



The economic burden of chronic pain

Conclusions from claims data of over 5 million members of a large health insurance in Germany



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The problem

- Valid primary data on epidemiology of chronic pain are scarce
- Chronic pain is not properly coded in ICD-10

Solutions

- ICD-10 GM-2009 F45.41
- approach „ex iuvantibus“: opioid prescriptions suggest 9 „pain types“
- analysis of 3 back pain types in 5.2 million persons insured during 2006

Valid primary data on epidemiology of chronic pain are scarce

Health technology assessment report „Over-, under- and misuse of pain treatment in Germany “ by M. Dietl and D. Korczak

- Despite the relatively high number of studies in Germany the HTA-report shows a **massive lack in health care research**.
- Based on the studies a further **expansion of out-patient pain and palliative care** is recommended.
- Further **training** for all involved professional groups **must be improved**.
- An independent **empirical analysis is necessary** to determine over or undertreatment in pain care.

Chronic pain is not properly coded in ICD-10

Pain-related diagnoses are scattered throughout ICD-10 (examples):

- F45.4 Persistent somatoform pain disorder
- F65.5 Sadomasochism

- G50.0 Trigeminal neuralgia
- G54.6 Phantom limb syndrome with pain

- K07.6 Temporomandibular joint disorders

- M54.1 Radiculopathy
- M54.3 Sciatica
- M79.2 Neuralgia and neuritis, unspecified

- R51 Headache
- R52.0 Acute pain
- R52.1 Chronic intractable pain



ICD-10 GM version 2009

F45.41: Chronic pain disorder with somatic and psychological factors

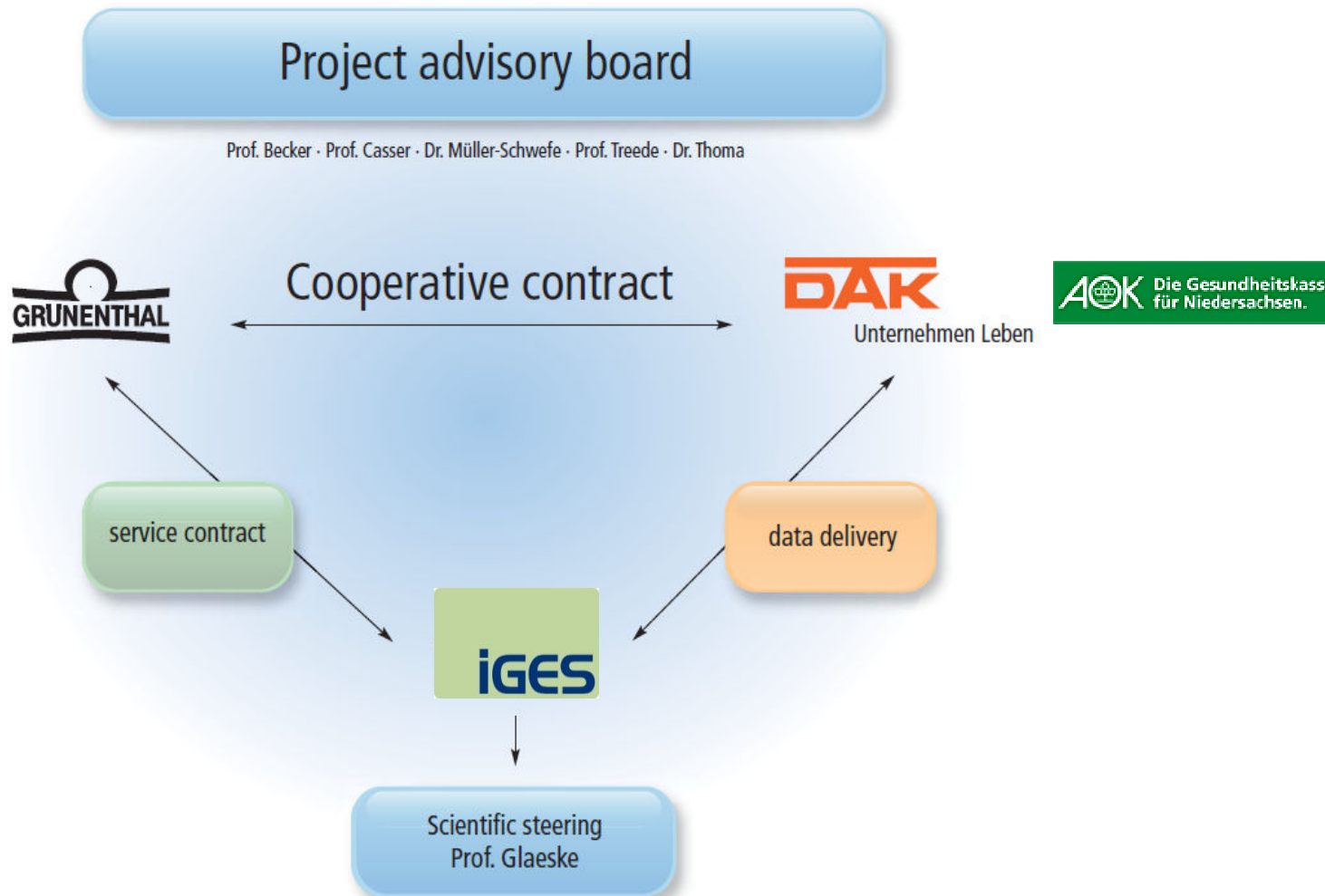
German criteria for the classification of pain disorder:

