Nasjonalt Ryggnettverk
COMMUNICATION UNIT

Acute low back pain
Interdisciplinary clinical guidelines

The guidelines have been developed by *The Norwegian Back Pain Network* and an interdisciplinary working group with the following members:

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1. INTRODUCTION

”Guidelines are systematically developed statements to assist practitioners` decision about appropriate health care for specific circumstances” [19].

Aim and target groups

The *aim* with the development of these interdisciplinary clinical guidelines for acute (duration < 3 months) low back pain with or without nerve root affection is to provide the practitioner with help in arriving at the best possible clinical decisions. The guidelines give recommendations for diagnosis and treatment mainly on the basis of an evaluation of evidence-based knowledge, but also give certain consensus-based recommendations for especially important clinical situations and where the documentation is very weak/missing. The guidelines should, when taking clinical decisions, be integrated with clinical experience, the patient’s experiences and /or preferences. They must therefore not be considered as a “dictation”, but as a support for decision-making. Neither must they be considered as a complete treatment program or as a textbook for back problems.

It is emphasised that the guidelines are interdisciplinary. The reason for this is that the knowledge base is common for the practitioners, be they doctors, physiotherapist or chiropractors, and that common guidelines can contribute to a more uniform and coordinated treatment by the different professions, to the best for the individual patient. Many patients today get confused because of poor agreement and consistency regarding the information they are given by various health care providers about investigation, treatment and prevention of their back problem(s). These differences between the different professional treatments may seem bigger than necessary because of terminology/language and professional traditions.

The *target groups* for the guidelines are primarily in primary health care, physiotherapists with or without a specialisation in manual therapy and chiropractors as well as other health care providers who treat back patients. The guidelines are also relevant to health care providers in secondary health care.

The Norwegian Back Pain Network and other participants in the development of the guidelines.

The Ministry of Health and Social Affairs established *The Norwegian Back Pain Network* in 1999, and has since financed the Norwegian Back Pain Network activities. The Norwegian Back Pain Network was established in order to increase professional competence and improve the offer of treatment to patients. An important way to achieve this is the development and implementation of shared clinical guidelines for all health care providers within the field of back pain. The Norwegian Back Pain Network shall also contribute to make information available to the population, among other means, through the patient brochure “Worth knowing about back pain. About what do the experts agree?” This brochure will be available at the same time as these guidelines.

The Norwegian Back Pain Network consists of a communication unit and a research unit, and is associated with a state advisory organ – The Advisory Group. This group is broadly put together and has a continuous professional advisory function for The Norwegian Back Pain Network. The Advisory Group has emphasised the importance of the development of clinical guidelines. It was reasonable to start with acute back pain as it is in this field that most

documentation is available, with a reasonable amount of systematic reviews and guidelines from other countries available that can be built upon for use of in Norway. It was also recommended that a multi-professional work group should develop a proposal for guidelines that should then be examined by a reference group consisting of a number of representatives from relevant organisations.

An important provision for the guidelines to be used optimally is that they have broad professional approval. It is important that they have been developed by professionals with both clinical and research background, and who have confidence in the respective professional fields. It is also of importance that the users opinions have been listened to during the development process, and that the users thus have a sense of co-ownership.

The advisory group for the Norwegian Back Pain Network, by leader, senior advisor Arne-Birger Knapskog, and the communication unit in the Norwegian Back Pain Network, by leader, Professor PhD, Even Lærum, were given the job of setting up a multi-professional working group to develop the guidelines.

The working group has consisted of:

Even Lærum (leader)	Professor PhD, GP (Head of The Norwegian Back Pain Network-Communication Unit, Ullevål Hospital, Oslo)
Reidar Dullerud	Professor PhD, Consultant, specialist in radiology (Department of radiology, Aker Hospital, Oslo)
Gitle Kirkesola	Physiotherapist, specialist in manual therapy (Kristiansand)
Anne Marit Mengshoel	Associate professor, PhD, Physiotherapist (Section for health science, University of Oslo)
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Erik Werner	GP, (Regional back co-ordinator in The Norwegian Back Pain Network, South health region, Eydehavn)

The reference group has consisted of the following organisations:

Norwegian University of Science and Technology	Gunnar Leivseth, Professor, PhD
Norwegian Association of Occupational Therapists	Rita Dønnem, occupational therapist
Norwegian Society for Back Research	Vibeke Graver, PhD, physiotherapist
Norwegian Physiotherapist Association	Hans Petter Faugli, physiotherapist; Gro Jamtvedt, Project Coordinator (physiotherapist)
Norwegian Chiropractors Society	Espen Johannesen, chiropractor; Jacob Lothe, chiropractor
Norwegian Nurses Association	Sigrid Askum, Director of Devision (nurse); Irene Henriksen Aune, senior adviser (nurse)
The confederation of Norwegian Business and Industry	Unni Abusdal, Industrial medical officer/ adviser
The National Insurance Service	Herina Brandtzæg, Consultant
The Back Pain Association of Norway	Henrik Sinding-Larsen, Chairman
The Norwegian Board of Health	Grethe Hoddevik, senior adviser (medical doctor); Rutti Østensjø, adviser (physiotherapist)
Norwegian Institute of Public Health	Kåre Birger Hagen, PhD, researcher
The University of Bergen	Anne Elisabeth Ljungren, professor, PhD (physiotherapy)
The University of Oslo	Oliver Grundnes, PhD (orthopaedics)
The University of Tromsø	Rolf Salvesen, Professor II (neurology)

The working group has also contacted external advisors who have given advice about changes before the first draft was sent to the reference group. The advisors were Hege R. Eriksen, The Norwegian Back Pain Network- Research unit, Institute for biological and medical psychology, The University of Bergen; PhD scholar Ansgar Espeland, Section of radiology, The University of Bergen; consultant, PhD Aage Indahl, The Special Hospital for Rehabilitation, location Stavern and consultant Finn Ø. Rasmussen, Department of neurology, Ullevaal University Hospital. Leader Anna Stavdal and committee member Guro Rørtveit of The Norwegian College of General Practitioners and Svein R. Steinert leader of the General practitioner professional development board have in addition given comments to the second draft. At the start of the planning of the development strategy for the guidelines we also received valuable advice from professor Gordon Waddell, Glasgow Hospital and epidemiologist Maurits van Tulder, Institute for Research in Extramural Medicine, Free University, Amsterdam.

The plan is that when the existing clinical guidelines for acute low back pain are revised in 2004, they will be supplemented by another set of guidelines for chronic back pain.

The Communication unit at The Norwegian Back Pain Network has financed and had the secretariat function for the development of the guidelines. In relation to the latter, the work group would like to warmly thank project associate Ingunn Gihle for her thorough and effective work.

2. SHORT VERSION

Diagnostic considerations

Further actions are describes on the basis of the division of diagnoses into three categories:

1. **Non – specific low back pain (80-90%)**

    - Pain distribution low back, gluteus and thighs
    - Pain intensity varies, often better at rest
    - Patient in general good health

2. **Nerve root affection (5-10%)**

    - **Radiating pain** related to one or several dermatomes. The radiation from the nerve roots L5 and S1 will often be distal to the knee and more intense than the actual back pain. The L3- and L4- roots give pain radiation respectively at the front of the thigh and at the medial side of the calf/ medial side of the foot.
    - **Numbness and paraesthesia** to a variable degree.
    - **Lasègues test** reproduces the pain radiation (25 % of the incidents of stenosis).
    - **Motory, sensory and/or reflex changes** accounted for by one or more nerve roots.
    - Coughing/sneezing reproduces the pain radiation (not with stenosis)
    - **Vertebrogic claudication/ spinal stenosis**: Pain (and possibly slight paresis) in one or both legs when walking caused by central and lateral spinal stenosis. The pain will not cease by stopping. Numbness and a feeling of heaviness in the legs, affection of one or more nerve roots, decreased pain by back flexion for about 60% of patients. Age usually >60.
    - **NB! Cauda equina syndrome and/or progressive neurological signs.** Loss of sensitivity/paresis in the perineum, urine retention, reduced sphincter tonus, pathological sacral reflexes, progressive paresis, paralysis.

3. **Possible serious underlying pathology (most often fracture/injury, cancer or inflammation)- suspected by the so- called “red flags” (1-5%).**

    - Age under 20 or above 55 years.
    - Constant pain, possibly increasing over time; pain whilst at rest.
    - Thoracic pain.
    - General feeling of illness and /or loss of weight.
    - Injury, cancer, use of steroids or immunosuppressant, drug abuse.
    - Widespread neurological signs.
    - Deformity of the spine.
    - High ESR, declared morning stiffness that lasts for more than one hour.

Clinical examination and evaluation

- **Inspection** (deformities /scoliosis) and the mobility of the spine with regards to flexion, extension and lateral flexion.
- **Lasègues test** (also crossed) and femoralis stretch test (L4) with radiating pain.
- **Neurological examination** of the lower extremities due to *suspicion of nerve root affection* (walking on the toes (S1), the heal (L5) and squatting (L4)). Sense of touch and reflexes.
- Blood tests (possibly ESR, CRP, ALP) by suspicion of underlying pathology.

- Imaging with MRI or CT in the event of continual and strong pain for over 4-6 weeks, possibly CT plus conventional x-ray, earlier in the event of "red flags" and then primarily MRI.

Good clinical communication, "The Good Back -Talk" should be integrated in any consultation.

Developed on the basis of: The Norwegian Back Pain Network - Communication unit. Acute low back pain. Multi professional clinical guidelines. Oslo, 2002: The Norwegian Back Pain Network. Can be ordered from the Communication unit, phone number 22 11 77 57, or downloaded from www.ryggnett.no.

Treatment and other interventions

The primary goal for treatment is to achieve adequate pain reduction so that the patient is able to resume normal activities, because activity in itself is an important part of healing.

