Philippine Academy of Rehabilitation Medicine (PARM):

Clinical Practice Guidelines on the Diagnosis and Management of Low Back Pain (Updated: 2017)

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Foreword

“Research is creating new knowledge." - Neil Armstrong

Life is constantly evolving. Everyday, there is something new to be discovered and explored. We must equip ourselves with a current and innovative armamentarium for the quality of life our patients deserve.

The Philippine Academy of Rehabilitation Medicine (PARM) Clinical Practice Guidelines (CPG) for Low Back Pain, together with a CPG for Stroke Rehabilitation, was conceptualized in 2011 by Dr. Consuelo B. Gonzalez-Suarez, and launched during the term of then PARM President Dr. Sylvan RD. Lorenzo. It was a collaboration of all PARM members to ensure the accuracy, efficacy, and applicability of its findings. Due to its magnitude in terms of scope and work, it was carried on by Dr. Bonifacio S. Rafanan Jr. as part of his agenda for his 2012 presidency. The succeeding presidents, Dr. Romil M. Martinez (2013), Dr. Ma. Eulalia J. Beredo (2014), and Dr. Renald Peter T. Ramiro (2015), likewise enabled the release of 3 more outstanding PARM guidelines during their terms (Neck Pain, Shoulder Pain, and Hip Osteoarthritis). Fast forward to 2017, it was inevitable that we update the PARM CPG for Low Back Pain in order to keep up with the current best practice. This would not have been possible if not for the dedication and service of the team, led by Dr. Carolina M. Valdecañas and Dr. Ephraim DV. Gambito. Also to the PARM Executive Board for supporting this project through their invaluable inputs, as well as allocating much-needed funding to see this through. Lastly, but certainly not the least, to all the members who proactively shared their time and effort, and participated in the peer-review and implementation. Allow me to thank each and every one of you for a job well done. Maraming salamat. Daghang Salamat.

The practice of Physical Rehabilitation and Medicine is so dynamic and diverse that it is imperative we constantly update ourselves with innovative means, using up-to-date evidence-based practices, and advanced technology in treating and managing our patients. It is our hope that this current version will be adapted by our colleagues both locally and internationally.

As an old adage goes: "Never stop learning, because life never stops teaching". Continue to unify and diversify for the glory of God, the camaraderie of the Physical Rehabilitation and Medicine Team, and for the betterment of the Filipino people.

Mabuhay ang PARM! Mabuhay Pilipinong Physiatrists!

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Foreword

"Pain is inevitable in life, but suffering is optional." ~ Buddha

Low back pain is ranked the fourth leading cause of disability-adjusted life years (DALYs) globally in 2015, after ischemic heart disease, cerebrovascular disease, and lower respiratory infection. It was the number one cause of disability among 291 conditions, and sixth in terms of overall burden in the Global Burden of Disease 2010 study. [1,2] The rise in its ranking in such a short period is alarming. A common health problem affecting the young, and young once, the economic burden this debilitating condition pose proves to be costly; from consultations, medications, non-pharmacological treatments, and work absences thus affecting one's quality of life.

As the Philippine Academy of Rehabilitation Medicine continues to strive in improving the lives of Filipino patients, I am grateful to the Committee headed by Dr. Carolina Valdecañas and the rest of her team, for producing an updated, well-crafted, and peer-reviewed Clinical Practice Guidelines for Low Back Pain. It takes sheer determination, utmost patience, and the will to better serve our patients, to produce such a remarkable research.

I would also like to thank the past, and present Executive Boards for the continued support to this noteworthy project. And to all the PARM members who actively participated in this endeavor, our colleagues in the various medical specialties, and allied health professions, this would not have been possible without your invaluable inputs.

Again, my sincerest appreciation for the time, and effort you all have given this. Maraming salamat po.

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[1] Hoy D, March L, Brooks P, Blyth F, Woolf A, Bain C, et al. The global burden of low back pain: estimates from the Global Burden of Disease 2010 study. Ann Rheum Dis 2014;73(6):968–74.

[2] Murray CJL, Vos T, Lozano R, Naghavi M, Flaxman AD, Michaud C, et al. Disabilityadjusted life years (DALYs) for 291 diseases and injuries in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. Lancet 2012;380(9859):2197–223

Contents

Glossary

Acupuncture – Refers to the insertion of a solid needle into any part of the human body for disease prevention, therapy or maintenance of health. There are various other techniques often used with acupuncture, which may or may not be invasive. Acupuncture should be given only by a professional who is registered to practice in the Philippines (i.e. physician, PT, nurse), with recognized and credible training, approved by any of the following: Professional Regulation Commission (PRC), Department of Health (DOH), or their respective professional organization/s; and can provide documented evidence of safe and evidence-based practice.

Acute low back pain – Refers to low back pain with or without functional limitation lasting less than 4 weeks (1 month).

Adjacent Segment Degeneration (ASD) – Refers to accelerated degenerative changes at the adjacent disc segment, compared to natural history, after lumbar fusion, and/or laminectomy.

Aggressive discectomy – Refers to removal of the offending herniated disc as well as curettage of the normal disc.

Analgesic – Refers to an agent that relieves pain without causing loss of consciousness.

Anterior Lumbar Interbody Fusion (ALIF) – Refers to a minimally invasive stabilization procedure that involves placement of a graft between the vertebral bodies through an anterior approach with an incision through the abdomen.

Artificial disk replacement – Refers to removal of worn or damaged disk material between the vertebrae and replaced with a synthetic or "artificial" disk.

Automated Percutaneous Lumbar Discectomy (APLD) – Refers to a procedure in which a cannula is inserted into the intervertebral disc space, with fluoroscopic guidance, and nuclear material is removed without direct visualization by nucleotome, laser or radiofrequency heat.

Back schools – A class, course, or educational program in body mechanics, posture, and back care aimed at preventing back pain.

Bell test – Positive when the examiner reproduced or exacerbated the radicular pain by pressure applied with the thumb between the spinous processes L4 and L5 or between L5 and S1, or in the near corresponding paraspinal area with the patient standing. It is considered negative when the maneuver reproduces only lumbar pain.

Cauda equina syndrome – Refers to compression on nerve roots from the lower cord segments, often resulting in urinary retention or incontinence from loss of sphincter function, bilateral motor weakness of the lower extremities and saddle anesthesia.

Centralization exercise – Exercises characterized by repeated and sustained postures that afford relief of local or distal pain emanating from the spine.

Chemonucleolysis – Refers to the treatment of herniated discs with intradiscal injections of an enzyme extracted from papaya (chymopapain).

Chronic low back pain – Refers to pain with or without functional limitation lasting more than 12 weeks (3 months).

Cold therapy (Cryotherapy) – Refers to the use of cold applied as cold packs or ice to the back with superficial penetration to soft tissues.

Compression fracture – Refers to vertebral bone in the spine that has decreased at least 15 to 20% in height due to fracture.

Craniosacral therapy – Refers to an alternative treatment approach that involves applying a gentle manual force to address somatic dysfunctions of the head and body, with the aim of releasing restrictions around the spinal cord and brain and restoring body function.

Degenerative lumbar spondylolisthesis – Refers to an acquired anterior displacement of one vertebra over the subjacent vertebra, associated with degenerative changes, without an associated disruption or defect in the vertebral ring.

Degenerative spine disorders – Refers to a group of conditions that involve a loss of normal structure and function in the spine, usually associated with the normal effects of aging, but also may be caused by infection, tumors, muscle strains, or arthritis.

Diagnostic intra-articular facet joint blocks – Involves the injection of local anesthetic under fluoroscopic guidance into the facet (zygapophyseal) joints.

Diagnostic sacroiliac joint block – Involves the injection of local anesthetic into or around the sacroiliac joint in order to evaluate whether the sacroiliac joint is the source of low back pain.

Diagnostic selective nerve root block – Involves the injection of local anesthetic around spinal nerves under fluoroscopy.

Directional preference – Direction of movement or posture (flexion, extension or side-glide/rotation) that produces the centralization phenomenon.

Direct surgical decompression – Refers to a surgical resection of impinging bone, ligaments, and disc material, which are directly compressing neural elements.

Disc bulge – Refers to a condition wherein the disc that has expanded in circumference without any break in the continuity of the annulus fibrosus.

Disc extrusion – Refers to a disc herniation wherein the distance between the edges of the disc material is greater than the distance at the base. It is usually associated with a defect in the annulus fibrosus and is usually non-contained.

Disc herniation – Refers to a focal displacement of disc material (less than 25% of the disc circumference) beyond the limits of the intervertebral disc space.

Disc protrusion - Refers to a disc herniation wherein the distance between the edges of the disc herniation is less than the distance between the edges of the base.

Disc sequestration - Indicates that the displaced disc material has lost continuity with the parent disc.

Endoscopic percutaneous discectomy – Refers to a discectomy procedure in which access to the disc herniation is made with a portal, visualization of the discectomy is done with an endoscope, and removal of disc material is done with micro instruments or laser.

Endurance exercises (Aerobic exercise) - A training which consists of continuous exercise preformed with the goal of improving and maintaining the fitness of the body's cardiovascular system.

Epidural spinal injection – Refers to injection of a combination of corticosteroid and local anesthetic into the epidural space.

Femoral stretch – Also called reversed SLR which consist of extension of hip with the knee straight and patient in prone position. This maneuver puts traction on the femoral nerve or L3 root and exacerbates pain in a femoral neuropathy or L3 radiculopathy.

Foraminal stenosis – Refers to narrowing of the vertebral disc space caused by enlargement of a joint (the uncinate process) in the neural canal.

Global spinal alignment – An indirect surgical decompression procedure which allows the spinal cord to migrate dorsally away from areas of anterior compression.

Heat therapy – Refers to the use of heat applied as warm packs or heated blankets to the back with superficial penetration to soft tissues.

Herniated disc – Refers to a localized displacement of the nucleus pulposus beyond the normal margins of the intervertebral disc space due to a disruption in the annulus fibrosus.

Indirect surgical decompression – Refers to decompression of spinal nerve tissues, such as spinal cord and nerve, without resecting the compressing tissue. It can be divided into segmental procedures and global spinal alignment procedures.

Infrared therapy – Refers to a heating modality that uses electromagnetic waves of wavelength 7700 – 10,000 nm to produce analgesia.

Interferential therapy – Refers to a modality that uses the significant physiological effects of low frequency (<250pps) electrical stimulation of nerves without the associated painful and somewhat unpleasant side effects sometimes associated with low frequency stimulation; it particularly uses two alternating signals of slightly different frequency to produce analgesia.

Interspinous spacer device - Refers to a device implanted to produce distraction between two vertebrae, which lead to opening of the neural foramen and increase of the epidural space. It is used in segmental indirect surgical decompression.

Intradiscal Electrothermal Therapy (IDET) – See Percutaneous Intradiscal Thermocoagulation Technique. Also called Percutaneous Electrothermal Disc Decompression.

Inversion table – Refers to a device used to hang a person upside down or in an inverted angle by the legs, ankles and feet to provide therapeutic benefits. It is a form of spinal decompression that applies the principles of spinal traction.

Isthmic spondylolisthesis – Refers to an anterior translation of one lumbar vertebra relative to the next caudal segment as a result of an abnormality in the pars interarticularis.

Kinesiotaping – Refers to a taping technique that uses an original latex-free hypoallergenic elastic adhesive tape designed to facilitate the body's natural healing process while providing support and stability to muscles and joints without restricting the body's range of motion as well as providing extended soft tissue manipulation.

Laminectomy – Refers to surgery to remove the lamina.

LASER (Light Amplification by Stimulated Emission Radiation) therapy – Refers to a low power form of electromagnetic energy with a wavelength within the visible or the infrared section of the electromagnetic spectrum.

Local injections – Local injections involve the placement of a local anesthetic (with or without corticosteroid) into the muscles or soft tissues of the back via a catheter.

Lordotic sitting posture – Sitting position characterized by anterior convexity of the lumbar spine.

Lumbar decompression surgery – Refers to a type of surgery used to relieve pressure on the spinal cord and or nerves, namely, laminectomy, discectomy, and spinal fusion.

Lumbar supports – Refer to an external appliance in the form of braces and corsets worn to passively support the low back.

Massage – Refers to medical massage, which is a system of manually applied techniques designed to reduce pain, establish normal tissue tension, create a positive tissue environment, and to normalize the movement of the musculoskeletal system.

McKenzie's exercises – An exercise-based intervention in which patients are instructed to perform exercises to centralize symptoms and prevent peripheralization, using techniques relying on patient-generated forces such as specific repeated movements and sustained postures.

Medial facetectomy – Refers to a partial lumbar facetectomy, whether unilaterally or bilaterally, usually performed in conjunction with a lumbar laminotomy or laminectomy and foraminotomy procedure; this is carried out with or without diskectomy.

Minimally invasive procedure – Refers to a surgical procedure done in a manner that causes little or no trauma or injury to the patient, such as through a cannula using lasers, endoscopes, or laparoscopes; compared with other procedures, those in this category involve less bleeding, smaller amounts of anesthesia, less pain and minimal scarring.

Motor control exercises – Exercises that aim to restore coordination control and capacity of the trunk muscles that support the spine.

Muscle relaxant – Refers to drugs which act on the central nervous system (CNS) to relax muscles.

Narcotic – Refers to a drug derived from opium or compounds similar to opium.

Neurogenic claudication – Refers to symptoms of leg pain (and occasionally weakness) on walking or standing, relieved by sitting or spinal flexion, and associated with spinal stenosis.

Non-specific low back pain – The preferred diagnostic term for pain occurring primarily in the low back, where the clinician has excluded serious underlying conditions (such as cancer, infection, or cauda equina syndrome), spinal stenosis radiculopathy, or another specific spinal cause (such as, vertebral compression fracture or ankylosing spondylitis.

Open discectomy – Refers to a procedure that requires an open dissection of the thoracolumbar fascia to remove the disc.

Opioid analgesics (Narcotic analgesics) – Pain relievers that act on the central nervous system.

Pelvic incidence – Refers to the angle between a line perpendicular to the sacral plate and the line connecting the mid-point of the sacral plate to the bicoxofemoral axis. Pelvic incidence is the sum of the pelvic tilt and the sacral slope.

Pelvic tilt – Refers to the angle between the lines connecting the mid-point of the sacral plate to the bicoxofemoral axis and the vertical plane.

Percutaneous discectomy – Refers to a minimally invasive procedure that does not require an open dissection of the thoracolumbar fascia. This includes endoscopic discectomy.

Percutaneous electrothermal disc decompression – Refers to a minimally invasive procedure using a catheter that produces heat from a resistive coil positioned in the area of disc herniation. Also called *Intradiscal Electrothermal Therapy (IDET)*.

Percutaneous Intradiscal Radio-Frequency Thermocoagulation (PIRFT) – see Percutaneous Intradiscal Thermocoagulation Technique

Percutaneous Intradiscal Thermocoagulation Technique – Refers to a minimally invasive procedure that allows the controlled delivery of heat to the intervertebral disc via an electrode or coil. There are two different techniques depending on whether the heat is generated by radiofrequency (*Percutaneous Intradiscal Radio-Frequency Thermocoagulation [PIRFT*]) or by a thermal resistive coil (*Intra-Discal Electrothermal Therapy [IDET]*).

Percutaneous nerve stimulation – Refers to an electronic stimulus generator that transmits electrical impulses of various configurations to a needle electrode that is inserted just below the skin for the purpose of pain management.

Peripheralization – Term used to describe pain that moves laterally or away from the center of the spine and down the extremity.

Plasma disc decompression (Nucleoplasty) – Refers to a minimally invasive procedure that involves partial removal of a tissue, the nucleus pulposus, via plasma molecular dissociation or Coblation (or Controlled Ablation). It is an advanced form of Percutaneous Disc Decompression.

Posterior Lumbar Interbody Fusion (PLIF) – Refers to a minimally invasive approach that involves placement of a graft between the vertebral bodies through a posterior approach with an incision through the back.

Posterolateral fusion – Refers to a procedure that involves placing a graft to form the bony bridge placed between the transverse processes in the back of the spine.

Prolotherapy (Sclerotherapy) – Refers to a technique that involves the repeated injection of irritants into ligaments and tendinous attachments in order to trigger an inflammatory response.

Prone knee bend test – A special test used to stress the femoral nerve and L2-L4 nerve roots. It is carried out in prone position, and is considered positive if symptoms are reproduced on passive flexion.

Radiculopathy – Dysfunction of a nerve root associated with pain, sensory impairment, weakness, or diminished deep tendon reflexes in the nerve root distribution.

Radiofrequency facet joint denervation – Refers to ablation affecting the nerves carrying pain from facet joints. It is also called *Medial Branch Neurotomy*.

Radiofrequency lesioning of dorsal root ganglia – Refers to a percutaneous procedure for intractable pain, using pulsed or continuous radiofrequency lesioning of the dorsal root ganglion.

Radiofrequency neurotomy – Refers to a type of injection procedure using radiofrequency energy that destroys the functionality of the nerve. Also known as *Radiofrequency Ablation*. If ablation affects the nerves carrying pain from facet joints, it is called **Medial Branch Neurotomy**. While, if ablation affects nerves that carry pain from the sacroiliac joints, it is called **Lateral Branch Neurotomy.**

Red flags – Refers to clinical features observed in the history-taking and physical examination (e.g. age over 50years, unexplained weight loss, previous history of cancer, no improvement in low back pain after a month, recent history of trauma and prolonged use of corticosteroid) that could indicate a serious spinal pathology and require further investigation.

Reflexology – Refers to a method of sequentially applying pressure to specific points on the hands and feet believed to correspond with other parts of organs of the body.

Relaxation massage – Refers to a combination of effleurage, petrissage, circular friction, vibration, rocking and jostling, and holding.

Roptrotherapy – Refers to a deep cross-friction massage technique with aid of a myofascial bar.

Sacral slope – Refers to the angle between the sacral plate and the horizontal plane.

Sacroiliitis – Refers to an inflammation of one or both sacroiliac joints.

Sagittal spinopelvic alignment – Refers to the sagittal curvature of the spine and pelvis that balance each other to maintain a stable posture and horizontal gaze.

Segmental surgical decompression – An indirect surgical decompression procedure performed by the distraction between two vertebrae, which lead to the opening of the neural foramen and increase in the epidural space. Such distraction can be performed through the disc space or using posterior instrumentation.

Sequestrectomy – Refers to conservative removal of the offending disc fragment alone.

Sciatica – Refers to pain radiating down the leg below the knee in the distribution of the sciatic nerve, suggesting nerve root compromise due to mechanical pressure or inflammation.

Shockwave therapy – A modality that involves directing bursts of high-pressure and high-amplitude soundwaves at the affected area to promote healing of soft tissue structures.

Shoe insoles – An orthotic applied inside the shoe to make it more comfortable, to provide added support or modify a person's balance.

Shoe lifts – An orthotic applied on the shoe to correct a dysfunction that results from limb length differences or decreased flexibility.

Shortwave diathermy – Refers to a deep heating modality that produces heat by conversion of electromagnetic energy to thermal energy.

SLR (Straight Leg Raising) test – Positive if with posterior pain below the knee with 30 and 70 degrees of straight leg raising while patient is lying back.

Slump test – A test whose aim is to reproduce the subject's symptoms and then be able to alter the symptoms by releasing a component distant from the site of pain. Components: Thoracic and cervical extension, knee extension (pseudo-SLR), foot dorsiflexion, release of cervical flexion (to determine symptom response).

Soft tissue manipulation – Refers to a form of manual therapy applied on soft tissues with the goal of breaking adhesions.

Spa therapy – Refers to several interventions, including mineral water bathing (usually with heated water) given together with other procedures such as massage and exercise, typically at a spa resort.

Spinal decompressive device – an equipment such as a table or a motorized device used for non-surgical spinal decompression where the principles of spinal traction (stretching of the spine) is applied to provide back or leg pain relief.

Spinal fusion surgery – Refers to a procedure to remove damaged disc tissue and fuse the bones together, using specialized hardware to reinforce stability. There are different approaches used to gain access to the spine (i.e. Anterior Interbody Lumbar Fusion, Posterior Interbody Lumbar Fusion, Transforaminal Lumbar Interbody Fusion, Extreme Lateral Interbody Fusion).

Spinal instability – Refers to an abnormal response to applied loads and is characterized by movement of spinal segments beyond the normal.

Spinal manipulation – Refers to a passive, low-amplitude, high-velocity thrust technique performed to enhance joint mobility.

Spinal mobilization – Refers to passive, slow, and usually repeated motion of axial traction and/or rotation and/or translatory gliding with increasing amplitude in order to improve restricted articular mobility.

Spinal stenosis – Refers to narrowing of the spinal column that causes pressure on the spinal cord, or narrowing of the neural foramina.

Steroid – Refers to a general class of chemical substances that are structurally related to one another and share the same chemical skeleton (a tetracyclic cyclopenta[a]phenanthrene skeleton).

Structural massage – Refers to a combination of myofascial, neuromuscular and other soft-tissue techniques.

Subacute low back pain – Refers to low back pain with or without functional limitation lasting more than 4 weeks (1 month) but within 12 weeks (3 months).