1. Existence of persistent, intense pain leading to ... impairment in ... functioning
2. Psychological factors ...contribute to ... the pain condition
3. (distinction from somatoform pain disorder)
4. Pain symptoms not ... in context of depression or schizophrenia

German DRG database for 2009:

F45.41 provides about 1/3 of indications for multimodal pain therapy

Approach „ex iuvantibus“: opioid prescriptions suggest 9 „pain types“



Freytag, Schiffhorst, Thoma, Strick, Gries, Becker, Treede, Müller-Schwefe, Casser, Luley, Höer, Ujeyl, Gothe, Kugler, Glaeske, Häussler (2010) [Identification and grouping of pain patients according to claims data]. Der Schmerz 24: 12-22.

Two sub-studies

PILOT STUDY

- **Identification** of patients with pain forms the basis for analyses investigating the treatment of chronic pain using DAK's claims data
- **Classification** of patients with pain based on typical combinations of diagnoses

MAIN STUDY

- Analyzing medical care in patients with chronic pain
- Profiles of patients, prescriptions, and treatments
- Predictors of chronic pain, costs of care and disability

In the pilot study, a novel algorithm was developed to identify patients using health insurance claims data

Study group (SG):
Patients with ≥ 2 opioid prescriptions

Reference group (RG):
Patients without Rx for analgesics

Which diagnoses are significantly more frequent in SG
(bivariate analysis)? \rightarrow 661 diagnoses

Consolidation of multimorbidity using a grouper (CCS)
661 diagnoses \rightarrow 166 morbidity categories

Cart and Regression Trees:
Identification of typical CCS patterns for SG \rightarrow 65 terminal nodes

Aggregation of terminal nodes in iterative discussion rounds with
pain management experts \rightarrow **9 pain types**

DAK population of 5.2 million persons who were continually insured throughout the study period
Pilot study: persons with ≥ 2 opioid prescriptions: 119,043, persons without analgesics: 109,327
Study population of 4.6 million persons with at least one pain-related diagnosis

Nine pain types identified through stepwise data aggregation – validation based on medical expertise