1. **Non- specific low back pain**

    - **Activity:** Normal activity should be attempted. Continue/resume work as quick as possible is important***
    - **Bed rest:** Not recommended as therapy, but may in some situations be necessary the first 2-3 days in order to reduce pain ***
    - **Medication:** Pain relief medicines should be taken at regular intervals and not only as needed***
      Start with paracetamol, or NSAIDs if paracetamol is already tried.***
      If the effect of paracetamol or NSAID is not satisfactory try thereafter paracetamol/opoid mixed preparations***
      Consider the possible addition of muscle relaxant, but only for a short period, due to the danger of addiction ***
    - **Exercise and training:** Referral to training/physical activity should be evaluated if the patient has not resumed to normal activity or gone back to work within about 4-6 weeks **
    - **Manipulation:** May be considered in relation to patients who need extra pain relief or who have not managed relatively quickly (1-2 weeks) to resume normal activity or work ***
    - **Other treatment and interventions:** There is no documented basis for recommending treatment with traction, thermo therapy/ultrasound,

acupuncture, support belt or massage. (Massage may possibly be tried as a supplement to other treatment).

2. Nerve root affection

- **Activity:** The patient should be encouraged to be in varied activity even if the back/leg hurts **
- **Bed rest:** Rest in bed may be necessary to relieve pain **
- **Medication:** Pain relieving medicines should be taken at regular intervals and not only as needed ***
  Start with paracetamol or a combination preparation with opoid ***
  Documentation on the effect of NSAID on nerve root pain is missing **
  Evaluate the possible additional use of muscle relaxant, but only for a short period, due to the danger of addiction ***
- **Exercises and training:** If the patient becomes passive, light physical training or exercises may be used *
- **Surgery:** With cauda equina/ progressive neurological signs*** and with unsatisfactory reduction of nerve root pain after 6-12 weeks, possibly before with intolerable pain**
- **Other treatment and measures:** There is no documented basis for recommending treatment with traction or manipulation.

With both non-specific low back pain and nerve root affection it is important to reassure the patient and tell about the good prognosis. With a prolonged course of back problem psycho-social factors ("yellow flags") may be considered, with focus on psychological worries, social loads, problems at work and a lack of faith in getting better. For every month the patient is reported sick the chance of getting back to work is reduced. Consider graded or active sick leave.

Referral

- Surgery as **emergency treatment** for suspected cauda equina syndrome/progressive paresis/paralysis
- Prompt referral to secondary care by "red flags"
- Multi-professional rehabilitation program possibly at a back clinic if the patient is not considerably better after 8-12 weeks, and especially if on sick leave or in the case of repeated sick leave periods

Grading of recommendations

*** Strong, based on very good documentation and agreement within the work group about the validity of the documentation, the applicability and evaluation of advantages and disadvantages

** Moderate, based on at least one good study and agreement about the validity of the documentation, the applicability and evaluation of advantages and disadvantages

* Weak, based on missing documentation and agreement on applicability and evaluation of advantages and disadvantages.

3. DEFINITIONS

Acute low back pain: Usually defined as pain which lasts up to three months. Such a time frame defenition is roughly estimated, but is often used. In daily life low back pain is characterised by the fact that it comes and goes with a varying number of relapses and pain intensity. Periods of improvement/relapses often slide into each other, sometimes with episodes of acute aggravation [1].

Cauda equina syndrome: Urine retention, loss of sensitivity in the perineum, reduced sphincter tonus, pathological sacral reflexes. Is caused by a large lesion (usually herniated disc) in the lower part of the spinal canal that squeezes the cauda equina.

Yellow flags: Psychosocial risk factors for long lasting problems

Sciatica: Defined in Taber's Medical Dictionary as "pain along the course of the sciatic nerve of different ethiology". Sciatica is thus a non-specific term that means radiating pain in the leg and foot.

Chemonucleolysis: Chemical break- down of the nucleus content of the spinal disks.

Low back pain: Pain in the area between the 12^{th} rib and the gluteal folds with or without radiation to the lower extremities. Among other popular words used for low back pain are lumbago, dorsalgia and myalgia dorsi.

Manipulation: Quick manually performed passive stretches of the structures surrounding a joint.

Nerve root affection/ radiculopaty: Pain localised to the nerve root's dermatome (nerve root pain) and/or neurological signs from the same nerve root with disturbance of the sense of touch, reduced power of muscles controlled by the same nerve root, reduced deep tendon reflex.

Nucleotomia: Mechanical removal of the nucleus content of the spinal disks.

RCT: "Randomised controlled trial".

Referred pain: Pain with another localisation than where it has its patho- anatomical origin.

Recurring low back pain: Recurring episodes of acute low back pain with pain free intervals of at least three months duration.

Back school: Structured educational program (often with varied content) consisting of group-based tuition about e.g. anatomy, physiology (including pain) history of illness and lifting techniques, as well as exercises and training. The aim is to increase the patient's functional capability and ability to deal with the problem and master his situation.

"Red flags": Warning factors in a patient's case history and from clinical findings relating to possible serious underlying pathology e.g. fracture, tumour or infection.

Spinal stenosis: Narrow spinal canal that can be the source of back pain, most often with nerve root affection or vertebrogenic claudication. Is often used as a clinical term, although it really is a patho- anatomical term.

Multi professional spine clinic: Outpatient clinic that provides thorough examination and treatment of patients with back pain. The team consists of at least two specialist doctors, a physiotherapist, nurses, possibly a trained social worker, a psychologist and possibly a chiropractor. A cognitive approach to communication with the patient is emphasised, as well as a structured training, examination in relation to surgical treatment and arrangement for working life.

Non-spesific low back pain: Low back pain without a specific proven patho-anatomic cause.

Vertebrogenic claudication: Pain (and possible light paresis) whilst walking in one or both legs caused by central or lateral spinal stenosis. The pain does not ease when one stops. Pain relief by back flexion at 60 %. Often numbness and a feeling of heaviness in the legs, affection of one or more nerve roots. Age is most often >60 years.

[1] There is considerable evidence that points to the fact that the definition of acute and chronic low back pain based on a single episode is inadequate [120]. Several authors have claimed that a more important epidemiological (maybe also clinical) measure is the number of pain days within a year [21]. In research from Denmark it is shown that the group with less than 30 days of pain within the last 12 months separates itself from the group with a number of days of pain above 30 with regard to gender, smoker/non-smoker, age, hard/light work and “locus of control” [67-69]. Maybe a division between persistent and non- persistent low back pain following the criteria above would be more meaningful than the current division between acute and chronic.

4. EPIDEMIOLOGY AND COSTS

Epidemiology and the course of back problems.
In several studies from many countries it has been found that 60-80% of the population will experience low back pain with or without radiation one or more times in life [125]. The last two-three decades there has been a considerable increase in work hindering, social benefit causing low back problems in many western countries.

In Norway it has been found that over 50% of all the adult population have had low back pain problems within the last year, prevalence is around 15% and 2-3% have chronic problems [11]. About 60-80 % experience recurring acute problems within 1-2 years and many have different experiences with regard to the amount of pain between the episodes with acute aggravation. There are small differences between genders, but relatively more men are having surgery for herniated discs. Less than 5% of all people with a herniated disc have surgery due to radiculopaty [77].

Causes and risk factors
There is very little or no documented knowledge in relation to what the causes of back problems are. A study of twins has shown that heritage possibly is one of the most important causal factors that can explain 40% of the variance [5]. Other risk factors are related to lifestyle, for example smoking, considerable overweight and little physical activity. A lot of lifting, twisting, monotonous work, vibration of the whole body, and dissatisfaction at work are other risk factors. For all of these factors the associations are variable and not strong [99].

For as many as 85% of the patients no specific cause can be shown for the illness. Some 4% of the ones that are treated in the primary care have compression fractures and about 1 % neoplasias [113]. The prevalence of herniated disc with root affection is a few percent. Degenerative changes (including damaged discs) are, patho-anatomically, the most common lesions associated with and presumably the most important cause of back pain [8]. Many patients also have tense, tender muscles without the exact reason being clear.

Prognosis
For a single acute episode with non-specific low back pain, the prognosis is very god. Around 90% are considerably better with or without treatment within a few weeks [2]. Literature has, however, shown that after one year 33% have intermittent or persisting pain of at least moderate intensity and that one out of five are still considerably limited functionally [120]. A study from Denmark has shown that 45% of the patients still have back pain after one year. Croft found that only 25% have become completely free of symptoms after one year [21], and Cherkin has shown that 71% are content with the condition of their back one year after the start of the acute period [16].

Although these figures do not on their own substantiate the positive prognosis, it is important that one, in the acute phase, undramatise the situation and calm the patient as the opposite may lead to a focus on pain and passiveness that can worsen the prognosis. In the real acute phase it can, based on literature, be claimed that considerable improvement can be expected within a short time.

The duration of each single episode is usually longer for those who have a herniated disc with nerve root affection. In Weber's study it was found that 80% of the patients who got conservative treatment recovered within the first three months and had a marked reduction in pain intensity within the first four weeks [131].

Psychosocial relations represent stronger prognostic factors than medical findings with regard to getting back to work [109]. Of particular relevance is the fear of experiencing strong pain, a long period of sickness, an incorrect personal evaluation of one's prognosis and of the probability of getting back to work and one's own faith in being able to influence one's state of health [109]. The possibility of social benefit also plays a part [125].

Costs and consequences

Of non-lethal health problems, those of the back cost the society the most with regard to the cost of social benefit, short time sick leave, loss of production and the use of health services [11]. The total cost is estimated to be 13-15 billion NOK a year. About 50% of this amount is cost of social benefit, while commerce accounts for about 25-30%. In 1995 there were more than 35 000 people who were on disablement benefit due to back problems, and each year 3000-4000 are added due to the same cause. Back problems are thus one of the most frequent single reasons for disablement benefit. Among people on sick leave or rehabilitation in 1995, 15-17 % named back problems as the cause. The same did 13 % of those on disablement benefit [11].