Taping – Refers to the application of an adhesive, whether rigid, elastic or a specialized type of tape, to the skin to relieve pain, improve joint stability, prevent injury, and reduce recurrence of injury.

Tolerance – Refers to a decrease in sensitivity to a drug.

Traction – Refers to a technique used to stretch soft tissues and to separate joint surfaces or bone fragments by use of a pulling force of sufficient magnitude and duration while resisting movement of the body with an equal and opposite force. Traction may be classified into continuous/passive or intermittent/dynamic.

Transcutaneous Electrical Nerve Stimulation (TENS, TNS) – Refers to the procedure of applying controlled, low voltage electrical pulses to the nervous system by passing electricity through the skin via electrodes placed on the skin to modify pain perception.

Tubular discectomy – Refers to a discectomy procedure in which a tubular retractor is used to access the herniation. It involves making a smaller incision than with a traditional open microdiscectomy procedure and involves a direct visualization of the disc and/or nerve roots by the naked eye and/or microscope/loupe magnification.

Ultrasound – Refers to a deep heating modality that involves the use of high-frequency acoustic energy to produce thermal and non-thermal effects.

Vertebroplasty – Refers to a minimally invasive treatment option designed to help reduce or eliminate pain caused by collapsed vertebra. With this procedure, low viscosity cement is injected directly into the collapsed vertebral body under high pressure, with the goal of stabilizing the fracture and relieving the associated pain (caused by spinal bones rubbing together). It can also help prevent further collapse of the vertebra and thus helps prevent further deformity (such as spine curvature and/or loss of height).

Viniyoga – Refers to an approach to Yoga that adapts the various means and methods of practice to the unique condition, needs and interests of each individual - giving each practitioner the tools to individualize and actualize the process of self-discovery and personal transformation.

Wasserman test (**Wassermann-Boschi's maneuver**) – Used to evaluate higher roots (L1, L2 and L3), with the patient tested on prone position, the physician slowly extends the patient's hip. It is considered positive for high lumbar radiculopathy, when the patient reported pain in the corresponding dermatomes (accentuation of pain in the anterior thigh).

Yellow flags – Refers to indicators of psychosocial, workplace and other factors that increase the risk of developing persistent low back pain.

360^0 Fusion Surgery – A combination of Anterior Interbody Lumbar Fusion and a Posterior Interbody Lumbar Fusion.

1. Introduction

1.1 THE NEED FOR A GUIDELINE

Low back pain (LBP) remains one of the most common adult musculoskeletal conditions seen in a Rehabilitation Medicine Specialist's (Physiatrist) clinic. Apart from its frequency, the influence of LBP on afflicted individuals' functional activities presents a great amount of concern. It is believed to be the most common cause of decreased productivity among the working population. The persistent and/or recurrent nature of LBP carries with it the propensity to incur high costs of treatment, notwithstanding the need for immediate relief from pain and discomfort, to improve function and prevent disability. Given the presently struggling economic state of the Philippines, it is vital to properly manage the growing population of LBP patients, if only to prevent labor cost wastage on the part of employers and lost wages among workers. It is important for clinicians to remember that early return to work with sustained and significantly improved primary outcomes results from prompt skilled medical care and rational intervention.

The application of evidence to guide clinical practice is a global challenge for almost all health professionals (Grol & Grimshaw 2003) and even more so in developing countries such as the Philippines where scant resources and sometimes even out of date practices are still being delivered (Agarwal et al. 2008). In South East Asia, evidence-based healthcare practices are not well established, particularly in terms of understanding evidence-based practice (EBP), development of guidelines, or application of guidelines in making decisions regarding patient care (McDonald et al. 2010, Short et al. 2010). However, there have been some pioneering initiatives in this area by medical societies in the Philippines in recent years, such as the Philippine Rheumatological Association (Guidelines for gout, osteoarthritis and osteoporosis) and the Stroke society (Guidelines for stroke) (Li-Yu et al. 2011; Philippine Rheumatological Association 2008a,b; Stroke Society of the Philippines 2010).

To practice in an evidence-based manner requires a clear understanding of EBP concepts, an ability to apply the concepts in practice, and a commitment to lifelong learning, all of which are still slowly in progress in the Philippines (Dizon et al. 2012). In educational institutions in the Philippines, obstacles to evidence-based learning is being addressed by practical solutions such as: conducting small group, problem-based learning activities; providing critical appraisal workshops for diagnosis and treatment; and increasing role models of evidence-based medicine practitioners (Dans and Dans, 2005). In terms of adherence to evidence-based practice by clinicians in the country, present observations are inconsistent, especially regarding conformance to current Clinical Practice Guidelines (CPG). An example of this would be improved adherence to the CPG on the management of ischemic stroke in young (Espeleta et al 2011), in contrast to poor adherence to the CPG on antimicrobial prophylaxis for elective surgical procedures (Matti et al, 2002). Nevertheless, it is refreshing to see the gradually growing attention and importance being given to obtaining relevant systematic reviews, and developing of evidence-based clinical

practice guidelines in developing countries including the Philippines (Garner et al, 1998). Unfortunately, there still are currently many health practices in Asia and the Philippines that are not based on current best research evidence, which may be due to limited resources (financial and intellectual), low priority being given to health research initiatives and a lack of evidence-based training and skills for clinicians (Chinnock et al 2005, Agarwal et al 2008, Dizon et al, 2012, McDonald et al. 2010). With the increasing prevalence of musculoskeletal conditions such as low back pain, it is crucial for patients to be provided with the best preventive and rehabilitative management. Therefore there is a need for locally applicable clinical guidelines to underpin evidence-based practice in the Philippines.

The Philippine Academy of Rehabilitation Medicine has developed clinical practice guidelines on stroke rehabilitation (2012), low back pain (2012), neck pain (2014), shoulder pain (2014) and hip osteoarthritis (2015), using the approach of contextualizing relevant Western guidelines rather than de novo synthesis (Gonzalez-Suarez et al. 2011). These guidelines are freely available on the PARM website (http://parm.com.ph/clinical-practice-guidelines/). The stroke rehabilitation and low back pain CPGs have since been the subject of nation-wide baseline audit and implementation activity [Gonzalez-Suarez et al, 2013; Gonzalez-Suarez et al, 2015), and have been endorsed by the International Society of Physical and Rehabilitation Medicine (ISPRM) which provided the members' recommendations for best practice in the field of rehabilitation medicine. The low back pain guideline has likewise been submitted to the Philippine Health Insurance Corporation (PHIC), and now serves as the basis for reimbursement of fees for the management of low back pain which includes rehabilitation consultation, physical therapy treatments, non-surgical interventions such as acupuncture and epidural steroid injections; and diagnostic procedures such as spine X-ray, magnetic resonance imaging and electromyography.

It is important for clinical practice guidelines to be regularly updated with current literature in order to remain relevant. In 2015, PARM developed a novel standard approach for updating CPGs, dovetailing with its writing guide which underpinned its foundational work in contextualizing its earlier released guidelines (Gambito et al, 2015). This system was developed based on the criteria reported by Johnston et al. (2003) and then modified to incorporate wording from the foundational PARM writing guide. This revised edition of the PARM CPG on low back pain diagnosis and management was developed using this updating process.

1.2 CLINICAL GUIDELINES SUPPORTING EVIDENCE-BASED PRACTICE

"Clinical practice guidelines are systematically developed statements to assist practitioners and patient decisions about appropriate health care for specific clinical circumstances (Field & Lohr 1992)". The key components of a high-quality and trustworthy guideline include the following: a diverse and relevant guideline development group composition; a unanimous decision-making process; clearly-stated objectives and scope; explicitly-described methodology; use of high-quality systematic reviews for evidence analysis; statements of clear and evidence-based recommendations; the use of a rating

system to link qualities of evidence to the strengths of recommendations; full disclosure of conflicts of interest, financial support and sponsoring organizations; external stakeholder review prior to publication; and declaration of an anticipated review date (Qaseem et al 2012).

Over the last 20 years, well-credentialed guideline development groups have set international standards for guideline construction (e.g. Scottish Intercollegiate Guidelines Network (SIGN), New Zealand Guidelines Group (NZGG), National Health and Medical Research Council, Australia (NHMRC), UK NHS National Institute for Clinical Excellence (NICE). These groups provide clinicians, policy-makers and clinicians with ready access to high-quality clinical guidelines on a range of topics. However, despite international investment in guideline development, there remains a lack of detail in how guidelines should be developed, the evidence reported, and recommendations worded (Turner et al. 2008). Moreover, there is inconsistent nomenclature for such documents, with terms such as guidelines, recommendations, care pathways and protocols having different meanings in different health care and cultural settings (Kumar et al. 2010).

The GLIA group (GuideLine Implementability Appraisal) (Shiffman et al. 2005) provides advice on wording guideline recommendations to reflect the strength of the underpinning evidence, and to encourage implementation of best-evidence into practice. The ADAPTE group (from Canada and Europe) provides a guideline adaptation process to layer existing evidence underpinning existing recommendations with new literature (ADAPTE Collaboration 2007). Critical appraisal tools such as AGREE (Appraisal of Guidelines Research and Evaluation) provide criteria to assess the independence of guideline developers, the clarity of guideline purpose, its scope and end-users, the transparency of clinical questions, and how the literature was searched, appraised, extracted and synthesized, how recommendations were worded, and guidelines revised (AGREE 2010).

There is no widely-accepted approach to presenting or reporting the strength of the body of evidence underpinning guideline recommendations. Approaches include providing summaries of the evidence, reporting the evidence hierarchy and/ or methodological quality, providing reference lists, or a considered judgment of the strength of the body of evidence using a ranking (letter or number). The GRADE group (Guyatt et al. 2010) and Australia's National Health and Medical Research Council (NHMRC) FORM approach (Hillier et al. 2011) provide suggestions as to how to assess the strength of the body of evidence for guideline recommendations.

1.2.1 GETTING GUIDELINES INTO PRACTICE

There is increasing research regarding the importance of guideline implementation, separate to the guideline-writing process. This research highlights that no matter how well a guideline is constructed, it will not implement itself. Planned approaches are required to embed recommendations into widespread and sustainable practice, and to evaluate the effectiveness of the guideline, in changing practice and improving health outcomes. There is also a growing body of research on adapting guidelines from Western countries for other Western countries. For instance, the ADAPTE Collaboration provides a framework on how

to systematically adapt guidelines to specific cultural and organizational settings using three phases, nine modules and 24 steps (ADAPTE Collaboration 2007). However the ADAPTE framework has not been applied to resource-limited developing countries, with different healthcare systems, healthcare provider relationships and education, and patient need. It is for this reason that we propose our innovative, simple and practical approach to contextualize guidelines from developed countries, for use in the Philippines.

The production of these guidelines was based on the notion that ‘contextualization’ and ‘adaptation’ are not synonymous. Guideline writing involves semantics (ADAPTE Collaboration 2007, Kumar et al. 2010, Shiffman et al. 2005, Turner et al. 2008), where the best words are chosen to translate evidence into persuasive and adoptable clinical recommendations. The purpose behind our work was to ensure that existing high-quality recommendations could be readily adopted by Filipino healthcare providers by putting them into local contexts and demonstrating their relevance. Our contextualization process fills the gap between expected (evidence-based) practice and ‘usual’ Filipino practice, by providing PARM Endorsements and PARM Context Points that should assist Filipino healthcare providers to understand what is currently the best available evidence, and to do the best they can, with local resources in their local environment, to put evidence into practice. Thus there was no intent to adapt existing guideline recommendations by rewording, revision or updating the evidence, as this process would not have achieved our purpose. There was no local expertise or even the will to do this, and we had limited resources and time. There was a far more urgent need to embed existing evidence widely to educate healthcare providers about evidence-based guidelines, improve local practices and make the best of available resources. Thus our intention in contextualizing existing recommendations was to make it simple for Filipino healthcare providers who knew little about evidence-based practice, to provide the best possible healthcare, with minimum training and least impost.

1.3 CLINICAL CARE PATHWAY IN LOW BACK PAIN

The PARM low back pain guideline developers formulated this care pathway (Figure 1) to depict the relevant procedures and processes typically encountered by patients with low back pain. This flowchart served as a guide in focused selection of pertinent recommendations synthesized and contextualized in this guideline.

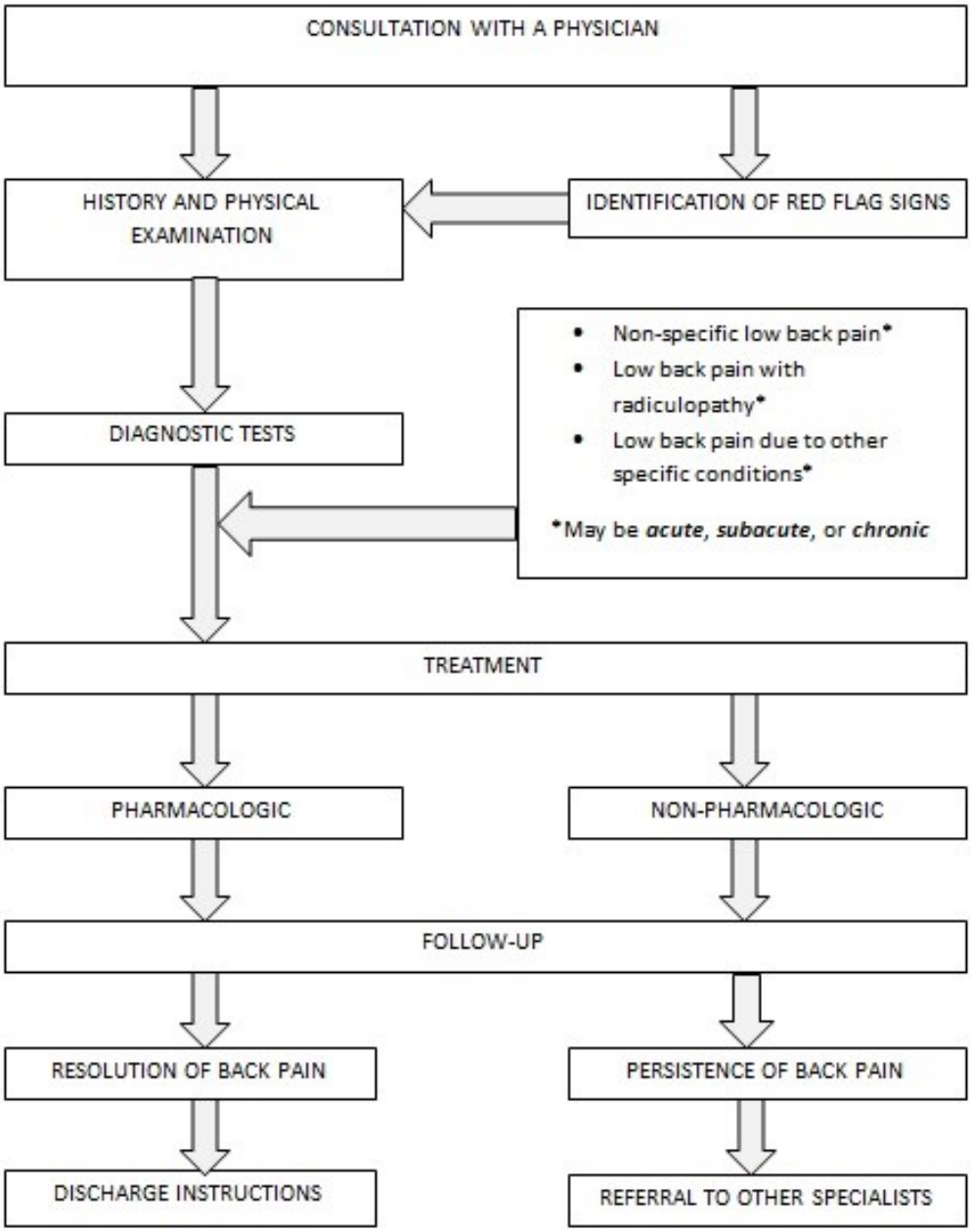


Figure 1. Example of a typical patient journey involving the evaluation and treatment of low back pain

2. Methodology

2.1 PURPOSE AND SCOPE

The team which prepared this document, comprised of Rehabilitation Medicine Specialists (Physiatrists), aimed to establish evidence-based guidelines to guide medical practitioners in clinical decision making and apprise them of current best standard of care in treating their patients who are suffering from low back pain.

This updated guideline encompasses recommendations for assessment, administration of various treatment modalities, and criteria for referral to other specialists. The patient population are adults, whether male or female, experiencing low back pain in any of the three temporal phases (acute, sub-acute, chronic).

The health questions addressed by this guideline include:

- What does current best evidence recommend in the evaluation (history, physical assessment, diagnostic tests) of patients with low back pain?
- What does current best evidence recommend in the pharmacological management of patients with low back pain?
- What does current best evidence recommend in the non-invasive treatment (e.g. physical agents, modalities, lumbar traction and supports, spinal manipulation and mobilization) of patients with low back pain?
- What does current best evidence recommend in the invasive management of patients with low back pain?

This guideline was therefore formulated in order to:

1. Identify appropriate assessment approaches for low back pain;

2. Determine rational pharmacologic and non-pharmacologic treatment strategies for low back pain based on current evidence, aimed at improving primary outcomes and reducing disability, and

3. Establish criteria for referral to other specialists as necessary for further management and focused care.

End users: Physiatrists and other physicians handling patients with low back pain of varying duration.

2.2 GUIDELINE SEARCH PROCESS

The following electronic databases were searched for existing international clinical practice guidelines (CPGs): PubMed, Google Scholar, National Institute for Health and Clinical Excellence (NICE), Scottish Intercollegiate Guidelines Network (SIGN), National Health and Medical Research Center (NHMRC), New Zealand Guidelines Group (NZGG), National Guidelines Clearinghouse (NGC). Clinical Guidelines, Practice Guidelines, low back pain, acute/subacute/chronic low back pain, and rehabilitation.

Inclusion criteria for the selected CPGs were:

1. Documents available online and in full text;
2. Published in the English language; and
3. Publication date from 2012-2017;

Exclusion criteria were:

1. CPGs without explicit methodology described;
2. CPGs based on consensus process;
3. CPGs with recommendations not overtly linked to underlying evidence
4. CPGs who denied permission after request for inclusion via email

2.3 CRITICAL APPRAISAL

Selected CPGs which met the inclusion criteria were methodologically assessed using the International Center for Allied Health Evidence (iCAHE) Guideline Appraisal Checklist. This tool is composed of 6 categories (with a total of 14 items) namely: availability (3 items), dates (3 items), underlying evidence (4 items), guideline developers (2 items), guideline purpose/users (1 item) and ease of use (1 item) (Table 1). CPGs with scores of 10 or higher were eligible for inclusion. Only guidelines which provided a summary of their own recommendations were included in this project.

Table 1. iCAHE critical appraisal tool for clinical guidelines.

1. Availability
Is the guideline readily available in full text?
Does the guideline provide a complete reference list?
Does the guideline provide a summary of its recommendations?
2. Date
Is there a date of completion available?
Does the guideline provide an anticipated review date?
Does the guideline provide dates for when literature was included?
3. Underlying Evidence
Does the guideline provide an outline of the strategy they used to find underlying evidence?
Does the guideline use a hierarchy to rank the quality of the underlying evidence?
Does the guideline appraise the quality of the evidence which underpins its recommendations?
Does the guideline link the hierarchy and quality of underlying evidence to each recommendation?
4. Guideline Developers
Are the developers of the guideline clearly stated?
Does the qualifications and expertise of the guideline developer(s) link with the purpose of the guideline and its end users?
5. Guideline purpose and users Are the purpose and target users of the guideline stated?
6. Ease of use Is the guideline readable and easy to navigate?
TOTAL SCORE

2.4 EXTRACTION OF RELEVANT DATA FOR CARE PATHWAY

The following data or recommendations were extracted from each guideline:

a. History, physical examination and diagnostic evaluation tools;

b. Pharmacological treatment options;

c. Conservative (non-pharmacological) management;

d. Invasive management;

e. Surgical management, and

f. Referral to other specialists and instructions for follow-up.

2.5 CONTEXTUALIZATION

PARM applied the fourth and fifth elements of the NHMRC FORM tool (Hillier et al. 2011) to assess the generalizability and applicability of the included recommendations to Filipino settings. There was no consideration of the first three FORM elements of evidence strength (evidence-base, consistency and clinical impact) for any included guideline, as to do so would have violated the PARM contextualization process. Moreover, the PARM group did not assign an evidence level (A-D) to the generalizability and applicability of any PARM endorsement, although this grading is the basis of the FORM guide for de novo guideline development (Hillier et al. 2011). Rather PARM focused on discussion of generalizability and applicability of summarized recommendations, to determine whether the PARM Endorsement was sufficient to guide practice decisions, or whether PARM Context Points were also required to contextualize the endorsed recommendation(s) within the patient journey. Where there was confusion in interpreting recommendations to the Filipino patient journey, or where the included guideline recommendations were contradictory, the group went back to the original references for clarification. If required, the level of the PARM endorsement was debated and consensus achieved, with a final decision from the working group chair in the absence of consensus.