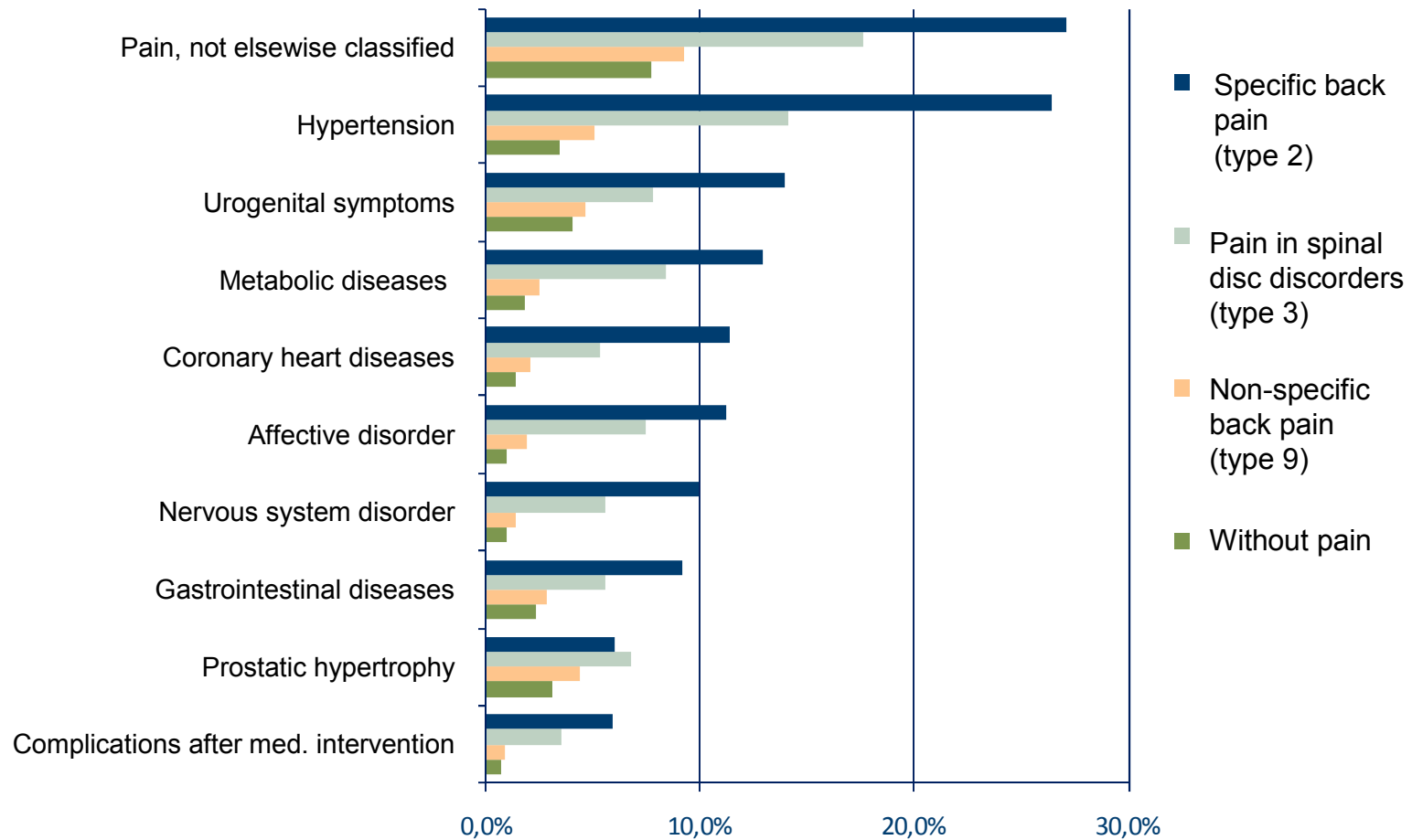
Type	Description	With Opioid	No analg.	ratio	DAK total
1	Insurants with cancer diagnosis	0.6%	0.3%	2.0	7,7%
2	(Other) specific back pain (incl. osteoporosis)	13.1%	2.6%	5.0	5,2%
3	Pain in spinal disc disorders	18.0%	4.2%	4.3	6,1%
4	Arthrosis-related pain (incl. rheumatoid arthritis)	26.3%	14.8%	1.8	14,2%
5	Pain after traumatic fractures	2.4%	0.6%	4.0	1,6%
6	Pain in multimorbid patients (e.g. nursing home)	1.3%	0.9%	1.4	1,3%
7	Neuropathic pain	6.7%	3.0%	2.2	6,4%
8	Headache	4.2%	3.0%	1.4	9,6%
9	Non-specific back pain	4.5%	3.8%	1.2	32,2%