Back problems account for about 5% of all general practitioner consultations, and is one of the most frequent reasons for seeing a doctor [54]. Only about 10 % of these patients are referred to a specialist or an institution. Patients with radiating back pain have longer sick leave than those without radiating pain. After seven weeks of illness 35% of the patients are still on sick leave, whilst the number for the group without radiating pain is 16% [11]. After a year about 6.2 % of patients with radiating back pain are still on sick leave, while only 2.5% of patients without radiating pain are on sick leave [54].

Improved back care will usually result in a reduction in the duration of the illness [47, 56, 84], the waiting list related expenses and the loss of production due to the large patient group with back problems. This would represent considerable economic savings. The most important goal of treatment must however be to help each individual back patient to have less pain and better functional capabilities.

[2] Two relations, however, complicate the assertion of a good prognosis;

- Low back pain is, for many people the, hallmarked by the fact that it comes and goes, and the number of relapses/ repeated episodes with pain might be very high for many people.
- Many of the patients still have pain a year after the start of an acute episode. Only if one uses the transfer to sick- leave as a measure of effect will the claim that 90 % will be better after a few weeks hold good.

5. METHODOLOGY

Relevant examinations, types of treatment and interventions
The following have been evaluated:

- Diagnostics including diagnostic evaluation, subjective examination, clinical examinations, and supplementary examinations, here with emphasis on imaging
- Prognostic factors for long lasting problems
- Treatment and interventions including non- medicinal conservative treatment, medicinal treatment, surgery and occupational medical interventions
- Cooperation between primary and secondary health care; referral
- Patient communication

Relevant outcome measures
For the different interventions and types of treatment the following results (one or more) have been evaluated:

- Reduction of symptoms /reduction of pain
- Improvement of function
- Improvement in factors related to quality of life
- Return to work
- Side effects
- Course of illness

Documentation
There exists a large number of single studies dealing with low back pain. The Swedish rapport "*Ont i ryggen, ont i nacken. En evidensbaserad kunnskapssammanställning"* (SBU) [99] ("Back pain, neck pain. An evidence- based literature review") that is based on about 2000 single studies illustrates this. There are also many systematic reviews on examination, treatment, and other interventions for dealing with acute back problems, in addition to guidelines from a series of countries that are based on a systematic review of documentation.

To the largest possible extent we have based our recommendations in the guidelines on systematic reviews and reports with a systematic search of literature. In areas where systematic reviews or guidelines do not exist, we have used individual articles as the basis for our recommendations. Where we have given complete guidelines as a reference (as in the chapter on treatment), it means that the actual *recommendations,* in for example the British guidelines are the basis of our recommendations.

Search strategy, selection and evaluation of literature are edited chapter wise. The following have been used as sources for documentation:

<u>National and international guidelines:</u>

- *Low back pain Evidence Review* [128] from Great Britain.
  These are selected because they are multi professional and have the same focus as the existing guidelines. They deal for example with the diagnostic triad, advice in relation to activity and bed rest, manipulation and medicinal treatment, and are directed especially to actors in the primary health care service. They were revised in 1998, are regarded as thorough, build upon systematic reviews based upon searches in the

databases Medline and Embase and were originally based to a considerable extent upon the American guidelines from 1994 [6] that also are regarded as very thorough and good. The British guidelines have been used as the basis for the development of other international guidelines, and are considered as clearly relevant to Norwegian conditions.

- *The European Guidelines for the Management of Acute Non-specific Low Back Pain in Primary Care* [113].
  The aim of the European guidelines is to give recommendations for the development of national guidelines, and by this way contribute to improve back care in the primary health care service in European countries. Elements in this process are to contribute recommendations about treatment, ensure that an approach on the basis of evidence-based knowledge is used, provide recommendations that are multi professionally accepted and encourage multi professional cooperation. The main focus is aimed towards the primary health care.

  The European guidelines were developed by a multi professional work group with experts from 10 European countries, and were published in a first edition in January 2002. The leader of the working group for the development of these present Norwegian guidelines participated in the European work group. The European guideline is a result of a systematic evaluation of 15 international guidelines, in addition to the evaluation of 31 systematic reviews. For every recommendation there has been a thorough study of documentation and recommendations from other guidelines with regards to consistency.

- *Occupational Health Guidelines for the Management of Low Back Pain at Work [126]*.
  These have been used for occupational medical interventions, and are regarded as the most comprehensive, thorough, relevant and updated (March 2000) within this field, together with the Swedish SBU [99]. Systematic searches have been done in Medline and Embase. 2000 tittles/abstracts have been identified, in addition to 24 systematic overviews and 52 RCTs.

- From Norway we have made use of Rasmussen's *"Kunnskapsbasert ryggomsorg for allmennleger"* [93] ("Evidence based back care for general practitioners"), and The Norwegian Board of Health's *"Vondt i ryggen. Hva er det? Hva gjør vi?"*[100] (" Back pain. What is it? What do we do about it?").

Reports with systematic litterature review:

- "*Ondt i ryggen, ondt i nakken. En evidensbasegrad kunnskapssammanställning"* (The Swedish Council on Technology Assessment in Health Care) [99] ("Back pain, neck pain. An evidence based literature review")
  This is a comparison of 2000 studies in which clear criteria for search, selection and evaluation of articles have been used. The rapport is updated (April 2000), and developed in cooperation with international experts. The rapport is regarded as being especially relevant for Norwegian conditions. In contrast to the British and European guidelines, it also includes surgical treatment.

- HTA- report 1/*2001 "Treatment of patients with lumbar disc herniation and nerve root affection"* [77] .
  Full use is made of these recommendations on conservative and surgical treatment of lumbal herniated disc with root affection. The report is an evaluation of methodology based on its own literature study and international medical methodology evaluations carried out by a multi professional Norwegian study group of nine members. The Swedish Council on Technology Assessment in Health Care- report was an important source of documentation for the HTA-report.

Other sources
We have ourselves carried out searches in the Cochrane Library for papers published before the 31st of December 2000 in the Cochrane Library in order to find any new systematic overviews that have not been included in the sources mentioned above.

Single studies (published before the 31st of December 2000):
For certain themes in chapter 6, 7 and 8 in the present guidelines there are no systematic overviews and we have therefore searched for primary studies. This applies to:

Chapter 6.3 Imaging
For imaging apart from the use made of international guidelines and overviews, searches have been carried out equivalent to those in the first British guidelines from 1998 upon which other guidelines in a large degree have been based. This resulted in four relevant articles. All of them were evaluated to be of good/very good quality in relation to the criteria given in the HTA-report [77].

Chapter 7.1 Treatment of non-specific low back pain.
Under non-medicinal treatment (training/exercises) of non-specific low back pain additional searches for single studies have been done (due to dissent in the work group). Relevant studies have been evaluated on the basis of criteria given in the HTA-report [77]. After going through these there was a consensus in the group.

Chapter 8 Patient communication
Literature searches have not found any systematic overviews especially linked to back pain. The following have therefore been evaluated:
-62 references from the relevant chapter in The Swedish Council on Technology Assessment in Health Care. (A large number of studies have been carried out with qualitative methodology).
-Recommendations given in the European and British guidelines.
-Three textbooks [7, 18, 73].
-Results from our own research (Lærum E. "The Good Back -Talk", under publication)

Grading of the level of documentation and the strength of recommendations
Our evaluation has mainly followed the recommendations from Oxman et al. [92]. By the level of documentation is meant the degree of certainty that the stated effect or connection is correct. Relevant and important questions are in this case validity, reliability, the extent of effect and consistency in associations between studies.

The strength of recommendations is the degree of certainty we can have that to follow the recommendations will do more good than harm. The grading of strength is based primarily on the level of documentation, but also reflect the degree of agreement in of the evaluation, applicability of the documentation and if the total benefit compensates for the expected side effect and costs. The gradings of the level of documentation and the strengths of recommendations are expressed in table 1 [92].

Explicit reasons are given when there is no conformity between documentation and the strength of the recommendation, or when the recommendation is given on the basis of consensus/clinical experience. One example is the strong recommendation (***) about surgery as an immediate help in the case cauda equina syndrome despite the fact that the recommendation is only a non- randomised study. Surgery is nevertheless recommended on the basis of clinical experience and consensus that the consequences of waiting /not performing surgery is extremely negative for the patient (can get permanent paralysis).

Level of documentation

###	Very good	A high quality systematic overview with at least one high quality study
##	Good	At least one high quality study
#	Lacking	No high quality studies

Strength of the recommendations

***	Strong Based on very good documentation (level ###) and agreement about the validity of the documentation, applicability, and an evaluation of the advantages and disadvantages.
**	Moderate Based on at least one good study (level ##) and agreement about the validity of the documentation, the applicability and an evaluation of the advantages and disadvantages.
*	Weak Based on a lack of documentation (level#) and agreement about the applicability and evaluation of the advantages and disadvantages.

Table 1

Work approach and process

Following the advice of prominent foreign advisors the working group decided in general not to go through primary studies, but to make use of systematic quality- evaluated literature overviews and reports together with national and international guidelines as basis material for the development of the Norwegian guidelines. The British and the European guidelines were especially emphasized, as well as the Swedish literature review. The approach to the work is in keeping with the Norwegian recommendations given in “Retningslinjer for retningslinjer” [101] (“Guidelines for Guidelines”) and “Program for faglige retningslinjer for primærhelsetjenesten” [102]. (“Program for professional guidelines in Primary Health Care”)

The work group divided itself into subgroups of 2-3 persons. The subgroups have thoroughly gone through the literature within defined themes such as diagnostics, treatment, psychosocial factors and occupational medical interventions. The drafts from the subgroups were then put together by the whole work group. For the development of recommendations and the strength

of these we have taken as our starting point the recommendations in the British guidelines. We considered these guidelines to be the most thorough and the most relevant for the work group's task. Later we also got access to the European guidelines and we checked if there was consistency between these and the British Guidelines.