To assist in standardizing the guideline contextualization process, a PARM writing guide was established (see Box 1). This guide establishes a uniform framework for summarizing differently-worded recommendations and differently-reported strengths of the body of evidence for recommendations extracted from the included guidelines that were relevant to a particular situation in the Filipino patient journey. The Guide is to be used in the event that there are:

- more than one relevant recommendation extracted from the relevant guidelines, which addresses a particular aspect of the Filipino patient journey, and/or
- different methods of reporting the underpinning strength of the body of evidence of the relevant recommendations from the included guidelines.

Box 1. PARM standard writing guide.

Key:

High quality evidence can be variously described in the included guidelines, as Levels I or II, A or B.

Moderate quality evidence can be variously described in the included guidelines as Levels II or III, B or C.

Low quality evidence can be variously described in the included guidelines as Levels III or IV, C or D.

Key:

The volume of literature underpinning the recommendations was classified as low volume (3 references or less), moderate volume (4-7 references) or high volume (8+ references). Where a recommendation in the included guidelines was supported only by Good Practice Points (expert opinion in the absence of evidence, or inconsistent evidence), these were noted in the summary table as GPPs, and not given a level of evidence

Each relevant recommendation from each included guideline was assessed using the following parameters: level of evidence, uniformity of thought, and volume, consistency and age of references. The level of evidence was rated as consistent or inconsistent based on the homogeneity of the evidence level assigned by the different clinical practice guidelines. Uniformity of thought was graded as uniform or variable based on similarity of the findings of the different clinical practice guidelines as to the effectiveness or ineffectiveness of a treatment modality and reliability of diagnostic procedure or physical examination. The volume of references was graded as low if the number of references was less than or equal to three, moderate if the number was between four and seven, and high if the volume was greater than eight. The age of the references was assessed as current if 50% of the papers cited were published later than 2012 and non-current if the majority of the papers were published prior to 2012.

All recommendations relevant to the patient journey were collated in a table for each element of the journey, along with the underpinning levels of evidence, and the guideline reference from which the recommendation had been extracted. Each included recommendation set was rated according to the Philippine Academy of Rehabilitation Medicine (PARM) guide for evidence rating, outlined in Table 2.

Table 2. PARM guide for summarizing the underpinning strength of the body of evidence of included recommendations.

Recommendation	Strength of the body of evidence
1. There is strong evidence	Consistent grades of high quality evidence with uniform thought, and at least a moderate volume of references to support the recommendation(s)
2. There is evidence	A mix of moderate- and high quality evidence with uniform thought and at least a low volume of references, OR A mix of high and low quality evidence with uniform thought, and high volume of references, OR High level evidence coupled with GPPs, and at least moderate volume of references, OR One Level I paper with at least moderate volume references
3. There is some evidence	Single level II (A) paper OR Inconsistent grades of high and low evidence with uniform thought and moderate volume references, OR Consistent grades of low level evidence with uniform thought and at least a moderate volume of references
4. There is conflicting evidence	A mix of levels of evidence with non-uniform thought, irrespective of the volume of references with or without GPPs
5. There is insufficient evidence	Low or inconsistent levels of evidence with low volume references with or without GPPs, OR Single paper with low level evidence
6. There is no evidence	Absence of evidence for any aspect of the patient journey

2.6 PARM ENDORSEMENTS

PARM determined uniform wording with which to endorse recommendations based on the level of evidence (outlined in Table 3). These descriptions ranged from clear statements about efficacy for those with strong evidence (PARM strongly endorses) to those with conflicting evidence of efficacy (PARM suggests).

Table 3. PARM guide for writing recommendations.

Recommendation statement	Description
1. PARM strongly endorses	When there is strong evidence as determined by the criteria in the table above
2. PARM endorses	When there is evidence as determined by the criteria in the table above
3. PARM recommends	When there is some evidence as determined by the criteria in the table above
4. PARM suggests	When there is insufficient or conflicting evidence as determined by the criteria in the table above
5. PARM does not endorse	There is no evidence as determined by the criteria in the table above

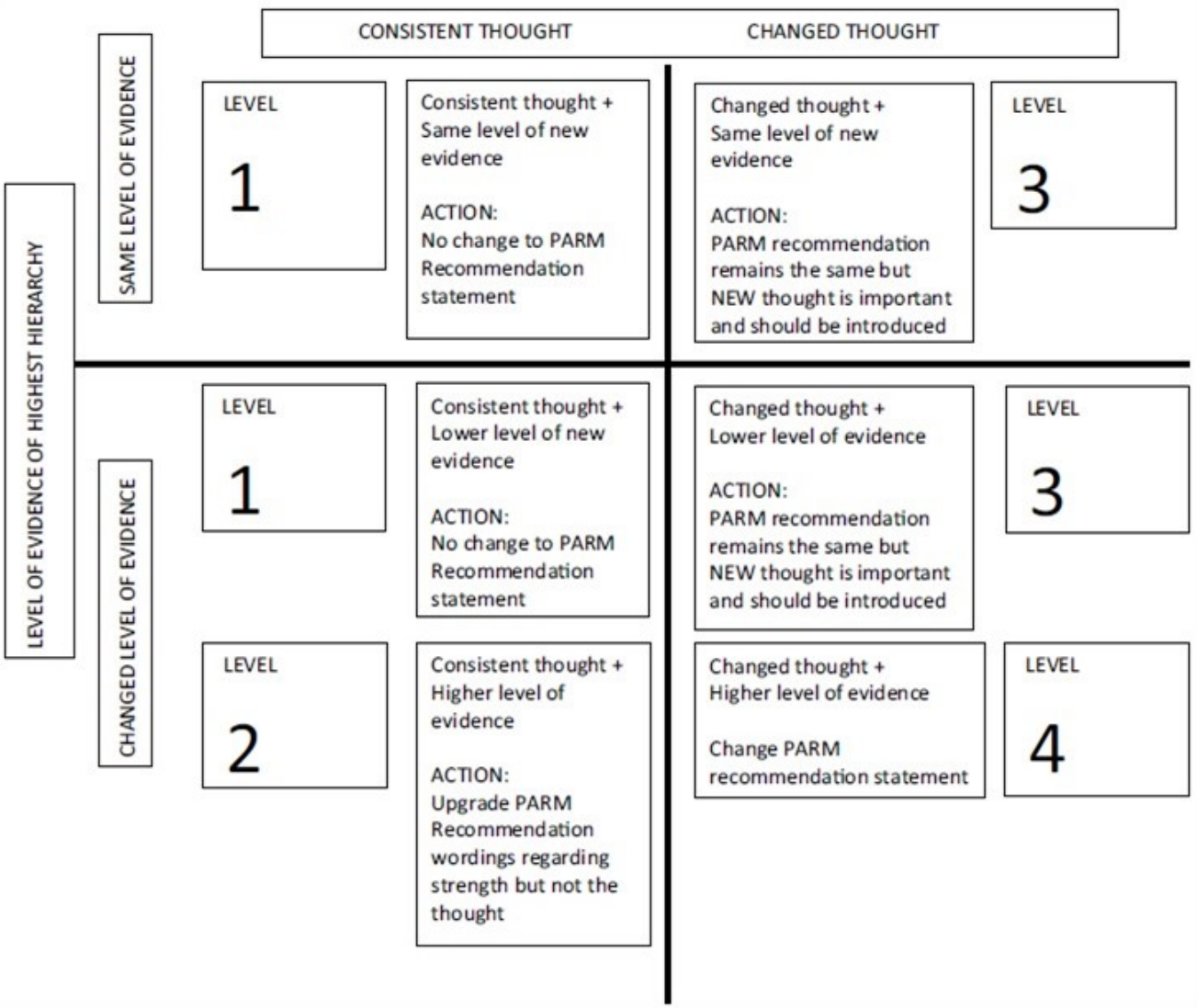
2.7 UPDATING PROCESS

The basis for PARM updating used the four levels proposed by Johnston and his colleagues (Johnston et al, 2003). The specifications of the PARM writing guide for strength of evidence base, uniformity of thought and volume of references were amalgamated with the Johnston et al guideline updating approach (Table 4 and Figure 2).

Table 4. PARM guide for updating recommendations.

LEVEL	DESCRIPTION
Level 1	The new evidence is consistent with the data used to inform the original practice guideline report. The recommendations in the original report remain unchanged
Level 2	The new evidence is consistent with the data used to inform the original practice guideline report. The strength of the recommendations in the original report has been modified to reflect this additional evidence
Level 3	The new evidence is inconsistent with the data used to inform the original practice guideline report. However, the strength of the new evidence does not alter the conclusions of the original document. Recommendations in the original report remain unchanged
Level 4	The new evidence is inconsistent with the data used to inform the original practice guideline report. The strength of the new evidence will alter the conclusions of the original document. Recommendations in the original report will change

Figure 2. PARM writing guide in revising recommendations



2.8 PARM CONTEXT POINTS

As was done in the previously-released guidelines, each set of recommendations along the patient journey, for which PARM wrote an endorsement statement, was then considered in terms of generalizability and applicability to the Filipino healthcare setting. Generalizability and applicability were addressed using the standard framework developed in writing the PARM Context Points. This framework outlined the elements that needed to be in place for minimum best-practice care to be provided equitably across the Philippines. Elements which addressed more advanced standard care were also considered. This aimed to provide guidance to clinicians wherever they may practice in the Philippines, regarding essential equipment, standards and resources, training and workforce, in order to provide evidence-based care.

The PARM Context Points considered aspects of the Donabedian (1988) quality framework (Structure, Process) in order to define the important elements of service delivery underpinning evidence-based care. This assisted PARM to take into account issues such as training of healthcare providers to comply with recommendations, availability of, and access to, trained healthcare providers across the Philippines, access to appropriate diagnostic and assessment processes, availability of resources and what to do when resources are unavailable, and alternative diagnostic or management approaches which could be adopted in the absence of capacity to provide guideline-recommended healthcare. This process of contextualizing recommendations to local conditions addressed the fourth pillar of evidence-based practice as discussed by Hoffmann et al (2010, Figure 1.1, p.4) (the other pillars being the research evidence, clinician reasoning and patient choice).

2.9 GUIDELINES

A total of eight guidelines were identified in the internet search which met the inclusion criteria. These were fitted to the patient journey, and all were retained as potentially useful.

After critical appraisal, the eight CPGs were deemed fit for inclusion in this project. These guidelines are the following:

1. Ottawa Panel evidence-based clinical practice guidelines on therapeutic massage for low back pain. (Brosseau et al, 2012);

2. Low Back Pain: Clinical Practice Guidelines Linked to the International Classification of Functioning, Disability, and Health from the Orthopaedic Section of the American Physical Therapy Association (Delitto et al, 2012);

3. Low back disorders. (American College of Occupational and Environmental Medicine (ACOEM), 2016);

4. Clinical guidelines for diagnosis and treatment of lumbar disc herniation with radiculopathy. North American Spine Society (NASS), 2012.

5. Diagnosis and treatment of adult isthmic spondylolisthesis. North American Spine Society (NASS), 2014.

6. Diagnosis and treatment of degenerative lumbar spondylolisthesis. North American Spine Society (NASS), 2014.

7. Noninvasive Treatments for Acute, Subacute, and Chronic Low Back Pain: A Clinical Practice Guideline From the American College of Physicians. (Qaseem et al, 2017).

8. Guideline for the evidence-informed primary care management of low back pain. (Toward Optimized Practice, 2015).

2.9.1 RESULTS

The eight included clinical practice guidelines were critically appraised using the iCAHE tool. The iCAHE scores of the guidelines, shown in Table 5, qualified them for use as reference guidelines in our project. Appendix 1 shows the full methodology of scores for each included CPG.

Table 5. iCAHE scores of the included clinical practice guidelines and the assigned tags used in the PARM low back pain guideline

CPG	YEAR	ICAHE SCORE	TAG
American College of Occupational and Environmental Medicine	2016	14	ACOEM 2016
American College of Physicians	2017	13	ACP 2017
American Physical Therapy Association	2012	14	APTA 2012
North American Spine Society (Lumbar Disc Herniation with Radiculopathy)	2012	14	NASS-RAD 2012
North American Spine Society (Degenerative Lumbar Spondylolisthesis)	2014	14	NASS-DLS 2014
North American Spine Society (Adult Isthmic Spondylolisthesis)	2014	14	NASS-AIS 2014
Ottawa Panel	2012	13	Ottawa 2012
Towards Optimized Practice	2015	13	TOP 2015

2.9.2 GUIDELINE CLASSIFICATION OF EVIDENCE STRENGTH

The tables below (Tables 6 to 11 inclusive) provide an outline of the levels of evidence and recommendation grades used by each of the clinical practice guidelines included.

Table 6. ACOEM classification of evidence strengths. Taken from (Hegmann et al, 2016).

Evidence-based Recommendations		
Strongly Recommended	**A**	The intervention is strongly recommended for appropriate patients. The intervention improves important health and functional outcomes based on high quality evidence, and the Evidence-Based Practice Panel (EBPP) concludes that benefits substantially outweigh harms and costs.
Moderately Recommended	**B**	The intervention is recommended for appropriate patients. The intervention improves important health and functional outcomes based on moderate quality evidence that benefits substantially outweigh harms and costs.
Recommended	**C**	The intervention is recommended for appropriate patients. There is limited evidence that the intervention may improve important health and functional benefits.
Consensus* Recommended	**I**	The intervention is recommended for appropriate patients and has nominal costs and essentially no potential for harm.* The EBPP feels that the intervention constitutes best medical practice to

		acquire or provide information in order to best diagnose and treat a health condition and restore function in an expeditious manner. The EBPP believes based on the body of evidence, first principles, and/or collective experience that patients are best served by these practices, although the evidence is insufficient for an evidence-based recommendation.
Consensus* No Recommendation	**I**	The evidence is insufficient to recommend for or against routinely providing the intervention. The EBPP makes no recommendation. Evidence that the intervention is effective is lacking, of poor quality, or conflicting and the balance of benefits, harms, and costs cannot be determined.
Consensus* Not Recommended	**I**	The evidence is insufficient for an evidence-based recommendation. The intervention is not recommended for appropriate patients because of high costs/high potential for harm to the patient.
NOT Recommended	**C**	Recommendation against routinely providing the intervention. The EBPP found at least moderate evidence that harms and costs exceed benefits based on limited evidence.
Moderately NOT Recommended	**B**	Recommendation against routinely providing the intervention to eligible patients. The EBPP found at least moderate evidence that harms and costs outweigh benefits.
Strongly NOT Recommended	**A**	Strong recommendation against providing the intervention to eligible patients. The EBPP found high quality evidence that the intervention is ineffective, or that harms or costs outweigh benefits.

Strength of evidence	
A	Strong evidence-base: Two or more high-quality studies
B	Moderate evidence-base: At least one high-quality study or multiple moderate-quality studies relevant to the topic and the working population
C	Limited evidence-base: At least one study of moderate quality
I	Insufficient Evidence: Evidence is insufficient or irreconcilable

Table 7. APTA guideline classification of evidence strength. Taken from (Delitto et al, 2012).

Grades of recommendation		
A	Strong Evidence	A preponderance of level I and/or level II studies support the recommendation. This must include at least 1 level I study
B	Moderate Evidence	A single high-quality randomized controlled trial or a preponderance of level II studies support the recommendations
C	Weak Evidence	A single level II study or a preponderance of level III and IV studies including statements of consensus by content experts support the recommendation
D	Conflicting Evidence	Higher quality studies conducted on this topic disagree with respect to their conclusions. The recommendation is based on these conflicting studies
E	Theoretical/Foundational Evidence	A preponderance of animal or cadaver studies, from conceptual models/principles, or from basic sciences/bench research support this recommendation

F	Expert Opinion	Best evidence based on the clinical practice of the guidelines development team
Levels of evidence		
I	Evidence obtained from high-quality randomized controlled trials, prospective trials, or diagnostic studies	
II	Evidence obtained from lesser quality randomized controlled trials, prospective studies, prospective studies or diagnostic studies (e.g. improper randomization, no blinding, <80% follow-up)	
III	Case controlled studies or retrospective studies	
IV	Case series	
V	Expert opinion	

Table 8. ACP guideline classification of evidence strength. Taken from Qaseem et al, 2017.

Strength of Overall Evidence		
Good	Evidence includes consistent results from well-designed, well-conducted studies in representative populations that directly assess effects on health outcomes (at least two consistent, higher-quality trials).	
Fair	Evidence is sufficient to determine effects on health outcomes, but the strength of the evidence is limited by the number, quality, size, or consistency of included studies; generalizability to routine practice; or indirect nature of the evidence on health outcomes (at least one higher-quality trial of sufficient sample size; two or more higher-quality trials with some inconsistency; at least two consistent, lower-quality trials, or multiple consistent observational studies with no significant methodological flaws).	
Poor	Evidence is insufficient to assess effects on health outcomes because of limited number or power of studies, large and unexplained inconsistency between higher-quality trials, important flaws in trial design or conduct, gaps in the chain of evidence, or lack of information on important health outcomes.	
American College of Physicians Clinical Practice Guidelines Grading System		
Quality of Evidence	**Strength of Recommendation**	
	Benefits do or do not clearly outweigh risks	Benefits and risks and burdens are finely balanced
High	Strong	Weak
Moderate	Strong	Weak
Low	Strong	Weak
Insufficient evidence to determine net benefits or harms		

Table 9. NASS guideline classification of evidence strength. Taken from NASS, 2012.

Grade of Recommendation		Standard language	Levels of Evidence	
A	Good evidence for or against recommending intervention.	Recommended	Two or more consistent Level I studies	
B	Fair evidence for or against recommending intervention.	Suggested	One Level I study with additional supporting Level II or III studies	Two or more consistent Level II or III studies
C	Poor quality evidence for or against recommending intervention.	May be considered; is an option	One Level I, II or III study with supporting Level IV studies	Two or more consistent Level IV studies
I	Insufficient or conflicting evidence not allowing a recommendation for or against intervention.	Insufficient evidence to make recommendation for or against	A single Level I, II, III or IV study without other supporting evidence	More than one study with inconsistent findings*
*Note that in the presence of multiple consistent studies, and a single outlying, inconsistent study, the Grade of Recommendation will be based on the level of consistent studies.				

Table 10. Ottawa guideline classification of evidence strength. Taken from Brosseau et al, 2012.

Grade of recommendations		
A	Strongly recommended	RCT (single or meta-analysis)
B		CCT or observational (single of meta-analysis)
C+	Suggested use	RCT/CCT or observational (single or meta-analysis)
C	Neutral	Any study design
D	Neutral	Any study design
D+	Suggested no use	RC/CCT or observational (single or meta-analysis)
D-	Strongly not recommended	Well-designed RCT with >100 patients (if <100 patients becomes a Grade D)
Evidence source		
I	At least one randomized controlled study	
II	Non-randomized controlled study	

Table 11. TOP guideline classification of evidence strength. Taken from TOP, 2015.

Grade of Recommendations	
Do	The Guideline Development Group (GDG) accepted the original recommendation, which provided a prescriptive direction to perform the action or used the term “effective” to describe it. The GDG supplemented a recommendation or created a new one, based on their collective professional opinion, which supported the action.
Not recommended	The GDG accepted the original recommendation, which provided a prescriptive direction “not” to perform the action; used the term “ineffective” to describe it; or stated that the evidence does “not support” it. • The GDG supplemented a recommendation or created a new one, based on their collective professional opinion, which did not support the action.
Do not know	The GDG accepted the original recommendation, which did not recommend for or against the action or stated that there was “no evidence”, “insufficient or conflicting evidence”, or “no good evidence” to support its use. • The GDG supplemented a recommendation or created a new one, based on their collective professional opinion, which was equivocal with respect to supporting the action.
Evidence Source	
SR	Systematic review
RCT	Randomized control trial
NRT	Non-randomized trial
G	Guideline
EO	Expert opinion

Table 12. A summary of the low and high evidence ratings for each of the included clinical guideline practices.

Guideline	**Low evidence**	**High evidence**
ACOEM	C, I	A, B
ACP	Low evidence Insufficient evidence	High evidence Moderate evidence (specify if strong or weak)
APTA	Grade C, D, E, F III, IV, V	Grade A, B I, II
NASS	B (Level II or III), C (Level IV or V), I	A (Level I)
Ottawa	C, D, D+, D-, II	A, B, C+, I
TOP	Do or Do not – NRCS, EO (including GDC GUC), CS Do not know -SR	Do or Do not – SR, RCT, G

2.10 FILLING THE GAPS

During the discussions among the developers, some potential obstacles or deficiencies to the proper implementation of the guidelines were determined. Primarily, the health care delivery system in the Philippines is usually centered in the urban areas in different provinces. Rehabilitation Medicine Centers in these cities are generally more equipped, especially in terms of diagnostic facility, highly-specialized therapeutic interventions and subspecialty care. While the availability of more specialized interventional methods is scarce in the rural areas, owing to lack of equipment or experience, it is imperative that all physiotherapy centers have the basic modalities for pain relief, such as thermal agents, traction machines and electrotherapeutic devices. Likewise, emphasis is given to the role of meticulous clinical assessment and diagnostic evaluation of patients for prompt and appropriate classification of hip pain etiology. The role of therapeutic exercises and continuation of usual activity are also reported as important components in the management of low back pain. If the need arises for specialized diagnostic modalities, invasive treatment or surgical intervention (which are currently only available in the urban areas), every physiatrist must know when it is clinically-sound to have the necessary equipment installed, or when to refer to suitable specialists in order to save patients time and financial resources which would otherwise be spent on unnecessary travel to the city.

