

LOW BACK PAIN AND RADICULAR PAIN: DEVELOPMENT OF A CLINICAL PATHWAY



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- **The external experts were consulted about a (preliminary) version of the scientific report. Their comments were discussed during meetings. They did not co-author the scientific report and did not necessarily agree with its content.**
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LIST OF ABBREVIATIONS

ABBREVIATION	DEFINITION
ASMA	Association des Médecins Conseils en Assurance
AMSTAR	Assessing the Methodological quality of Systematic Reviews
APBMT – BBVAG	Association professionnelle belge des médecins du travail – Belgische Beroepsvereniging voor Arbeidsgeneesheren
AXXON	Representative association of Belgian physiotherapists
AZ	General hospital (Algemeen Ziekenhuis)
BAF	Belgian Acupunctors Federation
BBS	Belgian Back Society
BCFI – CBIP	Belgisch Centrum voor Farmacotherapeutische Informatie – Centre Belge d'Information Pharmacothérapeutique
BPS	Belgian Pain Society
BSN	Belgian Society of Neurosurgery
BSS	Belgian Spine Society
BUO-UBO	Belgische Unie van Osteopaten – Union Belge des Ostéopathes
BVAS – ABSYM	Belgische Vereniging van Artsensyndicaten - Association Belge des Syndicats Médicaux
BVBO-UPOB	Beroepsvereniging van de Belgische Osteopaten – Union Professionnelle des Ostéopathes de Belgique
BVOG – UPMO	Beroepsvereniging Voor Osteopathische Geneeskunde – Union Professionnelle de Médecine Ostéopathique
BVC – UBC	Belgische Vereniging van Chiropractors – Union Belge des Chiropractors
BVOT	Belgische Vereniging voor Orthopedie en Traumatologie
BVGA – ABMA	Belgische Vereniging van Geneesheren-Acupuncturisten – Association Belge des Médecins Acupuncteurs
CEBAM	Belgisch Centrum voor Evidence-Based Medicine
CHC	Centre Hospitalier Chrétien
CHU – UVC	Centre Hospitalier Universitaire – Universitair Verplegingscentrum (University Hospital Centre)



COI	Conflict of Interest
COMI	Core outcome measure index
DPBW – SPMT	Dienst voor Preventie en Bescherming op het Werk – Service de Prévention et de Médecine du Travail
e.g.	Exempli gratia; Example given
EMBASE	Name of an International biomedical database that covers journals and conferences
Fedris	Federal agency for professional Risk – Federaal Agentschap voor beroepsrisico's – Agence fédérale des risques professionnels
FGR	Arts-specialist in fysische geneeskunde en revalidatie
FMM	Fédération des Maisons médicales
FNO	Fonds Nuts Ohra
FPS – FOD – SPF	Federal Public Service – Federale Overheidsdienst – Service Public Fédéral
GBS – VBS	Groupement des unions professionnelles Belges de médecins spécialistes – Verbond der Belgische beroepsverenigingen van artsen-specialisten
GDG	Guideline Development Group
GNRPO	Groepering, Nationaal en Representatief voor de Professionele Osteopaten
GRADE	Grading of recommendations assessment, development and evaluation
GRID	Groupe Régional Interdisciplinaire Douleur
HRQOL	Health-related quality of life
ICHOM	International Consortium for Health Outcomes Measurement
IDEWE	Belgische Externe Dienst voor Preventie en Bescherming op het Werk
i.e.	Id est; that is
IMA – AIM	InterMutualistisch Agentschap – Agence Intermutualiste
INAMI – RIZIV – NIHDI	Institut National d'Assurance Maladie-Invalidité – Rijksinstituut voor Ziekte- en Invaliditeitsverzekering - National Institute for Health and Disability Insurance
ISP – WIV	Institut scientifique de santé publique – Wetenschappelijk instituut volksgezondheid (Scientific institute of public health)



KBVFGR – SRBMPPR	Koninklijke Belgische Vereniging voor fysieke geneeskunde & revalidatie – RBSPRM – Société Royale Belge de médecine physique et de réadaptation – Royal Belgian Society of Physical and Rehabilitation Medicine
KU	Catholic University (Katholieke Universiteit)
LBP	Low back pain
LMN	Lokaal Multidisciplinair Netwerk
LUSS	Ligue des Usagers des Services de Santé
MEDLINE	Medical Literature Analysis and Retrieval System Online (International biomedical database)
MeSH	Medical subject headings
mm	millimetre
Mo	Months
MRC	Medical Research Council Scale for muscle strength
MRI	Magnetic Resonance Imaging
NICE	National Institute for Health and Clinical Excellence (United Kingdom)
NIDHI	National Institute for Health and Disability Insurance - Rijksinstituut voor Ziekte- en Invaliditeitsverzekering – Institut National d'Assurance Maladie-Invalidité
NRS	Numeric rating scale
NSAID	Non-Steroidal Anti-Inflammatory Drugs
ODI	Oswestry disability index
OKE	Het Ondersteunings-en Kenniscentrum Ergotherapie
PENS	Percutaneous electrical nerve stimulation
PREMs	Patient-reported experiment measures
PROMs	Patient-reported outcomes measures
RBSPRM	Royal Belgian Society of Physical and Rehabilitation Medicine
RCT	Randomised controlled trial
RIZIV – INAMI – NIHDI	Rijksinstituut voor Ziekte – en Invaliditeitsverzekering – Institut National d'Assurance Maladie-Invalidité – National Institute for Health and Disability Insurance



RMDQ	Roland Morris disability questionnaire
RZ	Regional Hospital (Regionaal Ziekenhuis)
SORBCOT	Société Royale Belge de Chirurgie orthopédique et Traumatologique
SPF – FOD – FPS	Service Public Fédéral - Federale Overheidsdienst – Federal Public Service
SSBe	Spine Society of Belgium
SSMG	Société Scientifique de Médecine Générale
SSST	Société Scientifique de Santé au Travail
TENS	Transcutaneous electric nerve stimulation
UA	Universiteit Antwerpen
UCL	Université catholique de Louvain
ULB	Université libre de Bruxelles
UGent	University Ghent
UKO	Unie voor gediplomeerden in Kinesithérapie en Osteopathie
UBC – BVC	Union Belge des Chiropractors – Belgische vereniging van Chiropractors
UVC – CHU	University hospital center (Universitair Verplegingscentrum – Centre Hospitalier Universitaire)
UZ	University Hospital (Universitair ziekenhuis)
VAS	Visual analogue scale
VAVP	Vlaamse Anesthesiologische Vereniging voor Pijnbestrijding
VBS – GBS	Verbond der Belgische beroepsverenigingen van artsen-specialisten – Groupement des unions professionnelles Belges de médecins spécialistes
VE	Vlaams Ergotherapeutenverbond
Vs.	Versus
VUB	Vrije Universiteit Brussel
VWVA	Vlaamse Wetenschappelijke Vereniging Arbeidsgeneeskunde
WFOT	World Federation of occupational therapists
WHO	World Health Organization



WIP	World Institute of Pain
WIV – ISP	Wetenschappelijk Instituut Volksgezondheid – Institut Scientifique de Santé Publique
wk(s)	Week(s)
WVV	Wetenschappelijke Vereniging voor Verzekeringsgeneeskunde
WVVK	Wetenschappelijke vereniging van Vlaamse kinesitherapeuten
yrs	Years
ZNA	Ziekenhuis Netwerk Antwerpen
ZOL	Ziekenhuis Oost-Limburg



■ SCIENTIFIC REPORT

1 INTRODUCTION

1.1 Background: a frequent problem with high societal impact

Low back pain is a common problem, with a one-year prevalence of nearly 40% and a lifetime prevalence of over 70% in industrialized countries. Back pain usually comes in episodes. The 1-year incidence of a first ever episode of low back pain is estimated to range between 6 and 15%. Likelihood of good recovery is high, but unfortunately, the recurrence rate is also high – reportedly between 24 and 80% for 1-year recurrence¹. Low back pain was reported as the overall number one cause of years lived with disability². Overall, this results in a tremendous cost for society in terms of direct medical costs and costs resulting from loss of productivity. Costs for spine care equal costs for cancer and diabetes³.

Over the past decade, a shift was initiated to change the concept of low back pain which should be accepted as a condition rather than a disease⁴. In clinical practice however, strong emphasis on interventional treatments still exist and low back pain management is characterized by a tendency for over-medicalisation and medical over-consumption⁴.

Moreover, a lot of caregivers are involved in the management of low back and radicular pain, from the first line to second or third line and a large practice variation is noticed, also in a small country as Belgium.⁵ A lack of integration is also suspected between the modes of care and settings (e.g. inpatient, outpatient, emergency department, pain clinics) with a risk of duplicate exams and improper treatments.



1.2 Study objectives and research questions

Because chronic pain is an important problem for the patient but also for the public health, avoiding the risk for poor outcome is challenging. One possible course of action to address this challenge is the definition of an optimal management for low back and radicular pain. In 2016, a KCE project focused on the development of a Belgian clinical guideline on low back and radicular pain. This guideline was published in May 2017⁶. However, to support the implementation of the clinical recommendations into the clinicians' daily practices, it appeared that the organizational aspects of care have also to be taken into account, by identifying each clinical step and its accordant therapeutic interventions from the hyperacute phase onwards. Also the role of each type of care professional involved in the management of patients with low back pain should be defined.

The initial objective of this study was to define one or several optimal care pathway(s) for the management of low back pain in Belgium. All adults are concerned, from 16 years old (without upper limits). In order to develop this pathway, four research questions were formulated:

- Which is the current Belgian multidisciplinary management of patients with low back pain?
- Which criteria should be used to assess the efficacy of care pathways in low back pain?
- What lessons can be learned from the care pathways organized in other countries to manage low back pain and limit its impacts?
- What is the optimal care pathway for low back pain in Belgian and how to implement it?

The second research question was removed from this report since another KCE project, focusing on the PREMs and PROMs indicators, was ongoing and taking into account low back pain as an example.

The primary prevention of low back pain is out of scope of this project.

1.3 Definition of concepts

1.3.1 Definition of low back and radicular pain

The term "low back pain" refers to a pain of variable duration in the area located between the bottom of the rib cage and the buttock creases. It is estimated that in approximately 15% low back problems can be reliably attributed to a recognizable serious 'specific' cause⁷, for example infection, tumour, osteoporosis, fracture, structural deformity, inflammatory disorder, cauda equina syndrome or serious neurological disorder. In the majority of cases, however, the pain is associated with a mechanical overburden of some sort without a specific anatomical pain generator that can be pointed at. Theoretically, the low back related problem may also manifest itself as a dysfunction that is not painful. For this reason some authors prefer the term 'low back problem' above 'low back pain'. However, since the large majority of patients with low back related problem effectively do have pain, in this study the term '*low back pain*' (LBP) will be used as a generic term referring to all low back related problems. Moreover, the terms 'non-specific low back pain' will not be added because it appeared to have inconsistent significations in the literature.

Low back pain can be associated with leg pain originating from nerve root compression and associated inflammation (or sometimes inflammation alone). It is called 'radicular pain'. The compression can result from a disc herniation or from degenerative stenosis of the spinal canal or intervertebral foramen. In a significant subset of patients, the radicular pain is dominant over the back pain and some do not have back pain at all. Radicular pain should be differentiated from other causes of leg pain, such as coxarthrosis, gonarthrosis or gluteal tendinopathies. Typical for radicular pain is that the pain:

- Usually follows one (or several) dermatome patterns;
- Usually can be provoked: in disc herniation patients by flexion (Valsalva-maneuvers, straight leg raising test, bending or sitting); in stenosis patients by extension (standing, walking)



- Can be associated with neurological symptoms and signs (numbness and/or tingling, following a dermatome pattern, reflex disturbances or motor weakness in an associated myotome), although this is not always the case. In spite of neurological symptoms and signs, pain is usually the predominant complaint.
- In some cases, the radicular pain can present a neuropathic component (sensation of continuous burning, unchanged by movement and can be accompanied by strange sensations like tingling or allodynia i.e. a sensation of pain triggered by a normally painless stimulus). In this case, the management becomes very difficult (e.g. decompression surgery is rarely effective).

Radiculopathy and radicular syndrome are included in this report under the generic term "radicular pain". It has indeed decided that considering them as separate entities might be confusing because there is no consensus on their definition and clinical manifestations.

Acute pain is usually defined as pain with a duration of less than six weeks. For subacute pain the duration is between 6 and 12 weeks. Pain persisting for longer than 12 weeks is categorized as chronic pain⁸. All phases of the affection are covered by the present project.

Sometimes, the pain disappears completely but reappears after several days, weeks or months. The terms "recurrent" pain evokes this situation and is considered when the second episode of lumbar or root pain persists more than 24 hours and occurs at least 1 month after the previous one.

1.3.2 Definition of clinical pathway

According to the European Pathway Association (E-P-A), a care pathway is a complex intervention for the mutual decision making and organization of care processes for a well-defined group of patients during a well-defined period.

Defining characteristics of care pathways includes⁹:

1. An explicit statement of the goals and key elements of care based on evidence, best practice, and patients' expectations and their characteristics;

2. The facilitation of the communication among the team members and with patients and families;
 3. The coordination of the care process by coordinating the roles and sequencing the activities of the multidisciplinary care team, patients and their relatives;
 4. The documentation, monitoring, and evaluation of variances and outcomes; and
 5. The identification of the appropriate resources.
1. The elaboration and implementation of a care pathway on low back pain should allow to:
 - Improve the quality of care and the patient's satisfaction by selecting the best therapeutic option at the best time depending on each patient.
 - Decrease the "translation gap" between guidelines and clinical practice by identifying the facilitators and pitfalls regarding some clinical recommendations.
 - Reduce the practice variation between practitioners and settings.
 - Optimize the resources use by for example avoiding duplicate examinations or overtreatment.
 - Decrease the risk of chronic pain and long term job-disabilities.

1.4 Study process

In order to develop a care pathway in Belgium and the conditions for implementing it, several sources of data were used:

- A systematic review of literature on care pathways for low back pain (including return to work aspects)
- An international comparison of existing pathways; this part was outsourced to a team of UZLeuven, led by Prof. Dr. Bart Depreitere
- A search of grey literature on the Belgian initiatives in the low back pain domain.
- A comparison of existing Belgian pathways



- A discussion with two groups of clinicians (nominal groups)
- A discussion with four groups of patients (focus groups)

Each source provided data that are building blocks for elaborating the Belgian care pathway, in narrow collaboration with Belgian healthcare providers. An experts group was constituted in 2015 and progressively enlarged in order to encompass all healthcare professionals involved in the management of patients with LBP: general practitioners, physiotherapists and other manual therapists (such as osteopaths and chiropractors), specialists in physical medicine and rehabilitation, orthopaedic surgeons, neurosurgeons, professionals working in chronic pain clinics, psychologists, occupational therapists, ergonomists, occupational physicians... The *Spine Society of Belgium* (SSBe) played a paramount role in this experts group with 12 representative members (4 by professionals disciplines: orthopaedic surgeons, neurosurgeons, specialists in physical medicine and rehabilitation) joined by 4 anaesthesiologists-algologists. Institutions such as INAMI-RIZIV, Belgian Federal Public Service Health, Belgian Federal Public Service Employment, Federal agency for professional Risk (Fedris) are also represented in this experts group. The list of the members of this expert group is available in appendix 1.

Three specific working groups were created for drafting the pathway:

- Primary care
- Hospital care
- Return to work

The main results of each data source are presented in this document; followed by a discussion and the presentation of the care pathways.

2 A SYSTEMATIC REVIEW OF LITERATURE

2.1 Research objective

The main goal of the systematic review of the literature was to identify existing care pathways for low back pain and radicular pain in indexed literature in order to describe their characteristics but also to analyze their results (if they are evaluated) and to identify barriers and facilitators for their implementation. Moreover, the identified pathways served also as basis for the selection of countries for the international comparison (see chapter on international comparison).

2.2 Methods

A search strategy was developed by our information specialist (NF), mainly based on the search strategy from the systematic review of Fournay 2011¹⁰, and following databases were searched from 2011 to the 18th of April 2016: the Cochrane Database of systematic reviews, Medline, Embase and Cinahl and completed via handsearch in grey literature. The detailed search strategy can be found in the appendix 2. Studies on a stratified approach in primary care were not included but are already discussed in the Belgian guideline on the assessment and management of low back pain⁶.



2.3 Results

One systematic review (Fourney 2011)¹⁰ and 38 primary studies (mainly observational studies) were selected and allowed us to identify 20 care pathways for low back pain in a selection of 7 countries (Table 1).

Few descriptions are comprehensive and there is a great heterogeneity in settings and interventions.

- In some case, only a part of the pathway was described (for example triage by physiotherapist or use of tool for stratification).
- Some pathways are also too specific to be used in our analysis. For example, it is the case for integrative care that gathered alternative (or complementary) care and usual care, which was considered by the involved experts as a potential way for the future but the current uncertainty about the legal recognition of these complementary and alternative medicines made them decide not to fully incorporate these kind of therapeutic interventions in the Belgian clinical pathway.

- Also more local and specific initiatives, for example on the role of one type of care professionals (e.g. triage by physiotherapists) or developed for specific population (e.g. service members or only patients with acute low back pain) were considered as too specific and therefore not discussed in this chapter.

This results in a final elimination of many studies. In Table 1, the remaining interesting pathways are in bold.

The potential benefits of the identified pathways could not easily be determined due to several factors, for example lack of data on the situation before implementation of the pathway, difficulties to measure changes in a health system, only partially reported outcome data. Therefore no clear conclusion can be drawn on the effectiveness of each pathway. The main findings of these pathways are integrated in the chapter on the international comparison.


Table 1 – Care pathways for LBP identified in the literature

Country & References	Short description
Canada	
Saskatchewan Spine Pathway (SSP) Fourney 2011 ¹⁰ , Kindraschuk 2014 ¹¹ , Wilgenbusch 2014 ¹²	<ul style="list-style-type: none"> • Co-ordinated multidisciplinary pathway with a stratified approach to LBP assessment and care • From primary to specialized care, involving the entire healthcare system of the Saskatchewan province • Start in 2010 • Aim: to facilitate guidelines-concordant care at the primary care level • Pathway: <ul style="list-style-type: none"> ○ Initial patient assessment in the primary care doctor's office (red flags and classification of patients based on Hall categories) ○ Referral to specialized clinics only when classification-specific treatment algorithms fail. ○ Possibility of referral to imaging and surgeons if needed (e.g. red flags)
Wall Street Spinal Assessment Service (WSSAS), one rehabilitation clinic, Saskatchewan Bath 2011; 2012, 2015 ¹³⁻¹⁸	<ul style="list-style-type: none"> • Triage by physiotherapists • Interface between primary and secondary care, in a private rehabilitation clinic from the Saskatchewan province. • Start in 2003 • Aim: to reduce the frustration expressed by surgeons regarding how long people waited to see them after referrals by a GP (often over a year) and the high proportion of nonsurgical referrals in their caseloads. • Pathway: <ul style="list-style-type: none"> ○ Initial assessment by primary care provider (no detailed) ○ Assessment of the referred patient by a physiotherapist instead of a surgeon, discussion of the findings of each assessment with a PT consultant via videoconferencing with the patient present. ○ Report and recommendations sent to the referring provider, request for further investigations if needed or referral to the surgeons.
Interprofessional Spine Assessment and Education Clinics (ISAEC), Ontario, Toronto Harris 2016 ¹⁹	<ul style="list-style-type: none"> • Shared-care model with patient involvement • In second line, for patients with unmanageable recurrent LBP or persistent LBP of duration greater than 6 weeks and less than 12 months. • Start in November 2012 • Aim: to empower the patients in order to improve outcomes and satisfaction, reduce chronicity of LBP; decrease utilization of lumbar spine magnetic resonance imaging; and reduce unnecessary referrals to LBP-related specialists. • Pathway: <ul style="list-style-type: none"> ○ Initial patient assessment in primary care ○ For eligible patients, multidisciplinary assessment by advanced care practitioners [physiotherapist and chiropractors] with multidimensional risk stratification, patient-specific education, facilitated self-management of their LBP, and shared-care management plan.
US	
Jordan Spine Care (JSC) Paskowski 2011 ²⁰ (<Fourney 2011 ¹⁰)	<ul style="list-style-type: none"> • Multidisciplinary 2-tiered spine care pathway for assessment and treatment of LBP • Outpatient program in a community-based hospital (Jordan Hospital in Southeastern Massachusetts) involving care providers from occupational health, neurosurgery, physical medicine, pain management, chiropractic, rheumatology, neurology, physical therapy and occupational therapy, type of LBP patients not reported • Start in 2009 • Aim: to standardize the clinical algorithms and processes used in the management of LBP thereby reducing individual practice variation between the providers at the institution • Pathway: <ul style="list-style-type: none"> ○ Triage: evaluation based on National Center for Quality Assurance (NCQA) Back Pain Recognition Program (BPRP)



	<ul style="list-style-type: none"> ○ Treatment classification algorithm (tier 2): 5 treatment-based approaches (flexion bias, extension bias, spinal manipulation, traction and spinal stabilization exercises)
<p>Osher Center for Integrative Medicine (Boston). O'Connor 2015²¹, Eisenberg 2012²²</p>	<ul style="list-style-type: none"> • Multidisciplinary integrative care (+usual care) for subacute LBP • Academic teaching hospital • Start in 2007 • Aim: to provide integrative care • Pathway: <ul style="list-style-type: none"> ○ Triage: ? ○ Individualized treatment plan provided by trained multidisciplinary team (acupuncture, chiropractice, internal medicine consultation and referral, massage therapy, mind-body techniques, neurology consultation, nutritional counselling, orthopaedics consultation, psychiatry, rheumatology consultation and referral)
<p>KU Spine Center: University of Kansas Hospital Arnold 2013²³</p>	<ul style="list-style-type: none"> • Comprehensive spine care facility in Kansas City area • Hospital affiliated with the University of Kansas Schools of Medicine, Nursing and Allied Health involving orthopaedic surgeons, neurosurgeons, neurologists, physical medicine and rehabilitation physicians, psychiatrists and behavioural psychologists, pain-management anaesthesiologists, radiologists, and physical and occupational therapists; type of patient: patients with spine pathology • Start in 2011? • Aim: to eliminate fragmented care • Pathway: <ul style="list-style-type: none"> ○ Accommodation: 27 exam rooms, 4 specialized diagnostic rooms, 11 pre/post interventional procedure rooms, 4000-square foot outpatient rehabilitation gym ○ Triage: performed by physiatrist or spineologists, standard patient intake questionnaire
<p>Spine Team, limit disability (expressed as LIMDU) Ziemke 2015²⁴</p>	<ul style="list-style-type: none"> • Multidisciplinary care group • A multidisciplinary care group consisting of physicians, physical therapists and a clinical psychologists for active-duty service members with work-disabling non-specific LBP at the Naval Medical Center, Portsmouth • Start in 2008 • Aim: to implement evidence-based care and return service members to active duty as soon and as safely as possible and to limit disability and reduce attrition • Pathway: Navy-based and not a real pathway but rather multidisciplinary work
<p>Integrative care, Minnesota Westrom 2012²⁵ (abstract only), Maier 2012²⁶ (abstract only), Westrom 2010²⁷, Maier 2010²⁸</p>	<ul style="list-style-type: none"> • Integrative model including both complementary and alternative medicine (CAM) and conventional therapies for chronic LBP • Within RCT-context • Start in: ? • Aim: to assess efficacy of integrative care services • Pathway <ul style="list-style-type: none"> ○ Baseline evaluation (informed consent, self-report questionnaire, health history, physical examination, x-rays if indicated) resulting in a comprehensive summary from a biopsychosocial perspective ○ 12-weeks of care (number and frequency of treatment visits determined by provider); treatment modalities (selection with patient involvement during treatment plan consultation): chiropractic, cognitive behavioural therapy, exercise therapy, massage therapy, medication, self-care education, traditional Chinese medicine
UK	
<p>British Pain Society LBP pathway http://mapofmedicine.com/how-we-can-help/map-pathways/</p>	<ul style="list-style-type: none"> • Multidisciplinary pathway with a stratified approach to LBP assessment and care • From primary to specialized care, aiming to involve the entire healthcare system of the UK. • Start in 2013



Lee 2013 ²⁹ (Hand searching), Lee 2013 ³⁰	<ul style="list-style-type: none"> • Aim: to promote organizational and cultural change to bring about the level of cooperation necessary to affect good-quality spinal care. • Pathway: <ul style="list-style-type: none"> ○ Initial patient assessment in the general practitioner's office (red flags and classification of patients based on the STarT Back tool) ○ Referral to specialized physicians mainly if an early management in primary care failed. ○ Specific pathway for radiculopathy.
Stratified care primary care management for LBP (Start Back) Foster 2014 ³¹ (Hand searching); Hill 2011 ³² (Hand searching), Mason 2011 ³³	<ul style="list-style-type: none"> • Stratified care for LBP management • Primary care (general practitioners, physiotherapists) • Start in 2008 • Aim: to improve effectiveness and efficiency of LBP management • Pathway: <ul style="list-style-type: none"> ○ Use of a validated, simple-to-use prognostic screening method (Start Back Tool) ○ Three treatment pathways matching these risk groups.
First Nurse-led triage clinic for back pain (SAC) Murray 2011 ³⁴	<ul style="list-style-type: none"> • Nurse-led Triage • Second line, Spinal Assessment Clinic (SAC), South Tees hospital trust, Middlesbrough • Start in 1993 • Aim: to improve waiting time for referred patients in orthopaedic services • Pathway: <ul style="list-style-type: none"> ○ A fast track for any patients potentially requiring surgery (to arrange access to scan and results of the scan more quickly, and also to operation) ○ In the case of patients' not needing surgery, a diagnosis was provided and followed up with information, advice and education about how LBP could be managed with increased self-management.
Switzerland	
Consensus médical multidisciplinaire entre le CHUV et les HUG de Goumoens 2014 ³⁵ http://www.chuv.ch/rhumatologie/rhu_home.htm	<ul style="list-style-type: none"> • Multidisciplinary pathway for patients referred to hospital • Second line with high inclusion of GPs • Developed in 2012 • Aim: to improve and standardize the management of LBP in the French-speaking area of Switzerland • Pathway: <ul style="list-style-type: none"> ○ Triage in emergency department based on defined criteria ○ Early detection of risk factors with the STarT Back tool and screening of yellow but also blue and black flags 2 weeks after work absenteeism ○ Patient information on the nature of the problem, the common duration evolution, its prognosis and the crucial need to remain active ○ Development of a new clinical pathway- The Fast Track - La Voie Rapide Dos (VRDos), specialized consultations by fellows in family medicine, under the supervision of an experimented member of the Rheumatology department (RHU). This pathway can receive a patient referred by the emergency department within a period of one week and provides immediate information to the GP. ○ Development of other pathways such as a specific fast Track towards a multidisciplinary team for patient referred by a GP. ○ Record of management data in an international registry.
Germany	
Pathway acute sacroiliac pain developed by the Lübeck doctors' network. Berlin	<ul style="list-style-type: none"> • Collaborative network between different caregivers for treatment of acute LBP • Regional setting (Lübeck), collaboration between physicians and health insurance, type of patients: patients with acute LBP



Eble 2013 ³⁶	<ul style="list-style-type: none"> • Start: not reported • Aim: to obtain quick recovery and to avoid chronicity, to decrease waiting lists for GPs • Pathway: Not described but sacro-iliac and LBP have only limited overlap
RMK classification. Berlin Schmidt 2013 ³⁷	<ul style="list-style-type: none"> • Patient classification approach (according to ICF approach) for rehabilitation management • Type of providers unclear, type of patients: patients with chronic LBP • Start in: data from 3 studies 2006-2011 • Aim: to offer therapy standards better adjusted to the needs of patients • Pathway <ul style="list-style-type: none"> ◦ Assessment according to ICF classification with different questionnaires (SF-12, PDI, NRS, FESV, HADS-A, SIMBO) ◦ 4 patient groups, treatment based on German guideline for chronic LBP but individualized based on RMK classification
Role of a case manager (with multimodal assessment and treatment program). Lindena 2012 ³⁸	<ul style="list-style-type: none"> • Case manager (rücken-coach) • Collaboration between sickness fund and clinical practice, region of Berlin • Start: study 2007-2009 • Aim: to encourage recovery of LBP patients who are more than 5 weeks absent from work • Pathway <ul style="list-style-type: none"> ◦ Identification of patients with work absenteeism for more than 5 weeks and ICD-codes (M54, M41/42/43/47/48/50/51/53) ◦ Phone interview by case manager, main themes during interview: perception of patient, current pain situation, treatments, further planned diagnostics and treatments, questions on work and social environment, informed consent ◦ Interdisciplinary assessment ◦ Multimodal interdisciplinary treatment of 15-20 days
Sweden	
Integrative care for back and neck pain Anderson 2012 ³⁹	<ul style="list-style-type: none"> • Addition of complementary therapies (CTs) to conventional care in a multidisciplinary team of integrative medicine (IM) • Primary care • Start date not mentioned because spontaneous development of this management (before 2000) • Aim: to improve the management (and self-help empowerment) of patients with subacute LBP. • Pathway: <ul style="list-style-type: none"> ◦ Conventional care coordinated by GPs (advice, analgesics, sometimes complemented with a certificate allowing for limited sick leave or a written referral for physiotherapy). ◦ On average, seven complementary treatment sessions over a 10-week period and typically two different kinds of CTs (Swedish massage therapy, manipulative therapy, shiatsu, acupuncture, and qigong).
Nationwide rehabilitation guarantee Bramberg 2015 ⁴⁰	<ul style="list-style-type: none"> • Intensive rehabilitation program with a biopsychosocial perspective in multidisciplinary team • Second line, for patients in sick leave; national program to be implemented at county councils level • Start 2009 (Act of the Swedish government) • Aim : to increase the rate of return-to-work, reduce and prevent long-term absenteeism after diagnoses related to back pain and common mental health problems by increasing accessibility to evidence-based therapie • Pathway <ul style="list-style-type: none"> ◦ Multimodal rehabilitation (MMR) = intensive form of rehabilitation with a biopsychosocial perspective, reflected in a multiprofessional team, usually involving at least a physician, a psychologist, and a physiotherapist and/or an occupational therapist.
The Netherlands	
Rotterdam, a multidisciplinary outpatient rehabilitation clinic	<ul style="list-style-type: none"> • Biopsychosocial approach for recovery in patients with chronic non-specific LBP • A multidisciplinary outpatient rehabilitation clinic (the Spine & Joint Centre (SJC) in Rotterdam • Start in 2003-2008 (in prospective cohort study)



Verkerk 2011 ⁴¹	<ul style="list-style-type: none"> • Aim: to stimulate patients to adopt adequate movement behaviour aimed at physical and functional recovery • Pathway: rather a program for specific group of chronic patients not responding to other treatments <ul style="list-style-type: none"> ○ Intake session with physician (additional consultations with psychologist and/or manual physiotherapist possible) ○ 16 sessions (3h each) over a 2-month period ○ Continuation of the training program independently (3Months, 2x/week) in a local, regular health centre ○ After 5 months follow-up meeting
Nijmegen, a physical and psychological (CPP) programme in a tertiary orthopaedic hospital Van Hoof 2014 ⁴²	<ul style="list-style-type: none"> • Intensive combined physical and psychological programme for chronic LBP • In Nijmegen? • Start in: • Aim: to improve daily function • Pathway <ul style="list-style-type: none"> ○ Pre-treatment assessment day ○ Residential 2-week programme including a cognitive behavioural approach, 100h of patient contact time (40h cognitive behavioural training, 30h physical activities, 10h education) ○ Group-oriented training sessions delivered by multidisciplinary team (trained in cognitive behavioural techniques for chronic pain)
Amsterdam, a pathway with modified version of Delitto's classification-based treatment approach Apeldoorn 2012, 2011 ⁴³⁻⁴⁵	<ul style="list-style-type: none"> • Classification-based treatment approach (based on Delitto's classification) • Study performed with participants recruited in private physical therapy clinics in city of Amsterdam and surrounding area. Type of providers: physical therapists. Type of patients: patients with LBP with current episode longer than 6 weeks • Start in: RCT (June 2008-October 2009) • Aim: to assess effectiveness of Delitto's classification-based treatment approach compared with usual physical therapy care • Pathway <ul style="list-style-type: none"> ○ Assessment and classification in one of 3 classification categories (direction-specific exercises, manipulation, stabilization exercises) ○ Treatment according to primary classification category for minimum 4 weeks



2.4 Limitations

The literature search did not reveal a large amount of evidence on how care pathways for the management of low back pain are developed and implemented abroad. Half a dozen of countries could be identified with a (locally implemented) pathway. These countries were further studied by the group of researchers of the University Hospital of Leuven. The results presented in the references were not sufficient to fully understand the different phases in each clinical pathway. In most cases a global overview was presented with the main objectives, without specification of what intervention by which care provider was performed.

Next to the limited amount of evidence retrieved, our search could not identify any evaluation analyses in which the pathway is evaluated in clinical practice. Also potential facilitators and barriers could not be identified. Evaluation analyses on a stratified approach in primary were not included in this section, these studies, such as the IMPaCT Back Study was already discussed in the KCE-guideline on the assessment and management of low back pain and radicular pain⁶.

Within our search results, also other kinds of care initiatives were identified, mostly on integrative care, in which conventional medicine is combined with complementary and alternative medicine. In some of these countries, such as the US, these care providers have another legal status compared to the Belgian situation and are already more recognized as formal member of the clinical care providers in the management of low back pain (e.g. chiropractors). These studies were not further examined, after agreement by our clinical experts, mainly due to the current unclear legal situation of these medicines in Belgium.

Nevertheless of the above-mentioned limitations of this literature search, the identified studies were the initial source of data on existing pathways and led to a more in-depth analysis in the international comparison.

3 INTERNATIONAL COMPARISON OF PATHWAYS

3.1 Research objective

This chapter focuses on the search and comparison of international examples of care pathways for low back pain. The objective was to identify best practice concepts and key interventions which should lead to building elements for a Belgian low back pain care pathway.

The research question underlying the present work can thus be summarized as: What lessons can be learned from the care pathways organized in other countries to manage low back pain and limit its impacts?

3.2 Methods

3.2.1 Identification of eligible pathways and countries

The identification of low back pain care pathways was based on the literature review described in the previous chapter as well as on a wide search in 'grey literature' by two independent investigators in several websites (government departments and agencies; academic and research institutes; professional groups, health insurers etc) and search engines across the internet (e.g. Google). Corresponding authors of papers with eligible care pathways were contacted and asked if they were willing to participate in the study.

All members of the European Pathway Association (international non-profit social capital organization) were contacted by email. This association is an international network of care pathway researchers, clinicians and policy makers. They were asked to provide us with contacts (name, institution, email, telephone), if available, of people working with care pathways for low back pain.

In addition, all relevant scientific professional societies were addressed to query for colleagues with experience in a low back pain care pathway.



The following societies were addressed by email:

- The European Federation of National Associations of Orthopedics and Traumatology (EFORT)
- The presidents of the national neurosurgical societies of 36 European countries
- The European Society of Physical and Rehabilitation Medicine.
- The European Pain Federation (EPIC)
- Eurospine (the Spine Society of Europe)

Finally, known experts in the field of low back pain were contacted by email (neurosurgeons, orthopedic surgeons, physiotherapists, etc) and asked if they were involved in or aware of low back pain care pathways. A number of these experts were connections of the participating investigators. Others were found in the grey literature search.

3.2.2 Identification of variables relevant to the quality, efficacy, feasibility and applicability of low back pain care pathways

The development of a questionnaire intended to map all retrieved pathways in detail was initiated right from the start of the project. At that point in time, it was already clear that the literature study had not resulted in a set of variables to start off with. Moreover, it became also clear that pathways that were being retrieved were not necessarily very similar. Some pathways ran in a hospital setting and were different from pathways implemented in a primary care setting. Hence, the questionnaire had to be extensive enough to allow for a detailed snapshot of all relevant characteristics of each separate pathway studied: e.g. its subject of implementation, in- and exclusion criteria, triage system and tools, specialisms involved, diagnostic/therapeutic algorithms, relation with financial incentives, etc. The development of the questionnaire consisted of several steps:

1. Design of a preliminary list of variables and discussion by the KCE and UZLeuven researchers through email and in a general team meeting.
2. Draft of one questionnaire based on the list of variables.

3. Presentation of this draft during a KCE stakeholders meeting on May 18th, 2016, which resulted in a small set of additional suggestions.
4. Transfer of the adjusted questionnaire into a first version of an online (Lime survey) questionnaire.
5. Try-out of the questionnaire by mapping the UZLeuven low back pain pathway, which resulted in some minor changes.
6. Face validation phase by submitting the questionnaire to three experts in (low back pain) care pathways, who were then interviewed asking for their comments. Again this resulted in minor changes.
7. Finalisation of the online questionnaire. (see appendix 3)

3.2.3 Data collection

All coordinators/representatives of the selected pathways were emailed, explaining the purpose and importance of the study and asking for their willingness to participate in a two-step process: filling out the questionnaire they received through a digital link and being available for an in-depth telephone interview. Additionally, we asked for any written protocol/algorithm or additional information available to be provided.

After completing the questionnaire, a telephone interview was planned with the principal contact person in order to discuss the pathway and go over the questionnaire to resolve any unclear issues. The duration of each interview ranged between 60 and 90 minutes.

In order to validate the interview method, as a random sample, a written report was drafted of the telephone interview with one pathway coordinator (Lausanne, Switzerland). This report was subsequently sent to and validated by the coordinator himself.



3.2.4 Processing and analysis of the data

Results were processed and analyzed both vertically and horizontally. During this process, which took place in September and October 2016, discussions between KCE and UZ-KULeuven teams took place at regular instances. On October 13th, 2016 the study was presented and discussed at the combined board and general assembly meeting of the Spine Society of Belgium (SSBe).

3.3 Results

3.3.1 Number of identified pathways

The literature study of papers published in peer-reviewed journals allowed to identify 8 pathways related to 10 publications.^{10-12, 19, 20, 23, 29, 30, 34, 35, 40, 42}

Some pathways were eliminated because there are too specific to be used in our analysis. It is the case for integrative care that gathered alternative care and usual care (O'Connor 2015²¹, Eisenberg 2012²², Westrom 2012²⁵ (abstract only), Maiers 2012²⁶ (abstract only), Westrom 2010²⁷, Maiers 2010²⁸; Anderson 2012³⁹). In other cases, only a part of the pathway was described (for example triage by physiotherapist (Bath 2011; 2012, 2015¹³⁻¹⁸, use of tool for stratification/ classification (Foster 2014³¹ (Hand searching); Hill 2011³² (Hand searching), Mason 2011³³; Schmidt 2013³⁷; Apeldoorn 2012, 2011⁴³⁻⁴⁵), multidisciplinary work (Ziemke 2015²⁴), rehabilitation-oriented (Lindena 2012³⁸) or focusing on one kind of low back pain only (Eble 2013³⁶; Verkerk 2011⁴¹).