The reference group has functioned as a control group and has evaluated the guidelines in relation to a framework developed by the National Institute of Public Health [103]. The recommendations in the guidelines also reflect the degree of agreement during this control process and the feedback from the reference group (see p. 2-3). Before the reference group carried out it's control, a first draft was evaluated by the external advisors (see p. 3). The general critical feedback from the external advisors and the reference group was that the way in which we had searched for, selected and evaluated the literature, was inexplicitly described and transparent. The same criticism was made as to how we arrived at our recommendations and evaluated the strength of them. This we have tried to correct by introducing two rounds of revision with further feedback from both the advisors and the reference group.

The Norwegian Back Pain Network, in its own investigation, has mapped general practitioners' (in health region south) views on clinical guidelines for acute low back pain [10]. The results were used during the development of the existing guidelines.

6. DIAGNOSTICS

Method
For this chapter we have followed the main recommendations in the British and European guidelines with, as a start point, a division into three diagnostic categories, based on a broad multi professional consensus. Certain additions and national adaptations have been made. These are, among other things concerned with descriptions of the mobility and functions of the spine.

Diagnostic considerations
All the international guidelines known to the work group recommend diagnostic examination as the basis for clinical evaluation and further measures [113]. The diagnostic examination is based on the subjective examination, clinical findings and possibly supplementary examinations. The degree of specificity, sensitivity, and predicative value of the clinical tests are however, poorly documented.

The ethiological circumstances underlying low back pain are usually complex, and for as many as 85% of the patients it is not possible to give a clearly defined diagnosis based upon a patho- anatomic lesion [99]. The diagnosis is often associated with a disc lesion and/or degenerative changes.

In recent years, to an increasing degree, one has talked about a bio-psychosocial model of understanding of non-specific low back pain [99, 123]. This involves an acknowledgement that the experience of pain is influenced by a complex interaction of biological, psychological and social conditions. A full evaluation of the patient includes all three of these aspects. It appears to be natural and appropriate to emphasise the biological aspects by acute low back pain to start with but with long-lasting problems one must also consider psychological and social conditions that influence the patient (see also chapter 6.4 and 8). For certain patients (often based on prior acquaintance/subjective examination) it would be relevant to evaluate psychosocial factors already from the start.

Back related conditions included in the International Classification of Primary Care (ICPC) [88] in the following way: L02 back symptoms/problems and L03 low back symptoms/problems exclusive herniated disc L86 (symptoms and problems) and L 84 back syndromes without radiation, L85 acquired deformity back/scoliosis/kyphosis and L86 spinal disc injury with radiating pain (diagnoses of illness).

6.1 DIAGNOSTIC CLASSIFICATION

In line with national guidelines [113, 128] and literature overviews [99] it is appropriate to divide acute low back pain into three descriptive diagnostic categories:

1. Non-specific low back pain
2. Nerve root affection
3. Possible serious underlying pathology- indicated by “red flags”

The most important criteria for NON-SPECIFIC LOW BACK PAIN (80-90%)

- Pain distribution low back, gluteus and thighs
- Pain intensity varies, the patient can often find an activity or position that eases the pain
- Patient in general good health

Doctors have traditionally used “lumbago” as a generic term for non-specific back pain. The chiropractor would in addition describe the condition with terms like “functional based spinal lesion” (FSL) or “locking” [87].

The most important criteria for NERVE ROOT AFFECTION (5-10%)

- Radiating pain related to one ore more dermatomes. The radiation from the nerve roots L5 and S1 will often be distal to the knee and more intense than the actual back pain. The L3- and L4-roots give pain radiation respectively at the front of the thigh and on the medial side of the tibia/ medial side of the foot
- Numbness and paraesthesia in variable degree
- Lasègues test reproduces pain radiation (25% of stenosis cases)
- Motory, sensory and/or reflex changes related to one or more nerve roots
- Coughing /sneezing reproduces pain radiation (not for cases of stenosis)

Vertebrogenic claudication/spinal stenosis:

- Pain (and possibly light paresis) in one or both legs caused by central or lateral spinal stenosis. The pain does not cease when one stops. Reduction of pain by back flexion for 60%. Often numbness and a feeling of heaviness in the legs, affection of one or more nerve roots. Age most often >60 years.
  NB! Vascular claudication ceases at rest and when standing upright.

<u>OBS: Cauda equina syndrome and/or progressive neurological signs:</u>
Loss of sensitivity/paresis in the perineum, urine retention, reduced sphincter tonus, pathological sacral reflexes, progressive paresis, paralysis.

Comments:
Radiating pain to the gluteal region and the lower extremities on one or both sides can have a diagnostic value, and can be divided into three categories:

- Referred pain: diffuse radiation to the gluteal region and possibly thighs; rarely below the knee. There is then no root affection.
- Nerve root affection: (as a result of a herniated disc or lateral spinal stenosis/recess-stenosis); radiation that relates to one or more dermatomes.
- Radiation with cladication character: nerve root affection is alleviated by bending forwards, and is caused by central (often both legs) or lateral spinal stenosis (often one sided).

Important indications of POSSIBLE SERIOUS UNDERLYING PATHOLOGY- "RED FLAGS" (1-5%)

- Age under 20 or above 55 years
- Constant pain, possibly increasing over time; pain at rest
- Thoracic pain
- General feeling of illness and /or loss of weight
- Trauma, cancer, use of steroids or immunosuppressants, drug abuse
- Widespread neurological signs
- Deformity of the spine
- High ESR, declared morning stiffness that lasts for more than one hour

The most important diagnoses are fracture (trauma), neoplasia and inflammatory back problem (see appendix 1).

If nerve root affection is suspected, it is especially important to consider cauda equina syndrome or a progression of the symptoms that indicate immediate help referrals to a neuro-surgical or orthopaedic department.

6.2 HISTORY AND CLINICAL EXAMINATION

The making of the diagnosis starts with a thorough history. The subjective examination will provide information that is necessary for the diagnosis [25, 53, 99, 111, 128] and gives a reasoned perception as to whether there exists *a non-specific low back pain, a nerve root affection or possibly a serious underlying pathology*. The aim of the clinical examination is to try to refute or confirm a suspicion about nerve root affection or possible serious underlying pathology. It is important to put precise questions to the patient about signs of nerve root affection (see relevant table). The answers here will decide to what degree the clinical examination should focus on this.

With non-specific low back pain one can often find *reduced mobility* and *palpation findings* with sore muscles/tendons. Absence of the latter finding can, especially if one or more "red flags" are present, contribute to increase the suspicion of underlying pathology. "Red flags" are a listing of criteria that are characteristic for such possible serious conditions. Continued examination should be directed at what one suspects, and possible supplementary investigations (blood, urine, imaging) follows.

In the following the evaluations on page 14 are used as a basis for the statements about the level of documentation and the strength of recommendations.

CLINICAL EXAMINATION

Recommended examinations	**Diagnostic properties**	**Ref.**
• **Mobility**: ** The mobility of the spine in lateral flexion, ventral flexion and extension	**Lateral flexion** ## Several studies (but no systematic overviews) on chronic back pain have shown that reduced lateral flexion correlates with back pain which cause reduced function, and that an improvement of back	[2, 58, 83,113]

	pain gives an increase in lateral flexion	
	Ventral flexion # It has been shown that back patients have a larger distance between fingertip-floor than others. There have also been shown correlations between increased mobility and improvement with regards to pain, and between increased mobility and returning to work.	[75, 80, 104]
• **Nerve stretch tests** *** Carried out in connection with radiating pain	**Lasègues test/straight leg raise:** ### Stretches the L5- and S1 nerve roots. The test is positive if the assumed nerve root pain is reproduced by <60 degrees of elevation. In relation to herniated discs with nerve root affection a sensitivity of 90% (0.88-1) and a specification of 26 % (0.11-0.44) are reported. The test is rarely positive at spinal stenosis. **Crossed Lasègues test:** Straight leg lift of the opposite leg reproduces the radiating pain. A sensitivity of 29% (0.23-0.44) and a specification of 88% (0.86-0.95) in relation to herniated disc with nerve root affection have been found. **Femoral stretch test:** (The opposite of Lasègues test/ knee flexion in prone lying/ Nachlas) stretches the L3- and L4- nerve roots and is used for sciatica anterior.	[24, 25, 99, 121, 128]
• **Neurological examination:** *** Of the lower extremities when nerve root affection is suspected. Stronger recommendation than documentation due to clinical significance.	**Muscle function:** ### Pain can influence power and make the evaluation more difficult. Ankle plantar flexion (S1), ankle dorsal and plantar flexion (L5), quadriceps (L3 and L4). **Tendon reflexes:** # Can be harder to evaluate if the patient tenses, but is not influenced by pain such as power is. The L5 nerve root communicates no tendon reflex. The Achilles reflex (S1) and the patella reflex (L3 and L4). **Sensibility:** # Can be examined by a light touch or prick on the feet medially (L4) over the arch of the foot (L5) and along the lateral side of the foot (S1). The value with regards to diagnostic level is limited, especially after a length of time.	[99, 113] [90] [71]

• **Supplementary examinations** ** Stronger recommendation than documentation due to clinical significance and practice.	**Blood tests:** # Required if there is a suspicion of underlying pathology. The usefulness in the case of non-specific low back pain is poorly documented. Raised levels of ESR and C-reactive proteine (CRP) may support a suspicion of inflammatory disease. Alkaline phosphates may have been increased by-or- in the event of liver and skeletal pathology. **Urine test:** Of interest if infection of the kidney or lower urinary tract is suspected. **Imaging:** See own paragraph	[37, 93]

Comments
In general it is unclear as to what mobility of the back means and if stiffness is a result of pain or the opposite. With non-specific low back pain one will often find considerable tenseness and trigger points in the back muscles and over the muscle tendons. The mobility of the spine may be reduced in one or more directions. The distribution of the pain may include the gluteus and thighs and possibly the thoracic part of the spine. The smaller the area of pain distribution the quicker a patient recovers [55, 105].

