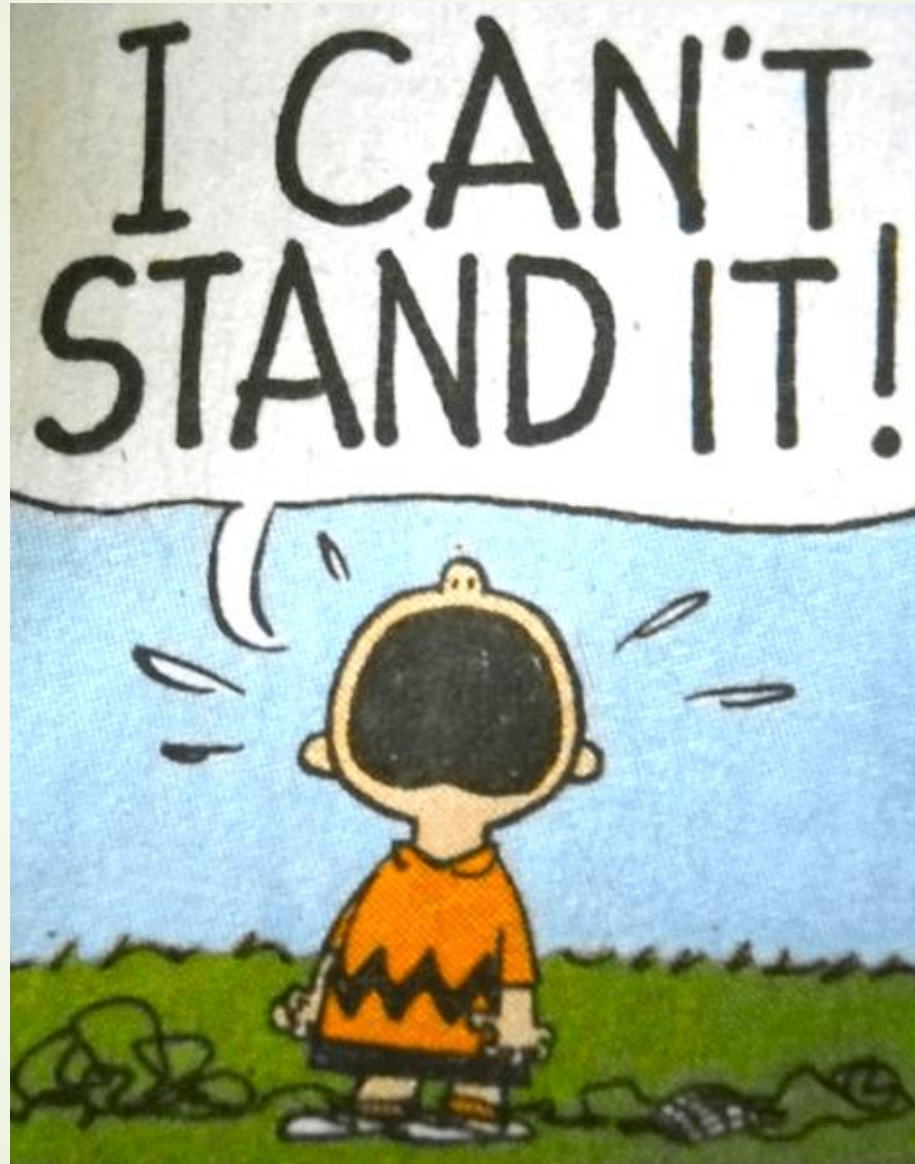




# Preventie van chronificatie van pijn

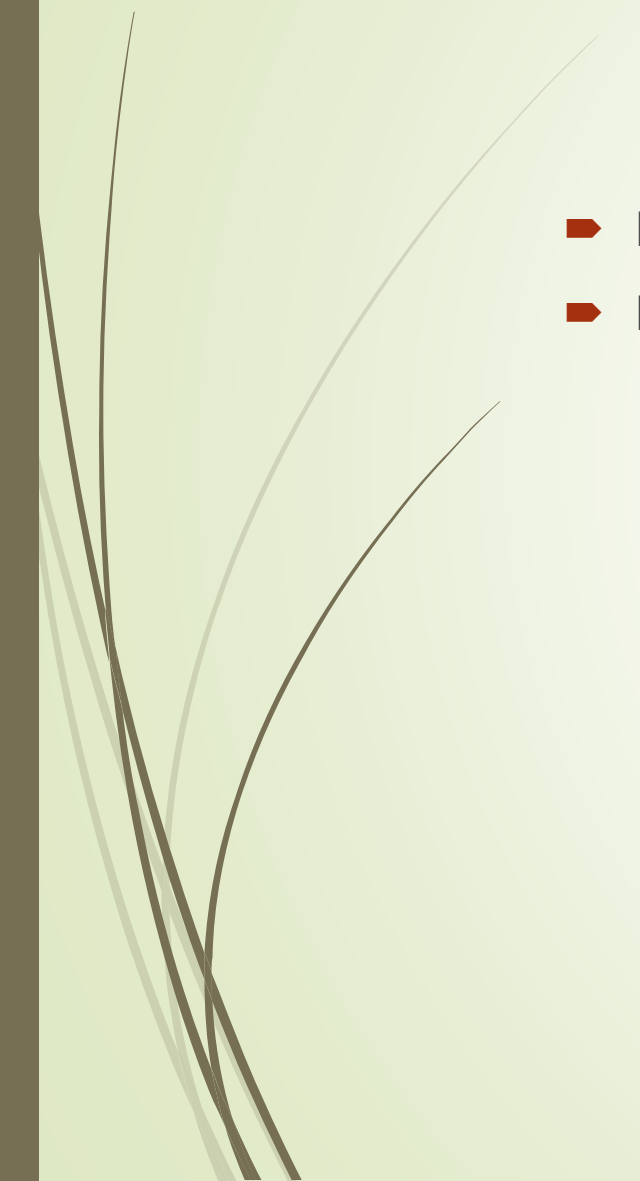
Dr. Astrid Van Lantschoot  
Anesthesie- MPC Lanaken


5/3/2020





# Is er een probleem?

- ▶ Elke chronische pijn was ooit acuut
  - ▶ Prevalentie
- 



Global, regional, and national incidence, prevalence, and years lived with disability for 328 diseases and injuries for 195 countries, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016

[THE LANCET Volume 390, Issue 10100](#), 16–22 September 2017, Pages 1211-1259



C

## Leading causes 1990

## Leading causes 2006

Mean  
% change  
in number  
of YLDs  
(1990–2006)

Mean  
% change  
in all-age  
YLD rate  
(1990–2006)

Mean %  
change in age-  
standardised  
YLD rate  
(1990–2006)

## Leading causes 2016

Mean  
% change  
in number  
of YLDs  
(2006–16)

Mean  
% change  
in all-age  
YLD rate  
(2006–16)

Mean %  
change in age-  
standardised  
YLD rate  
(2006–16)

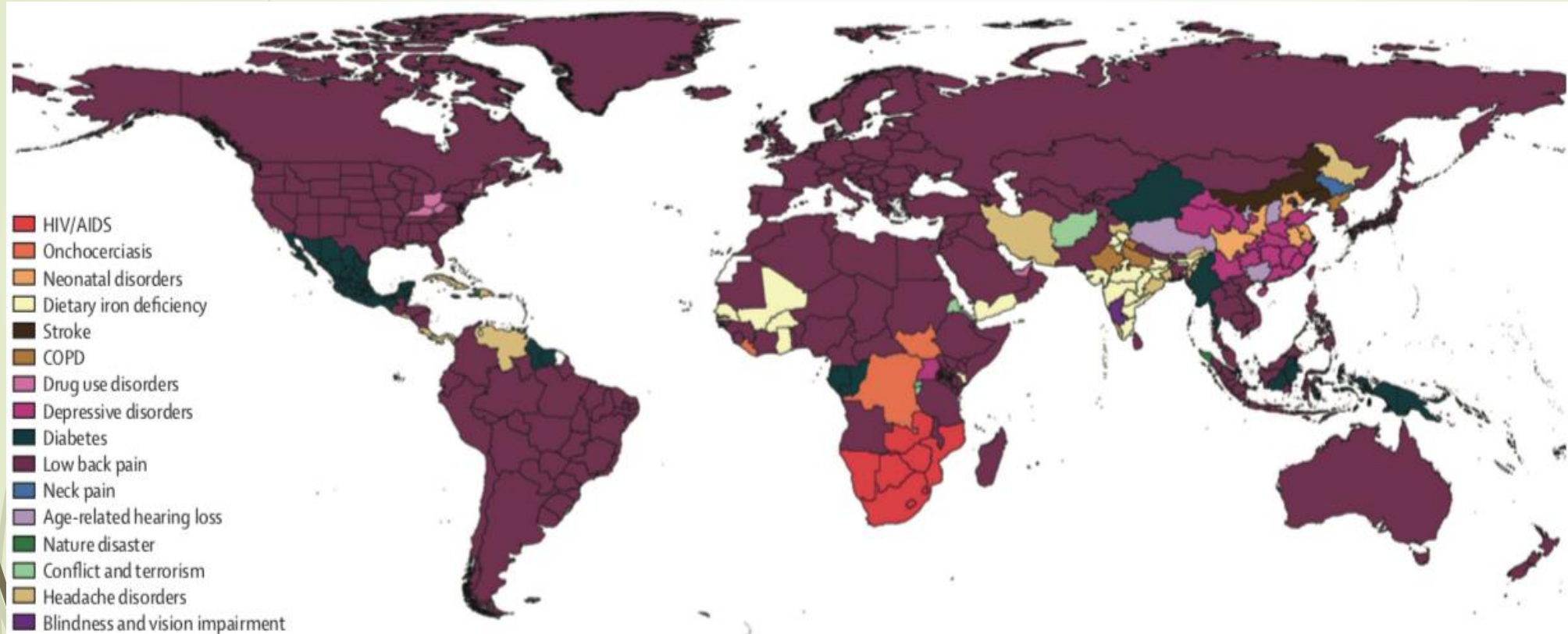
Leading causes 1990	Leading causes 2006	Mean % change in number of YLDs (1990–2006)	Mean % change in all-age YLD rate (1990–2006)	Mean % change in age- standardised YLD rate (1990–2006)	Leading causes 2016	Mean % change in number of YLDs (2006–16)	Mean % change in all-age YLD rate (2006–16)	Mean % change in age- standardised YLD rate (2006–16)
1 Low back pain	1 Low back pain	24.8	0.0	-10.3	1 Low back pain	18.0	5.0	-2.0
2 Migraine	2 Migraine	32.3	5.9	-0.4	2 Migraine	14.3	1.6	0.1
3 Iron-deficiency anaemia	3 Iron-deficiency anemia	20.0	-3.9	1.8	3 Age-related hearing loss	22.3	8.8	-1.7
4 Major depression	4 Major depression	30.9	4.8	-2.2	4 Iron-deficiency anaemia	7.5	-4.4	-1.8
5 Age-related hearing loss	5 Age-related hearing loss	40.0	12.1	-0.2	5 Major depression	11.2	-1.1	-4.9
6 Anxiety disorders	6 Other musculoskeletal disorders	42.6	14.2	4.6	6 Neck pain	21.9	8.4	0.1
7 Other musculoskeletal disorders	7 Neck pain	41.2	13.1	-0.9	7 Other musculoskeletal disorders	14.4	1.7	-3.5
8 Neck pain	8 Anxiety disorders	30.6	4.6	-0.1	8 Diabetes	23.6	10.0	-1.2
9 Diabetes	9 Diabetes	72.9	38.4	20.2	9 Anxiety disorders	13.1	0.6	-0.7
10 Acne vulgaris	10 Acne vulgaris	24.7	-0.2	2.7	10 Falls	26.7	12.7	3.4
11 Falls	11 Falls	25.1	0.2	-9.2	11 COPD	28.8	14.5	1.4
12 Refraction and accommodation	12 Refraction and accommodation	28.1	2.6	-4.6	12 Osteoarthritis	31.5	16.9	2.4
13 Asthma	13 COPD	38.5	10.9	-2.9	13 Acne vulgaris	5.1	-6.5	2.1
14 COPD	14 Osteoarthritis	55.8	24.8	6.2	14 Refraction and accommodation	14.9	2.2	-4.9
15 Schizophrenia	15 Schizophrenia	36.0	8.9	-0.4	15 Schizophrenia	16.7	3.8	-0.9
16 Dermatitis	16 Asthma	16.1	-7.1	-7.0	16 Asthma	17.2	4.2	3.6
17 Osteoarthritis	17 Dermatitis	19.2	-4.6	-0.3	17 Ischaemic stroke	35.2	20.3	3.7
18 Opioid use disorders	18 Opioid use disorders	24.6	-0.2	-4.6	18 Dermatitis	11.6	-0.7	1.1
19 Alcohol use disorders	19 Alcohol use disorders	31.4	5.2	-1.2	19 Opioid use disorders	18.0	4.9	2.7
20 Other mental and substance	20 Other mental and substance	36.1	9.0	0.0	20 Other mental and substance	17.8	4.8	0.1
21 Diarrhoeal diseases	21 Ischaemic stroke	44.1	15.4	-1.8	21 Dysthymia	20.5	7.2	1.0
22 Dysthymia	22 Dysthymia	37.9	10.4	0.4	22 Alcohol use disorders	9.7	-2.4	-4.8
23 Ischaemic stroke	23 Bipolar disorder	32.7	6.3	0.1	23 Bipolar disorder	14.9	2.2	0.8
24 Epilepsy	24 Neonatal preterm birth	34.2	7.4	11.9	24 Edentulism	27.2	13.2	-0.9
25 Bipolar disorder	25 Diarrhoeal diseases	9.8	-12.1	-7.3	25 Neonatal preterm birth	18.4	5.3	8.5
26 Neonatal preterm birth	26 Epilepsy	17.5	-5.9	-4.7	26 Epilepsy	8.8	-3.3	-2.6
27 Conduct disorder	27 Edentulism	42.4	14.0	-2.3	27 Diarrhoeal diseases	7.5	-4.4	-3.6
28 Tension headache	28 Tension headache	32.7	6.2	-0.7	28 Tension headache	15.4	2.6	0.4
29 Edentulism	29 Conduct disorder	14.7	-8.1	-0.1	29 Ischaemic heart disease	29.3	15.0	0.5
30 Upper respiratory infections	30 Viral skin diseases	19.4	-4.4	-0.3	30 Other sense organ diseases	23.8	10.1	0.9
31 Viral skin diseases	31 Upper respiratory infections				32 Conduct disorder			
33 Ischaemic heart disease	32 Ischaemic heart disease				33 Viral skin diseases			
34 Other sense organ diseases	33 Other sense organ diseases				34 Upper respiratory infections			

