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Incidence of low back pain related occupational diseases in the Netherlands

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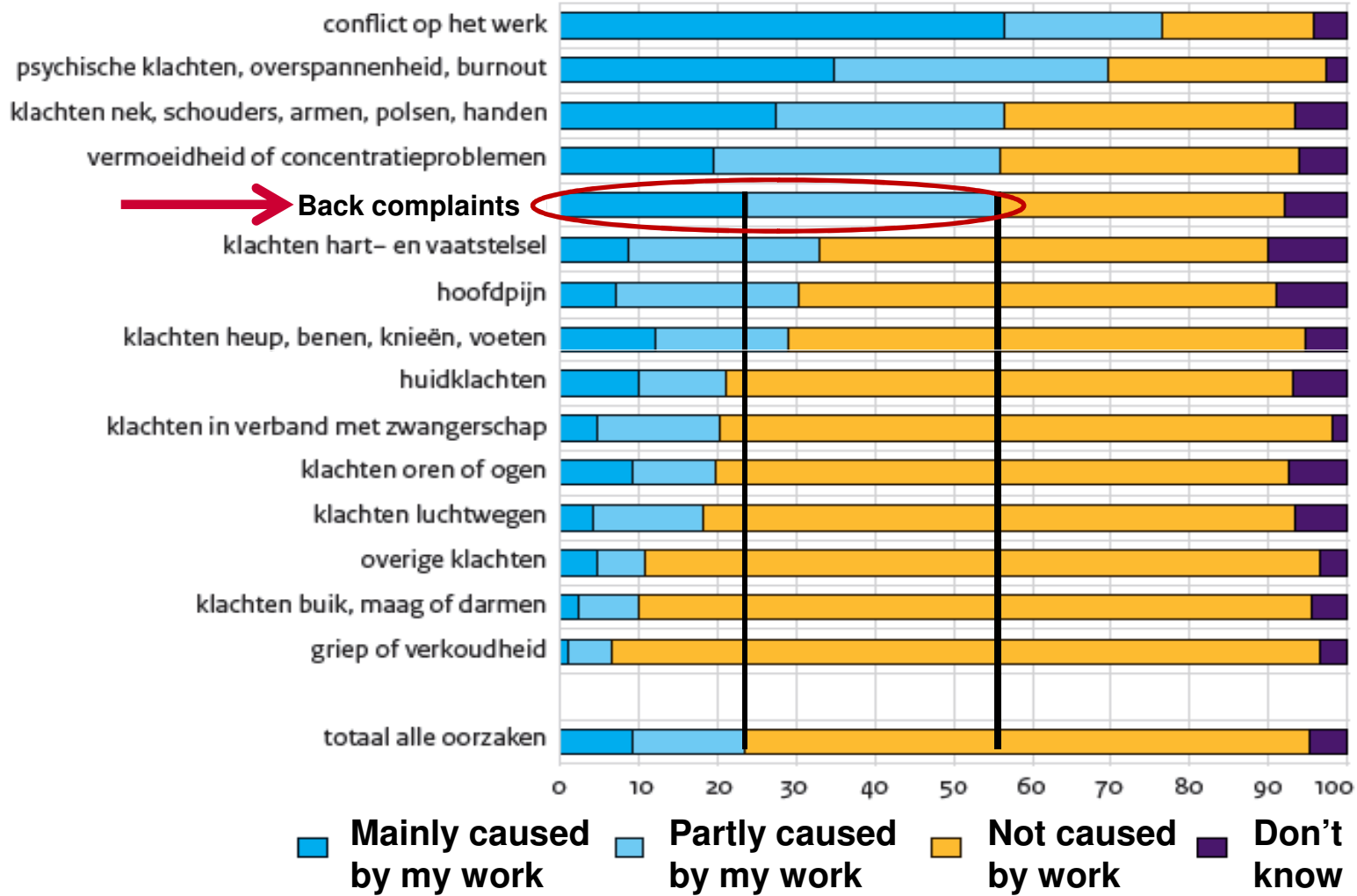
**UNIVERSITY OF
APPLIED SCIENCES**