Also, it has been observed that the knowledge on evidence based practice (EBP) of low back pain among PARM members may still be improved. They must therefore be well-versed with the principles of EBP to ensure successful implementation of the CPGs. It is suggested that all PARM members acquire appropriate training on the concepts and application of EBP through seminars and workshops.

2.11 PUBLIC CONSULTATION

Public consultation of the draft document was undertaken from December 2017 to February 2018.

The manuscript was disseminated electronically to members of the Philippine Academy of Rehabilitation Medicine for evaluation and review. Different training institutions of rehabilitation medicine, namely Philippine General Hospital, Philippine Orthopedic Center, University of Santo Tomas Hospital, Veterans Memorial Medical Center, St. Luke's Medical Center, and Ospital ng Makati were made aware of the said document, in order to facilitate ease of internal consultation. Feedback was made through an online survey platform (SurveyMonkey). Reponses were collated and recorded.

After necessary modifications were made to the document following internal consultation, copies of the manuscript and a feedback form are to be circulated to different professional organizations such as the Philippine Medical Academy (PMA), Philippine College of Physicians (PCP), Philippine Rheumatology Association (PRA), Philippine Orthopedic Association (POA), Philippine Neurological Assocation (PNA), Philippine Academy of Family Physicians (PAFP), Philippine College of Occupational Medicine (PCOM), and Philippine Physical Therapy Association (PPTA). The above organizations were given the opportunity to review the PARM CPG for a period of two

months, and make comments on the manuscript and issues to do with uptake and application. Modifications to the document were to be made according to the relevant comments and suggestions received by December 2018.

While this guideline has undergone extensive internal and external peer review, it was not able to incorporate the views and preferences of patients with low back pain, as their direct involvement was not facilitated in this CPG development. Patient involvement will therefore be highly considered in future revisions and editions of this guideline.

2.12 IMPLEMENTATION PLANS

Following public consultation, modification and finalization of the clinical practice guidelines, the guidelines will be disseminated to personnel who are involved in the rehabilitation of patients with low back pain. Strategies were identified by PARM CPG developers in order for the guidelines to be implemented effectively at the local level.

Strategies for the dissemination and implementation of the revised low back pain guideline in the Philippine medical system are the following:

1. Endorsement by:

- Relevant professional associations: Philippine Medical Academy (PMA), Philippine Academy of Rehabilitation Medicine (PARM), Philippine College of Physicians (PCP), Philippine Rheumatology Association (PRA), Philippine Orthopedic Association (POA), Philippine Neurological Association (PNA), Philippine Academy of Family Physicians (PAFP), Philippine College of Occupational Medicine (PCOM), Philippine Physical Therapy Association (PPTA)

- Key training institutions: UP - Philippine General Hospital, Philippine Orthopedic Center, University of Santo Tomas Hospital, Veterans Memorial Medical Center, St. Luke's Medical Center, and Ospital ng Makati.

- Drug companies (if relevant)

2. A clear outlined description of the process undertaken by PARM should be provided, using posters, webpages and short interviews

3. Public awareness: Media release prepared by PARM and newspaper articles

4. Professional awareness

- Conference presentations: PARM Annual Convention in February 2018 and a future Philippine Medical Association (PMA) Convention

- A minimum of one peer-reviewed publication (as well as one publication outlining the methodology), sent to BMC Research Methodology. The title of article is "Updating

Contextualized Clinical Practice Guidelines on Stroke Rehabilitation and Low Back Pain Management Using a Novel Assessment Framework That Standardizes Decision" (Gambito et al, 2015).

- Short articles in professional newsletters and magazines
- Freely-accessible website providing details on the CPG and on Evidence-Based Practice (EBP) in general, which can be accessed by health professionals and target end-users.
- Short forms of the guideline developed, for dissemination to all physiatrists and relevant allied health professionals (laminated form for desktop use, or as wall charts, etc.) and consumer guides

5. Professional champions: Key professional people from PARM to promote the guidelines widely

6. Education: Education sessions provided widely in PARM and for other health provider groups on Evidence Based Practice (EBP), guideline development (in general), measurement of health outcomes and the future of EBP in the Philippines, not only to support this guideline, but other future guideline developments.

Guideline implementation and adherence will be assessed periodically (every 2 years) using an assessment checklist (Appendix 2) disseminated to end-users. Responses will be collated and recorded, and will be considered in future revisions of this CPG.

2.13 GUIDELINE DEVELOPMENT TIMELINE

March 2017 – December 2017 (Guideline Development Phase)

December 2017 – February 2018 (Guideline Internal Consultation Phase)

September 2018 – November 2018 (Guideline External Consultation Phase)

December 2018 – Release of Official Guideline

2.14 EXPECTED DATE OF REVISION

A revised edition of this CPG is expected to be composed on 2022 (five years from the development phase of this current guideline), using the PARM novel approach for updating CPGs developed and published in 2015 (Gambito et al, 2015), which was also the methodological tool used in this present CPG revision.

2.15 GUIDELINE DEVELOPERS

PARM Low Back Pain CPG Working Committee:

Designation	Member	Affiliation	Location
Project Leader	Carolina M. Valdecañas, MD	St. Luke's Medical Center	Quezon City
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3. Evaluation and Diagnosis of Low Back Pain

Low back pain (acute and chronic) is a prevalent condition, and most people will be affected by back pain at some time in their lives. It is a particular challenge because it is so common, demanding of medical resources and a major cause of physical, psychological and social disability. A complete and focused medical history and physical examination is important in the evaluation of low back pain to determine the cause of the symptoms. Patient's responses and findings may raise suspicion of serious underlying condition. In the absence of signs of dangerous conditions, there is no need for special studies since most of patients will recover spontaneously. However, imaging of the lumbar spine and other diagnostic exams should be used in the evaluation of low back pain if specific pathology needs to be confirmed after a thorough history and physical examination.

3.1 EVALUATION

3.1.1 MEDICAL HISTORY

Table 13. Medical history-taking for low back pain patients.

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is strong evidence that performing a full patient evaluation (history- taking, physical and neurologic examination, functional status and psychosocial risk factor assessment) and conducting diagnostic triage is important in the evaluation and diagnosis of low back pain.	TOP	DO - SR	ICSI 2006 Van Tulder et al, 2004
	CLIP	High	Koes et al, 2001
	ITALIAN	A	Negrini et al, 2006
	ICSI	M	Bigos et al, 1994
	APS-ACP	Moderate	Chou et al, 2007 Deyo et al, 1992
Consistent level of evidence – High volume – Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is evidence that the first qualified practitioner with the ability to do a full assessment (i.e., history, physical and neurological red flags, and psychosocial yellow flags) should assess the patient and undertake diagnostic triage. If serious pathology is excluded, manage as non-specific low back pain	TOP	SR	ICSI 2006 ICSI 2008 Goertz et al, 2012 Van Tulder et al, 2004
Moderate volume – Non-current			
ADAPTE I: The recommendation remained unchanged but the strength of evidence changed (decreased) from the 2011 PARM guideline.			

PARM strongly endorses a full patient evaluation by a qualified practitioner and undertake a diagnostic triage for the evaluation and diagnosis of low back pain.

2011 Recommendation Statement			
There is insufficient evidence that patients presenting with red flag signs (see Appendix 3) indicate a serious pathology and require referral for immediate evaluation and treatment.	TOP	DO - EO	ICSI 2006
	CLIP	Moderate	ICSI 2006 Koes et al, 2001
	ITALIAN	B	Koes et al, 2001
Consistent level of evidence – Low volume – Non-current – Uniform thought			
2017: No new evidence			
PARM suggests immediate evaluation and treatment of low back pain patients presenting with red flag signs indicating a serious pathology			

2011 Recommendation Statement			
There is evidence that identifying yellow flag signs or psychosocial risk factors (see Appendix 3) can contribute to better management of low back pain.	TOP	DO - SR	ICSI 2006 Van Tulder et al, 2004
	ICSI	R, B, C	Bigos et al, 1991 Chan et al, 1993 Deyo et al, 1992 Fritz et al, 2003 Kroenke et al, 2003 New Zealand Guideline Group 2004 Spitzer, 1987
	APS-ACP	Moderate	Fayad et al, 2004 Pengel et al, 2003 Pincus et al, 2002
Inconsistent level of evidence – High volume – Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is evidence to assess for psychosocial risk factors (yellow flags) and conduct a detailed review if there is no improvement.	TOP	G	ICSI 2008 ICSI 2010 Goertz et al, 2012 van Tulder et al, 2004
Moderate volume – Non-current			
ADAPTE I: The recommendation remained unchanged but the strength of evidence changed (decreased) from the 2011 PARM guideline. PARM endorses to assess for psychosocial risk factors (yellow flags) and conduct a detailed review if there is no improvement.			

2011 Recommendation Statement			
There is strong evidence that a comprehensive re-evaluation, including a general assessment should be done for patients not improving after four - six weeks	ICSI	M	Chou et al, 2007
	TOP	DO - G	ICSI 2006 Van Tulder et al, 2004
	CLIP	Moderate	Davidson & Keating et al, 2002
	APS	Moderate	Hestbaek et al, 2003 Pengel et al, 2003
Consistent level of evidence – Moderate volume – Non-Current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is insufficient evidence that re-evaluation should be done after one to two weeks of severe pain or impairment in function, and to start a formal delayed-recovery assessment and consider intervention.	TOP	G	ICSI 2006, 2008 Goertz et al, 2012 Van Tulder et al, 2004
Low volume – Non-current			
ADAPTE I. The recommendation is unchanged but the strength of evidence changed (decreased) from the 2011 PARM.Guideline. PARM strongly endorses a comprehensive re-evaluation, including a general assessment in patients who are not improving in four to six weeks of severe pain or impairment in function.			

2017 Recommendation Statement			
There is insufficient evidence that obtaining an accurate history and physical examination is important for the diagnosis and treatment of patients with degenerative lumbar spondylolisthesis.	NASS - DLS	EO	WGCS 2014
Low volume – Current			
PARM suggests obtaining an accurate history and physical examination for the diagnosis and treatment of patients with degenerative lumbar spondylolisthesis.			

2017 Recommendation Statement			
There is some evidence to consider a diagnosis of Ankylosing Spondylitis particularly in younger adults who, in the absence of injury, present with a history of needing to get out of bed at night and reduced side bending	TOP	SR	Chou et al, 2007
Low Volume – Non-current			

PARM recommends that a diagnosis of Ankylosing Spondylitis be considered particularly in younger adults who, in the absence of injury, present with a history of needing to get out of bed at night and reduced side bending.

3.1.2 PHYSICAL EXAMINATION

3.1.2.1 NON-SPECIFIC LOW BACK PAIN

Table 14. Physical examination for non-specific low back pain

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is strong evidence that performing a full patient physical and neurologic examination, functional status and psychosocial risk factor assessment are important in the management of low back pain.	TOP	DO - SR	ICSI 2006 Van Tulder et al, 2004
	CLIP	High	ICSI 2006 Koes et al, 2001
	ITALIAN	A	Koes et al, 2001
	ICSI	M	Chou et al, 2007
	APS	Moderate	Deyo et al, 1992 Bigos et al, 1994
Consistent level of evidence – Moderate volume – Non-current – Uniform thought			
2017: No new evidence			
PARM strongly endorses performing a full physical and neurologic examination, functional status and psychosocial risk factor assessment for patients with low back pain.			

2017 Recommendation Statement			
There is insufficient evidence that functional capacity evaluations (FCEs) are a recommended option for evaluation of disabling chronic LBP where the information may be helpful to attempt to objectify worker capability, function, motivation, and effort vis-à-vis either a specific job or general job requirements.	ACOEM	I	Gross et al, 2014 Lemstra et al, 2004 Oesch et al, 2006 Brouwer et al, 2003 Cheng et al, 2010
Moderate volume- Non-current			
PARM suggests that FCEs is an option for evaluation of disabling chronic LBP where the information may be helpful to attempt to objectify worker capability, function, motivation, and effort vis-à-vis either a specific job or general job requirements.			

2017 Recommendation Statement			
There is insufficient evidence for or against the use of functional capacity evaluations for chronic stable low back pain or after completion of post-operative recovery among those able to return to work	ACOEM	I	Gross et al, 2014 Lemstra et al, 2004 Oesch et al, 2006 Brouwer et al, 2003 Cheng et al, 2010

Moderate volume- Non-current
PARM suggests the use of functional capacity evaluations for chronic stable low back pain or after completion of post-operative recovery among those able to return to work.

2017 Recommendation Statement			
There is insufficient evidence that functional capacity evaluations are not recommended for evaluation of acute low back pain, acute or subacute radicular symptoms, or post-surgical back pain problems within the first 12 weeks of the post-operative period.	ACOEM	I – Not recommended	Gross et al, 2014 Lemstra et al, 2004 Oesch et al, 2006 Brouwer et al, 2003 Cheng et al, 2010
Moderate volume- Non-current			
PARM does not endorse functional capacity evaluations for evaluation of acute low back pain, acute or subacute radicular symptoms, or post-surgical back pain problems within the first 12 weeks of the post-operative period.			

3.1.2.2 LOW BACK PAIN WITH RADICULOPATHY

Table 15. Physical Examination for low back pain with radiculopathy

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is some evidence that congruence of neurologic signs and symptoms increases sensibility and specificity of neurological exam.	ITALIAN	A	Negrini et al, 2006
Low Volume - Current			
2017: No new evidence			
PARM recommends considering congruence of neurologic signs and symptoms to increase sensibility and specificity of the neurological exam of a patient with low back pain.			

2011 Recommendation Statement			
There is some evidence that a positive straight leg raise (SLR) test (the best-studied physical exam maneuver) is sensitive but not specific while a crossed leg SLR is specific but not sensitive for patients with radiculopathy secondary to disc herniation.	ITALIAN	A	Negrini et al, 2006
Low volume – Current			
2017: No new evidence			

PARM recommends that a positive straight leg raise (SLR) test (the best- studied physical exam maneuver) is sensitive but not specific while a crossed leg SLR is specific but not sensitive for patients with radiculopathy secondary to disc herniation

2011 Recommendation Statement			
There is some evidence that pain distribution has good sensibility for patients with radiculopathy secondary to disc herniation.	ITALIAN	A	Negrini et al, 2006
Low volume – Current			
2017: No new evidence			
PARM recommends that pain distribution has good sensibility for patients with radiculopathy secondary to disc herniation.			

2011 Recommendation Statement			
There is some evidence that SLR in the elderly can be normal even if there is radicular damage.	ITALIAN	A	Negrini et al, 2006
Low volume - Current			
2017: No new evidence			
PARM recommends that SLR in the elderly can be normal even if there is radicular damage.			

2011 Recommendation Statement			
There is insufficient evidence that doing the slump test can diagnose or exclude lumbar disc herniations with nerve root compression in patients with severe clinical presentation of acute and sub- acute low back pain.	WORKCOVER SA	C	WorkCoversaSA, 2010
	ICSI	R, C	Butler et al, 2000 Supik & Broom et al, 1994
Consistent level of evidence – Low volume – Current – Uniform thought			
2017: No new evidence			
PARM suggests that doing the slump test can diagnose or exclude lumbar disc herniations with nerve root compression in patients with severe clinical presentation of acute and sub- acute low back pain.			

2011 Recommendation Statement			
There is insufficient evidence that among the range of active movement assessment techniques used, the provocative active side bend assessment, either alone or as part of a flexion-extension-rotation assessment, is the most reliable test to replicate symptoms.	WORKCOVER SA	C	WorkCoversaSA 2010
Low volume – Current			
2017: No new evidence			

PARM suggests that among the range of active movement assessment techniques used, the provocative active side bend assessment, either alone or as part of a flexion-extension-rotation assessment, is the most reliable test to replicate symptoms.

2011 Recommendation Statement			
There is insufficient evidence that a positive neural tension test (e.g., straight leg raise, slump, prone knee bend, femoral stretch) performed bilaterally is due to a nerve root or discogenic pathology.	ICSI	R, C	Butler et al, 2000 Supik & Broom et al, 1994
Consistent level of evidence – Low volume – Non-current – Uniform thought			
2017: No new evidence			
PARM suggests that a positive neural tension test (e.g., straight leg raise, slump, prone knee bend, femoral stretch) performed bilaterally is due to a nerve root or discogenic pathology.			

2011 Recommendation Statement			
There is some evidence that steppage due to complete L4 L5 damage requires immediate surgical evaluation	ITALIAN	A	Negrini et al, 2006
Low volume – Current			
2017: No new evidence			
PARM recommends that steppage due to complete L4 L5 damage requires immediate surgical evaluation			

2011 Recommendation Statement			
There is insufficient evidence that leg pain/pain below the knee increases the probability of radiculopathy	ITALIAN	B	Negrini et al, 2006
Low volume – Current			
2017: No new evidence			
PARM suggests that leg pain/pain below the knee increases the probability of radiculopathy			

2011 Recommendation Statement			
There is insufficient evidence that a positive Wassermann/SLR, a reduced or absent patellar reflex, a reduction in foot dorsiflexion and knee extension strength, and deterioration of medial foot sensibility are the result of an L4 sciatica.	ITALIAN	B	Negrini et al, 2006
Low Volume- Current			
2017: No new evidence			

PARM suggests that a positive Wassermann/SLR, a reduced or absent patellar reflex, a reduction in foot dorsiflexion and knee extension strength, and deterioration of medial foot sensibility are the result of an L4 sciatica.

2011 Recommendation Statement			
There is insufficient evidence that a positive SLR, present Achilles reflex, reduced toe dorsal flexion strength and deterioration of back foot sensibility are the result of L5 sciatica.	ITALIAN	B	Negrini et al, 2006
Low Volume - Current			
2017: No new evidence			
PARM suggests that a positive SLR, present Achilles reflex, reduced toe dorsal flexion strength and deterioration of back foot sensibility are the result of L5 sciatica.			

2011 Recommendation Statement			
There is insufficient evidence that a positive SLR, reduced/absent Achilles reflex, reduced foot plantar flexion, deterioration of lateral foot sensibility is a result of S1 sciatica.	ITALIAN	B	Negrini et al, 2006
Low volume – Current			
2017: No new evidence			
PARM suggests that a positive SLR, reduced/absent Achilles reflex, reduced foot plantar flexion, deterioration of lateral foot sensibility is a result of S1 sciatica.			

2017 Recommendation Statement			
There is evidence that manual muscle testing, sensory testing, supine straight leg raise, Lasegue's sign, and crossed Lasegue's sign are recommended for use in diagnosing lumbar disc herniation with radiculopathy.	NASS-RAD	A	Jensen et al, 1987 Kortelainen et al, 1985 Poiraudeau et al, 2001 Rabin et al, 2007 Vucetic et al, 1996
Moderate volume – Non-current			
PARM endorses that manual muscle testing, sensory testing, supine straight leg raise, Lasegue's sign, and crossed Lasegue's sign are recommended for use in diagnosing lumbar disc herniation with radiculopathy			

2017 Recommendation Statement			
There is insufficient evidence that the supine straight leg raise, as compared with the seated leg straight leg raise, is suggested for use in diagnosing lumbar disc herniation with radiculopathy.	NASS-RAD	B	Summers et al, 2009 Rabin et al, 2007
Low volume – Non-current			

PARM suggests the use of that the supine straight leg raise, as compared with the seated leg straight leg raise in diagnosing lumbar disc herniation with radiculopathy.

2017 Recommendation Statement			
There is insufficient evidence for or against the use of the cough impulse test, Bell test, hyperextension test, femoral nerve stretch test, slump test, lumbar range of motion or the absence of reflexes in diagnosing lumbar disc herniation with radiculopathy.	NAS-RAD	I	Vucetic et al, 1996 Kortelainen et al, 1985 Poiraudeau et al, 2001 Christodoulides et al, 1989 Majlesi et al, 2008 Albeck et al, 1996 Jonsson et al, 1993
Moderate volume – Non-current			
PARM suggests to the possible use of the cough impulse test, Bell test, hyperextension test, femoral nerve stretch test, slump test, lumbar range of motion or the absence of reflexes in diagnosing lumbar disc herniation with radiculopathy.			

3.1.2.3 LOW BACK PAIN DUE TO OTHER SPECIFIC CONDITIONS

Table 16. Physical Examination for low back pain due to other specific conditions

Recommendation	Guideline	Level of Evidence	References
2017 Recommendation Statement			
There is insufficient evidence approximately half of adult patients with symptomatic isthmic spondylolisthesis will have a positive straight leg test on examination	NASS-AIS	B	Markwalder et al, 1991 Rijk et al, 1996
Low volume – Non-current			
PARM suggests that approximately half of adult patients with symptomatic isthmic spondylolisthesis will have a positive straight leg test on examination.			