With nerve root affection pain radiates most often corresponding to the nerve roots L5 or S1. This gives pain radiation over the dorsal part of the foot to the big toe (L5) or laterally (S1) and can be accompanied by paresis that gives "drop foot" (L5), reduced power with plantar flexion (S1) or reduced Achilles reflex (S1). The elderly may get an attack in higher placed nerve roots (L3- and L4), so that the pain radiates respectively to the front of the thigh and the medial side of tibia and foot. Certain functional examinations such as walking on the toes (calf muscles- S1) and walking on the heels (anterior muscles of tibia- L5), squatting and rising (quadriceps- L3 and L4) and standing on one leg at the time /Trendelenburgs test (abducts hip- L5) are useful tests (especially for screening in general practice) to evaluate possible paresis.

A summary of symptoms and findings at nerve root affection is given in figure 1.

Figure 1. Pain distribution, reduced power and reflexes at L4-, L5- and S1 root affection, modified as required by the Norwegian Board of Health, 1995 [100].

6.3 IMAGING

Imaging methods and their use have been widely discussed due to their extensive use as supplementary examinations in the investigation of acute low back pain. Today it is possible that imaging services are overused [34], and recommendations are therefore given in relation to referral to imaging.

Method
In the field of imaging only one systematic overview over plane x-ray of the spine has been found [116]. We have therefore based our recommendations on the British guidelines for the use of x-ray from 1998 [96] and the European guidelines [113]. With regard to indications for

referral to radiological imaging, additional searches for systematic overview articles and RCTs published in 1996 or later have been done.

Plane x-ray of the spine
The use of plane x-ray of the spine is a good way of identifying degenerative reduction in the height of the spinal disc and osteophytes, and also of evaluating the relation of the axes and bone structure/density. It is however, uncertain correspondence between x-ray based signs of degeneration and clinical symptoms and findings [116].

Plane x-ray of the spine can also reveal fracture, malignancy, infection and inflammation as causes of back pain, but MRI is more sensitive in these conditions [96, 99, 113]. Plane x-ray of the spine should be primary examination if spondylolysis, spondylolisthesis and pathological mobility are suspected, and may be necessary preoperatively to avoid surgery at the wrong level (specially relevant if there is an extra sacro-lumbar vertebra that can be difficult to recognise with CT and MRI).

Computerised tomography (CT)
Is based on the photography of sections with the use of x-ray radiation. The method is relatively cheap and the availability is good. The main advantage of this method is a very good view of skeletal changes. CT can thus show fractures that cannot be seen on conventional pictures, and can be used for a more detailed viewing of known fractures. In the lumbar section the method also gives a good view of changes in the soft tissue areas in the spinal canal inclusive herniated discs [28, 95, 96, 106].

Magnetic resonance imaging (MRI)
The MRI images are made with the help of a magnetic field and radio waves. MRI is better than CT with regard to changes in soft tissue, and is also more sensitive to changes in bone marrow, for example in relation to malignity. MRI is especially sensitive to changes in water content, and shows dark discs in the lower lumbar section for the majority of adults, as a sign of dehydration at the beginning of degeneration. There is no certain correlation between this finding and clinical symptoms.

Since ionising radiation is not being used, the method is without any known harmful effects unless the patient has any of the following: a pacemaker, vascular clips, suspected metal object in the eye or cochlea implant.

Myelography
Is in most cases replaced by CT or MRI, which are both more sensitive than myelography to identify herniated discs. Myelograpy is usually only used as a preoperative examination for spinal stenosis and for herniated disc patients with an unclear correlation between clinical practice and CT or MRI.

MRI- myelography
A representation of the nerve root with the help of MRI (MRI-myelography) will in the future probably be increasingly used as a replacement for traditional myelography.

Diskograpy
Punctuation of the disk with the injection of x-ray contrast is maintained by some to be useful for the determination of the correct level prior to spinal fusions, but seems to have little relevance to diagnostics.

Radiation dosages
Conventional x-rays of the lumbosacral column give a radiation dosage corresponding to about 15 x-ray examinations of the lungs. This corresponds to the background radiation in nature (that everyone is exposed to) during 9-10 months (about 1.7 mSv). With lumbar CT the radiation load is about 2.5 times as large as with conventional x-rays (4.5mSv), and with lumbar myelography 3-4 times as large (6.3 mSv). Myelography with following CT that is often done pre- operatively, thus gives the patient an x-ray dosage of over 10 mSv. With repeated examinations the total radiation dosage becomes relatively large. This should be considered, especially with younger individuals at a fertile age.

6.3.1. Non - specific low back pain.
Imaging examination of patients with non-specific problems in the age group 20-55 should, in general, be carried out on the basis of specific indications.

Recommendations	Documentation	Ref.
• It is usually not necessary to refer to radiological examination (a) **	International consensus and several good RCTs for general practice ##	[61, 96, 99, 113]
• With long lasting and strong pain for longer than 4-6 weeks a radiological examination in the form of MRI or CT, possibly CT combined with conventional x-ray should be done (b). *	International consensus #	[96, 113]

Comments
a) Indication for radiological examination is relative and will depend on the intensity and duration of the pain. In most cases the problems disappear by themselves after 4-6 weeks.
b) CT is usually done only on the three lowest disc levels. Conventional x-rays cover areas that CT does not, while MR shows the whole area from conus medullaris to the sacrum's lower part. Conventional x-ray in addition to MR is usually not necessary.

6.3.2 Nerve root affection

Recommendations		Documentation		Ref.
• With symptoms showing no improvement after 4-6 weeks a CT or MR should be taken, especially if surgical treatment is considered.	**	CT and MRI are suitable to prove the existence of disc protrusion and herniated disc, with a sensitivity and specificity of above 90% (c).	###	[28, 95, 99, 106]
• With previously herniated disc operated patients, MR is the primary examination and it must be done with intravenous contrast (d)	**	Scar tissue accumulate contrast, whilst a herniated disc usually does not (d).	##	[27, 91]
• Myelography should be reserved only for patients with an unclear correlation between clinical practice and CT/MRI and for spinal stenosis.	**	International consensus.	#	[106]
• Control examination with CT or MR of confirmed herniated disc is rarely advocated.	**	There is a good correspondence between the change in clinical symptoms and the change of the size of the herniated disc, so that a clinical improvement in most cases is related to a reduction of the herniated disc.	##	[9, 29]
• Vertebrogenic claudication The investigation should start with a MR, especially if surgical treatment is considered. Myelography is a possibility as a preoperative supplement (e). (Norwegian practice, little used in other countries).	**	International consensus.	#	

Comments
c) The reliability of MR diagnostics is not greater than that of CT for confirming/eliminating the possibility of a lumbar herniated disc, but the MR provides a more precise mapping of the herniated disc (differentiates between the sequestral and non- sequestral herniated discs). This is of significance if percutaneous treatment methods are considered. If CT shows pathological changes that correspond with the patient's clinical symptoms, there is no basis for supplementary MR preoperatively.

d) Sometimes it is not possible to clearly differentiate between a recurred herniated discs and scar tissue in which case there may be a blend of disc material and scar tissue. The connection between the amount of scar tissue and clinical symptoms is unclear.

e) CT is of limited value because it gives a poor overview of craniocaudal distribution. MR gives a good overview over the degree of stenosis and spreading, but it is often difficult to decide precisely how many nerve roots are affected. Preoperative myelography will therefore still be indicated for certain patients.

6.3.3 Possible underlying serious pathology- "red flags"

Recommendations	Documentation	Ref.
• There is always an indication for radiological examination. MR should be the primary examination (f). If MRI is not available a combination of CT and conventional x-ray is recommended. Scintigrafic examination may also be useful (g) ***	International consensus ## The discrepancy between the level of documentation and the strength of recommendation can be explained as the consequence of overlooking malign suffering or other pathology that can be treated.	[99, 106, 113]

Comments
f) MRI has the greatest sensitivity to most potential underlying conditions, among others, tumours and infection.

g) Although CT provides the best mapping of fractures, one should start with plane x-rays, which can also detect pathology in areas that are not covered by the CT-sections. Scintigrafic examination is a sensitive method for this patient category, but the specificity is low.

6.4 PROGNOSTIC FACTORS (PREDICTORS) FOR LONG LASTING PROBLEMS

Method
There are no systematic overviews within this field. We have followed the recommendations given in Occupational Health Guidelines for the Management of Low back Pain at Work [126], that we consider as presently, the most comprehensive, thorough and relevant for our purpose, but we point out that there is no multi professional group behind the recommendations. There are no new studies included in SBU in relation to the Occupational Health Guidelines. In the reference list we have, in addition included certain studies that we consider to be of special relevance to Norwegian users in that they have been carried out in Norway.

In general
By "yellow flags" is meant psychological and social factors that have been shown to predict the outcome of a chronic condition and a failure to return to work/response to treatment. It has been documented that, in general, psychological and social factors are more important than biomedical factors in relation to the development of long lasting back pain or disability.

Therefore the early evaluation of such factors is dealt with in the chapter on diagnostics and clinical examination.

We will here strongly emphasize not to focus purely on psychosocial factors of a patient's complaints, in other words reduce the problems to "something psychological, nervous" where pain and biomechanical factors are not taken seriously. It is the complex and interactive interplay between the experience of pain, psychosocial and biomechanical factors that the investigator in a balanced way should study and convey to the patient.

It is also important to emphasize that only to a limited degree do we know which psychosocial factors it is beneficial to deal with and in what way.

Evaluation of prognostic factors

- The patient's own belief in getting better and being capable of returning to work are strong indicators of an actual return to work [47, 48, 56, 84].

- Larger psychological and social loads reduce the patient's strength and motivation to become more active and capable of work. Psychological and social factors are important at an early stage in the development of an illness and with regard to the outcome of treatment. It is documented that these criteria are more important than biomedical factors as regards to the development of a chronic condition [15, 26, 40, 99, 113, 124, 126, 129].

- Psychological and social factors are important in the examination of a patient as they influence the effect of treatment and rehabilitation. The conception that back pain is dangerous, high level of pain behaviour, anxiety and depression, and expectation that passive treatment is the best alternative are strong and negative prognostic factors. This should be emphasized in the choice of treatment strategy, for example in terms of cognitive approaches [126].