Low back pain (LBP) and Work



High prevalence ($\pm 45\%$) and incidence ($\pm 25\%$)
15% of sick leave days in Netherlands
Association with workrelated factors in many studies

Workers opinions about workrelatedness

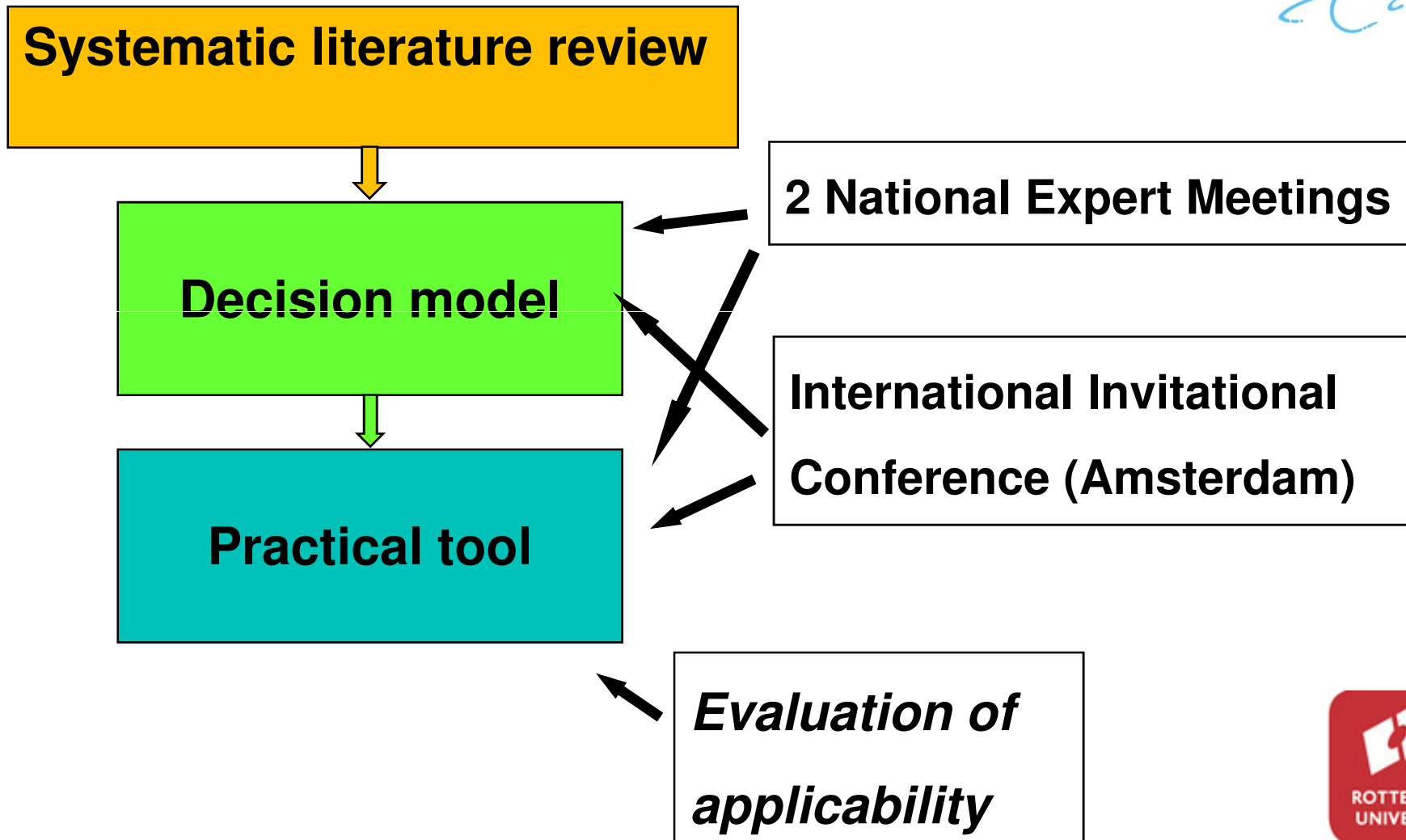


Bron: TNO/CBS (NEA, gemiddelde van 2005-2010)