2017 Recommendation Statement			
There is insufficient evidence that in adult patients with symptomatic isthmic spondylolisthesis, most patients present with low back pain and at least half present radicular lower extremity pain.	NASS-AIS	B	Markwalder et al, 1991 Moller et al, 2000
Low volume – Non-current			
PARM suggests that in adult patients with symptomatic isthmic spondylolisthesis, most patients present with low back pain and at least half present radicular lower extremity pain.			

2017 Recommendation Statement			
There is insufficient evidence that adult patients with a diagnosis of isthmic spondylolisthesis have a higher pelvic incidence, sacral slope, pelvic tilt and lumbar lordosis compared to patients without isthmic spondylolisthesis.	NASS-AIS	B	Inoue et al, 2002 Jackson et al, 1998 Labelle et al, 2004 Lee et al, 2002 Rajnics et al,2002 Vialle et al, 2007
Moderate volume – Non-current			
PARM suggests that adult patients with a diagnosis of isthmic spondylolisthesis have a higher pelvic incidence, sacral slope, pelvic tilt and lumbar lordosis compared to patients without isthmic spondylolisthesis.			

3.2 DIAGNOSTIC TESTS

3.2.1 NON-SPECIFIC LOW BACK PAIN

Table 17. Diagnostic tests for non-specific low back pain.

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is strong evidence that diagnostic imaging tests such as radiographs, CT and MRI are not useful in the evaluation of acute non-traumatic, and non- specific cases of low back pain.	TOP	DO - SR	ICSI 2006
	ICSI	M	Chou et al, 2007
	CLIP	High	Hayden et al, 2005a Jarvik & Deyo et al, 2002 Philadelphia Panel 2001 Van Tulder et al, 1997
	ITALIAN	A	Negrini et al, 2006
	WORK COVERSA	B	WorkCoverSA 2010
	NICE	1++	Kendrick et al, 2001a
Consistent level of evidence – High volume - Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is some evidence that clinicians should not request for routine diagnostic tests (CT, MRI and x-rays) is not recommended for acute, subacute, or chronic non-specific low back pain.	ACOEM	C	Iversen et al, 2013 Nakao et al, 2010 Slebus et al, 1988 Willen et al, 2001 Beauvais et al, 2003 Carrera et al, 1980 Gilber et al, 2004 Kalichman et al, 2010

	TOP	SR	Chou, et al 2010 Goertz, et al, 2013 Van Tulder et al, 2008 Bussieres et al, 2010
Inconsistent level of evidence – High volume – Non-current – Uniform thought			
ADAPTE I: The recommendation remains unchanged but the strength of the evidence changed (decreased) from the 2011 PARM guideline. PARM strongly endorses against the use of CT for acute, subacute, or chronic non-specific low back pain.			

2011 Recommendation Statement			
There is insufficient evidence that an absence of expected improvement or worsening of the condition, may warrant ordering an x-ray to be done.	WORKCOVERSA	B	WorkCoverSA 2010
	ICSI	M, C	Deyo & Diehl et al, 1986 Liang & Komaroff et al, 1982
Inconsistent level of evidence – Low volume – Non-current – Uniform thought			
2017 No new evidence			
PARM suggests requesting for an x-ray in the absence of expected improvement or with worsening of the patient's condition.			

2011 Recommendation Statement			
There is some evidence that in patients with chronic LBP or acute low back pain who are not improving, lumbar spine x- rays may be required prior to performing a CT or MRI scan. In this case, views should be limited to anterior-posterior (AP) and lateral (LAT) without requesting oblique views.	TOP	NR	ICSI 2006
	WORKCOVERSA	B	WorkCoverSA 2010
	ITALIAN	A	Negrini et al, 2006
	ICSI	M, C	Deyo & Diehlet al, 1986 Liang & Komaroff et al, 1982
Inconsistent level of evidence – Moderate volume – Non-current – Uniform thought			
2017 No new evidence			
PARM recommends to acute or chronic low back pain patients who are not improving, to have an x-ray of the lumbar spine (AP and lateral views, without oblique views) prior to a CT or MRI.			

2011 Recommendation Statement			
There is insufficient evidence to recommend laboratory blood tests in the absence of red flag signs.	TOP	DO - EO	ICSI 2006
Low volume – Current			
2017 Updated Recommendations and Evidence Sources			

There is insufficient evidence to order the appropriate blood tests if cancer or infection is suspected. In the absence of red flags, no laboratory tests are recommended	TOP	EO	ICSI 2006, 2008 Goertz et al, 21012
Low volume – Non-current			
ADAPTE I. The recommendation and strength of the evidence remained unchanged from the 2011 PARM guideline PARM does not suggest laboratory blood tests in the absence of red flag signs.			

2017 Recommendation Statement			
There is insufficient evidence that SPECT is not recommended for the evaluation of patients with low back pain and related disorders	ACOEM	I – not recommended	Ryan et al, 1992 Bodner et al, 1988 Gunzberg et al, 1994 Harisankar et al, 2012 Pneumaticos et al, 2006
Moderate volume – Non-current			
PARM does not suggest the use of SPECT for the evaluation of patients with low back pain and related disorders.			

2017 Recommendation Statement			
There is insufficient evidence that surface EMG is not recommended to diagnose low back pain	ACOEM	I – not recommended	Sihvonen et al, 1991 Butler et al, 2013 McNeill et al, 1977 Ramprasad et al, 2010 Ahern et al, 1988 Lariviere et al, 2008 Roy et al, 1998 Ramaekers et al, 1993 Thompson et al, 1989 Cram et al, 1986 Ershad et al, 2009 Hanada et al, 2011 Nishizono et al, 1979 Schneider et al, 1989
High volume – Non-current			
PARM does not suggest surface EMG to diagnose low back pain.			

2017 Recommendation Statement			
There is insufficient evidence that diagnostic ultrasound is not recommended for diagnosing low back pain	ACOEM	I – not recommended	Klauser et al, 2005 Pulkovski et al, 2012 Oliveira et al, 2009
Low volume – Non-current			
PARM does not suggest diagnostic ultrasound for diagnosing low back pain.			

2017 Recommendation Statement			
There is evidence that discography, either performed as a solitary test or when paired with imaging, is moderately not recommended for acute, subacute, or chronic low back pain or radicular syndromes	ACOEM	B – not recommended	Jackson et al, 1989 Derby et al, 1999 Carragee et al, 2002 Birney et al, 1992 Collins et al, 1990 Gibson et al, 1986 Ito et al, 1998 Linson et al, 1990 Madan et al, 2002 Osti et al, 1992 Schneiderman et al, 1987 Carragee et al, 2000 Manchikanti et al, 2001 Walsh et al, 1990 Derby et al, 2005 Derby et al, 2005 Derby et al, 2005 Carragee et al, 2000 Alamin et al, 2011 Carragee et al, 2006 Carragee et al, 2006
High volume – Non-current			
PARM endorses not to use discography, either performed as a solitary test or when paired with imaging, for acute, subacute, or chronic low back pain or radicular syndromes			

2017 Recommendation Statement			
There is insufficient evidence that MRI discography is not recommended for evaluating herniated discs.	ACOEM	C – not recommended	Birney et al, 1992 Collins et al, 1990 Gibson et al, 1986 Linson et al, 1990 Schneiderman et al, 1987
Moderate volume - Non-current			
PARM does not suggest MRI discography for evaluating herniated discs			

2017 Recommendation Statement			
There is insufficient evidence that myeloscopy is not recommended for diagnosing acute, subacute, or chronic low back pain	ACOEM	I – not recommended	Bosscher et al, 2012 Richardson et al, 2001 Manchikanti et al, 2003
Low volume – Non-current			
PARM does not suggest myeloscopy for diagnosing acute, subacute, or chronic low back pain.			

3.2.2 LOW BACK PAIN WITH RADICULOPATHY

Table 18. Diagnosis of low back pain with radiculopathy

2011 Recommendation Statement			
There is some evidence that in the first 4- 6 weeks of low back pain, CT scan and MRI are not recommended if there is no highly-painful sciatica or progressive motor deficit.	ITALIAN	A	Negrini et al, 2006
Low volume – Current			
2017 Updated Recommendations and Evidence Sources			
There is evidence that imaging (including CT, MRI and x-ray) are not recommended for acute, subacute or chronic radicular pain syndromes in the first 6 weeks unless the problems are severe and not trending towards improvement and both the patient and the clinician are willing to consider prompt surgical treatment, assuming the MRI confirms ongoing nerve root compression. Repeat MRI without significant clinical deterioration in symptoms and/or signs is also not recommended.	ACOEM	B - not	Carragee et al, 2006, 2000 Stadnick et al, 1996 Boden et al 1990, 1995 Chung et al, 2004 Haig et al, 2006 Haig et al 2006 Healy et al, 1996 Jarvik et al, 2001 Jensen et al 1994 Kjaer et al, 2005 Mikhael et al, 1995 Parkkola et al, 1993 Salminen et al, 1999 Savage et al, 1997 Schelhas et al, 1996 Tong et al 2006 Visuri et al, 2005 Weinreb et al, 1989 Weishaupt et al, 1996 Boos et al, 1995 Kleinstuck et al, 2006 Wais et al, 2007
High level of evidence – Non-current			
ADAPTE II. The recommendation is unchanged but the strength of the evidence changed (increased) from the 2011 PARM guideline. PARM does not endorse imaging (including CT, MRI and x-ray) for acute, subacute or chronic radicular pain syndromes in the first 6 weeks unless the problems are severe and not trending towards improvement and both the patient and the clinician are willing to consider prompt surgical treatment, assuming the MRI confirms ongoing nerve root compression. Repeat MRI without significant clinical deterioration in symptoms and/or signs is also not recommended.			

2011 Recommendation Statement			
There is strong evidence that after 4-6 weeks of low back pain, CT scan or MRI are recommended if surgery is considered, and/or severe or progressive neurologic deficits are present.	ITALIAN	A	Negrini et al, 2006
	APS	Moderate	Loblaw et al, 2005 Todd et al, 2005 Tsiodras & Falagas et al, 2006
Consistent level of evidence – Moderate volume – Current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is evidence that imaging (including CT, MRI and x-ray) are not recommended for acute, subacute or chronic radicular pain syndromes in the first 6 weeks unless the problems are severe and not trending towards improvement and both the patient and the clinician are willing to consider prompt surgical treatment, assuming the MRI confirms ongoing nerve root compression. Repeat MRI without significant clinical deterioration in symptoms and/or signs is also not recommended.	ACOEM	B - not	Carragee et al, 2006, 2000 Stadnick et al, 1996 Boden et al,1990, 1995 Chung et al, 2004 Haig et al, 2006 Haig et al, 2006 Healy et al, 1996 Jarvik et al, 2001 Jensen et al, 1994 Kjaer et al, 2005 Mikhael et al, 1995 Parkkola et al 1993 Salminen et al, 1999 Savage et al, 1997 Schelhas et al, 1996 Tong et al, 2006 Visuri et al, 2005 Weinreb et al, 1989 Weishaupt et al, 1996 Boos et al, 1995 Kleinstuck et al, 2006 Wais et al, 2007
High level of evidence – Non-current			
ADAPTE 1: The recommendation remains unchanged but the strength of evidence changed (decreased) from the 2011 PARM guideline. PARM strongly endorses the use of MRI for acute, subacute or chronic radicular pain syndromes after six weeks if surgery is considered, and/or severe or progressive neurologic deficits are present.			
2011 Recommendation Statement			
There is strong evidence that after 4-6 weeks of low back pain, CT scan or MRI are recommended if surgery is considered, and/or severe or progressive neurologic deficits are present.	ITALIAN	A	Negrini et al, 2006
	APS	Moderate	Loblaw et al, 2005 Todd et al, 2005 Tsiodras & Falagas et al, 2006
Consistent level of evidence – Moderate volume – Current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			

There is evidence that CT is recommended for patients with acute or subacute radicular pain syndromes who failed to improve within 4-6 weeks and if there is consideration for epidural glucocorticoid injection or surgical discectomy	ACOEM	C	Iversen et al, 2013 Nakao et al, 2010 SLebus et al, 1988 Willen et al, 2001 Beauvais et al, 2003 Carrera et al, 1980 Gilber et al, 2004 Kalichman et al, 2010
	TOP	SR CS	Goertz et al, 2013 IHE Database Bussiereset al, 2008
Inconsistent Level of Evidence - High volume – Non-current – Uniform thought			
ADAPTE I. The recommendation is unchanged but the strength of evidence changed (decrease) from the 2011 PARM guideline. PARM strongly endorses CT scan if surgery is considered, and/or severe or progressive neurologic deficits are present and if there is consideration for epidural glucocorticoid injection			

2011 Recommendation Statement			
There is some evidence that when a diagnostic test is indicated in low back pain patients with or without radiculopathy, MRI is preferred. However, when MRI is contraindicated, then CT scan can be an alternative.	ITALIAN ICSI	A R R C D	Negrini et al, 2006 ACR 2006 Bischcoff et al, 1993 Modic et al, 1986 NASS 2007
	APS	Moderate	Jarvik & Deyo et al, 2002
Inconsistent level of evidence – Moderate Volume – Current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is some evidence that in patients with history and physical findings consistent with lumbar disc herniation with radiculopathy, MRI is recommended as an appropriate, non-invasive test to confirm the presence of lumbar disc herniation	NASS-RAD	A	Jackson et al, 1989 Jannsen et al, 1994 Pfirrman et al, 2004
Low volume – Non-current			
ADAPTE 1: The recommendation and strength of evidence remained unchanged from the 2011 PARM guideline. PARM recommends that in patients with history and physical findings consistent with lumbar disc herniation with radiculopathy, MRI is recommended as an appropriate, non-invasive test to confirm the presence of lumbar disc herniation.			

2011 Recommendation Statement			
There is some evidence that in first 4 weeks of low back pain, EMG sensibility to predict radicular damage is low.	ITALIAN	A	Negrini et al, 2006
Low Volume - Current			
2017 Updated Recommendations and Evidence Sources			
There is insufficient evidence that electromyography, nerve conduction studies and F-waves are suggested to have limited utility in the diagnosis of lumbar disc herniation with radiculopathy. H-reflexes can be helpful in the diagnosis of an S1 radiculopathy, though not specific to the diagnosis of lumbar disc herniation.	NASS-RAD	B	Albeck et al, 2000 Tullberg et al, 1993 Beyaz, et al, 2009 Dillingham et al, 2000 Marin et al, 1995
Moderate volume – Non-current			
ADAPTE I The recommendation is unchanged but the strength of the evidence changed (decreased) from the PARM 2011 guideline. PARM recommends that electromyography, nerve conduction studies and F waves have limited utility in the diagnosis of lumbar disc herniation with radiculopathy (especially in the first 4 weeks).			

2011 Recommendation Statement			
There is some evidence that neurophysiological expert evaluation is useful when etiological or level diagnosis are uncertain, or prognostic information is required, or to monitor/document objectively functional deficit.	ITALIAN	A	Negrini et al, 2006
Low volume – Current			
2017 No new evidence			
PARM recommends neurophysiological expert evaluation when etiological or level diagnosis are uncertain, prognostication information is required, or to monitor/document low back pain objectively			

2017 Recommendation Statement			
There is insufficient evidence that MRI is recommended for patients with acute low back pain during the first 6 weeks if they have demonstrated progressive neurologic deficit, cauda equina syndrome, significant trauma without improvement in atypical symptoms, a history of neoplasia, persistent fever plus elevated ESR without other infectious source or atypical presentation.	ACOEM	I	Carragee et al, 2006, 2000 Stadnick et al, 1996 Boden et al 1990, 1995 Chung et al, 2004 Haig et al, 2006 Haig et al, 2006 Healy et al, 1996 Jarvik et al, 2001 Jensen et al, 1994 Kjaer et al 2005

			Mikhael et al, 1995 Parkkola et al, 1993 Salminen et al, 1999 Savage et al, 1997 Schelhas et al, 1996 Tong et al 2006 Visuri et al, 2005 Weinreb et al, 1989 Weishaupt et al, 1996 Boos et al, 1995 Kleinstuck et al, 2006 Wais et al, 2007
High volume – Non-current			
PARM suggests the use of MRI for patients with acute low back pain during the first 6 weeks if they have demonstrated progressive neurologic deficit, cauda equina syndrome, significant trauma without improvement in atypical symptoms, a history of neoplasia, persistent fever plus elevated ESR without other infectious source or atypical presentation.			

2017 Recommendation Statement			
There is insufficient evidence that standing or weight-bearing MRI is not recommended for back or radicular pain syndrome conditions as, in the absence of studies demonstrating improved patient outcomes, this technology is experimental	ACOEM	I – not recommended	Carragee et al, 2006 Lei D et al, 2008 Boos et al, 1995 Aota et al, 2007 Bischoff et al, 1993 Chawalparit et al, 2006 Pui et al, 2000 Carrino et al, 2009 Hu et al, 2011 O'Neill et al, 2008 Suri et al, 2014 Hanly et al, 1994 Jarvik et al, 2001 Savage et al, 1997 Visuri et al, 2005 Kleinstuck et al, 2006 Modic et al, 2005 Karppinen et al, 2001 Schenk et al, 2006 Beattie et al, 2000 Boos et al, 2000 Borenstein et al, 2001 Carragee et al, 2005 Elfering et al, 2002 Jarvik et al, 2005 Jarvik et al, 1997 Jia et al,1991 Siddiqui et al, 2005. Videman et al, 2003 Ash et al, 2008

			Barz et al, 2010 Lee et al, 2012 Li AL et al, 2011 Lurie et al, 2008 Modic et al,1986 Yan et al, 2010 Mayerhoefer et al, 2012
High volume – Non-current			
PARM suggests not to use standing or weight-bearing MRI for back or radicular pain syndrome conditions as, in the absence of studies demonstrating improved patient outcomes, this technology is experimental			

2017 Recommendation Statement			
There is insufficient evidence that routine CT is not recommended for radicular pain syndromes	ACOEM	C	Iversen et al, 2013 Nakao et al, 2010 SLebus et al, 1988 Willen et al, 2001 Beauvais et al, 2003 Carrera et al, 1980 Gilber et al, 2004 Kalichman et al, 2010
High volume – Non-current			
PARM does not suggest CT scan for radicular pain syndromes.			

2017 Recommendation Statement			
There is some evidence that in patients with history and physical examination findings consistent with lumbar disc herniation with radiculopathy, CT scan, myelography and/or CT myelography are recommended as appropriate tests to confirm the presence of lumbar disc herniation	NASS-RAD	A	Jackson et al, 1989 Fries et al, 1982 Jannsen et al, 1994
Low Volume – Non-current			
PARM recommends that in patients with history and physical examination findings consistent with lumbar disc herniation with radiculopathy, CT scan, myelography and/or CT myelography are recommended as appropriate tests to confirm the presence of lumbar disc herniation			

2017 Recommendation Statement			
There is insufficient evidence that when the diagnosis of lumbar disc herniation with radiculopathy is suspected, cross-sectional imaging be considered the diagnostic test of choice and electrodiagnostic studies should only be used to confirm the presence of comorbid conditions.	NASS-RAD	EO	WGCS 2014
Low volume - Current			

PARM suggests that when the diagnosis of lumbar disc herniation with radiculopathy is suspected, cross-sectional imaging be considered the diagnostic test of choice and electrodiagnostic studies should only be used to confirm the presence of comorbid conditions.

2017 Recommendation Statement			
There is insufficient evidence that somatosensory evoked potentials are suggested as an adjunct to cross-sectional imaging to confirm the presence of nerve root compression but are not specific to the level of nerve root compression or the diagnosis of lumbar disc herniation with radiculopathy.	NASS-RAD	B	Pape et al, 2002 Beyaz et al, 2009 Dumitru, et al, 1996
Low volume – Non-current			
PARM suggests that somatosensory evoked potentials are suggested as an adjunct to cross-sectional imaging to confirm the presence of nerve root compression but are not specific to the level of nerve root compression or the diagnosis of lumbar disc herniation with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence to make a recommendation for or against the use of motor evoked potentials or extensor digitorum brevis reflex in the diagnosis of lumbar disc herniation with radiculopathy.	NASS-RAD	I	Tabaraud et al, 1989 Marin et al, 1995
Low volume – Non-current			
PARM suggests the use of motor evoked potentials or extensor digitorum brevis reflex in the diagnosis of lumbar disc herniation with radiculopathy			

2017 Recommendation Statement			
There is insufficient evidence to make a recommendation for or against the use of thermal quantitative sensory testing or liquid crystal thermography in the diagnosis of lumbar disc herniation with radiculopathy.	NASS-RAD	I	Samuelson et al, 2002
Low-volume – Non-current			
PARM suggests the use of thermal quantitative sensory testing or liquid crystal thermography in the diagnosis of lumbar disc herniation with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence that myeloscopy is not recommended for diagnosing radicular pain syndromes.	ACOEM	I – not recommended	Bosscher et al, 2012 Richardson et al, 2001 Manchikanti et al, 2003
Low volume – Non-current			
PARM does not suggest myeloscopy for diagnosing radicular pain syndromes.			