Communicable, maternal, neonatal, and nutritional

Non-communicable

Injuries

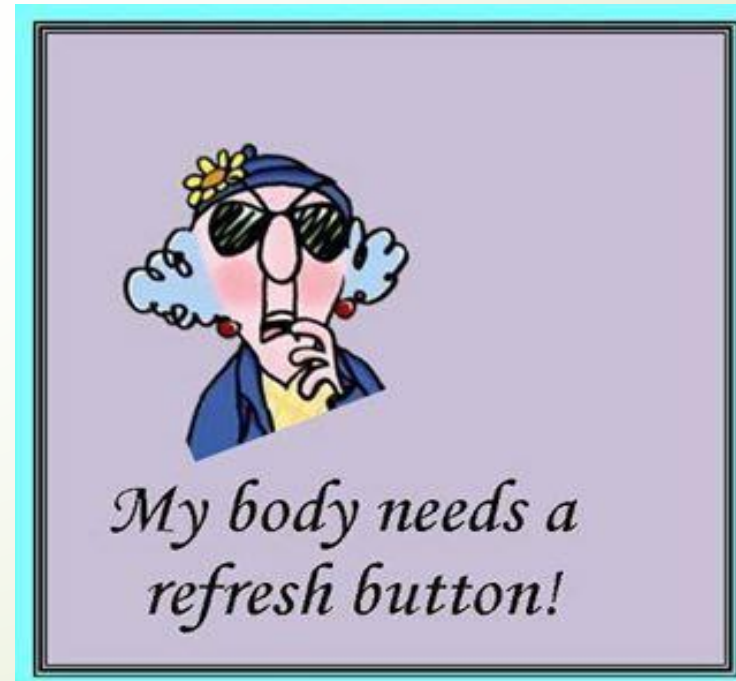
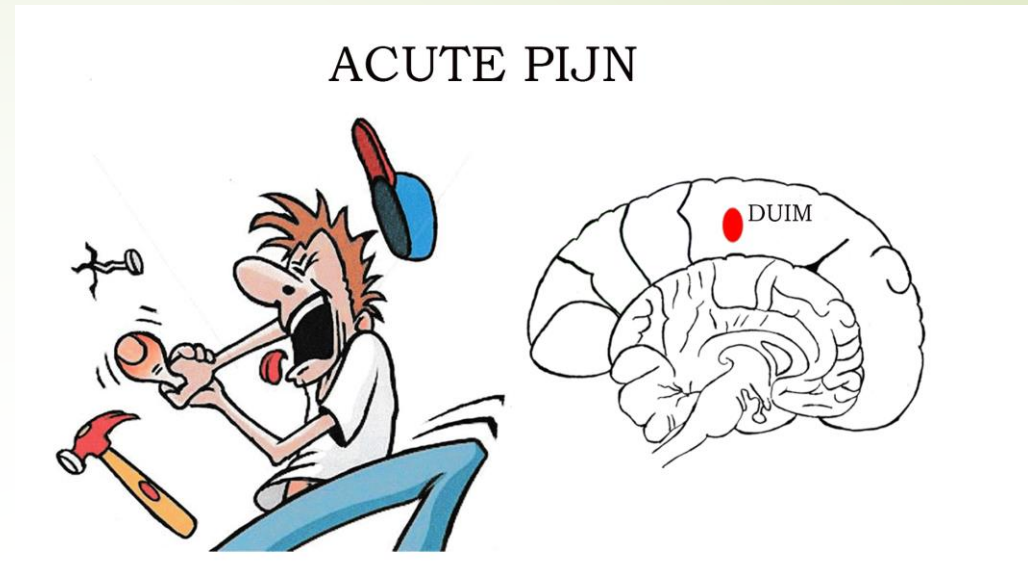
# Chronische lage rugpijn - **Global burden of disease 2017**





# Definitie

- ▶ Acute pijn < 3 maanden
- ▶ Chronische pijn > 3 - 6 maanden






# Persistent Post Surgical Pain PPSP of CPSP

- Pain developing after a surgical procedure
- Pain of at least 2 months duration
- Other causes of pain excluded (e.g. malignancy, infection)
- Pain continuing from a pre-existing pain problem excluded

➤ Definitie volgens Macrae and Davies 2009





# Diagnose door Werner and Kongsgaard (2014)

- develops or *increases in intensity* after a surgical procedure or a tissue injury and
- persists *beyond the healing process*
- at least *3 months* after the initiating event.
- *localised* to the surgical field or area of injury, projected to the innervation territory of a nerve situated in this area or referred to a dermatome
- Other causes of pain such as pre-existing pain conditions or infections, or malignancy etc. have to be excluded in all cases of chronic post-traumatic and postsurgical pain.

# International classification of diseases

Narrative Review

**PAIN**<sup>®</sup>



## **The IASP classification of chronic pain for *ICD-11*: chronic postsurgical or posttraumatic pain**

Stephan A. Schug<sup>a</sup>, Patricia Lavand'homme<sup>b</sup>, Antonia Barke<sup>c</sup>, Beatrice Korwisi<sup>c</sup>, Winfried Rief<sup>c</sup>,  
Rolf-Detlef Treede<sup>d,\*</sup>, The IASP Taskforce for the Classification of Chronic Pain

**Table 1**

**Incidence of chronic postsurgical pain following common procedures**

<b>Surgical Type</b>	<b>Incidence of Chronic Postsurgical Pain, %</b>	<b>US Surgical Volumes, 1000s</b>
Amputation	57–62	159
Breast surgery	27–48	479
Thoracotomy	52–61	Unknown
Herniorrhaphy	19–40	609
Coronary artery bypass graft	23–39	598
Cesarean delivery	12	220

*Data from* Kehlet H, Jensen TS, Woolf C. Persistent postsurgical pain: risk factors and prevention. *Lancet* 2006;367:1618–25.

**Table 1** Procedure-specific incidence of CPSP.<sup>1,2</sup> Reprinted with permission from Elsevier

Type of surgery	Incidence of chronic pain (%)
Amputation	30–85
Thoracotomy	5–67
Mastectomy	11–57
Inguinal hernia repair	0–63
Sternotomy	28–56
Cholecystectomy	3–56
Knee arthroplasty	19–43
Breast augmentation	13–38
Vasectomy	0–37
Radical prostatectomy	35
Gynaecological laparotomy	32
Iliac crest bone harvest site	30
Hip arthroplasty	28
Saphenectomy	27
Hysterectomy	25
Craniotomy	6–23
Rectal amputation	12–18
Caesarean section	12
Dental surgery	5–13