Diagnoses included in pain types 2,3 and 9

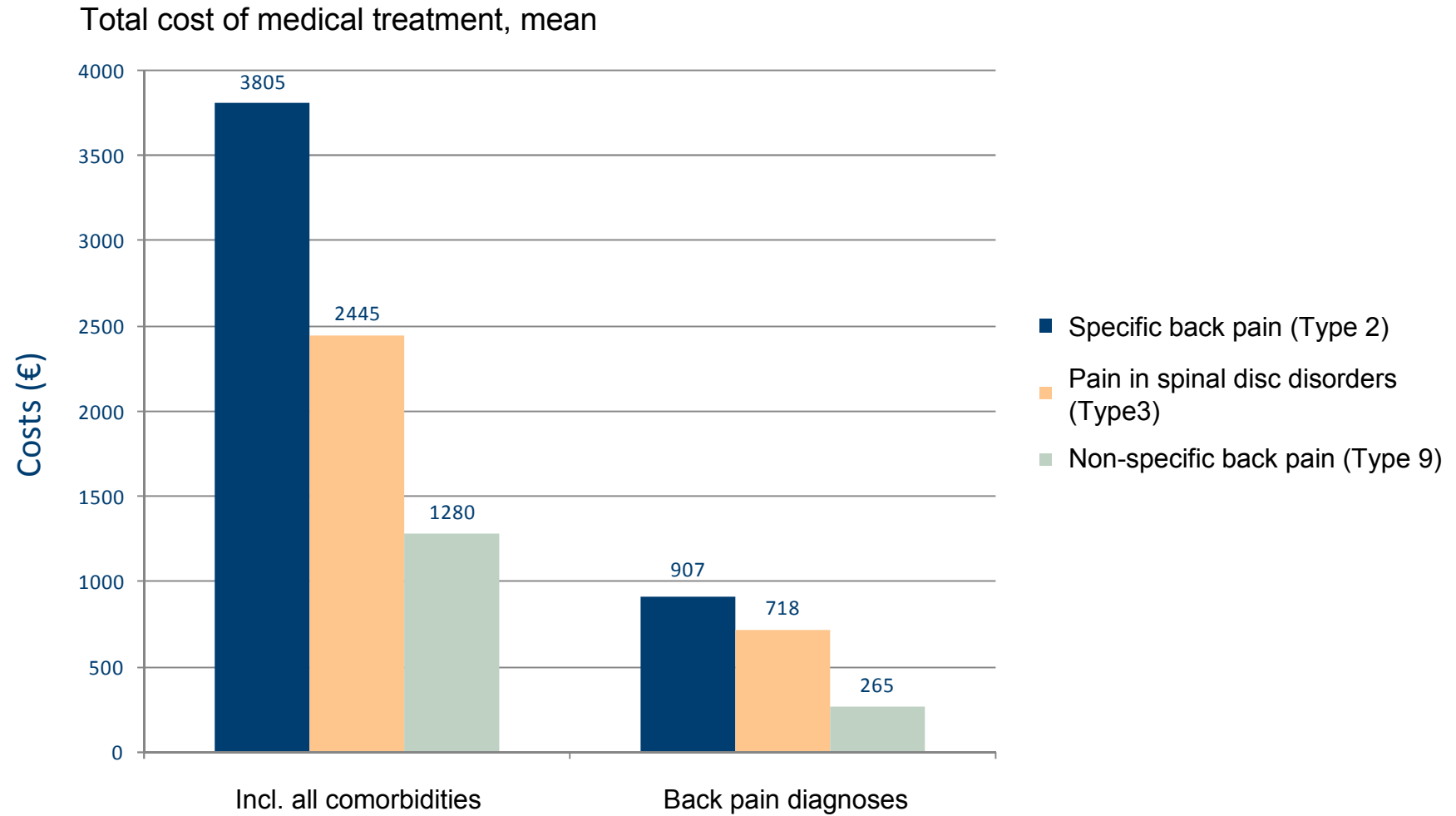
- **Type 2 (Other specific back pain): n=268,358 (5.2%)**
 - Osteoporosis
 - Spondylopathy
 - **Type 3 (Pain in spinal disorders): n=315,565 (6.1%)**
 - Disc prolaps
 - **Type 9 (Non-specific back pain): n=1,655,731 (32.2%)**
 - “Back pain” (M54)
- Should one mostly invest in treating non-specific back pain?