3.2.3 LOW BACK PAIN DUE TO OTHER SPECIFIC CONDITIONS

Table 19. Diagnostic examinations for low back pain due to other specific conditions

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is some evidence that x-rays may assist in determining the diagnosis of patients with low back pain after lumbar blunt trauma or acute injuries (fall, motor- vehicle accidents, motorcycle, pedestrian, cyclists, etc.)	WORK COVERSA	B	WorkCoverSA 2010
Low volume – Current			
2017 Updated Recommendations and Evidence Sources			
There is evidence to recommend x-ray (AP and lateral) for acute low back pain with red flags for fracture or serious systemic illness, subacute low back pain that is not improving or chronic LBP as an option to rule out other possible conditions (compression). Oblique x-rays should not be done.	ACOEM	I	Djais et al, 2005 Kendrick et al, 2001 Kerry et al, 2002 Jarvik et al, 2003 Deyo et al, 1987
	TOP	SR EO	Goertz et al, 2012 Guideline Update Committee
Inconsistent level of evidence – High volume - Non-current – Uniform thought			
ADAPTE II: The recommendation is unchanged but the strength of evidence changed (increased) from the 2011 PARM guideline PARM endorses the use of x-ray (AP and lateral) for acute low back pain with red flags for fracture or serious systemic illness, subacute low back pain that is not improving or chronic LBP as an option to rule out other possible conditions (ex. compression). Oblique x-rays should not be done.			

2011 Recommendation Statement			
There is insufficient evidence that standard standing and dynamic x-ray can be done in cases of spinal instability, spondylolisthesis.	ITALIAN	B	Negrini et al, 2006
Low volume – Current			
2017 Updated Recommendations and Evidence Sources			
There is insufficient evidence that the lateral radiograph is the most appropriate, noninvasive test for detecting degenerative lumbar spondylolisthesis. However, the lateral radiograph should be obtained in the standing position whenever possible such as in facet joint effusion greater than 1.5 mm on supine MRI. Flexion and extension views are recommended for evaluating symptomatic spondylolisthesis in which there is consideration for surgery or other	NASS-DLS	B	Cabraja et al, 2012 Brown et al, 1983 Cauchioux et al, 1976 Fitzgerald et al, 1976
		EO	WGCS 2014
		B	Chaput et al, 2007 Caterini et al, 2011
	ACOEM	I	Djais et al, 2005 Kendrick et al, 2001 Kerry et al, 2002

invasive treatment or occasionally in the setting of trauma.			Jarvik et al, 2003 Deyo et al, 1987
Moderate volume – Current			
ADAPTE I. The recommendation and strength of evidence remains unchanged from the 2011 PARM guideline. PARM suggests that the lateral radiograph is the most appropriate, noninvasive test for detecting degenerative lumbar spondylolisthesis. However, the lateral radiograph should be obtained in the standing position whenever possible such as in facet joint effusion greater than 1.5 mm on supine MRI. Flexion and extension views are recommended for evaluating symptomatic spondylolisthesis in which there is consideration for surgery or other invasive treatment or occasionally in the setting of trauma.			

2011 Recommendation Statement			
There is some evidence that x-ray of whole spine in standing is useful in scoliosis.	ITALIAN	A	Negrini et al, 2006
Low volume – Current			
2017: No new evidence			
PARM recommends x-ray of the whole spine (in standing) in patients with scoliosis.			

2011 Recommendation Statement			
There is some evidence that CT scan or MRI is useful in spinal stenosis.	ITALIAN	A	Negrini et al, 2006
Low volume – Current			
2017: No new evidence			
PARM recommends CT scan or MRI in patients with spinal stenosis.			

2011 Recommendation Statement			
There is insufficient evidence that blood and urine exams, acute phase reactants, x- ray of the spine and sacroiliac joints are useful in rheumatologic or spondyloarthritic cases of back pain.	ITALIAN	B	Negrini et al, 2006
Low volume – Current			
2017: No new evidence			
PARM suggests requesting for blood and urine exams, acute phase reactants and x-ray of the spine and sacroiliac joints in patients with rheumatologic or spondyloarthritic cases of back pain.			

2017 Recommendation Statement			
There is insufficient evidence that MRI is recommended as an option for the evaluation of select chronic LBP patients in order to rule out concurrent pathology unrelated to injury. This	ACOEM	I	Carragee et al, 2006 Lei D et al, 2008 Boos et al, 1995 Aota et al, 2007 Bischoff et al, 1993

option is not recommended before three months and only after other treatment modalities (including NSAIDs, aerobic exercises, and directional preference exercises) have failed.			Chawalparit et al, 2006 Pui et al, 2000 Carrino et al, 2009 Hu et al, 2011 O'Neill et al, 2008 Suri et al, 2014 Hanly et al, 1994 Jarvik et al, 2001 Savage et al, 1997 Visuri et al, 2005 Kleinstuck et al, 2006 Modic et al, 2005 Karppinen et al, 2001 Schenk et al, 2006 Beattie et al, 2000 Boos et al, 2000 Borenstein et al, 2001 Carragee et al, 2005 Elfering et al, 2002 Jarvik et al, 2005 Jarvik et al, 1997 Jia et al, 1991 Siddiqui et al, 2005. Videman et al, 2003 Ash et al, 2008 Barz et al, 2010 Lee et al, 2012 Li AL et al, 2011 Lurie et al, 2008 Modic et al, 1986 Yan et al, 2010 Mayerhoefer et al, 2012
High volume – Non-current			
PARM suggests MRI as an option for the evaluation of select chronic LBP patients in order to rule out concurrent pathology unrelated to injury. This option is not recommended before three months and only after other treatment modalities (including NSAIDs, aerobic exercises, and directional preference exercises) have failed.			

2017 Recommendation Statement			
There is insufficient evidence for or against the utility of dynamic MRI and dynamic CT myelography in the diagnosis of degenerative lumbar spondylolisthesis.	NASS-DLS	I	Huang et al, 2009 McGregor et al, 2002 Ozawa et al, 2012
Low Volume – Non-current			
PARM suggests the possible utility of dynamic MRI and dynamic CT myelography for diagnosing degenerative lumbar spondylolisthesis.			

2017 Recommendation Statement			
There is insufficient evidence to make a recommendation for or against the utility of the upright seated MRI in the diagnosis of degenerative lumbar spondylolisthesis.	NASS-DLS	I	Ferreiro-Perez et al, 2007
Low volume – Non-current			
PARM suggests the use of the upright seated MRI in the diagnosis of degenerative lumbar spondylolisthesis.			

2017 Recommendation Statement			
There is insufficient evidence to make a recommendation for or against axial loaded MRI in evaluating the dural sac cross sectional area and that MRI is the most appropriate, non-invasive test for imaging stenosis accompanying degenerative lumbar spondylolisthesis.	NASS-DLS	EO	WGCS 2014
		I	Ozawa et al, 2012 Huang et al, 2009 McGregor et al, 2001 Ozawa et al, 2012
Moderate volume – current			
PARM suggests the use of MRI as the most appropriate, non-invasive test for imaging stenosis accompanying lumbar spondylolisthesis as well as axial MRI to evaluate the dural sac cross sectional area in the same conditions.			

2017 Recommendation Statement			
There is insufficient evidence that facet joint effusion greater than 1.5 mm on supine MRI may be suggestive of the presence of degenerative lumbar spondylolisthesis. Further evaluation for the presence of degenerative lumbar spondylolisthesis should be considered, including plain standing radiographs.	NASS-DLS	B	Chaput et al, 2007 Caterini et al, 2011
Low volume – Non-current			
PARM suggests that MRI findings showing facet joint effusion greater than 1.5 mm on supine may be indicative of degenerative lumbar spondylolisthesis. Further evaluation is considered including plain standing radiographs.			

2017 Recommendation Statement			
There is insufficient evidence that plain myelography or CT myelography are useful studies to assess spinal stenosis in patients with degenerative lumbar spondylolisthesis especially for whom MRI is contraindicated or inconclusive.	NASS-DLS	B	Cauchioux et al, 1976 Fitzgerald et al, 1976 Postaccini et al, 1991 Rosenberg et al, 1975 Satomi et al, 1992
		EO	WGCS 2014
Moderate volume – Non-current			

PARM suggests that plain myelography or CT myelography are useful studies to assess spinal stenosis in patients with degenerative lumbar spondylolisthesis especially for whom MRI is contraindicated or inconclusive

2017 Recommendation Statement			
There is insufficient evidence that in patients with degenerative spondylolisthesis with associated spinal stenosis for whom MRI and CT myelography are contraindicated, inconclusive or inappropriate, CT is suggested as the most appropriate test to confirm the presence of anatomic narrowing of the spinal canal or the presence of nerve root impingement.	NASS-DLS	EO	WGCS 2014 Rothman et al, 1985
Low Volume - Current			
PARM suggests that in patients with degenerative spondylolisthesis with associated spinal stenosis for whom MRI and CT myelography are contraindicated, inconclusive or inappropriate, CT is suggested as the most appropriate test to confirm the presence of anatomic narrowing of the spinal canal or the presence of nerve root impingement.			

2017 Recommendation Statement			
There is insufficient evidence that in adult patients with history and physical examination findings consistent with isthmic spondylolisthesis, standing plain radiographs, with or without oblique views of dynamic radiographs, considered as the most appropriate, non-invasive test to confirm the presence of isthmic spondylolisthesis.	NASS-AIS	EO	WGCS 2014
Low volume - Current			
PARM suggests that in adult patients with history and physical examination findings consistent with isthmic spondylolisthesis, standing plain radiographs, with or without oblique views of dynamic radiographs, considered as the most appropriate, non-invasive test to confirm the presence of isthmic spondylolisthesis.			

2017 Recommendation Statement			
There is insufficient evidence that in the absence of a reliable diagnosis of isthmic spondylolisthesis on plain radiographs, CT scan is considered the most reliable diagnostic test to diagnose a defect of the pars interarticularis. CT may be considered an option to diagnose isthmic spondylolisthesis in adult patients	NASS-AIS	EO	WGCS 2014
		C	Kalichman et al, 2009
Low volume – Current			
PARM suggests that in the absence of a reliable diagnosis of isthmic spondylolisthesis on plain radiographs, CT scan is considered the most reliable diagnostic test to diagnose a defect of the pars interarticularis.			

2017 Recommendation Statement			
There is insufficient evidence that in adult patients with isthmic spondylolisthesis with radiculopathy, MRI should be considered.	NASS-AIS	EO	WGCS 2014
Low volume - Current			
PARM suggests that in adult patients with isthmic spondylolisthesis with radiculopathy, MRI should be considered.			

2017 Recommendation Statement			
There is insufficient evidence to make recommendations for or against the use of MRI to differentiate isthmic VS degenerative spondylolisthesis in adult patients.	NASS-AIS	I	Annerts et al, 1990 Jinkins et al, 1994 Ulmer et al, 1994
Low volume – Non-current			
PARM suggests the use of MRI to differentiate isthmic VS degenerative spondylolisthesis in adult patients.			

2017 Recommendation Statement			
There is insufficient evidence to make a recommendation for or against the use of discography to evaluate adult patients with isthmic spondylolisthesis.	NASS-AIS	I	Cohen et al, 2004
Low volume – Non-current			
PARM suggests the use of discography to evaluate adult patients with isthmic spondylolisthesis			

2017 Recommendation Statement			
There is insufficient evidence to make a recommendation for or against the use of SPECT in evaluating isthmic spondylolisthesis in adult patients.	NASS-AIS	I	Lusins et al, 1994
Low volume – Non-current			
PARM suggests the use of SPECT in evaluating isthmic spondylolisthesis in adult patients.			

2017 Recommendation Statement			
There is insufficient evidence that myeloscopy is not recommended for diagnosing spinal stenosis or post-surgical back pain problems	ACOEM	I – not recommended	Bosscher et al, 2012 Richardson et al, 2001 Manchikanti et al, 2003
Low volume – Non-current			
PARM does not suggest myeloscopy for diagnosing spinal stenosis or post-surgical back pain problems.			

3.3 SUMMARY OF RECOMMENDATIONS AND CONTEXT POINTS

3.3.1 SUMMARY OF RECOMMENDATIONS FOR THE EVALUATION AND DIAGNOSIS OF LOW BACK PAIN

Table 20. Summary of recommendations for the evaluation and diagnosis of low back pain

TYPE/DURATION	CPG		INTERVENTION	SE	E	R	S	REMARKS
	2011	2017						
Low Back Pain (all types and duration)	x	x	Performing a full patient evaluation (history- taking, physical and neurologic examination, functional status, psychosocial risk factor assessment, diagnostic triage)	Yes				
	x		Immediate evaluation and treatment of low back pain presenting with red flag signs				Yes	
	x	x	Assessing for psychosocial risk factors (yellow flags)		Yes			
	x	x	Re-evaluation done one to two weeks of severe pain or if no improvement is noted, in 4-6 weeks	Yes				
	x	x	Ruling-out Ankylosing Spondylitis in younger adults who (in the absence of injury) present with night pain and reduced side bending			Yes		
Non-specific low back pain		x	Performing a full physical and neurologic examination, functional status and psychosocial risk factor assessment	Yes				
		x	Performing functional capacity evaluations (FCE) for disabling chronic LBP among workers				Yes	
		x	Performing FCE for chronic stable low back pain or upon post-operative recovery for return-to-work				Yes	

		x	Performing FCE for evaluation of acute low back pain, acute or subacute radicular symptoms, or post-surgical back pain problems within the first 12 weeks of the post-operative period		No			
	x	x	CT scan		No			for acute, subacute, or chronic non-traumatic and non-specific low back pain
	x		X-ray in the absence of expected improvement or with worsening of the patient's condition				Yes	
	x		X-ray of the lumbar spine (AP and lateral views, without oblique views) prior to a CT or MRI			Yes		in acute or chronic low back pain patients who are not improving
	x	x	Laboratory blood tests in the absence of red flag signs				No	
		x	SPECT				No	
		x	Surface EMG				No	in diagnosing low back pain
		x	Diagnostic ultrasound in non-specific low back pain				No	
		x	Discography, either performed as a solitary test or when paired with imaging		No			for acute, subacute, or chronic low back pain or radicular syndromes
		x	MRI discography				No	for evaluating herniated discs
		x	Myeloscopy				No	for diagnosing acute, subacute, or chronic low back pain
Low back pain with radiculopathy	x		Considering congruence of neurologic signs and symptoms to increase sensibility and specificity of the neurological exam			Yes		

	x		Positive straight leg raise (SLR) test as a sensitive test, and Crossed leg SLR as a specific test for radiculopathy			Yes		
	x		Pain distribution has good sensibility for patients with radiculopathy secondary to disc herniation			Yes		
	x		SLR in the elderly can be normal even if there is radicular damage			Yes		
	x		Doing the slump test can diagnose or exclude lumbar disc herniations with nerve root compression				Yes	Acute and subacute low back pain
	x		Provocative active side bend assessment, either alone or as part of a flexion-extension-rotation assessment is the most reliable test to replicate symptoms				Yes	
	x		A positive neural tension test (e.g., straight leg raise, slump, prone knee bend, femoral stretch) performed bilaterally is due to a nerve root or discogenic pathology				Yes	
	x		Steppage due to complete L4-L5 damage requires immediate surgical evaluation			Yes		
	x		Leg pain or pain below the knee increases the probability of radiculopathy				Yes	
	x	x	Imaging studies (including CT, MRI and x-ray) for acute, subacute or chronic radicular pain syndromes in the first 6 weeks unless the problems are severe and persistent		No			
	x	x	MRI for acute, subacute or chronic radicular pain syndromes after six weeks if surgery is considered, and/or severe or progressive neurologic deficits are present	Yes				

	x	x	CT scan if surgery is considered, and/or severe or progressive neurologic deficits are present and if there is consideration for epidural glucocorticoid injection	Yes				
	x	x	MRI as an appropriate, non-invasive test to confirm the presence of lumbar disc herniation			Yes		
	x	x	EMG having limited utility in the diagnosis of lumbar disc herniation with radiculopathy (especially in the first 4 weeks)			Yes		
	x		Neurophysiological expert evaluation when etiological or level diagnosis are uncertain, prognostication information is required, or to monitor/document low back pain objectively			Yes		
		x	MRI for patients with acute low back pain during the first 6 weeks if they have demonstrated progressive neurologic deficit, cauda equina syndrome, significant trauma without improvement in atypical symptoms, a history of neoplasia, persistent fever plus elevated ESR without other infectious source or atypical presentation				Yes	
		x	Standing or weight-bearing MRI for back or radicular pain syndrome conditions				No	
		x	CT for radicular pain syndromes				No	
		x	CT scan, myelography and/or CT myelography to confirm the presence of lumbar disc herniation in patients with history and physical examination findings consistent with radiculopathy			Yes		
		x	Cross-sectional imaging be considered the diagnostic test of choice in patients with history and physical examination				Yes	

			findings consistent with lumbar disc herniation with radiculopathy, and electrodiagnostic studies to confirm the presence of comorbid conditions					
		x	Somatosensory evoked potentials as an adjunct to cross-sectional imaging to confirm the presence of nerve root compression but are not specific to the level of nerve root compression or the diagnosis of lumbar disc herniation with radiculopathy				Yes	
		x	Motor evoked potentials or extensor digitorum brevis reflex in the diagnosis of lumbar disc herniation with radiculopathy				Yes	
		x	Thermal quantitative sensory testing or liquid crystal thermography in the diagnosis of lumbar disc herniation with radiculopathy				Yes	
		x	Myeloscopy for diagnosing radicular pain syndromes.				No	

Low Back Pain due to other specific conditions		x	Positive straight leg test				Yes	Lumbar Isthmic spondylolisthesis
		x	Most patients with adult patients with symptomatic isthmic spondylolisthesis present with low back pain and at least half present with radicular lower extremity pain				Yes	Lumbar Isthmic spondylolisthesis
		x	Higher pelvic incidence, sacral slope, pelvic tilt and lumbar lordosis compared to patients without isthmic spondylolisthesis				Yes	Lumbar Isthmic spondylolisthesis
	x	x	X-ray (AP and lateral) Oblique x-rays should not be done		Yes			Low back pain with red flag signs

	x	x	Lateral radiograph as the most appropriate, noninvasive test. Flexion and extension views are recommended for evaluating symptomatic spondylolisthesis in which there is consideration for surgery or other invasive treatment or occasionally in the setting of trauma.				Yes	Degenerative lumbar spondylolisthesis
		x	X-ray of the whole spine (in standing)			Yes		Scoliosis
		x	CT scan or MRI in patients			Yes		Spinal Stenosis
	x		Blood and urine exams, acute phase reactants and x-ray of the spine and sacroiliac joints				Yes	Rheumatologic or spondyloarthritic cases of back pain
		x	MRI, only after other treatment modalities (including NSAIDs, aerobic exercises, and directional preference exercises) have failed				Yes	Chronic low back pain with concurrent pathology unrelated to injury
		x	Dynamic MRI and dynamic CT myelography				Yes	Degenerative lumbar spondylolisthesis
		x	Upright seated MRI in the diagnosis of degenerative lumbar spondylolisthesis				Yes	Degenerative umbar spondylolisthesis
		x	MRI for imaging stenosis accompanying lumbar spondylolisthesis as well as axial MRI to evaluate the dural sac cross sectional area in the same conditions				Yes	Stenosis with lumbar spondylolisthesis
		x	MRI findings showing facet joint effusion greater than 1.5 mm				Yes	Degenerative lumbar spondylolisthesis

		x	Plain myelography or CT myelography to assess spinal stenosis in patients with degenerative lumbar spondylolisthesis especially for whom MRI is contraindicated or inconclusive				Yes	Stenosis with lumbar spondylolisthesis
		x	CT to confirm the presence of anatomic narrowing of the spinal canal or the presence of nerve root impingement in patients with degenerative spondylolisthesis with associated spinal stenosis for whom MRI and CT myelography are contraindicated				Yes	Stenosis with lumbar spondylolisthesis
		x	Standing plain radiographs, with or without oblique views of dynamic radiographs				Yes	Lumbar Isthmic spondylolisthesis
		x	CT scan is considered the most reliable diagnostic test				Yes	Pars interarticularis defects
		x	MRI				Yes	Lumbar Isthmic spondylolisthesis with radiculopathy
		x	MRI to differentiate isthmic vs degenerative spondylolisthesis in adult patients				Yes	
		x	Discography				Yes	Lumbar Isthmic spondylolisthesis
		x	SPECT				Yes	Lumbar Isthmic spondylolisthesis

		x	Myeloscopy				No	Spinal stenosis or post-surgical back pain problems

Legend: **SE** – Strongly endorses
E – Endorses
R – Recommends
S – Suggests

3.3.2 CONTEXT POINTS FOR EVALUATION AND DIAGNOSIS OF NON-SPECIFIC LOW BACK PAIN

Table 21. Context points for minimum and additional standard care of practice for history and evaluation of non-specific low back pain.