The reason for elimination of each pathway not retained are presented below in the Table 2.

Table 2 – Care pathways identified in the literature, not retained for the international comparison and the reason why

Country & References	Reason for not retained
Canada	
Wall Street Spinal Assessment Service (WSSAS), one rehabilitation clinic, Saskatchewan : Bath 2011; 2012, 2015 ¹³⁻¹⁸	Too specific (focusing only on triage by physiotherapists)
US	
Osher Center for Integrative Medicine (Boston). O'Connor 2015 ²¹ , Eisenberg 2012 ²²	Too specific (focusing on integrative care that gathered alternative care and usual care).
Spine Team, limit disability (expressed as LIMDU): Ziemke 2015 ²⁴	Navy-based and not a real pathway but rather multidisciplinary work
Integrative care, Minnesota : Westrom 2012 ²⁵ (abstract only), Maiers 2012 ²⁶ (abstract only), Westrom 2010 ²⁷ , Maiers 2010 ²⁸	Too specific (focusing on integrative care that gathered alternative care and usual care).
UK	
Stratified care primary care management for LBP (Start Back): Foster 2014 ³¹ (Hand searching); Hill 2011 ³² (Hand searching), Mason 2011 ³³	Too specific (focusing on the use of tool for stratification) and already discussed in the Belgian guideline ⁶
Germany	



Pathway acute sacroiliac pain developed by the Lübeck doctors' network. Berlin: Eble 2013 ³⁶	Sacroiliac pain is different subject than low back pain, some but limited overlap
RMK classification. Berlin: Schmidt 2013 ³⁷	Too specific (focusing on a classification tool)
Role of a case manager (with multimodal assessment and treatment program): Lindena 2012 ³⁸	Mainly rehabilitation-orientated for chronic patients and this was in first instance not a good example for our overall pathway
Sweden	
Integrative care for back and neck pain: Anderson 2012 ³⁹	Too specific (focusing on integrative care that gathered alternative care and usual care).
Nationwide rehabilitation guarantee:	Bramberg, Sweden: program had stopped
The Netherlands	
Rotterdam, a multidisciplinary outpatient rehabilitation clinic Verkerk 2011 ⁴¹	Not a pathway but a program for specific group of chronic patients not responding to other treatments
Amsterdam, a pathway with modified version of Delitto's classification-based treatment approach Apeldoorn 2012, 2011 ⁴³⁻⁴⁵	Too specific (focusing on one kind of classification)

The grey literature allowed to identify 3 additional pathways:

- The North of England Regional Back Pain and Radicular Pain Pathway (North-East England, UK): Dr. Charles Greenough:
- The Maastricht pathway (the Netherlands): Dr. Paul Willems
- A New Zealand pathway (New Zealand): Mrs. Miranda Devlin

Finally, three additional pathways were identified by the other sources:

- A pathway in Waterford, Ireland: Dr. Susan Murphy provided by The European Pathway Association
- A German pathway in Nürnberg: Dr. Schwarzkopf proposed by the contacted professional societies
- A pathway for Groningen, the Netherlands: Dr. Maarten Coppes identified by the known experts in the field of low back pain contacted by email

This led to 14 identified pathways outside Belgium. However for two pathways, the responsible coordinators indicated that the pathway had arrested (Sweden) or had not been implemented (New Zealand). In summary, 12 pathways were retrieved, originating from 7 countries. This process required several calls by email – reminders were sent ever 2 weeks – as well as direct telephone calls for all pathways, to initiate the dialogue leading to fulfilment of the questionnaire and interview. The only pathway that remained unsuccessful in this regard was the Kansas pathway by dr. Paul Arnold.

**Table 3 – Overview of selected countries with contact persons**

Canada	
1.	Saskatchewan: Dr. Daryl Fourney & Terry Blackmore
2.	Toronto: Dr. Raja Rampersaud
UK & Ireland	
3.	North-East England: Dr. Charles Greenough
4.	London: Dr. John Lee
5.	Waterford: Dr. Susan Murphy
The Netherlands	
6.	Nijmegen: Dr. Miranda Van Hooff & Dr. Els Van Den Eede
7.	Maastricht: Dr. Paul Willems
8.	Groningen: Dr. Maarten Coppes
US	
9.	Plymouth: Dr. Ian Paskowski & Dr. James Berghelli
10.	Kansas: Dr. Paul Arnold
Germany	
11.	Nürnberg: Dr. Susanne Schwarzkopf
Switzerland	
12.	Lausanne: Dr. De Goumoëns & Dr. Kulik

3.3.2 Characteristics of retrieved pathways

Given the low sample size, an in-depth analysis of all pathways was performed, guided by a detailed questionnaire and interview. A summary of the characteristics of each pathway are presented in Table 4 (for pathways encompassing at least primary and secondary care) and Table 5 (focusing more on tertiary care).

Some characteristics are common for all pathways

- Involvement of multiple disciplines (in a multidisciplinary or an interdisciplinary way): there is not a single pathway that is run by a single discipline of care providers. All pathways started with care providers getting together at some point and deciding to collaborate and streamline care.
- Recent phenomenon: All pathways date from after the year 2000. Eight out of 11 pathways were developed/implemented after 2010. I
- Same 2 goals (with sometimes more emphasis on one or the other):
- Improve quality of care by reducing practice variation and by adhering to evidence;
- Improve efficiency of delivered care (improve the ratio of value / invested means).
- Based on evidence: although some pathways admitted that 'eminence' and/or local habits played a role in their development, all pathways were developed based on evidence (always referred to 'the international guidelines', e.g. NICE)
- Similar in- and exclusion criteria for the pathways. They all include low back related symptoms. Most of them state that red flags and children are excluded. Two pathways specifically mention that long standing back pain (>12 months) is not part of the pathway. Their rationale is that these patients are not likely to get any benefit from the first steps of the pathway and should be directed to the end-stage facilities immediately.



- Screening for 'red flags' (i.e. indicators of serious pathology that will not follow a benign course and might harm the patient when missed) at the very start is part of 10 out of 11 pathways and radiculopathy (leg pain caused by nerve root pathology) is identified and rerouted as a separate subtrajectory (apart from low back pain without significant radiculopathy) in 10 out of 11 pathways. The exception to this is the Waterford pathway. However, this may be explained by the fact that the latter pathway mainly focuses on the role of physiotherapists in between general practitioners (GP) and specialists, and where this screening for red flags and radiculopathy is done at GP level.
- Screening for 'yellow flags' (psychosocial risk factors for chronicity) in all 11 pathways and this has a substantial impact on the nature of the care process further down the road. Essentially, it comes down to the fact that more efforts on the psychological plan will be offered to patients with high risk factors (e.g. involvement of psychological help, more focus on cognitive and behavioral therapy). This screening was done by tools specifically developed for this purpose in 10/11 pathways. Seven out of this 10 pathways use the STarT Back tool.
- All pathways but one (Toronto) emphasize the importance of shared decision making with the patient. This related to the educational aspect: the patient has to play an active role in the process of getting better. Patient education as part of the pathway was found in all pathways. The goal of patient education was reported as learning self-management and understanding the nature of their condition.
- All pathways but one (Nürnberg) follow a staged approach, reserving the more intensive/invasive therapies for those patients in which the less intensive/invasive therapies do not seem to work. This related to the benign nature of back related problems (once red flags are ruled out): it will not harm the patient when some delay in management occurs.
- All pathways are confronted with a certain proportion of patients being non-compliant or dropping out. This was usually estimated as a small proportion, but hard figures were non-existing. Inclusion in the pathway was never compulsory (e.g. to obtain reimbursement): both doctor as well as patient could opt not to follow the instructions of the pathway.
- PROMS are monitored in all of the pathways (except for Lausanne that did not up routine PROM monitoring yet but intends to do so). PROM monitoring is performed by using existing standardized and validated questionnaires, but the actual choice for the questionnaires used seemed to be quite variable. However, pain, function, quality of life and anxiety/depression were variables scored and monitored in most of the pathways.
- All participating countries were surveyed about existing return to work guidelines or return to work as a part of the care pathways. Despite the fact that return to work seems to be a very important part for the recovery of workers, the respondents in general were not able to provide a lot of information about return to work programs in care pathways for low back pain patients in their countries. Return to work seems not to be actually integrated in the studied care pathways. Despite this, in some countries such as Canada and the Netherlands, programs exist that support patients to return to work as soon as they are out of the hospital.



Table 4 – Characteristics of pathways encompassing primary and secondary care

	North-East England, Pathfinder Low Back and Radicular Pain, UK (Greenough et al)	London, Brit Pain Soc, UK (Lee et al)	Waterford, Irl (Murphy et al)	Saskatchewan, Can (Fourney et al) http://www.sasksurgery.ca/	Toronto, Can (Rampersaud et al) www.isaec.org	Plymouth (Paskowski et al)
Goal	Reduce practice variation by controlling referrals to specialists	Improve effectiveness of care	Avoid referral to secondary care for most back patients if they can be managed within primary care	Develop a one-stop solution spine centre Standardize practice patterns Shorten patient wait times for spine care services Develop comprehensive education programs for non-surgical and surgical patients Develop and adopt evaluation frameworks to assess practice methodology and patient outcomes Liaise with Chronic pain care programs	Improve outcomes and satisfaction with care delivery for patients with persistent or unmanageable recurrent LB related symptoms. Decrease utilization of lumbar spine MRI. Reduce unnecessary referrals to LBP related specialists.	Create organized process to better manage back pain: reducing practice variation and improving the value of our healthcare services
Year of impl	2015	2012	2001	2011	2012	2012
Region of impl	Region: North-East of England (South Tees, Darlington, Hartlepool and Stockton on Tees, and Newcastle/Gateshead)	Developed for country Testimony from NHNN, London	City of Waterford	Saskatchewan province (including 2 spine specialist referral centers)	Region: -Greater Toronto -Hamilton -Thunderbay	Hospital + surrounding community
Coordination	Orthopedic surgeon	None	Clinical specialist physiotherapist	SK Spine Pathway Working Group + administrative coordinator with physiotherapy background	ISAEC Steering Committee (co-chair: dr. Rampersaud, orthopedic sx)	Chiropractor
Patient selection	Back pain and radicular pain Acute, subacute or chronic Exclusion of: - children - red flags or cauda equina syndrome	Low back pain Acute, subacute or chronic Exclusion of: - children - red flags - back pain > 12 months	Low back related symptoms, 20-65y. Acute, subacute or chronic Exclusion of: - red flags - neurological conditions (Parkinson etc)	Low back associated symptoms excluding red flags. Acute, subacute or chronic Children not excluded.	Persistent LB related symptoms from 6w to 12m post onset (subacute & chronic). Exclusion of: - red flags - <18y - establ pain disorder - WSIB claim	Low back related pain problems Acute, subacute or chronic Exclusion of children



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	- potential inflammatory disease - thoracic spine pain				- motor veh acc pts - narcotic depend. - ongoing litigation - pregnant /postpartum<1y	
Care levels	1 & 2 & 3	1 & 2 & 3	1 & 2	1 & 2 & 3	1 & 2 & 3	1 & 2
Care levels focus	Primary care	Primary care	Primary care	Primary care	Primary care	Primary care as well as referrals from within hospital
Compulsory?	No	no	no	no	no	No
Developers	GP,ortho,neurosurg,pain therap, phys med, physiother, chiroprac,radiology, rheumatology,psychol	GP, rheumato, ortho, neurosurg, Pain therapy, occup med, nurse, physiother, chriopractor, psychologist	GP, ortho,physiother (S. Murphy only got involved later, we could not speak with the developers)	GP, ortho, neurosurg,nurse, physiother, chiropractor	GP, phys med, rheumato, ortho,radiol, nurse, physiother, chiropractor,psychologist	GP,phys med, neurology,rheumat.,emer gency med, orthop, neurosurg,pain ther, radiology,occ health,nurse,physiother,c hiropractor,psychologist, clinical pathway consultant
Basis (ev, em, loc)	Evidence	Evidence	evidence	Evidence+eminence	Evidence + loc	Evidence + loc
No of caregivers routinely involved	No numbers	Country: ? 8 at NHNN	80 (60GP,15physio,2ortho,2rheumato,1paint her)	No numbers	488	6 in Spine Clinic
Algorithms with or without allocation of tasks	With	without	with	with	Without	without
Inter or multi	multi	multi	multi	inter	Inter	Inter
Intake	GP	GP at primary care visit	GP	Primary level visit (GP, but in smaller comm. can be nurse or physiother)	Primary level visit (GP, but in smaller comm. can be nurse,physio,chiro)	-Primary Care Provider (GP, physiotherapist, chiropractor) -Emergency Dept (Beth Israel) -Occupational health



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						-Other hospitalist (Beth Israel)
Triage/stratification	Red flags/radiculopathy/low back pain	-red flags/radiculopathy/LBP - STarT Back for stratification in LBP	No	-red flags (=exit from pathway) -Hamilton Hall stratification	-Hamilton Hall stratification + screening for -red flags -inflamm disorder -narcotic depend. -yellow flags (STarT)	-Red flags identified (in this case radiculopathy is included in red flags) -5-category treatment classification system
Routine yellow flag screening	Yes: STarT Back	Yes: STarT Back	Yes: STarT Back (at physio level)	Yes (EQ-5D, Health Scale, ODI, VAS, pain diagram, Lifestyle questionnaire (CBI))	Yes: STarT back	Yes (STarT Back)
Influence yellow flags	substantial	substantial	Substantial (from physio (=2nd) level onward)	Referral to spine centre	Involvement of 2nd or 3rd level	Substantial: involvement psychology consult
Routine investigations	No	No (MRI for refractory radicular pain and neurol deficit)	No	No (MRI for leg dominant pain see algorithm)	No (MRI for leg dominant symptoms when interv. cons.)	No
Strategy for avoiding imaging	Yes : MRI only in radiculopathy and red flags	No active strategy (but limited use)	no	Yes Lumbar MRI checklist	Yes: no imaging unless intervention	Yes: imaging only in red flags and radiculopathy
Therap algorithm?	Yes (focused on primary care management)	Yes, see map of medicine	Only at physiotherapist level	Yes http://www.sasksurgery.ca/patient/spine.html	Yes www.isaec.org	Yes (see flowchart, including 5-category treatment classification system used by JSC clinicians)
All therapies potentially available within pathway	Yes, except acupuncture (and facet rhizolysis is being disrecommended), but further interventional treatments are not part of pathway anymore	Yes, except massage and acupuncture	Specialist treatments are not part of the pathway, which essentially organizes stepped care through GP's (1 st level) and physio's (2 nd level) before patient is	Pathway focuses on early management through exercises (http://www.sasksurgery.ca/patient/spine.html) and referral if insufficient relief, also in light of stratification; therapies	Pathway focuses on primary care management and thereby reduces referral to spine specialists. The latter therapy options are not part of the pathway.	Yes, except behavior therapy, group therapy, acupuncture, dorsal column stimulation). Surgical and interventional pain therapies not really part of pathway anymore



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			referred to orthopedic surgeon	beyond this are not part of the pathway, but possible in Saskatchewan	(Cogn Behav Therapy / psychiatry in pain centers are available when needed.)	
Shared decision?	Substantial	substantial	substantial	Substantial	Somewhat	substantial
Stepwise approach	Yes	yes	yes	Yes	yes	Yes (see flowchart)
Routine evaluation at end of program	No (only in Combined Physical and Psychological Treatment)	no	Yes (only at end of physiotherapy program)	No	No	Yes: at end conservative therapy provided by Spine Clinic
FU duration	Usually <1y	depends	Physio max 3m	Depends	Depends	Depends
Non-compliance	Happens	Happens	happens	happens	Happens	Happens
Drop out estim	Happens	Happens (est 10-30%)	Happens (estimated as small proportion)	happens	Happens	Happens (low: 3%)
Patient education	Substantial: self-management (+back book, website material)	Substantial: self-management	Substantial in physio program: self-management + understand the problem	Substantial: self-management	Substantial: self-management (+ cognbeh th in yellow flags ++)	Substantial: patient empowerment to self-care
Provider feedback	Yes (learning time meetings with GP's and T&T meetings/2w)	Not organized	Yes: GP's and physio's meet 1x/y	No (though possible through website)	possible	yes
Provider education?	Yes Active teaching of GP's	Yes website	Yes: training in pathway, but not formally organized	Yes: website, course (CME credits)	Yes: online course (CME), online info, newsletters, tele conferences	Yes: training sessions for different primary care providers and hospitalists
Provider incentives	No (but GP's seem to be happier with the T&T service than with the specialist care)	None	By reserving specialist care for when it is really needed, access becomes easier	Faster referrals for patients in the pathway. Special physician fee codes are in development for pattern diagnosis and care using pathway treatment algorithms.	Faster referral to spine specialist care when needed Better equipped to handle LBP patients	No, but 'makes PCP work easier'
Outcome monitoring?	ODI, EQ5D, GAT7, PH9, self-management rating,	Brief pain inventory, PSCQ, PCS, Fear	VAS, HADS, EQ5D, Back Beliefs	Primary Care Provider Assessment Tool	ODI, leg/back pain NRS, EQ5D, ...	NRS, Bournemouth questionnaire



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	global outcome, NRS	perceived Avoidance Scale, DAPOS, CPEQ, Task Spec Scale, Sit-to-stand measurement		Pain severity (Visual Analog Scale) Örebro Musculoskeletal Pain Questionnaire (ÖMPQ) Oswestry Low Back Pain Scale Quality of Life (EQ5D) Lifestyle questionnaire (CBI)	List will be forwarded	
Satisfact monitoring?	Yes (satisfaction NHS: friends and family test)	Not routinely	yes	intermittently	Yes	Yes
Length of work absence monitoring?	Yes	No	yes	<i>To be confirmed</i>	Yes	No
Process and monitoring?	Yes (waiting lists...)	Yes	Yes (waiting lists)	Yes (referral volumes, assessment volumes, No shows, wait time to assessment first offered, number of patients referred to spine surgeon, number of MRIs ordered)	Yes (waiting lists, MRI use)	Yes
Cost data monitoring?	Yes (by CCG)	No	No	No	Yes	yes
Extra pathway costs on top of care (paid by...à)	Yes, funded by CCG, but won back (1 st year break even, 2 nd year 300K £)	No	Limited (primary care level takes care of it)	No	Yes (logistic) Paid by Ministry of Health	No
Key elements of the pathway	Algorithm for primary care, including intermediate level in between GP and specialist: Triage and Treat trained nurses of physiotherapists	-map of medicine flowchart, including triage (guidelines) and stratification (STarT Back) - focus on primary care management	Select group of trained physiotherapist act as intermediate level in between GP's and specialist level	-triage and stratification + early management tools at primary level -if needed per protocol: referral to spine specialist center	-triage and stratification + early management tools at primary level -if needed per protocol: referral to spine specialist -intermediate level of Advanced Practice Physiotherapists	-Triage using red flag system and STarT Back tool -Spine Clinic as intermediate level
Remark	Significant reduction of referrals to spine	Strong influence from pain physicians in	Physio level seems to be well organized,	Steered by Ministry of Health	Steered by Ministry of Health	-pathway does not include algorithms for



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surgeons (0 in the first 40 patients)	development, little or no FU on implementation in primary care	but also seems to be the only aspect that is well organized	Very similar to Toronto pathway.	Very similar to Saskatchewan pathway, but is 3 level system and more tools at triage	interventional treatments further down the road -perspective is hospital-based but focus is initial management and implementation in primary care providers is well organized

Table 5 – Characteristics of pathways focusing on tertiary care

	Groningen (Coppes et al)	Maastricht (Willems et al)	Nijmegen (De Kleuver et al)	Nürnberg (Schwartzkopf et al)	Lausanne/Geneva (de Goumoens et al)
Goal	-organize a logical care chain (problem centered instead of specialist centered) -improve service to primary care level -make providers speak the same language	Establishing uniformity in diagnosis and treatment	- Reduce the waiting time for orthopedic spine consult - Improve surgical 'hit-rate' of orthopedic spine clinic	(this pathway is a concrete implementation of the German Rückenschmerz guideline)	Create 1 entry for spine problems and harmonize management
Year of impl	2008	2011	2016	Exists for >10y	2014
Region of impl	Hospital	Hospital	Hospital	Hospital	Hospital
Coordination	Management team (1 rep per disc)	Ortho surgeon + specialist nurse	Ortho surgeon	Phys med specialist	Physical medicine and rehab specialist
Pt selection	All spine related problems Acute, subacute or chronic Exclusion of children < 12y	Spine related problems in adults Acute, subacute or chronic Exclusion of: - children & red flags	Back related pain problems, only chronic (average duration = 13 years) Exclusion of: - psychiatric and language problems, - children ≤ 16y	All patients with back related problems; Acute, subacute or chronic No exclusions	Back related pain; Acute, subacute or chronic Exclusion of children ≤ 16y
Care levels	2 & 3	1 & 3	2 & 3	3	3
Care levels focus	Spine center located in Beatrix = 2 nd level	3: modus operandi at univ hospital Maastricht	3: Sint-Maartenskliniek is secondary center	Focus on 3 rd care level, i.e. the hospital where this is applied	3 rd level: univ hospital of Lausanne & Geneva



	Groningen (Coppes et al)	Maastricht (Willems et al)	Nijmegen (De Kleuver et al)	Nürnberg (Schwartzkopf et al)	Lausanne/Geneva (de Goumoens et al)
		(1: limited to information to GP's on referral criteria)			
Compulsory?	No	No	No	No, but 'pathway' is just followed by all parties in this hospital	No
Developers	Neurosurg, ortho, traumatology, rehab, pain spec, neurology	Rehab, neurology, ortho, neurosurg, pain therap	Ortho, rehab, pain therap, rheumato, occup med, physiother, psychol	Essentially phys med	GP, phys med, rheumato, emergency med, ortho, neurosurg, pain therap, radiology, nurse, psychiatris
Basis (ev, em, loc)	Evidence + em + loc	Evidence + em	Evidence + em + loc	Evidence (rückenschmerz guideline) + em	Evidence + loc
No of caregivers routinely involved	32	15	12	10-15	± 100 in hospital
Algorithms with or without allocation of tasks	with	without	with	with	without
Inter or multi	inter	multi	multi	multi	inter
Intake	Phys assistant at Clinic visit (does triage based on findings and on pre-clinic questionnaire)	Neurolog/ortho/neurosurg/pain therapist	Ortho clinic: orthopedic surgeon + conserve spec (now: phys med spec from Belgium)	Ortho, neurology	Emergency or clinic in hospital (diff specialisms)
Triage/stratification	Red flags identified	Red flags identified	Nijmegen decision tool (includes identification of red flags)	Red flags & yellow flags identified. Radiculopathy/neuropathy also separate subtrajectory	-red flags/radiculopathy/spinal stenosis/low back pain
Routine yellow flag screening	Yes (PDI, EQ5D)	Yes (HADS, PCS, RAND-36, EQ-5D)	Yes (STarT Back integrated in NDT)	Yes (intuitive)	Yes: StarT Back
Influence yellow flags	Substantial in low back pain flowchart (WPN levels)	Substantial: see flowcharts: different trajectories	Substantially: referral to rehab or to psychol	Substantial influence: involvement of psychology	Substantial (coaching, group therapy, Clinique de path chronique)
Routine investigations	No	No (but interviewee wants X-ray in all patients)	No	Always lumbar Xray and 99% gets lumbar MRI	No
Strategy for avoiding imaging	Not really (although place of imaging is described in flowcharts)	Not really	No	no	Yes: emphasis on guidelines



	Groningen (Coppes et al)	Maastricht (Willems et al)	Nijmegen (De Kleuver et al)	Nürnberg (Schwartzkopf et al)	Lausanne/Geneva (de Goumoens et al)
Therap algorithm?	Yes (flowcharts that come after triage by phys assistant)	Yes (see flowcharts)	No (certain consensus but no algorithm)	no	Yes
All therapies potentially available within pathway	Yes (except for facet blocks: insurance companies do not reimburse)	Except massage, manual therapy, acupuncture, facet rhizo, multidisc pain therapy, DCS	Many options available, but not part of the pathway anymore (focuses on first triage: surgery or conservative)	All except nerve root PRF and facet rhizolysis	Yes, except massage and acupuncture
Shared decision?	Substantial	Substantially	substantially	Substantial	substantial
Stepwise approach	Yes (see flowcharts)	Yes (see flowcharts)	Yes (according to guideline Ned Orthop Vereniging)	No	yes
Routine evaluation at end of program	Yes (12m questionnaire)	Yes	No	No	No (only In group therapies)
FU duration	1y (pt can contact phys ass during 1y as a kind of service)	Depends	depends	depends	Depends
Non-compliance	Happens	Happens (eg sometimes no physio because pt cannot afford)	Happens	Happens	Happens rarely
Drop out estim	None	Happens	Happens (30% in cogn program)	Happens (seldom)	Happens rarely
Patient education	Substantial: Explaining pain (incl self-management)	Somewhat: Informed decision, self-management	Substantial if needed (depends on trajectory)	Substantial: pain management in daily life	Substantial: active self-management approach, management
Provider feedback	Yes (at weekly meeting)	Yes (at weekly meeting)	Yes	Weekly team meeting	Not organized
Provider education?	Not formally	Yes: uniformity in care	No	Not formally	Pocket cards, webpages
Provider incentives	no	no	No	No	No
Outcome monitoring?	NRS, Roland Morris, EQ5D, PDI, RMDQ, NIH	VAS, Oswestry,HADS, PCS, SF36,EQ5D, Global Perceived Effect	NRS, ODI, SF36, EQ5D, GPE, STarT Back	NRS, Bartel	Some surgeons use Spine Tango, but no pathway associated organized PROM system in place
Satisfact monitoring?	Yes	Yes	Yes	Yes	no
Length of work absence monitoring?	No	Yes	No	no	Yes (for subgroups)



	Groningen (Coppes et al)	Maastricht (Willems et al)	Nijmegen (De Kleuver et al)	Nürnberg (Schwartzkopf et al)	Lausanne/Geneva (de Goumoens et al)
Process monitoring?	Yes (waiting lists, number of providers needed to treat)	Yes	No	Yes (waiting lists)	No
Cost monitoring?	No (although outside pathway insurance company (zorgverzekeraar) looks at efficacy)	Yes	No	yes	no
Extra pathway costs on top of care (paid by...)	Yes (pilot funded by insurance company, now covered by hospital)	no	Yes: low personnel cost	No	Yes: coordinating physicians
Key elements of the pathway	-pivotal role of phys assistant: triage + case manager -flowcharts agreed on before start of the pathway	-working together based on consensus -essential element is screening for psychosocial burden: low or high score: totally different trajectory -essential role for conservative management in NSLBP before Sx consult can be asked for	Triage by Nijmegen decision tool: to be seen by spine surgeon or by conservative specialist	Very organized modus operandi: intake through neurology/ortho with easy referral to phys med (also postop); care further coordinated in phys med in multidisc way (physio, psycho...)	Harmonization through triage questionnaires (who goes to surgeon and who to conserve disc), algorithms, multidisc rounds
Remarks	-improving links with primary care is a future goal of the project	-acute LBP/leg pain is dealt with in primary care, so all pts in this pathway have complaints for >6w -they admit that integration with primary care has not really happened yet, but they have an effective intent to go and see patients in the primary care setting (stadspoli) - they have an active network of physiotherapists in the community	<i>-incentives are rather logistic</i> <i>-in interview, effect/role/importance of finance mechanism of healthcare was emphasized</i> <i>-in 2017 Nijmegen Decision Tool will be filled in GP practice</i>	Unfortunately no pathway flowcharts or any other documents; always the Rückenschmerz guideline is referred to	They achieve a RTW rate of 72%, which is a strong incentive for patients

**There are also difference between the included pathways:**

- Level of implementation: a hospital or a region/city area. The regional pathways focus on the primary care management and do not cover the modus operandi amongst the spine specialists in the hospital (what therapy for what particular patient). Vice versa, the hospital based pathways focus on the organization of multi/interdisciplinary care amongst the specialists in the hospital and so far did not really focus on tools for the primary care level. Consequently, bridging both worlds (primary care and in-hospital management) remains a gap and a challenge. London represents an attempt to cover all levels of care in the pathway without success (implementation in the National Hospital for Neurology and Neurosurgery, but not in the surrounding primary care facilities). Also the UK Pathfinder Back and Radicular pain represents a pathway covering all levels of care but focusing mainly on primary care.
- Related to this aspect is the size (number of providers involved) of the pathway. Implementing the primary care level hugely increases the size and deserves help from the Ministry of Health (Canada) or appropriate grants (North-East England).
- Coordination of the pathway can either be a committee or a single person. Surprisingly, also for the pathways that focus on the primary care level, the driving force seems to be a spine specialist (Dr. Fournay – Saskatchewan is a neurosurgeon; Dr. Rampersaud – Toronto is an orthopedic surgeon).
- Specific goal for some pathways, i.e. emphasis on reducing waiting lists for access to spine specialists in Canada, Groningen and Waterford (waiting lists for a spine specialist visit in Toronto exceeded one year!) The long waiting lists are a particular characteristic of those healthcare systems that may not apply to other countries.
- Presence or not of protocols/flowcharts that can be consulted by the providers. It seems that the pathways predominantly focusing on the primary care level have more elaborate flowcharts.
- Flowchart with or without allocation of specific tasks to the different disciplines of care providers but sometimes due to the fact that the different actors in the primary care (GP, nurse, physiotherapist) are considered as different or as one single group of primary care providers. In fact, the responses to this important question do not let themselves summarize in a simple yes or no. The example of Groningen has to be highlighted here because a group of 4 physician assistants is responsible for the triage of the patients and also act as case managers. This system seems to work to everyone's satisfaction in Groningen. In The Netherlands, physician assistant is a care profession recognized by the authorities.
- Further stratification of low back pain and leg pain as provided by the Hamilton Hall classification. It is only used in the Canadian pathways as a guide in the primary care level. Other stratification tools have been developed for patients with 'non-specific low back pain' but were not used in any of the pathways.
- Active strategy to reduce numbers of unnecessary imaging in several pathways, but not in all (e.g. a lumbar MRI checklist exists in Saskatchewan, the pathway only mentions MRI in red flags and radiculopathy in North-East England and reducing numbers of MRI is an active goal in Toronto). The reason for this, at least in part, is logistic: capacity is limited. Surprisingly, and in conflict with guidelines, in Nürnberg, all patients get a lumbar X-ray and almost all get a MRI.
- Incentives for care providers. In agreement with the goals of the pathways in Saskatchewan and Toronto (more capacity at the level of the spine specialist clinic), GPs who join the pathway get faster access to the specialists for their patients, when this is required. This also seemed to be the case in Waterford. This again represents a factor that is dependent on country-specific healthcare organization.
- Effort for training care providers extensive in some countries North-East England, Plymouth and in Canada (CME credits when following online course), and almost absent in the other pathways. A relation may be seen with the focus of the pathway on the primary care level as opposed to the secondary or tertiary level. On the other hand, it may very well be that the success of the primary care pathways is particularly indebted to this training aspect, and would never have happened without the strong support of their respective funding bodies or Ministry of Health.



Most of the differences described above are explained by the different purpose and different approach associated with the emphasis on either primary care or secondary/tertiary care. An impact of healthcare organization on this matter is strongly suspected, at least in creating the trigger to develop pathways. Accessibility problems mainly exist in countries with a strongly managed care and need for formal referrals for imaging and specialist care. Hence, it is no surprise that the all regional pathways found their origin in Anglo-Saxon countries and that they focus on enabling qualitative management in the primary care level, thereby reducing the need for the more expensive and less accessible further levels of care. Other differences relate to particularities, such as the existence of physical medicine as a specialty in Nürnberg and Lausanne, but not in the centers in the Netherlands. Particular for the Netherlands is the existence of physician assistants as certified care providers (that got a strong role in the Groningen pathway). Chiropractors work in close collaboration with physiotherapists and medical doctors in Canada, UK and the US, whereas in Europe this is not common.

3.3.3 *Pathway components related to quality and efficiency*

Although almost all pathways, except for Lausanne, systematically keep record of patient reported outcome measures (PROM) and certain process indicators as an element of the pathway, none of them had monitored data on the situation before the implementation of the pathway. An exception to this is Toronto, but the comparison only concerns process indicators such as waiting times and MRI consumption. As a consequence, the added value of the pathways in terms of improved patient outcomes cannot be proven at present. In addition, recorded outcome data were usually not processed yet. For that reason, none of the pathways could provide us with current PROM data for benchmarking^a. Notwithstanding this flaw, all interviewees strongly defended their pathway and were confident that it carried many positive effects on quality and efficiency of provided care. Some pathways communicated some results directly during the interview

- a high rate of patients satisfaction (99% in Toronto, 91% in Plymouth),

- a high rate of satisfaction for the primary care providers (96% in Toronto),
- a decrease waiting time for specialist care (Toronto),
- a high rate of surgically appropriate referrals (96% in Toronto; In Groningen, the average number of specialist consults throughout the pathway dropped from 3.6 to 1.4),
- a decrease of complications (In Plymouth, The percentage of patients returning to the emergency department for low back related problems after having been seen in the pathway dropped to 6% (control: 26%);
- a cost reduction (In Toronto, the overall annual cost for low back pain related imaging cost was reduced by 27% compared with baseline. Estimated savings in the first year after start of the pathway were approximately 517K Canadian Dollars. This rose to 685K Canadian Dollars in the second year. In North-East England, the first year the pathway yielded a break-even result. In the second year 300K £ were saved, and in the third year 800K £. These numbers are very rough estimations and concern calculations on CGG level.)

3.3.4 *Key interventions and building elements for LBP pathways*

Based on available flowcharts and associated pathway content information, a number of key interventions were identified. Next, the key interventions were mapped in standardized tables in order to enable comparison of pathway content over all pathways studied. The tables are slightly different for pathways that are focusing on primary care processes and pathways focusing on in-hospital care for low back pain (see appendix 2). Due to insufficient information on pathway content because of the lack of consultable flowcharts/protocols, the below exercise could not be done for Waterford and Nürnberg.

From this key intervention analysis, essential building elements for low back pain pathways emerge as the following:

^a After our search in April 2016, new publications were available evaluating the North of England Pathway, including PROM data.



- **Triage elements** at the start:
 - Ruling out red flags
 - Separating radiculopathy (both discogenic and stenotic) from back pain without dominant leg pain
 - **Screening for yellow flags** based on validated tools
 - **Paradigm shift in the message to the patient.** Patient education is an essential element, patients need to learn self-management and understand their condition. Self-management is the only required management in patients with estimated good prognosis: “back pain is not a disease, but a condition, that is manageable, not curable”
 - **Crucial role of the primary care level.** The primary care focused pathways advise that care should take place in the primary care setting as much as possible when there are no red flags and there is no unbearable or persisting pain requiring specialist advice. In cases where this is overshooting, referring a patient to a specialist may also give the wrong message to the patient and subjectively confirm a label of disease. Moreover, it will render the problem chronic if waiting lists for specialist advice are long. In parallel with this paradigm shift, capacity of advanced imaging and specialist care will be used more efficiently
 - Establishment of an intermediate level between GP level and hospital specialist level. It is a common characteristic of all 5 regional pathways (Saskatchewan, Toronto, Plymouth, North-East England and Waterford). The roles of the intermediate level care providers was clearly defined in all instances and were fulfilled by care providers other than medical doctors. These intermediate facilities were staffed by certified physiotherapists/chiropractors/specialist nurses who additionally received a specific training for this job.
 - **Evidence-based guidelines**
 - **Clear consultable protocols/flowcharts**
 - **Multidisciplinary**, both in the development stage as in the implementation
 - **Sufficient effort in training of care providers**, if possible associated with incentives
 - **Monitoring of outcome and process indicators**
- ### 3.3.5 *Organizational challenges in the development of LBP pathways*
- From the transversal analysis of the pathways, we can conclude that:
1. As far as the current analysis permits, no pathway was identified that was successful in organizing and improving both the primary care as well as the secondary/tertiary care for the patient with low back pain. While the UK National Pathfinder for Back and Radicular Pain as well as the British Pain Society pathway intended to cover all levels of care, they were not successful in this regard. The BPS pathway was not really implemented in primary care, and the UK Pathfinder strongly effects hospital care in numbers of patients eventually needing specialist care but the algorithms themselves leave a lot of freedom to specialists. Given the gap mentioned above, the establishment of a Belgian pathway including all parts of a trajectory a patient can go through, will be a challenge.
 2. It is clear from the international examples that involving the primary care level will require a substantial effort, in terms of teaching as well as in terms of establishing an intermediate level for triaging more complex patients. Such exercise will have to involve all many stakeholders including the authorities and will have to be funded.
 3. No pathway was identified that has been implemented on a national level. The primary care pathways were implemented on regional levels, a Canadian province being the highest achieved level. All hospital pathways identified, were developed within that hospital, i.e. there are no examples of hospital pathways implemented in a cluster of hospitals, let alone being implemented on a national level.
 4. For the introduction of a pathway, be it in the primary care level or in hospital care, we learn from the examples that consensus was the most important key to success. Successful pathways were developed in an inclusive way, i.e. involving all relevant stakeholders.



5. Establishing a pathway that is more than a theoretical guide, or in other words, designing a pathway that is implementable and will change practice, will inevitably be in conflict with the absolute freedom that is granted to both caregivers and patients in Belgium. Care providers can appeal to therapeutic freedom and patients are entitled to consult care providers from any level of care at any stage of their problem. Although none of the pathways were compulsory in the actual meaning of the word, it is clear that an actual pathway only resulted from the wish and willingness of both care providers and patients to conform. Fortunately, many care providers in Belgium realize that the current chaotic and superfluous care for low back related problems is ineffective and subject to change. Still, for a low back pain pathway to be successful on a more than local basis, sufficient focus will have to go to mentality change.
6. Given the development and implementation of a Belgian pathway for low back pain will be a new initiative, it is strongly recommendable to organize the monitoring of PROM, and other quality and/or process measurements before the intervention of implementation and repeat this when the pathway is up and running. The comparison of both monitoring sets will yield unique information, even if this study is performed in a regional subset of centers.