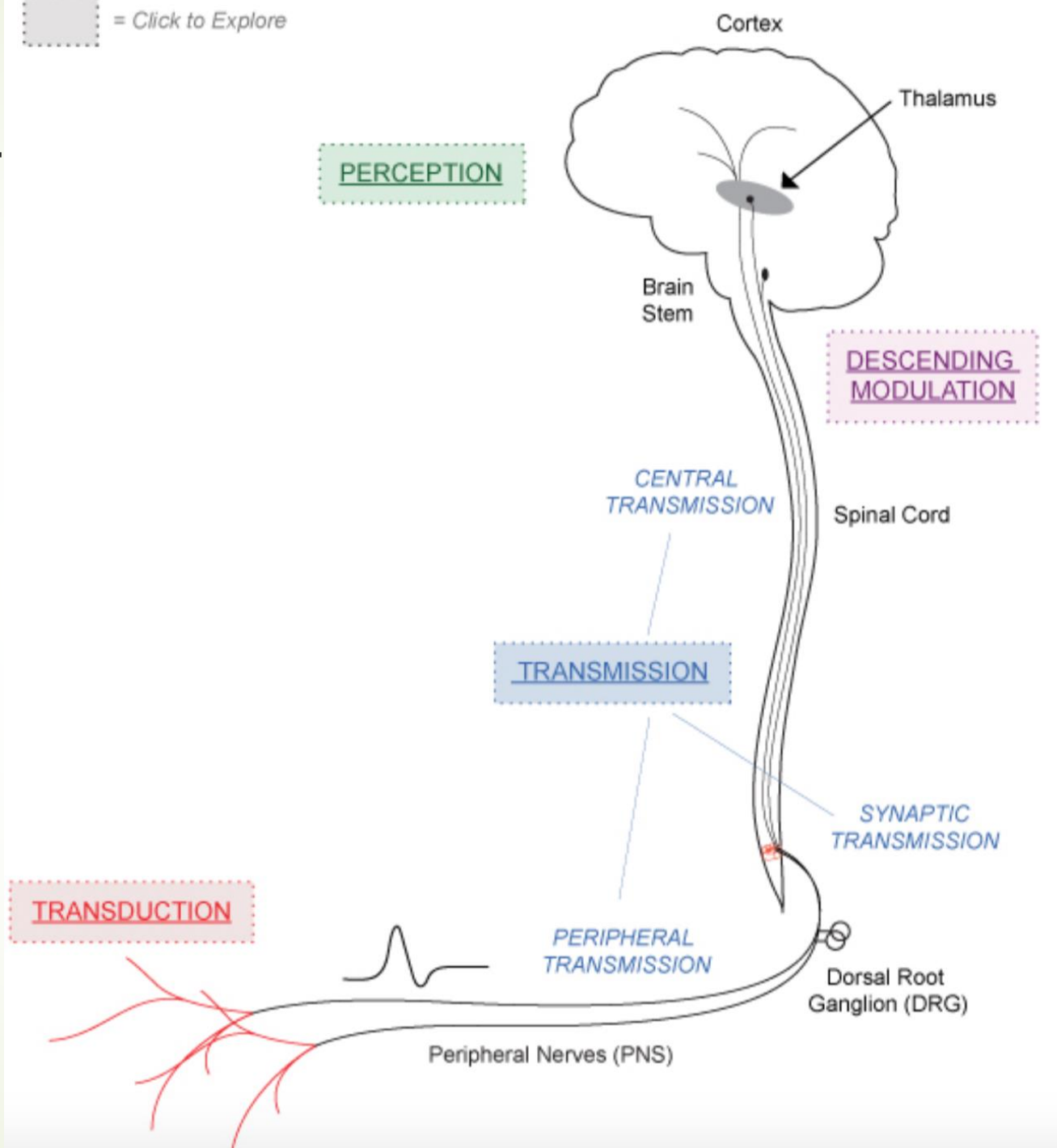


**Table 1****Incidence of chronic postsurgical pain (CPSP), severe CPSP, and the proportion of neuropathic pain in CPSP.**

<b>Type of surgery</b>	<b>Incidence of all CPSP</b>	<b>Incidence of severe CPSP (&gt;5/10 of 10/10)</b>	<b>Proportion of neuropathic pain in CPSP</b>
Abdominal surgery (bowel and colorectal)	17%-21%	Not reported	Not reported
Amputation	30%-85%	5%-10%	80%
Caesarean delivery	6%-55%	5%-10%	50%
Cholecystectomy	3%-50%	Not reported	Not reported
Craniotomy	7%-30%	25%	Not reported
Dental surgery	5%-13%	Not reported	Not reported
Hip arthroplasty	27%	6%	1%-2%
Inguinal herniotomy	5%-63%	2%-4%	80%
Knee arthroplasty	13%-44%	15%	6%
Melanoma resection	9%	Not reported	Not reported
Mastectomy	11%-57%	5%-10%	65%
Sternotomy	7%-17%	Not reported	Not reported
Thoracotomy	5%-65%	10%	45%
Vasectomy	0%-37%	Not reported	Not reported

With permission from Ref. 54.

# Wat is pijn – t



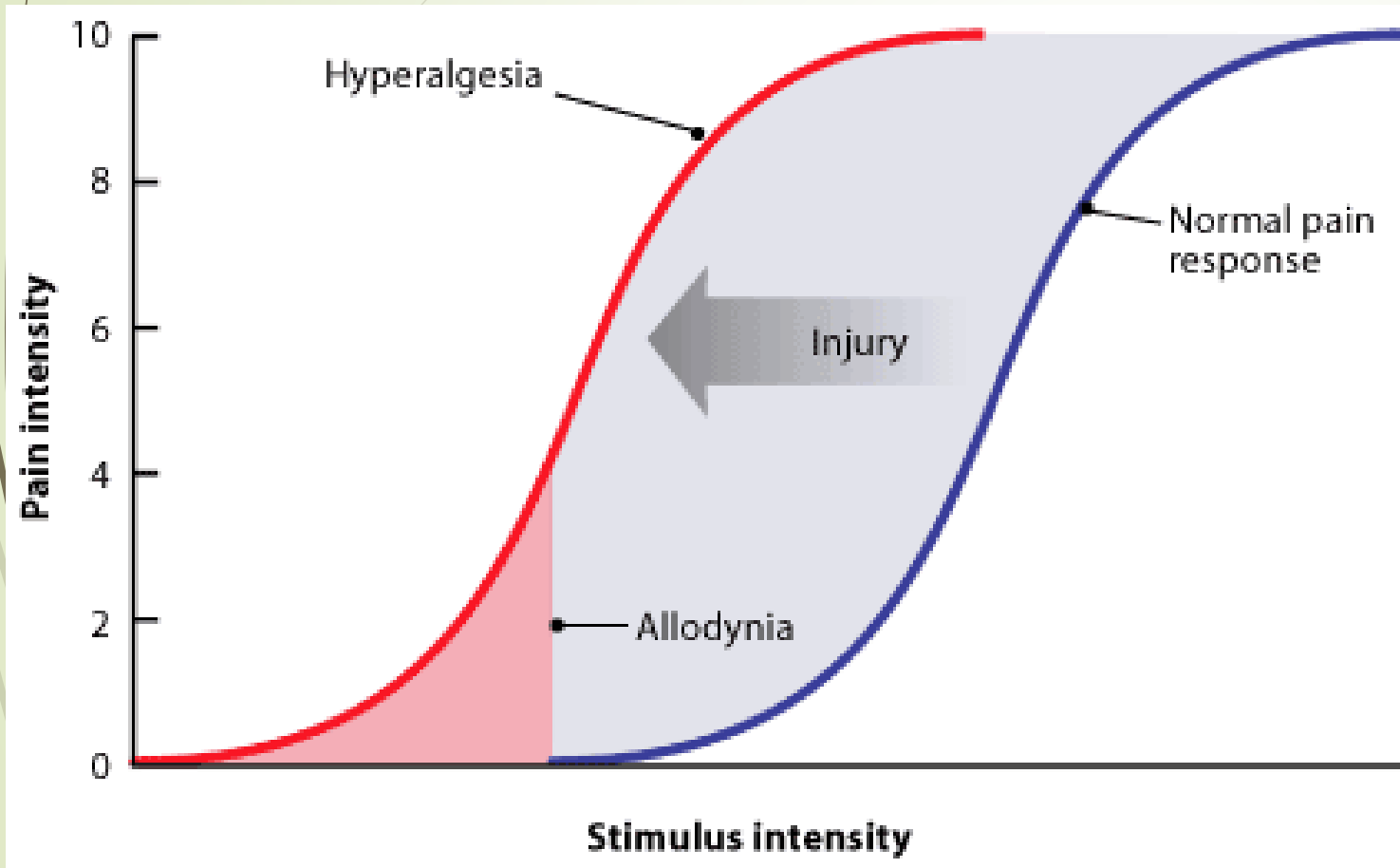


# Chapman et al.

## 5 Mechanismen (al dan niet in combinatie) voor ontstaan van CPSP

1. *peripheral sensitization* via inflammation and/or nerve injury.
2. *maladaptive central neural plasticity* at spinal and higher levels (central sensitization), caused by opioids (particularly when given preoperatively), stress, and other factors.
3. *compromised descending nociceptive inhibition*: among other factors, it has been hypothesized that the excessive administration of exogenous opioids can impair the functioning of this system via negative feedback.
4. *pathological descending nociceptive facilitation*: among other factors, cognitive factors such as expectations, anxiety, and a catastrophizing tendency can apparently influence the systems that inhibit and facilitate pain, yielding both placebo and nocebo effects.
5. *alterations of brain function, connectivity, and structure* (cerebral plasticity), for example, in phantom pain. Changes in the representative zones of the sensory cortex can be associated with the generation and disappearance of phantom pain and other types of pain.

# centrale sensitisatie



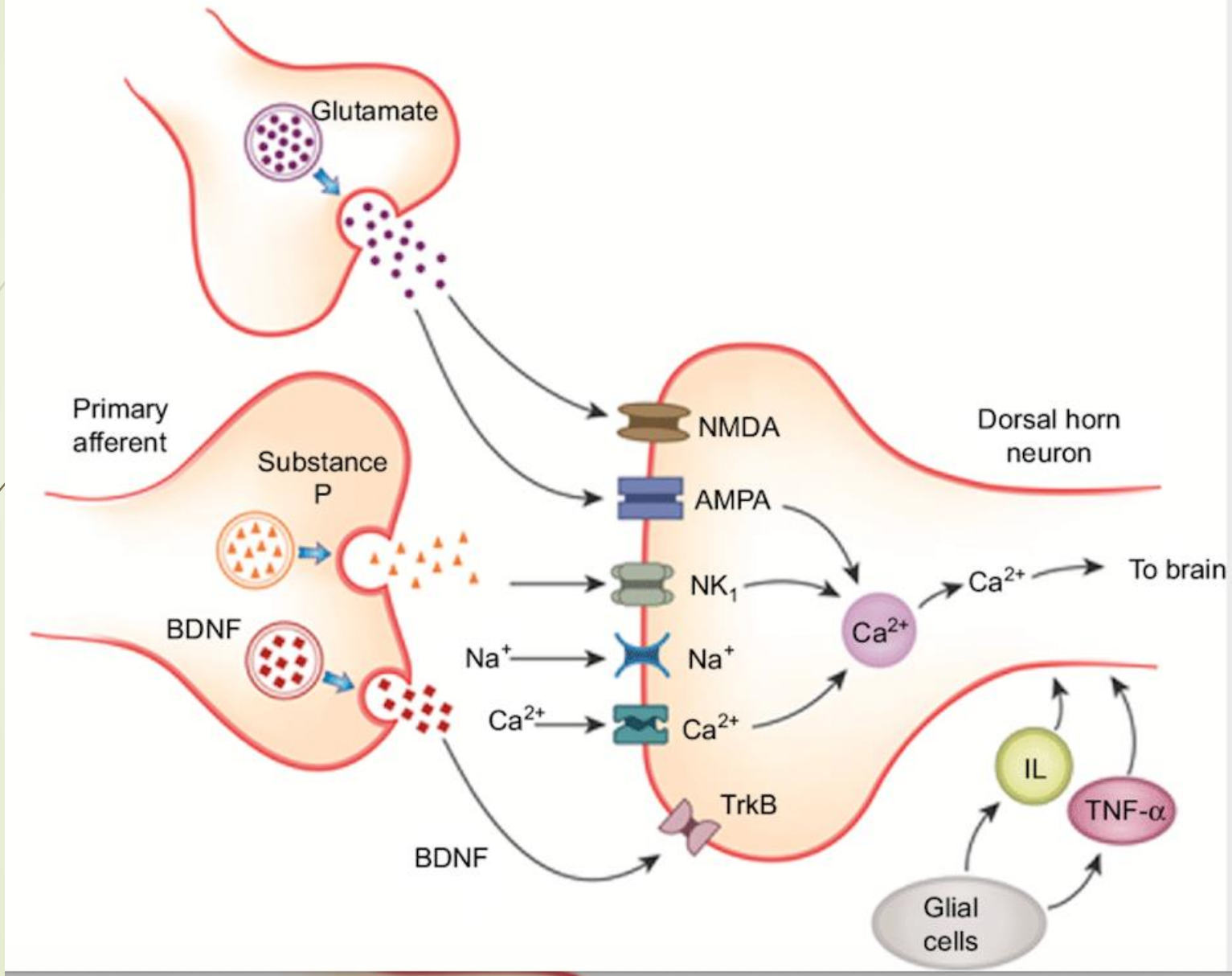
Excitabiliteit ↑  
Synpatische efficaciteit ↑

