

Development of a clinical decision tool to support spine surgeons in the triage of Chronic Low Back Pain patients



Sint Maartenskliniek



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Chronic Low Back Pain (CLBP)

Western Europe: greatest 'global burden of disease'¹

Heterogeneous condition

- Identification patient profiles, although unknown etiology²
- Unlikely one intervention benefits all³

Recommended⁴

To develop a classification system to direct both surgical & non-surgical interventions, based on biomedical and psychosocial indicators



1. Murray 2012 *Lancet* 2. Fourney 2011 *Spine* 3. Turk 2002 *Clin J of Pain*

4. Airaksinen 2003; Chou 2009 *Spine*; NICE 2009; Fairbank 2011 *Spine*; Fourney 2011 *Spine*

‘Nijmegen Decision tool’

Development tool¹

- Based on scientific evidence and multidisciplinary consensus
- Using patient reported outcome measures
- To support selection of the right CLBP patient for the right practitioner and ultimately to the right intervention

Comprehensive & web-based screening questionnaire

47 indicators predicting outcome of interventions and/or persistence of CLBP complaints¹

Outcome domains²

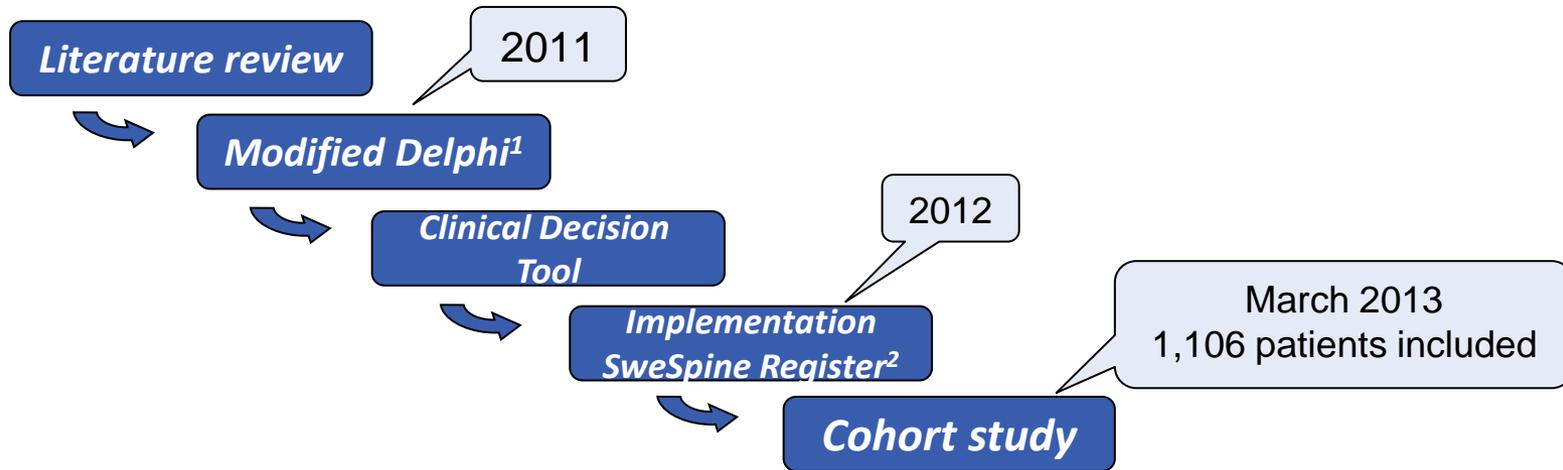
- Quality of Life
- Functional status
- Pain intensity



1. Van Hooff *in preparation*

2. McCormick 2013 *J Am Acad Orthop Surg*

Development & Aim current study



Aim:

To evaluate with preliminary patient data, baseline differences between patients indicated for Spinal surgery or Combined Physical and Psychological (CPP) program³



1. Linstone & Turoff 1975; 2. www.4S.nu

3. As provided by RealHealthNL; Van Hooff 2011; 2012 *Eur Spine J*

Methods

Cohort study

All new CLBP patients that completed screening questionnaire before first consultation at the outpatient orthopedic department of Sint Maartenskliniek

Nested 'multiple case control' study on baseline screening data

(Period: May 2012 – March 2013)