3.4 Limitations

Overall, only a small number of implemented pathways could be identified worldwide. Only 8 pathways were identified through traditional literature search, of which only 3 described care pathways for low back pain that were effectively implemented and operational as needed for this research.

Also in the grey literature only a small amount of eligible pathways could be retrieved. In general, this retrieval occurred through information such as flow charts or presentations and it was difficult to track the responsible coordinator and even a greater challenge to establish direct contact.

Some care pathway documents were only available in the vernacular of a specific country which limited our possibilities due to the language barrier (we only studied English, Dutch, French and German documents). Therefore, and also because many internal hospital initiatives and associated documents are not made public, we think that more low back

pain care pathway initiatives exist in reality, but that an unknown number stayed under the radar of our extensive search.

In establishing the initial contacts with pathway leaders, it became clear that many were reluctant to engage in a project that would consume too much of their time. Therefore, usually many reminders and sometimes several telephone contacts were needed to convince them to participate. In addition, this endeavour was impaired by the summer holiday, unfortunately falling right within this phase of the project. After convincing leaders, they often had to be convinced again after they were discouraged by the rather long questionnaire.

Finally, pathways seemed to be part of a rather heterogeneous spectrum and hence, it was difficult in the beginning to draft hard criteria to decide which pathways to include. All pathways dated from after 2000 and included the monitoring of outcome and process indicators. Figures could be retrieved which support that pathways are able to increase the efficiency of invested means and thereby create value. Based on the current study, however, it proved not possible to demonstrate superior patient outcomes in pathways, largely due to absent outcome measurements before pathway implementation. Finally, return to work interventions could not be identified from the current international care pathway study.



4 THE BELGIAN CONTEXT

4.1 Research objective

The current situation of the low back pain management in Belgium is difficult to describe. A lot of initiatives were set up by the health authorities at different levels, a great heterogeneity is suspected in the treatment interventions and no national or regional registry exists to monitor and assess the results of the management. The purpose of this section is to give a brief overview of the current initiatives and to describe the key principles per initiative. An exhaustive evaluation of the current situation (by monitoring the process and outcome measures) was not feasible in the timeline of this project, but should be included in the monitoring process of the care pathway.

4.2 Methods

No systematic search could be developed for the description of the current Belgian situation, therefore a more pragmatic approach was used and searches were performed in grey literature and via clinical experts' advice.

4.3 Results

Three major rehabilitation strategies were identified during our search in policy papers and in descriptions of the Belgian initiatives:

- Structural initiatives for managing pain in ambulatory care and in acute hospitals, funded by the federal government (the National Institute for Health and Disability Insurance (INAMI – RIZIV)), including the multidisciplinary pain centres, the algology teams and the multidisciplinary rehabilitation programs.

- Varied initiatives for supporting the patients, including activity promotion by sickness funds, or specific rehabilitation programs set up by a hospital.
- Specific initiatives regarding work ability and work conditions.

4.3.1 Structural initiatives for managing pain

Most acute and subacute patients seek for initial help in primary care. In the delivery of ambulatory care, the GP and the paramedics are remunerated via fee-for-service payment and there is free choice of physician by the patient. The remuneration of physiotherapy is (partly) linked to a referral by a physician, therefore most patients consult their GP before being treated by the physiotherapist.

In 2008 the federal government has launched a national program for chronic illnesses. Since then both federal and regional authorities incorporated the importance of integrated care in their health policy and in 2015 a communal plan on "Integrated care for a better health" has been approved by all Ministers of Health.⁴⁶

Core elements in this plan are the **Triple Aim principle** (i.e. to improve health of general population and of chronic patients in particular, to improve quality of care, to use efficiently the resources) and the need for **integrated care^b**. In line with this care model, the plan stipulates that these core elements should be elaborated on individual level, whereby the patient is seen within the **biopsychosocial model**, on organizational level, with a focus on the multidisciplinary collaboration and integration between the different care levels, on population level with a focus on equity, accessibility and reduction of health inequities; and on policy level, with a synergy between the different governmental structures and a focus on health in all policies. The policy plan determined also 18 components of which the implementation is needed in order to evolve to an integrated care system. Examples of these components are empowerment of the patient, socio-

^b The WHO definition of integrated health services (2008): "The management and delivery of health services so that clients receive a continuum of preventive and curative services according to their needs over time and across different levels of the health system"



professional integration, care continuity between extra, intra and transmurall care services, multidisciplinary guidelines and the training of the care providers in multidisciplinary collaboration and integrated care. Within the development of a care pathway for low back pain, these components could determine how care should be organized around the needs and preferences of the patient. Further detailing the different action points of the policy paper is out-of-scope of this report, but more information can be found on: https://www.health.belgium.be/sites/default/files/uploads/fields/fpshealth_theme_file/20151019_imc_plan_geintegreerde_zorg_chronisch_zieken.pdf.

In the previous legislation, several initiatives on the management of chronic pain in hospital setting, such as the algology function, the multidisciplinary pain teams and the multidisciplinary reference centres for chronic pain, were set up and tested in pilot projects (2009-2011). In 2011 an interuniversity scientific commission evaluated these initiatives and formulated several recommendations for future policy.⁴⁷ Since 2013, following initiatives are implemented in clinical practice⁴⁸: a multidisciplinary algology team in every acute hospital (n=104), a multidisciplinary center for the management of chronic pain (n=36 hospitals) and the reinforcement of the already existing specific teams for pain management in children (n=13). Only the initiatives applicable for adults with low back pain are further described.

Another multidisciplinary initiative is the specific multidisciplinary therapeutic programs for neck-to-lumbar spine pain, financed by the NIHDI since 2004 (see below for more information).

4.3.1.1 *The algology function or the multidisciplinary algology team*

Since 2013, an algology function is structurally financed in every acute hospital with a lump sum per 100 beds. It is defined as a sentinel function or internal liaison who develops for the whole hospital a global pain management plan of patients with chronic pain complaints, makes the care providers aware of this global plan but also do the follow-up of individual patients. This function is not restricted to one department but has a transversal approach. The team should be composed of a physician (by preference a specialist in anaesthesiology with a qualification in algology), a nurse specialised in algology and a hospital pharmacist. However, the governmental funding per algology function is equivalent to a 0.5 FTE nurse.

This team is in charge of the development and improvement of clinical protocols and the support of the medical team for the management of all kind of chronic pain.

4.3.1.2 *The multidisciplinary pain centres*

In 2016, there were thirty five multidisciplinary pain centres (MPC) recognized by the NIHDI. These centers are composed by multidisciplinary teams for the early management of patients with chronic pain, not specific to any pathology, and thus not only for LBP. Teams are ensuring a transversal function in the whole hospital. They use a bio-psychosocial perspective, based on yellow flags. The objective of the center is in many chronic cases not to cure but to support patients for coping with pain and support the patients in their re-integration and re-activation process.

Financing occurs via B4 part of the hospital financing, i.e. costs arising from legal obligations or pilot projects supervised by the authorities. It consists in a lump sum per year aiming finance for a least (minimal requirements) 0.2 medical doctors, 0.8 psychologists, 0.8 nurses, 0.8 physiotherapists, 0.5 ergotherapists and 0.5 social worker. Patients are eligible if they suffer from:

- Chronic pain i.e. since at least 3 months
- or
- Subacute (3 to 12 weeks) pain if they are at risk of chronicity based on yellow flags.

Waiting lists are long (up to 1 year). An evaluation is foreseen each two years to verify if the financing has to be adapt. For this, centres have to produce an activity report yearly. Qualitative data are also gathered showing satisfaction of the teams about their 'utilisation'. At the start of the project, data were gathered in a sample of 50 patients of each centre to describe the population taken in charge by the centres (also by the algology teams).



4.3.1.3 *The multidisciplinary rehabilitation program for neck-to-lumbar spine*

Since 2004, a specific multidisciplinary therapeutic approach for neck-to-lumbar pain has been financed by the INAMI/RIZIV. This program focuses on the functional rehabilitation of the patient by combining different approaches which are offered in 36 sessions of 120 minutes during maximum 6 months (code 558994) (with a maximum of twice a week).

Multidisciplinary teams of these rehabilitation programs are composed by physician specialized in physical medicine and rehabilitation, physiotherapists, psychologists, and occupational therapists or ergonomists. If the center has no physician specialized in physical medicine and rehabilitation, they cannot use both codes mentioned above although they treat chronic LBP patients. They could use monodisciplinary billing (codes M or K) instead. This is allowed in hospital or ambulatory.

Nevertheless the increased efficacy of such kind of rehabilitation programs compared to single interventions (see the Belgian guideline on low back pain⁶), this program is currently only accessible under following conditions:

- Patients should suffer from non-specific pain of the whole spine (neck, thoracic and lumbar spine) and this pain should started at least 6 weeks before (in subacute phase) or before the end of 3rd month following the spine surgery.
- It can only be offered once in a lifetime. Some exceptions on this single occasion have been made: after a spine surgery or in case of socio-professional reintegration (after approval by a medical adviser of the sickness funds).

Because it is a one shout programme, physicians are perceived by peers^c to be cautious to use it and perform a selection of the patients; this selection is based on medical factors (e.g. absence of neurological problems or no pain exacerbation) but also and mainly on non-medical factors, such as motivation and other psychosocial aspects (e.g. not proposed to people able

to manage their treatment themselves or not proposed to people without organisational support).

Following this management of back pain, in certain cases and only if the multidisciplinary treatment code was used, a maximum of 104 sessions of rehabilitation combined with occupational therapy could be prescribed to the patient in order to optimize and maintain the results of the treatment (code 558434 (K15 nomenclature)).

A few years ago, 67 centres applying this code were identified because they participated to a project on occupational diseases (see below) but there are probably more rehabilitation centres that use this code. Since 2004, there is a dramatic increase use of this billing code.

A master thesis published in 2010 showed that these rehabilitation programs are very heterogeneous in their content and process⁴⁹. Some authors published an assessment of local initiatives^{50, 51, 52} but there is a lack of standardized monitoring that could lead to any conclusion on the efficiency of these programs in Belgium. Because it is a one shot programme that should be followed in a six-month period, physicians appear to be cautious to use it and perform a selection of patients; this selection is based on medical factors (e.g. absence of neurological problems or no pain exacerbation) but also and mainly on non-medical factors, such as motivation and other psychosocial aspects (e.g. not proposed to people able to manage their treatment themselves or not proposed to people without organizational support).

These rehabilitation programs are often called '**back schools**', however, their approach is quite different from the original back schools. In the most recent Cochrane review on the effectiveness of back schools for acute and subacute non-specific low back pain, a back school has been defined as a therapeutic program which included both education and exercise, and is given to groups of participants and supervised by a healthcare provider. It was introduced in Sweden in 1969 as an intervention protocol consisting of an educational program (e.g. theoretical lessons given by the care provider on the clinical relevant anatomy and the biomechanics) and skills acquisition

^c Heard in stakeholders meeting



program, including physical exercises. The content and length of back schools seem now to vary widely.⁵³ The differences in effectiveness are more in detail described in the KCE guideline on low back pain and radicular pain⁶.

When looking further into detail what is behind this concept of back schools in the Belgian practice, it became clear that the original modalities of the back school has changed into a more multidisciplinary approach. Many of the rehabilitation programs in Belgian hospitals are still called “back schools” but covers far more aspects of the management of low back pain, including physical reconditioning and more psychosocial aspects than the original definition of back school which is rather focused on patient education and some ergonomic advice and exercises. Currently it is thus more a semantic discussion than a real difference in clinical practice. A proposition could be to avoid the use of the term back school and give it a more appropriate name covering the different aspects of the treatment program, e.g. back rehabilitation program.

In this **rehabilitation** concept, patient classification models, such as the International Classification of Functioning, Disability and Health (ICF model) are applied to determine the functional opportunities of an individual by assessing the complex interactions between the individual’ impairment’, activity’ and participation’ level and contextual factors. More information on the use of patient classification models in rehabilitation can be found in a recent KCE-report.⁵⁴

4.3.1.4 *Multidisciplinary spine consultation*

A multidisciplinary group of spine specialists has defined the quality criteria to which a specialized rehabilitation program should comply with in order to be recognized by the NIHD as ‘spine unit’. Following four key-elements can be retrieved in these criteria:

- Uniform approach of care: One of the applications of a uniform approach is the comprehensive monodisciplinary ‘spine intake’ consultation, in which the spine specialists agreed on the key-elements of this consultation.

- Multidisciplinary spine consultation: at least once a month a multidisciplinary spine consultation should take place, in which more complex cases of spinal pathologies (including potential candidates for surgery) are discussed. Next to the clinical members of the spine unit, also the medical adviser and the GP can be invited to these meetings. An important characteristic of these meetings, is the presence of the patient at the spine consultation.
- Registration: Additional financing should be available for the compulsory centralized registration of the applied therapeutic interventions (not restricted to the surgical intervention but also rehabilitation and pain therapy) and patient reported outcomes.
- New nomenclature codes: These codes are necessary for the implementation of the multidisciplinary spine consultations and for the comprehensive ‘spine intake’ consultation.

On organizational level, a spine unit should at least consist of a physician-specialist in orthopedic medicine or in neurosurgery, a physician-specialist in physical medicine, a pain specialist or physician-specialist in anesthesiology, a physiotherapist and a clinical psychologist, all with specific experience in spine pathologies. Initial management and triage for spine urgencies should be guaranteed 24/7. Every spine unit should dispose of a ‘spinal handbook’ in which the procedures for triage, internal referral, initial management, further diagnostics, treatment and follow-up of the patients and communication with the referral physicians are determined. These procedures should be based on national and international guidelines. Also fast access to diagnostic imaging is needed.

Next to the spine units, the working group of spine specialist has also defined which additional criteria were needed for a ‘spine unit type 2’, which is a more specialized care program for the treatment of spine pathologies, for example possibility of remuneration for new implants)



4.3.2 *A variety in initiatives for the patients*

A patient in search for pain relief, can also encounter more local initiatives, such as patient information by sickness funds, but also more commercial websites with patient information but also linked to products (e.g. specific mattresses) or even more aggressive publicity for specific non-conventional therapies (e.g. andullation therapy). Also patient organisations provide information on the possible therapeutic options. The source of information is quite overwhelming, with local care providers or professional unions promoting their approach (e.g. physiotherapists or local hospitals), conflicting messages in the media, etc, but a clear patient-oriented, evidence-based information source is still lacking.

4.3.3 *Initiatives regarding work ability and work conditions.*

Since May 2007, workers subjected to risks related to mechanical vibrations and/or to carrying loads can benefit of programmes with multidisciplinary management for neck-to-lumbar spine pain linked to the code 558994 (multidisciplinary rehabilitation program, see above). The **Fund for Professional Diseases** (Fedris) offers incentives to participate to these programs in certain centres that agreed to participate. This concerns salaried who cannot longer work due to back pain (absence from minimum 4 weeks (or 1 week if recurrence) and up to 6 months); they can follow until 36 re-education lessons free of charge and receive reimbursement for travel expenses in addition to a visit of ergonomist to adapt the work environment.

Moreover, the FPS employment had commanded a study to analyse the system of return to work after a long absence. The aim was to limit the damage of such an absence for the employee and to help her/him to return to work in a satisfactory way, for her/himself, for the employer and for the work collective. The report was published in 2013⁵⁵. It globally recommends to keep workers in a work relationship, even during health problems. The different ministries should also collaborate around the notion of 'individual trajectories of return to work' and should give politic impulse to solve problems of the current system.

Two Royal Decrees were published at the end of 2016 (28 October 2016 and 8 November 2016) to favor return to work for people on sickness leave whatever the underlying cause of this leave. In summary, a reintegration evaluation is organized by the decrees after 2 months of work absenteeism covered by the sickness funds (in practice the first 15 days for labourers and 30 days for employees are paid by the employer). There are different steps and criteria to be followed and both the medical advisor and the occupational physicians have well defined roles in the process. Professional integration can include modification of work content or adapted work hours. The details of these recent legislations is incorporated in the Belgian pathways.

Next to these new regulations, the experts mentioned also the ongoing negotiations on **incentives for employers** (10% of wage paid by the employer during the first 10 months).

The return to work is not the single aspect to be considered for the social wellness of the patients with low back pain. Some people continue to work but lose all social contacts because of their pain; the interest of patient participation in social life is therefore also a concern. Return to normal activities and sport activities should also be included in the care providers' advices.



4.4 Limitations

As already mentioned in the research objective, this chapter gives only a brief overview of the major initiatives in Belgium. Many local initiatives will be missed, but due to feasibility reasons, it was not possible to fully describe all existing initiatives.

Main finding in this chapter is that several governmental-funded rehabilitation programs exist (mainly focused on chronic pain patients or on workers with specific work conditions) but the link towards primary care or even in between the different types of rehabilitation programs/centres is lacking. Within the development of the spine unit with its related multidisciplinary spine consultations, this need for a multidisciplinary collaboration is already more fulfilled.

On the local level, the great amount of different sources of information could be overwhelming for the patient and could confuse him/her through conflicting messages on the efficacy of certain therapeutic interventions. For example, in the publicity for andulation therapy, popular Belgian persons are mentioned to promote this kind of mattresses. Sickness funds could have an important role in providing accurate information to their members.

Since the legislation on return-to-work procedures has recently been changed, some of the details on how these royal decrees should be implemented in clinical practice are not yet fully clear.

The policy plan on integrated care for a better health could determine the core principles of a care pathway: elements such as integrated care, empowerment of the patient, care continuity between the different care levels, etc. should be taken into account in the development of the care pathway.

5 DESCRIPTION OF SOME BELGIAN INITIATIVES OF PATHWAYS

5.1 Research objective

In the description of the current Belgian situation, no nationally implemented pathway for the management of low back pain could be identified. This observation was confirmed by our stakeholders. However, some local management plans could be considered as initial steps towards a pathway in which different care disciplines are involved, aimed to optimize the efficient management of the low back patient. The objective of this chapter is to compare a selection of Belgian initiatives and to find key-elements which could be considered as building blocks for the development of a common Belgian pathway. Further in this text, we preferred to call these management plans as local initiatives of clinical pathways, in order to avoid the confusion that in Belgium already several pathways exist.

5.2 Methods

Nine existing initiatives on pathways for the management of LBP in Belgium were identified by several ways (internet search for Belgian reports (via Google, Oister and snowballing), mailing to every pain centre and requests to the clinical experts already involved in the KCE-project).

A similar methodology as in the international comparison was applied to describe the Belgian pathways: the responses on the Lime online questionnaire were completed with phone interviews where more in-depth information was requested on the algorithm and the implementation process. Seven organizations completed the questionnaire and the interview round.



5.3 Results

Nine existing initiatives of pathways for the management of LBP in Belgium were identified.

5.3.1 Characteristics of the Belgian pathway initiatives

Among the seven initiatives, three are in the Flemish region of Belgium, 3 are in Wallonia and one is based in Brussels. This last one is very atypical because it is dedicated to the active working population within Belgian Defense, i.e. a 'captive population' of employed patients. In this initiative, patients are not as free to consult a healthcare provider as any patient. Moreover, there is a clear objective for avoiding work interruption due to medical reason and/or for promoting return to work. Nevertheless, this kind of pathway is very interesting because within the network of care providers, also many civilian caregivers are already involved.

The development of our sample of initiatives has been initiated by a hospital (department). Four initiatives only started in 2016. A description of the characteristics of each pathway initiative is presented in Table 6. The order of listing up the pathways has been determined by the degree of implementation, i.e. the list starts with the description of the most developed clinical pathway.

5.3.1.1 Pathway initiative "chronic low back pain" in the Military Hospital Queen Astrid

In our small sample of Belgian initiatives, this kind of pathway is the only one that has already been implemented for several years and quality monitoring has been performed. This pathway is implemented in a very particular context. The Ministry of Defense has set up its own healthcare system for its employees (military and civilians) and within this system a clinical pathway was developed and implemented for the triage and treatment of subacute and chronic LBP patients. When a patient has only acute pain, primary care provided by the medical doctor and/or civilian physiotherapist is advised. Only employee with chronic or recurrent low back pain (or in some cases subacute pain) are invited for an (standardized) intake consultation (consisting of questionnaires and clinical examination) at the Military Hospital in Brussels. This pathway takes into account the detection

of red flags and neurological signs for patients with subacute complaints and of yellow flags (Örebro questionnaire) for patients with chronic pain. Patients with yellow flags (cut-off value determined in own validation study) will be referred to the psychologist in combination with a one-day back school. In absence of yellow flags, the patient has to perform a standardized battery of clinical tests to determine the treatment goals (physical therapy oriented). The rehabilitation period is restricted in time (max 12 weeks) after which the clinical test battery will be repeated. The patients are free to follow the rehabilitation program in the Military hospital, in their own military unit or in (civilian) ambulatory care. However, when they use military care, this is free of charge and most of the medical examinations can be performed during working hours. When they decide to go to civilian care without referral from a military medical doctor, they lose the right for reimbursement and they need to finance it themselves. A second consultation is foreseen to evaluate the patient's progression after the 12 weeks rehabilitation program (following the kinetic control principles). In case of insufficient pain relief, the patient is reassessed and other medical treatments (injections, infiltrations, rarely surgery) are considered or further follow-up with supplementary active physiotherapy is provided in the patient's military unit guided by a remedial instructor (= physiotherapist). When the patient demonstrates sufficient recovery, but the physical evaluation of the fitness indicates shortcomings, follow-up is provided by a physical training instructor (PTI) in the military unit. This part of the pathway is not further elaborated.

Some particular aspects related to the context of the Military Hospital:

- It can function in a 'micro-society' in which all disciplines are more closely linked to the working environment. It is the only example in which the employer has set up an initiative to avoid sickness leave due to chronic low back pain: all patients are encouraged to remain at work during rehabilitation.
- A standardised report has been developed that can be consulted by all involved caregivers
- Training of the civilian physiotherapists is provided by seminars and conferences
- Information is provided prior to the consultation of the psychologist by both the treating physician and the physiotherapist in order to stimulate the patient's step towards the psychologist (if required for that patient).



5.3.1.2 Pathway initiative “Niet-traumatische aandoeningen van het axiaal skelet (NTAAS)” in UZ Leuven

This pathway encompasses pain complaints in the spinal column, including the cervical, thoracic and lumbar regions. In this report only the pathway for low back pain has been discussed. At this stage of development of a clinical pathway, a diagnostic algorithm has been developed and implemented in the emergency service. Further development is yet needed for implementation in the whole hospital. The main objective of the pathway is to offer a standardized approach of the patient in the emergency service. This kind of pathway is particular in some aspects, e.g. focus on patients with acute complaints (including exacerbations of chronic LBP), no screening for yellow flags, referral to the appropriate clinical service for further treatment, etc. After exclusion of red flags and radicular pain with neurological deficits, an active approach is advised (pain management, patient education and advice to stay active). After one week, the GP can evaluate the patient's status and refer the patient in case of persistent pain or paresis to secondary care. Different to pathways in which the patient is seen at intake by different care disciplines, all with their own medical advice, the set-up of this pathway aims to facilitate the interdisciplinarity, i.e. independently of the care discipline, the same triage algorithm will be applied by all kinds of caregivers. This pathway has been implemented since 2013.

5.3.1.3 Pathway initiative “CHA Libramont Vivalia

This pathway was just developed and is being implemented since 2016 in one hospital. It was created in order to offer better orientation and uniform discourse towards patients and to avoid medical shopping.

At the end of 2016, only 4 physicians (4 different disciplines) are involved in the development and the implementation of the pathway. The same 4 physicians are responsible for the intake. It is only after intake that nurses, physiotherapists, psychologist and social workers will be involved. The pathway targets patients suffering of acute, subacute or chronic LBP. Patients with red or yellow flags are included as well as patients with radiculopathy. The pathway encompasses an algorithm. In this one, contrarily to others, scanner and EMG are performed in routine to screen for red flags. Contrarily to other pathways that offer several surgical options, in this pathway only two surgical options for chronic conditions are available

and one for subacute condition. A formal evaluation of the patient is foreseen at the end of the management. There is no monitoring of the pathway yet.

5.3.1.4 Pathway initiative “Chronische lage rugpijn – richtlijnen voor de eerste lijn” in AZ Nikolaas

This pathway has been developed by secondary care specialists from AZ Nikolaas in collaboration with a local umbrella organization of GPs and aims to standardize the triage and first line treatment of the LBP patient, resulting in a more appropriate referral of the patient to secondary care. Three schematic algorithms were developed: one on the appropriate referral for medical imaging depending on the red flag or neurological deficit; the second is a clinical pathway from intake to evaluation of the patient after 6 weeks of conservative treatment; the third scheme covers the importance of screening on yellow flags and when referral to a psychologist can be important. More in depth information on the content of the three schemes will be available after the presentation of the pathway on a conference for GPs in November 2016. This pathway has not yet been implemented in clinical practice.

5.3.1.5 Pathway initiative “Zorgpad specifieke ruglast” by AZ Antwerp

In this hospital setting a triage and therapeutic algorithm has been developed but not yet implemented. Nevertheless this pathway has been developed by specialists from secondary care, the main objective is to implement this algorithm also in primary care, so that GPs can perform the first triage of LBP patients in order to decrease the number of redundant referrals to secondary care for non-specific LBP. The diagnostic component of the pathway is well developed (with detection of red flags and neurologic deficit), whereas the therapeutic component is more vague and restricted to general terms, such as pain management or physical therapy. Particular to this algorithm is the use of the Start Back screening tool after 2 weeks of unsuccessful active approach. In patients at low risk, the pain management will be remained, whereas in patients with medium risk physical therapy will be added and in patients at high risk a biopsychosocial evaluation will be performed. According to the interviewee, the lack of an electronic medical file that can be consulted by all involved caregivers in the hospital and the lack of reimbursement of psychotherapy for the patient could hamper the



implementation of the pathway in clinical practice. This pathway will be presented to the local GPs probably in December 2016.

5.3.1.6 *Pathway initiative “Ambulatory rehabilitation care for chronic non-specific low back pain” in UZ Gent*

This pathway is in its early development steps. Currently no triage or therapeutic algorithm is available nor has a collaborative network between the different care disciplines in the hospital been set up. The developmental process is starting up with a preliminary collaboration between the service of physical medicine and rehabilitation and orthopedics (i.e. clinical practices next to each other which facilitate quick deliberation on a patient's status). Within the service of physical medicine and rehabilitation a kind of care pathway has been elaborated with a standardized diagnostic process (mainly focused on the detection of red flags), a referral system to the ambulatory rehabilitation program or the multidisciplinary pain center, and a 2-weekly multidisciplinary deliberation on the patient's evolution. The rehabilitation care program is financed and acknowledged by Fedris. This kind of program aims to target workers who are on sickness leave during 4 weeks to 3 months due to low back pain (more information can be found above in the description of the governmental initiatives). Within the local rehabilitation care program, a screening for yellow flags is foreseen by a psychologist.

5.3.1.7 *Pathway initiative « école du dos » in CHC Liège*

The pathway of the CHC Liège is still an informal pathway created to avoid medical shopping and to improve appropriate information. It is since 2004 a back school and aims to become a spine unit, with more multidisciplinary. The pathway is implemented in 3 hospital sites and includes subacute and chronic patients. It takes into account the yellow flags. Many therapeutic actions and surgical options are available. The pathway is not yet assessed or monitored at the end of 2016.



Table 6 – Characteristics of a sample of Belgian pathways

	Military Hospital Queen Astrid (MIL)	UZ Leuven	CHA Libramont Vivalia	AZ Nikolaas - GP couple Waasland	Monica ZH Antwerpen	UZ Gent	CHC Liège
	Clinical pathway for aspecific chronic low back pain	NTAAS (niet-traumatische aandoeningen van het axiaal skelet)	Prise en charge des lombalgies - spine unit	Chronische Lage rugpijn. Richtlijnen voor de eerste lijn	Zorgpad aspecifieke rauglast	Ambulante zorg chronische aspecifieke LBP rugrevalidatie	Ecole du dos (prochainement Spine unit)
Goal	<ul style="list-style-type: none"> • Clear scheme for all caregivers and patients • Decrease costs (number of sessions and investigations limited and followed-up in a more systematic way). 	<ul style="list-style-type: none"> • Uniform care based, regardless of the specialism that deals with the patient • Best practice care based on current evidence • Improvement of efficiency 	<ul style="list-style-type: none"> • Better knowledge of the patients and better orientation • Uniform discourse towards patients • Avoidance of medical shopping 		<ul style="list-style-type: none"> • Uniform application of triage and care trajectory that could refer the patient to the proper specialism, which will reduce the risk on chronicity of the pain complaints 		<ul style="list-style-type: none"> • Informal pathway. • Avoidance of medical shopping and information spread
Year of implementation	2010	2013	2016	2016	?	?	2003-2004
Region of implementation	Hospital	Hospital	Hospital	Region: Waasland	Hospital	Hospital	3 hospital sites
Coordination	Dr in Motor Rehabilitation and Physiotherapy - Manual Therapist - Postgraduate certificate in ergonomics	Neurosurgeon	Anaesthesiologist		Orthopaedic surgeon		Informal: physical medicine specialist
Patient selection	Inclusion: <ul style="list-style-type: none"> • Active working population within Belgian Defense (18-65 y) • Subacute or chronic LBP • Radiculopathy • Yellow flags Exclusion: <ul style="list-style-type: none"> • System disease • Severe neurological symptoms 	Inclusion: <ul style="list-style-type: none"> • > 16 year-old • Acute, subacute or chronic LBP • Red flags • Radiculopathy • Yellow flags Exclusion: <ul style="list-style-type: none"> • Traumatic back pain 	Inclusion: <ul style="list-style-type: none"> • Acute, subacute or chronic LBP • Red flags • Radiculopathy • Yellow flags 	Inclusion: <ul style="list-style-type: none"> • Acute, subacute or chronic LBP • Red flags • Radiculopathy • Yellow flags 	Inclusion: <ul style="list-style-type: none"> • Subacute or chronic LBP • Radiculopathy • Yellow flags Exclusion: <ul style="list-style-type: none"> • Acute LBP • Red flags 	Inclusion: <ul style="list-style-type: none"> • Subacute or chronic LBP • Red flags • Yellow flags • Motivated patient Exclusion: <ul style="list-style-type: none"> • Acute LBP • Radiculopathy • Red flags 	Inclusion: <ul style="list-style-type: none"> • Subacute or chronic LBP • Yellow flags • Motivated patient Exclusion: <ul style="list-style-type: none"> • Acute LBP • Radiculopathy • Red flags



	Military Hospital Queen Astrid (MIL)	UZ Leuven	CHA Libramont Vivalia	AZ Nikolaas - GP couple Waasland	Monica ZH Antwerpen	UZ Gent	CHC Liège
	<ul style="list-style-type: none"> • Pregnancy • complaints primarily related to another location than the lower back 						
Care levels*	1&2	1&3	2	1&2	1&2	3	2
Compulsory?	No	No	Yes if patient of the pain clinic	No	?	No	?
Developers	Phys Med Spec / Physiotherapist / Occup therapist / Psychologist	GP / Phys Med Spec / Ortho surg / Neurosurg / Pain therapist / Radiologist	Phys Med Spec / Ortho surg / Pain therapist / Radiologist	GP / Phys Med Spec / Ortho surg / Neurosurg / Pain therapist / Radiologist	Phys Med Spec / Ortho surg / Neurosurg / Emergency Spec / Neurologist	Phys Med Spec	Phys Med Spec / Ortho surg / Neurosurg / Pain therapist / Rheumatologist
Basis (ev, em, loc)	Evidence + local habits	Evidence	Evidence + opinion leader + local habits	Evidence + opinion leader	Evidence	Evidence	Evidence + opinion leader + local habits
No of caregivers routinely involved	Potentially 5770	+/- 20	4	+/- 40	20, without GPs	?	+/- 20
Algorithms with or without allocation of tasks	With	With	Without	Without	With	With	With
Inter or multi**	Multidisciplinary	Interdisciplinary	Interdisciplinary	Interdisciplinary	Interdisciplinary (work in parallel)	Multidisciplinary	Multidisciplinary
Intake	GP / Phys Med spec / Ortho surg / Rheumato / osteopathy Spec / physiotherapist	Phys Med spec / Emergency Spec / Ortho surg / Neurosurg / Intern Med Spec	Phys Med spec / Ortho surg / Pain therapist / Radiologist	GP / Phys Med spec / Emergency Spec / Ortho surg / Neurosurg / Pain therapist	GP / Phys Med spec / Emergency Spec / Ortho surg / Neurosurg / Neurologist	Phys Med spec / Physiotherapist / Occupational therapist / Psychologist	Phys Med spec / Ortho surg / Neurosurg / Pain therapist / Rheumato / Physiotherapist / Occup therapist / Psychologist / social worker
Triage/stratification	'red flags' vs 'non-specific pain' The clinical treatment priority is determined based on the Kinetic Control	'red flags' vs 'radiculopathy' vs 'non-specific pain'	'red flags' vs 'radiculopathy' vs 'non-specific pain'	'red flags' vs 'radiculopathy' vs 'non-specific pain'	'red flags' vs 'radiculopathy' vs 'non-specific pain'	'red flags' vs 'radiculopathy' vs 'non-specific pain'	'red flags' vs 'no red flags'
					Saskatchewan zorgpad. IMPaCT back study protocol.		



	Military Hospital Queen Astrid (MIL)	UZ Leuven	CHA Libramont Vivalia	AZ Nikolaas - GP couple Waasland	Monica ZH Antwerpen	UZ Gent	CHC Liège
	Classification System. Clinical priority: motor control						
Routine yellow flag screening	Yes (Örebro Musculoskeletal Pain Questionnaire (Linton S))		Yes (HAD, SF12, owestry)	Yes	Yes (STarT Back Screening Tool)	Yes	Yes (Oswestry, dallas, eva, tampa)
Influence yellow flags	Substantially	Somewhat	Substantially	Substantially	Substantially	Somewhat: Reluctance for more aggressive therapies when significant yellows flags are suspected	Substantially
Routine investigations	Always	Depends on symptoms & signs as well as time variable	Depends on time variable (acute, subacute, chronic)	Depends on symptoms & signs	Depends on symptoms & signs as well as time variable	Depends on symptoms & signs as well as time variable	Depends on symptoms & signs as well as time variable
Strategy for avoiding imaging	If no clear clinical signs and symptoms during examination of the specialized medical doctor and if no trauma reported, imaging is not prescribed.	In acute/subacute axial pain imaging is discouraged; in acute radiculopathy without alarm signs imaging is discouraged	No imaging in case of common acute LBP without red flags	No imaging in case of aspecific CLBP without red flags, neurol symptoms and absence of pain relief when recumbent	According to the guidelines from the American professional association for radiology: technical exams only if they can have an impact on any subsequent treatment.	No	
All therapies potentially available within pathway	No dorsal column stimulation No transforaminal injection No medial branch nerve block No Root pulsed radiofrequency No massage No Multimodality conservative therapy	All surgical therapies available No massage	No dorsal column stimulation No transforaminal injection No Epidural injection No Root pulsed radiofrequency No (Micro)discectomy No Laminectomy (interlam) No Decompr + fusion No Fusion surgery	All surgical therapies available No massage	No Epidural injection No ergonomic advice	No dorsal column stimulation No (Micro)discectomy No Laminectomy (interlam) No Decompr + fusion No Fusion surgery No analgesics No massage No Multimodality conservative therapy	No medial branch nerve block No manual therapy No massage No Multimodality conservative therapy No Multi -disciplinary supportive pain therapy



	Military Hospital Queen Astrid (MIL)	UZ Leuven	CHA Libramont Vivalia	AZ Nikolaas - GP couple Waasland	Monica ZH Antwerpen	UZ Gent	CHC Liège
			No patient education No manual therapy No massage				
Shared decision?	Substantial	Substantial	Substantial	Substantial	Somewhat	Substantial	Substantial
Stepwise approach	Don't know	Yes (No surgery for non-specific axial pain if no significant effort in a rehab program was done. No multidisc supportive pain therapy if there are still options in rehab or surgery with expected reasonable benefit)	No	No	Yes (Conservative (non-invasive) to complex. Pace is determined by evolution of the complaint and the presence of neurology)	Yes (Choice for conservative R so long to endure pain and there is no paresis with power 3 or less present)	Yes
Routine evaluation at end of program	Yes	No	Yes	Yes	Yes	Yes	Yes
FU duration	Follow up of the operability level and the scores on the yearly physical agility tests	Depends on the treatment chosen	Varies greatly from patient's goals, the importance of yellow flags	After surgery till 4 months average	Dont know	Dont know	3-6 months
Non-compliance	Happens	Happens: because of Shopping and preferring proposed treatments that are more passive (surgery, injections...) 18.5% in a study on their multidisciplinary clinic	Happens (weak): because of Wish for radical solution, no time to follow the program	Happens: because of pain 10%	Exceptional: because patients have other expectations	Happens: because of lack of motivation	Unknown
Drop out estimation	Unknown	Unknown	Weak	20%			Unknown
Patient education	Substantial: Prevention. Insight into the movements/positions	Substantial: Degenerative spinal pain/dysfunction is not a disease but a	Substantial: Understanding chronic pain,	Substantial: Daily life, independent of caregivers	Substantial: Understanding disease process and possible therapies.	Somewhat: understanding back protection rules and load principles and	Substantial



	Military Hospital Queen Astrid (MIL)	UZ Leuven	CHA Libramont Vivalia	AZ Nikolaas - GP couple Waasland	Monica ZH Antwerpen	UZ Gent	CHC Liège
	that often lead to pain and learn them to handle these movements/positions differently	condition that requires active engagement from the patient himself	manage daily, entertainment		Avoiding too fast "by moving" to surgical "spectacular" solutions	the utility of exercise and movement	
Provider feedback							
Provider education?	<p>Yes – To be up-to-date about active treatment approach of chronic low back pain</p> <p>No specific tools in the pathway</p>	<p>Yes - Patient triage and management according to evidence, avoidance of unnecessary diagnostic means (particularly radio graphical images)</p> <p>No specific tools in the pathway</p>	<p>Yes</p> <p>No specific tools in the pathway</p>	<p>Yes - To understand the pathways and to use them systematically</p> <p>The pathway include adequate use of medical imaging - specific referral to correct discipline - adequate caregiving in the first line for the NS CLBP patient</p>	<p>Yes – To create uniformity in the treatment of chronic non-specific low back pain in a single institute, with the dream to obtain a regional implementation</p> <p>No specific tools in the pathway</p>	<p>Yes – To apply treatments in light of EBM therapies</p> <p>Provide information education a luggage to the outside world</p> <p>No specific tools in the pathway</p>	<p>Yes- Provide information education a luggage to the outside world</p> <p>No specific tools in the pathway</p>
Provider incentives	No	In-hospital: access to reserved slots for fast MRI and fast transforaminal injections	Yes	No	Streamline treatment by different specialties within a hospital	No	No
Outcome monitoring?	<p>Morbidity</p> <p>Mortality</p> <p>Pain</p> <p>Function</p> <p>QoL</p> <p>By several questionnaires, clinical examination and trunk fatigue test (cyber dynamometer)</p>	<p>Pain: NRS</p> <p>Function: Oswestry Disability Index, Roland Morris Questionnaire, Patient specific functional scale (self-developed)</p> <p>QoL: EQ-5D</p> <p>Anxiety: HADS</p> <p>Expectations (self-developed)</p>	No	<p>Morbidity</p> <p>Mortality</p>	?	<p>Pain: VAS</p> <p>Function: Oswestry Disability Index, SF-36</p> <p>QoL</p> <p>Anxiety: HADS</p> <p>Kinesophobia : Tampa</p>	Foreseen
Satisfact monitoring?	On patients On caregivers	On patient: self-developed questionnaire	No	On caregivers: questionnaire		On patients: orally	



	Military Hospital Queen Astrid (MIL)	UZ Leuven	CHA Libramont Vivalia	AZ Nikolaas - GP couple Waasland	Monica ZH Antwerpen	UZ Gent	CHC Liège
Length of work absence monitoring?							
Process ind monitoring?	Yes	Length of hospital stay for surgical patients Use of imaging in emergency unit Postoperative readmission rates Preoperative inward imaging rate Immediate postop follow up interval	No		Foreseen		Foreseen
Cost data monitoring?							
Extra pathway costs on top of care (paid by...)	One physiotherapist. personnel, test equipment and treatment sessions (even when performed by a civilian physiotherapist) are financed by the Ministry of Defense	Social worker, psychologist; physiotherapist available at clinic paid by the hospital, however justified through a business plan	Medical financing for the CMTDC By hospital	No	Extra psychologist + Infrastructure organization of consultation by different disciplines in the same location Own financing with support from the hospital	No	No

* Primary care: non-hospital caregivers – Secondary care: specialists, paramedics and allied healthcare professionals providing their services in a community hospital – Tertiary care: specialists, paramedics and allied healthcare professionals providing their services in a university or reference hospital

** Interdisciplinary: patient receives one integrated advice from several disciplines - Multidisciplinary: patient receives several advices from several disciplines



5.3.2 Key interventions and building elements

As shown in Table 4, a distinction between the main common aspects and the main differences was often difficult to make, because all pathways differed very much from each other. However, we can stress some issues either at organizational or at clinical level.