Patients with specific back pain often have comorbidities

10 most common comorbidities (non pain related) of back pain patients

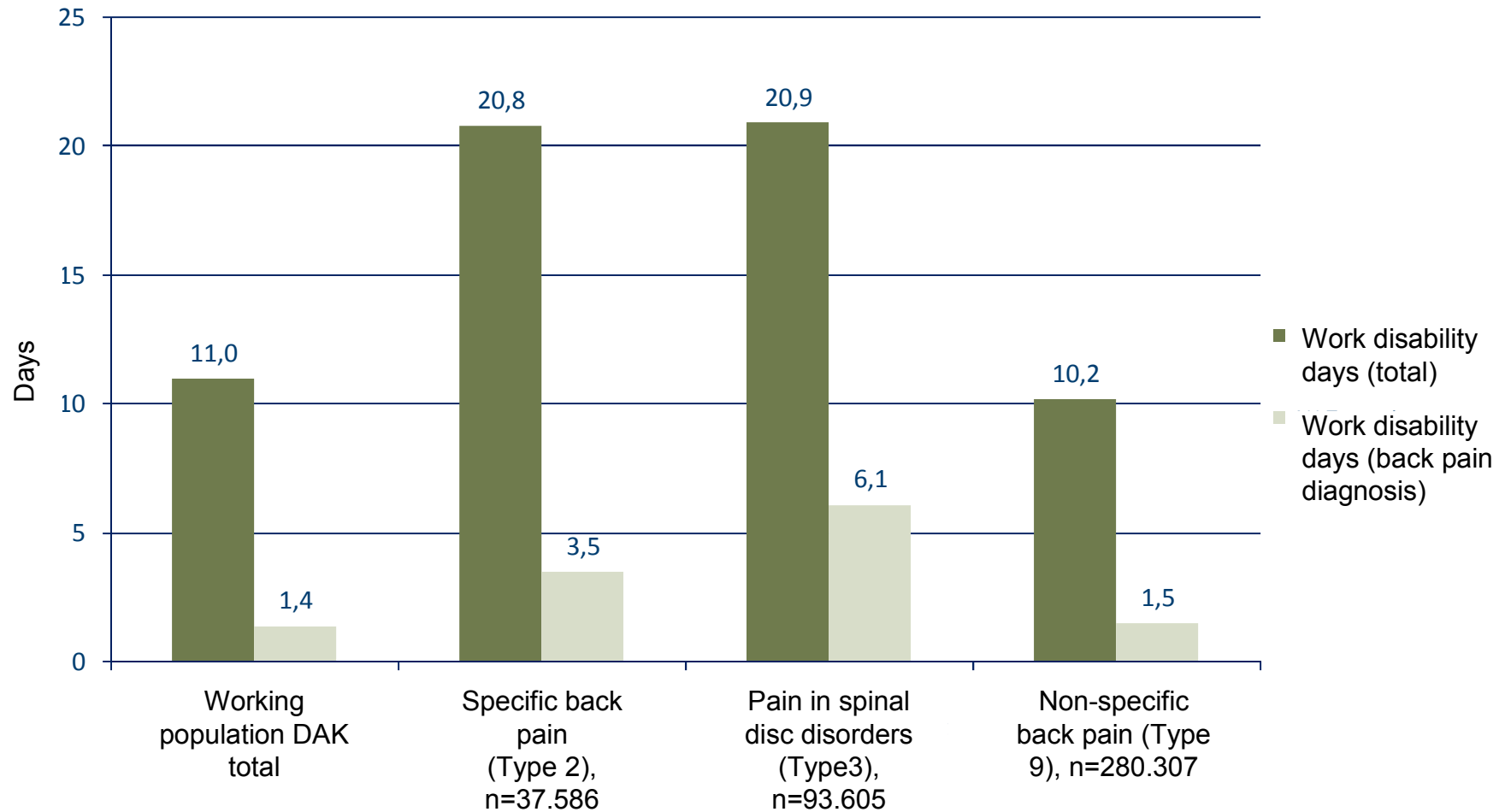


Patients with specific back pain exhibit high health care cost



High absenteeism in specific back pain patients

Work disability days (mean) per employed insurant



