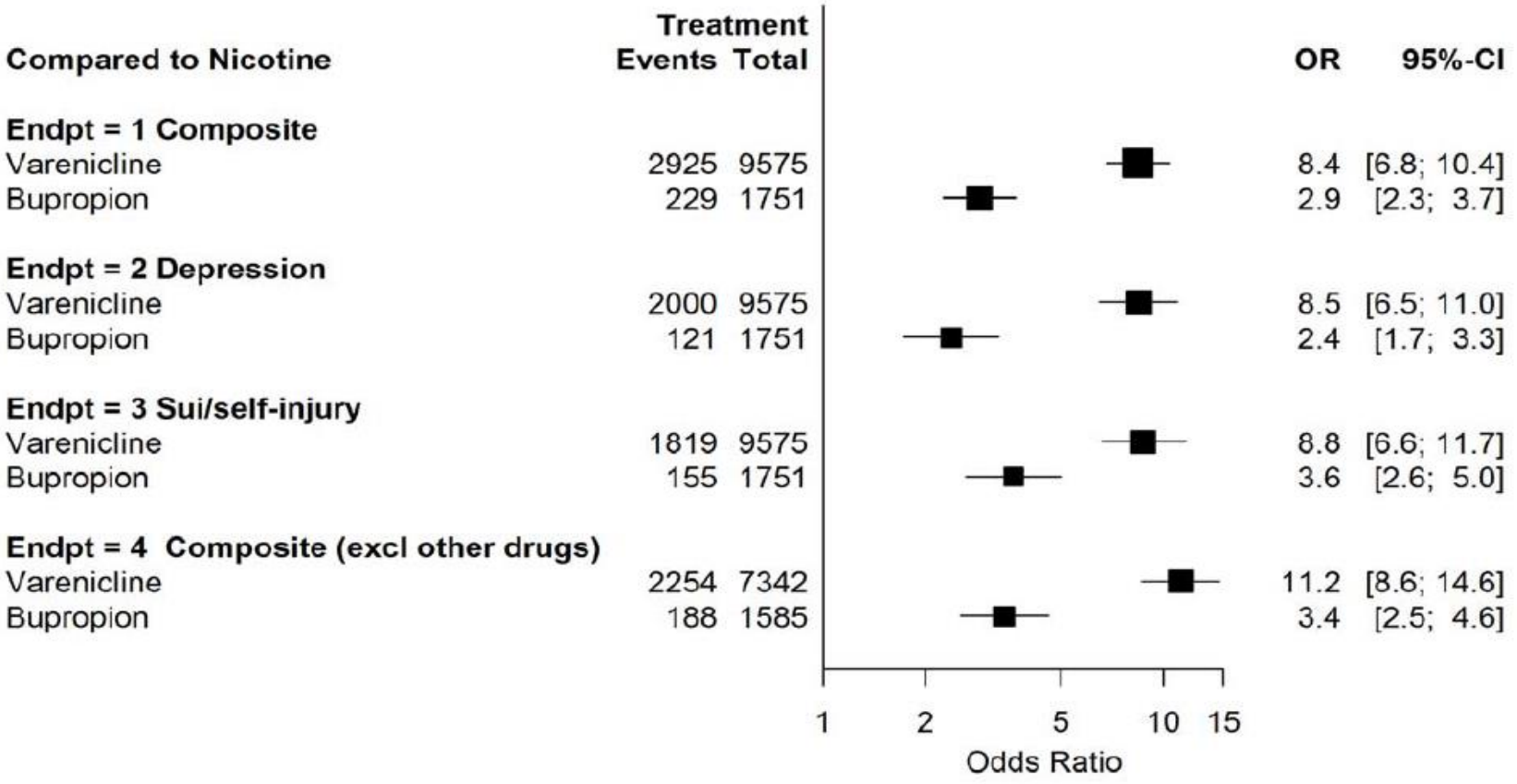
Varenicline versus placebo
Abstinence in schizophrenia



Cochrane Database Syst Rev. 2013 Feb 28;(2):CD007253

Suicidal Behavior and Depression in Smoking Cessation Treatment

FDA's Adverse Event Reporting System from 1998 to 2010



Moore TJ et al PLoS One. 2011;6(11):e27016.

Prison

Prison

- Smoking prevalence of prison population :

→ 74.1% measured by carbon monoxide (CO)

Cropsey KL et al. Nicotine Tob Res. 2006;8:653–9

- Smoking rate of prisoners

→ 3-4 times of normal population

Maruschak LM, Medical Problems of Inmates, 1997.

Bureau of Justice Statistics. Document NCJ 181644

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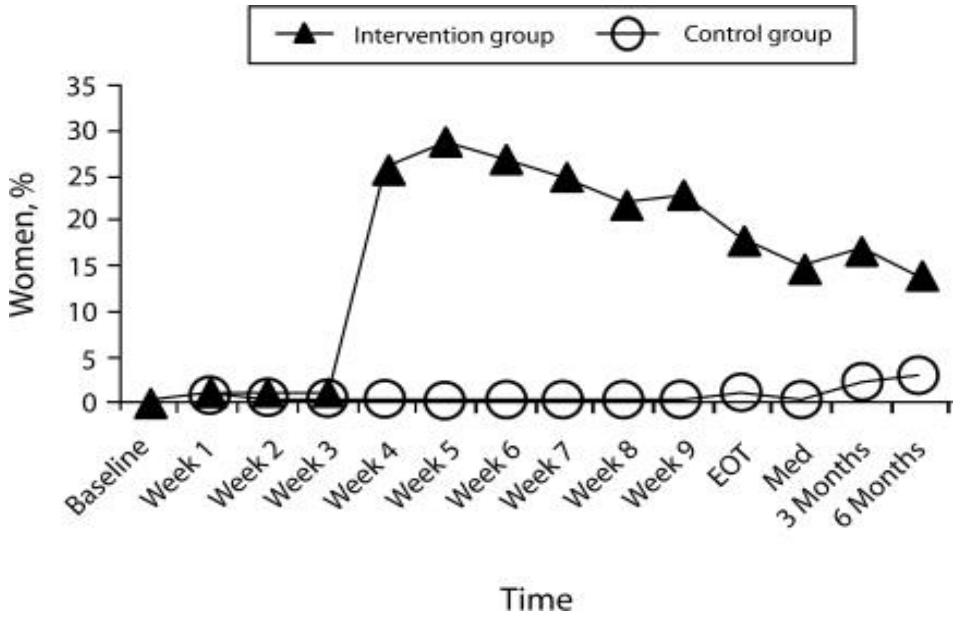
NRT trial in prison Prison

- 10-week 250 NRT vs 289 control group.
- Quit rates consistent with outcomes from community smoking-cessation interventions



Cropsey K, Am Public Health 2008;98:1894-901.

Prison

- Health professionals should take every opportunity to offer advice to quit
- Provide pharmacotherapy (NRT, bupropion, varenicline)
- Proactive telephone counselling
- Close follow up

Australian guideline

Conclusion

- Effective smoking cessation support is important regardless of age or situation.
- Smoking cessation should be encouraged in vulnerable patients.
- Smoking leads to higher mortality in cardiovascular and respiratory diseases.
- Treating tobacco dependence in older adults should have the same consideration as treatment of other chronic diseases.

Thank you for attention