5.3.2.1 Organizational level

The development and implementation of the Belgian initiatives have the following characteristics:

- Recent phenomenon: All, except the pathway of the Military Hospital, are still under development and not yet fully implemented.
- No implementation at national level yet: In the few organisations that have already implemented a clinical pathway, the rollout is limited to the local setting of the hospital. No regional elaborations have yet been set up, not to mention at national level. One collaborate with military units all over the country and with civilian physiotherapists who signed to cooperate with Belgian Defense.
- Involvement of multiple disciplines: The development and implementation processes of the local pathways were supported by a diversity of healthcare professionals, varying across the pathway. Nevertheless, the involvement of the specialists in physical medicine and rehabilitation was noticeable in both processes. The non-physician professionals (physiotherapists, ergonomists, psychologists or social workers) are more often involved in the implementation of the pathway.
- Lack of involvement of primary care: Most of the organizations have set up (or are in the process of) a collaboration between different care disciplines within the hospital, without involving primary care as an important participant in the management of the LBP patient. The pathway of AZ Nikolaas is the major exception on this aspect. This pathway is specifically oriented on the diagnostic triage by the GP. Nevertheless the collaboration between specialist physicians and GPs during the development of this pathway, this kind of information transfer between primary and secondary care has less been elaborated in the pathway itself (e.g. back referral to primary care after intervention in secondary care). In the clinical pathway of the Military Hospital the collaboration with the GP has not been excluded but is not often seen in practice due to the availability of physicians (employed by the Ministry of Defense) in the local military units spread over Belgium. However, a more elaborated collaboration has been set up with (civilian) physical therapists in ambulatory care. The patient can opt to be treated in the Military Hospital or in an ambulatory practice of a local physiotherapist. The patient receives a diagnostic report (on paper) which indicates the treatment goals. After the rehabilitation period, the physiotherapist has to return a report (in a standardized format) on the evolution of the patient. Currently already a long list of ambulatory physiotherapist are involved in the military clinical pathway.
- Lack of involvement of the employer: All, except the pathway of the Military Hospital, have mainly focused on the therapeutic management of the patient, without involving the work environment. No links have been made between the hospital setting and the employer. Also most of the pathways are more focused on the chronic LBP patients, who are often already for a long time in sickness leave. The Military hospital is again the major exception on this aspect. In this case, the employer himself (the Ministry of Defense) has implemented the clinical pathway within his local healthcare system, particularly for his (military and civilian) employees. Within this particular setting, the employer can also impose sanctions to patients who are not motivated to participate in the rehabilitation program.
- Same goals: Each local pathway aims to improve quality of care by rationalizing the use of healthcare, avoiding unnecessary surgical intervention, reducing the use of medical imaging, favoring patient empowerment, or in the particular case of the Military Hospital the work retention or return to work. Also all interviewed organizations mentioned the objective to educate involved caregivers to good – up-to-date - practices for the management of low back pain or to create a uniform way of working in the institution.
- Based on evidence: all pathways were primarily based on evidence (e.g. clinical guidelines from Belgium or abroad) and in some of them also eminence (opinion leaders) and/or local habits played a role.



- Rarely out-of-hours: In only one pathway, out-of-hours possibilities are offered for multi-disciplinary supportive pain therapy. In Military hospital, as the pathway is dedicated to employees of the Defense, patients are allowed to follow the treatment during their working hours if they do it in the hospital.
 - Essential link with the Belgian Health authorities' initiatives: Back school could be the basis of the pathway or it is part of the algorithm or because caregivers are involved in both. The links with the center for the pain treatment are also narrow – in one of the pathways, the coordinator of the pathway is also the coordinator of the center. Sometimes, the center is also at the initiative of the pathway. In the case of the Military Hospital, the patients in the LBP pathway differ obviously from the patients in CPC. Most patients visiting the chronic pain center are on sick leave for quite some time. Return-to-work will be a very important issue in this population.
 - Relative compliance of patients: All pathways are confronted with a certain proportion of patients who refuse to follow the action proposed. It could reach 1% to 18.5 % (except a weak percentage in one case where the pathway is mandatory). Common reason they identify are the pain, patients' wish to have a radical or passive solutions, not spending time to follow a pathway, or because they are not motivated. It seems to concern more specifically less educated patients and those who have many yellow flags. In some pathways a psychologist or a contact could be helpful. Respondents mentioned also a proportion of patients dropping out. Reasons seems to be the pain, the motivation, the problem of transport or the costs for the patient. Disappointment in obtained results explained also abandon.
 - No incentive for the patients: In none of the pathways we have identified, incentives are offered to the patients. However, in the Military Hospital, where patients are also employees, there is an indirect incentive: if the patient is not operational, (s)he would not be allowed to go on missions abroad. And if (s)he do not get better, it could have direct effect on his/her career.
 - Rarely incentives for caregivers: It is not obligatory for the caregivers (except in one case) to follow the pathway. Nevertheless, some hospitals offer an incentive for a better streamline of the treatment or access to reserved slots for fast MRI and fast transforaminal injections.
 - No professional training: There are not always specific requirements for the caregivers to be involved in the pathway, when there are any, they have to attest to a specific training, level in education, experience or specific skills.
 - On-going monitoring of the pathway: In both pathways that are already implemented (UZ Leuven and Military Hospital) outcome monitoring is performed with validated questionnaires. More in-depth analysis is needed to collect data on the number of patients involved and their outcomes after treatment. No pathway monitors the length of work incapacity or data related to costs.
- ### 5.3.2.2 Clinical level
- We present the results in four chronological steps: intake, diagnostic process, therapeutic actions and follow-up.
- First contact/Intake
 - It is performed during a planned consultation, except at UZ Leuven where the triage of the patient could be already done during an emergency visit.
 - Different professionals involved: A slight discrepancy is seen between the responses on the questionnaire and the phone interviews on who performs the intake: whereas in the table is mentioned that also non-physicians could participate in the intake process, in clinical practice this role was dedicated to a physician. The background education of the intake-physician could differ between pathways and even in the same pathway. Some pathways (Military Hospital and UZ Leuven) include a standardised clinical examination at intake used by all care disciplines (interdisciplinarity). None of the pathways suggest a multidisciplinary assessment (i.e. each care discipline gives his



medical advice). In most pathways the intake is performed by one care discipline (e.g. GPs).

- Similar in- and exclusion criteria: The majority of the pathways were open for all kinds of patients, independently on age, chronicity of complaints or other patient characteristics. An exception is the Military Hospital, in which only subacute or chronic LBP employees of Defense between 18 and 65 years old were considered as suitable for the pathway. In none of the pathways the patient's work status is considered as an in- or exclusion criterion.
- Diagnostic
 - Screening for 'red flags': All pathways share the same diagnostic approach in which primarily red flags are excluded, a differentiation is made in patients with radiculopathy or not and in chronicity of the pain complaints. A minor difference between the pathways can be seen in a more stepped approach in the primary selection on the red flags, in which the more general red flags (infection, history of trauma, unexplained weight loss, cancer history, long-term steroid use, drug abuse, long-term steroid use, fever, systematically unwell) are completed with more back-specific red flags (structural deformity, loss of bowel/bladder control, neurological signs related to cauda equine syndrome) and signs related to abdominal aortic aneurysm. In some cases additional items were added in the list of red flags. These differences are probably due to the local context, for example in the pathway of UZ Leuven which is applied in the emergency service more neurologic signs were added (e.g. severe nocturnal pain) whereas this item has not been considered in the pathway of the Military Hospital which is focalised on subacute and chronic patients.
 - Screening for 'yellow flags' (i.e. indicators of higher risk for chronicity and/or treatment failure) is quoted by six pathways but the tools used are very heterogeneous: HAD, SF12, Owestry, Dallas, eva, tampa, Örebro Musculoskeletal Pain Questionnaire, or STarT Back Screening Tool.
 - Avoiding medical imaging, not in all cases: In all pathways consensus was reached on the redundancy of medical imaging in patients with acute non-specific low back pain. In patients with

chronic non-specific complaints, some algorithms still prefer medical imaging. However, the use of imagery in the different pathways is again not the same. In some cases X-ray, CT-scan or MR-scan are never repeated, in other they are repeated after 6 months or 1 year, depending of the imagery. Also in some organisations some doubts exists on the use of medical imaging in case of radicular pain. Based on clinical tests and a MRI (combined with EMG) the physician seems to be more able to differentiate between radiculopathy and more harmless radicular pain. Some institutions, but not every, have implemented strategies to avoid unnecessary imaging using (own) guidelines. In only one pathway, technical investigations, i.e. scanner and EMG, are performed in routine to detect red flags. This is not the case in the other pathways.

- Therapeutic actions
 - In all pathways a staged approach is presented: in acute LBP conservative treatment is recommended (including pharmaceutical pain management, patient education and advice to stay active). Only when the complaints become more chronic, other healthcare providers are involved and the conservative treatment will be completed with a rehabilitation program (mainly physical therapy) and/or psychological therapy. After failure of conservative treatment, the patient will be referred to secondary care for more invasive therapeutic options. In none of the pathways the therapeutic component is described in detail, e.g. no modalities of the physical therapy are mentioned.
 - Heterogeneous therapeutic actions: For the non-surgical therapeutic actions, exercise therapy, behavioral therapy and group education are performed across the 7 pathways. However, there is heterogeneity in what is offered to who the group of patients with only the fact that group education is proposed to (at least) the chronic patients. The other non-surgical therapeutic options are the use of analgesics, patient education, manual therapy, massage, ergonomic advice, multimodality conservative therapy, and the multi-disciplinary supportive pain therapy. The option of surgery for chronic axial LBP is offered in the 7 pathways, but mainly for selected cases. Stratification systems (e.g. Mechanical Diagnosis



and Therapy-MDT, Movement System Impairment-MSI or Treatment-based Classification-TBC) and the job / sport requirements could influence the therapeutic choice in some pathways but not in every.

- Patient education: Generally a goal in itself of the pathway. Mentioned objectives of this action differ across the pathways, i.e. making the patient independent of the caregiver in the daily live, understanding the pain and learn to live with it or explaining the exercises and the way to protect the back. Different tools are proposed to the patients, also depending on the pathway: website, flyers, PowerPoints. Tools are also available for the caregivers: training sessions, feedback, consultable protocols / algorithms / flowcharts, and feedback questionnaires.
- Patients follow-up
 - Varied patients follow-up: A follow up seems to be foreseen but vary between pathways without specifying at which time point it is foreseen.

5.3.2.3 Building elements for a Belgian pathway

- The majority of the identified Belgian pathway are hospital centered and start within the hospital. When it is foreseen the involvement of primary care is quite not intensive. This confirms one conclusion mentioned in the international analysis: the involvement of primary care in a pathway for low back pain will require a substantial effort.
- Specialists in physical medicine and rehabilitation appear to be unavoidable during all the trajectory: development, implementation, involvement in intake, diagnostic process and treatment. There are often the initiators of the pathway and could play an important key role in the development of a Belgian pathway.
- There is a large heterogeneity across the pathways at all level in terms of caregivers involved, tools used, imagery, monitoring, therapeutic options, algorithms, etc. This leads to two issues: the need for a more standardized pathway; but also potential resistance when changing local practice.

- Return to work is not actively supported by the identified pathways: lack of employers' involvement; no monitoring of this outcome.

5.4 Limitations

The selection of local initiatives of pathways is made based on experts' advice and search in grey literature, which will probably have led to a selection bias and missing of other existing initiatives. A national study with the description of all existing initiatives was not possible due to feasibility reasons.

The responses on the Lime survey gave a general overview of the existing initiatives, but more in-depth phone interviews were necessary to fully understand the different steps in each pathway initiative. The comparison between the initiatives was hampered due to the different characteristics of each of them, such as only for specific populations (e.g. service members), only in specific locations (e.g. emergency department) or in different phases of development of the pathway itself.

The analysis of the Belgian initiatives gave some ideas on the building blocks for the Belgian pathway, for example the coordinating role of physical medicine and rehabilitation and the need for a multidisciplinary approach. Also some key-elements who were lacking in (most of) the pathway initiatives could be identified, e.g. incentives for patients and caregivers, how to improve patient compliance, or monitoring of these pathway initiatives. These elements were taken into account in the developmental process of the Belgian pathway.

The lack of quantitative data on patient outcomes (or even costs related to the pathway) was also considered as a major limitation of this research.



6 HEALTHCARE PROVIDERS PERCEPTION - NOMINAL GROUPS

6.1 Research objective

This chapter focuses on the healthcare providers' perception of the current situation in Belgium regarding the management for low back pain. The objective was to identify the main flaws and the possible solutions proposed by the involved clinicians in order to develop a pathway that takes into account these flaws and solutions.

The research questions underlying the present work can be presented as:

- According to the healthcare providers, what goes wrong in the current management of low back pain?
- According to the same healthcare providers, how can we improve the management of low back pain?

6.2 Methods

Two nominal groups with healthcare professionals – one in Dutch and one in French – have been organized at the beginning of July 2016. The nominal group technique (NGT) gathers information by asking individuals in small-group to respond to questions posed by a moderator. The process prevents the domination of the discussion by a single person, encourages all group members to participate, allows small groups to brainstorm in a co-creative way and results in a set of prioritized solutions or recommendations that represent the group's preferences.

The participants were recruited among the group of clinicians following the KCE project on low back pain. Each one was asked to participate or to provide the name of a colleague to take his/her place. Both groups followed the same 4 steps for the two research questions:

- Generating ideas: the moderator asked to write ideas in brief phrases or statements and to work silently and independently.

- Listing ideas: the moderator wrote each idea one by one on a flip chart that was visible to the entire group, and proceeded until all members' ideas have been documented. No argument was asked at this step.
- Discussing ideas: each idea was discussed by the whole group to determine clarity and importance.
- Classifying ideas: the moderator asked to prioritize the 3 most important ideas. Each one gave his/her classification and the moderator noted the results on the flip chart.
- The groups were moderated by a KCE researcher (specialized in qualitative research), with the help of an observer and a reporter also team members of the KCE.

The findings of both groups were gathered in one document sent to the whole group of stakeholders involved in the KCE project on low back pain (even the ones who did not participate in the nominal group), to comment on.

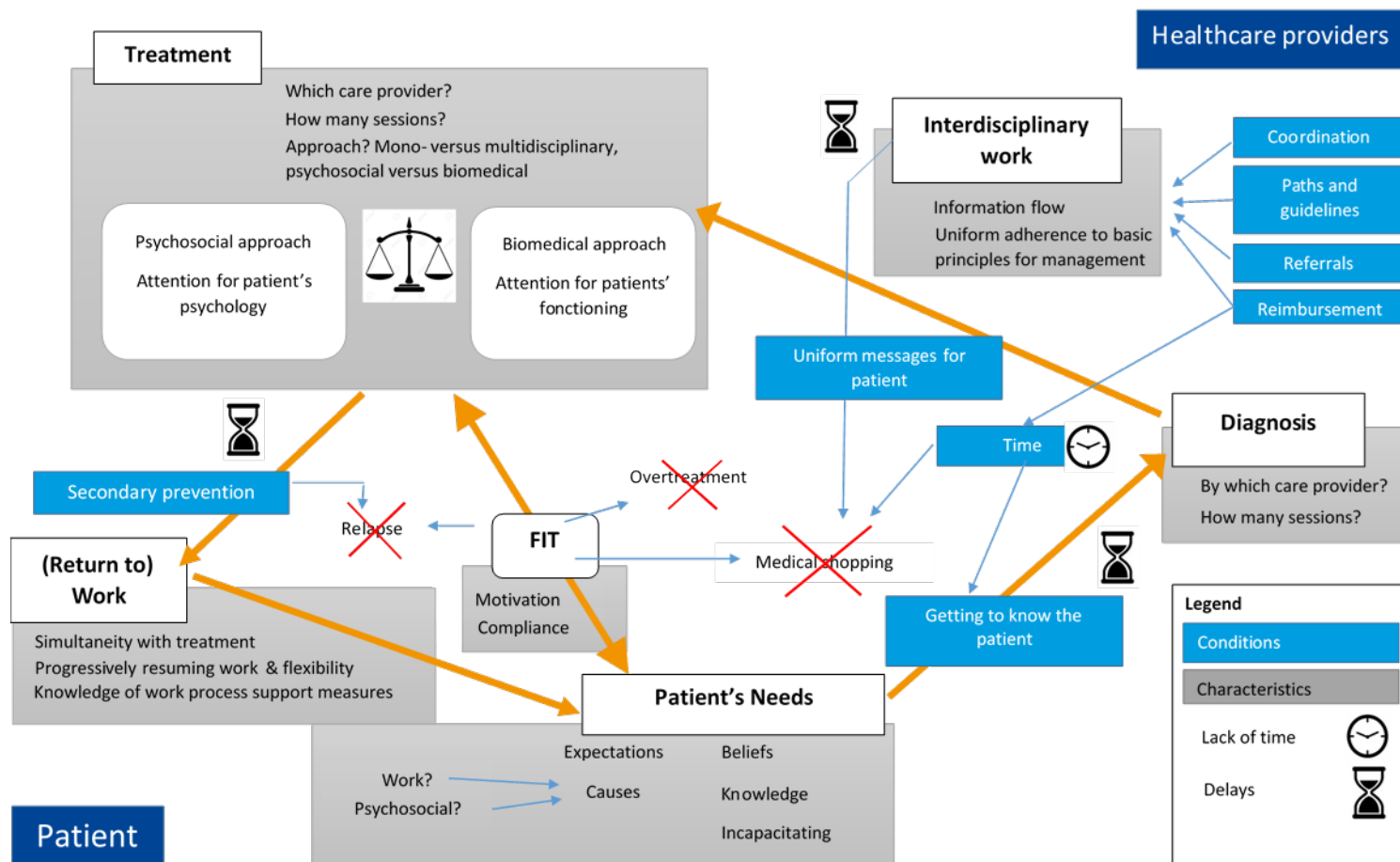
6.3 Results

Seven health professionals participated to the Dutch-speaking nominal group and ten in the French-speaking group. There encompassed physiotherapists, general practitioners (only in the French group), specialists in physical medicine and rehabilitation, orthopedic surgeons, neurosurgeons, occupational physicians, medical advisors of sickness funds and psychologists (only in the Dutch group). They worked in different settings: ambulatory care or hospital, primary or secondary care.

Each group has followed its own discourse flow but both mentioned similar issues: the influence of beliefs and knowledges on the low back pain perception (by patients but also by healthcare providers), the need of an inter/multidisciplinary management, the problems of imaging, secondary prevention, return-to-work, etc. (see Figures 1 and 2). The importance of the psychosocial approach was particularly underlined by the Dutch-speaking group; the French-speaking group highlighted the difficulty to perform a triage and mentioned the patient's role in the management in terms of active or passive.



Figure 1 – Plausible care trajectories from a healthcare providers' perspective (Dutch-speaking group)



The process of care for patients with chronic pain

Legend

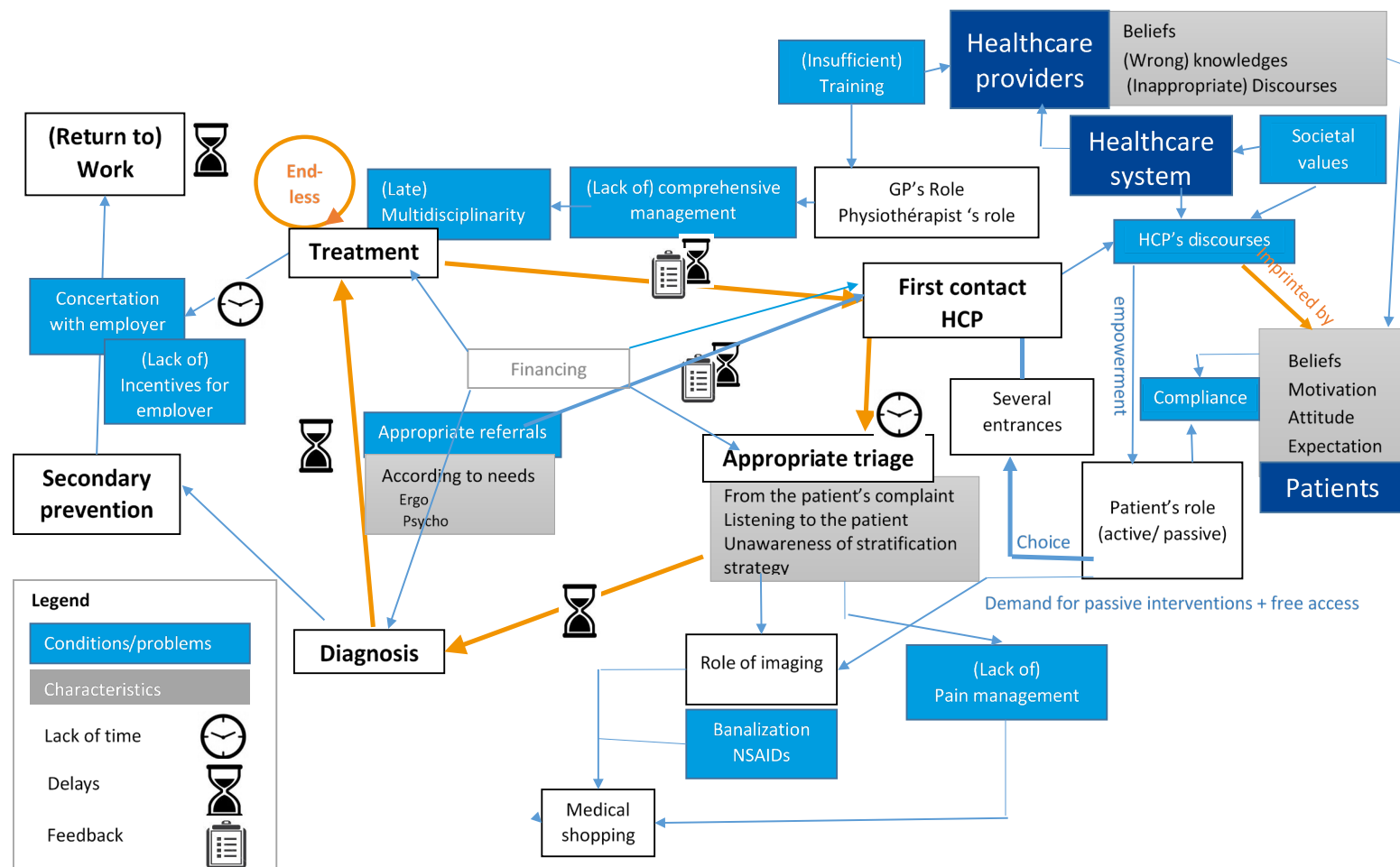
- Conditions/problems (Blue box)
- Characteristics (Grey box)
- Lack of time (Hourglass icon)
- Delays (Clock icon)
- Feedback (Clipboard icon)

Process Flow:

- Healthcare providers** (Characteristics: Beliefs (Wrong) knowledges (Inappropriate) Discourses)
 - Input: (Insufficient) Training
 - Output: GP's Role, Physiothérapeut's role
- Healthcare system** (Characteristics: Societal values)
 - Output: HCP's discourses
- Patients** (Characteristics: Beliefs, Motivation, Attitude, Expectation)
 - Input: Imprinted by (from HCP's discourses)
 - Output: Compliance
- First contact HCP** (Conditions/problems)
 - Input: Several entrances
 - Output: Choice
- Appropriate triage** (Characteristics: From the patient's complaint, Listening to the patient, Unawareness of stratification strategy)
 - Input: Choice (from First contact HCP)
 - Output: Role of imaging, Banalization NSAIDs
- Diagnosis** (Conditions/problems)
 - Input: Medical shopping, Role of imaging, Banalization NSAIDs
 - Output: Appropriate referrals
- Treatment** (Conditions/problems)
 - Input: Appropriate referrals, Financing
 - Output: (Late) Multidisciplinarity, (Lack of) comprehensive management
 - Feedback: End-less (to Diagnosis)
- Secondary prevention** (Conditions/problems)
 - Input: (Lack of) Incentives for employer, Concertation with employer
 - Output: (Return to) Work

Other factors and connections:

- Financing** (Characteristics) connects to Appropriate referrals and First contact HCP.
- Appropriate referrals** (Characteristics: According to needs, Ergo, Psycho) connects to Treatment.
- Compliance** (Conditions/problems) connects to Patient's role (active/passive).
- Patient's role (active/passive)** (Characteristics) connects to Compliance and Choice.
- Demand for passive interventions + free access** (Text) connects to (Lack of) Pain management.
- (Lack of) Pain management** (Conditions/problems) connects to Medical shopping.





In the Figure 1, the main axis consists of the **fit between patient needs and the treatment**. This fit is important to avoid **over- and undertreatment**, but also to get **motivated and complying patients**. The fit is also linked to minimisation of **medical shopping** and **relapse**. However these two phenomena relate also to respectively **interdisciplinary collaboration** and **secondary prevention**. More specifically, interdisciplinary collaboration implies a uniform adherence to a number of basic principles about **diagnosis** and **treatment**, meaning that all care providers take the same stance and therefore make medical shopping irrelevant, since everybody gives the same messages and provides the same kind of therapies for similar needs.

In addition, two triangles are presented:

- Patient needs – diagnostic – treatment
- Care providers should take the time to learn about patient needs, functionally, but also psychosocially, formulate a diagnosis and design a treatment. In the treatment both the biomedical and psychosocial components should be present, but the weight of each component depends on the patient needs.
- Patient needs – treatment – (return to) work
- If well designed and adjusted to patient needs, treatment should ideally allow a simultaneous and gradual **return to work**.

Treatment of low back pain is characterised by two axes: **biomedical versus biopsychosocial and mono-versus multidisciplinary**. For certain patients or certain moments in the care process a monodisciplinary biomedical approach could be sufficient, while for other patients or other moments in the care process a multidisciplinary approach attentive to both biomedical and psychosocial needs could be necessary. Treatment axes are connected to a number of conditions such as type of **remuneration** and the **time** the care provider can or wants to spend. Delays are mentioned before the diagnostic (not so easy to know the patient), within the interdisciplinary work (although the interdisciplinary care providers work together simultaneously, instead of sequentially) and before the secondary prevention (difficult link with occupational environment). Also **coordination** and **information flow** will impact treatment options.

In the Figure 2, the main loop runs between first contact, appropriate triage, diagnostic and treatment, which lead back to another first contact with another care provider. Treatment can be skipped in the process if the diagnosing professional refers to a colleague for treatment, therefore appropriate referrals are presented in the Figure Y as a kind of short-cut from diagnostic to first contact. In interaction with this main loop, cultural elements are represented such as beliefs, attitude and discourses of healthcare providers and patients, and societal values influencing the way the healthcare system is organised. **Lack of time** is underlined in two steps: triage and preparation of the return to work. **Delays and lack of feedback** are criticized by primary care providers. There are also delays mentioned between the triage and the diagnostic, before the treatment and before the return to work.

The analysis of both nominal groups allows us to describe four stages in the care process: Triage and referral; Diagnostic; Treatment (including after care) and Return to work. The most important findings are presented below.

6.3.1 *First contact and Triage*

First contact

The participants mentioned that the caregiver to be contacted first for low back pain was often the GP or osteopath. The first contact was considered as determinative for the trajectory that will follow. The heterogeneity in care trajectories was not identified as a problem in the treatment of low back pain by some participants. Problems were especially situated in the patient-caregiver interaction. The French participants emphasized the massive responsibility caregivers have relative to patients' expectations, attitudes and beliefs and that the care providers' discourse determine patient's response. Negative discourses induce fear and passivity, while positive discourses are empowering, stimulate patients to take responsibility and an active role in their care process. Participants pointed out that the caregivers discourse often promotes a passive patient role, which is reaffirmed by the healthcare systems' favorable stance towards technologic solutions, more specifically surgeries.



Triage

The healthcare providers emphasized their lack of knowledge regarding the signs of severe underlying pathologies (red flags) but also regarding the stratification strategies in order to identify the patients at high risk for chronic pain. Standardized tools such as questionnaires are necessary. They asked that the electronic medical dossier presents a reminder (pop up) with the items to be checked in front of a low back pain or radicular pain codes.

6.3.2 Diagnostic

Uncertainty

The difficulty to ascertain the diagnostic of nonspecific low back pain was pointed out by the healthcare professionals with a risk of heterogeneity or inconsistency between different care providers. A lack of clinical skills is suspected among young physicians because of a too short training in clinical examination for low back pain (only a few hours in the curricula).

Imaging

There was some disagreement about the role of imaging as a triage tool. Some care providers were favorable to the use of imaging to exclude red flags, others claimed that triage should be based on the patients' complaints and imaging should be used in function of those complaints (e.g. presence or absence of reflective pain). Apart from the theoretical discussion, the observation was that the consumption of scans is very high in Belgium. Physicians are afraid of missing a red flag and had an imaging oriented training. Patients are exigent and want to be reassured. In addition, physicians feel pressured to immediately relieve the pain, but lack pain management skills. The lack of communication of the findings between healthcare providers is also highlighted with sometimes a duplication of investigations and mostly imaging.

6.3.3 Treatment

Guideline

The healthcare providers underlined their insufficient knowledge of existing guidelines, including the added-value of physical activities in low back pain. They mentioned also that clinicians prefer to follow the recommendations which are consistent with their beliefs (e.g. if they have mainly a bio-mechanic orientation they will prescribe rest and an RX, and then surgery).

Biomedical vs psychosocial approach

In both nominal groups, the current approach was characterized as primarily biomedical, with too little attention for psychosocial aspects. This observation was primarily explained by time shortages. It takes time to get to know a patient, build a trusting relationship and assess psychosocial needs. More means are needed for a comprehensive approach with tailored therapy to the patient's need. Some suggested a financial revalorization of the intellectual acts and/or a decrease tariff for technical acts.

Interdisciplinarity

In the Dutch speaking group, healthcare professionals associated the lacking psychosocial approach to a lack of interdisciplinary work. Interdisciplinary collaboration avoids a trajectory from one professional to another, as all the needed expertise to diagnose and provide adequate treatment is present at the same time. It also allows uniformity in the information provided to the patient and decrease the risk of medical shopping.

In absence of interdisciplinary teamwork, healthcare professionals individually decide whether a referral is necessary and to which professional to refer to. Participants talked about the timing of the referral and who to refer to. The referral should happen at the right time to the right professional and in accordance with patient needs. In current practice referrals often come too soon (to a surgeon) or too late (to a physiotherapist). The question was raised whether the GP is able to allocate the right care (provider) to the right patient and knows which care providers has which competences. For example the possibilities of manual therapy or physical medicine and rehabilitation seem to be insufficiently known. Here the inadequate formation



of GP's was mentioned. After referral GP's should keep following the patient. However, the GP does often not receive information from the healthcare professional to whom he referred, which hampers follow-up. An electronic platform allowing direct communication between clinicians is considered as of paramount importance (cfr e-health^d and electronic patient record).

Psychologists

Interdisciplinarity has been discussed in function of treatment. Disciplines such as ergonomists, occupational therapists and psychologists may be a real added value. Patients suffering from low back pain during several weeks often face a complexity of other worries. Some lost their work or partner because of their condition. Therefore psychologists have an important role to play, not only in case of chronicity, but also in function of secondary prevention. Psychologists can also play a role in motivation, therapy compliance and empowerment of patients. However, the difficulty for referring physicians is to know who to refer to or find psychologists with the right competences or specialization (e.g. coping with pain). A reimbursement of psychologists specialized in pain should be possible. The Dutch-speaking group questioned also the acceptability of the psychological support by the patient.

Physiotherapy

The role of physiotherapy was highlighted but also some difficulties. The first one is the communication and collaboration between general practitioner and physiotherapist. Physicians seem to prescribe whatever physiotherapeutic treatment, and physiotherapists often do not follow the prescribed treatment. Moreover few physiotherapists inform physicians about the progression of their patient. Each general practitioner should develop a good network of healthcare professionals such as physiotherapists with whom he could work in confidence.

Another difficulty is the limitation of session's number (limited to 18 sessions/year/pathology). In order to adapt the number of sessions to the real patient needs, it was proposed to base the reimbursement of physiotherapy on functional disabilities rather than diagnosis. The International Classification of Functioning, Disability and Health (ICF) is a reference for the Dutch-speaking group (classification more based on function than on diagnosis) but not known by all physiotherapists. A third point of discussion was the difference between individual and group session. In the French speaking group one participant strongly defended treatment in small groups of patients with similar complaints or diagnosis: this is advantageous in terms of motivation and compliance. However, two constraints were mentioned, i.e. rooms (especially in individual practices) are often not sized to groups, nor is the financing. There is no "billing code (nomenclature)" for individual practitioners allowing group sessions. In the Dutch speaking group individual and group sessions were presented as sequential with individual sessions preceding group sessions. In individual sessions therapists get to know their patients better, physically but also psychologically. Two approaches were connected to different contexts and complaints: acute problems are treated in individual sessions in ambulatory, private physiotherapist practices and chronic problems in group sessions in interdisciplinary contexts (e.g. back school).

Secondary prevention

Prevention of relapse was mentioned by both groups. On the one hand, there is a lack of studies on this aspect: few evidence and poor research. On another hand, there are some Belgian initiatives to help patients (for example the Fedris program for workers) but the healthcare providers do not know them. A better dissemination of information is needed.

The difficulty for patient to find practical support in their daily life hampers the secondary prevention. At work also, actions should be taken early.

^d E-health is essentially a communication highway for healthcare providers, developed by the government. It allows providers to share medical information in a fast and secure way.



Ergonomists are important to prevent recurrence and to prepare the return to work.

Aftercare

Aftercare is underdeveloped. Some patients never recover completely, but there is no structure to take care of them. They need to search themselves for alternative ways to maintain their physical condition for example by visiting fitness accommodations.

6.3.4 Return to work

Often during the treatment of low back pain no links are made with the exigencies of the work place. Physicians lack the time to explore the role of work in low back pain. Also occupational physicians, nor medical advisers from sickness funds are involved in diagnosis and treatment. There is a crucial lack of communication between all this kind of physicians (treating physicians, occupational physicians and medical advisers from sickness funds) and none of them has currently sufficient time and resource to share information. In addition ergonomists are underused. Employers are not keen to involve ergonomists, as this often leads to additional costs. Incentives for employers to reintegrate patients (with low back pain) are lacking.

Misbeliefs and lack of knowledge are apparent relative to return to work and supportive measures. For example in the Dutch speaking group it became clear that often healthcare professionals are not well informed about a progressive return to work. Often it is assumed that once back to work the minimum work time is a half time, but this is not the case, it can be less. Legislation foresees a progressive return to work without imposing minima. Also in case of work-induced back pain more extensive care trajectories are available.

The return to work can be accelerated by integrating work exigencies in diagnosis and treatment, by using the expertise of occupational physicians and ergonomists, by referring to the right healthcare professional on time, and by taking advantage of all available measures regarding the reimbursed care trajectories and progressive return to work.

Next, long waiting times to access secondary or tertiary healthcare professionals often lead to months of inactivity. Patients are unable to work and nothing happens meanwhile, except from the administration of medication to kill the pain.

6.4 Limitations

The professionals recruited for the nominal groups were already involved in the KCE project on low back pain and cannot be considered representatives of all Belgian clinicians: most of them were particularly interested by low back pain. It is an advantage to arrive obtain at a fruitful discussion but maybe at the risk of lacking the point of view of professionals with no particular interest in low back pain. However, we had several kinds of professionals in each group and not all of them were specialists in low back pain.

The choice for the nominal group techniques is another source of limitations. It is known indeed that the NGT could limit the development of some ideas by minimizing long discussion on the same item. By scheduling 2h30 for each group and for 2 questions only we arrived to saturation. The most important part of the discussion concerned the flaws in the system with regard to low back pain. When we arrived to the solutions items, there were less ideas to be shared and discussed. Both groups discussion generated a great number of ideas in a friendly and constructive atmosphere, without the influence of a single opinion leader.



