

# Personal and Societal Impact of Low Back Pain; The Groningen Spine Cohort

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## Introduction

- A minority of patients with low back pain (LBP) account for the highest disability and costs.
- These patients have potentially most to gain from effective treatment.
- The Groningen Spine Cohort will provide a 10-year prospective insight into the burden of LBP for patients referred to multidisciplinary tertiary spine care. This study reports first baseline results.

## Objective

- To study the personal and societal impact of LBP in patients admitted to a multidisciplinary spine center.

## Methods

- Patient-reported baseline questionnaires and health insurance claims.
- Questionnaires: NIH minimal dataset Impact Stratification score (range 8-50), functioning (Pain Disability Index, PDI; 0-70), quality of life (EuroQol-5D, EQ5D; -0.33-1.00), work ability (single-item Work Ability Score, WAS; 0-10),

work participation, productivity costs (Productivity Cost Questionnaire, iPCQ).

- Healthcare costs one year prior to baseline (n=436) were compared with matched primary (n=4995) and secondary (n=4993) care LBP samples.

## Results

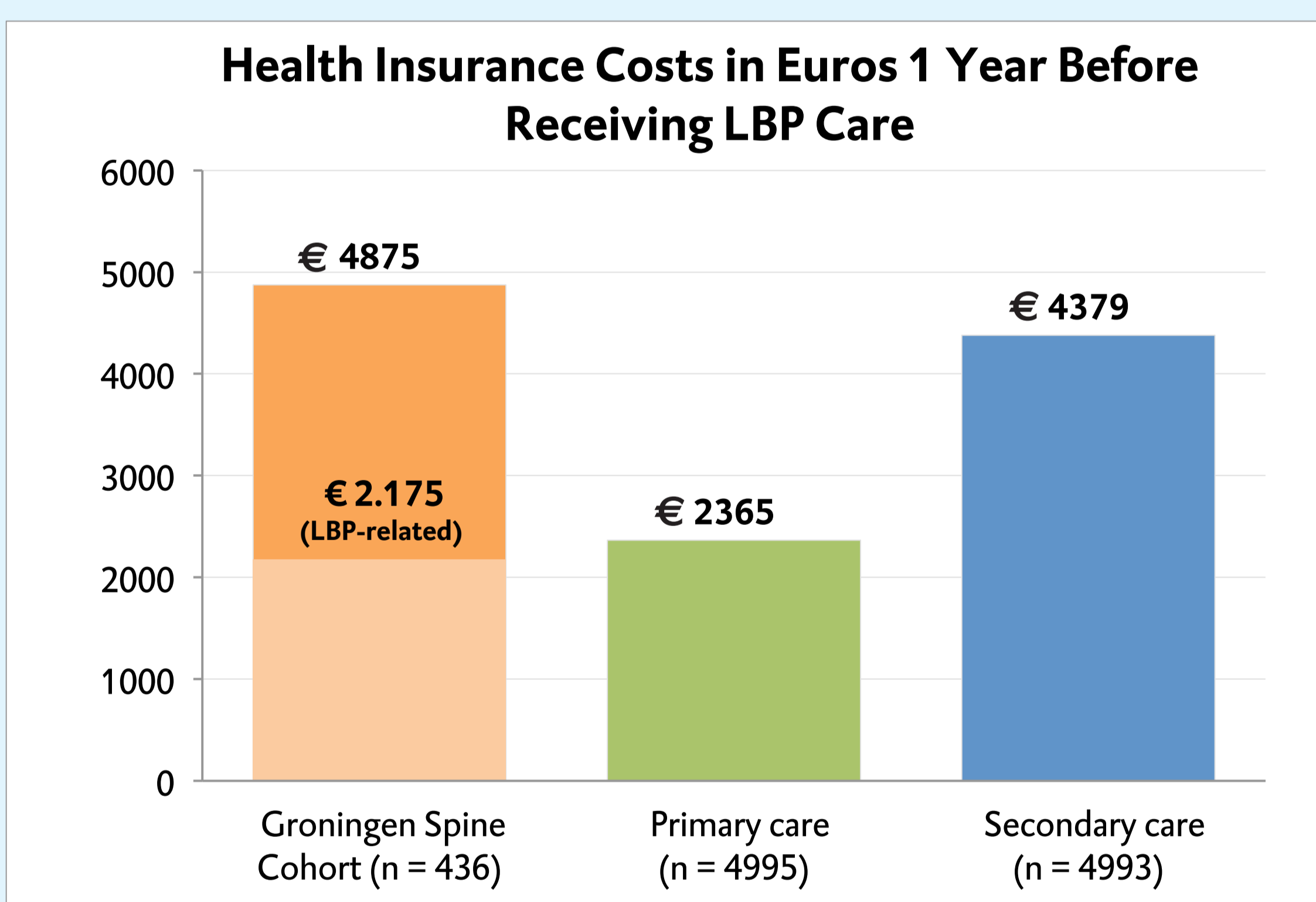
- n=1503 patients (46.3 ± 12.8 years, 57% female) were included (Table 1).
- Health care costs were twice as high (€4875) compared to patients seeking primary LBP care (€2365) (Figure 1).
- Productivity costs were on average €4315 per patient, with 43% of employed patients reporting sick leave in the last 6 months (Table 2).