Problem: no clear assessment tool to support the recognition of LBP as occupational disease



2003: Method for development of practical tool



International workshop in Amsterdam 2003



Workshop report

Scand J Work Environ Health [2005;31\(3\):237-243](#)

doi:[10.5271/sjweh.877](#)

Assessing the work-relatedness of nonspecific low-back pain

by [Kuiper JI](#), [Burdorf A](#), [Frings-Dresen MHW](#), [Kuijer PPFM](#),
[Spreeuwers D](#), [Lötters FJB](#), [Miedema HS](#)

Decision model: from population based attributable fraction to individual attributable risk

Probability of LBP =

apriori prob.

+

WR Risk
factor 1

+

WR Risk
factor 2

+

etc

Probability of LBP due to WR factors

Original article

Scand J Work Environ Health 2003;29(6):431-440

doi:10.5271/sjweh.749

Model for the work-relatedness of low-back pain

by Lötters F, Burdorf A, Kuiper J, Miedema H

Meta-analysis non-specific LBP

Risk Factors

(from systematic reviews)

Risk estimate

(pooled Odds Ratio)

Physical risk factors

Manual Materials Handling (MMT)

- 1,51 - 1,92

Frequent Bending/Twisting Trunk (FBT)

- 1,68 - 1,93

Whole Body Vibrations (WBV)

- 1,39 - 1,68

High Physical WorkLoad

- 1,13 *NS*

high exposure

Psychosocial risk factors

Monotonous Work

- 1,00 *NS*

Job Dissatisfaction

- 1,30

Manual materials handling

= lifting, holding or moving object by hand without help of mechanical tools

A1 Does worker handle objects > 15kg during > 10% of working day?

Yes, score 7 & go to B

No, go to A2

A2 Does worker handle objects > 5kg during > 2x per min for total of > 2 hours per working day, or objects >25 kg >1x per working day?

Yes, score 4

No, score 0

Score

7

Frequent bending / twisting of trunk

=bending trunk forwards or sideways and/or twisting trunk

B1 Does worker work with trunk bend and/or twisted > 40° for >1/2 hour per working day?

Yes, score 7 & go to C

No, go to B2

B2 Does worker work with trunk bend and/or twisted > 20° for > 2 hours per working day?

Yes, score 5

No, score 0

5

Whole body vibration

C1 Has worker been exposed to average vibration levels > 1m/s² per working day for >5 yr?

Yes, score 5

No, go to C2

C2 Is worker exposed to average vibration levels > 0,5m/s² per working day?

Yes, score 3

No, score 0

0

Total score (0-19)

12

Probability of workrelatedness

Example:

Age < 35 jr

Exposure score = 12

prob. = 55%

<i>Exposure score</i>	Age (years)		
	< 35	35 – 45	> 45
	Probability of work-relatedness		
0	0	0	0
1	7	7	6
2	14	13	12
3	20	18	17
4	26	23	22
5	31	28	26
6	35	32	30
7	39	35	33
8	43	39	36
9	46	42	39
10	49	44	42
11	52	47	45
12	55	49	46
13	57	51	48
14	59	53	50
15	61	54	51
16	62	56	53
17	64	57	54
18	65	58	55
19	66	60	56

12	55	49	46
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Interpretation of results