7 PATIENTS PERCEPTION – FOCUS GROUPS

7.1 Research objective

This chapter focuses on the patients' perception of the current situation in Belgium regarding the management for low back pain. The objective was to identify the main flaws and the possible solutions proposed by the patients in order to develop a pathway that takes into account these flaws and solutions.

The research questions underlying the present work can be presented as:

- According to the patients, what goes wrong in the current management of low back pain?
- According to the same patients, how can we improve the management of low back pain?

7.2 Methods

Four focus groups (FG) with patients suffering from LBP during at least 6 weeks were organized in October 2016 (two with Dutch-speaking people and two with French-speaking people).

For the patient recruitment, all networks were used: Care providers participating in the nominal groups and in the KCE experts meetings on low back pain were asked to invite patients (meeting the inclusion criteria) for the focus group by handing out a flyer during the consultation. Patients' associations (LUSS, VPP) also received the flyers to dispatch to their members. An advertisement was also included in two magazines (le Vif et de Knack). The flyer (see appendix 6) and the advertisement mentioned the link to the KCE website where candidates could register, in addition to fill out their preferred meeting time and place. Two time slots were proposed: 10-12h30 and 18-20h30 to allow the participation of different patients' profiles (workers or not, having children or not...) and two places were considered (Brussels for French-speaking people and Leuven for Dutch-speaking patients). This way care providers did not know whether a patient agreed to

participate. The KCE website provided also information on the objective and practical details of the FG. An incentive (50 euros) was offered to the participants in the FG.

The patients who decide to participate had to fill out a short registration form (family name, first name, sex, age and duration of the low back pain). Because there were more than 50 answers, some candidates could not be included in the sample. KCE contacted all registered patients either to confirm or decline their participation. The selection was based on the patients' characteristics (age, sex and language) in order to enlarge the diversity of each groups. For those selected, practical information and informed consent were also included in the KCE e-mail.

The results of the professional nominal groups were used to prepare the focus groups. The following topics were addressed: Decision to contact a care provider; First contact with care providers; Diagnose; Treatment and Follow-up. An interview guide was used to moderate the group discussion (see appendix 6). Each group was moderated by a KCE researcher (specialized in qualitative research), with the help of an observer.

The focus groups were transcribed to facilitate the analysis and summary of the data. However all references to persons and places were omitted from the data. After transcription the audio file was destroyed. Participants were informed about confidentiality at the beginning of the focus group discussion. Data management and confidentiality of the data were described in an informed consent form available on the KCE website. The participant could self-evidently stop his participation at any time without any consequence.

This process was approved by the ethics committee of the Cliniques universitaires Saint-Luc UCL, Brussels.



7.3 Results

There were eight and five participants in the Dutch-speaking focus groups and nine and seven participants in the French-speaking groups.

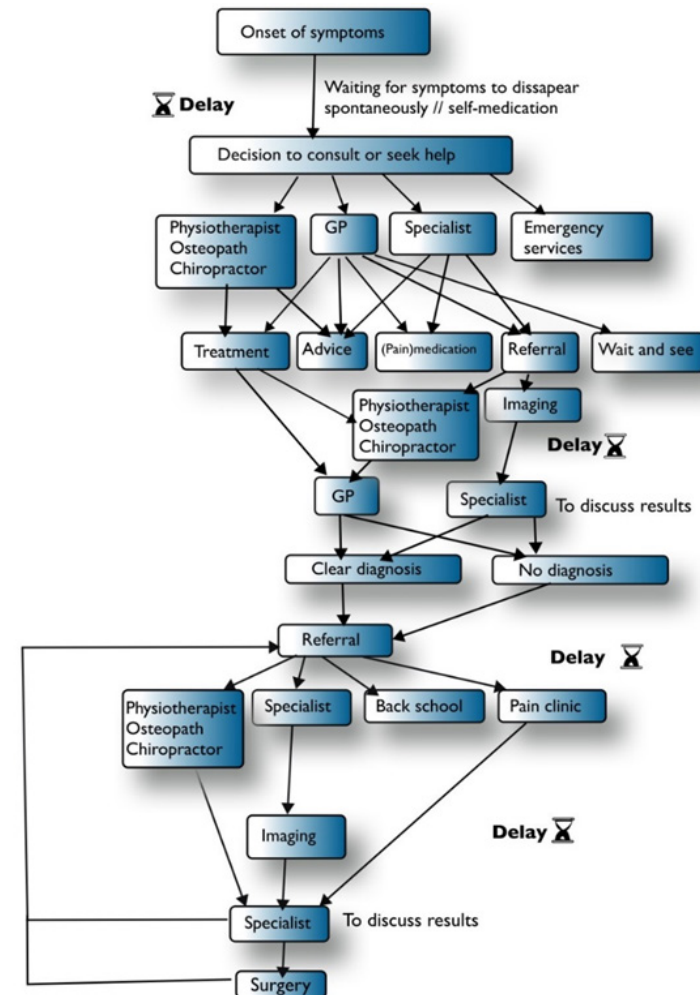
It was a panel of student, housewives, labourers, employees, self-employees and retired. Their age and sex are presented in the Table 7.

Table 7 – Description of focus group participants in terms of age and sex

	Language	Number of men	Number of women	Total n	Min-Max Age	Average Age
FG 1	Dutch	3	5	8	25-66	45.25
FG 2	Dutch	3	2	5	27-64	41.00
FG 3	French	4	5	9	23-66	45.78
FG 4	French	3	4	7	28-55	45.00

The Figure 3 illustrates the plausible care trajectories from a patient perspective.

Figure 3 – Plausible care trajectories from a patient perspective





Currently, care trajectories seem to be unorganised chains of actions in which we can discover the following patterns.

1. The sequence of the actions is highly variable: From a patient perspective any formal care trajectory for low back pain is absent. Patients search their own way through the healthcare system, without any guidance, except hearsay from peers or referrals from care providers. The search for solutions is not a linear process, but rather one with feedback loops. Sequences of actions might seem random, but actually they are chains of exploratory and exploiting acts.
2. At several points in the process, care is delayed, either because of patients decisions (e.g. the decision to wait and see if the symptoms disappear spontaneously), either because of the limited availability of healthcare professionals in secondary and tertiary care settings.

In what follows we describe the (series of) activities either undertaken by the patient or the care provider. The decision to seek help and the act of consulting a care provider are actions initiated by patients, with the purpose to resolve the symptoms. Examining, advising prescribing (rest, medication, imaging, sick leave, treatment, etc.) and referring, are care provider actions, with the purpose to triage, diagnose or treat symptoms. When illustrative, some quotations (in their original languages, in French or in Dutch) are added.

7.3.1 Decision to consult

The first delay in the trajectory is situated between the onset of symptoms and the decision to consult. If the cause of the symptoms is clear and punctual (e.g. an accident), the delay is non-existent to minimal, while for undefined causes delays may extend to several months. During this time patients wait for the symptoms to disappear spontaneously ("it will pass" is what we often heard), which they sometimes do (temporarily). Patients may bounce back and forth between pain episodes before they finally decide to seek help. They experiment with pain medication and other ways to make the symptoms disappear, for example hot water, heat pads, change of mattress etc.

« Op een dag word je wakker en heb je pijn, dan denk je, ik heb verkeerd gelegen, of ik heb slecht geslapen. En ja, je blijft dat een beetje uitstellen, effectief, je denkt ook niet direct van oh, ik heb hier iets aan mijn rug. Ik heb verkeerd gelegen, een verkeerde beweging gedaan, het zal zo wel iets zijn. Ik denk dat ik na twee weken na de dokter ben geweest, dat ik dan echt zo iets had van, dit is niet meer normaal, dit is niet van iets verkeerd, van een verkeerde beweging of van verkeerd te slapen, dit is echt al twee weken constant, dus nu is het wel eens de moment om eens te zeggen van, we gaan naar de huisdokter om dan verder te zien. »

Importantly, the decision to consult may be the end point of a long process of self-help and self-medication. Consequently patients may have high expectations once they finally decide to seek professional help. They easily feel disappointed, let down or not taken seriously if the care provider cannot meet their expectations.

Elements mentioned triggering the decision to consult were:

- being no longer able to cope with the pain
- the pain impacting many aspects of daily life, hence threatening their quality of life
- not being able to function normally (at home or at work)
- not being able to move
- fear
- feeling desperate
- persistent pain during a couple of days to several weeks



7.3.2 First contact: "I felt not taken seriously"

Some patients do not know where to go, ask for good references among family and friends, others spontaneously go to their GP. The first person to contact can be a physiotherapist, an osteopath, a chiropractor, a GP, a specialist (e.g. an orthopaedist) or emergency services.

« Y a pas de parcours, vous devez vous débrouiller. Vous devez vous, si vous avez de la chance d'avoir un bon généraliste qui peut encore vous guider, j'ai envie de dire que c'est quand même le plus important. Mais sinon, vous vous démerdez, clairement. Vous allez voir Pierre, vous allez voir Paul, vous allez Jacques et vous vous débrouillez. Et comme ça, on trouve ce que vous avez ou sinon, vous devez vivre avec. »

They would find it useful to be guided through the healthcare landscape. Now they rely on hearsay and experiences of peers.

« Ce qui est quand même assez étonnant, on est tous en train de discuter ici, on a tous mal au dos et tous, on ne sait pas où on doit aller, on voit tous des gens différents. Je pense que, d'après ce que j'entends, on est quand même tous un peu paumé, donc. »

During the first encounter with their GP, participants often did not feel taken seriously. Some were advised to take some rest, others got pain medication. None of the participants mentioned follow-up consultations.

« Et vous dites "il a ignoré", c'est-à-dire il ne vous a rien prescrit ? Rien, il ne m'a pas écouté. Il parlait d'autre chose et j'ai dit "je voudrais quand même voir ce qu'il se passe au niveau du dos". "Ah, vous faites ci, vous faites cela, pour relaxer c'est tout". Voilà, donc. »

The first contact or series of contacts result in treatment (in case a physiotherapist, osteopath or chiropractor was contacted), advice (e.g. take some rest, train abdominal muscles, change diet, go biking or swimming), (pain)medication, a referral, a wait and see attitude, and/or a sick note. The referrals are mainly towards a physiotherapist, osteopath, chiropractor, or imaging services.

7.3.3 Triage: a long process of trial and error

If no improvement after treatment, medication or rest, patients after some time return to their GP. They also return to the GP with the results of an X-ray or a scan. If the physician can't see a potential cause in the image, patients fall back to the same range of advices, treatments, (pain)medication. This loop of trial and error may take several years.

« On va checker ça, "ah ben c'est pas ça", alors on passe à la ligne suivante. Et c'est comme ça en règle générale pour beaucoup de problèmes, que ça soit pour le dos ou pour d'autres choses. Donc, voilà, on va à petits pas et donc, de temps en temps ça n'avance pas ? très très vite, ça peut durer voilà des années avant de vraiment cibler le problème. »

Two triage strategies

The sequence of the triage strategies varies. At least two strategies appear from the data. What we could call a **'wait and see approach'** begins with the least invasive, which is rest and medication, followed by physiotherapy and imaging. On the contrary in a **'technology first approach'**, imaging comes first, followed by physiotherapy and medication, and ending up in referring to a specialist.

« Bij mij eigenlijk hetzelfde verhaal, eerst naar de huisdokter, dan kine en met dat dat ook niet hielp, had die ook gezegd, ga ne keer terug naar de dokter voor een voorschrift voor eens platen te laten nemen. Dan platen laten nemen en dan doorverwezen geweest naar UZ in Jette. »

Two kinds of patients

In addition, two kinds of patient histories are present in our data: we could call them **'active'** and **'passive' patients**, with active being those patients who themselves search for solutions and/or care providers offering those solutions, and passive patients being those who return to their GP and follow the trajectory he develops over time. Active patients complain about needing to sort out everything themselves, the lack of guidance or trajectory through the care landscape and the lack of physicians' involvement. Also they talked about physicians' disapproval when they confront them with information they found on the internet.



« Ja maar, ge leest altijd op internet, en blogs en zo, ge denkt dat ge alles kent. Ja mijnheer, ik weet gewoon wat ik voel, en ik weet dat het meer is dan dit. »

« Wat ik dikwijls krijg van de huisarts bijvoorbeeld, als ik bijvoorbeeld internet uitspreek, ah ja, maar waarom ga je daarop? Omdat ge het niet meer weet. En dan begint ge te zoeken. »

No real solution

Patients shared with us the impression that physicians and other care givers such as physiotherapists do not have the answers, nor solutions. Neither do they have a network of care providers to which to refer to. This aligns with the idea of trial and error.

« Ik heb meer de indruk van kijk, ge laat platen nemen, ge doen ne scan, doe nog ne scan, ge laat nog eens platen nemen, ja, ze zien wel dat er iets niet juist is, maar wat is dat juist, en van wat komt het en wat kunnen we daar tegen doen ? Kine helpt duidelijk niet, dat is al bewezen, effectief de oorzaak, maar, kunnen ze ze vinden ? Is er iets tegen te doen, die vraag stel ik mij dikwijls. Is er iets te doen algemeen tegen lumbago, waardoor dat je echt van uw pijn vanaf zijt? Nee, denk ik. »

« Ja, en dat voel ik heel fel aan mijn huisarts, want die staat er zelf machteloos tegenover, ik voel wel heel veel begrip en ik heb wel de indruk dat ze beseft waarover het gaat, maar niet kan helpen, dus. »

« A partir de là, un professionnel qui ne fait que ça, problèmes de dos, doit être capable de me dire, "voilà, voyons votre environnement, ne voyons pas seulement la cause, voyons un petit peu tout ce qui vous entoure, qu'est-ce qu'on peut améliorer". Mais jamais, jamais, je n'ai vu un suivi là-dessus. »

« Ik zou ook kijken naar wat er daarna gebeurt en meer opvolging, gewoon het totale beeld ervan misschien, ik weet het niet. Ze willen eigenlijk nooit, ik moet het altijd zelf zeggen dat ik pijn van mijn schouders. SPV: Ze kijken enkel naar je rug. »

One of the participants of the focus groups summarised the triage stage as follows: "at first they are all the same, then (...) it takes a lot of time before someone finally tells you "this is the problem". It takes time to differentiate between mild and serious low back pain and formulate a diagnosis.

« Ik begrijp aan de andere kant van die zorgverlener, dokter, denk ik ergens ook wel, omdat er veel mensen zijn blijkbaar, en daar zit gij dan tussen als echt wel zijnde niet ok, misschien veel mensen zeggen van het is teveel op mijn werk, oh mijne rug. En dat ge daar te veel mee over dezelfde kam mee geschoren wordt, (...) Maar ik begrijp het ergens wel, dat ze toch ergens moeten filteren van, zien hoe en wat. »

GP's have several strategies to 'treat' low back pain. 'Treat', because it is not really about treatment but rather about finding a strategy that makes the symptoms disappear and coming to a clear diagnosis. These strategies are prescribing rest in combination with medication (painkillers or anti-inflammatories), physiotherapy or imaging.

Referral to specialist

Finally, patients are referred to specialists, with or without a diagnosis in mind. In the patient's mind, which care provider he ends up with depends largely on coincidence. This accounts for specialists, but also therapists.

After a first round of scans, diagnosis may be clear or not, but mostly the patient is referred to

- a physiotherapist, osteopath or chiropractor for treatment
- a specialist for further investigations
- back school to learn how to adapt daily life, hence learn to live with the condition
- pain clinic to relieve or soften the pain.

Several rounds of imaging: In case of referral to a specialist, patients report to undergo a new round of scans. It seems to be impossible to transfer the images of the previous round to another physician in another hospital. A new physician means a new scan.



« En het ergste vind ik ook, is als je naar verschillende specialisten gaat, in verschillende ziekenhuizen, is he, foto's zijn, EG foto's zijn geen vakantiekieken he, probeer jij uwe foto van Hasselt naar Genk, 13 km maar eens mee te nemen, of de code, dan krijg je een code en dan is de foto pffff vertoebeld, en dan kunnen ze niks zien he. En dan moet je dat terug laten nemen he. Ik denk dat ik op, ik ben nu in 3 ziekenhuizen geweest, UZ, Genk en Hasselt, overal hebben ze bij mij botscans genomen, overal NMR, MRI, alles wat je kunt doen he, in de buis, met een klein buisje over u, een vloeistof in uw lijf, iets om te drinken, ik heb ze allemaal gedaan, en dan denk ik van allez, kom, laat ze maar weer komen se, ik heb radioactief zal ik maar zeggen, maar dan denk ik in mijn eigen, maar allez. »

7.3.4 (Lack of) Diagnosis and “learn to accept your condition”

Physicians do not listen to their patients, has been often quoted. They do not perform a comprehensive history taking and they rely more on the images than on patients' accounts. This leads to unclear diagnosis or delay before diagnosis.

« Mais moi j'ai dû, pour avoir un diagnostic clair, j'ai dû prendre, j'ai dû m'informer sur internet, j'ai dû aller voir 8 généralistes différents en leur disant une phrase de manière très scientifique pour voir, pour qu'il y ait un critère stable qui était mes phrases dites avec le non verbal au médecin. J'ai dit ça à 8 médecins, j'ai eu 6 diagnostics différents. Et il y en a, sur les 8, il y en a eu 3 qui ont fait des anamnèses complètes. Et c'était la première fois qu'ils me voyaient et je trouve ça très choquant. »

« Quand on va chez le médecin et qu'on dit "moi j'ai une sciatique mais elle est des deux côtés", eh bien, il ne vous croit pas. Il ne vous croit pas, il dit "Monsieur, non, une sciatique, c'est un côté ou c'est l'autre, ce n'est pas les deux". Eh ben, si, ça peut être les deux. Donc on se sent obligé de se justifier, de dire "écoutez, si, c'est les deux" et c'est parfois pénible cette impression de ne pas être entendu, de dire "écoutez, moi, j'ai pas besoin de congés, je ne veux pas de congés, je veux une solution à mon problème. »

« Wanneer dat je, het luisterend oor hebt gevonden, (...) dat er niet alleen maar het verslag wordt gelezen, maar ook naar de foto's wordt gekeken, want meestal lezen ze gewoon het verslag, kijken ze zelfs nog niet, even dat dat dat dat, ah ja. »

« Bij mij gaat dat nu wel 30-35 jaar terug, toen was RX zo wat het enige denk ik, ik denk niet dat er al sprake was van EEG's en die toestanden. Maar dat is hetzelfde verhaal. Ik zie niks speciaal. Nee, maar ik voel het wel. Dus in heel dat traject, heel dikwijls een gevoel van onbegrip. Van, als ik 's morgens mijn kousen wil aandoen, dat is geen inbeelding he, en toch zeggen ze ja, misschien, dus, dan sturen we u maar naar de kinesist. »

« Maar waarom zou dat een paar maanden moeten duren ? Allez, ik vind. Ja maar nee ik bedoel hernia is hernia, dat zie je van dag 1. Waarom moet dat eerst een paar maanden duren voordat dat vastgesteld wordt? »

Consultations are too short to be effective. Patients report too little time at consultations. Physicians are under time pressure. It is a societal problem.

« Dat is ook zoiets he. Ze hebben geen tijd, ze hebben geen tijd. Waar is de tijd heen en wij, ik moet naar Antwerpen, dat is voor mij 49 km, ik doe daar welgeteld, want ik moet daar om 9u zijn, ik vertrek thuis om 10 na zes voor 49 km, om daar te geraken he. Op tijd te zijn en de files van Limburg naar E313, naar Antwerpen. En dan kom je daar en dan, als je 5 minuten krijgt, heb je veel verteld. De eerste keer, dan pakken ze een kwartier of 20 minuten, en elke sessie die je daarna hebt, is het heel klein en kort. »

« Oui, après c'est sûrement symptomatique de notre société aussi, j'ai pas envie de plaindre les professions médicales mais on travaille tous dans des conditions de travail qui se détériorent et les médecins nous font payer leurs conditions de travail, qui font que eux-mêmes n'ont même plus le temps d'avoir une vision holistique, de se permettre de continuer de se former, enfin c'est très global comme problème. »



Learn to accept your condition

After one or more trial and error iterations not resulting in a clear diagnosis, the conclusion may be that there is no solution. The quote mostly cited during all four focus groups was “you will need to learn to accept your condition”.

« Donc je suis allée voir mon généraliste qui m'a fait passer un scanner et qui m'a dit "ben c'est de l'arthrose au niveau de la colonne, on sait rien faire", voilà. »

« Y a pas de parcours, vous devez vous débrouiller. Vous devez vous, si vous avez de la chance d'avoir un bon généraliste qui peut encore vous guider, j'ai envie de dire que c'est quand même le plus important. Mais sinon, vous vous démerdez, clairement. Vous allez voir Pierre, vous allez voir Paul, vous allez voir ? Jacques et vous vous débrouillez. Et comme ça, on trouve ce que vous avez ou sinon, vous devez vivre avec. »

« A: Ik vind dat voor mij wel psychologisch heel zwaar dat ik dat allemaal niet meer kan, ja.

B: Dat noemen ze, er mee leren leven.

A: Ja, ik weet dat.

B: Maar ze zeggen niet hoe dat ge dat moet doen.

A: Dat moet je zelf vinden he. »

The message “learn to accept your condition”, is a heavy burden. The foresight of a future in persistent pain makes patients desperate. Patients are so desperate that they would try anything that comes across their path.

« Dat is een soort massage matras. Verwarmd massage matras, kost 4000 euro, maar nu staat die in promotie, 3,500. We zitten in een situatie, als die zo wat uitzichtloos is en ge hebt alle wegen belopen die ge kunt belopen, en ge hoopt ergens, dan kom je automatisch ook bij zo'n dingen terecht. Met alle gevolgen vandien. »

The transition from the “it will pass” attitude to the awareness that it will never stop, is really difficult, not only for patients themselves, but also for their family, their partner in particular.

Find a cause: Out of all contacts with healthcare professionals patients retrieve plausible explanations for their suffering. They want to understand why this is happening to them. We heard a large array of attributions. Examples are grown too fast, epidural analgesia, work exigencies such as standing straight whole day or sedentary work, heavy schoolbags.

« Mais depuis 2 ans j'ai plutôt une fonction sédentaire, où je passe toute la journée assise devant l'ordinateur, et donc, depuis le début de cette année, j'ai commencé à avoir le bas du dos qui craquait, mal au dos et une irradiation au niveau des jambes. »

« En dat is dan eerst gegaan van ja, er was toen serieuze gewichtstoename, een 12-tal jaar geleden, dan was dat de oorzaak. Die leek mij op dat moment dan ook acceptabel en vrij evident. Dan is er gewichtsverlies geweest, sport hernemen, een gezondere levensstijl gaan aannemen alles wat daar mee samengaat, beginnen sporten, eigenlijk is die heuppijn nooit weg gegaan. »

7.3.5 Treatment

- No permanent solutions, only quick fixes

Treatment is not so much a separate step in the trajectory but is rather a recurrent activity throughout the trial and error process. From early in the process, after the first contact with a care giver, treatment may be provided, sometimes successful, mostly not, it only causes temporary relief. It has been an important threat throughout the focus group conversations that there is no cure, only alleviation of the pain.

« Het is zo dat ik hem over mijn rug gesproken heb, en dan heeft hij mij in eerste instantie doorverwezen naar een kinesiste, en ben ik zo, ik geloof 10 sessies geweest, en dan was dat in orde. Maar dan nadien is die pijn terug gekomen. En toen heeft hij zowat mijn rug bewogen, en mijn arm, en dan zei hij, ja dat zijn lage rugpijnen, daar is niks aan te doen. »



« OK, het is precies duidelijk dat er niet veel tegen gedaan kan worden. En ok, met die kine, ja, ge zijt een dag geholpen of ge zijt twee dagen beter en dan is het terug hetzelfde. »

“En nu, ik weet niet wat ik nog kan en mag en ik wil bewegen, maar het gaat niet en ik ben nu afgelopen dinsdag voor het eerst in twee maand terug gaan sporten, met als gevolg dat ik dinsdagnacht van de pijn ben wakker geworden, en ik merk dat ik met die concrete vraag ergens nergens terecht kan.”

A large array of treatments has been mentioned: physiotherapy, sports, medication (anti-inflammatories and painkillers), chiropractic and osteopathic sessions, denervation, surgery, injections, infiltrations, exercises to develop muscles, mattresses, orthopaedic insoles, back school, rest, massages, acupuncture sessions, diet, mesotherapy, fasciatherapy, homeopathy, thalassotherapy, sophrology, hypnosis and yoga.

Experiences diverge to a great extent with some participants finding for example physiotherapy worthless, while others report temporary pain relief. In their search for pain relief patients also try complementary and alternative therapies, such as acupuncture, mesotherapy, fasciatherapy. Patients are quite happy with them and report positive experiences.

Painkillers' place

Patients believe that physicians think patients expect the prescription of painkillers. However, patients expect a clear identification of causes (diagnosis), answers to their questions and permanent solutions, not quick fixes.

« Ik wilde een duidelijke omschrijving van wat mijn probleem is, ik ben toch niet de enige die dat heeft. En er komt geen antwoord. Je komt buiten en ja, met pijnstillers, klassieke ontstekingsremmers met alle gevolgen van dien voor de maag en dergelijke, dat was dan ook weer een probleem. Maar het is geen complete oplossing. »

In addition, patients do not want to rely too much on painkillers because they believe that if they take them too often the pain relieving effects will disappear as their body gets used to them.

« En als het echt niet gaat, neem ik een voltaren voor ik ga slapen, maar ik probeer daar ook geen gewoonte van te maken omdat dat, ja op de duur heb je, is uw lichaam daar ook aan gewend. En heeft dat ook niet veel nut. »

Others quit/refuse painkillers because if they do not feel the pain, they do things they shouldn't do and overburden their body. Things only get worse.

« Dus ik neem niks meer, ik moet het voelen, ik heb 6 maanden zwaar aan de morfine gehangen end an ga je je overbelasten, want je voelt die pijnen niet meer en je gaat dingen doen die je eigenlijk niet kunt doen. »

Nevertheless, painkillers allow patients to continue functioning

« Donc on me donne des antidouleurs ou des anti-inflammatoires pour le, voilà, pour m'anesthésier, pour que je me sente mieux. Ça, ça va après, après une journée, ça y est, je suis opérationnelle. »

Lack of holistic approach: Healthcare professionals are expected to take the whole picture in consideration, meaning the body as a whole, social context and psychology of the patient. But in practice, patients are disappointed. A multidisciplinary team with neurologists, surgeons, general practitioners, physiotherapist, psychologists, social worker etc. could offer more integrated holistic care but with a single healthcare provider for centralising the information.

« A partir de là, un professionnel qui ne fait que ça, problèmes de dos, doit être capable de me dire, "voilà, voyons votre environnement, ne voyons pas seulement la cause, voyons un petit peu tout ce qui vous entoure, qu'est-ce qu'on peut améliorer". Mais jamais, jamais, je n'ai vu un suivi là-dessus. »

« Ik zou ook kijken naar wat er daarna gebeurt en meer opvolging, gewoon het totale beeld ervan misschien, ik weet het niet. Ze willen eigenlijk nooit, ik moet het altijd zelf zeggen dat ik pijn van mijn schouders. SPV: Ze kijken enkel naar je rug. »



No personalized care

Patients feel that physicians follow some checklists and do not adapt their proposition to the own story of the patient.

« J'ai l'impression que quand on voit un médecin, il n'est pas très, je ne vais pas dire concerné mais on a un peu l'impression qu'il a une check list, qu'il ressort sa check list et puis voilà. »

« Moi, je vais peut-être être sévère, mais je rencontre des médecins qui ont pas de temps, qui ont des rendez-vous toutes les 10 minutes, qui vous sortent le même blabla, les mêmes conseils, je vais dire débiles, mais, les mêmes conseils. »

« C'est seulement après 6 mois qu'ils disent "ça c'est pas normal". Mais au début c'était "étirez-vous, revenez dans un mois. »

Conflict of interest

Sincere involvement or concern of healthcare professionals has been questioned during the focus groups. Instead some suspicion about profit as driving force was risen. Also conflict of interest has been suggested in the sense that healthcare professionals want patients to come back and therefore give incomplete information.

« On n'est pas dupe aussi, on sait bien que il y a des personnes qui travaillent dans le médical, c'est leur gagne-pain et parfois ils ont pas beaucoup d'intérêt à nous automatiser dans la connaissance de notre corps, dans les exercices qu'on peut faire. Il y a parfois un jeu de dépendance qui peut s'installer, où le professionnel ne va pas donner tout ce qu'il peut pour qu'on puisse aller mieux ou trouver les professionnels qu'il faut et ça participe aussi à ce que, j'ai pas du tout envie d'être complotiste en disant, c'est pas du tout l'idée. Mais c'est aussi un business le medical. »

« Inderdaad, bij verschillende dokters geprobeerd, inderdaad, de communicatie, maar ik denk ook dat er eigenlijk ook een onderliggend winstbejag onder zit, omdat ze inderdaad toch wel, als ze al scans hebben, en een maand later zien ze dat terug zitten, ja is de vraag dan, ja nee, maar ja we moeten dat toch opnieuw doen, want misschien op die maand tijd, deze scan is niet veel anders he op een maand tijd, maar

toch hameren ze er dan op, dus ik heb daar toch, ik ben er toch een beetje sceptisch tegenover, persoonlijk. »

Poor communication between healthcare providers

Patients report receiving contradictory information from healthcare professionals. The transfer of information from one healthcare professional to another does not always happen automatically. Patients experience this as troublesome. Centralisation of information in a passeport for the patient or an electronic patient file, accessible for all healthcare professionals, is suggested to facilitate information transfer and avoid double investigations.

« En ja, ik heb bijvoorbeeld ook, ik heb van, ge hebt kine, ja dan zit je bij een kinesist en die kinesist zegt dan het tegengestelde van de vorige kinesist, bij wijze van spreken. Ik heb gewoon te horen gekregen dat ik, toen ik zoveel last had in die bil van die allergie, moest ik zoveel mogelijk wandelen, en de andere kinesist zei tegen mij, nee ge moet gewoon een dag rustig in bed blijven liggen, stil blijven liggen. Volstrekt tegenstrijdig eigenlijk. »

“In tussentijd bel je naar uw professor en dan vraag je, mijnheer, ik kan het wel zeggen, het resultaat was voor mij niet goed, ja maar zegt hij, je moet nog in contact komen met de anesthesist. Ik zeg ja maar, ik ben haar patiënt he. Ik zeg, als jij haar rechtstreekse lijn hebt, dat je het direct weet. Ja maar zegt hij, dat is mijn werk niet.”

« Il a rien, il a pas de résultats, alors que j'ai été passé les examens dans l'hôpital qui est à 5 kilomètres, il a pas de résultats, il a rien, alors qu'à chaque fois, je signale que c'est mon médecin. Et je lui ai dit, et il m'a dit « oui, mais ne vous tracassez pas, ils s'en foutent ». Même lui, il le dit.”

“Als je naar verschillende specialisten gaat, in verschillende ziekenhuizen, is he, foto's zijn, EG foto's zijn geen vakantiekieken he, probeer jij uwe foto van Hasselt naar Genk, 13 km maar eens mee te nemen, of de code, dan krijg je een code en dan is de foto pffff vertroebeld, en dan kunnen ze niks zien he.”



Long delays until consultation

Patients underline that a long time can be needed to obtain an appointment with some specialists.

« Dus hoe lang duurt het eigenlijk voordat er een juiste beslissing wordt genomen, en waarom altijd twee drie maanden tussen alle afspraken? »

« Quand vous voulez un bon spécialiste, j'ai l'impression que ça prend du temps. »

« Dès que ça ne va pas, je vais voir le kiné, mais bon, le problème, c'est que des fois, il faut que j'attende 10 jours avant qu'il y ait un rendez-vous. »

Financial obstacles

Patients complain about treatments not being reimbursed and therefore inaccessible to them (in the long run).

« Ik ben altijd zeer goed geholpen geweest met osteopathie. Nu het belachelijke van ons systeem vind ik, ge kunt dus heel veel kine terugbetaald krijgen, maar osteopathie dus niet. De ziekenkas betaalt mij 6 keer per jaar terug, we spreken hier over 50 euro per beurt. Ik heb momenten gehad dat ik, ja wekelijks moest gaan he. Dus ik kan me best voorstellen dat dat voor veel mensen al een stop is. En ik had daar heel goede resultaten van, dat is dan nog het frustrerende, ge weet dat dat helpt, en eigenlijk kunt ge u dat niet permitteren, dat is dus redelijk triest he. Terwijl dat dus behandelingen die totaal niet helpen, die ook aan de gemeenschap dan veel geld kosten, die doet ge maar. »

« Il me demandait 2 500 euros, la sécurité rembourse, c'est un peu remboursé par la mutuelle. Bon, moi je suis au chômage, j'aime autant te dire que les 2 500 euros, il va pas les avoir comme ça et sans être certain que ça marche. »

It has been suggested that physicians do not mention the treatment options they estimate too expensive for a certain patient.

« Ma soeur a eu ça oui. Ma soeur vit dans un petit village et elle a 7 enfants, elle travaille pas, et cetera, son mari travaille, oui, oui, son mari travaille mais bon, un salaire pour neuf, et elle m'a montré que, parce qu'elle aussi a mal au dos, elle m'a montré le diagnostic, donc c'est sacro-ilite ou je sais pas quoi, un truc inflammatoire. Et puis il a dit "c'est pas grave". Il a rien proposé, parce qu'il sait très bien que l'ostéopathe, c'est pas remboursé, le kiné c'est pas remboursé. »

Patients mentioned also the need of practical support, such as parking ticket allowing them to park their car close to the shop, school etc, free adaptations to their homes (e.g. staircase elevator, lowering thresholds), free orthopaedic furniture (e.g. bed, chair).

« Bij ons aan school ook, ik moet 250-300 meter gaan voordat ik die kinderen heb afgezet, en ik draag die boekentassen en zo he, en in de winter is dat leuk se, oppassen waar je gaat, en sletsvoerend zorgen dat je daar geraakt en terug geraakt, zonder rond te zien hoe dat je gaat, en dat je terwijl een paar van voor, helemaal een parking hebt waar niemand op wil staan, dat is ook zoiets waarvan ik vind eigenlijk, als gij een zware lijder zijt met uitstralingen naar uw benen toe, ne gewone in de onderrug kun je dat al hebben he. »

Decision to undergo surgery

The decision to undergo back surgery is not self-evident. Patients tend to consider back surgery only as a last resort.

« Wat hij ook zei was, ik werk heel veel met die dokters samen, en die doen niks wat niet nodig is. Zal u eerder met spuiten verder helpen en als dat draaglijk is, en, want je bent eigenlijk nog vrij jong, en dan door die dokter eigenlijk ook heel goed. Eerst die infiltraties, epidurale, de combinatie, een jaar aan een stuk denk ik, en toen heeft die gezegd, en nu heb je geen keuze meer. »



Our respondents struggled with the risk assessment associated with back surgery. They especially hesitate if physicians cannot guaranty a lasting improvement.

« A: Maar daar hangt bij wie ik spreek, loopt het uiteen van, ja, in het slechtste geval is het nog slechter dan nu, en in het beste geval, ja ga je u beter voelen, maar hou je pijn. En heel de waaier daartussen, en op basis daarvan moet ik nu gaan, wat ga je dan doen? Een operatie die is nu heel goed geweest, maar het is ook onomkeerbaar. Als het dan slechter is, is het ook niet van, we gaan dat efkes opnieuw aanpakken, want dat gaat niet. Ik vind, het wordt heel dikwijls naar u toegespeeld zo van ja, dat zijn uw risico's.

B: Ja, ik heb dat eigenlijk wel graag dat ge, ik wordt graag geïnformeerd, en ik heb wel graag van, ik wil niet achteraf zeggen, die dokter zeg, die heeft dat gedaan zonder mij in te lichten. Dus ik vind dat niet slecht.

A: Nee nee, maar als het concrete informatie is, ok, maar ze geven u een waaier van mogelijkheden, precies zo van, kies maar iets uit. »

Patients search for guidance in the decision to undergo back surgery. They ask second and third opinions, but are confronted with contradictory information. They feel unable to make an informed choice.

« Ze spreken ook van opereren, ok, ge gaat dan voor een tweede opinie, wat zegt die? Niet opereren. En dan een derde, ja ik denk het wel. Het zijn allemaal specialisten, en dan moet gij als leek een keuze maken. »

Lack of secondary prevention

Patients believe back pain can be prevented with quite simple measures, such as awareness raising in the general population, from child age onwards. In addition they talked about secondary prevention: they would like to get guidance about preventing a relapse or a deterioration of their symptoms.

« Moi, je trouve que, voilà, y a pas de prévention, y a juste "revenez quand vous serez complètement handicapée". »

Absence of follow-up

Follow-up was completely absent in the trajectories of patients who participated in the focus groups.

« Moi, ce que j'en tire de cette première partie, c'est le manque de suivi. Jamais, on ne m'a proposé, « tiens, revenez dans un mois, dans deux mois, après les conseils que je vous ai donnés, pour voir si il y a une amélioration ». C'est toujours quand j'ai mal que je dois réagir moi.

« Ce qu'il faudrait, c'est vraiment un suivi, et de dire "voilà, on a tel programme pour vous, selon votre type de douleur, votre corpulence, votre activité sportive, votre milieu professionnel, et cetera, eh bien voilà le programme qu'on va élaborer pour vous. Et vous allez revenir dans deux semaines, dans trois semaines, dans un mois" et on voit si ce qu'on a mis en place et puis on réajuste, comme on aurait, moi je ne sais pas, un problème hormonal, eh bien on va donner une dose et puis on va refaire une prise de sang pour voir si la dose était la bonne. Donc c'est plutôt imaginer ça dans ce sens-là, qu'il y ait un vrai programme, un vrai suivi. »

7.3.6 Impact on patients' life

Private or family life

During the focus groups patients told us that the pain is omnipresent. It impedes normal functioning, brings about sleeping problems, hence pervades every aspect of life. The daily life of patients and their family is subverted.

« Le dos, c'est à peu près, je pense, du point de vue gestion de la douleur, c'est à peu près la même chose, ça peut nous invalider au quotidien, dans la vie au quotidien, dans nos relations avec les gens, avec nos proches, donc c'est vraiment tout, c'est un tout. »

The pain constraints daily activities to such an extent that sufferers constantly have to choose between activities, being well aware that certain activities will come at the cost of increased pain, even being completely bedridden, the days to follow. The constant trade-offs are emotionally



burdensome and bring about conflicts between partners. Power balances and the division of housework are shaken up.