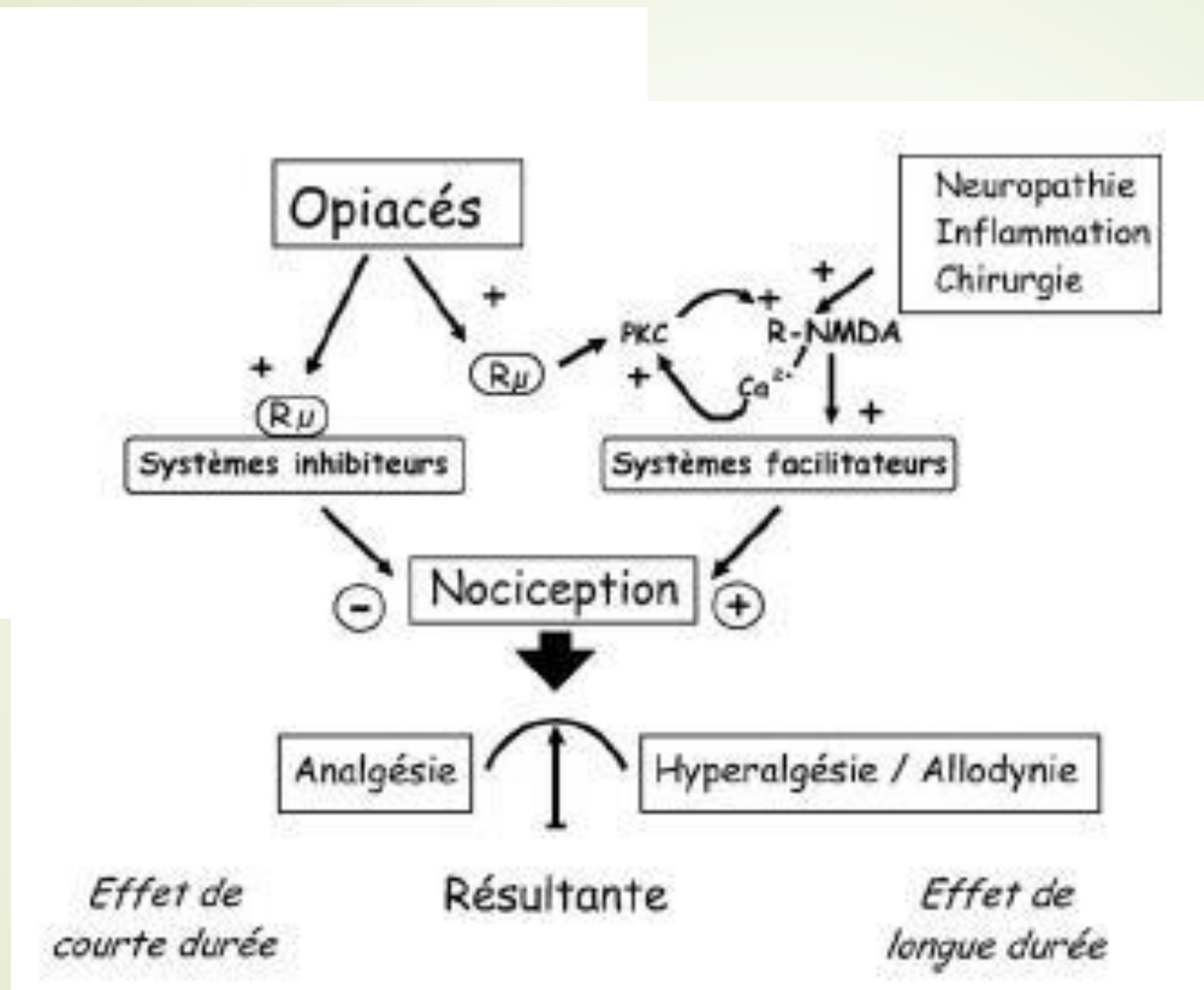
Faciliatie  
Activatie  
Augmentatie  
Potentiatie

Hyperalert systeem



**B Central sensitization**



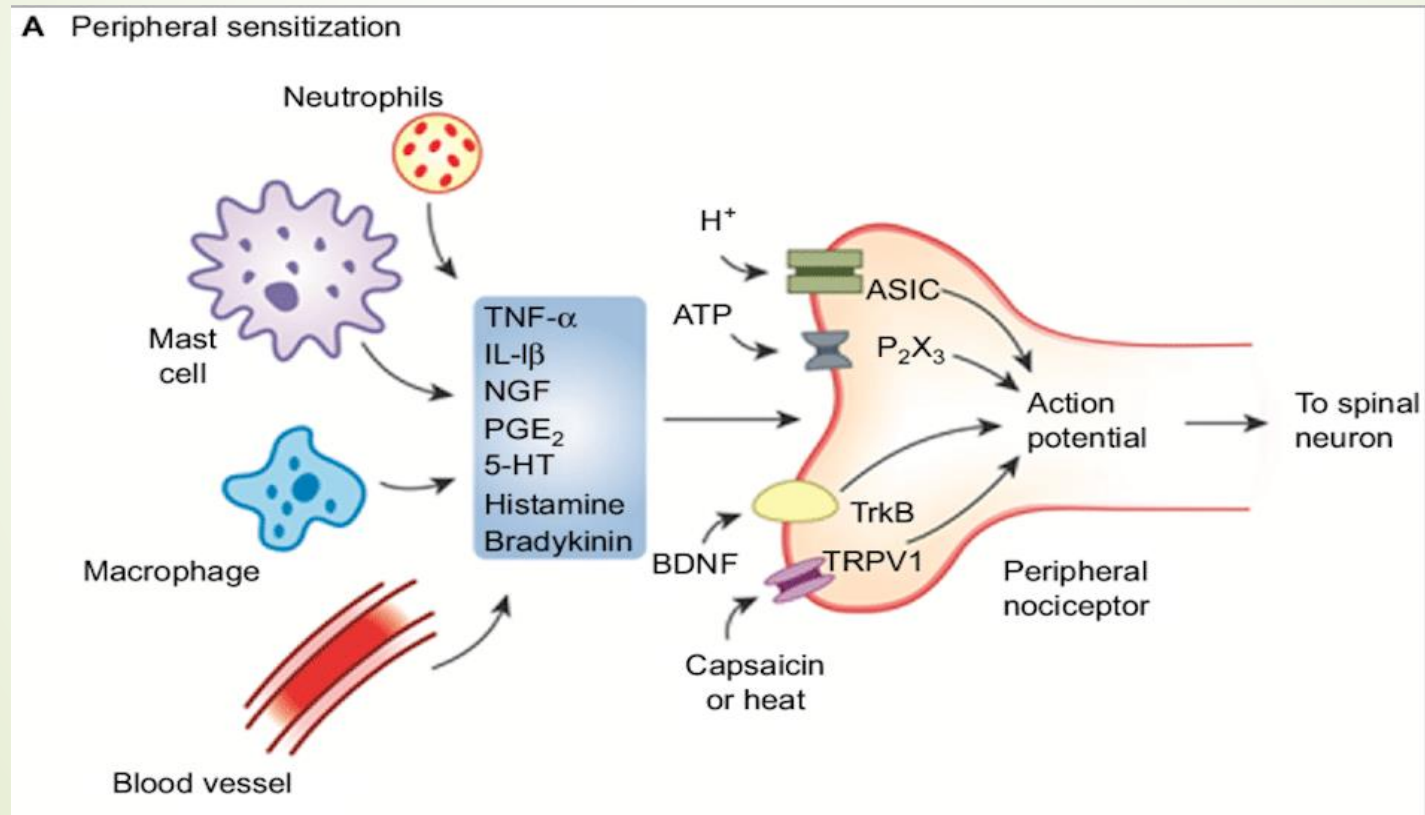


Richebé et al, Ann Fr Anesth Réan 2005.

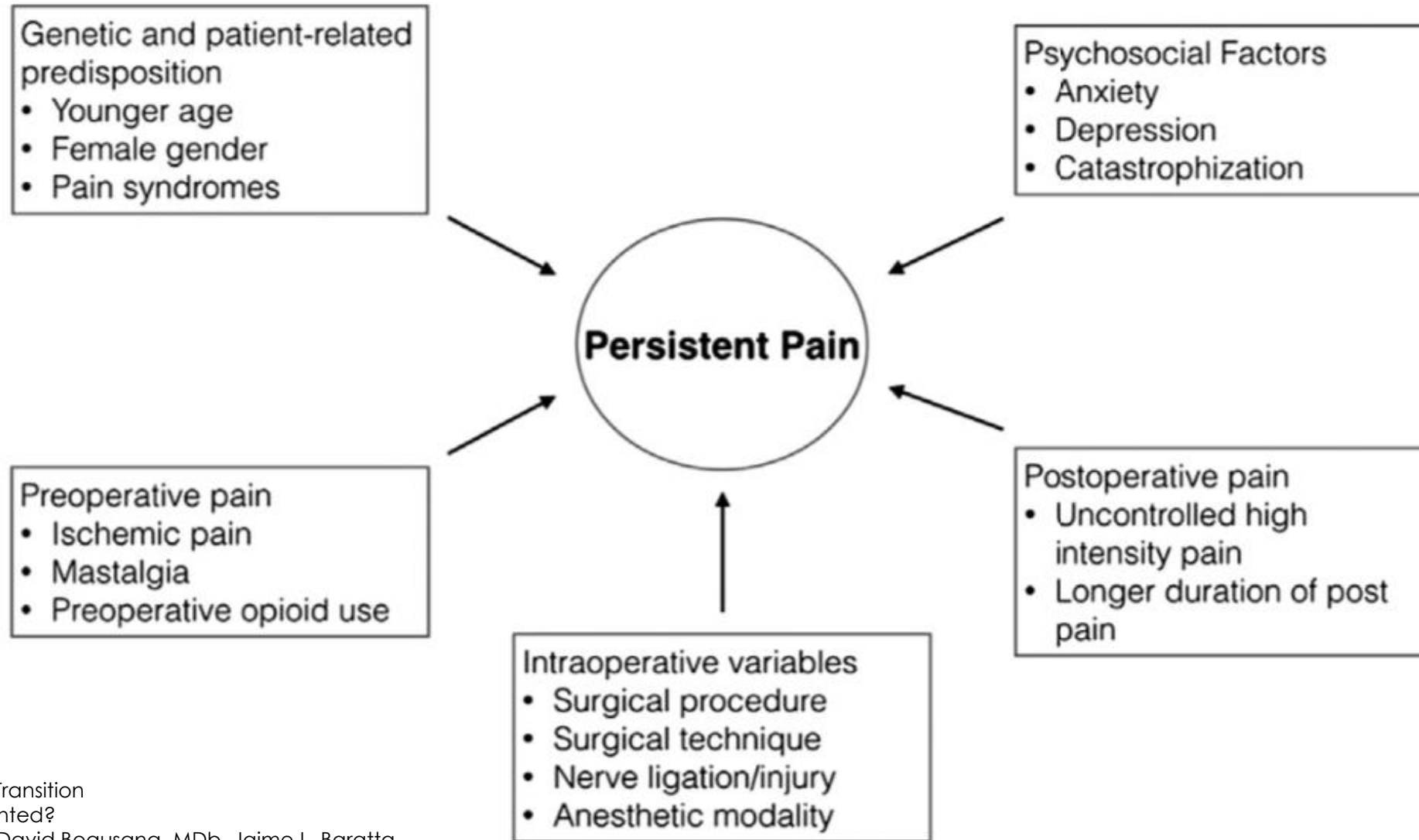
# Perifere sensitisatie

Drempelverlaging en amplificatie in respons van nociceptoren in gebied van schade-inflammatie

-> Pijnklachten binnen gebied van schade



# CPSP







# The main risk factors for CPSP

- ▶ pre-existing (preoperative) chronic pain
- ▶ opioid intake
- ▶ a pain-related catastrophizing tendency
- ▶ intraoperative nerve injury
- ▶ severe acute postoperative pain

CPSP is reported to be *especially common* after

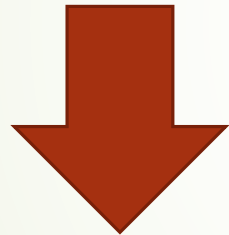
- ▶ thoracic surgery
- ▶ breast surgery
- ▶ amputations
- ▶ orthopedic procedures



# Verband intensiteit acute pijn post operatief vs CPSP

-> causaal of zelfde epifenomeen?