	Minimum standard care of practice	**Additional standard care of practice**
Practice method	- Medical history - Physical examination - Neurologic examination - Functional Capacity Evaluation - Psychosocial risk assessment - Diagnostic triage	No diagnostic imaging tests are needed ie. LS spine x-rays, CT scans, MRI
Equipment	X-ray machine	CT or MRI machines
Workforce	- Attending physician - Radiologist	- Physiatrist - Radiologist
Training	Within competency	Within competency
When is it done	Upon consultation	None
Reassessment using at least one standard outcome measure	- Four to six weeks - LS spine x-rays (AP and lateral views) after 4 weeks if no improvement after conservative management	- Four to six weeks - CT or MRI of the LS spine if no improvement after conservative management

3.3.3 CONTEXT POINTS FOR EVALUATION AND DIAGNOSIS OF LOW BACK PAIN WITH RADICULOPATHY

Table 22. Context points for minimum and additional standard care of practice for history and evaluation of low back pain with radiculopathy

	Minimum standard care of practice	**Additional standard care of practice**
Practice method	- Refer to Non-specific LBP - Include Provocative or Neural Tension Tests (e.g. SLR test, Crossed SLR test, Wasserman test, Slump test, Prone knee bend test, Bell test, Cough impulse test, Hyperextension test, Femoral nerve stretch test, Provocative active side bend test, Flexion-extension-rotation test)	Refer to Non-specific LBP
Equipment	None	- EMG-NCV, CT, MRI machines - X-ray machine with fluoroscopy

Workforce	- Attending physician - Physiatrist	- Physiatrist - Neurologist - Orthopedic surgeon - Radiologist
Training	Within competency	Within competency
When is it done	Upon consultation	Upon consultation
Reassessment using at least one standard outcome measure	Four to six weeks	Four to six weeks - CT, MRI, Myelogram - EMG-NCV, SSEP, Motor Evoked Potentials - Thermal quantitve sensory testing or Liquid crystal thermography

3.3.4 CONTEXT POINTS FOR EVALUATION AND DIAGNOSIS OF LOW BACK PAIN DUE TO SPECIFIC CONDITIONS

Table 23. Context points for minimum and additional standard care of practice for history and evaluation of low back pain due to other specific conditions

	Minimum standard care of practice	**Additional standard care of practice**
Practice method	- Refer to Non-specific low back pain - Spondylolisthesis: - Postural assessment - LS spine lateral view (pelvic incidence, sacral slope, pelvic tilt) - LS spine X-ray (lateral, flexion-extension, oblique) - LBP with red flag signs - X-ray APL - Rheumatologic conditions (e.g. Spondyloarthropathies): - X-ray of the sacroiliac joints - Blood and urine examination including acute phase reactants - Scoliosis - X-ray of the whole spine in standing	- Spondylolisthesis: - CT myelography (dynamic/plain) - MRI (plain/dynamic/upright seated) - Discography - SPECT - Myeloscopy - Lumbar stenosis - MRI - CT Scan - LBP with other non-traumatic pathology - MRI

Equipment/Resources	- X-ray machine - Laboratory	- X-ray machine with fluoroscopy - CT machine - MRI machine
Workforce	- Attending physician - Physiatrist - Radiologist	- Physiatrist - Neurologist - Orthopedic surgeon - Neurosurgeon - Rheumatologist - Radiologist
Training	Within competency	Within competency
When is it done	Upon consultation	Upon consultation
Reassessment using at least one standard outcome measure	Four to six weeks	Four to six weeks

4. Acute Low Back Pain

4.1 NON-SPECIFIC ACUTE LOW BACK PAIN

4.1.1 CONSERVATIVE MANAGEMENT

4.1.1.1 PHARMACOLOGIC MANAGEMENT

Table 24. Pharmacologic management of non-specific acute low back pain

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is strong evidence that acetaminophen is an effective treatment for acute non-specific low back pain. It is to be considered as the first line of drug; it should not be given >3 grams/day.	TOP	SR (high)	Van Tulder et. al. 2004
	Italian	A (high)	Negrini et al. 2006
	WorkCover SA	A (high)	Aus Acute MSK Pain 2003
	NICE	1++ (high)	Roelofs et al, 2008
Consistent level of evidence – Moderate volume – Non-current – Uniform thought			
2017 Updated Recommendations and evidence sources			
There is evidence that acetaminophen is an effective treatment for acute non-specific low back pain. It is to be considered as the first line of drug.	TOP 2015	SR (high)	Chou et al, 2007 ICSI 2006 ICSI 2008 Goertz et al, 2012 Van Tudler et al, 2004 Aus Acute MSK Pain 2003 IHE Database
Moderate volume – Non-current			
ADAPTE 1: The recommendation remains unchanged but the strength of evidence changed (decreased) from the 2011 PARM guideline. PARM strongly endorses the use of acetaminophen as an effective treatment for acute non-specific low back pain. It is to be considered as the first line of drug; it should not be given >3 grams/day.			

2011 Recommendation Statement			
There is strong evidence that non-steroidal anti-inflammatory drugs (NSAIDs) are effective to decrease pain for acute non-specific low back pain and recommended for short term treatments when paracetamol alone is insufficient.	CLIP	High	Bogduk, 2004 Jackson 2004 Van Tulder et. al. 2005 Van Tulder & Waddell 2000
	TOP	SR (high)	Van Tulder et. al 2004

	Italian	A (high)	Negrini et. al. 2006
	WorkCoverSA	B (high)	WorkCoverSA 2010
	NICE	1++ (high)	Roelofs et. al. 2008
	APS-ACP	Good	Van Tudler et al, 2000a,b
Consistent level of evidence – High volume – Non-current – Uniform thought			
2017 Updated Recommendations and evidence sources			
There is strong evidence that non-steroidal anti-inflammatory drugs (NSAIDs) are effective to decrease pain for acute non-specific low back pain and recommended for short term treatments when paracetamol alone is insufficient.	ACP-NI 2017	High evidence	Roelofs et al, 2008 Basmaijan et al, 1989 Goldie et al, 1968 Dreiser et al, 2003
	TOP 2015	SR	Chou et al, 2007 ICSI 2006 ICSI 2008 Goertz et al, 2012 Van Tudler et al, 2004 Aus Acute MSK Pain 2003 IHE Database
	ACOEM 2016	A	Dreiser et al, 2003
Consistent high level of evidence – High volume – Non-current – Uniform thought			
ADAPTE 1: The recommendation and strength of evidence remains unchanged from the 2011 PARM guideline. PARM strongly endorses the use of NSAIDs as second drug if acetaminophen is not sufficient in the treatment of acute non-specific low back pain. However, PARM recommends that NSAIDs be used for short-term pain relief.			

2011 Recommendation Statement			
There is insufficient evidence to judge the efficacy of antidepressants for treatment of acute non-specific low back pain	CLIP	Absent	Bogduk et al, 2004 Schitzer et al, 2004 Van Tulder & Waddel, 2000
Low volume – Non-current			
2017 Updated Recommendations and evidence sources			
There is insufficient that norepinephrine reuptake inhibitor anti-depressants (e.g., tricyclic anti-depressants – amitriptyline, imipramine, nortriptyline, desipramine, maprotiline, doxepin) and mixed serotonin norepinephrine reuptake inhibitors (e.g., duloxetine) are recommended for the treatment of acute non-specific low back pain	TOP 2015	EO –DO NOT KNOW	Chou et al, 2007 GUC 2015
	ACOEM 2016	C - DO	Stein et al, 1996
Consistent low level evidence – Low volume – Non-current – Uniform thought			

ADAPTE 1: The recommendation and strength of evidence remain unchanged from the 2011 PARM guideline. PARM suggests that antidepressants (e.g., tricyclic anti-depressants – amitriptyline, imipramine, nortriptyline, desipramine, maprotiline, doxepin) and mixed serotonin norepinephrine reuptake inhibitors (e.g., duloxetine) may be considered as treatment options for acute non-specific low back pain.

2011 Recommendation Statement			
There is strong evidence that the efficacy of non-benzodiazepines is greater than benzodiazepines for acute non-specific low back pain	CLIP	High	Van Tulder et al, 2005
Consistent level of evidence – Moderate volume – Non-current – Uniform thought			
2017: No new evidence			
PARM strongly endorses the use of non-benzodiazepines over benzodiazepines in the treatment of acute non-specific low back.			

2011 Recommendation Statement			
There is insufficient evidence that non-opioids are as efficacious as NSAIDS for pain relief in patients with acute non-specific low back pain.	CLIP	Low	Van Tulder & Waddell, 2000 Jackson, 2004 Bogduk, 2004
Low volume – Non-current			
2017: No new evidence			
PARM suggests that non-opioids are as efficacious as NSAIDS for pain relief in patients with acute non-specific low back pain.			

2011 Recommendation Statement			
There is some evidence to preferentially prescribe NSAIDs for people with acute non-specific low back pain who obtain insufficient benefit from paracetamol.	NICE	1++ (high)	Roelofs et. al. 2008
Low volume – Current			
2017: No new evidence			
PARM recommends to preferentially prescribe NSAIDs for people with acute non-specific low back pain who obtain insufficient benefit from acetaminophen. However, PARM suggests that opioids be used with caution and at a minimum effective dose, for less than one to two weeks			

2011 Recommendation Statement			
There is evidence that the effect of opioid or compound analgesics is similar to NSAID treatment of acute low back pain. Oral opioids may be necessary to relieve severe musculoskeletal pain. It is preferable to administer a short-acting agent at regular intervals, rather than on a pain-contingent basis. Ongoing need for opioid analgesia is an indication for reassessment	TOP WorkCover SA	SR (high) B (high)	Aus Acute Musculokeletal Pain Group 2003
Consistent level of evidence – Low volume – Non-current – Uniform thought			
2017: No new evidence			
PARM endorses that the effect of opioid or compound analgesics is similar to NSAID treatment of acute low back pain.			

2011 Recommendation Statement			
There is some evidence to preferentially prescribe weak opioids for people with acute non-specific low back pain who obtain insufficient benefit from paracetamol.	NICE	1++ (high)	Roelofs et. al. 2008
Low volume – Current			
2017 Updated Recommendations and evidence sources			
There is some evidence that opioids may be considered for those carefully selected patients with severe acute pain not controlled with acetaminophen and NSAIDs It should be given at a minimum effective dose only for a limited period of time, usually less than one to two weeks. Ongoing need for opioids is an indication for reassessment	TOP 2015	SR (high)	Chou et al, 2007 Goertz et al, 2012 IHE Database
High level of evidence – Non-current			
ADAPTE 1: The recommendation and strength of evidence remain unchanged from the 2011 PARM guideline. PARM recommends to preferentially prescribe opioids for those with severe acute non-specific low pain not controlled by acetaminophen and NSAIDs. However, PARM suggests that opioids be used with caution and at a minimum effective dose, for less than one to two weeks.			

2011 Recommendation Statement			
There is some evidence of superiority of opioids compared to non-opioids in the treatment of acute non-specific low back pain.	CLIP	Low	Van Tulder & Waddell, 2000 Jackson 2004 Bogduk 2004
Inconsistent level of evidence – Moderate volume – Non-current – Uniform thought			
2017: No new evidence			
PARM recommends that opioids are superior over non-opioids in the treatment of acute non-specific low back pain.			

<table>
<tr><td colspan="4">2011 Recommendation Statement</td></tr>
<tr><td rowspan="4">There is strong evidence that muscle relaxants are more effective than placebo in the treatment of acute non-specific low back pain, particularly for muscle spasm. However, due to adverse effects it should not be recommended routinely and the patient should be advised about possible side effects.</td><td>TOP</td><td>SR (high)</td><td>Van Tulder et. al. 2004</td></tr>
<tr><td>CLIP</td><td>Strong (high)</td><td>Van tulder et. al. 2005</td></tr>
<tr><td>Italian</td><td>A (high)</td><td>Negrini et. al. 2006</td></tr>
<tr><td>WorkCoverSA</td><td>B</td><td>WorkCoverSA 2010</td></tr>
<tr><td colspan="4">Consistent level of evidence – Moderate volume – Non-current – Uniform thought</td></tr>
<tr><td colspan="4">2017 Updated Recommendations and evidence sources</td></tr>
<tr><td>There is some evidence that muscle relaxants may be used as an option in treating acute low back pain. However, possible side effects should be considered</td><td>ACP-NI 2017</td><td>High evidence</td><td>Roelofs et al, 2008
Basmaijan et al, 1989
Goldie et al, 1968
Dreiser et al, 2003</td></tr>
<tr><td colspan="4">High level of evidence – Non-current</td></tr>
<tr><td colspan="4">ADAPTE 1: The recommendation remains unchanged but the strength of evidence changed (decreased) from the 2011 PARM guideline.

PARM strongly endorses the use of muscle relaxants in the treatment of acute non-specific low back pain, particularly for muscle spasm and should not be recommended routinely due to its adverse effects.</td></tr>
</table>

<table>
<tr><td colspan="4">2011 Recommendation Statement</td></tr>
<tr><td rowspan="2">There is conflicting evidence that a combination of muscle relaxant and NSAIDs or analgesic is effective in the treatment of acute non-specific low back pain.</td><td>CLIP</td><td>High (relaxant +NSAIDs efficacy> placebo) Type of study?</td><td>Van Tulder et. al. 2005</td></tr>
<tr><td>Italian</td><td>C – deep uncertainty</td><td>Negirini et. al. 2006</td></tr>
<tr><td colspan="4">Inconsistent level of evidence – Low volume – Current – Variable thought</td></tr>
<tr><td colspan="4">2017 Recommendations and Evidence Sources</td></tr>
<tr><td>There is evidence to consider adding a short course of muscle relaxant (benzodiazepines, cyclobenzaprine, or anti-spasticity drugs) on its own, or added to NSAIDs, in the treatment of acute non-specific low back pain if acetaminophen or NSAIDs have failed to reduce pain.</td><td>TOP 2015</td><td>SR (high)</td><td>Chou et al, 2007
ICSI 2006
ICSI 2008
Goertz et al, 2012
Van Tulder et al, 2004
Aus Acute MSK Pain 2003
IHE Database</td></tr>
</table>

High volume – Non-current
ADAPTE 2: The recommendation remains unchanged but the strength of evidence changed (increased) from the 2011 PARM guideline. PARM recommends that the combination of muscle relaxant (benzodiazepines, cyclobenzaprine, or anti-spasticity drugs) and NSAIDs or analgesic may be considered as a treatment option in the treatment of acute non-specific low back pain if acetaminophen or NSAIDs alone have failed to reduce pain.

2011 Recommendation Statement			
There is insufficient evidence not to recommend oral steroids for the treatment of acute non-specific low back pain.	TOP	EO (do not recommend)	ICSI 2006
	Italian	C (do not recommend)	Negrini et al. 2006
Consistent level of evidence – Low volume – Current – Uniform thought			
2017 Updated Recommendations and evidence sources			
There is some evidence against the use of oral steroids for acute non-specific low back pain.	TOP 2015	EO – DO NOT (low)	ICSI 2006 ICSI 2008
	ACOEM 2016	B (high) DO NOT	Goldberg et al, 2015 Friedman et al, 2006
Inconsistent level of evidence - Moderate volume – Non-current – Uniform thought			
ADAPTE 2: The recommendation remains unchanged but the strength of evidence changed (increased) from the 2011 PARM guideline. PARM does not recommend the use of oral steroids for the treatment of acute non-specific low back pain.			

2011 Recommendations and Evidence Sources			
There is evidence that systemic corticosteroid is not effective in the treatment acute non-specific low back pain	APS-ACP	High Evidence Fair (not effective)	Finckh et al. 2006 Friedman et al. 2006 Haimovic & Beresford 1986 Porsman & Friis, 1979
Moderate volume – Current			
2017 Updated Recommendations and evidence sources			
There is some evidence that systemic corticosteroids (i.e. intramuscular injection) are not effective for the treatment of patients with acute non-specific low back pain.	TOP 2015	RCT (high) DO NOT	Chou et al, 2007

Low volume – Non-current
ADAPTE 1: The recommendation remains unchanged but the strength of evidence changed (decreased) from the 2011 PARM guideline. PARM does not endorse the use of systemic steroids (i.e. intramuscular injection) for the treatment of acute non-specific low back pain.

2017 Recommendation Statement			
There is insufficient evidence to recommend for or against anticonvulsants (gabapentin, topiramate) for acute non-specific low back pain.	TOP 2015	EO – Do not know (low)	Chou et al, 2007 GUC 2015
Low volume – Non-current			
PARM suggests that anticonvulsants (gabapentin, topiramate) may be considered as treatment options for acute non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence to recommend for or against marijuana/dried cannabis for acute non-specific low back pain	TOP 2015	EO – Do not know (low)	GUC 2015
Low volume – Non-current			
PARM suggests that marijuana/dried cannabis may be considered as treatment option for acute non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence for and against the use of topical NSAIDs and other creams for the treatment of acute non-specific low back pain.	TOP 2015	SR – Do not know (low)	IHE Database
	ACOEM 2016	Insufficient – Do not know (low)	Stam et al, 2001 Ginsberg et al, 1987
Consistent low level of evidence - Low volume - Non-current – Uniform thought			
PARM suggests that topical NSAIDs or other creams and ointments may be considered as treatment options for the treatment of acute non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence against the use of oral or IV colchicine for treatment of acute non-specific low back pain.	ACOEM 2016	Insufficient (low) DO NOT	Schnebel et al, 1988 Simmons et al, 1990 Meek et al, 1985
Low volume – Non-current			
PARM does not suggest the use of oral or IV colchicine for treatment of acute non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence for or against the use of thiocolchicine for treatment of acute non-specific low back pain.	ACOEM 2016	Insufficient (low) DO NOT KNOW	Ketenci et al, 2005 Tuzun et al, 2003
Low volume – Non-current			
PARM suggests that thiocolchicine may be considered as a treatment option for acute non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence for or against the use of the following oral herbal treatments: theramine, harpagoside, salicin, for treatment of acute non-specific low back pain:	ACOEM 2016	Insufficient (low) DO NOT KNOW	Van Tulder et al, 2005
Low volume – Non-current			
PARM suggests that oral herbal treatments (theramine, harpagoside and salicin) may be considered as treatment options for acute non-specific low back pain			

2017 Recommendation Statement			
There is insufficient evidence against the use of vitamins for the treatment of acute non-specific low back pain, in the absence of documented deficiencies or other nutritional deficit states.	ACOEM 2016	I (low) DO NOT	Mibielli et al, 2009 Kuhlwein et al, 1990 Vetter et al, 1988 Chiu et al, 2011
Moderate volume – Non-current			
PARM does not suggest the use of vitamins for treatment of acute non-specific low back pain, in the absence of documented deficiencies or other nutritional deficit states.			

4.1.1.2 PHYSICAL ACTIVITY, THERAPEUTIC EXERCISE WITH RELATED INTERVENTIONS, EDUCATION & ADVICE

Table 25. Physical activity, therapeutic exercise with related interventions, education and advice for acute non-specific low back pain

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is strong evidence against bed rest as treatment for patients with acute non-specific low back pain. If the patient must rest, it should be limited to no more than two days.	TOP	SR (against)	Australian Acute Musculoskeletal Pain Guidelines Group 2003 ICSI 2006 Van Tulder et al. 2004
	CLIP	Strong (against)	Hagen et al. 2005 Van Tulder et al. 2004
	ITALIAN	A (against)	Negrini et al. 2006
	ICSI	R (against)	New Zealand Guidelines Group 2004
Consistent level of evidence – Mod volume – Current – Uniform thought			
2017 updated recommendations and evidence sources			
There is strong evidence that clinicians should not recommend bed rest for patients with low back pain	TOP 2015	SR (high) DO NOT	ICSI 2006 ICSI 2008 Goertz et al, 2012 Van Tudler et al, 2004 Aus Acute MSK Pain 2003
	ACOEM 2016	B (high) DO NOT	Gilbert et al, 1985 Jensen et al, 2012 Molde et al, 2003
Consistent high level of evidence – High volume – Non-current – Uniform thought			
ADAPTE 1: The recommendation and strength of evidence remains unchanged from the 2011 PARM guideline. PARM strongly endorses against bed rest in patients with acute non-specific low back pain. If the patient must rest, it must be limited to no more than two days.			

2011 Recommendation Statement			
There is strong evidence that patients with acute non-specific low back pain should be advised to remain physically active.	CLIP	Strong	Hilde et al. 2005 Van Tulder et al. 2004
	ITALIAN	A	Negrini et al. 2006
	ICSI	M	Waddell et al. 1997
	TOP	SR	ICSI 2006 Van Tulder et al. 2004

Consistent high level of evidence – Moderate volume – Non-current – Uniform thought			
2017 updated recommendations and evidence sources			
There is some evidence that clinicians should advise patients with acute low back pain to stay active and continue activities of daily living within the limits permitted by their symptoms.	TOP 2015	SR (high)	Chou et al, 2007 ICSI 2008 ICSI 2010 Goertz et al, 2013 Van Tulder et al, 2008
High level of evidence – Non-current			
ADAPTE 1: The recommendation remains unchanged but the strength of evidence changed (decreased) from the 2011 PARM guideline. PARM strongly endorses that patients with acute non-specific low back pain remain physically active.			

