



# **Clinical Guidelines: Smokers undergoing scheduled surgery - The Gold Standard Programme**

**Linee Guide: Astensione dall'abitudine tabagica nel periodo perioperatorio - il Programma Gold standard**

**Professor, Director Hanne Tonnesen**  
**WHO CC Clinical Health Promotion (DK)**



# Surgery and smoking

## The main message

**Smoking  
doubles the complications**

**Quitting  
halves the complications**



# Literature on smoking + OP

- > 34,000 hits (any type of publication)
- 4,756 clinical studies (any type)
- > 500 cohort studies

The overall risk of complications is **doubled**. The specific risks are:

Complication	RR	(95 % CI)
General infections	1.54	1.32-1.79
Pulmonary complications	1.73	1.35-2.23
Wound complications	2.15	1.84-2.49
Admission to intensive care unit	1.60	1.14-2.25
General morbidity	1.52	1.33-1.74
Neurological complications	1.38	1.01-1.88



# Preop risk evaluations today includes the lifestyle!

ASA	DEFINITION	EXAMPLES, INCLUDING
I	A normal healthy patient	No or minimal alcohol use
II	A patient with mild systemic disease	Smoking, Obesity
III	A patient with severe systemic disease	Alcohol dependence or abuse
IV	A patient with severe systemic disease that is a constant threat to life	
V	A moribund patient who is not expected to survive without the operation	
VI	A declared brain-dead patient whose organs are being removed for donor purposes	

[www.asahq.org/resources/clinical-information](http://www.asahq.org/resources/clinical-information)

**Smoking** and obesity also in the NSQIP calculator



# Mechanisms

## Preop conditions for smokers

- Reduced immune capacity
- Delayed wound healing
- Weak lung function



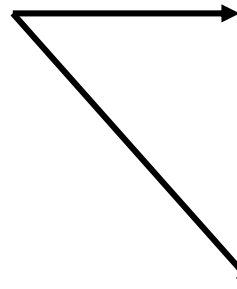
# Time to Recovery after quitting smoking

- **2 - 6 weeks:** Immune capacity
- **3 - 4 weeks:** Wound healing
- **6 - 8 weeks:** Lung function