- ▶ 10% toename van acute pijn post operatief



- ▶ geeft 30% stijging van indicentie CPSP

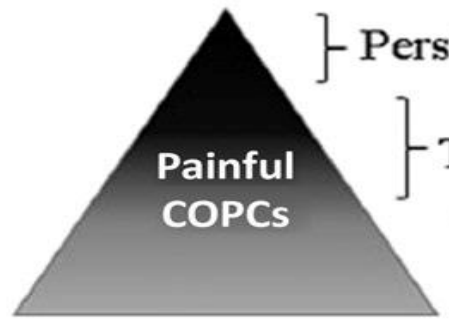


# Risicofactoren (niet CPSP)

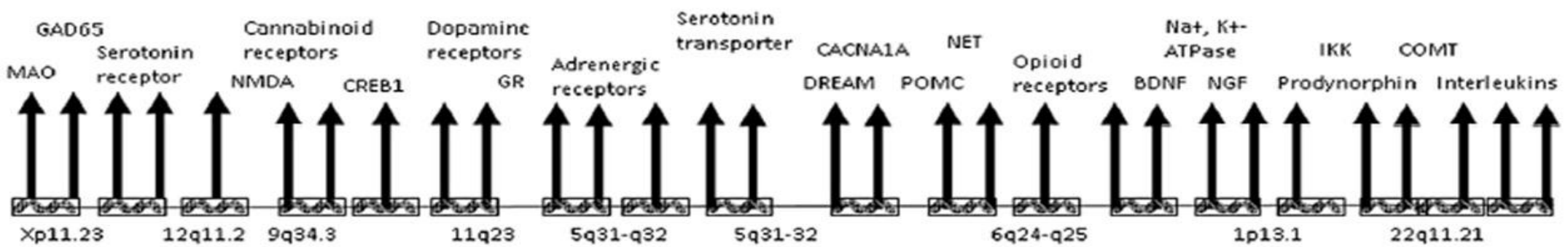
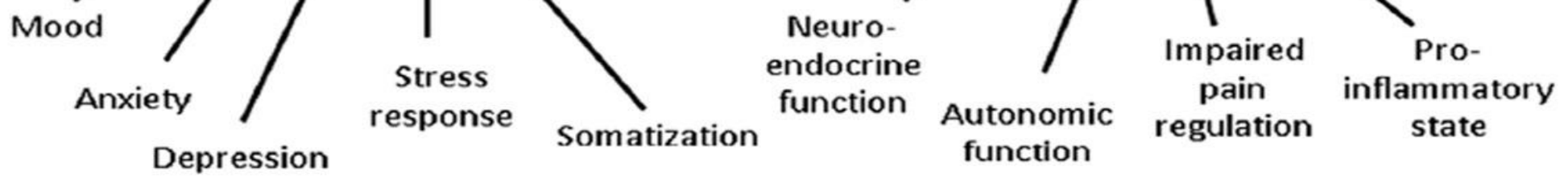
- ▶ Demografie (e.g. level educatie, vrouw, ouder, poor health status)
- ▶ Epigenetica (Fenotypische variatie in functie van exposure)
- ▶ Acute pijn karakteristieken (e.g. acute pain intensity/ernst, duur, cummulatief trauma)
- ▶ Psychosociale factoren (e.g. hogere baseline waarde voor angst, negatief denken over pijn, depressie, catastroferen, kwetsbaarheid)

# ENVIRONMENTAL CONTRIBUTIONS

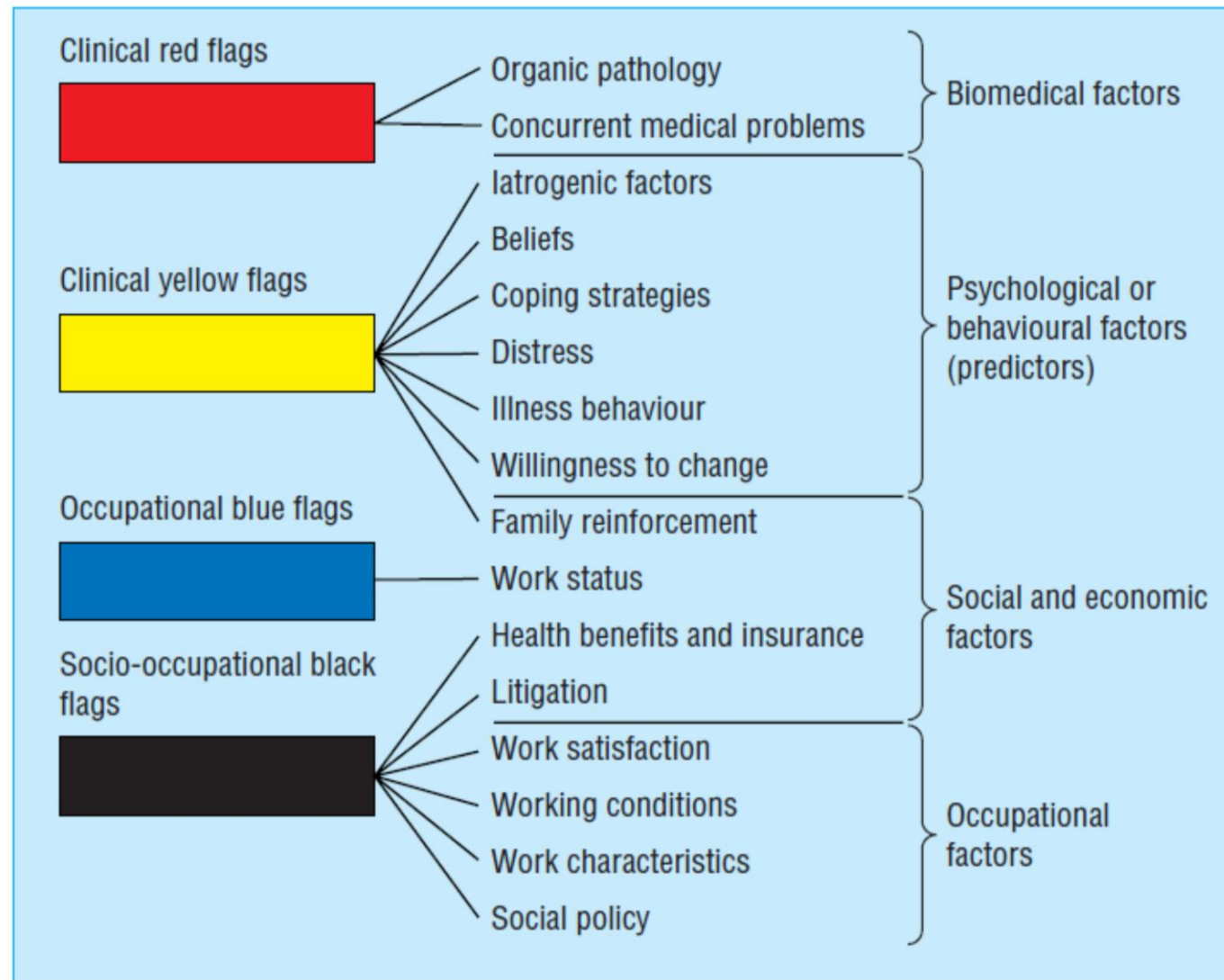
- Physical trauma abuse infection smoking
- Psychological life stressors
- Culture health beliefs



- Persistent COPC
- Transient COPC
- Subclinical signs & symptoms



# Vlaggen systeem



*Bron: Main & Williams 2002 BMJ Musculoskeletal Pain*



# Herkennen vragen lijsten?



HADS? / TSK

Gewoon gesprek ?

# American Society for Enhanced Recovery and Perioperative Quality Initiative Joint Consensus Statement on Perioperative Management of Patients on Preoperative Opioid Therapy

David A. Edwards, MD, PhD,\* Traci L. Hedrick, MD, MS, FACS, FASCRC,† Jennifer Jayaram, APRN, MSN,\* Charles Argoff, MD,‡ Padma Gulur, MD,§ Stefan D. Holubar, MD, MS, FACS, FASCRC,|| Tong J. Gan, MD, MBA, MHS, FRCA,¶ Michael G. Mythen, MBBS, MD, FRCA, FFICM, FCAI (Hon),# Timothy E. Miller, MB, ChB, FRCA,§ Andrew D. Shaw, MB, FRCA, FFICM, FCCM, MMHC,\*\* Julie K. M. Thacker, MD, FACS, FASCRC,†† and Matthew D. McEvoy, MD,\* POQI-4 Working Group

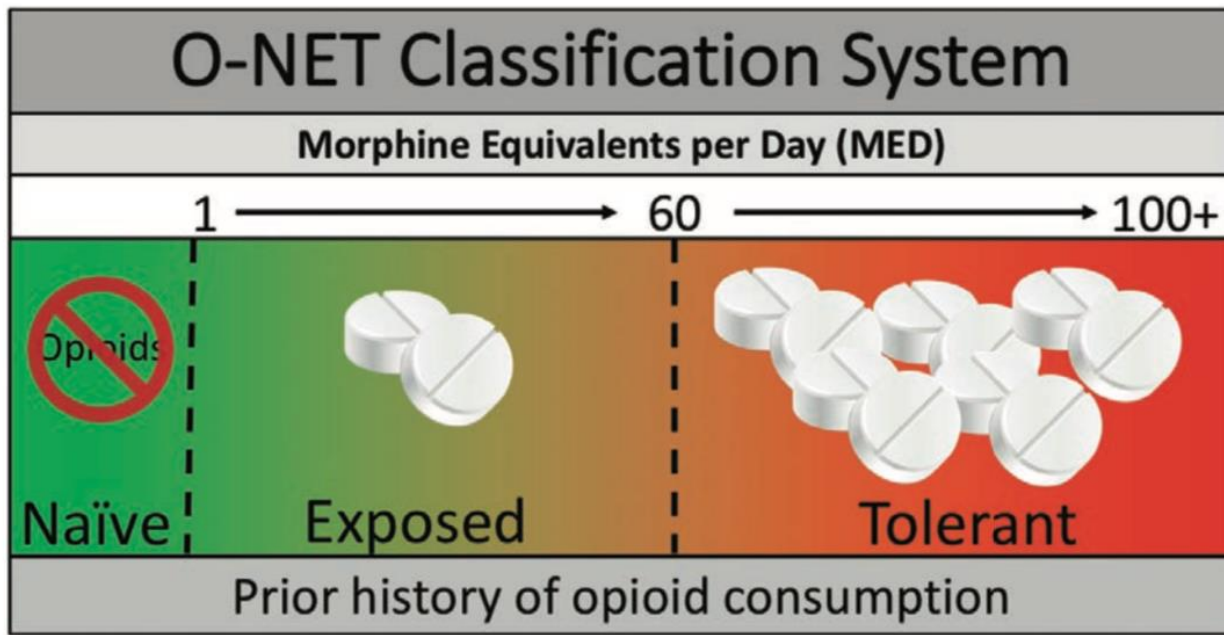
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**See Editorial, p 324**