- Advanced age, comprehensive subjective back examination/history, long lasting symptoms, nerve root pain, poor experience with previous treatment and increased pain with activity and work can contribute to long lasting problems and disability [14, 26, 40, 126].

7. TREATMENT

Method
This chapter has its basis in the British guidelines, and there has not been found any divergence from the European guidelines. A search for systematic overviews has been made in the Cochrane-base for the period after the British were published and the content of the European guidelines was at hand. Regarding training we have included Australian studies that are not to be found in the above sources because we believe that they represent trends valid also in our country. There has been disagreement regarding the understanding of these references between external advisors.

In general
The primary aim for treatment is to achieve sufficient pain relief so that the patient may resume normal activity, as this in itself is an important criterion for healing. Generally it is recommended that treatment and interventions for the individual patient should be precisely directed and individually tailored. If, for example, the aim is to resume to work then cooperation with the employer and the medical health service at place of work can be the most rational and effective intervention. If the fear of a serious underlying cause is the patient's most important concern, then special measures should be taken to carry out a thorough somatic examination and build a trusting relationship with the patient through ensuring good communication.

In the following the evaluations on page 14 are used as the basis for the level of documentation and the strength of recommendations given.

7.1 NON-SPECIFIC LOW BACK PAIN

7.1.1. Non-medical treatment

Recommendations	Documentation	Ref.
General activity • Give advice about staying active as much as possible and to continue to participate in /resume normal activity as soon as possible, also at work. Reassure and tell about the good prognosis and that no red flags exist. ***	It is well documented that to continue/ rapidly resume normal activities leads to quicker recovery and reduced danger of chronically reduced function. Written information that emphasise these messages have documented effect. ###	[99, 127]

Bed rest • Bed rest is not recommended as therapy, but can be necessary for pain relief initially.	***	With acute or repeated episodes of pain bed rest of 2-7 days will worsen the condition when compared to “placebo” or normal activity. Bed rest is less effective than alternative treatment for pain relief, healing time, and resumption of daily activities and work.	### [45, 65, 99, 127]
Exercises/training • On the basis of existing documentation specific exercises and training can generally <u>not</u> be recommended during the first weeks of the acute phase.	**	Both systematic overviews and guidelines show varying results/no effect.	## [13, 38, 115, 118]
• Referral to training/physical activity should be evaluated if the patients have not resumed normal activities or gone back to work after 4-6 weeks (theoretically chosen to hinder the unfortunate results of inactivity and the danger of a chronic condition developing).	**	Advice about exercises/training/physical activity can be of help to encourage activity and the resumption of work for patients whose problems become long-drawn.	## [47, 56, 118]
• Referral to a spine clinic / department or specialist if still on sick leave after 8-12 weeks.	***	Spine clinics are effective in getting patients who have been on sick leave for 2-4 months back to work.	### [47, 56, 84, 126]
• It can be appropriate to include exercises for stability training.	**	There are no systematic overviews, but a randomised study of stability training shows a marked reduction of a number of new acute episodes over a three-year period.	## [52, 53, 59]

Manipulation • Manipulation treatment can be considered for patients who need extra help and who after some time have not resumed normal activity. ***	Manipulation can shorten the duration of pain, increase the level of activity and give increased patient satisfaction compared to control interventions. The risk of harmful effects is very low when the manipulation is carried out by qualified therapists. ###	[3, 12, 13, 62, 98, 99]
• There is a moderate basis for recommending manipulation early in the treatment, maybe after 1-2 weeks. **	It is unsure when in the course the manipulation will have the best effect. Two RCT studies show better effect with the group that has had pain > 2 weeks than the group with pain for <2 weeks. ##	[44, 79, 99]
Traction • Existing documentation does not provide a basis for recommendation **	No convincing effect on back pain is demonstrated, but the studies are throughout of low quality. ##	[112]
Back School/ Cognitive behavioural therapy • Back school at place of work can be useful for patients with residual back problems. **	There is a large variation in the type of intervention that is included in studies about "back schools" (see definition) and what individual studies show. Two Swedish studies show that back school at the workplace can shorten the healing time and give pain reduction. ##	[17, 108, 114]

Massage • Existing documentation*** does not provide a basis for the recommendation of massage as a treatment on its own. • Massage (as relaxation) * can be tried as a supplementary measure for pain relief in order to get the patient to do exercises.	There exists very good documentation that massage alone does not have pain-reducing effect, but that it can have an effect as an additional treatment. ###	[36]
Thermo therapy/ Electrotherapy/Ultrasound • Existing documentation * does not provide a basis for recommendation.	Few studies exist and they are throughout of poor methodological quality. #	[39]
Acupuncture • Existing documentation * does not provide a basis for recommendation.	No good quality studies that show that acupuncture has an effect on back pain, that it is better than a placebo. #	[33, 117]
Support belt/ orthosis • Existing documentation ** does not provide a basis for recommendation.	Has not been found to have more effect than other measures neither as a preventive nor a treatment measure. ##	[65, 128]

7.1.2. Medication treatment

Generally early and effective medicinal pain treatment is recommended. Also in order that the patient shall be able to be in/ resume normal activity.

Recommendations	Documentation	Ref.
• Start with paracetamol *** (a) or with NSAID if paracetamol is already tried. NSAIDs' adverse side effect profile should be remembered.	There is very good documentation that analgesics give effective symptom improvement with acute low back pain. ###	[23, 64, 119]

• If the effect of paracetamol is not satisfactory, change to NSAID, and then to paracetamol/opoid confined preparations (b).	***	Two systematic reviews provide very good documentation that NSAIDs effectively reduce acute non-specific back pain. The different NSAIDs seem to be equally effective.	### [64, 119]
• If the pain is excessive, it is recommended that pain reduction medication be taken at regular intervals (not only when needed).	***	There is spare documentation that analgesics give better pain relief when taken at regular intervals, but that is how they have been used in the RCTs (therefore stronger recommendation).	## [23, 99, 128]
• Evaluate if necessary additional muscle relaxant, but for a short time due to the danger addiction.	***	There is very good documentation that muscle relaxantia, for instance benzodiazepiners (most used in Norway), effectively reduces acute low back pain. Side effects can be strong and the danger for addiction is considerable.	### [99, 128]

Comments

(a) The medicinal treatment will be able to give both analgesic and anti-inflammatory effect. In international guidelines paracetamol is the first choice due to its good analgesic effect and favourable side effect profile. NSAID is regarded as second choice. The different NSAIDs seem to have equivalent similar analgesic effects, but a somewhat lower risk of side effects has been documented for ibuprofen and diclofenac and they are most often used [51, 113].

(b) The main aim with the medicinal treatment will most often be to provide good pain relief. This is necessary for the patient to feel safe and for him or her to be able to maintain his or her daily activities. Many doctors will therefore choose a rather powerful pain treatment in the acute phase, and then to reduce it relatively quickly. The work group recommends such a pain treatment with a combination of paracetamol-/opium mixed preparation together with a NSAID. For strong pain a muscle relaxant for the evening and night could be given in addition. After 1-2 weeks should it be possible to reduce this to only paracetamol or NSAID. A- preparates will only exceptionally be advocated. In such situations the doctor must evaluate emergency help hospitalisation. It is recommended that B- preparates are only used for 1-2 weeks because of the danger of addiction and side effects.

7.1.3 Surgical treatment

Surgery has no place within treatment of non-specific low back pain

7.2 NERVE ROOT AFFECTION

7.2.1 Conservative treatment

Recommendations	Documentation	Ref.
General activity versus bed rest • The patient should be encouraged to be in varied activity although the back is somewhat painful. **	There is no significant difference in effect between patients who stay in bed for two weeks and those who are in light activity. ##	[122]
Exercises and training • If the patients becomes passive, light physical training/ exercises can be used. The activities should be intensified gradually. *	No studies were found on the effects of training. # Mc Kenzie seems to have some effect, but the documentation is weak. #	[42]
Traction • Cannot be recommended. **	It has been shown that traction does not change the course of illness. ##	[74, 85, 99, 133]
Manipulation • Manipulation should not be used on patients with serious or progressive neurological outcome. **	There are no clinically controlled studies as patients with progressive paresis/paralysis are not included in RCTs. #	[3]
Back school/ cognitive behavioural therapy • Can be evaluated when there is danger of the condition becoming chronic and with patients with psychosocial risk factors. *	Individually adjusted cognitive behavioural therapy combined with medical treatment resulted in more pain reduction and reduced early pensioning. #	[49]

7.2.2 Medication treatment

Recommendations	Documentation	Ref.
• Start with paracetamol (b). If no satisfactory effect with paracetamol, then paracetamol/opoid-mixed preparation should be given (c).*** ***	It is very well documented that analgesics (if necessary in combination with codeine) gives effective reduction of pain. ###	[23]
• If indicated, pain relieving medication is taken regularly and not only when needed. ***	It is very well documented that analgesics is better when it is taken with regular intervals. ##	[23]
• There is no basis for recommending NSAIDs **	The effect of NSAID on the course of nerve root pain is poorly documented, and has not been found to have a better pain relieving effect than placebo. ##	[43, 64, 77, 132]
• Evaluate possible addition of muscle relaxant, but for a short time only, due to the risk of addiction. ***	It is very good documented that muscle relaxant (all types) effectively reduces acute low back pain (see p. 29). Side effects can be strong and the danger of addiction is considerable. ###	[99]
• Epidural injections can be tried, but the documentation for this is to weak. *	Single studies and a systematic overview show that epidural injections are better than placebo, and are somewhat better than bed rest. The effect is short. #	[63, 99, 130]

Comments
See page 28

7.2.3 Surgical treatment

Method

Our evidence base here has mainly been the SMM- rapport nr. 1/2001. In addition, a systematic overview was found in the Cochrane base. The recommendations are made on the basis of the mentioned documentation, the criteria given in the tables below and the consensus within the group.