Included: **n= 1,106 [100% complete data]**

Case groups: **Spinal surgery n= 84 [7.4%] & CPP program n= 97 [8.8%]**

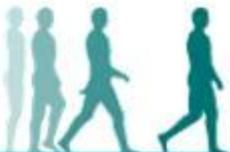
Controls: all other patients

Clinical decision-making & Diagnostics 'as usual'

Analyses of baseline differences between case groups

Continuous variables → Independent Student's *t* tests (Bonferroni corrected)

Categorical variables → Chi² tests (Bonferroni corrected)



Sociodemographic indicators

Category	Spinal surgery	CPP program	
Personal			
Age yrs mean (SD)	50.2 (15.1)	44.6 (10.2)	p= 0.002
Gender women n (%)	58 (69)	62 (64)	} <i>n.s.</i>
BMI mean (SD)	26.9 (14.1)	25.1 (7.1)	
Health			
Smoking yes n (%)	29 (35)	39 (40)	} p= 0.001
Previous back surgery yes n (%)	43 (51)	28 (29)	
Social			
Social status (partner) yes n (%)	57 (68)	73 (75)	} <i>n.s.</i>
Limited – Leisure yes n (%)	80 (95)	97 (100)	
Social support yes n (%)	53 (63)	57 (59)	
Work			
Socio-economic status yes n (%)	58 (69)	65 (67)	} <i>n.s.</i>
Work satisfaction yes n (%)	53 (63)	52 (54)	
Functioning – Work yes n (%)	44 (52)	38 (39)	
Sick leave yes n (%)	19 (23)	39 (40)	p= 0.003
Litigation yes n (%)	3 (4)	5 (5)	<i>n.s.</i>

Pain & Somatic indicators

Category		Spinal surgery	CPP program	
Pain				
Duration > 2 yrs	yes n (%)	56 (67)	90 (93)	p= 0.03
Previous episodes	yes n (%)	61 (73)	74 (76)	
Somatic				} <i>n.s.</i>
Comorbidities	yes n (%)	19 (23)	29 (30)	
Red flags	median (range)	2 (0-6)	2 (0-6)	
Neurological symptoms	median (range)	1 (0-4)	1 (0-4)	

Biological riskfactors
 (e.g. age <20 & >50years, trauma, history of malignancy, spinal deformity, neurologic deficit, infection, unexplained weight loss)



Psychological indicators

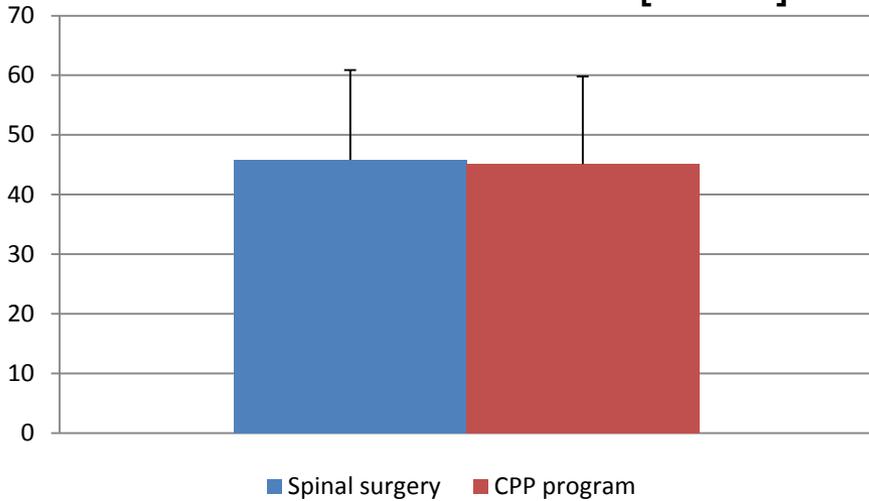
Category	Spinal surgery	CPP program	
Cognition & Behaviour			
Distress yes n (%)	34 (41)	43 (44)	} <i>n.s.</i>
Anxiety yes n (%)	27 (32)	42 (43)	
Catastrophizing yes n(%)	48 (57)	50 (52)	
Expectations – work return yes n (%)	74 (88)	81 (84)	} p= 0.01
Expectations – outcome + yes n (%)	56 (67)	50 (52)	
Yellow flags - STarT Back¹			
Low risk yes n(%)	29 (35)	46 (47)	} p= 0.005
Moderate risk yes n(%)	31 (37)	15 (16)	
High risk yes n(%)	24 (29)	36 (37)	
Bothersomeness yes n (%)	78 (93)	94 (97)	} <i>n.s.</i>