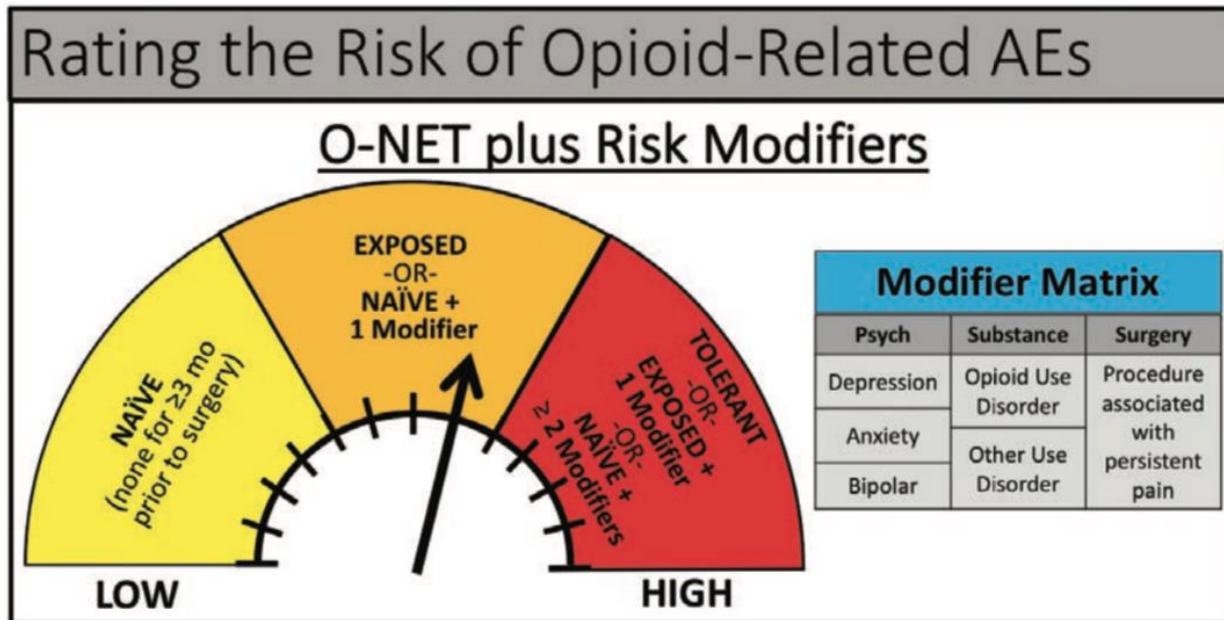
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Downloaded from https

► Anesthesie-Analgesia 2019 Vol 123



**Figure 1.** In the preoperative period, patients are divided into the classes opioid-naïve, opioid exposed, and opioid tolerant based on the milligram MED used. Opioid-naïve indicates no opioid use in the 90 d before surgery; opioid exposed, any amount <60 MED used in the 90 d before surgery; and opioid tolerant,  $\geq 60$  MED within 7 d of surgery. MED indicates morphine equivalent dose; O-NET, opioid-naïve, exposed, and tolerant. Figure reused with the permission of the Perioperative Quality Initiative (POQI). For permission requests, contact [info@poqi.org](mailto:info@poqi.org).



**Figure 2.** O-NET classes represent low-, moderate-, and high-risk groups for opioid-related adverse events and poor outcomes. Addition of comorbid risk factors known to influence the risk of opioid-related poor outcomes modify the risk group assignment. AE indicates adverse events; O-NET, opioid-naïve, exposed, and tolerant. Figure reused with the permission of the Perioperative Quality Initiative (POQI). For permission requests, contact [info@poqi.org](mailto:info@poqi.org).



# A RATIONAL APPROACH TO RISK-BASED Perioperative Pain Management

CLASSIFY patient by O-NET System

STEP  
1

## Prior Opioid Use

Naïve    Exposed    Tolerant

STEP  
2

ASSESS  
For Risk  
Modifiers



Psych  
History



Substance  
Use Disorder



Type of  
Surgery

STEP  
3

DEFINE Perioperative  
Risk of ORAEs

NAÏVE

LOW

EXPOSED  
-OR-  
NAÏVE +  
1 Risk

MODERATE

TOLERANT  
-OR-  
EXPOSED +  
1 Risk  
-OR-  
NAÏVE +  
≥ 2 Risk

HIGH

STEP  
4

EMPLOY Risk-Based Management Plan

LOW

Education +  
ERAS Multimodal  
Analgesia (MMA)

MODERATE

Education +  
Psych Optimization  
+ ERAS MMA

HIGH

Education +  
Psych Optimization  
Consultation with  
Pain Specialist +  
Personalized MMA



# Risico- inschatting

- Belang geïndividualiseerd traject
- Beoordeling pre operatieve pijn
- Beoordeling acute pijn- neuropathische component?
- Karakteristieken van pijn -> sensitisatie
  
- -> focus ook op pre operatieve pijncontrole?



DN 4



### Vraag 1:

Vertoont de pijn één of meerdere van de volgende karakteristieken? Voor elke JA een punt toekennen!

1. Branderig gevoel.
2. Pijnlijk koudegevoel
3. Elektrische schokken

### Vraag 2:

Is de pijn in hetzelfde gebied geassocieerd met één of meerdere van de volgende symptomen? Voor elke JA een punt toekennen!

4. Kriebelingen.
5. Tintelingen
6. Gevoelloosheid
7. Jeuk.

*Een score van 3 op 7 ondersteunt de diagnose neuropathische pijn.*

De volgende 2 vragen worden beantwoord bij lichamelijk onderzoek door arts.

### Vraag 3:

Is er: (Voor elke JA een punt toekennen):

8. hypo-esthesie bij aanraking (dat wil zeggen minder huidgevoel)
9. hypo-esthesie bij een prik (dat wil zeggen minder pijngevoel)

### Vraag 4:

Wordt de pijn veroorzaakt of versterkt door

10. wrijven

*Een score van 4 op 10 op wanneer alle vragen zijn beantwoord, geeft aan dat er hoogstwaarschijnlijk sprake is van een neuropathie.*



# Mental health

- Kwetsbare populatie
  - Angst
  - Depressie
  - Hypervigilantie
  - Catastroferen
- 



REVIEW ARTICLE

# **A systematic review of therapeutic interventions to reduce acute and chronic post-surgical pain after amputation, thoracotomy or mastectomy\***

S.R. Humble<sup>1,2</sup>, A.J. Dalton<sup>3</sup>, L. Li<sup>3</sup>

1 Department of Anaesthetics and Pain Management, Charing Cross Hospital, London, UK

2 Peripheral Neuropathy Unit, Hammersmith Hospital Campus, Imperial College London, Du Cane Road, London, UK

3 Department of Anaesthetics and Pain Management, Ninewells Hospital and Medical School, Dundee, UK



# Multimodale analgesie

- Niet opioïde analgetica
- Opioïden aanpassen van dosis, timing, rotatie
- Additieven gabapentinoiden, lidocaine, ketamine, clonidine, magnesium, corticosteroiden
- Locoregionale anesthesie
- Neuraxiale anesthesie





The NEW ENGLAND JOURNAL of MEDICINE

REVIEW ARTICLE

MEDICAL PROGRESS

# Opioid Therapy for Chronic Pain

Jane C. Ballantyne, M.D., and Jianren Mao, M.D., Ph.D.

N Engl J Med 2003;349:1943-53.

# Opioid therapy for chronic pain

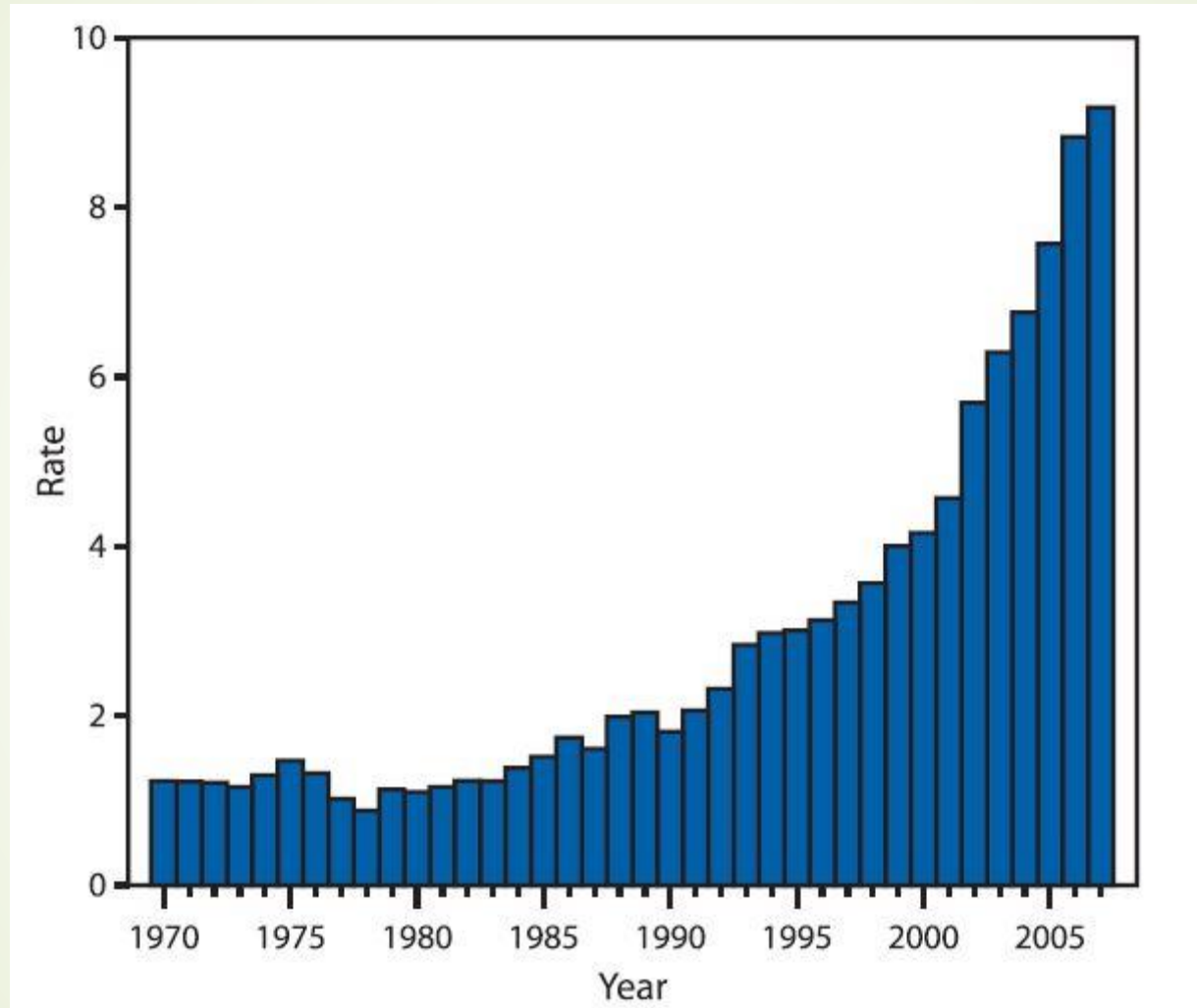
- Literature: surveys/uncontrolled case series
- Observations:
  - good pain relief
  - Doses are not escalating
  - risk for addiction is minimal
  - effective for neuropathic pain
- In most studies : moderate doses (up to 180 mg MED)
- Functional improvement and preservation of cognitive function
- Duration 14/16 studies < 32 weeks