« Ik denk dat onze pijn niet te vergelijken is, naar de impact naar de levenskwaliteit, allez, ik voel dat ook zo, dat is de reden waarom ik geconsulteerd heb, en naar mijn kinderen toe, sjotten dat zit er niet in, het poussetteke duwen van mijn kleinste, als ik van waar ik woon tot in het centrum stap, ja ik moet dat mij soms de rest van de week bekopen. »

Not being able to function, reduction of working hours or even job loss, bring about mental health problems, tensions within families and financial constraints.

« Maar dan zo de laatste 5 jaar dat ik gewerkt heb, was het echt heel moeilijk, ondanks dat ik toen ook al half time ging werken. En dat was echt moeilijk. Thuis niet te veel doen om toch uw werk te kunnen doen. »

« Ik heb een redelijk hoog loon, ja en dan val je terug op een vierde. En dat doet pijn. En die druk heb je als papa ook nog, als mama die alleen, mama zal die druk ook wel merken, maar die druk van, ik moet zorgen voor mijn kinderen, ik moet zien dat alles betaald geraakt, ik moet zelf nog leven, ja, waar zijn de prioriteiten. »

Patients believe that the awareness of family members, friends or colleagues lacks behind their own. They explained this by the low visibility of back pain. Because the pain is not visible, patients think others perceive them as feigning pain and taking advantage of their situation. By consequence patients feel uncomprehended and unsupported, both by professionals and in informal contacts.

« Ik heb dat thuis eigenlijk wel ondervonden, ja je hebt rugpijn, ok, dat zal wel overgaan. Maar die stap eer dat men begrepen had, en dan de rest van het gezin, maar het zal niet meer over gaan, we zullen ons hier moeten aanpassen. Dat was een moeilijke stap. »

« Ik heb een zwaar ongeval gehad, ik lag dus half in het gips. Maar die gips was weg, en dan begon het: de martelgang van de revalidatie. En dan zijt ge een profiteur. En dat is dus ook nog eens, vooral dan het moreel aspect van, de omgeving die u echt ja, niet meer au sérieux neemt en u gaat beschuldigen van profiteur. »

« Parce on ne voit, ben j'ai juste un début d'hernie mais ma douleur elle est là, elle est constante, elle est réelle, elle me handicape souvent, elle me réveille aussi pendant la nuit, mais voilà, on ne voit rien de particulier donc, ce n'est pas si grave. »

Finally, there appears to be an explicit need to talk about complaints and their impact on quality of life to peers but also healthcare professionals. Also the need for psychological support has been mentioned. Low back pain patients feel stigmatised. They report accusations of abusing the system. They experience self-doubt if not taken serious by healthcare professionals or family and friends.

« Ik had zoveel last en dan, ja, het ongeloof zal ik maar zeggen, dat dan heerst, en het in twijfel trekken, zodanig dat ge aan uzelf begint te twijfelen. »

« Dat werd hoe langer hoe lastiger. Dan ben ik terug gaan consulteren. Weer opnieuw al die onderzoeken, en dan weer, mijnheer, er is niks. Dan begin je te twijfelen aan uw psychische gezondheid. »

7.3.7 Professional life and Return to work

In the best case, patients report adaptations at work to facilitate their functioning or keep pain within the boundaries of the acceptable.

Other tasks or work content: this is not self-evident, the help of the occupational physician might be needed to push bosses to accept this solution, or for particular jobs or job contexts no other easier work is available. Bosses may prefer that the worker stays in sick leave because of this kind of difficulties.

« Par contre, au travail, voilà, on doit déplacer plusieurs caisses, si je vois que je ne le sens pas parce que je sens que je vais avoir mal, eh ben, ça fait, j'ai 45 ans, ça fait 6 mois que maintenant je demande à des personnes de venir m'aider. Je vais le faire mais je vais le faire avec quelqu'un, une caisse, on va la prendre à deux. »

« J'ai eu le cas où le médecin me dit « tu restes à la mutuelle », le médecin au travail, il me dit "reste à la mutuelle." »



Personalised furniture to facilitate work: the advice or mediation of the occupational physician can be necessary.

« Dans les pays nordiques, il y a des trucs comme ça, qui sont mis en place, il y a plein de programmes pour le bien-être des travailleurs, la luminothérapie.

Ça commence à venir tout doucement chez nous aussi mais c'est encore. Je sais que nous, à un moment donné, on nous a fourni des ballons plutôt que les chaises mais c'est très bien pendant un quart d'heure, vingt minutes mais moi, au bout d'un temps.

Oui, mais ça ne doit pas être utilisé plus que ça, c'est pas pour remplacer la chaise.

Et puis maintenant, les ballons, ils sont au-dessus des armoires et il y a plus personnes qui les utilisent. »

« En y réfléchissant, avec ces problèmes que j'ai eus au dos, je me suis dit "une chaise ergonomique, on ne me l'a jamais conseillée, on ne me l'a jamais proposée, est-ce que ça joue ? »

Adapted work rhythm to allow recuperation or work flexibility, including leaving work earlier and work at the most convenient hours.

These can be informal arrangements of colleagues mutually.

« Bij ons is het zo, dat ik mijn uren zo, allez, in de psychiatrie kun je je uren niet kiezen, maar daar wordt wel rekening mee gehouden, dus meestal is het 10 dagen aan een stuk en ben je er 4 thuis, pakt 80% werken, is dat heel wat minder en mij laten ze maar 4 dagen aan een stuk werken, en dat ik dan een dag recupereer en dan het weekend en nog een paar dagen ben ik dan thuis. Dus dat is wel chique van mijne hoofdverpleger dat hij dat zo wil regelen allemaal. »

« En ik ben dan naar de dokter gegaan eigenlijk, 8 maand geleden, om te vragen of ik, of er een mogelijkheid was om 4/5de te werken, om mijn levenskwaliteit te verbeteren eigenlijk, maar of dat dan, ik stond er voor open, om 4/5de te werken gewoon als 4/5de werkende, maar ik vroeg mij af, het komt wel door die rugpijn, of dat dat mogelijk was om vanuit de ziekenkas dat terug te krijgen. »

But there is a lot of variability and how employers and colleagues cope with a colleague suffering from low back pain heavily depends on the work culture.

At the other end of the continuum patients reported dismissal or being no longer in the running for promotions. Patients also mentioned resign, the search for lighter work and reduction of working hours (e.g. from full-time to half-time).

« Donc, et en travaillant comme j'ai travaillé dans le secteur automobile, c'est beaucoup de mouvements répétitifs, et là est le problème. Donc éviter les mouvements répétitifs, et c'est devoir trouver les bonnes positions et souvent c'est douloureux quand même. »

« Daar hebben wij soms ook onderhoudspersoneel of mensen van het groen, die rugproblemen ondervinden, maar die hebben vaak geen andere mogelijkheden, en dat is iets wat wij als werkgever, dat vind ik heel moeilijk, die stuur je eigenlijk een stuk terug naar invaliditeit, ziektefondsen, werkloosheid, omdat je daar geen andere mogelijkheden bij hebt vaak. »

Other coping strategies were to do less household chores and/or to take pain medication in order to function normally at work.

Moreover, in some situations such as self-employed, there is no occupational medicine and the worker has to find a solution himself.

« Ja, ik ben zelfstandige, ik heb een zaak met 12 man personeel, dus ik heb wat mensen onder mij werken. Het probleem is natuurlijk, ik heb het voordeel, ik kan mijn uren wel indelen, maar de dingen dat moeten gebeuren, ze kunnen dat niet echt terug (1:26:20) en de dingen moeten gebeuren, moet ik dat gewoon doen en ik heb niemand anders die mij vervangt. »



7.4 Limitation

We do not claim representativeness, but the data provides insight in the large variation of patients' experiences with care for low back pain, its strengths and its weaknesses.

As described in the methodological literature, focus groups are inappropriate to uncover marginal or deviant opinions. Participants influence each other, hence a certain kind of implicit norm or consensus may be installed in the group. However, the input we got in the four groups we brought together was rich and converged between the groups.

We organized 4 groups, two with Dutch (n=5 and n=8) and two with French speaking patients (n=9 and n=7). The composition of the focus groups in terms of age and sex was quite similar (see above). However, participants differed in terms of severity of symptoms, but the spectrum was skewed to an overrepresentation of severe symptoms present during several years. It seemed that our recruitment attracted especially patients with a long history (several years) of severe low back pain. This was rather advantageous in terms of richness of the data, since most participants had a long care trajectory and experimented with all kinds of treatments.

8 TRANSVERSAL ANALYSIS

Each source of data presented previously in this document (literature review, answers to the surveys by the coordinators of Belgian initiatives and pathways from abroad, description of the Belgian context, two nominal groups with Belgian healthcare providers, four focus groups with low back pain patients and the Belgian guideline on low back and radicular pain) are building blocks that are presented to experts and stakeholders involved in this project (see list in appendix 1). A transversal analysis was performed afterwards in order to draft the care pathway related to the management of low back pain but also to define the key elements to be taken into account during the implementation of the pathway. In this chapter we present the result of this analysis in the form of 6 principal findings.

8.1 Finding 1: Current trajectories are heterogeneous

Low back pain (LBP) concerns a great part of the population. However, an important statement emerged from the nominal groups, focus groups and experts meetings: currently there is no standardized national care pathway in Belgium for low back or radicular pain. This statement is confirmed by the analysis of the 7 studied Belgian pathway initiatives which showed that initiatives are recent, local and that no comprehensive care pathway, incorporating all care levels (primary care and specialist care) is already implemented in the Belgian healthcare system. Moreover, although some similarities can be noticed among the existing pathways (in Belgium but also abroad), no clear validated pattern can be drawn. This reinforces the risk of heterogeneous trajectories between patients. Some examples of heterogeneity are presented below.



8.1.1 *The first contact with the healthcare system is not so early*

In the literature, the management of low back and radicular pain begins in a (hyper)acute phase. In practice, it appears that the first encounter with a healthcare provider can occur rather late after the onset. During the focus groups we learned that some patients tend to wait for spontaneous improvement and/or try some self-management before consulting. Patients may bounce back and forth between pain episodes before they finally decide to seek help. They experiment with pain medication and other ways to make the symptoms disappear, for example hot water, heat pads, change of mattress, etc. For the majority of patients who will evaluate towards recovery, this trend to de-medicalize low back pain is positive.

Elements (mentioned during the focus groups) triggering the decision to consult concern mostly the severity or duration of the symptoms (pain, function) but also fear or feeling desperate.

If the decision to consult is the end point of a long process of useless self-help and self-medication, patients may have high expectations once they finally decide to seek professional help. However, according to the healthcare professionals in the nominal groups, if the first consultation occurs after several weeks of pain, it is more difficult to ensure recovery (and prevent evolution to chronic pain).

8.1.2 *A large heterogeneity of professionals can be involved in the first contact*

In Belgium, no gatekeeping mechanism exists so that the patient does not need a referral by the GP in primary care before consulting a specialist in secondary care. The direct access to specialists allows several possibilities of consultation, such as physician specialists in physical medicine and rehabilitation, orthopaedic surgeons, neurosurgeons, anaesthesiologists-algologists, rheumatologists, emergency physicians or specialists in internal medicine. From the focus groups we know that there is no rationale behind which healthcare professional the patient meets; the choice depends mainly on foreknowledge and hearsay from peers. The first encounter however is determinant for the subsequent steps in the patient's trajectory and the kind of therapeutic interventions which will be proposed.

The international comparison showed that the intake is mostly performed by general practitioners (GP), physiotherapists, chiropractors, osteopaths, or specialized nurses. This seems logical since the aim of the majority of pathways is to promote the early management of low back pain by the primary care providers and to preserve the involvement of secondary care for more severe or persistent cases.

8.1.3 *The search for a solution is a trial and error process*

In Belgium, since no national care pathway exists for low back pain, patients search their own way through the healthcare system without any guidance, except hearsay from peers or referrals from care providers.

From early on the process, after the first contact with a caregiver, different treatments may be provided, sometimes successful, sometimes not, only resulting in a temporary relief. When pain persists, patients make choices based on trial and error and they move between the levels of care (primary, secondary, tertiary), as well as between types of care providers (physicians, paramedics, non-conventional practitioners (e.g. chiropractors) and hospital services (e.g. emergency service)). A large array of treatments has also been mentioned by the focus group participants, going from non-invasive therapies, such as physiotherapy, osteopathy or chiropractic sessions) and medication (anti-inflammatories and painkillers) to invasive procedures, such as surgery or injections, and even to more alternative therapeutic options, such as acupuncture, mesotherapy, homeopathy, sophrology, hypnosis or andullation mattresses.

Overall the process contains a number of loops, with patients re-trying different options and jumping from one professional to another and then returning to a previous one.



8.1.4 Professionals and patients have not the same perception of 'the trajectories' heterogeneity

Whereas patients reported to feel lost in the diversity of professionals and treatment options, some care providers from the nominal group did not identify this heterogeneity in care trajectories as a problem in the management of low back pain. These care providers stressed that low back pain patients represent a heterogeneous group for which no standardized management is considered possible. However, the nominal group participants emphasised the importance of clear clinical guidelines for healthcare providers regarding the treatment of low back and radicular pain.

Key messages regarding the heterogeneity of patient trajectories in low back and radicular pain

Based on the findings mentioned above, we retain that some patients wait a **long time before seeking help**, a lot of them are currently lost in the **diversity of clinicians or management options**. The professionals request guidelines but without being convinced that standardized management is possible for low back and radicular pain patients.

Implication for the Belgian pathway

These findings emphasise the **utility of guidance for patients and for healthcare professionals** but reveal also that attention should be paid to **some pitfalls** (e.g. no real need of a standardized trajectory expressed by some care providers).

8.2 Finding 2: Diagnostic and Cause are uncertain

Although low back pain is a frequent reason for medical consultation and healthcare consumption, it should not be considered as a disease nor as a diagnostic entity of any sort. The term refers indeed to pain (or disability or sensitivity symptoms) of variable duration in an area of the anatomy often afflicted in human life. In many instances, the cause of low back pain remains obscure or nebulous. This uncertainty is an important feature of this kind of pain and results in uncomfortable feelings both for patients and clinicians.






8.2.1 Rarely there are underlying severe pathologies

Underlying well-defined serious organic diseases can only be identified in a minority of patients. However these potential underlying diseases require specific and often urgent intervention and should always be excluded. Most existing pathways start the management of low back or radicular pain by an active search of symptoms and clinical signs of such underlying serious diseases, usually called "red flags". The Belgian guideline for the management of low back and radicular pain (https://kce.fgov.be/publication/report/low-back-pain-and-radicular-pain-evaluation-and-management#.WUw4SFG_Opo) recommends the red flags have to be actively searched during history taking and clinical examination at the first step in each patients' assessment.




A list of red flags is proposed based on a Belgian experts' consensus (box 1). They are gathered in clusters for improving their sensitivity and specificity. A single red flag presents indeed a limited specificity and can lead to false-positivity. In order to avoid to refer many patients to a useless intervention, it is advised to use a combination of several red flags, together with the clinical expertise of the healthcare provider. A suggestion for further referral/action is mentioned for each cluster in table 8.

During the nominal groups and the experts meetings, the need to disseminate this list of red flags to clinicians involved in the management of low back and radicular pain was broadly emphasised. Clinicians asked a standardized tool for triage (for example, a questionnaire to be included in the electronic medical record). It is also felt that some students in medicine have a real lack of skills in clinical examination, maybe because some academic curricula have minimised propaedeutic training in the past and until recently.


Table 8 – List of red flags, grouped by cluster (based on expert opinion)

Urgent (immediate)		
Red flags		Action
Neurological emergencies		
<ul style="list-style-type: none"> Widespread (e.g. in the arms, cranial nerves or bilateral) neurological symptoms (pyramidal signs, coordination problems, motor or sensory disturbances...) Progressive neurological symptoms Saddle anaesthesia /hypoesthesia, urinary retention, faecal or urinary incontinence, isolated sexual dysfunction (cauda equina syndrome) Severe motor deficit (MRC score $\leq 3/5$) <48 h 		Refer the patient to the emergency department
Traumatic fracture		
<ul style="list-style-type: none"> Severe low back pain following significant/high-energy trauma Back pain following trauma with ankylosing spondylitis 		Refer the patient to the emergency department
Vascular problems		
<ul style="list-style-type: none"> Vascular signs (cold foot, reduced peripheral arterial pulsation) that could indicate a torn aneurysm of the aorta if paired with low back pain or even with shock 		Echography & vascular surgery consult
Semi-urgent (within 48h)		
Red flags		Action
Pathological fracture: Low back pain following minor trauma or even without awareness of trauma with:		
<ul style="list-style-type: none"> History/risk of osteoporosis Chronic corticoid use Thoracic pain Older age Unexplained weight loss, fatigue History of cancer 		1/ X-ray (or CT) 2/ Spine surgery consult
Infection		
<ul style="list-style-type: none"> Objective signs (e.g. nocturnal sweating, fever, chills) Intravenous drug use Immunocompromised patient Unexplained weight loss Known previous or concurrent systemic infection or risk of infection Recent surgical intervention Urinary or cutaneous infection 		1/ MRI & Lab (e.g. leukocyte count, CRP, sedimentation) 2/ Spine surgery consult & Internist/infection specialist consult



Moins urgent	
Drapeau rouge	Action
Tumor <ul style="list-style-type: none">• New onset back pain at age <18 and >55• History of cancer• Unexplained weight loss, fatigue• Severe nocturnal pain	 1/ MRI 2/ Oncology/radiotherapy consult & Spine surgery consult
Inflammatory disease <ul style="list-style-type: none">• Constant progressive non-mechanical pain• (Improvement in back pain with exercise but not with rest)• Severe nocturnal pain• Morning stiffness > 30 min or nocturnal awakening in younger patients	 Rheumatology consult
Miscellaneous <ul style="list-style-type: none">• Increasing postoperative pain• Excruciating and therapy-resistant low back pain (>6 weeks)• Unilateral pyramidal signs	 1/ MRI 2/ Spine specialist consult (specialist in physical medicine and rehabilitation, orthopaedist surgeon or neurosurgeon) or Anaesthesiologist/algologist consult

THE SPECIFICITY OF THE RED FLAGS, WHEN USING A SINGLE FLAG, IS LIMITED; CLINICIANS SHOULD FOCUS ON CLUSTERS OF RED FLAGS INDICATING A SPECIFIC SERIOUS PATHOLOGY UNDERLYING THE LOW BACK OR RADICULAR PAIN

8.2.2 Radicular pain should be distinguished from low back pain

Next to screening for red flags, most of the studied pathways also include a screening for radicular pain. The patients with suspected radicular pain are then rerouted in a separate sub-trajectory.

Overall, while the management of **acute low back pain** remains in the primary care setting in the majority of cases, **radicular pain** remains in the primary care setting only if muscle strength assessment is high (5/5 or sometimes 4/5 on the Medical Research Council - MRC scale) and if there is no deterioration of the symptoms over time. Remind that a severe motor deficit ($\leq 3/5$) is considered as a red flag.

It is therefore crucial to measure the muscle strength and to verify the progressivity of the symptoms at each patient's encounter.

In case of no sufficient radicular pain relief with non-invasive treatment (pharmacological or not), more invasive interventions (such as transforaminal injection or surgical decompression) could be envisaged as early as the subacute phase, which is another difference compared with low back pain.



8.2.3 *Imaging does not improve diagnosis*

During the focus groups, Belgian patients reported to undergo imaging at several points in the process and the clinicians in the nominal group confirmed the very high consumption of X-rays and scans in the management of low back pain. They both mentioned several reasons for this:

- Physicians are afraid of missing a red flag and are not confident in the combination history taking-clinical examination to exclude them.
- Physicians had an imaging oriented training.
- Physicians have difficulties managing diagnostic uncertainty; many of them prefer to search a diagnosis by imaging (e.g. osteoarthritis, disc prolapse, etc.)
- Patients are exigent and want to be reassured. Imaging and technicity are highly valued in our society.
- Physicians feel under pressure to immediately relieve the pain, but their lack of pain management skills results in a technical reflex.
- Given the waiting time to MRI, some physicians schedule an appointment as soon as possible.
- In case of referral to a specialist, patients report they undergo a new round of imaging because it seems to be impossible to transfer the images of the previous round to another physician in another hospital.

The timing of imaging is not always the same. At least two strategies appeared from the focus groups. What we could call a 'wait and see approach' begins with the least invasive, which is rest and medication, followed by physiotherapy and imaging. On the contrary in a 'technology first approach', imaging comes first, followed by physiotherapy and medication, and ending up in referring to a specialist.

The Belgian guideline emphasises that technical investigations (imaging) should not be performed for acute low back pain or radicular pain if no serious underlying cause is suspected. Imaging is considered not useful unless its results are likely to change future management of the condition (for example if epidural infiltration or spinal surgery is being considered). The reasons for the recommendation against systematic imaging were the following:

- Many of the imaging findings one would associate with low back pain (for example; disc and joint degeneration) are frequently found in asymptomatic individuals; this can favour patients' misbeliefs that his/her symptoms are linked to anatomical problems.
- Imaging could have an iatrogenic effect if benign findings are interpreted by the patient (or the clinician) as indicating a serious pathology and implying to protect the back (with fear to perform some movements as a consequence).
- Imaging is also associated with a risk of cumulative medical radiation exposure and has a public costs.

All studied pathways mentioned the need to reduce the number of unnecessary imaging in patients with acute low back pain but some algorithms for chronic LBP patients still advice medical imaging, although it should not be routinely performed. Furthermore, the way imagery is used differs between pathways: in some cases X-ray, CT-scan or MRI are only performed once, in others they are repeated after 6 months or 1 year, depending of the imagery.

Some pathways, but not all of them, have implemented strategies to avoid unnecessary imaging using clinicians' education and feedback on number of imaging per year.

Moreover in Belgium, public sensitization campaigns are regularly organized to inform the Belgian population that imaging is not always needed. This campaigns are general and not disease specific.



8.2.4 *Follow-up is important to reassure the patient... and the care provider*

Whereas the probability of a serious specific cause of low back pain is low, it is difficult to determine their absence once and for all. Clinicians should remain attentive and search at every consultation the symptoms and signs of possible underlying serious pathology (red flags). In radicular pain, also the clinical evolution of muscular strength should be reassessed each time. A follow-up appointment is therefore useful in the majority of cases since the first encounter. This time sequence also responds to the patients' request of a management plan with follow-up.

The existing pathways abroad proposed generally a reassessment around 2 weeks after the first contact for patients with low back pain (unless pain had disappeared). This timing respects the natural course of low back pain and the high likelihood that the complaints will decrease with time. In patients with radicular pain, a re-assessment around the first week after the first contact is suggested for the monitoring of the muscular strength.

Key messages regarding the diagnostic of low back and radicular pain

Based on the findings mentioned above, we retain that the cause of low back pain is often obscure and that this **uncertainty** can lead to an **uncomfortable feeling** both for patients and clinicians. In order to reduce this feeling, some courses of action can be proposed to the healthcare providers: exclude the underlying severe pathology although rare, distinguish radicular pain and low back pain since the first patient's encounter, restrict the prescription of imaging and, schedule follow-up appointments with the patient.

Implication for the Belgian pathway

- **Two different pathways** have to be developed: one for low back pain and another one for radicular pain.
- A search for **red flags** has to be performed routinely at each contact with patient presenting either low back pain or radicular pain. Moreover the muscular strength has to be assessed at each consultation in case of radicular pain.
- It is important to remind that **imaging usefulness is limited** and is justified only if a serious underlying pathology is suspected or if the expected results could modify the management (e.g. if an epidural injections or a spine surgery is considered).
- A **regular follow-up** has to be proposed to each patient, since the first encounter: around 2 weeks after the first contact for low back pain; around 1 week for radicular pain.

8.3 Finding 3: The bio-psycho-social perspective: a new approach for some

Although the natural course of low back and radicular pain progresses well over time, there are cases that will not follow this positive pattern and evolve towards chronic pain. Since a few years, some risk factors for chronicity were identified. These risk factors are mainly related to psychological and social aspects.

8.3.1 *The obsolete biomechanical model still used*

During a long time, pain was considered as the result of tissue pathology involving structural, anatomical, and bio-mechanical factors before that the biopsychosocial approach sheds new light on the pain process. However, according to participants in the nominal and focus groups, it appears that numerous clinicians – and patients – still use this bio-mechanical model. This can lead to a misunderstanding of the pain pattern, kinesophobia (e.g. fear that certain movements or tasks can make the harm worse), catastrophism (e.g. “I have a hidden sinister pathology that requires urgent investigation”), hypervigilance or a retreat from physical activity.



Healthcare providers in the nominal groups reported that clinicians follow the clinical recommendations if they are in line with their own beliefs. Inappropriate attitudes and beliefs of clinicians (also called white flags) impact the management of low back pain with for example the provision of obsolete advices (e.g. long bed rest), the formulation of wrong messages that frighten patients (see example in the box 1) or the prescription of imaging to identify a biological explanation at any price.

According to these healthcare providers, taking into account the patients' false beliefs is an important task for the clinician involved in the management for low back and radicular pain. This requires adopting a medical discourse able to improve the patients' perception of his/her pain.

Some examples of positive messages are provided in box 2.

Box 1 – Messages that can harm patients with nonspecific low back pain

Promote beliefs about structural damage/dysfunction

- 'You have degeneration/arthritis/disc bulge/disc disease/a slipped disc'
- 'Your back is damaged'
- 'You have the back of a 70-year-old'
- 'It's wear and tear'

Promote fear beyond acute phase

- 'You have to be careful/take it easy from now on'
- 'Your back is weak'
- 'You should avoid bending/lifting'

Promote a negative future outlook

- 'Your back wears out as you get older'
- 'This will be here for the rest of your life'
- 'I wouldn't be surprised if you end up in a wheelchair'

Hurt equals harm

- 'Stop if you feel any pain'
- 'Let pain guide you'

Source: Peter O'Sullivan and Ivan Lin in "Acute low back pain Beyond drug therapies". *Pain Management Today*. 2014; 1(1): 8-13

**Box 2 – Messages that can heal in patients with nonspecific low back pain****Promote a biopsychosocial approach to pain**

- 'Back pain does not mean your back is damaged – it means it is sensitised'
- 'Your back can be sensitised by awkward movements and postures, muscle tension, inactivity, lack of sleep, stress, worry and low mood'
- 'Most back pain is linked to minor sprains that can be very painful'
- 'Sleeping well, exercise, a healthy diet and cutting down on your smoking will help your back as well'
- 'The brain acts as an amplifier – the more you worry and think about your pain the worse it gets'

Promote resilience

- 'Your back is one of the strongest structures of the body'
- 'It's very rare to do permanent damage to your back'

Encourage normal activity and movement

- 'Relaxed movement will help your back pain settle'
- 'Your back gets stronger with movement'
- 'Motion is lotion'
- 'Protecting your back and avoiding movement can make you worse'

Address concerns about imaging results and pain

- 'Your scan changes are normal, like grey hair'
- 'The pain does not mean you are doing damage – your back is sensitive'
- 'Movements will be painful at first – like an ankle sprain – but they will get better as you get active'

Encourage self-management

- 'Let's work out a plan to help you help yourself'
- 'Getting back to work as you're able, even part time at first, will help you recover'

Source: Peter O'Sullivan and Ivan Lin in "Acute low back pain Beyond drug therapies". *Pain Management Today*. 2014; 1(1): 8-13



8.3.2 *A risk assessment of the bio-psycho-social factors is possible*

False-beliefs are not the only factors that can badly influence the evolution of low back pain. Several prognostic features are known for making a person more likely to suffer from chronic, disabling back pain.

These are psychological, psychiatric, contextual and work-related factors which are identified as yellow, orange, blue and black flags.

A list of these factors was proposed in the Belgian guideline on low back and radicular pain (see box 3).

Box 3 – List of yellow, blue, black and orange flags

Yellow flags

Beliefs, appraisals, and judgments

- Unhelpful beliefs about pain: indication of injury as uncontrollable or likely to worsen
- Expectations of poor treatment outcome, delayed return to work

Emotional responses

- Distress not meeting criteria for diagnosis of mental disorder
- Worry, fears, anxiety*

Pain behaviour (including pain coping strategies)

- Avoidance of activities due to expectations of pain and possible reinjury
- Over-reliance on passive treatments (hot packs, cold packs, analgesics)

Orange flags

Psychiatric symptoms

- Clinical depression, personality disorder

Black flags

System or contextual obstacles

- Legislation restricting options for return to work
- Conflict with insurance staff over injury claim
- Overly solicitous family and healthcare providers
- Heavy work, with little opportunity to modify duties

Blue flags

Perceptions about the relationship between work and health

- Belief that work is too onerous and likely to cause further injury
- Belief that workplace supervisor and workmates are unsupportive

Source: Michael K. Nicholas et al., in "Psychological Risk Factors ("Yellow Flags") in patients with low back pain: A Reappraisal". *Phys Ther.* 2011; 91:737-753.

*According to more recent studies, feeling that his own situation is unfair is an additional risk factor of persistent disability.



Almost all pathways in Belgium and abroad screen for 'yellow flags' (psychosocial risk factors for chronicity). This screening has a substantial impact on the nature of the subsequent care process further (see below chapter 8.3.3) and, in particular, it comes down to more psychological support offered to patients with high risk factors (e.g. more focus on cognitive and behavioural therapy).

In both nominal groups and experts meetings, the physicians mentioned that they have not been trained in psychosocial risk assessment and that this kind of assessment is considered time consuming.

In order to facilitate the risk assessment, some validated tools are proposed in the literature and two examples are provided by the Belgian guideline: the STarT Back screening tool and the Örebro Musculoskeletal

Pain Screening Questionnaire short version (see box 4 and 5). Each one has its advantages and drawbacks (more detailed in the guideline synthesis). They are both validated for low back pain but not for radicular pain. Both tools focus on yellow flags and should be completed by an assessment of orange, blue and black flags for which there are currently no specific questionnaire.

Box 4 – STarT Back Screening Tool

Name: _____ Date: _____					
Thinking about the last 2 weeks tick your response to the following questions:					
		Disagree 0		Agree 1	
1	My back pain has spread down my leg(s) at some times in the last 2 weeks	<input type="checkbox"/>		<input type="checkbox"/>	
2	I have had pain in the shoulder or neck at some times in the last 2 weeks	<input type="checkbox"/>		<input type="checkbox"/>	
3	I have only walked short distances because of my back pain.	<input type="checkbox"/>		<input type="checkbox"/>	
4	In the last 2 weeks, I have dressed more slowly than usual because of back pain.	<input type="checkbox"/>		<input type="checkbox"/>	
5	It's not really safe for a person with a condition like mine to be physically active.	<input type="checkbox"/>		<input type="checkbox"/>	
6	Worrying thoughts have been going through my mind a lot of time.	<input type="checkbox"/>		<input type="checkbox"/>	
7	I feel that my back pain is terrible and it's never going to get any better .	<input type="checkbox"/>		<input type="checkbox"/>	
8	In general I have not enjoyed all the things I used to enjoy.	<input type="checkbox"/>		<input type="checkbox"/>	
9	Overall, how bothersome has your back pain been in the last 2 weeks ?				
Not at all	Slightly		Moderately	Very much	Extremely
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0	0	0	1	1	
Total score (all 9): _____		Sub-score (Q5-9): _____			
≤3 = Low risk ≥4= see sub-score		≤3 = Medium risk ≥4= High risk			

Source: https://www.keele.ac.uk/media/keeleuniversity/group/startback/translations/Dutch%20translation_STarT%20Back%20Tool.pdf

This is a licensed tool (©2007 Keele University) that may not be modified. The copyright (©2007) of the STarT Back Tool and associated materials is owned by Keele University, the development of which was part funded by Arthritis Research UK:

i) the tool is designed for use by healthcare practitioners, with appropriate treatment packages for each of the stratified groups;

ii) the tool is not intended to recommend the use of any particular product. For further information please see <http://www.keele.ac.uk/sbst/>

No license is required for non-commercial use. ."



Box 5 – Örebro Musculoskeletal Pain Screening Questionnaire (Short-form)

Name: _____ Date: _____

These questions apply to you if you have pain in your back, shoulder or neck. Please read and answer each question carefully. Do not wait too long to answer. It is important that you answer every question. Whatever your situation, you will always be able to choose one answer.

1. How long have you had your current pain problem?

<input type="checkbox"/> 0-1 week	<input type="checkbox"/> 2-3 weeks	<input type="checkbox"/> 4-5 weeks	<input type="checkbox"/> 6-7 weeks	<input type="checkbox"/> 8-9 weeks
<input type="checkbox"/> 10-11 weeks	<input type="checkbox"/> 12-23 weeks	<input type="checkbox"/> 24-35 weeks	<input type="checkbox"/> 36-52 weeks	<input type="checkbox"/> >52 weeks

2. How would you rate the pain that you have had during the past week? Please circle a number.

0	1	2	3	4	5	6	7	8	9	10
No pain										Pain as bad as it could be

3. How much have you been bothered by feeling depressed in the past week? Please circle a number.

0	1	2	3	4	5	6	7	8	9	10
Not at all										Extremely

4. How tense or anxious have you felt in the past week? Please circle a number.

0	1	2	3	4	5	6	7	8	9	10
Absolutely calm and relaxed										As tense and anxious as I've ever felt

5. In your view, how large is the risk that your current pain may become persistent? Please circle a number.

0	1	2	3	4	5	6	7	8	9	10
No risk										Very large risk

6. In your estimation, what are the chances you will be working your normal duties (at home or work) in 3 months? Please circle a number.

0	1	2	3	4	5	6	7	8	9	10
No chance										Very large chance



Below are a few things that other patients have said about their pain. For each item, circle a number between 0 and 10 to indicate the degree to which physical activities such as bending over, lifting something, walking or driving impact or could impact your back.

7. An increased pain is an indication that I should stop what I am doing until the pain decreases. Please circle a number.

0	1	2	3	4	5	6	7	8	9	10
Completely disagree										Completely agree

8. I should not do my normal work (at work or home duties) with my present pain. Please circle a number.

0	1	2	3	4	5	6	7	8	9	10
Completely disagree										Completely agree

Circle the number that best describes your current ability to participate in each of the following activities.

9. I can do light work (or home duties) for an hour. Please circle a number.

0	1	2	3	4	5	6	7	8	9	10
Not at all										Without any difficulty

10. I can sleep at night. Please circle a number.

0	1	2	3	4	5	6	7	8	9	10
Not at all										Without any difficulty

Item 1. The first category « 0-1 week » has a value of 1 and the last category « >52 weeks » has a value of 10. The category « 8-9 weeks » has a value of 5.

Items 2, 3, 4, 5, 7 and 8. The score is equal to the circled number.

Items 6, 9 and 10. The score is equal to 10 minus the circled number.

Total =

Score >49 = increased risk

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8.3.3 *Stratifying care according to the risk assessment can be useful for LBP*

The goal of risk assessment is to tailor the management according to the categories of risk: a simpler approach for low risk patients and a more complex approach for higher risk patients.

The KCE Belgian guideline recommend not to perform the risk stratification at the first contact, certainly if this one occurs before 48 hours after the pain onset, but rather during a second encounter (around 2 weeks after onset for the low back pain and 1 week for the radicular pain). This timing is proposed to avoid overtreatment in patients who could spontaneously evolve well and to save physician's time for the patients who need it.

General practitioners stressed the need of differentiation between new low back or radicular pain and a new episode in patients with recurrent pain because the second group is at higher risk for chronicity. They highlighted also that the first contact with some patients arrives after several weeks of pain without (appropriate) management. In this case, the stratification of risk factors should be performed immediately and an appropriate management in primary care could be started before referral to secondary care.

A staged approach can be described for the low back pain patients:

- In **acute phase**, the only required management in patient with good prognosis (low risk) is to support self-management by giving adequate information as well as promoting activity. Painkillers can be prescribed if necessary.
- If the patient is considered at **higher risk for chronicity**, supervised exercises (e.g. physiotherapy sessions) should be considered: with some possible additional interventions according to the kind of identified risks such as manual techniques and /or cognitive-behavioral psychological interventions. It is a multimodal approach.
- When the complaints persist until the **subacute phase**, patients have to be managed by a team of healthcare providers from different disciplines working together, each with a specific training in the management of pain. A multidisciplinary rehabilitation programme could be proposed (see below).

In none of the pathways nor in the Belgian guideline, the therapeutic component is described in detail (e.g. modalities of exercises, rhythm and number of sessions, kind of manual techniques, composition of the multidisciplinary programmes, etc.)

8.3.4 *Multidisciplinary rehabilitation since the subacute phase if needed*

Almost all pathways propose an intensive form of rehabilitation within a biopsychosocial perspective, reflected in a multidisciplinary team, usually involving at least a physician, a psychologist, a physiotherapist and/or an occupational therapist. The multidisciplinary approach is generally proposed to patients with chronic pain but can already be considered in the subacute phase if the patient is at higher risk of chronicity (according to the risk stratification). The multidisciplinary rehabilitation programmes aim to improve patient's beliefs and attitudes towards their pain, to favour physical reconditioning, to cope with the emotional components of pain, to consider an ergonomic support, etc.

In Belgium, patients with persistent low back pain could be proposed to two kinds of multidisciplinary rehabilitation programs (see chapter 4): the specific multidisciplinary therapeutic programs for neck-to-lumbar spine pain (focusing on functional rehabilitation) and/or the multidisciplinary pain centers (managing chronic pain, not specific to any pathology and aiming autonomy and improved quality of life).

In the nominal groups, healthcare professionals reported a risk of a multidisciplinary approach arriving too late in the management of low back pain for several reasons such as:

- Patient's decisions for consulting after a very long delay because he prefers to manage his pain himself (e.g. try whatever options before contacting a physician). A better population's information on the importance to contact a care provider if the pain continues several weeks could be useful.



- A management with loops among GPs and physiotherapists during several weeks without considering any other therapeutic options. An early risk assessment for chronicity and additional interventions if needed (manual techniques or cognitive-behavioural support) could make the practice evolve.
- The caution of physician regarding the multidisciplinary therapeutic programmes for neck-to-lumbar spine pain: because it is a one shot programme that should be followed in a six-month period, physicians appear to propose it only in selected patients (regarding the patients' motivation, their ability to manage their treatment themselves, their social support, etc.).
- Limited availability of secondary care: while the delay before gaining access to the multidisciplinary rehabilitation programme is limited, a long waiting time (several months) is mentioned for multidisciplinary pain centers. The current workload of these centers should be assessed.