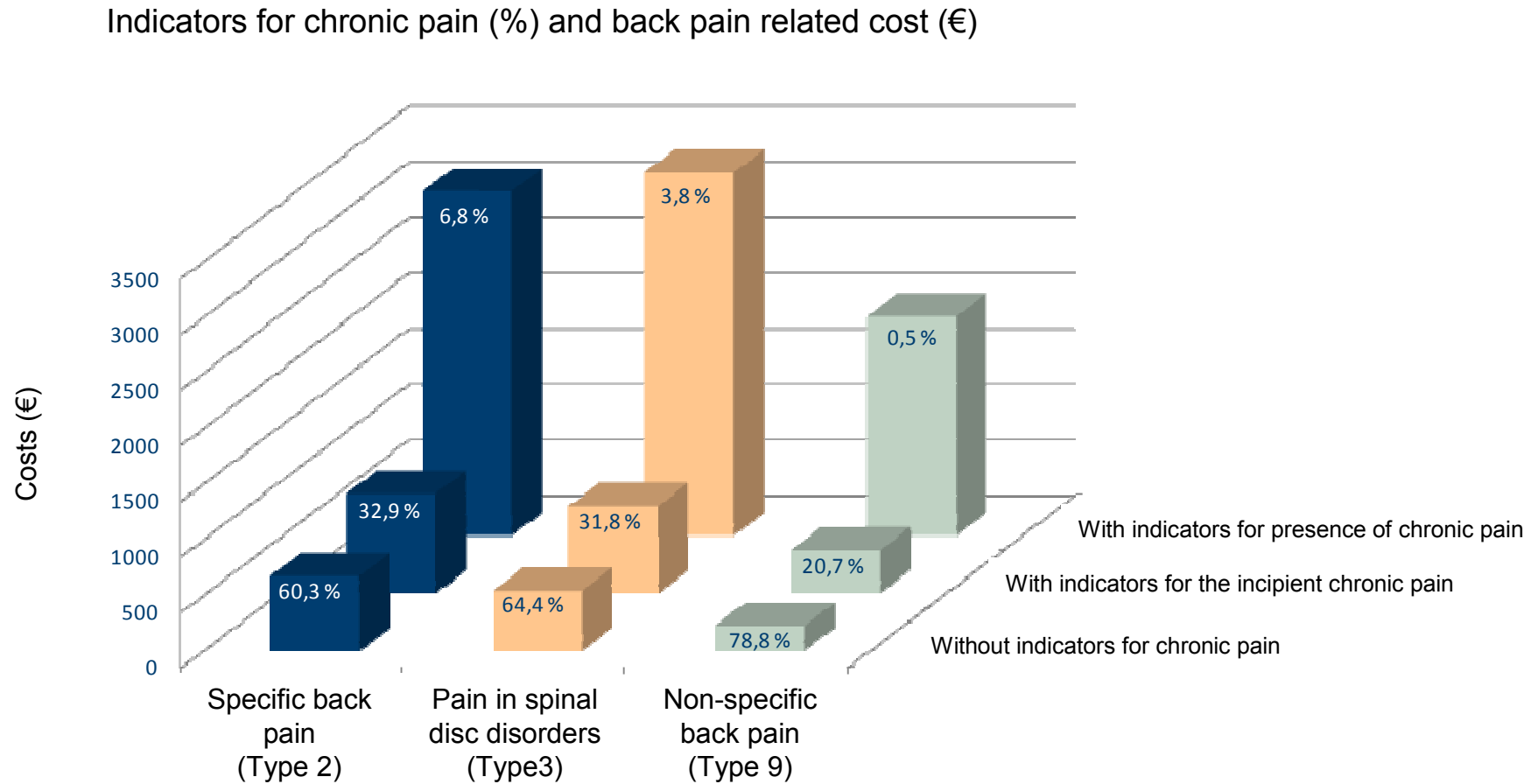
Conclusions 1

- In the overall group of insured persons, non-specific back pain made up the largest group,
 - yet these patients had low comorbidity rates, low health care use, and low absenteeism
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- Should one mostly invest in treating specific back pain?