# Clinical Health Promotion = Health Promotion for Patients

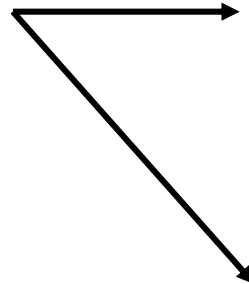
## Smoking



**Population:** Lifestyle-related physical + psychosocial damage

**Patients:** Also aggravation of outcome & prognosis of other diseases and treatment (e.g. surgery)

## Quit smoking

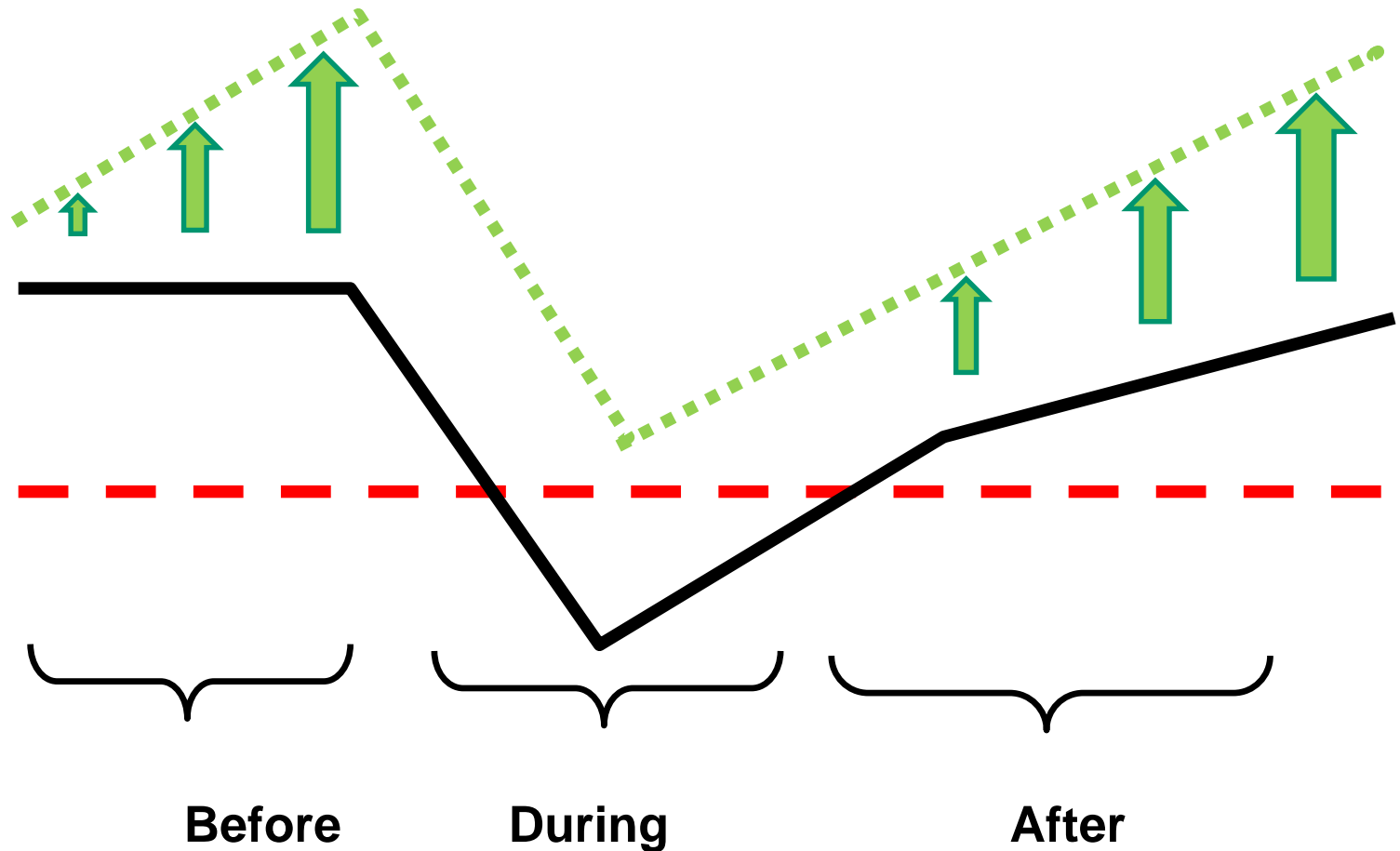


**Population:** Reduced lifestyle-related damages

**Patients:** Also improved outcome & prognosis of others diseases and treatment



# Theoretical framework: STRONG for surgery (& life)



After: Carli F et al. Curr opin Nutr Metab Care 2005; 8: 23-32. Review.

# RCTs on periop intervention

**7 RCT** have investigated the effect on postoperative complications after elective surgery

## Outcomes

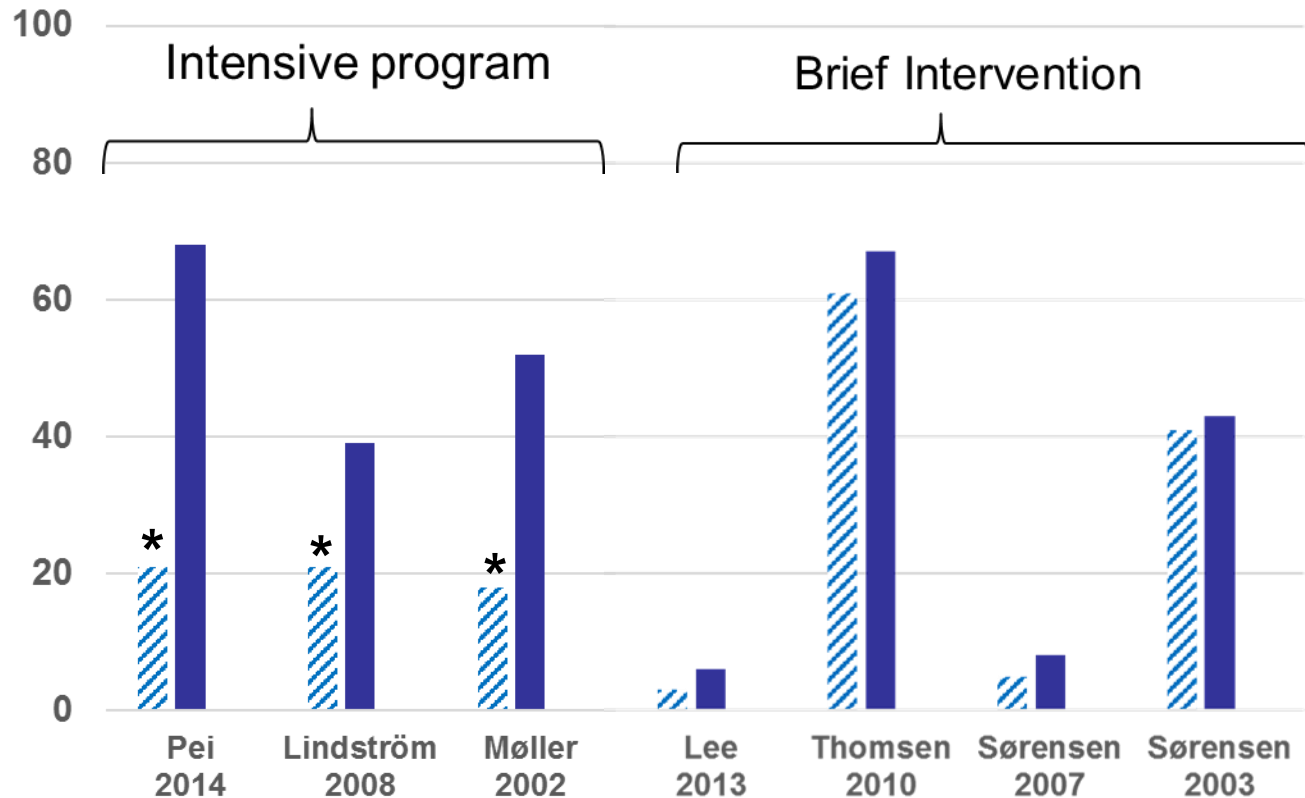
- Complications
- Smoking cessation at surgery and after ½-1 year