Experts ask also that care pathways foresee the option “stop” to avoid lifelong useless treatment. If no improvement was noticed with an intervention provided either in the primary or secondary care, the patient should come back to his/her GP and discuss the potential end of this intervention. This decision should be the result of a shared decision-making between GP and patient.

Key messages regarding the bio-psycho-social perspective in low back and radicular pain

Based on the findings mentioned above, we retain that the **bio-mechanical model** is still influential among physicians and patients despite its potential negative impact on the pain evolution. Taking the **bio-psycho-social factors** into account, it is possible to assess the risk of chronicity and to propose the more appropriate interventions according to the level of risk. In this way, the most complex and intensive interventions can be reserved for the group of patients at a higher risk of chronicity.

Implication for the Belgian pathway

- A **risk assessment of chronicity** (based on yellow, orange, blue and black flags) has to be included in the pathway from the second consultation (around 2 weeks for low back pain and 1 week for radicular pain). A list of these factors should be available for clinicians. Some tools as the STarT Back screening tool and the Örebro Musculoskeletal Pain Screening Questionnaire short version could be proposed.
- A differentiation between **new low back or radicular pain** and a new episode in patients with **recurrent pain** should be performed (with immediate risk stratification for the second category).
- A **staged approach** is recommended from the acute phase: self-management and activity for patients at low risk; supervised exercises with possible additional manual techniques or psychological interventions for patients at higher risk (multimodal approach).
- At each step, clinicians should take time for struggling the patients' false-beliefs and wrong attitudes regarding their pain.
- **Multidisciplinary reahabilitation programmes** should be considered since the subacute phase in patients with high risk for chronicity.
- At the end of the process, the **secondary care level** should referred the patient to his GP in order to stop ongoing unsuccessful treatments and define a management for optimization of comfort.



8.4 Finding 4: Patient-centered care is not so easy

The concept of patient-centered care implies different actions by the care provider such as understanding patients' needs, discussing their preferences and values with them, promoting patient's empowerment and developing a shared decision. However, it is not so simple in practice.

8.4.1 *Not all patients' needs and expectations can be satisfied*

A large part of the discussion in the focus groups concerned the patients' needs and their dissatisfaction in case of unfulfilled needs. Although self-selection might have biased the sample of patients who participated in the focus groups towards dissatisfaction, the discussion provided some potentially useful ideas to be embedded in practice.

8.4.1.1 *They want a specific diagnosis with clear identification of causes*

Patients want to understand why they suffer from low back pain. They emphasised that it takes a lot of time before someone finally identifies the cause, if it is ever identified. Moreover they noticed inconsistencies in diagnosis, depending on the clinician consulted (e.g. bio-mechanical approach or not). These inconsistencies bewilder them and compel them to construct any kind of explanatory theory until they find a plausible explanation for their suffering, no matter whether this explanation is valid or not. During the focus groups, a large array of attributions was quoted by patients such as having grown too fast, pregnancy, delivery with epidural, body weight, heavy bag during childhood, bad posture as teenager.

8.4.1.2 *They wish to be listened to and to receive answers*

Sincere involvement or concern of healthcare professionals has been questioned and the feeling of not being listened to or taken seriously pervaded all focus groups and took several shapes: 1) their complaints are minimized or not believed, especially if they are not confirmed through imaging techniques; if the images do not clarify the symptoms patients report, patients blame physicians for relying more on the images than on patients' accounts; 2) appointments are postponed several times; 3) physicians try to appease patients with pain killers or sickness leave but it is not what they expect. Patients feel misunderstood.

If the pain persists during several weeks, it heavily impacts daily life. Patients mentioned an explicit need to talk to peers but also healthcare professionals about their complaints and their impact on quality of life. Low back pain patients feel stigmatised. They report accusations of abusing the system. They experience self-doubt if not taken seriously by healthcare professionals or family and friends.

However, patients attribute physicians' lack of willingness to listen to "societal" time pressure.

8.4.1.3 *They expect complete recovery*

Patients shared the impression that physicians and other caregivers such as physiotherapists do not have the answers, nor solutions to their problems.

If one or more trial and error iterations do not result in a clear diagnosis nor in an effective intervention, the conclusion may be that there is no solution except understanding the pain mechanism and learning how to cope with it. The quote mostly cited during all four focus groups was "you will need to learn to accept your condition". The transition from the optimistic "it will pass" attitude to the awareness that it will never stop, is really difficult, not only for patients themselves, but also for their family, their partner in particular. In this case, the added-value of multimodal approach is very important. The foresight of a future in persistent pain can make patients so desperate that they would try anything that comes across their path. Some clinicians are also so convinced by the efficacy of their intervention that they promise "spectacular" solutions. This leads to frustrated and desperate patients if the



promised results stay out. Patients finish by lose any confidence in the healthcare professionals.

8.4.1.4 They request a comprehensive approach

Patients stressed the importance of a comprehensive approach of their pain: healthcare professionals are expected to take the whole picture into consideration, including the social context and psychology of the patient. However, according to the patients but also the healthcare providers, this expectation is rarely met but professionals underlined that some patients' requests are not realistic or far from their fields of expertise. For example, some patients ask for financial support for practical interventions such as adaptations to their homes (e.g. staircase elevator, lowering thresholds), baby-sitting during the treatment, orthopaedic furniture (e.g. bed, chair) or a parking ticket allowing them to park their car close to the shop, school, etc. In fact, certain patients feel themselves in a state of severe disability but, because low back and radicular pains are "invisible problems", few persons understand the patient's situation and offer practical support in transport, at home or at work.

Moreover, not being able to function can lead to a reduction of working hours or even job loss, with financial constraints. Nevertheless, some treatment are expensive. It has been suggested that physicians do not mention expensive treatment options to patients they estimate not able to afford it. Patients complain about treatments not being reimbursed and therefore inaccessible to them. Physiotherapy is one of these patients' concerns because its reimbursement is limited to a fixed number of sessions by year for the same pathology. During the nominal groups, healthcare providers proposed to base reimbursement of physiotherapy on functional disabilities rather than diagnosis. This would entail a more need-based determination of the number of sessions. Reimbursement for psychologists' intervention was also mentioned by healthcare providers (see chapter 8.6).

8.4.1.5 They ask for more personalized treatment and shared-decision making

One statement broadly mentioned by the participants to the focus group is the lack of personalized management. They have the feeling that each healthcare providers follows predefined processes, organigrams and checklist rather to tailor the treatment to their individual situation.

On the contrary, all but one pathways emphasized the importance of shared-decision making between care providers and patients. The Belgian guideline on low back and radicular pain recommends also a personalized management taking into account the patient's preferences instead of stereotyped treatment protocol. In practice however, this step appears to be not so easy. Some examples were mentioned in the different groups of discussion and are presented as follows.

Individual versus group sessions of exercise therapy

The healthcare professionals within the nominal group mentioned that the prescription of individual or group exercise sessions should depend on patients' preferences. However, two constraints for treatment in small groups were mentioned by physiotherapists: i.e. the available rooms (especially in individual practices) are often not sized to groups, and there is no "billing code (nomenclature)" for individual practitioners allowing group sessions.

Medication, not systematically

According to the participants to the focus group, physicians think patients expect the prescription of painkillers although they expect mostly answers to their questions and permanent solutions. It appears that patients do not want to rely too much on painkillers because they believe that if they take them too often the pain relieving effects will disappear and their body gets used to them. Others quit/refuse painkillers because they think that if they do not feel the pain, they might do harmful movements and worsen their problem. Nevertheless, patients mentioned that painkillers allow them to continue functioning.



The Belgian guideline highlights that medication is not routinely required and should be proposed only in some cases, according to the severity of pain and the patient's preferences.

Surgery or not surgery

The option of surgery for chronic LBP is offered in the 7 pathways, but mainly for selected cases. Stratification systems (e.g. Mechanical Diagnosis and Therapy-MDT, Movement System Impairment-MSI or Treatment-based Classification-TBC) and the job / sport requirements could influence the therapeutic choice in some pathways but not in every one. According to some healthcare providers working in Belgian pathways, surgery is also a proposal for non-complying patients to conservative management, for patients wishing a radical solution and having no time to follow a multidisciplinary rehabilitation programme and for patients preferring treatments that are more passive, although it is not a guarantee of success in this last kind of patients. Back surgery is perceived by the patients as the last resort, from which you can be thrown back a couple of steps in the trajectory, if symptoms are not resolved or shifted to other body parts. They struggle with the risk potentially associated with back surgery, especially if physicians cannot guaranty a lasting improvement and they search for guidance in the decision to undergo back surgery. They ask second and third opinions, but are confronted with contradictory information. They feel unable to make an informed choice.

The Belgian guideline specifies the surgical indications in terms of kind of interventions, timing (often after an appropriate non-conservative management) and type of patients. An evaluation in a multidisciplinary consultation before deciding for surgery is recommended in low back pain patients. For radicular pain, the surgical option is less questioned.

8.4.1.6 They need aftercare

According to the patients, aftercare is underdeveloped and this concerns several aspects:

- Patients who are advised to make exercise need to search themselves for alternative ways to maintain their physical condition for example by visiting fitness accommodations.
- Patients who have a contact with a general practitioner generally do not receive an appointment for a following consultation. Although patient's empowerment and autonomy are promoted, encouragement and evaluation are needed by the patient. The participants to the focus groups mentioned a complete absence of follow-up appointments since the beginning of the pain management and interpreted that as a lack of being taken seriously or a deficiency in the management. It is clearly a source of patients' dissatisfaction.
- Some patients never recover completely, but according to the nominal groups there is no structure to durably take care of them.

8.4.2 Patients' empowerment is a challenge

Patients' empowerment is crucial in low back pain and radicular pain: it encourages them to self-manage, facilitates them to express their needs and expectations and supports their active participation in a real shared decision-making. But patients' empowerment requests a high involvement from the healthcare providers and is not actively promoted in the Belgian healthcare system.



8.4.2.1 *Two kinds of patients can be described*

In the analysis of the focus groups two kinds of patient approaches were found:

- In the **passive** approach, patients return regularly to their physician (most often the GP) and follow the trajectory he/she develops over time without discussion. They present a lack of empowerment and seem at first sight easier to manage (because they do not discuss the clinicians' proposal). However, they have often poor motivation and should be strongly encouraged to remain active and to perform exercise at home.
- In the **active** approach, patients themselves search actively for solutions and/or care providers offering those solutions. These patients are more difficult to manage: they complain about needing to sort out everything themselves, the lack of guidance or trajectory through the care landscape and the lack of physicians' involvement; they can also confront the physician with information they found on the internet.

The participants to the focus groups emphasized the massive responsibility caregivers have relative to patients' attitudes and beliefs. The healthcare providers' discourse often promotes a passive patient role, but, as described below, healthcare providers expect also that patients endorse an active role and become able to self-manage their pain. This is contradictory.

8.4.2.2 *Self-management should be actively promoted*

Self-management has been defined by NICE as "the individual's ability to manage the symptoms, treatment, physical and psychological consequences and lifestyle changes inherent in living with a chronic condition" (NICE Guideline 2016 <https://www.nice.org.uk/guidance/ng59>). More specifically for low back pain, self-management includes advice to stay active, patient education and reassurance by written information, and unsupervised exercise regimes (including exercise prescription, advice to exercise at home).

In self-management, personal responsibility is encouraged for one's day-to-day management over the duration of the disease. Specifically for radicular pain, self-management concerns also the monitoring of the symptoms (progressivity of the muscular strength).

This concept emphasizes again the importance of interactive, collaborative care between patients and healthcare professionals with positive discourse allowing for patient empowerment, rather than one-way, passive care from experts to patients.

8.4.2.3 *Patients-clinicians interaction could be improved*

Some patients from the focus groups reported a good contact with their physician. In this case, they stressed that the message was clear, the physician was straight and direct, the explanation was detailed, the physician said "you have this, I do that, consequences are those".

However, bad communication was also frequently evoked by the patients. Negative discourses could induce fear and passivity. Moreover, some suspicion about conflict of interest was risen in the sense that healthcare professionals want patients to come back to gain money and therefore give incomplete information.

8.4.2.4 *Some tools can help*

All pathways stressed the importance of patient education. Pathways differ in terms of the objectives mentioned:

- understanding the benign conditions of the symptoms and the usual positive natural course of acute low back and radicular pain,
- understanding the message that LBP is not a disease to be cured but a condition to be managed and to be learned living with it,
- convincing to actively engage in exercise and movements,
- explaining the ergonomic principles,
- making the patient independent of the caregiver in daily life.

Pathways differ in the tools they propose to patients: websites, flyers, PowerPoints. A patients' organization ensuring peer support, information sharing, a contact point to support patients in their search through the healthcare system was also proposed by the patients. Because it is not easy to convince all patients to play an active role in the process of getting better and because also clinicians have false-beliefs, tools for caregivers are also



available: training sessions, feedback, consultable protocols / algorithms / flowcharts, and feedback questionnaires.

Key messages regarding the patient-centered care in low back and radicular pain

Based on the findings mentioned above, we retain that **some patients' needs and expectations are particularly difficult to be answered**: clear identification of causes, complete recovery, comprehensive approach or personalized management. The shared-decision making is a useful process for taking the patient's preferences into account and adapt the management but it requires patients' empowerment. For the healthcare providers, **patients' empowerment is a real challenge**: on the one hand, they call for self-management and thus ask patients to take an active role; on the other hand, their discourses promote a passive patient role because that is supposedly easier to manage. The interaction patient-clinician is therefore essential and can be improved.

Implication for the Belgian pathway

- Each encounter "patient-healthcare provider" should be an opportunity for listening patients' needs, encouraging self-management and promoting activity.
- In order to guide patients and professionals, clear indication of therapeutic options should be stated in a timely manner in the pathway but with a place given to the patient's preferences and the shared-decision making process.
- Clinicians should be encouraged to develop a treatment program adapted to the patients' needs, preferences and abilities. Within this program, also follow-up visits should be scheduled to re-assess the patient and to promote self-management.

8.5 Finding 5: Work and social activities are part of the management

Many complaints such as musculoskeletal complaints are described as work related. In some cases, the symptoms is caused by work related activities but work is mostly not the only causal factor and complaints do not disappear by avoiding work. Moreover, jobs and labour give people the opportunity to participate in society, which is important to create psychosocial well-being (e.g. identity, social status). The problems related to work and social activities deserve therefore a lot of attention.

8.5.1 The risk for long term absence can be assessed

For treating physicians, it is not always simple to determine if patients are able to return to work or not. According to the expert group, the activity level can be an indicator for the likelihood of resuming work. For example, if the patient is not able to do his household, to garden or to tinker, the likelihood is low that he/she will be able to return to work; for those who have a seated job, the capacity to sit is not the only point to be taken into account because the means of transportation used to arrive at work also are also important and have to be acceptable for the patient. A rapid referral to an occupational health physician is important in this case to assess which activity level is still possible for the patient.

Several critical predictors for return to work in case of musculoskeletal illnesses were identified in the literature. In Belgium, 16 factors are selected to identify high risk patients for a long duration of work disability: some of these factors can favour the return to work, such as work satisfaction or education level; other have an negative impact, such as age, perception of a bad health, or a physically high strain job (Table 9). The idea behind this list of 16 factors is that long term inability to work is less dependent on the diagnosis but rather on a combination of the following 3 elements: the perception of the disease, the personal characteristics of the worker and the characteristics of the work. A research in progress should lead to a relatively short and validated questionnaire to be completed by the patient (with the help of his general practitioner, if needed). This questionnaire should be filled after 6 weeks of work absenteeism in order to allow the medical advisor



of the sickness fund to categorize the patient after 2 months of work disability according to the Royal decree of 2017 on the reintegration trajectory.

Table 9 – List of predictors for the return to work

Category	Predictors
Socio-demographic characteristics	Age
	Sex
	Education level
Perception	Perception of the health status
	Personal foresight of a possible return to work
	Feeling of pain
Influence	Interference of complaints in work-related function (how much do they make it impossible?)
	Psychic symptoms (anxiety, distress)
Personal characteristics	Perfectionism/Assiduity
	Avoidance of work/uncertainty about the reactions of colleagues or management, or the work itself
	Stressful, difficult private situation
Situation at work	Physically heavy work
	Pressure at work
	Autonomy in work
	Workability (balance between worker-specific characteristics and work-related requirements)
	Job satisfaction

Source : Goorts K., Duchesnes C., Vandenbroeck S., Rusu D., Du Bois M., Mairiaux Ph., Godderis L. *Is langdurig ziekteverzuim voorspelbaar en meetbaar?* Tijdschrift voor Bedrijfs- en Verzekeringsgeneeskunde. February 2017. 25(2):59-62.

8.5.2 Healthcare providers have a role for maintaining the patient in the work environment

Vocational rehabilitation is the process which enables persons with functional, psychological, developmental, cognitive and emotional impairments or health disabilities to overcome barriers to accessing, maintaining or returning to employment or other useful occupation. This is a staged process, beginning by low cost interventions (patients' empowerment), and proposing more intense and higher cost interventions, depending on the needs of the patient. An early intervention is stressed in the literature in case of sickness leave because the longer the worker is not working due to his low back pain conditions, the more difficult the return to work, and the higher the economic costs will be. Prescribing a sickness certificate is therefore not innocuous and clinicians can play a role in maintaining the patient at work or favouring an early return to work. However, in practice, clinicians appear not to be aware of this role.

8.5.2.1 There is a gap between clinicians and work environment

All studied pathways, except the Belgian pathway of the Military Hospital, have mainly focused on the therapeutic management of the patient, without involving the work environment. No links have been made between the medical setting and the employer, even in countries such as Canada, UK and the Netherlands where formal programmes exist. In the Military hospital pathway, the employer himself (the Ministry of Defence) has implemented the clinical pathway within his local healthcare system, particularly for his (military and civilian) workers. In this case, all patients are encouraged to remain at work during rehabilitation and sanctions are foreseen in case of lack of therapy adherence.

According to the discussion with healthcare providers and patients, several obstacles exist for bridging the gap between the healthcare system and the work conditions:



- Treating physicians lack the time and training to explore the role of work in low back pain and the exigencies of the workplace. But if occupational causes of LBP are not taken into account, there could be an increased risk of recurrent episodes.
 - Treating physicians are not aware that at the moment of determining the period of sickness leave, return to work can already be prepared.
 - Treating physicians do not usually communicate with the occupational physicians; they do not even know their name or contact details. However according to the experts groups, an electronic platform (Healthconnect) is currently developed that gather the services of occupational health physicians. This database will allow each physician to look up, based on the identity card of the patient, which service can be contacted.
 - Treating physicians do not usually communicate with the medical advisor of sickness funds (for example about the functional capability of the patient).
 - Neither occupational physicians, nor medical advisors of sickness funds have currently sufficient resources (in time and persons) to contact the treating physicians.
 - The occupational physician is often not aware of sickness leave, because of the lack of communication between employer and occupational physician. In some companies, a list of sick workers is available but without indication of the pathology.
 - There is only one ergonomist per multidisciplinary rehabilitation programme and that limits their possibility of action.
 - Misbeliefs and lack of knowledge by clinicians are apparent relative to return to work and supportive measures. According to the nominal group it became clear that often healthcare professionals are not well informed about a progressive return to work. Two examples were quoted:
 - Often physicians assumed that once back to work the minimum work time is a half time, but this is not the case, it can be less. Legislation foresees a progressive return to work without imposing minima.
 - The initiatives of the Federal agency for professional risk (Fedris) supporting more extensive care trajectories in case of work-induced back pain are unknown by the clinicians (see chapter 4).
 - Currently, medical shopping is a common practice, which hampers the return to work since every physician can prolong the sickness leave without knowing exactly its duration or feeling responsible for it. Even with the electronic certificates, he will see this is a prolongation, but will not get into contact with the previous physician.
- #### 8.5.2.2 *The work environment is not always helpful*
- Assisting disabled back patients in a better way might be the key to a faster and sustainable return to work. However, the nature and quality of work and its social context are important. Jobs should be safe, adapted and accommodating, in order to be healthy. But it is not always the case and the choice the workers have, is sometimes very poor. Several situations were described in the nominal groups, focus groups and expert groups:
- The current socio-economical context evolves in a way that increases job uncertainty.
 - Patients in the focus groups highlighted the role of corporate culture. How employers and colleagues cope with a colleague suffering from low back pain heavily depends on the work culture and the experiences of the employer (for example if the employer had already a tort litigation, he/she will be more cautious).
 - In the best case, there are adaptations at work to facilitate the patients' functioning or keep pain within acceptable boundaries.
 - More often adaptation (e.g. personalised furniture) or change of tasks is not self-evident: the help of the occupational physician might be needed to push employers to accept this solution, or for particular jobs or job contexts no other easier work is available.



Employers may prefer that the worker stays in sickness leave because of this kind of difficulties. Some patients found also it is a pity that an adapted furniture is only bought for the LBP patients, although everyone should profit of these ergonomic adaptations.

- Adapted work rhythm to allow recovery or work flexibility, including leaving work earlier or work at the most convenient hours, are other options. These can be informal mutual arrangements by work colleagues.
- At the other end of the continuum, patients reported dismissal or being no longer in the running for promotions.
- Patients also mentioned the search for lighter work and reduction of working hours (e.g. from full-time to half-time) or even resignation.
- Other coping strategies were to do less household chores and/or to take pain medication in order to function normally at work.
- The lack of incentives for employers to reintegrate patients (with low back pain) is stressed both by the healthcare providers and patients. It might be easier for an employer to find a substitute to the absent worker rather than to change the organisation of work. Even the ergonomist's advice is underused although free of charge in the INAMI/RIZIV programme (see chapter 4). Employers are not keen to involve ergonomists, as this often leads to additional costs (e.g. adapted furniture or tools).

8.5.2.3 *Return-to-work programmes exist*

In Belgium, the impact of diseases (whatever they are) on work absenteeism is a concern shared by different public authorities. Two Royal Decrees were published at the end of 2016 to favor return to work, whenever possible, for people on sickness leave (see chapter 4). Added value of this new regulation is the involvement of both employer and treating physician, beside the occupational physician, the medical advisor of sickness funds and the worker. Professional integration can include modification of work content or adapted work hours. Next to these new regulations, the experts mentioned also the ongoing negotiations on incentives for employers who facilitate

return-to-work of their workers (10% of wage paid by the employer during the first 10 months).

8.5.3 *The continuation of social activities, outside the work, should also be promoted*

Return to work is only one aspect determining patients' wellbeing. Some people continue to work but lose all social contact because of their pain; the interest of patient participation in social life is therefore also a concern. Return to normal activities (including sports) should also be included in physicians' advices. This is a recommendation included in the Belgian guideline. The advices of the physician should focus on improvement of the general health condition.

Key messages regarding the promotion for maintain work and other activities

Based on the findings mentioned above, we retain that in Belgium, a questionnaire is now being developed to **predict long-term sickness absence** in occupational medicine and that there are different public initiatives to support the return to work. However, the clinicians appear not to be aware of the role they can play in maintaining or favouring the return to work of their patients. According to the healthcare professionals, return to work could be accelerated by taking **work exigencies into account** during diagnosis and treatment, by using the **expertise of occupational physicians and ergonomists**, by referring to the **right healthcare professional on time**, and by taking advantage of all **available measures** regarding the reimbursed care trajectories and progressive return to work. **Incentives for the employers** need to be taken into account by the public authorities. Finally, return to normal activities (outside the work) should also be considered by the healthcare providers.



Implication for the Belgian pathway

- The pathway should clearly emphasise the **role of physicians in the maintain to work** (prescribing a sickness certificate is not innocuous) Physicians should be aware of the importance to limit the sickness leaves and to prepare return-to-work, already during the redaction of the first certificate of sickness leave. This awareness could be supported by the professional associations.
- Return to normal activities (including sports) should also be included in **physicians' advices**.
- At 0-1 week after the onset of LBP, an assessment of the role of the work conditions in the pain genesis has to be done by the treating physician. If occupational causes are not taken into account, there could be an increased risk on recurrent episodes of low back pain. Moreover, certainly if a sickness certificate is provided, the physician can ask the patient to gather the contact details of his/her occupational physician.
- At 2-5 weeks after the onset, in case of first contact or if insufficient or no pain improvement is observed after the first management:
 - the potential impact on LBP of work conditions should be evaluated (e.g. blue and black flags are identified) and dealt with by careful explanation and motivational speech;
 - an assessment of the work ability should be performed: activity level can be an indicator for potential return-to-work (e.g. if the patient is not able to do his household, he will not be able to return to work);
 - instruction to work as soon as possible should be provided when it is realistic.
- From 6 weeks, at each encounter with the patient, when absence from work is renewed, the treating physician should promote a return to work (short duration of the sickness certificate) and prepared it with the occupational physician.

- Clinicians should take time to mention during the consultation the importance for maintaining normal activities, including sport activities and friends' encounters.
- Patients with low back pain should be informed by their clinicians that absence from work has no healing effect, and that longer periods of absence from work could reduce the chance of resuming professional activities.

8.6 Finding 6: A stepwise process provides a role to each type of healthcare provider

The incoherence of speeches and interventions proposed by the different healthcare providers has already been highlighted in this report. A care pathway must define the content and specific tasks of each discipline at each step in order to provide a truly coherent guidance to the patient. It must also facilitate coordination between all the disciplines concerned.

All the analyzed pathways started with a meeting between providers who decide to collaborate and optimize the care. This chapter attempts to describe the role of each discipline in an ideal care pathway and also briefly describes the obstacles faced by professionals when they want to take on this role in practice.

8.6.1 The primary care should be reinforced

A lot of foreign pathways stress the importance of the primary care level in the management of low back pain. The aim is to promote the management of a majority of low back pain patients by clinicians in primary care and to reserve the severe cases to secondary care. In this way, the current overload (and long waiting lists) noticed in secondary care should be decreased and with accurate management of acute/subacute LBP in the primary care setting, prevention of chronicity should be improved.

In most cases, the first management is a role assigned to general practitioners (GPs), physiotherapists, chiropractors, osteopaths, occupational therapists or specially trained nurses. In Belgium however, all these disciplines are not on an equal footing.



8.6.1.1 General practitioner's role

The nominal groups emphasized the GP's crucial role in management of low back and radicular pain. GPs are responsible for the triage, centralization of patients' data in medical records, prescription of imaging and medications if needed, etc. They encourage the patient to pursue of an active approach in addition to self-management, they present and explain the different therapeutic options, they assess the improvement or not of the patients' complaints, etc. By coordinating care and referrals, they can also reduce the risk of medical shopping.

However, GPs acknowledged their lack of appropriate training for the practical management of low back and radicular pain patients. They notably need tools for promoting self-management. Referral to physiotherapists or nurses specialized in strategies for self-management is also an option they have mentioned. GPs also revealed the lack of knowledge regarding the role of certain specialists such as manual therapists or physicians in physical medicine and rehabilitation.

In order to assume their coordinator's role, GPs have to receive feedback after referral to the secondary care. Physical presence of GPs on multidisciplinary meetings is not always feasible. Experts mentioned the current low participation of GPs in multidisciplinary oncological consultations due to low financing and lack of practical support. If the participation to multidisciplinary discussions is expected for low back pain patients, more logistic solutions are needed (e.g. virtual communication software).

8.6.1.2 Physiotherapist's role

The nominal groups acknowledged the expertise of many physiotherapists in low back pain management. Since the basic education of the physiotherapist has evolved towards the reinforcement of the (future) physiotherapist as an independent care provider, more and more physiotherapists are well trained in the functional assessment of the low back patient, including the screening for red flags. In the Dutch-speaking community, the general education program encompasses 5 years and in the French-community, 4 years. Some students follow afterwards an additional training dedicated specifically to the management of musculoskeletal pain/dysfunctions. These physiotherapists are recognized as manual therapists. A definition of manual therapy is presented in box 6.

Box 6 – Definition of manual therapy according to IFOMPT

"Orthopaedic Manual Therapy is a specialised area of physiotherapy / physical therapy for the management of neuro-musculoskeletal conditions, based on clinical reasoning, using highly specific treatment approaches including manual techniques and therapeutic exercises. Orthopaedic Manual Therapy also encompasses, and is driven by, the available scientific and clinical evidence and the biopsychosocial framework of each individual patient."

A Ministerial Decree published on the 8 Augustus 2014^e recognised manual therapy as a particular professional qualification in Belgium.

The roles of physiotherapists in the management of low back and radicular pain are multiple: supervision of exercises, manual techniques, promotion of self-management, risk assessment... However, although some physiotherapists are real specialists in low back pain, their practice is currently hampered by the absence of direct access to physiotherapy in Belgium since a patient can only be treated by a physiotherapist on medical prescription in which the medical diagnosis and modalities for therapy (type of therapy, number of sessions) are mentioned.

^e Arrêté ministériel fixant les critères particuliers d'agrément autorisant les kinésithérapeutes à se prévaloir de la qualification professionnelle particulière en thérapie manuelle. Service public fédéral santé publique, sécurité de la chaîne alimentaire et environnement. Moniteur Belge, 2014



In the most recent advice of the Federal Board of Physiotherapy (2016), a proposition was made that in specific situations a direct access to physiotherapy could be an option:

- In prevention and health promotion
- After a “physiotherapeutical assessment”. During the first contact with the patient, the physiotherapist assesses if he is the most appropriate care provider for the need of the patient and if the situation is safe. This safety aspect included the screening for red flags. In case of absence of red flags, the physiotherapeutical assessment can be initiated, otherwise the patient will be referred to a physician.
- Within an indicative list of physiotherapeutical acts. Overall it can be stated that the direct access to physiotherapy is restricted to mild to moderate impairments. In case of more severe impairments, a medical prescription is still necessary. Within the domain of musculoskeletal conditions (including low back pain), direct access can be considered for mild to moderate impairments in function, its related disabilities in daily and social activities. In case of more severe impairments, or severe conditions with an increased need for physiotherapy, a medical prescription is still needed.

After discussion with the clinical experts in the working groups, following barriers were mentioned hampering the direct access to physiotherapy for low back patients:

- Treatment of new episode of low back or radicular pain consists of self-management strategies and an active approach but also, if needed, pain killers medication. The physiotherapist does (currently) not have the legal competences to prescribe pharmaceutical products.
- The basic education of the physiotherapist has recently evolved a lot towards an evidence-based approach (including the screening for red flags). Not all physiotherapists (e.g. older generation) have (already) achieved these competences. Additional training is needed for these subgroups of physiotherapists. There is a need of adapted nomenclature (e.g. limited number of sessions, impossibility for working with groups of patients).

The need of a strong collaboration with general practitioners was also highlighted by the expert groups, notably to reduce late referrals to physiotherapy. Moreover, the communication between physiotherapists and GPs is not always ideal: for example, the nominal groups mentioned that physiotherapists often do not follow the treatment prescribed by the general practitioner but physiotherapists argue that in some cases physicians seem to prescribe whatever physiotherapeutic treatment and this deserves an adaptation for the patient's benefit. A training shared by physiotherapists and GPs could allow to improve this situation and to create real network between these two disciplines. Finally, an adaption of the reimbursement of physiotherapy, based on functional disabilities rather than diagnosis, was suggested.

8.6.1.3 *Osteopaths', chiropractors' and acupuncturists' role*

In several pathways, osteopaths and chiropractors are considered as first line practitioners in the management of low back pain. Some patients in the focus groups mentioned also their intervention in their management and reported positive experiences.

Regarding the osteopathic or chiropractic therapy itself, the evidence review during the development of the Belgian guideline on low back and radicular pain showed some clinical benefit of manual techniques (soft-tissue techniques, manipulation/mobilization). However, the beneficial effects increased mainly after combining with other active interventions, such as exercise therapy. Therefore in the Belgian guideline it is recommended only to consider manual techniques in a multimodal treatment package including exercise therapy supervised by a physiotherapist.

During the expert discussions, several clinicians mentioned the lack of communication and collaboration between this alternative circuit of therapists and the conventional network of care providers (as legally recognized in the Belgian healthcare system).

The current legal situation is indeed an important question because, although osteopathy and chiropractic are in progress to recognition since several years, this process is currently delayed (see KCE-report on four complementary and alternative therapies⁵⁶⁻⁵⁸). This means that there is currently no quality control of the practitioners by the INAMI/RIZIV nor



reimbursement (except a small intervention by the sickness funds). Many osteopaths and chiropractors develop a scientific approach and base their practice on evidence (see box 7), but it is currently not possible to distinguish them from other less rigorous practitioners. Regarding acupuncture, the acupuncture Chamber officially recognizes since late 2012 that acupuncture is an area of activity of physicians but also physiotherapists, nurses and midwives. Currently, 85% of acupuncturists are not physicians. According to the representatives of acupuncturists, even if the Belgian clinical practice guideline for low back and radicular pain does not formulate clear recommendations for the use of acupuncture, some evidence suggests that it has an efficacy in the management of chronic low back pain. Moreover, acupuncturists remind that a medical diagnosis must always be made before starting an acupuncture treatment, this diagnosis must be constantly re-evaluated during therapy and acupuncture must remain a complementary element to a multidisciplinary management.

Box 7 – Training in osteopathy, chiropractic and acupuncture in Belgium

Two kind of trainings in **osteopathy** currently exist in Belgium:

- a full time whole academic training in 6 years for people without prerequisites in health science; the Université Libre de Bruxelles offers this cursus, since 2004.
- a full or part time training in private school in 5 years for people with a degree in health sciences, e.g. physiotherapy or physicians.

The model of diagnostic reasoning in osteopathy is based on the relationship between structure and function in the human body. It is not intended to name a pathological state, but rather to guide the selection of therapeutic approaches. For this reason the clinical reasoning consists of two phases: in a first phase the osteopath uses its knowledge in medical semiology to exclude any medical emergency and any pathology which does not fall within its art; In a second step he uses his know-how in osteopathic clinical tests in order to carry out a functional diagnosis which will enable him to specify the therapeutic management.

Training in **chiropractic** focuses on the diagnosis, treatment and prevention of musculoskeletal disorders, especially neck and back pain. Currently, all Belgian chiropractors follow a full time training (master) in 5 years, recognized by the European Council on Chiropractic Education. The professional Union encourages its members to work in a (in)formal network with physiotherapists, in order to facilitate the multimodal approach in which manual techniques are combined with exercises.

Training in **acupuncture** is available to physicians, physiotherapists or nurses (bachelor or master). For the former, the training includes a minimum of 192 hours in acupuncture (theory, practice and practical training) and must provide students with the means to integrate acupuncture in a critical way in western medical practice; for non-physicians, the training includes a minimum of 1500 hours over at least 3 years and addressing theoretical, practical aspects, an internship and a dissertation. Several acupuncture schools exist in Belgium. Other healthcare professionals who can play a role in primary care



Psychologists have an important role to play in the management of low back or radicular pain. For example, they can help patients to support the heavy burden of the pain on their mental health for example. Their place on the multidisciplinary rehabilitation teams from secondary care is crucial. With the risk stratification pattern, psychologists can also support patients in primary care if the patient is identified with a psychosocial high risk for chronicity. In this case, they can improve motivation, therapy compliance and empowerment of patients since the acute phase. The Belgian guideline on low back and radicular pain considered the potential contribution of psychological therapy (mainly cognitive behavioural therapy) in the multimodal approach.

However, general practitioners from the nominal group and expert group reported the difficulty to identify psychologists specially trained in pain management. They also reminded that the reimbursement of psychologists' sessions is currently problematic in Belgium (except a small reimbursement from some sickness funds and a future governmental proposition). Healthcare providers also stressed that all patients do not accept that they need a "psychological" support, what it is confirmed by some quotes of patients during the focus groups.

Beside psychologists, other healthcare professionals could have a role in the management of low back and radicular pain in primary care. The occupational therapists and the ergonomists are two examples mentioned by the expert groups.

According to the World Federation of occupational therapists (WFOT), "the primary goal of occupational therapy is to enable people to participate in the activities of everyday life." **Occupational therapists** achieve this outcome by working with people and communities to enhance their ability to engage in the occupations they want to, need to, or are expected to do, or by modifying the occupation or the environment to better support their occupational engagement. They have a broad education in the medical, social, behavioural, psychological, psychosocial and occupational sciences. They are currently included in some multi-disciplinary rehabilitation teams; they advise, guide, propose solutions to the patient by involving the latter and his environment of work and life). But occupational therapists are rarely involved after the referral of the patient to the general practitioner (except in some group practices). However, they could help the latter to support

patients whose condition has not improved after a complete protocol of appropriate treatments and which mainly require an optimization of their comfort and function. A professional competence profile for occupational therapists is under development and is expected in 2017.

Ergonomists are also included in multidisciplinary team. They study the interaction between man and his work and take into account various aspects: psychological, morphological, sociological... Aim of ergonomics is to develop proposals to achieve a better adaptation of the work environment to man, without neglecting his environment in general. Their role is certainly essential in adapting the workstation if it is necessary.

8.6.2 *The referral to the secondary care could be improved*

Currently, in the absence of a formal pathway, healthcare professionals individually decide whether a referral is necessary and to which professional to refer. In practice, specialists who can handle subacute/chronic low back and radicular pain are mainly specialists in physical medicine and rehabilitation (MPR), spine surgeons (neurosurgeons and orthopaedic surgeons) and anaesthesiologists/algologists (legal term preferred to "pain specialists"); nevertheless, rheumatologists and neurologists are also often involved.

The referral to the secondary care should happen at the right time to the right professional and in accordance with patient needs. However, according to the nominal groups, referrals often come too soon (to a surgeon) or too late (to the multidisciplinary programme). The question was raised whether each clinician is able to allocate the right care (provider) to the right patient and whether he knows which care providers have which competences.

In the patient's mind, which care provider he ends up with depends largely on coincidence. Some participants to the focus group felt that their clinicians have not even a network of care providers to which to refer to.

During the expert discussions, the current waiting time for secondary care was often highlighted, leading to months of inactivity. During this period, patients are unable to work and nothing happens, except from the administration of pain medication. This point needs a real involvement of the Belgian healthcare system. In some studied pathways, GPs who join the pathway get faster access to specialists for their patients. In others, the



pathway has the mission to develop an intermediate level in between GP level and hospital specialist level, consisting of specifically trained physiotherapists (and/or chiropractors in Canada, US and UK) who can assess the patients, select those needing specialized physiotherapy/psychological support and those needing secondary care. In Belgium, this option was not retained (notably because of the current limited legal competencies of non-physicians healthcare professionals who cannot take a diagnosis for example) but specific tasks for certain specialists (mainly specialists of physical medicine and rehabilitation) were proposed.