Surrogate indicators for chronic pain

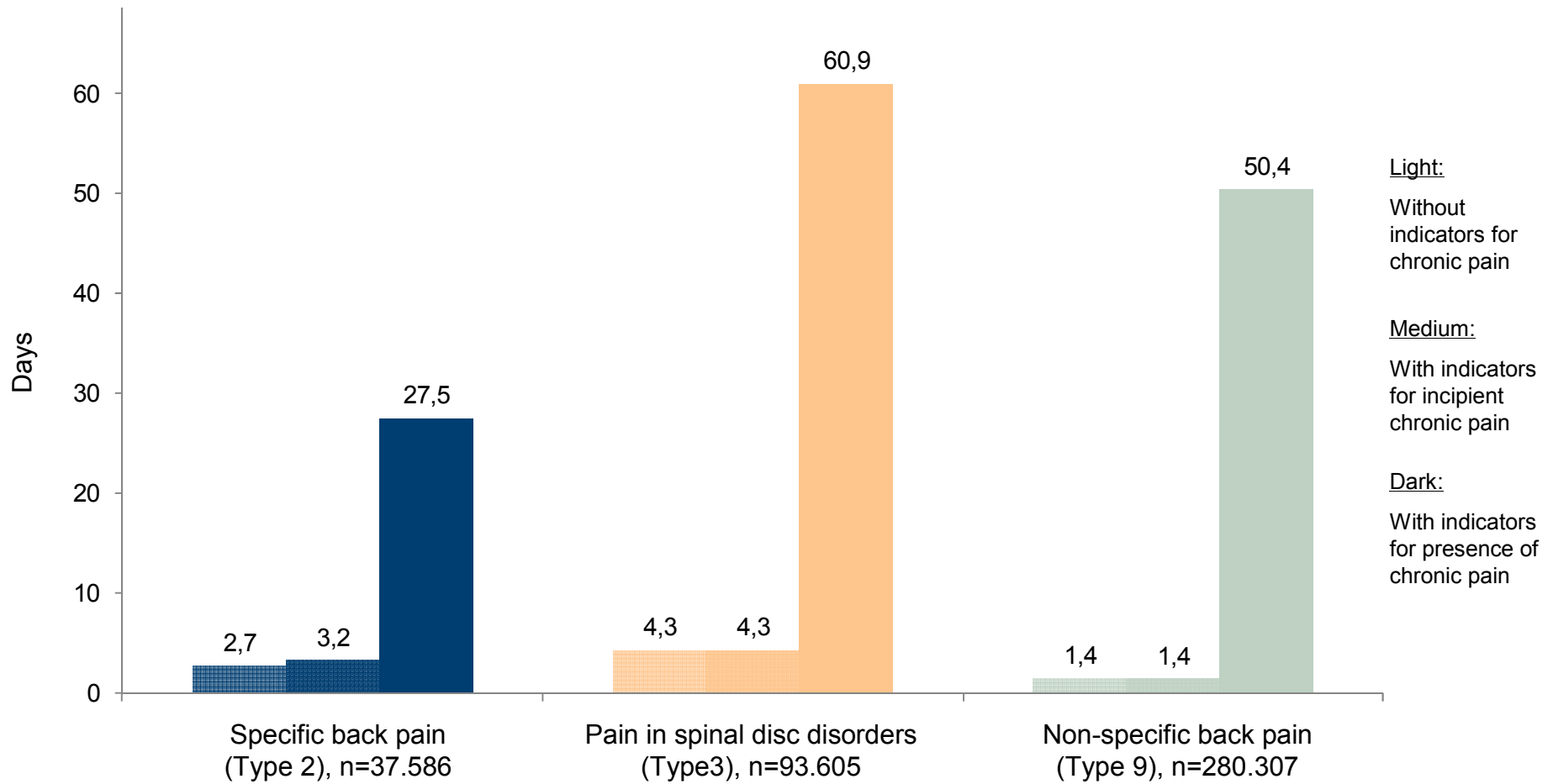
- „With indicators for presence of chronic pain“:
At least 1 case of disability > 6 weeks with a defined back pain diagnosis OR least 2 prescriptions of a strong-acting opioid within 180 days in 2006
- „With indicators for incipient chronic pain“:
Without indicators for chronic pain, but with a psychiatric comorbidity OR at least 3 cases of disability in 2006
- „Without indicators for chronic pain“:
Remaining group