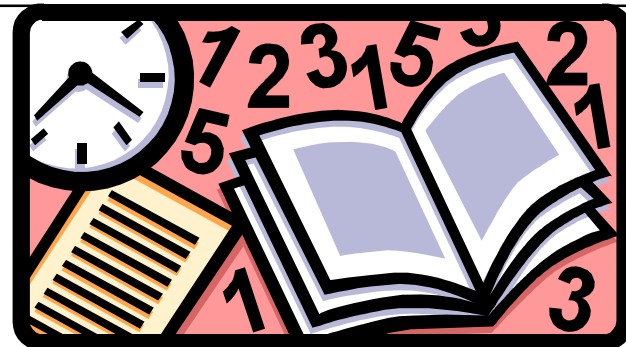
work-relatedness:

probability & other relevant information

(e.g. NIOSH lifting index > 2 or WBV > 1.15 m/s² (Directive 2002/44/EC))



- **Case-management**
personal vs workplace interventions
- **Occupational disease?**



Criteria document

Criteria for
determining
the work-
relatedness of

**Nonspecific
low-back
pain**

- ▶ **Report with short background, development and application of practical tool and brief interpretation of possible outcomes:**
- ▶ **<http://www.occupationaldiseases.nl/datafiles/LowerBackPain.pdf>**

Registration Guideline NLBP (2005)

Netherlands Center for Occupational Diseases

- ▶ Now possible to register part of LBP as occupational disease
- ▶ When LBP is largely due to risk factors occurring at work or in a work environment: probability > 50%