8.6.2.1 Specialists of physical medicine and rehabilitation's role

From the subacute phase onwards, a risk of chronicity is present in many patients. In case of no improvement despite an appropriate previous management, these patients should be referred by the GP to the secondary care. The expert group considered the specialists in physical medicine and rehabilitation (PMR) as the ideal professionals for assuming the first management of patients with low back pain in secondary care.

Their role for coordination of the secondary care appears crucial in Belgium where an intermediate level such as in the UK (see above) is not a realistic option. The involvement of the specialists in physical medicine and rehabilitation was noticeable in the development and the implementation in the Belgian initiatives of local pathways.

In practice however, the overload of PMR is questioned. An appropriate management of acute LBP in primary care will reduce significantly the number of patients with subacute or chronic LBP who need further treatment in secondary care. But it is not sure that the number of PMR specialists is already sufficient to assume the function of first reference for low back pain patients not improved after appropriate management. A quantitative analysis of the resource needs based on epidemiological data (for example number of acute, subacute, chronic LBP and RP) appears to be crucial. Some solutions in order to avoid a long waiting time should also be thought. According to the expert groups, there are already some (local) initiatives in Belgium to reduce the waiting lists of PMR by providing separate time slots for urgent cases.

8.6.2.2 Anaesthesiologists-algologists' and surgeons' role

Currently in subacute/chronic low back and radicular pain, intake can be performed by many specialists, but are predominantly performed by spine surgeons (neurosurgeon or orthopaedic surgeons), PRMs, and anaesthesiologists-algologists. The term "anaesthesiologists-algologists" is the legal word, chosen in this report rather than pain specialist.

The tasks of anaesthesiologists-algologists and spine surgeons are multiple in the management of low back pain and radicular pain: assessment of risk factors, technical interventions (e.g. epidural injections in radicular pain), surgical interventions (e.g. decompression for subacute low back pain) or symptomatic management of chronic pain patients with insufficient potential for improvement despite appropriate management.

According to the expert group, a national training for every specialist is needed notably to decrease the false beliefs of some of them. The nominal groups has also highlighted the potential conflict of interests of all physicians (which advise a treatment for which they are paid) but also of hospitals because technical acts and surgery is more profitable than intellectual acts.

8.6.3 Coordination of care is not optimal

Inconsistent discourses and care patterns from different individual healthcare providers are an important pitfall in the management of low back and radicular pain and this is a concern both for the healthcare providers and the patients. To improve this situation, a coordination between all the involved disciplines is crucial. By the way, all studied pathways started with care providers getting together and deciding to collaborate and streamline care.

Some difficulties deserve attention such as the transfer of information, the organisation of real interdisciplinary team and the need for personal coordinator expressed by patient.



8.6.3.1 *Transfer of information is flawed*

The transfer of information from one healthcare professional to another does not always happen automatically. Patients experience this as troublesome. More specifically, both patients in the focus groups and healthcare professionals in the nominal groups and expert groups mentioned that it is sometimes impossible to transfer the images of the previous round to another physician in another hospital.

Regarding therapeutic interventions, there are also problems. Physiotherapists should inform physicians about the progression of their patient and this is not done systematically. General practitioners noticed that when they refer their patients to another clinician they rarely receive a feedback from this clinician. Some GPs develop a network with selected clinicians taking into account (among other criteria) the existence of this transfer of information. A group practice including a physiotherapist within the team could be another solution.

In addition, after referral GPs should keep following the patient.

8.6.3.2 *Multidisciplinary/Interdisciplinarity should be supported*

A real collaboration between primary care and secondary care could involve more than only transfer of information but also a proactive collaboration with communal goal setting. It is one kind of multidisciplinary. The expert group mentioned also that general practitioner should be included in the discussion with the multi / interdisciplinary teams.

Some pathways consider themselves as multidisciplinary (several providers contribute their expertise) and some as interdisciplinary (all providers eventually produce one single advice together). Notwithstanding this nuance, there is not a single pathway that is run by a single discipline of care providers. In other words, all pathways studied involve multiple disciplines.

The nominal groups emphasised the need of a multidisciplinary management for low back pain both for patients at risk of chronicity and for patient already in a chronic stadium. Disciplines such as ergonomists, social workers and psychologists are mentioned besides the usual clinicians.

The clinicians involved in expert groups confirmed the need of a multi / interdisciplinary approach in secondary care. Based on the current situation, they define three different multidisciplinary teams included in secondary care settings:

- The **departments of physical medicine and rehabilitation**: they should be involved in the management of patients with low back pain from the subacute phase (>6 weeks) and from 12 weeks for patients with radicular pain. They can offer multidisciplinary programmes specifically developed regarding the patient's needs and potential of rehabilitation.
- The **multidisciplinary spine units**: this concept does not cover a real therapeutic option, but rather a multidisciplinary moment of decision making. The key points of this approach are:
 - A detailed description of the medical, social and occupational history of the patient, the treatments already received for his low back pain problem, his current state of health (including clinical examination), his functional condition, his pharmacological treatment and his expectations;
 - A multidisciplinary discussion between the different specialists with the possibility for each of them to examine the patient, to ask him any additional questions and to arrive at a mutual agreement on the strategy to be followed;
 - A communication to the patient of the results of interdisciplinary consultation (preferred strategy and possible alternatives);
 - A shared-decision making with the patient.
- The **pain centres**: they should be reserved for patients whose painful problem is considered beyond any possibility of direct relief through previous treatments. These centres include a team composed of at least physicians, psychologists, nurses, physiotherapists, occupational therapists and social workers. The key points of this approach are:
 - Control of symptoms when possible: drugs, invasive interventions and rehabilitation;
 - Improvement of adaptation strategies;
 - Decrease of inappropriate behaviour;



- Reconditioning;
- Functional reintegration.

The difficulty of interdisciplinarity is to organize the discussion with all involved clinicians. Another difficulty is to find clinicians with the right competences or specialisation (e.g. psychologist trained for coping with pain). The financial aspect (remuneration for the time dedicated to the interdisciplinary discussion) was also mentioned by the participants of the nominal groups.

8.6.3.3 *Individual coordinator proposed by patients*

During the focus groups, patients reported a feeling of being completely lost in the healthcare system and a crucial need of a personal coordinator for their care pathway. They propose the development of a personal coach for low back pain. The task of this coach would exceed the coordination of care and encompass prevention of recurrence or mental coaching. According to the expert groups however, the general practitioner is already a coordinator and this role should stay in the primary care level.

Key messages regarding the stepwise process

Based on the findings mentioned above, we retain that the early management of low back pain patients by clinicians in primary care is not so usual and requests improvement. The referral to secondary care for the patients who need it, to the right specialist at the right moment seems also problematic. In Belgium, the specialist in physical medicine and rehabilitation (PRM) appears to be the ideal professional for assuming the first management of patients with low back pain in secondary care but this requires some changes in practice. Finally, a clear involvement in coordination is highlighted: transfer of information and organization of interdisciplinarity.

Implication for the Belgian pathway

- When possible, the healthcare provider concerned by a specific intervention should be identified in the pathway.
- In primary care level, general practitioners are central both for low back and radicular pain patients; in the secondary care level, specialist in physical medicine and rehabilitation should receive a specific role in the coordination of care for low back pain patient while the four spine and pain specialists are more equally involved for radicular patients.

8.7 Finding 7: Gathering data and monitoring should be foreseen before the pathway implementation

The development of care pathways for low back and radicular pain is a recent phenomenon in the medical world, which explains the relative lack of data in the literature and the low number of initiatives mature enough to be formally evaluated.

As a consequence, the added value of the pathways in terms of improved patient outcomes cannot be proven at present although all interviewees strongly defended their pathway and were confident that it carried many positive effects on quality and efficiency of provided care.

Almost all pathways systematically keep record of patient reported-outcome measures (PROM) and patient-reported experience measures (PREM) and certain process indicators as an element of the pathway. PROM and PREM monitoring can be performed by using existing standardized and validated questionnaires: pain, function, quality of life were variables scored and monitored in most of the pathways. Neither the duration of the disability to work nor the financial aspect are the subject of any current monitoring, irrespective of the pathway analyzed, Belgian or foreign.



8.7.1 The COMI questionnaire

To evaluate the Belgian pathway, the experts in this project proposed to refer to the Core Outcome measures Index (COMI) questionnaire, which includes 7 questions, is validated and exists in French and Dutch (see box 8).

Box 8 – COMI

Spine Tango COMI Patient self-assessment

- Directions
- Use a #2 soft pencil for marking.
 - Only one answer per question allowed.
 - Completely fill in boxes to record answers.
 - Mandatory informations

EURO SPINE **Low Back 2008**

Compatible with SGS SWISSpine register

Not read by scanner

Last name		First name		Gender
Street				
M.F.N.				
Country Code	Zip Code	City		
Social security number (Abl no.)			Birthdate (dd.MM.YYYY)	

Examination interval

- | | | |
|---|-----------------------------------|----------------------------------|
| <input type="checkbox"/> before surgery | <input type="checkbox"/> 3 months | <input type="checkbox"/> 2 years |
| <input type="checkbox"/> 4 weeks | <input type="checkbox"/> 6 months | <input type="checkbox"/> 3 years |
| <input type="checkbox"/> 6 weeks | <input type="checkbox"/> 9 months | <input type="checkbox"/> 4 years |
| <input type="checkbox"/> 2 months | <input type="checkbox"/> 1 year | <input type="checkbox"/> 5 years |
| <input type="checkbox"/> other: years | | |
- e.g. 4 months = 4 months/12 months = 0.33 year

Back problems can lead to back pain and/or pain in the legs/buttocks, as well as to sensory disturbances such as tingling, 'pins and needles' or numbness in any of these regions.

1 Which of the following problems troubles you the most? Please tick ONE BOX only.

- ☐ back pain
☐ leg/buttock pain
☐ sensory disturbances in the back/leg/buttocks, e.g. tingling, 'pins and needles', numbness
☐ none of the above

2 For the following 2 questions (2a and 2b) we would like you to indicate the severity of your pain, by ticking the appropriate box (where "0" = no pain, "10" = worst pain you can imagine). There are separate questions for back pain and for leg pain (sciatica)/buttock pain.

2a How severe was your back pain in the last week?

- | | | | | | | | | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------|
| no pain | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | worst pain that I can imagine |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

2b How severe was your leg pain (sciatica)/buttock pain in the last week?

- | | | | | | | | | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------|
| no pain | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | worst pain that I can imagine |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

3 During the past week, how much did your back problem interfere with your normal work (including both work outside the home and housework)?

- ☐ not at all
☐ a little bit
☐ moderately
☐ quite a bit
☐ extremely

4 If you had to spend the rest of your life with the symptoms you have right now, how would you feel about it?

- ☐ very satisfied
☐ somewhat satisfied
☐ neither satisfied nor dissatisfied
☐ somewhat dissatisfied
☐ very dissatisfied

5 Please reflect on the last week. How would you rate your quality of life?

- ☐ very good
☐ good
☐ moderate
☐ bad
☐ very bad

Please go to the next page...



Spine Tango COMI

Patient self-assessment

Low back

page 2 of 2

6 During the past 4 weeks, how many days did you cut down on the things you usually do (work, housework, school, recreational activities) because of your back problem?

- ☐ none
- ☐ between 1 and 7 days
- ☐ between 8 and 14 days
- ☐ between 15 and 21 days
- ☐ more than 21 days

7 During the past 4 weeks, how many days did your back problem keep you from going to work (job, school, housework)?

- ☐ none
- ☐ between 1 and 7 days
- ☐ between 8 and 14 days
- ☐ between 15 and 21 days
- ☐ more than 21 days

Answer the following questions only if you are completing this questionnaire AFTER the operation

8a Did any complications arise as a consequence of your operation in our hospital (e.g. problems with wound healing, paralysis, sensory disturbances)?

- ☐ no
- ☐ yes → please describe these:

8b How bothersome were these complications?

- ☐ not at all bothersome
- ☐ slightly bothersome
- ☐ moderately bothersome
- ☐ very bothersome
- ☐ extremely bothersome

9 Since the operation in our hospital, have you had any further operation(s) on your lumbar spine (back) in our or in other hospitals?

- ☐ no
- ☐ yes, but at a different level of the spine.
- ☐ yes, at the same level of the spine (same segment)

10 Over the course of treatment for your back problem, how satisfied were you with your overall medical care in our hospital?

- ☐ very satisfied
- ☐ somewhat satisfied
- ☐ neither satisfied nor dissatisfied
- ☐ somewhat dissatisfied
- ☐ very dissatisfied

11 Overall, how much did the operation in our hospital help your back problem?

- ☐ helped a lot
- ☐ helped
- ☐ helped only little
- ☐ didn't help
- ☐ made things worse

Date Day 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Month 1 2 3 4 5 6 7 8 9 10 11 12 Year 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19

Signature:

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01.02.2009

http://www.eurospine.org/cm_data/SSE_lowback_COMI_E.pdf

The first two questions relate to the localization of pain and its intensity (assessed by the numerical rating scale). Next are questions about the impact of low back and/or radicular pain on the function, well-being specifically related to symptoms, quality of life in general and social and professional life. The COMI is the main instrument of measures included in the surgical register of the Spine Society of Europe (Eurospine), the "International Spine Tango Register". A Belgian spine register, based on the model of the Spine Tango register (and thus on the COMI) is expected and starts with a pilot phase in 2018.

Four additional questions are included in the COMI questionnaire available on the EUROSPINE website and address complications due to treatment (surgical or not according to the version of the questionnaire) and patient satisfaction. These questions are not formally validated, neither in French nor in Dutch.

8.7.2 The ICHOM set of measures

Beside the COMI questionnaire, there are more detailed questionnaires. The International Consortium for Health outcomes Measurement (ICHOM) has developed a standard set of measures targeting degenerative lumbar conditions (lumbar spinal stenosis, lumbar spondylolisthesis, degenerative disc disorders including disc herniation, degenerative scoliosis, other degenerative lumbar disorders, and acute and chronic lumbar back pain and back-related leg pain without a clear etiology).

The ICHOM set has taken into account (at least partially) the Swespine and the Spine Tango registries. Concerning the adverse events: the authors declare that the "interventions of interest are operations and injection therapy". They aimed to include complications and adverse events that are relatively frequent, severe, avoidable, and feasible to capture.

The selected PROMs by ICHOM cover six domains, as shown in Table 10. The patient's satisfaction is not included in the ICHOM proposition. Several validated questionnaires are available for use in clinical practice in Belgium but there is currently no real consensus on which questionnaire to use.


Table 10 – Patient-reported outcome measures: the ICHOM list

Outcome	Measurement tool	Definition/wording	Answer options	Time frame for capturing
Pain	Numeric pain rating scale	<ul style="list-style-type: none"> • How would you rate your average back pain over the last week? • How would you rate your average leg pain over the last week? 	0 (no pain) – 10 (worst pain imaginable) 0 (no pain) – 10 (worst pain imaginable), Verbal or visual (horizontal)	Baseline, index event(s), 6 months, 1 year, 2 years
Disability	Oswestry disability index	<ul style="list-style-type: none"> • Pain intensity • Personal care (washing, dressing, etc.) • Lifting • Walking • Sitting • Standing • Sleeping • Sex life (if applicable) • Social life • Traveling 	6 options for each domain, ranging from no problem to severe impairment	Baseline, index event(s), 6 months, 1 year, 2 years
Quality of life	EQ5D-3L	<ul style="list-style-type: none"> • Mobility • Self-care • Usual activities • Pain/Discomfort • Anxiety/Depression 	3 options for each domain, ranging from no problem to severe impairment	Baseline, index event(s), 6 months, 1 year, 2 years
	EQ-VAS	<ul style="list-style-type: none"> • Indicate on this scale how good or bad your health is today 	Vertical visual analogue scale: 0 (worst imaginable health state) – 100 (best imaginable health state)	
Work status		<ul style="list-style-type: none"> • What is your current work status? 	Working full time, working part time, seeking employment (I consider myself able to work but can't find a job), not working by choice (retired, student, homemaker, etc.), unable to work due to problem other than my back and/or leg pain, unable to work due to back and/or leg pain	Baseline, index event(s), 6 months, 1 year, 2 years
		<ul style="list-style-type: none"> • Are you working at a physically less demanding job now because of your back and/or leg pain? 	Yes, no, N/A	



	•How long after you received treatment for low back pain did you return to work? (if applicable)	< 3 months, 3–6 months, 6–9 months 9–12 months, 1–2 years, > 2 years	6 months, 1 year, 2 years
Analgesic use	•Do you take non-narcotic pain relieving medication or tablets for your back problems?	Yes regularly, yes sometimes, no	Baseline, index event(s), 6 months, 1 year, 2 years
	•Do you take narcotic pain relieving medication or tablets for your back problems?	Yes regularly, yes sometimes, no	
Adverse outcomes of treatment			
Mortality	•Death in hospital (all-cause mortality)	Yes/no	While in-house for procedure
Complications 1: nerve root injury (including cauda equina syndrome), vascular injury, dural tear, other	•Clinically significant iatrogenic damage	Yes/no	
Complications 2: Deep wound infection, Pulmonary embolus	•Post-intervention deep/subfascial wound infection	Yes/no	While in-house for procedure and again on next patient follow-up questionnaire
Need for re-hospitalization	•Were you admitted to an acute care facility as an inpatient within 30 days from the date of your intervention for ANY reason? (Do not include admissions to rehabilitation hospital or nursing home)	Yes/no, date(s)	Next patient follow-up questionnaire
Need for reoperation (if yes, specify cause)	•Second or multiple performed interventions caused by complications after index surgery, not planned in advance	Yes/no	At time of reoperation

Source: http://www.ichom.org/wp-content/uploads/2013/10/Clement-Acta-Orthop-2015_Proposed-set-metrics-for-standardized-outcomes-in-mt-of-LBP-1.pdf. Clement RC, Welandar A, Stowell C, Cha TD, Chen JL, Davies M, Fairbank JC, Foley KT, Gehrichen M, Hagg O, Jacobs WC, Kahler R, Khan SN, Lieberman IH, Morisson B, Ohnmeiss DD, Peul WC, Shonnard NH, Smuck MW, Solberg TK, Stromqvist BH, Hooff ML, Wasan AD, Willems PC, Yeo W, Fritzell P. A proposed set of metrics for standardized outcome reporting in the management of low back painActa Orthopaedica 2015; 86 (4): x–x



Regardless the selection of questionnaires, the registration of the PROMs and PREMs should ideally be organized before the implementation of any pathway (including if it is a pilot project) and be repeated regularly thereafter, so as to allow a comparison before-after. The threshold to be used in order to assess improvement or worsening of patient's outcome should also be defined for each indicator and standardised.

Moreover, in order to properly evaluate the cost/efficiency of the route, resource consumption indicators should also be registered.

Key messages

Based on the findings mentioned above, we retain that monitoring is an important aspect to be taken to account before and during the pathway implementation. Several validated questionnaires exist to assess the patient reported outcomes and the one selected by the Belgian spine register is the **COMI questionnaire**.

Implication for the Belgian pathway

- The registration of the PROM and PREMS will be an integral part of the pathway implementation and will be organised before the pathway starts.

9 BELGIAN PATHWAYS

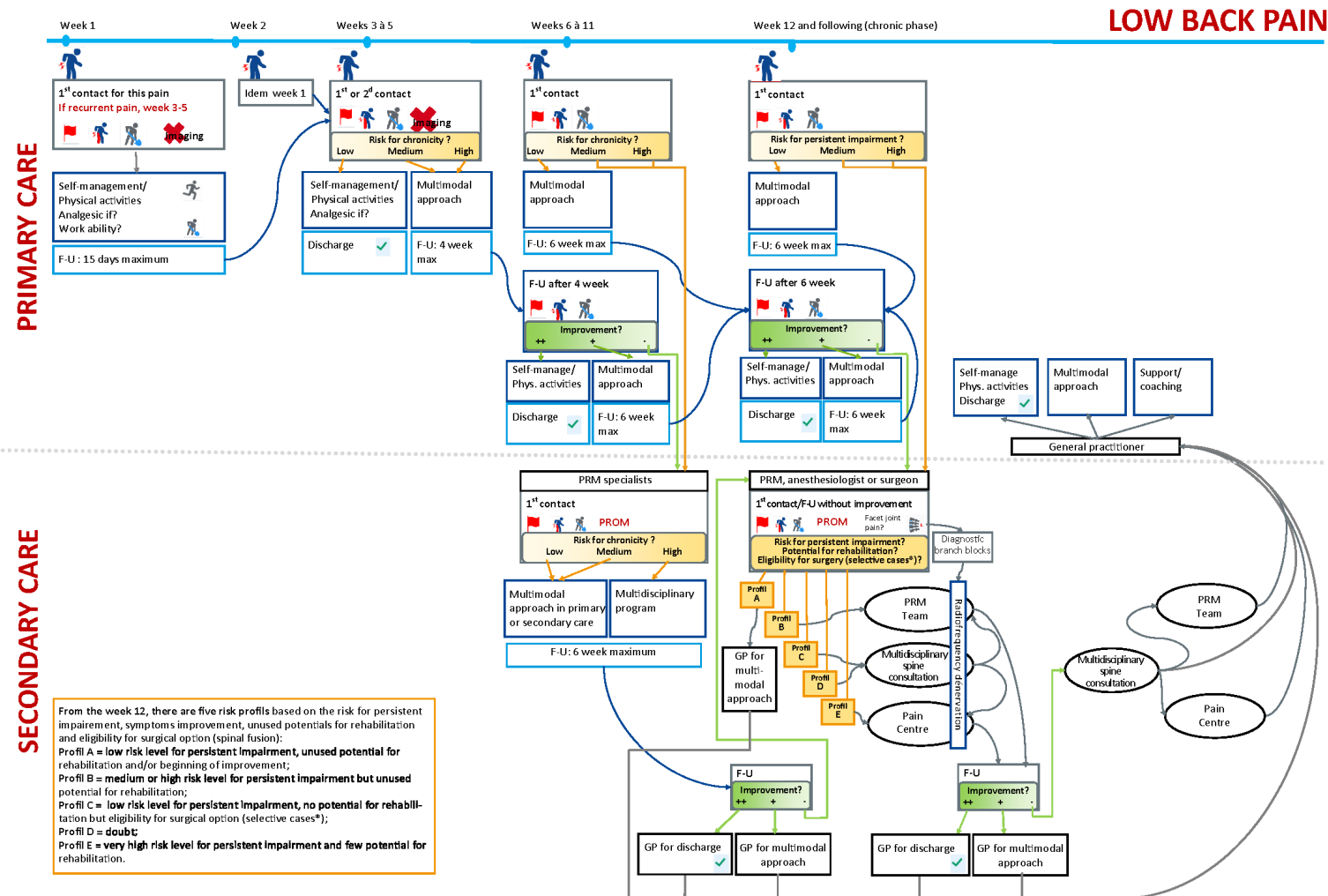
Based on the results of the analysis, a Belgian care pathway for low back pain and radicular pain is proposed. This pathway is complex, encompassing the whole management of patient with low back or radicular pain, from the hyper-acute to the chronic phase.

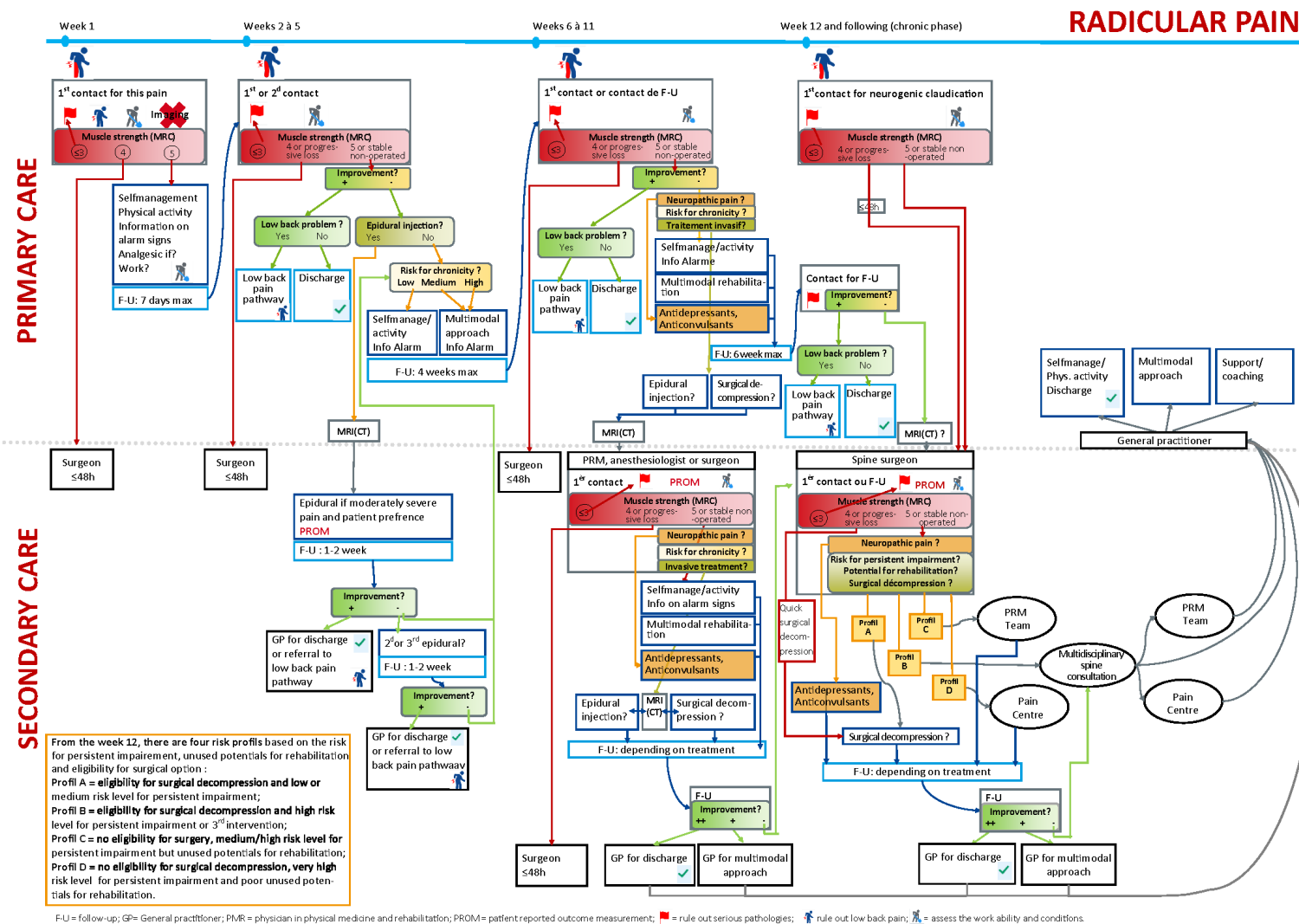
In order to facilitate its implementation, several tools are developed: overviews, algorithms, booklets and interactive tools. All of them are available in [French](#) and in [Dutch](#) on the KCE website.

Each tool follows the same structure:

- Distinction between low back pain and radicular pain;
- Separate entrance according to the level of care: primary or secondary care;
- Division in weeks (or group of weeks)
- Difference between the first contact for this pain and a contact for a follow-up.

Two overviews are presented in English in the two following pages, one for the management of low back pain, another for radicular pain. They provide in one sight all steps for the care pathway.







10 CONCLUSION

10.1 Organisational aspects to be taken into account

The ambition of the Belgian pathway is to cover the whole management of low back pain and radicular pain, from the hyperacute to the chronic phase, regardless of the level of care (primary or secondary). As far as the current analysis permits, no pathway was identified that was successful in organizing and improving both the primary care as well as the secondary/tertiary care. Those which have focused on the primary care level reported it has required a substantial effort, in terms of teaching as well as in terms of establishing an appropriate referral level for triaging more complex patients. Such exercise needs funding.

The successful implementation of the Belgian pathways will depend not only on the willingness of the healthcare professionals but also on macro-level measures that have been identified through the transversal analysis. We cannot conclude this project without describe this course of actions.

10.1.1 Importance of healthcare professionals training

Efforts for training care providers is extensive in the pathways of some countries, particularly if the focus of the pathway is on the primary care level as opposed to the secondary or tertiary level. Many Belgian healthcare professionals mentioned during the discussion a lack of training in several matters.

In order to facilitate the implementation of the pathways, **the organisers for clinicians' education (undergraduate and continuous)** should verify the offer of lessons dedicated to:

- history taking and clinical examination of patients with low back and radicular pain (including the screening for red flags);
- natural course of low back pain and radicular pain;
- bio-psycho-social and comprehensive approach (pain definition, role of the psycho-social factors, etc.);
- stratified management of pain, including the use of standardized instruments for assessing the risk of chronic pain;
- limited use of imaging
- patients' self-empowerment, including motivation and communication skills;
- interdisciplinarity/ network working
- action favoring the return to work.

Some training sessions shared by GPs, physiotherapists and other care providers could improve the collaboration between the different healthcare providers.

10.1.2 Improvement of communication between professionals

In Belgium, the e-health^f plan develops the generalization of an electronic medical file that centralizes all patient information, is administrated by the general practitioner, and is accessible to all other involved care providers (after informed consent of the patient). The correct functioning of the various regional e-health platforms (Vitalink, RSW-intermed and Abrumet-Brusafe) is an essential condition for the interdisciplinary collaboration expected within this pathway.

^f E-health is essentially a communication highway for healthcare providers, developed by the government. It allows providers to share medical information in a fast and secure way.



It seems that, at this moment, the transfer of information between healthcare providers remains an important stumbling block, for example, the inability to transfer imaging results between health professionals and between levels of care, or the deaf dialogue between GP and physiotherapist, the first deploring that the latter do not perform their prescriptions, and the latter criticizing the vagueness of the prescriptions of the former... The solution of the group practice comprising at least one physiotherapist is a solution proposed for this purpose by some health professionals.

Improving the triangular communication between treating physicians, occupational physicians and medical advisors from sickness funds is essential. As part of the reintegration itinerary, a project is currently in the test phase, which should allow general practitioners to communicate easily and securely with the occupational physicians and medical advisors via a specific electronic platform (kind of e-box automatically identifying the physician to contact for each worker and the steps to follow depending on the situation of the latter). This project must certainly be pursued, or even extended to other physicians who care for the patient. Especially since a new nomenclature code will be created for the multidisciplinary spine units which implies the obligation for the specialist to communicate with the patient's occupational physician.

The local multidisciplinary networks created in 2010 to support general practitioners in the chronic patient care pathways could broaden their support to other demands (e.g. finding psychologists specialized in pain) and to other health professionals (e.g. physiotherapists).

10.1.3 *Change within population and patients*

False-belief, misunderstanding, unrealistic expectations, etc. are largely influencing (and not in a positive way) the population's vision of low back pain. Expectations and perceptions from society, e.g. third party payers needing a concrete diagnosis, are often wrong and actually harmful. A real mentality shift is expected and although healthcare providers have an important role to play, the change could be reached only with a societal involvement. Several actors could be involved to provide accurate messages on low back pain and cover a large range of themes such as natural course of the pain, uncertainty of diagnostic, importance of self-management and activity, worthlessness of imaging, potential positive impact of work, etc. Sickness funds, Public health ministry, patients' organization, etc. should all be concerned by this matter.

- The information campaigns for patients and clinicians about the appropriate use of imaging (e.g. « les images médicales ne sont pas des photos de vacances») should be continued. Low back pain could be an example to be quoted in this campaign.
- Some other tools already exists who explain the natural course of low back pain (e.g. movies in waiting room). They should be identified, appraised and disseminated: Public campaigns with celebrities (who feel well despite a low back pain) such as in New Zealand could also be developed.
- A simple access to information (such as website or flyers) providing all issues needed to understand the pain nature, the actions to be performed to manage pain such as exercises, ergonomic principles, etc. should be provided to all patients.
- The establishment of a patients' organization ensuring peer support, information sharing, contact point to help them in their care search through the healthcare system was also proposed by the patients. Some organisations already exist and should make themselves known (ruggesteun.be).



10.1.4 Incentives for healthcare providers

The implementation of studied pathways appeared to be easier if incentives for care providers exist. A strong incentive for GPs to join the pathway reported in Canada for example is to allow GPs to get faster access to the specialists for their patients, when this is required. In Belgium, potential incentives quoted by the healthcare providers are:

- A fast track access for MRI/CT scan for patients with red flags should be feasible: e.g. reserved time range for (semi)-urgent request in the planning of imaging department.
- A fast track access to more complex, intense or multidisciplinary care should be available for patients appropriately identified at high risk of chronicity.
- A fast track access to the secondary care should be facilitate for patients with radicular pain and candidate for epidural injections.
- A financial incentive and logistical support to organize interdisciplinary meetings (e.g. virtual access to the meetings for general practitioner; new nomenclature code for spine unit).
- A financial acknowledgement regarding the “long” duration of consultation dedicated to the risk assessment should be foreseen: a global approach need time, contact with other healthcare providers, redaction of a report, etc. An appropriate financing could be the tariff for complex consultation in general practice.

10.1.5 Respect of local initiatives

For the introduction of a pathway, be it in primary care or in hospital care, the studied examples have showed that consensus was the most important key to success. Successful pathways were developed in an inclusive way, i.e. involving all relevant stakeholders. Establishing a pathway that is more than a theoretical guide, or in other words, designing a pathway that is implementable and will change practice, will inevitably be in conflict with the absolute freedom that is granted to both caregivers and patients in Belgium. The Belgian pathway will not be compulsory and its implementation will only resulted from the wish and willingness of both care providers and patients to conform. If local initiatives in some hospital propose already a coordination between professionals or an intake by providers from one discipline (e.g. physician specialists in physical medicine and rehabilitation) they can adapt the pathway to their process. As part of this operationalization, pilot studies could be carried out and evaluated methodically.

10.1.6 Monitoring/evaluation

Almost all pathways systematically keep record of patient reported outcome measures (PROM) and certain process indicators as an element of the pathway. PROM monitoring can be performed by using existing standardized and validated questionnaires: pain, function, quality of life and anxiety/depression for example were variables scored and monitored in most of the pathways. This monitoring should be organized before the implementation of a pathway and be repeated when the pathway is up and running. The comparison of both monitoring sets will yield unique information, even if this study is performed in a regional subset of centers.

Moreover epidemiological data on low back pain and radicular pain (e.g. number of patients in acute, subacute, chronic phases) is needed to define the appropriate resources necessary for responding to the patients' need. The current (and future) overload of the multidisciplinary programmes is an example of issue for which epidemiological data could be useful.



10.1.7 Research questions

The elaboration of the pathways on low back and radicular pain has brought out some questions that are sometimes far away the pathway itself and, concerns the Belgian healthcare system. These issues could be deeply analyzed and discussed with the concerned public authorities.

- A reimbursement of physiotherapy based on functional disabilities rather than on diagnosis could be in line with the current evolution towards a patient classification model based on the functional needs of the patient (ICF, BelRAI).
- The opportunity for offering a direct and integrated access to primary care professionals such as physiotherapists, osteopaths or chiropractors should be studied.
- The reimbursement problematic of the psychologists' interventions (cfr KCE report 265) and the lack of psychologists specialized in pain are important points to consider in the biopsychosocial approach.
- The conditions needed to favor the involvement of occupational therapists in the ambulatory management in primary care.
- A better financial acknowledgement of the intellectual acts and/or decrease the fee difference between technical and intellectual acts could also support the integration of the bio-psycho-social approach in the practice. This problematic is known for a long time but should not be abandoned by the public authorities.

10.1.8 Prevention of low back pain is important although out of the scope of this project

The prevention of low back and radicular pain is out of the scope of this project. However, both patients in the focus groups and healthcare providers in the nominal groups emphasised the importance of the primary prevention by general public education from child age onwards (e.g. encouragement for physical activity). In addition, they talked about secondary prevention: patients would like to get guidance about preventing a relapse or a deterioration of their symptoms. This secondary prevention was mentioned in the different part of this text.

10.1.9 Electronic tools to support the pathway

Both pathways elaborated in this project are currently being translated into interactive electronic applications. These tools will allow providers to quickly identify which actions they should propose to the patients in function of the duration of their complaints and several other characteristics.

Moreover the healthcare providers expect also that the developers of the patient's electronic medical record include some tools linked to the low back and radicular pain, such as a pop-up with a questionnaire for triage or the points to check in order to identify the risk for a chronic pain which appears on the screen in front of each record of a low back pain or a radicular pain patient (e.g. list of flags).



10.2 Diffusion of the Belgian pathways

10.2.1 Target users

This project covers the whole management of low back and radicular pain, from the first assessment and including all kinds of non-invasive and invasive treatments. It is meant for all care providers and related professionals involved in low back pain, such as general practitioners, physiotherapists, osteopaths, chiropractors, specialists in physical medicine and rehabilitation, anesthesiologists-algologists, orthopedic surgeons, neurosurgeons, rheumatologists, neurologists, psychologists, occupational therapists, etc. The patients could also be interested by the pathways.

10.2.2 Ways for disseminating

The guideline for the management of low back pain and radicular pain, developed in another KCE project⁶ contains the evidence on which the clinical recommendations are based. It can therefore be used as a reference for the caregivers. Several scientific professionals associations made already a commitment to disseminate it (on their web site, in their periodical, during their symposium and training sessions). Some of them, such as the SSB_e, SSMG, SSST, WVVA, ASMA and WVV are already ready to disseminate the Belgian pathway.

Besides this diffusion, additional propositions were made by the stakeholders:

- Within the local groups for medical evaluations (GLEMs/Loks); these are groups of peers, physicians or pharmacists biologists, who share and critically evaluate their medical practices (peer review) to promote the quality of care. A pool of speakers (available on demand) could be developed among the stakeholders and experts involved in the present project.
- Within the dodecagroupes who gather a dozen of general practitioners, meeting each other about ten times a year to address a topic focused on their practice in a continue education context.
- Within the “trios” groups who encompass about fifteen general practitioners, 1 or 2 occupational physicians and 1 or 2 medical advisors from sickness funds; these groups organize 3 meetings per year, with a theoretical part and a discussion of practical cases.
- Within the sickness funds websites and/or periodical; this is a privileged contact for patients; private insurance companies could also be a support for the diffusion of the pathways.
- Through a large-scale, specific communication campaign supported by the Ministry of Public Health.
- Through the development of an electronic application for patients (proposed by the SSB_e)



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