The stronger the indicators for chronic pain the higher the costs

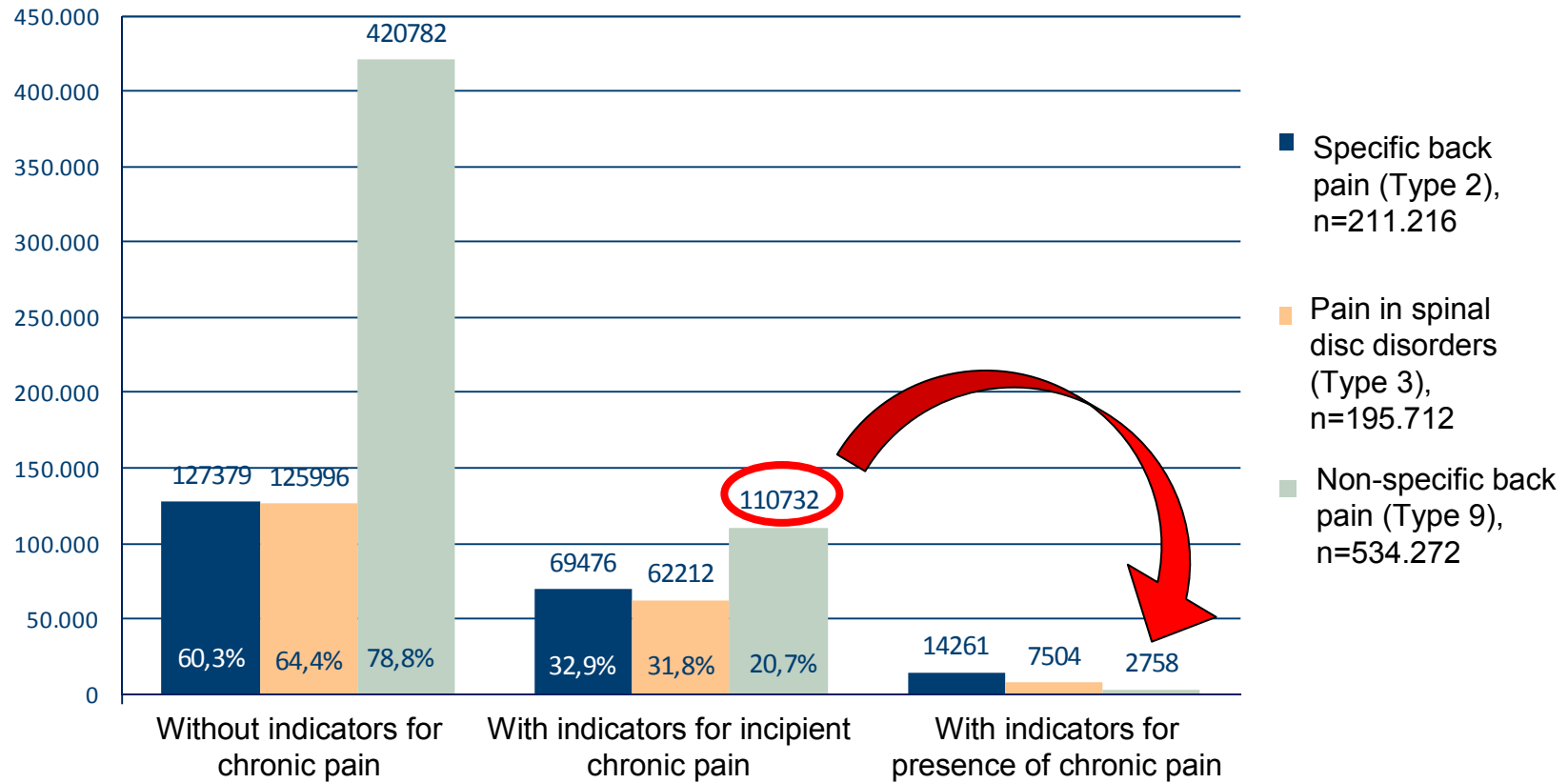


With indicators for chronic pain work disability days increase vastly

Work disability days with back pain diagnosis (mean) per employed insurant



Almost 1/3 of patients have indicators for the development of chronic pain



Indicators for incipient chronic pain

Without indicators for chronic pain, but with psychiatric comorbidity OR at least 3 cases of disability

Indicators for presence of chronic pain

At least 1 case of disability > 6 weeks with a defined back pain diagnosis OR at least 2 prescriptions of strong opioid within 180 days

Conclusions 2

- Patients with indicators of pain chronicity had the highest comorbidity and health care cost, independent of whether they had specific or non-specific back pain.
- In the non-specific back pain group the subgroup with indicators of chronicity was small, but accounted for a large proportion of cost.

- Prevention of pain chronicity is likely to pay for itself.
- This is particularly true for non-specific back pain, due to its high incidence.