In general

The relevance of surgery in the treatment of acute low back pain is limited and is used for <1%. The largest group of patients dealt with surgically are those with nerve root affection

and a lot of nerve root pain, and those with cauda equina syndrome/ widespread neurological signs.

Suspicion of cauda equina syndrome is an acute surgical situation and requires immediate hospitalisation.

Surgery for nerve root affection is dependent on a patient's subjective distress. The documentation about the effect on neurological signs (sensitivity disturbances and paresis) is insufficient. Pronounced paresis of short duration (days), especially if the paresises are progressive, should be operated. The most important indication for surgery in the event of nerve root affection is pronounced nerve root pain. An absolute requirement is nerve root pain distribution and imaging findings that correspond. A minimum observation period of 6-8 weeks should be waited for a spontaneous improvement to occur. (Some clinicians set the limit at 12 weeks). Lack of relief from considerable pain within the observation period strengthens the case for surgical treatment. A small group of patients with strong, opoid-requiring pain should be operated earlier, maybe already after two weeks [131].

CAUDA EQUINA SYNDROME/ WIDESPREAD OR PROGRESSIVE NEUROLOGICAL SIGNS

Recommendation	Documentation	Ref.
• Immediate referral to *** surgery (a).	There is no good documentation on the results of # surgical treatment for cauda equina syndrome. This patient group is excluded in all randomised studies. Patients operated within 48 hours of the appearance of symptoms have a better functional result with regard to bladder function than patients operated later. A very small group of patients have progressive paresis. Surgery is recommended for these patients although good documentation is missing	[1]

Comments

a) This group of patients is small and contains about 2% of all patients operated for herniated disc in the lumbar area. The majority of those referred to a surgical department with problems in passing their water have pain conditioned urine retention. A good clinical investigation with specific examination of the function of the sacral nerve roots is important to make a correct diagnosis. There is a strong consensus/recommendation in all the guidelines despite the fact that no good documentation exists. On ethical grounds no one will allow controlled trials that necessitates the non-treatment of this group of patients.

NERVE ROOT AFFECTION

The prognosis for nerve root affection due to lumbar herniated disc is good, 50% are free of symptoms within 6 weeks of the first appearance of symptoms without surgical treatment [132].

One separates between two types of invasive forms of treatment:
i)

- Chemonucleolysis
- Percutaneous nuclotomia

ii) Surgical operation directly towards the spinal canal/nerve root:

- Surgical discectomia (open/micro)
- Endoscopic discectomia
- Transforaminal steroid injeksjon

Recommendation	**Documentation**	**Ref.**
• Referral to surgery after 6-12 weeks (possibly before if the pain is strong). Surgery is pain treatment for the actual root pain. Strong recommendation (consensus) is given in consideration of the patient's pain perspective, and not because of the level of documentation. ***	Surgery is more effective than conservative treatment (after one year, but after four years there is no difference). No difference in clinical result between conventional surgery and microsurgery has been documented. ##	[41, 50, 107, 131]
• Patients for whom surgery is indicated should be operated within 6-8 months (with consideration of developing a chronic condition). **	Duration of radiating pain is a predictor for result after surgical discectomia. ##	[30, 89, 131]
• Chemonucleolysis with chymopapain can be tried on a sub group of patients (b). **	Studies of good methodological quality have shown that chemonucleolysis with chymopapain is more effective than placebo ##	[22, 35, 57, 97]
	Chemonucleolysis is compared to surgery in several studies of moderate to poor quality. These provide limited evidence that chemonucleolysis is less effective than surgery. #	[20, 31, 86, 110]
• Transforaminal steroid injection can may be be tried in the waiting period before surgery (c). *	Transforaminal steroid injection is a selective depositing of steroids directly into an inflamed nerve root canal. The clinical effect is documented in a study of moderate quality. #	[94]

Comments

b) For certain patients this can be a good treatment that prevents later surgery. Probably the best effects with the smallest herniated discs, and only valid for non- sequestral herniated discs. A certain number of patients must later have a discectomia due to unsatisfying results of chemonucleolysis.

c) This treatment is being tested. A new study published after 1. January 2001 (not included in the literature list) concludes that transforaminal steroid injection has no effect on nerve root affection due to lumbar herniated disc.

7.3. OCCUPATIONAL MEDICAL INTERVENTIONS

Reorganisation of a patient's work situation in order that he/she can continue working or return to work as soon as possible should in general be regarded as one of the practitioner's most important tasks. Two important reasons are that rearranged activities is good treatment, and that the probability of resuming to work is reduced to a strongly increasing degree as the duration of sick leave lengthens. A good Norwegian study shows that after 8 weeks of sick leave there is only a 50% chance of returning to/resuming the same work, see figure 2.

Figure 2. Return to work among all patients with low back pain (solid line), among patients with radiating pain (circles) and without radiating pain (plus signs). Modified from Hagen and Thune, 1998 [46].

Measures that seem to contribute to faster return to work and that should be evaluated early (can be relevant already at the first consultation):

7.3.1 Interventions in consultation with the employee

Recommendations	Documentation	Ref.
• Patients are advised to resume/continue normal activity including their work despite some pain. ***	Most employees who have back pain are capable of continuing to work or resuming work within a few days or weeks, even if they still have some pain. They do not need to wait until they are pain free. Those patients who are advised to continue with normal activities despite the pain, have more rarely relapses and less sick leave in the long term than those who are recommended to rest and let the pain decide their level of activity. ###	[126, 127]
• The patient is recommended to be away from work for as short a time as possible in order to improve the chance of being able to resume work. ***	The longer the patients are away from work, the less is the chance of returning to work. ###	[46, 60, 126]
• Patients must be helped to feel safe with **	In addition to aiming at normal activity, there seems to be documentation showing that it ##	[56, 126]

regard to their pain condition (have confidence about the fact that it is not dangerous), so that they become motivated to improve their functional level.	is important to undramatise the back condition and for a patient to achieve a balanced feeling of responsibility for his/her own health condition.	
• An interdisciplinary rehabilitation that is initiated at the right point in time is good treatment for patients who are not going to have surgery. Interdisciplinary outpatient departments are a good alternative. It is important to encourage cooperation with the place of work. ***	For patients who are still on sick leave after 4-12 weeks, multi professional rehabilitation programs that includes thorough examination, cognitive intervention (influence of the patients thoughts about/interpretation of their problems) and active training/advice about activity progression within a program, as well as contact with the social security office/jobcentre result more often in patients being taken off sick leave than any other treatment. The rehabilitation program seems to be most effective when it is connected to the medical service at place of work. Two Norwegian studies with interdisciplinary and relatively simple activating rehabilitation schemes are reported and emphasised especially due to a special relevance for Norwegian conditions. ###	[47, 56, 84, 126]

7.3.2. Interventions at the place of work

Recommendations	**Documentation**	**Ref.**
• Discuss with the patient if he/she feels that dissatisfaction at work and physical strain are important reasons for the back pain. ***	Work related psychological and social factors play an important role in relation to the maintenance of symptoms and reduced functional level, and also contributes to a reduced benefit of rehabilitation. The belief that work is the cause of the back pain, and that the expectation of returning to work is low are significant factors [131]. ###	[126]
• Arrange for good communication between the employee, the occupational health service and the employer. **	A combination of correct clinical management, a rehabilitation program and organisational adjustments at work contributes to a reduction of sick leave more than individual elements themselves. ##	[66, 126]

• Evaluate and discuss *** early graded or active sick leave. (Stronger recommendation than the level given in the documentation due to the work group's view of the importance of this recommendation. It should lead to an integrated common responsibility between the patient, the employer and practitioner).	Good organisational and practical adjustments for the employee and encouragement from the management to start work again as soon as possible contribute to a reduction in sick leave. ##	[66, 99, 126]
• Organisation/adaptation ** of the work relations is effective in order to resume work as early as possible.	##	[66]

7.4 COOPERATION BETWEEN PRIMARY AND SECONDARY HEALTH SYSTEM. REFERRAL

For the aims of the Norwegian Guidelines for Acute Low Back Pain to be fulfilled, it is necessary that the patient experiences a common understanding, terminology and treatment at all levels of health care and varied health care professional groups. This means that also hospital departments that receive back patients, either for immediate- help hospitalisation or for examination, are familiar with the same criteria for examination, diagnosing and treatment. The patient will experience it as frustrating double communication if one health service provider is reluctant to use imaging for an acute non- specific low back pain, while MRI is the first thing to be used routinely at another.

In this perspective the work group especially recommends that general practitioners together with the relevant hospital doctors in the local area reach agreement on common guidelines for referral to the secondary health care and that such guidelines take into consideration the reception capability of the secondary health care. In accordance with the law on specialist health services, the secondary health care is responsible for advising the primary health care on this matter.

Referral

The question of when, and which patients should be referred will depend on and must be related to local conditions. Relevant factors here are the individual general practitioner's competence and capacity, the possibility for private specialist availability, waiting time,

competence and resources at the local hospital. The recommendations below assume that the necessary referral arrangements exist or will be established.

If the main aim is to help the patient back to work, the primary practitioner should early on evaluate a referral to/cooperation with the occupational health care or possibly an occupational medical doctor. Cooperation with the Social Security Office at an early point in time can also be useful.

We would like to point out that we have not evaluated to what degree there is sufficient reception capability in the local areas and what effects these suggestions could have on possible queuing problems and on waiting time.

There are somewhat varying recommendations for referral criteria in our main sources of evidence [93, 99, 113, 128]. The work group will recommend the following as a springboard for local agreement between the first and secondary health care.

Immediate help/early referral:

- Patients with cauda equina syndrome, widespread or progressive neurological signs and disabling pain that does not respond to adequate pain treatment.
- Patients with suspected underlying serious pathology (cancer, fracture, inflammation) should be referred very quickly, possibly in the first instance to an imaging examination.