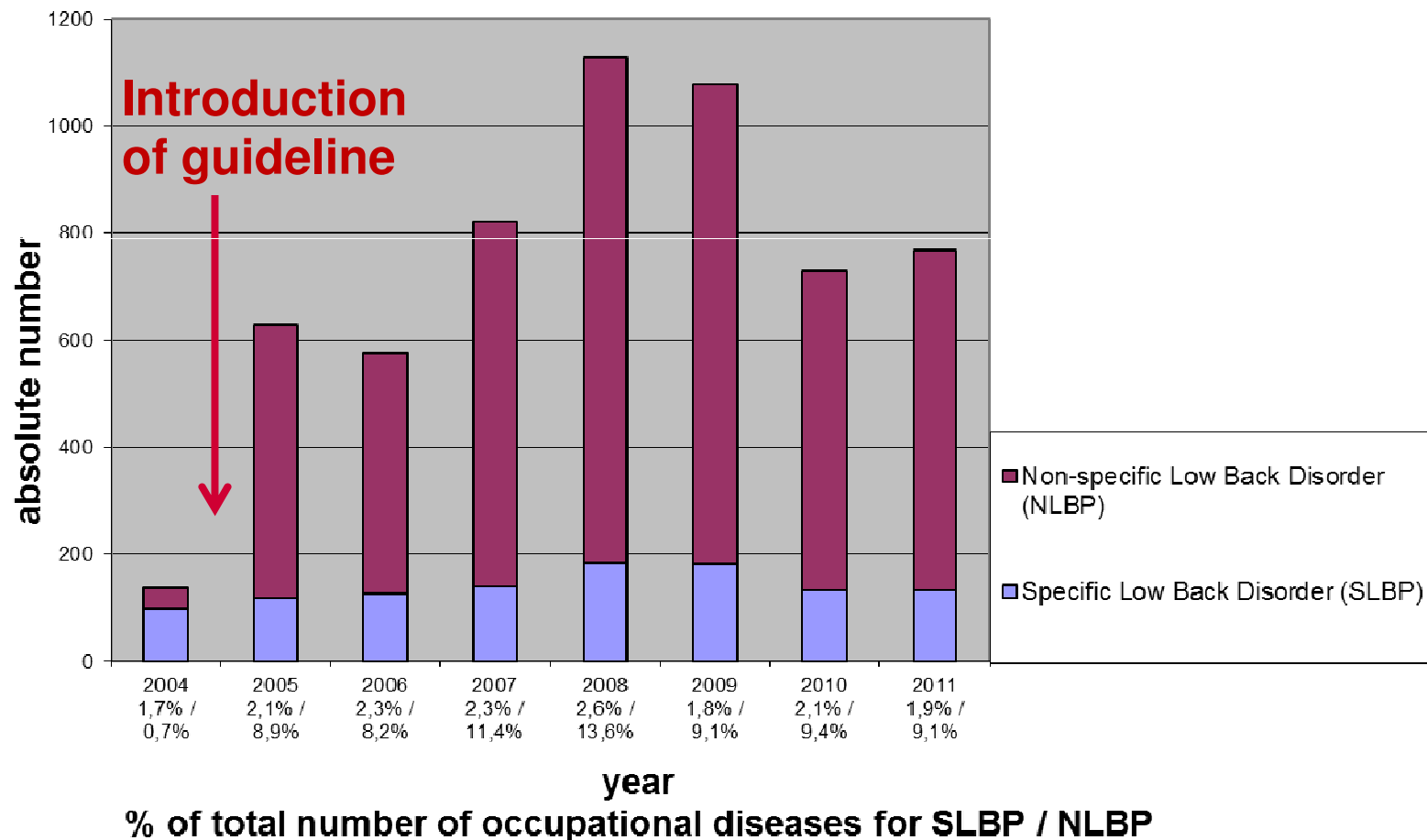
and/or

NIOSH lifting index > 2 or WBV > 1.15 m/s²

- ▶ Notification legal obligation for Occupational Physicians in the Netherlands
- ▶ National registry of occupational diseases

Increase of OD-notifications due to LBP directly after guideline introduction

Number of notified Occupational Diseases due to Low Back Pain in the register of the NCOD



Dynamic prospective cohort study within registry

- ▶ 5 year dynamic prospective cohort study
- ▶ Data for this study 2009-2011
- ▶ Participation of \pm 180 Occupational Physicians (9.1 %)
- ▶ 1,538,756 worker years (\pm 1/2 million workers per year)
- ▶ 2009-2011: 14.2% of OD-notifications due to LBP from this cohort population

Incidence of occupational diseases due to LBP in the Netherlands

- ▶ Overall mean incidence rate:
19.2 NLBP / 100,000 worker years
4.9 SLBP / 100,000 worker years
- ▶ 91% of notifications male workers
incidence rate NLBP men 31.3 / 100,000 worker years
- ▶ Incidence raises with age:
31-40 yrs: 20.1 / 100,000 worker years
41-50 yrs: 23.3 / 100,000 worker years
51-60 yrs: 26.9 / 100,000 worker years
- ▶ Construction: 150 / 100,000 worker years
- ▶ Transport & storage: 97 / 100,000 worker years

Conclusion: LBP as Occupational Disease 1

Although low back pain (LBP) is one of the largest groups of workrelated disorders and the relationship between workrelated factors and occurrence of LBP has been shown in many studies, there is hardly any literature about the demarcation of a subgroup of LBP that can be qualified as occupational disease.

The incidence of LBP related occupational diseases can be estimated at 25.1 cases per 100,000 worker years (19.2 for non-specific LBP), based upon the assessment of workrelatedness with a practical evidence based tool and using data from the National Registry of Occupational Diseases in the Netherlands.

Conclusion: LBP as Occupational Disease 2

With the instrument for the assessment of the work-relatedness of non-specific LBP a practical evidence based tool is available for recognition of occupational diseases due to LBP

With this instrument and the registration guideline it is possible to quantify the part of LBP that has a clear work-related origin that should be addressed by preventive measures

Due to the high 'background' incidence of NLBP the subgroup that has a probability of over 50% of being work-related is relatively small; about 1 in every 1,000 – 1,500 incident cases of NLBP among workers can be qualified as occupational disease

Discussion

- ▶ Implementation of obligation for Occupational Physicians to notify every case of occupational disease far from realised
- ▶ Underreporting in the Netherlands of occupational diseases among female workers in general as well as due to LBP
- ▶ Not yet equal distribution of notifications of occupational diseases over economic sectors

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ORIGINAL ARTICLE

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Thank you for your attention



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