## Type of interventions with NRT or other medicine

- Brief: Motivational interview technique
- Intensive:  $\geq 4$  face-to-face sessions and follow-up

# Results: Complications

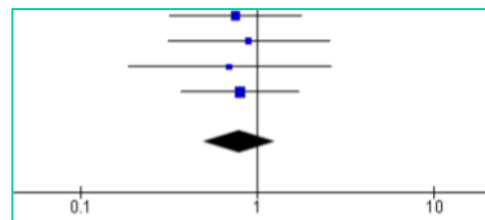
## Type of Smoking Cessation Intervention



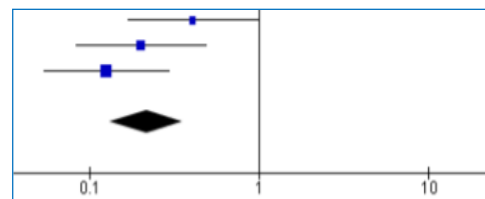
# Results in numbers: Complications in 7 RCTs

## *Elective operation*

- 4 Brief programs + NRT: n = 491
  - **RR = 0,84 (0,65 - 1,09)**



- 3 Intensive programs + NRT: n = 325
  - **RR = 0,37 (0,27 - 0,52)\***





# Business Case

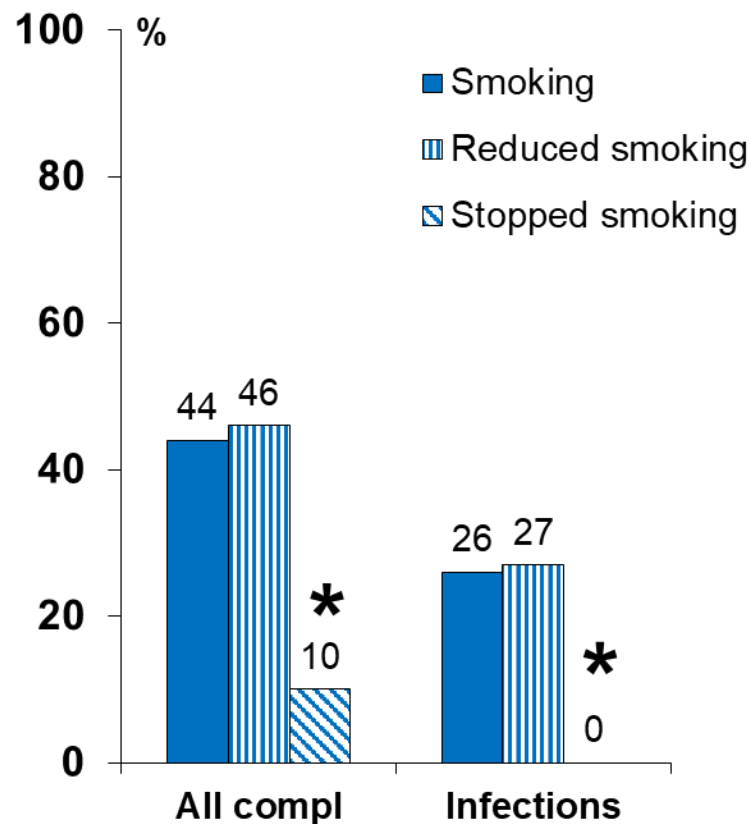
## NNT is excellent for intensive preop SCI: 2-5 patients