Non-specific low back pain:

- With continuous and strong pain after 4-6 weeks radiological examination in the term of MRI, or CT, possibly also CT combined with conventional x-ray should be done.
- A patient who does not show significant signs of improvement after 8-12 weeks, should if possible, be referred to a interdisciplinary spinal rehabilitation medicine department, a physical medicine out-patient department or private specialist, or an other suitable out-patient department at the local hospital for a “second opinion”.
- A patient, who is still on sick leave after 8 weeks, should be referred as above.
- A patient with non-specific, continually returning low back pain should be offered an evaluation from the secondary health care.

Nerve root affection:

- If symptoms show no or little improvement after 4-6 weeks CT or MRI should be used, especially if surgical treatment is considered.
- A patient, who does not show definite improvement after 8-12 weeks, should be referred to a interdisciplinary spine clinic, a neuro-surgical or orthopaedic outpatient department, a neurological or physical medicine out- patient department or a private practising specialist.

8. PATIENT COMMUNICATION

The Good Back -Talk

In general
Good clinical communication with the patient (here called "The Good Back- Talk") has in general a significant influence on patient satisfaction, self- care and compliance with advice and treatment. Such communication also has an important influence on placebo effect and the course of the disease [4, 70, 135].

It has been shown that the patient's experience of what is a good consultation is related to the degree in which the practitioner shows empathy, interest and understanding for the patient's complaints and problems including the psychosocial aspects (the patient is believed and taken seriously). In addition to be listened to, it is important that the patient is given good and understandable information [78, 99, 136, 137]. Studies have shown that psychological and social factors can be more important than organic causes of back pain with regard to the danger of long lasting problems and disability (see page 23-24).

Be patient-centred
Research has shown that in clinical communication it is important to bring forth the thoughts, feelings and expectations that the patients themselves have regarding the prognosis, the causes of pain, interventions necessary to get better, and a quick return to work [48, 78, 81, 82, 134]. Back patients who have had problems for a long time often say that they can live with the pain but not with the uncertainty related to the back condition. The uncertainty revolves around what is wrong with them, why they have pain/what the future holds for them and what is the best way to get better [76]. Three Norwegian studies [47, 56, 84] in which these elements are a part of the treatment plan document their effect on the resumption of work.

The purpose of focusing on psychosocial factors should be to stimulate the patients to themselves discover and acknowledge possible relationships and interactions between the body, psyche and their situation in life. We will however also here strongly emphasize that to discuss psychological and social factors should not minimize the pain nor signalise that biomechanical conditions are not important. To imply that the painful back "is only psychological" or "is only caused by a difficult life situation" is not conductive to good patient communication. Possible measures should be discussed from a shared and not a "practitioner dictated" understanding. An explanation that is understandable for the patient (with the use of models if necessary) on why it is painful is also, in general, a positive element in communication.

It is important to find out what other practitioners have said is wrong with the back and what they have said is the correct treatment, and if possible get the patient's own explanation of what earlier x-ray findings have shown. The patient has often heard different versions from different practitioners. This can contribute to insecurity and a lack of faith that anything can be done.

Reassurance
It is important to undramatise and state clearly that the back pain is not dangerous (if relevant), and that there is no reason to believe that any other illness is the cause (no "red

flags"). The best thing for the back is to be in normal activity, and a certain pain exacerbation is natural in the beginning. Further it is important to make it clear that pain in the back can still continue although there no longer exists any sign of injury or illness. Increased sensibility in the discs, joints and tight muscles can cause the pain to continue for a while. From the start patients should be encouraged to increase their physical activities progressively to the demands of everyday. First when this is achieved will the pain gradually decrease.

"The Good Back-Talk" is confidence building for the patient and should lead to the patient understanding why they have pain and that it is not dangerous.

Long lasting cases/danger of chronicity ("yellow flags")
Initially it will often be natural to focus mainly on biomechanical conditions. If treatment draws out (more than 4-6 weeks without satisfying improvement) more attention should be given to potentially meaningful psychosocial factors. However, it must be emphasised that good RCTs and systematic reviews are still lacking (with certain exceptions [72]) on the importance of interventions directed towards "yellow flags".

Psychosocial risk factors can also be (see page 23-24):

- Continued anxiety that the back problems are somewhat dangerous
- Psychological problems prior to the back pain
- Demonstrable anxiety, depression (or possibly masked depression) and somatisation
- Social stresses in the family or dissatisfaction at work
- Reluctance to increase level of activity
- Limited belief on improvement and further ability to work
- Poor physical fitness, lack of physical activity/training

For every month the patient is on sick leave, the less is the chance of resuming to work. (After 8 weeks with sick leave the probability of resuming to work is reduced by 50% [46], see page 32). How frequently the individual patient has to be followed up is not documented, and should be up to the evaluation of the practitioner.

Finally: Consider giving the patient the brochure "Worth knowing about back pain. About what do the experts agree?"

A memo-list of key information and advice is given in appendix 2.

APPENDIX 1

Causes of acute low back pain

(Modified after Eriksen and Brage [32])
Divided into three main groups of diagnoses.

- Non-specific back pain, rarely certain or documented relation to the diagnosis:
    - Muscle injury
    - Myalgia
    - Spondylosis/ spondylolesthesis
    - Degenerative conditions
    - Pelvic changes related to pregnancy
    - Osteoarthritis
    - Scheuermanns disease
    - Skoliosis
    - Kyphosis
    - Anatomical deviations

Nerve root affection

- Herniated disc
- Spinal stenosis - central
  - lateral (recess)
- Benign spinal tumor (nerve root)
- Cysts of the synovial membrane

Systemic/visceral/possible underlying serious pathology

- Fracture/injury
- Osteoporosis
- Tumors
  - Myeloma
  - Metastic tumor
  - Spinal tumor
- Inflammatory disease
  - Bekhtrevs disease
  - Polymyalgia rheumatica
  - Reiters' syndrome
  - Psoreiasis
  - Intestinary disease
- Metabolic skeletal disease (Paget)
- Pancreatitis
- Ulcus perforans
- Pyelonefritis
- Prostatitis
- Kidney stone
- Herpes zoster
- Endometriosis
- Aorta-aneurisma

APPENDIX 2

Memorandum on key-information and advice on patient communication

Subjective examination
Together with traditional psychological and somatic subjective examination questions mapping (individually adapted) the following themes can be useful. Have you had any thoughts about:

- What can have provoked your LBP problems?
- Possible cause (e.g. cancer, herniated disc)?
- That it can be dangerous and that for example it can be harmful to do something that increases the pain?
- That there are any special examinations that have to be done? What have any earlier x-ray examinations shown?
- What kinds of treatment that can best help you?
- What, if anything, has helped before?
- To be at work, as apposed to not being able to work?

In the management phase of the consultation (after the diagnostic phase) the **information and advice** (individually adapted) given below can be useful:

- We usually divide back pain into three main groups; ordinary back pain (80-90%) which we cannot with certainty define (muscle/disc/ligament), nerve root affection (often sciatica/herniated disc) and other possible serious illness ("red flags"), that are very rare.
- Give an understandable explanation (with the use of a model if necessary) of what you believe is the cause of the pain (muscles/disc/ligament/joint/ nerve root).
- Undramatise and state clearly, if such is the case, that this is not anything dangerous, and that there is no basis (no "red flags") for believing that any other illness is involved.
- X-ray is not usually necessary before after 4-6 weeks without satisfying improvement have occured.
- The condition has a good prognosis. Most patients become much better after a few weeks. If there is root affection it often takes longer.

Treatment and interventions

- Acute low back pain can be effectively relieved with medication.
- Sometimes the pain can be so strong that it is necessary to ease it (especially with root pain), but bed rest, in itself, is no treatment. To lie with bent hips and knees can ease the pain (not documented).
- The faster normal activity is resumed (inclusive resuming work), the faster one becomes well. Activity and work are in themselves treatment and stimulate the body's own healing process.
- It is not harmful even if it is somewhat painful.
- Avoid twisting if lifting something heavy and hold what you are lifting close to your body.

- Many people enjoy walking, especially on soft ground, swimming, cycling etc. The patient must find what suits him or her best. Remember to take breaks and rest once in a while. Do not sit still too long at the time.
- Try to be optimistic and believe that all is going to go well and that it is not dangerous. Such an attitude stimulates the body's healing process.
- If you do not rapidly become better then physical manipulation treatment by a chiropractor or physiotherapist with further specialisation in manual therapy can be considered.

Monitoring and prevention

- It is important to keep in shape through regular pleasurable activity. This can reduce the possibility of relapse.
- With a long drawn out case (not resumption of normal activity/return to work after 8-12 weeks) or with recurring problems referral to interdisciplinary outpatient clinic or a training program at a physiotherapist can be relevant.
- Inform patients with nerve root affection about the development of symptoms and signs of cauda equina syndrome.
- An operation is normally only indicated for nerve root pain (herniated disc and spinal stenosis) and even then only for a few percent of patients. Indications for this would be intolerable pain or a lack of improvement after 6-8 weeks. Cauda equina syndrome is an emergency help situation.

LITTERATUR

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[1] Mye tyder på at definisjoner av akutte og kroniske korsryggsmerter basert på en enkel episode er inadekvat [120] . Flere forfattere har tatt til orde for at et viktigere epidemiologisk (kanskje også klinisk) mål er antall smertedager i løpet av et år [21] . I studier fra Danmark er det vist at gruppen med færre enn 30 smertedager i løpet av siste 12 måneder skiller seg fra gruppen med antall smertedager over 30 når det gjelder kjønn, røyk/ikke-røyk, alder, hardt/lett arbeid og "locus of control" [67-69] . Kanskje vil en inndeling i persisterende og ikke-persisterende korsryggsmerter etter kriteriene over være mer meningsfull enn den nåværende inndelingen mellom akutt og kronisk.

[2] To forhold kompliserer imidlertid utsagnet om den gode prognose;

- Korsryggplager er for mange mennesker kjennetegnet ved at de kommer og går, og antallet tilbakefall/gjentatte episoder med smerter kan for mange være svært høyt.
- Mange av pasientene har fortsatt plager ett år etter akuttepisodens start. Bare hvis man bruker sykmelding som effektmål holder påstanden om at 90% er bra etter noen uker.