The NEW ENGLAND  
JOURNAL of MEDICINE

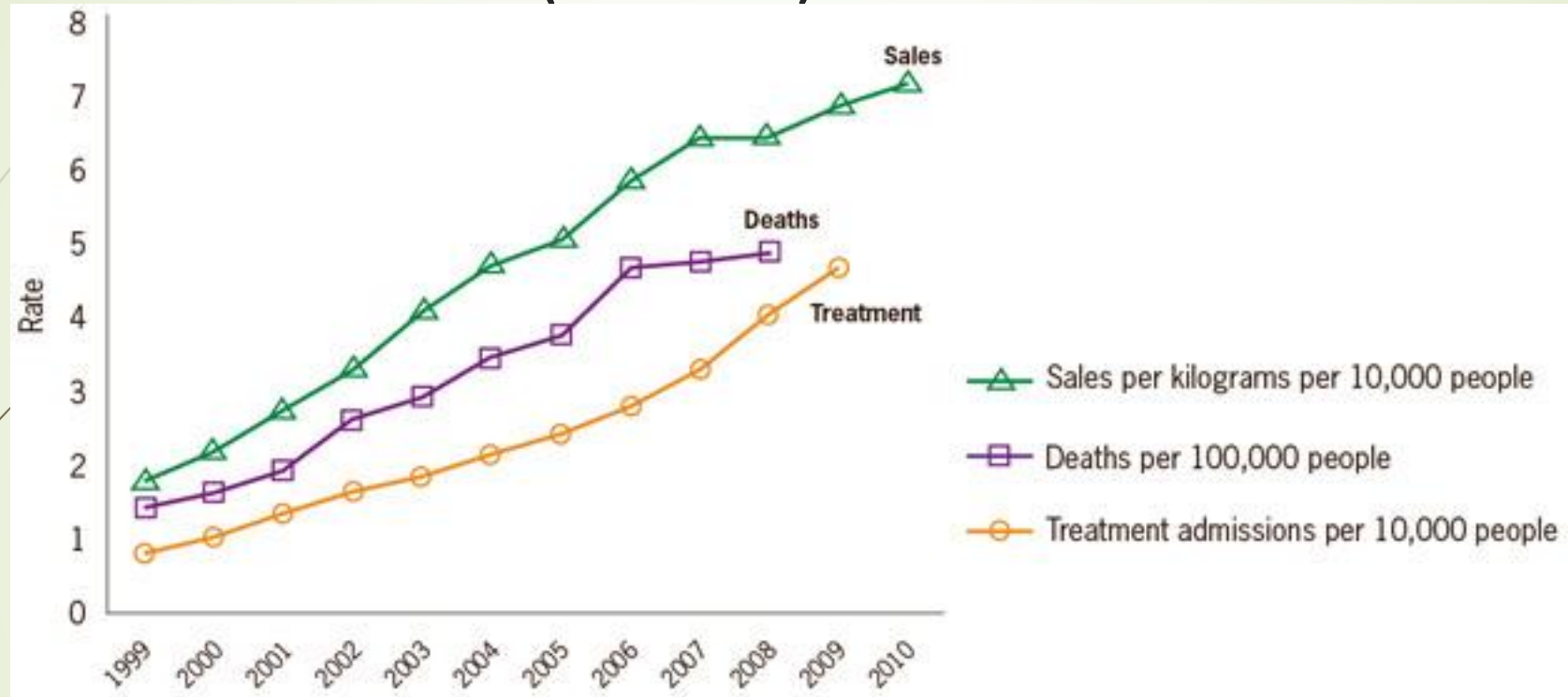
Ballantyne and Mao. NEJM 2003;  
349:1943-1953

## Rates (per 100 000) of unintentional drug overdose deaths 1970-2007



Paulozzi, JAMA, 2012—Vol 307, No. 8  
Bron: national vital statistics systems, cdc

## Rates of prescription painkiller sales, deaths and substance abuse treatment admissions (1999-2010)



Bron: National Vital Statistics System, 1999-2008; Automation of Reports and Consolidated Orders System (ARCOS) of the Drug Enforcement Administration (DEA), 1999-2010; Treatment Episode Data Set, 1999-2009



## LESS IS MORE

# Opioid Dose and Drug-Related Mortality in Patients With Nonmalignant Pain

Tara Gomes, MHS; Muhammad M. Mamdani, PharmD, MA, MPH; Irfan A. Dhallia, MD, MSc; J. Michael Paterson, MSc; David N. Juurlink, MD, PhD

**Background:** Opioids are widely prescribed for chronic nonmalignant pain, often at doses exceeding those recommended in clinical practice guidelines. However, the risk-benefit ratio of high-dose opioid therapy is not well characterized. The objective of this study was to characterize the relationship between opioid dose and opioid-related mortality.

**Methods:** We conducted a population-based nested case-control study of Ontario, Canada, residents aged 15 to 64 years who were eligible for publicly funded prescription drug coverage and had received an opioid from August 1, 1997, through December 31, 2006, for nonmalignant pain. The outcome of interest was opioid-related death, as determined by the investigating coroner. The risk of opioid-related death was compared among patients treated with various daily doses of opioids.

**Results:** Among 607 156 people aged 15 to 64 years prescribed an opioid over the study period, we identified 498

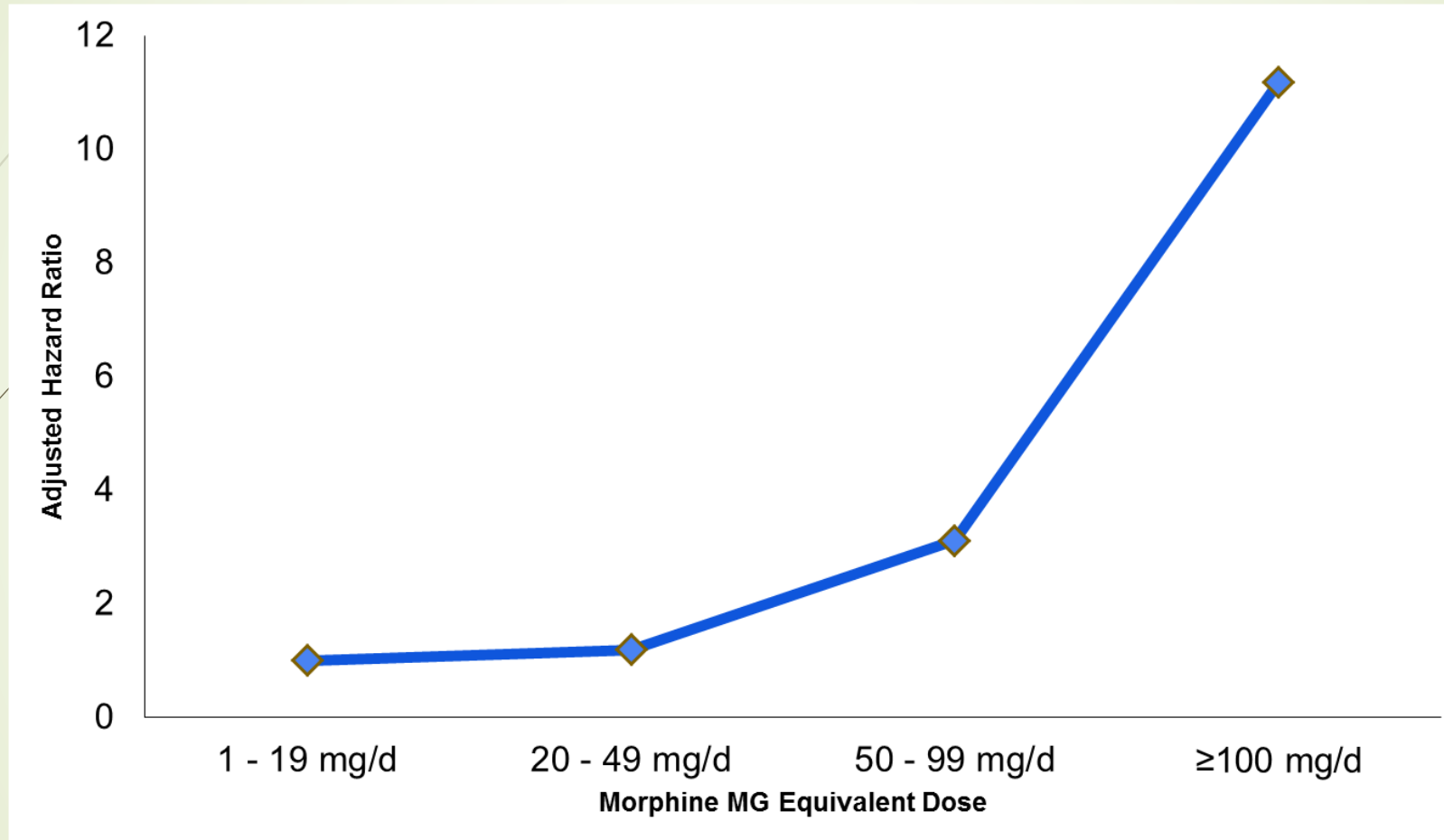
eligible patients whose deaths were related to opioids and 1714 matched controls. After extensive multivariable adjustment, we found that an average daily dose of 200 mg or more of morphine (or equivalent), was associated with a nearly 3-fold increase in the risk of opioid-related mortality (odds ratio [OR], 2.88; 95% confidence interval [CI], 1.79-4.63) relative to low daily doses (<20 mg of morphine, or equivalent). We found significant but attenuated increases in opioid-related mortality with intermediate doses of opioids (50-99 mg/d of morphine: OR, 1.92; 95% CI, 1.30-2.85; 100-199 mg/d of morphine: OR, 2.04; 95% CI, 1.28-3.24).

**Conclusion:** Among patients receiving opioids for nonmalignant pain, the daily dose is strongly associated with opioid-related mortality, particularly at doses exceeding thresholds recommended in recent clinical guidelines.

*Arch Intern Med.* 2011;171(7):686-691



## High Opioid Dose and Overdose Risk



\* Overdose defined as death, hospitalization, unconsciousness, or respiratory failure.



# Other possible problems

- Bowel obstruction/chronic constipation
- Osteoporosis / fractures
- Cardiovascular events
- OSAS
- Hyperalgesia
- Xerostomie and consequently dental problems
- Neuro-endocrine dysfunction
- † **Respiratory depressie / unintentional overdose**

Dunn et al. Ann Intern Med 2010; 152:85-95

Rhodin et al. Clin J Pain 2010;26(5):374-80

Special Communication

# CDC Guideline for Prescribing Opioids for Chronic Pain— United States, 2016

Deborah Dowell, MD, MPH; Tamara M. Haegerich, PhD; Roger Chou, MD

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**IMPORTANCE** Primary care clinicians find managing chronic pain challenging. Evidence of long-term efficacy of opioids for chronic pain is limited. Opioid use is associated with serious risks, including opioid use disorder and overdose.