STarT Back Screening Tool¹
(catastrophizing, fear of movement, distress)

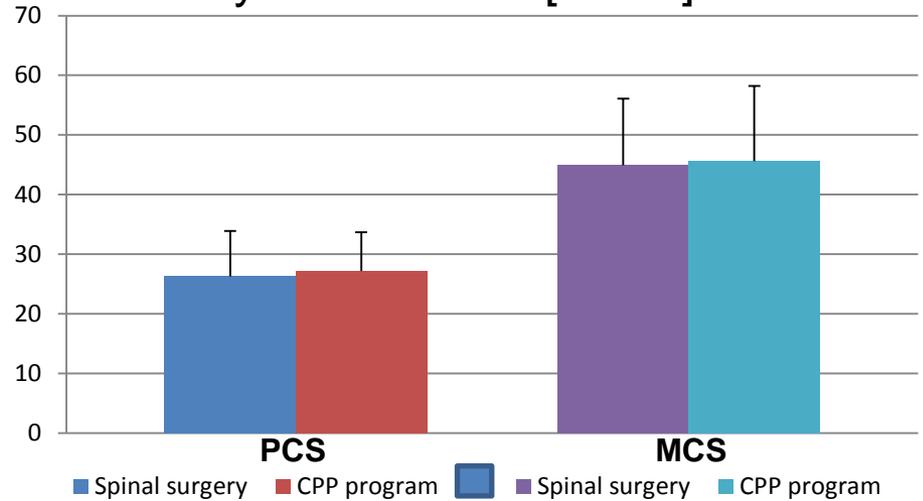


Baseline outcome domains

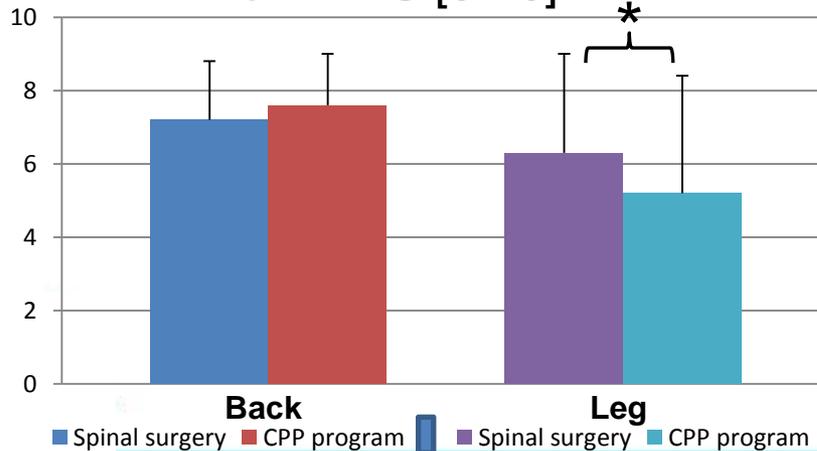
Functional status ODI [0-100]



Quality of Life SF36 [0-100]



Pain NRS [0-10]



* $p < 0.05$

Resumé



Spinal surgery patients report:

Older age

More previous back surgeries

More sick leave

Less duration of CLBP (< 2years)

To expect more positive treatment outcome

Equal number of 'red flags' & comorbidities

Less risk for 'yellow flags'

More leg pain

.... compared to CPPprogram patients

Yellow flags: psychological riskfactors

(catastrophizing, fear of movement, distress)

Red flags: biological riskfactors

(e.g. age <20 & >50years, trauma, history of malignancy, spinal deformity, neurologic deficit, infection, unexplained weight loss)



Discussion & Conclusion

The screening questionnaire seems usable

First indications found for differences between spinal surgery and CPP patients

Large cohorts with 2 year follow-up are needed to identify patient profiles based on (combinations of) indicators predicting successful treatment outcome

If patient profiles can be identified:

- Adequate triage performance for referral to the right care professional
- Outcomes improve: 'pick your winners'
- Both lead to lower costs and better outcomes



Disclosure

None of the authors has a potential conflict of interest.