## Conclusions

- In patients seeking multidisciplinary tertiary spine care, the personal and societal impact of LBP is very high.
- Specifically, quality of life and work ability are poor and healthcare costs are twice as high compared to patients seeking primary LBP care.

**Table 1:** Characteristics of the Groningen Spine Cohort

Characteristic	Total (n=1502)
Age, mean years ± SD	46.3 ± 12.8
Sex, n (%)	
Female	857 (57)
Education level, n (%)	
No education	29 (2)
Low	522 (35)
Middle	487 (32)
High	343 (23)
Other	121 (8)
<b>Medical history</b>	
Duration LBP, n (%)	
< 3 months	40 (3)
3 months – 1 year	240 (16)
1 – 5 years	527 (35)
> 5 years	695 (46)
Previous medical imaging for current LBP, n (%)	1328 (88)
Visited medical specialist for current LBP, n (%)	822 (55)
Previous low-back operation(s), n (%)	387 (26)
Treatment(s) used for LBP, n (%)	
Opioids	803 (53)
Injections	328 (22)
Exercise Therapy	1316 (88)
Psychological counseling	222 (15)
<b>Pain and functioning</b>	
NRS score back pain (0-10), median (IQR)	7.0 (6.0;8.0)
PDI total (0-70), mean ± SD	38.2 ± 14.1
NIH minimal dataset Impact Stratification (8-50), mean ± SD	35.2 ± 7.5
Mild (8-27), n (%)	232 (16)
Moderate (28-34), n (%)	402 (26)
Severe (≥35), n (%)	868 (58)
<b>Quality of life</b>	
EQ5D: health state (0-100), mean ± SD	52.9 ± 19.7
EQ5D: utility value (-0.33-1.00), median (IQR)	0.39 (0.17;0.72)
<b>Work</b>	
Work ability (0-10), median (IQR)	4.0 (1.0;6.0)
Work status, n (%)	
Not working	601 (40)
Permanent work disability	253 (17)
Employed	901 (60)
Working	409 (27)
Partial sick leave	260 (17)
Sick leave	232 (15)



**Figure 1:** Mean total and LBP-related health insurance costs for Groningen Spine Cohort patients and mean total health insurance costs for matched primary and secondary care controls.

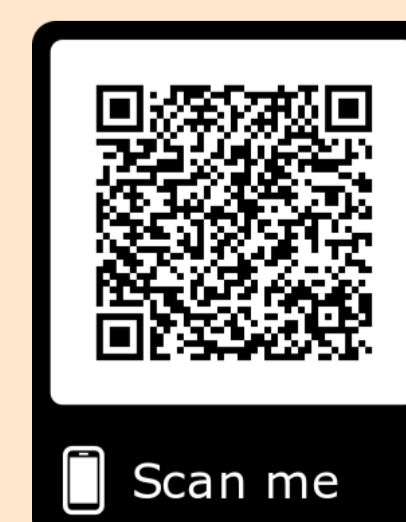
**Table 2:** Costs Owing to Productivity Loss in Euros 6 Months Before Baseline (Friction Cost Approach)

	N	Mean costs per affected patient (CI)	Mean costs per cohort patient, n = 1502 (CI)
Groningen Spine Cohort <sup>a</sup>	901		
Absenteeism			
Total	387 <sup>b</sup>	€ 6546 (5773–7305)	€ 1615 (1392–1882)
LBP-related	328 <sup>b</sup>	€ 6560 (5814–7269)	€ 1380 (1181–1598)
Presenteeism			
Total	566	€ 7165 (6683–7683)	€ 2700 (2442–2969)
Total productivity loss			
Total	751 <sup>b</sup>	€ 8773 (8190–9400)	€ 4315 (3898–4688)

N, number of patients; CI indicates bootstrapped 95% confidence interval for mean: lower bound to upper bound; LBP, low back pain.

<sup>a</sup> all employed patients (n=901); <sup>b</sup>Amount of patients who reported sick leave. Some patients still had zero costs as a result of their sick leave when using the friction cost method, which takes into account the replacement of absent workers after 85 days.

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