# Recommendations

- Nonopioid therapy is preferred for treatment of chronic pain.
- Opioids only when benefits for pain and function outweigh risks.
- Before starting establish treatment goals and plan discontinuation.
- Prescribe the lowest effective dosage.
- Reassess when considering increasing dosage (critical dose 50 mg)
- Avoid concurrent opioids and benzodiazepines.
- Reassess every 3 months or more frequently and stop if necessary



# DUS...

- Opioiden kunnen
  - Maar komen samen met opvolging en afbouwplan
- 





# Lokale anesthetica

- Intraveneuze lidocaine bolus en ct infuus bij mastectomie
- Lidocaine 1,5 mg/kg bolus + 1,5 mg/kg/h
- 37 patienten: 2 groepen
- Follow up : minder CPSP (via McGill vragenlijst) HADS

ORIGINAL ARTICLE

**Perioperative Intravenous Lidocaine Decreases the Incidence of Persistent Pain After Breast Surgery**

Anca Grigoras, MD, Peter Lee, MD, Faisal Sattar, BSc, and George Shorten, PhD



# Lokale anesthetica

- Meer evidentie voor perineuraal/neuraxiaal
- Bv epidurale voor thoracotomie: NNT 4 – 7 ter preventie CPSP



# Totaal intraveneuze anesthesie

- Propofol en remifentanyl
- Remifentanyl – "janus" quid OIH
- Gemedieerd via GABA (propofol) en glycine
- Raghavan en al 2011
- Song et Al 2012



# Ketamine

- NMDA receptor antagonist
- Anesthesie, analgesie, anti-hyperalgesie en anti-inflammatoir
- Special K
- NMDA receptor - sensitisatie
- Evidentie intra- operatief bij O- T kan opioïd sparend werken
- meta-analysis in 2014 McNicol – CPSP daalde
- Vermoedelijk vnl baat bij complexe, hoog opioïdverbruik



# Gabapentinoïden

- Pregabaline (Lyrica) en Gabapentine (Neurontin)
- Blok  $\alpha_2\delta$  subunits van voltage-gated calcium kanaal
- Vier systematic reviews en meta-analyses -> gemengd
- Te weinig bewijs
- Minder brandend gevoel
- Cave neveneffecten : AH depressie





# Corticosteroiden

- Verminderde expressie van pro- inflammatoire cytokines
- Inductie van expressie van anti-inflammatoire cytokines
- Minder PG
- Minder glia cel –expressie
- Studies gemengd resultaat-> inconclusive



# Locoregionale technieken

- Afhankelijk van type van heekunde
- Sterk bewijs voor minder acute pijn
- Superieur tov opioïden
- Amputatie met perineurale catheter in situ hadden minder acute pijn, minder chronische pijn en minder opioïdenverbruik.

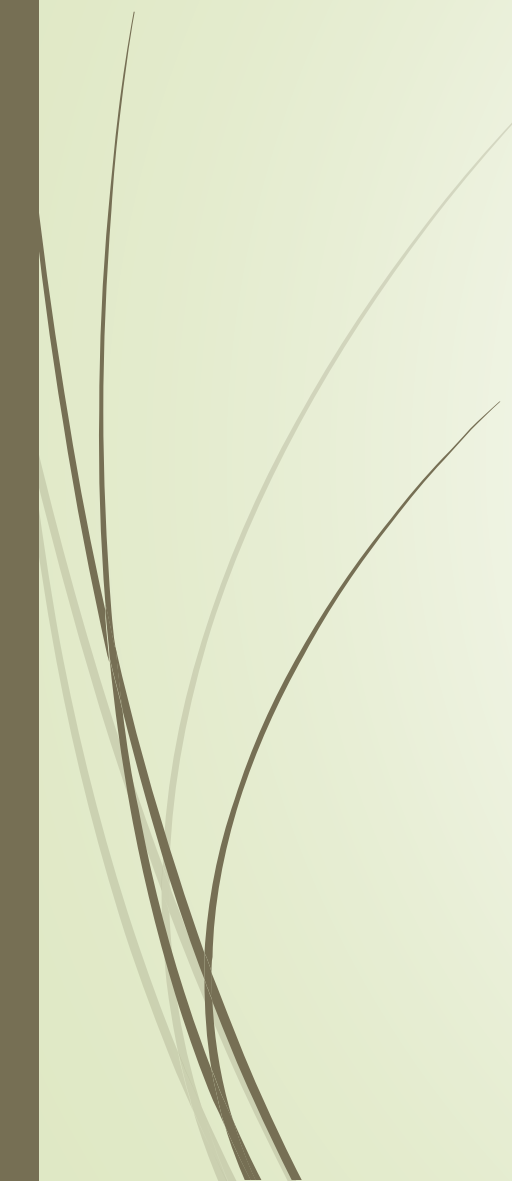


# Knie- arthroplastie

- Femoraal block SS
- Femoraal catheter
- Epiduraal (minder owv immobilisatie)
- Adductor kanaal SS
- Genicular block
- IPACK




# Heup artroplastie

- Fascia Iliaca block
  - Hip block
  - Peri articular block
- 



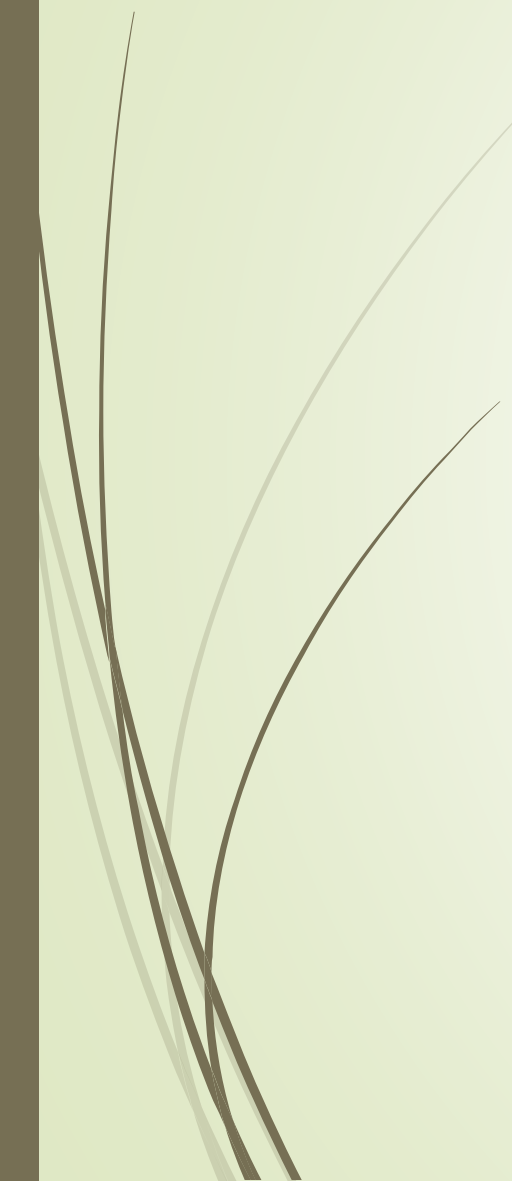
# Mastectomie

- PECS 1 en 2
  - Serratus plane
  - Paravertebraal block
- 





# Thoracotomie/scopie

- Epiduraal
  - Paravertebraal
  - Infiltratie
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# Psychologie

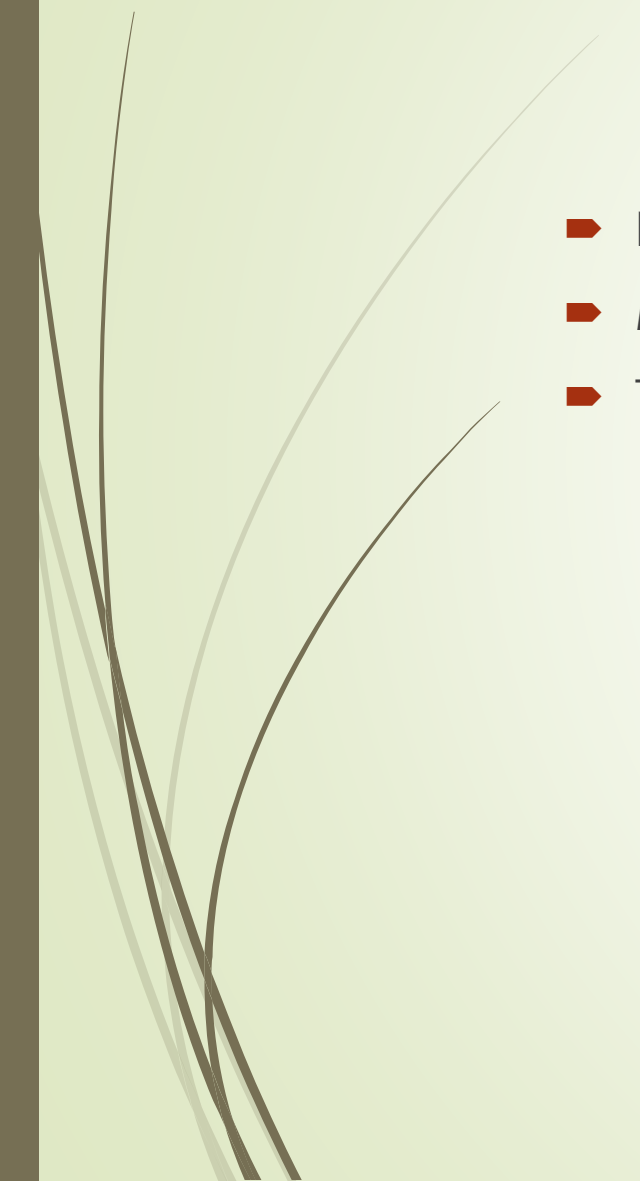
- 2011, Riddle et al.
- Gedragsinterventie specifiek bij sterk catastroferende patiënten voor TKP
- 8 sessies coping skills training voor hkdde
- Controle na 2 maanden: beter pijnscores

ONE WAY TO RELIEVE STRESS IS  
TO PAT MY FUR WHILE TELLING  
ME HOW CUTE I AM...



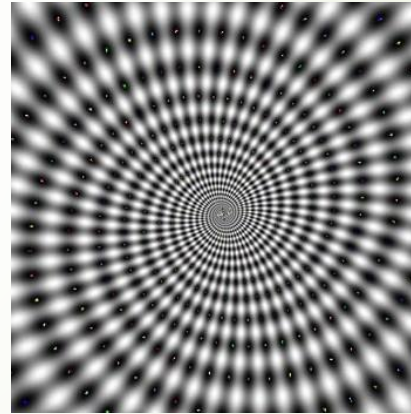


# Rol van de chirurg

- Noodzaak heelkunde
  - Minimaal invasief?
  - Technieken met minder zenuwschade
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# Alternatieve technieken

- Afleiding
- Muziek
- VR
- Hypnose
- TENS







# SAMENGEVAT

- CPSP is een relevant probleem
- Pre operatieve pijn, acute en catastroferen zijn gecorreleerd met CPSP
- Multimodale analgesie
- Biopsychosociaal model
- Teamwork

WE HOPE YOU ENJOYED YOUR STAY, PLEASE TELL US ABOUT IT IN THIS SURVEY