- Absolute risk reduction (ARR) for postop compl:
  - Lancet 2002: From 52% to 18%,
  - i.e.  $0.52 - 0.18 = 0.34$
- $NNT_{\text{(Lancet 2002)}} = 1/ARR: 1 / 0.34 = \mathbf{2.94}$
- $NNT_{\text{(Ann Surg 2008)}} = 1 / 0.20 = \mathbf{5.00}$
- $NNT_{\text{(Chin J EBM 2015)}} = 1 / 0.47 = \mathbf{2.13}$

**NNT is endless for brief preop SCI**



# No effect of reducing smoking (to less than the half); only quitting works !



# The Gold Standard Programme

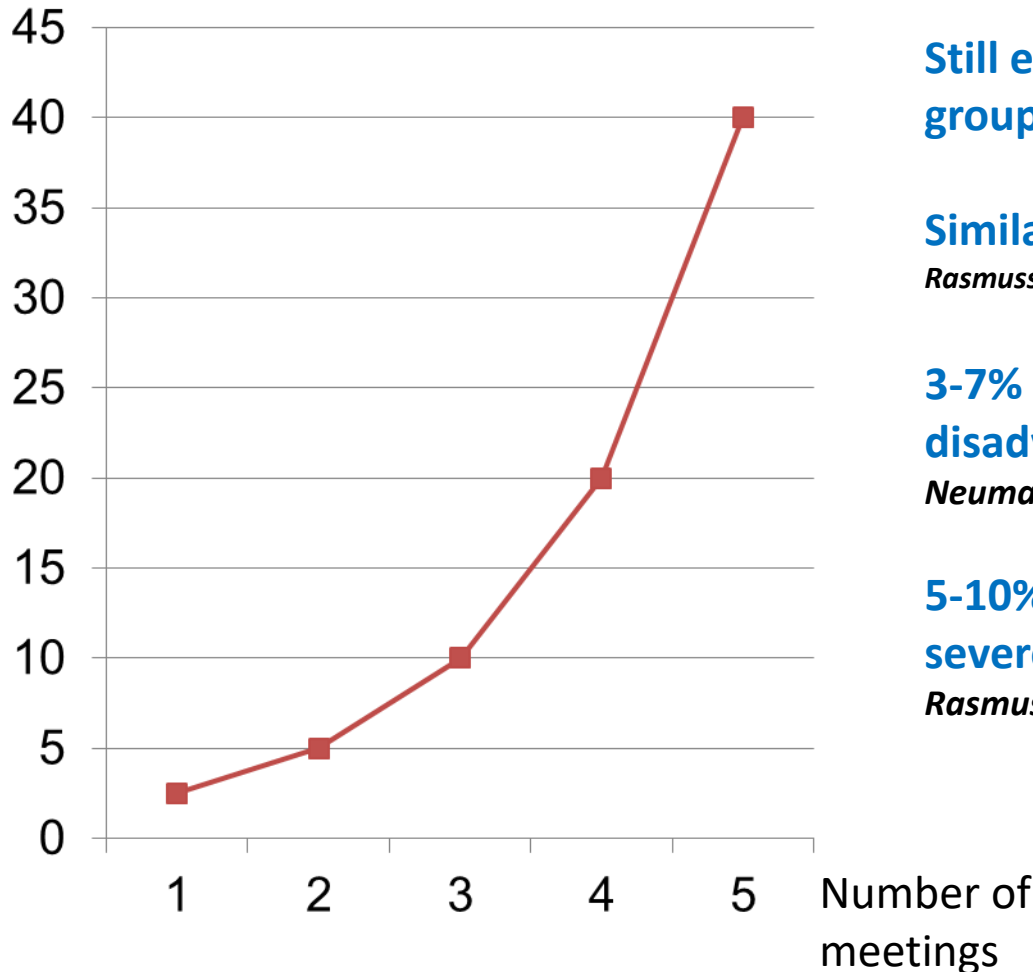
## The Standard in Denmark

- **Trained staff (3 days)**
- **Intensive intervention**
  - Weekly face-to-face sessions during 4-6 weeks + FU
  - Patient education: Different at each session
  - Motivational support
  - Pharmaceutical support (today free of charge for marginalized smokers)
  - Hotline
- **Successful quitting at national level 2018-19**
  - 55% at 6 weeks and 40% cont. at 6 months



# Use effective programs: GSP

% quitter after 6 months



*Ghith N et al. Clin HP 2012*

**Still effective for other patient groups:**

**Similar for pregnant women**

*Rasmussen M et al IJERPH 2013*

**3-7% lower in heavy and disadvantaged smokers**

*Neumann T et al Tobacco Contr 2012*

**5-10% lower in smokers with severe mental illness**

*Rasmussen M et al BMJ Open 2018*