2011 Recommendation Statement			
There is conflicting evidence that therapeutic exercise is useful in managing acute non-specific low back pain	TOP	SR	ICSI 2006 Van Tulder et al, 2004
	WORKCOVERSA	B	WORK-COVERSA 2010
	APS-ACP	Good (not effective)	Hayden et al, 2005a,b
Consistent level of evidence – Moderate volume – Non-current – Variable thought			
2017: No new evidence			
PARM suggests therapeutic exercise as a treatment option in acute non-specific low back pain.			

2011 Recommendation Statement			
There is strong evidence against prescribing any specific exercise program over another in managing acute non-specific low back pain.	ITALIAN	A (against)	Negrini et al 2006
	TOP	SR (insufficient)	ICSI 2006 Van Tulder et al, 2004
	CLIP	Strong (against)	Hayden et al, 2005a
	WORKCOVERSA	A (insufficient)	WorkCoverSA 2010
Consistent level of evidence – Moderate volume – Current –Variable thought			
2017: No new evidence			
PARM strongly endorses against prescribing a specific exercise program over another in managing acute non-specific low back pain.			

2011 Recommendation Statement			
There is insufficient evidence that the McKenzie exercise approach is beneficial for patients with acute non-specific low back pain.	CLIP	Low	Clare et al, 2004
Low volume – Non-current			

2017: No new evidence
PARM suggests McKenzie approach as a possible exercise option for acute non-specific low back pain.

2011 Recommendation Statement			
There is conflicting evidence against back schools (i.e. control posture, reduce stress, and modify work activity) in managing acute non-specific low back pain.	ITALIAN	A	Negrini et al, 2006
	CLIP	absent (insufficient)	Heymans et al, 2005
	TOP	SR (against)	Van Tulder et al, 2004
	WorkCoversa	A (insufficient)	Australian Acute Musculoskeletal Pain Guidelines Group 2003
	ITALIAN	A (against)	Negrini et al, 2006
	APS-ACP	Poor (unable to estimate)	Heymans et al, 2004, 2005
Inconsistent level of evidence – Moderate volume – Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is insufficient evidence for or against back schools (i.e. control posture, reduce stress, and modify work activity) in managing acute non-specific low back pain.	TOP 2015	SR – DO NOT KNOW (low)	Chou et al, 2007
Low level of evidence – Non-current			
ADAPTE 1: The recommendation and strength of evidence remains unchanged from the 2011 PARM guideline. PARM suggests back school (i.e. control posture, reduce stress, and modify work activity) in patients with acute non-specific low back pain.			

2017 Recommendation Statement			
There is evidence that patients should limit/pace any activity or exercise that causes spread of symptoms (peripheralization).	TOP 2015	SR (high)	Chou et al, 2007 ICSI 2006 ICSI 2008 Goertz et al, 2012 Van Tudler et al, 2004
Moderate volume – Non-current			
PARM endorses that patients with acute non-specific low back pain should limit/pace any activity or exercise that causes spread of symptoms (peripheralization).			

2017 Recommendation Statement			
There is evidence against self-treating with an exercise program not specifically designed for the patient [may aggravate symptoms].	TOP 2015	SR (high)	Chou et al, 2007 ICSI 2006 ICSI 2008 Goertz et al, 2012 Van Tudler et al, 2004

Moderate volume – Non-current
PARM does not endorse self-treating with an exercise program not specifically designed for the patient.

2017 Recommendation Statement			
There is some evidence that centralization and directional preference exercise and procedures are effective in acute non-specific low back pain with mobility deficits.	APTA 2012	Grade A (high) Level I evidence (high) Level III evidence (low)	Browder et al, 2007 Clare et al, 2004 Long et al (1999 Machado et al, 2006 Petersen et al, 2011 Long et al, 2008 Werneke et al, 2011
	ACOEM 2016	C (low)	Petersen et al, 2011 Werneke et al, 2008 Werneke et al, 2011 Long et al, 2008
Inconsistent level of evidence – High volume –- Non-current – Uniform thought			
PARM recommends that centralization and directional preference exercises and procedures may be treatment options for acute non-specific low back pain with mobility deficits.			

2017 Recommendation Statement			
There is insufficient evidence that lordotic sitting posture is effective for treatment of acute non-specific low back pain.	ACOEM 2016	Insufficient	Delitto et al, 1993 Williams et al, 1991
Low volume – Non-current			
PARM suggests that lordotic sitting posture may be considered to relieve acute non-specific low back pain.			

2017 Recommendation Statement			
There is evidence that aerobic exercise is effective for treatment of acute non-specific low back pain.	ACOEM 2016	B	Bigos et al, 2009 Choi et al, 2010 Pescatello et al, 2014 Fritz et al, 2003 Sculco et al, 2001
Moderate volume - Non current			
PARM endorses aerobic exercise for the treatment of acute non-specific low back pain.			

4.1.1.3 PHYSICAL AGENTS, MODALITIES, TRACTION AND LUMBAR SUPPORTS

Table 26. Physical agents, modalities, traction and lumbar supports for acute non-specific low back pain

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is conflicting evidence on the efficacy of the use of heat therapy in the treatment of acute non-specific low back pain.	CLIP	Absent (insufficient evidence)	Nadler et al, 2002 Van Tulder et al, 2004
	ITALIAN	A (not useful)	Negrini et al, 2006
	ICSI	A (recommend)	Nadler et al, 2002
	WORK-COVERSA	B (evidence of improvement)	WorkCoverSA 2010
	APS-ACP	Good (moderate)	French et al, 2006
Inconsistent level of evidence– Moderate volume – Current – Variable thought			
2017 Updated Recommendations and Evidence Sources			
There is strong evidence that the application of heat is useful in the treatment of acute non-specific low back pain.	ACP NI 2017	Moderate	French et al, 2006 Mayer et al, 2005 Nadler et al, 2002
	TOP 2015	SR	Chou et al, 2007 ICSI 2006
Consistent level of evidence – Moderate volume – Non-current – Uniform thought			
ADAPTE 2: The recommendation remains unchanged but the strength of the evidence changed (increased) from the 2011 PARM guideline. PARM recommends the use of heat in the treatment of acute non-specific low back pain.			

2011 Recommendation Statement			
There is conflicting evidence on the efficacy of cold packs in the treatment of acute non-specific low back pain.	CLIP	Absent (insufficient evidence)	Nadler 2004 Van Tulder et al, 2004
	TOP	EO (Do)	ICSI 2006
	ICSI	A (recommend)	Nadler et al, 2002
Inconsistent level of evidence – Moderate volume – Non-current – Variable thought			
2017 Updated Recommendations and Evidence Sources			
There is insufficient evidence that cryotherapy is useful in the treatment of acute non-specific low back pain.	TOP 2015	EO (Do)	EO (GUC)
Low volume – Current			
ADAPTE 1: The recommendation and strength of evidence remain unchanged from the 2011 PARM guideline. PARM suggests the use of cryotherapy in the treatment of acute non-specific low back pain.			

2011 Recommendation Statement			
There is conflicting evidence that ultrasound is useful in the treatment of acute non-specific low back pain.	CLIP	Absent (insufficient evidence)	Nadler 2004
	ITALIAN	A (not useful)	Negrini et al, 2006
Inconsistent level of evidence – Low volume – Non-current – Variable thought			
2017 Updated Recommendations and Evidence Sources			
There is some evidence that therapeutic ultrasound is not useful in the treatment of acute non-specific low back pain.	ACOEM 2016	I	Blomberg et al, 1992 Hurwitz et al, 2002 Borman et al, 2003
	TOP 2015	SR, RCT (Do not)	Chou et al, 2007 IHE database
Inconsistent level of evidence – Moderate volume – Non-current – Uniform thought			
ADAPTE 4: The recommendation and the strength of evidence changed (increased) from the 2011 PARM guideline. PARM does not recommend the use of therapeutic ultrasound in the treatment of acute non-specific low back pain.			

2011 Recommendation Statement			
There is some evidence on the efficacy of laser therapy in the treatment of acute non-specific low back pain.	NICE	1++	Yousefi-Nooraie et al, 2007
Low volume - Current			
2017 Updated Recommendations and Evidence Sources			
There is some evidence that low level laser is not useful in the treatment of acute non-specific low back pain.	ACOEM 2016	C	Basford et al, 1999 Toya et al, 1994 Ay et al, 2010 Konstantinovic et al, 2010
	TOP 2015	RCT, SR (inconclusive)	Chou et al, 2007 IHE database
Consistent level of evidence – Moderate volume – Non-current – Uniform thought			
ADAPTE 3: The recommendation changed but the strength of evidence remains unchanged from the 2011 PARM guideline. PARM recommends the use of low level laser in the treatment of acute non-specific low back pain. However, this recommendation may change in the future due to emerging evidence against its benefit.			

2011 Recommendation Statement			
There is insufficient evidence on the efficacy of shortwave	CLIP	Absent	Nadler 2004 Van Tulder et al, 2004

diathermy in the treatment of acute non-specific low back pain.	APS-ACP	Poor	Rasmussen 1979
Consistent level of evidence - Low volume – Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is some evidence that diathermy is not useful in the treatment of acute non-specific low back pain.	ACOEM 2016	C	Sweetman et al, 1993 Glover et al, 1974 Farrell & Twomey 1982
	TOP 2015	SR, RCT (inconclusive)	Chou et al, 2007 IHE database
Consistent level of evidence – Moderate volume – Non-current – Uniform thought			
ADAPTE 4: The recommendation and the strength of evidence changed (increased) from the 2011 PARM guideline. PARM does not recommend the use of diathermy in the treatment of acute non-specific low back pain.			

2011 Recommendation Statement			
There is conflicting evidence against the use of Transcutaneous Electrical Nerve Stimulation (TENS) in the treatment of acute non-specific low back pain.	CLIP	Low (cannot be recommended)]	Nadler 2004 Philadelphia Panel 2001 Van Tulder et al, 2004
	TOP	SR (Do)	Van Tulder et al, 2004
	ITALIAN	A (not useful)	Negrini et al, 2006
	NICE	1+ (no improvement) 1-(no improvement) 1-(with improvement)	Deyo et al, 1990a Jarzem et al, 2005a Jarzem et al, 2005b
Inconsistent level of evidence – Moderate volume – Non-current – Variable thought			
2017 Updated Recommendations and Evidence Sources			
There is some evidence that Transcutaneous Electrical Nerve Stimulation (TENS) is not useful in the treatment of acute non-specific low back pain.	ACOEM 2016	I	Bertalanffy et al, 2005 Herman et al, 1994 Hsieh et al, 2002 Tsukayama et al, 2002 Melzack et al, 1983
	TOP 2015	SR	Chou et al, 2007 Van Tulder et al, 2004
Inconsistent level of evidence – Moderate volume – Non-current – Uniform thought			
ADAPTE 2: The recommendation remains unchanged but the strength of the evidence changed (increased) from the 2011 PARM guideline. PARM does not recommend the use of TENS as sole treatment in acute non-specific low back pain.			

2011 Recommendation Statement			
There is some evidence on the benefits of interferential therapy, alone or in combination with manipulative therapy in the treatment of acute non-specific low back pain.	WORK-COVERSA	B	WorkCoverSA 2010
Low volume - Current			
2017 Updated Recommendations and Evidence Sources			
There is some evidence that interferential therapy is useful in the treatment of acute non-specific low back pain.	ACOEM 2016	I	Hurley et al, 2004 Hurley et al, 2001 Werners et al, 1999
	TOP 2015	EO	EO (GUC)
Consistent level of evidence – Moderate volume – Non-current – Uniform thought			
ADAPTE 1: The recommendation and strength of evidence remain unchanged from the 2011 PARM guideline. PARM recommends the use of interferential therapy, alone or in combination with manipulative therapy, in the treatment of acute non-specific low back pain.			

2011 Recommendation Statement			
There is strong evidence that continuous traction is not beneficial in the management of acute non-specific low back pain.	TOP	SR (Do)	Vroomen et al, 2000
	CLIP	Strong	Harte et al, 2003 Nadler 2004 Philadelphia Panel 2001
	ITALIAN	A	Negrini et al, 2006
	WORK-COVERSA	A	Australian Acute Musculoskeletal Pain Guidelines Group 2003
Consistent level of evidence – Moderate volume – Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is evidence that lumbar traction is not useful in the treatment of acute non-specific low back pain.	ACOEM 2016	I	Fritz et al, 2007a Sweetman et al, 1993 Pal et al, 1986 Werners et al, 1999 Mathews et al, 1988 Borman et al, 2003
	APTA 2012	D	Beurskens et al, 1995a Beattie et al, 2008

	TOP 2015	SR (Do not)	Chou et al, 2007 Goertz et al, 2012 Van Tulder et al, 2004 Australian Acute Musculoskeletal Pain Group 2003
Inconsistent level of evidence – High volume – Non-current – Uniform thought			
ADAPTE 1: The recommendation remains unchanged but the strength of the evidence changed (decreased) from the 2011 PARM guideline. PARM strongly endorses against the use of lumbar traction in the treatment of acute non-specific low back pain.			

2011 Recommendation Statement			
There is conflicting evidence that lumbar supports are useful for patients with acute non-specific low back pain.	CLIP	Low	Van Tulder et al, 2004
	ITALIAN	A (not useful)	Negrini et al, 2006
Inconsistent level of evidence – Low volume – Non-current – Variable thought			
2017 Updated Recommendations and Evidence Sources			
There is insufficient evidence that lumbar supports are not helpful in the treatment of patients with acute non-specific low back pain.	ACOEM 2016	C	Doran & Newell 1975 van Poppel et al,1998 Reddel et al, 1992 Walsh & Schwartz 1990 Oleske et al, 2007 Roelofs et al, 2007 Roelofs et al, 2010
Moderate volume – Non-current			
ADAPTE 3: The recommendation changed but the strength of evidence remains unchanged from the 2011 PARM guideline. PARM suggests the use of lumbar supports in the treatment of patients with acute non-specific low back pain. However, this recommendation may change in the future due to emerging evidence against its benefit.			

2017 Recommendation Statement			
There is insufficient evidence that self-application of heat is useful in the treatment of acute non-specific low back pain.	ACOEM 2016	C	Nadler et al, 2002 Lloyd et al, 2004 Nadler et al, 2003a Nadler et al, 2003b Garra et al, 2010 Nuhr et al, 2004 Mayer et al, 2005 Tao & Bernacki 2005
High volume – Non-current			

PARM suggests the self-application of a heating pad in the treatment of acute non-specific low back pain.

2017 Recommendation Statement			
There is insufficient evidence that infrared therapy is useful as home treatment of acute non-specific low back pain.	ACOEM 2016	I	Mathews et al, 1988
Low volume – Non-current			
PARM suggests the use of infrared therapy as home treatment in acute non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence that shockwave therapy is useful in the treatment of acute non-specific low back pain.	TOP 2015	EO	EO (GUC)
Low volume – Current			
PARM suggests the use of shockwave therapy in the treatment of acute non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence that kinesiotaping and taping is not useful in the treatment of acute non-specific low back pain.	ACOEM 2016	C	Alvarez-Alvarez et al, 2014
Low volume – Current			
PARM does not suggest that the application of kinesiotape and other taping methods in the treatment of acute non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence that shoe insoles and lifts are not useful in the treatment of acute non-specific low back pain.	ACOEM 2016	I	Basford & Smith 1988 Larsen et al, 2002
Low volume – Non-current			
PARM does not suggest the use of shoe insoles and lifts in the treatment of acute non-specific low back pain.			

4.1.1.4 OTHER NON-INVASIVE PROCEDURES

Table 27. Non-pharmacologic management (other non-invasive procedures such as massage, manipulation & mobilization) of acute non-specific low back pain

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is conflicting evidence on the usefulness of massage in managing acute non-specific low back pain	Italian	A (Against)	Negrini et al, 2006
	CLIP	Absent (Recommended)	Cherkin et al. 2003 Furlan et al. 2005a
	TOP	SR (Against)	Van Tudler et al, 2004
	APS-ACP	Poor (Unable to estimate)	Godfrey et al, 1984
Inconsistent level of evidence – Moderate volume – Non-current – Variable thought			
2017 Updated Recommendations and Evidence Sources			
There is insufficient evidence for the usefulness of massage in managing acute non-specific low back pain.	ACOEM 2016	Insufficient (Recommended)	Albright et al, 2001
	TOP 2015	SR (Inconclusive – DO NOT KNOW)	Chou et al, 2007 IHE Database
Inconsistent level of evidence – Low volume – Non-current – Uniform thought			
ADAPTE 1: The recommendation and strength of evidence remains unchanged from the 2011 PARM guideline. PARM suggests therapeutic massage as a possible treatment option for acute non-specific low back pain.			

2011 Recommendation Statement			
There is evidence that spinal manipulation can improve outcomes in patients with acute non-specific low back pain.	CLIP	Moderate (for)	Van Tudler et al, 2000b
	TOP	SR (recommended)	Van Tudler et al, 2004
	Italian	A (recommended)	Negrini et al, 2006
	ICSI	MN (recommended)	Ottenbacher & Difabio 1985 Shekelle et al. 1992
	WORKCOVER SA	B (insufficient)	WorkCoverSA 2010
	APS-ACP	Fair (small to moderate)	Assendelft et al. 2003, 2004
Inconsistent level of evidence – High volume – Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is evidence that spinal manipulation can improve outcomes in patients with	ACOEM 2016	Insufficient (Recommended)	Rubinstein et al, 2012 Assendelft et al, 1995

acute non-specific low back pain.			Avery and O' Driscoll, 2004 Koes et al, 1996 Schneider et al, 2015 Andersson et al, 1999 Hancock et al, 2007 Juni et al 2009 Childs et al, 2004 Cleland et al, 2009
	ACP 2017	Low (Recommended)	Von Heymann et al, 2013 Rubinstein et al, 2012 Schneider et al, 2015
	APTA 2012	A (Recommended)	Assendelft et al, 2004 Assendelt et al, 2003 Flynn et al, 2002 Childs et al, 2004 Childs et al, 2006 Fritz et al, 2005 Cleland et al, 2009 Hancock et al, 2008
	TOP 2015	SR (DO)	Chou et al, 2007 Goertz et al, 2012 Van Tulder et al, 2004
Inconsistent level of evidence – High volume – Non-current – Uniform thought			
ADAPTE 1: The recommendation and strength of evidence remains unchanged from the 2011 PARM guideline. PARM endorses spinal manipulation as a possible treatment option for patient with acute non-specific low back pain			

2011 Recommendation Statement			
There is insufficient evidence that spinal mobilization may be beneficial in the management of acute nonspecific low back pain.	CLIP	Moderate	Bronfort et al, 2004
	ICSI	M	Ottenbacher & Difabio, 1985 Shekelle et al. 1992
Inconsistent level of evidence – Low volume – Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is insufficient evidence that spinal mobilization may be beneficial in the management of acute nonspecific low back pain.	ACOEM 2016	Insufficient (recommended)	Rubinstein et al, 2012 Assendelft et al, 1995 Avery and Driscoll, 2004

			Koes et al, 1996 Schneider et al, 2015 Andersson et al, 1999 Hancock et al, 2007 Juni et al 2009 Childs et al, 2004 Cleland et al, 2009
	TOP 2015	EO (Insufficient – DO NOT KNOW)	Guidelines Update Committee
Consistent level of evidence – High volume – Non-current – Uniform thought			
ADAPTE 1: The recommendation and strength of evidence remains unchanged from the 2011 PARM guideline. PARM suggests spinal mobilization as possible treatment option for acute non-specific low back pain			

2017 Recommendation Statement			
There is insufficient evidence that reflexology is not useful for acute non-specific low back pain.	ACOEM 2016	Insufficient (Not Recommended)	Quinn et al, 2008
Low volume – Non-current			
PARM does not suggest reflexology for the treatment of acute non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence that craniosacral therapy is useful for acute non-specific low back pain.	TOP 2015	EO (Do Not Know)	Guideline Update Committee
Low volume – Current			
PARM suggests craniosacral therapy as a possible treatment option for acute non-specific low back pain.			

4.1.2 INVASIVE PROCEDURES

Table 28. Invasive Management for acute non-specific low back pain

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is conflicting evidence against the use of epidural spinal injection as treatment for acute non-specific low back pain.	TOP CLIP	SR (do not use) Absent (insufficient evidence)	Van Tulder et al, 2004 Van Tulder et al, 2000b
Inconsistent level of evidence – Low volume – Non-current – Variable thought			
2017 Updated Recommendations and Evidence Sources			
There is some evidence against the use of epidural spinal injection as treatment for acute non-specific low back pain.	TOP 2015	SR (Do Not use)	Van Tulder et al, 2004
Low volume – Non-current			
ADAPTE 4: The recommendation and strength of evidence changed (increased) from the 2011 PARM guideline. PARM does not suggest use of epidural spinal injection as treatment for acute non-specific low back pain.			

2011 Recommendation Statement			
There is conflicting evidence that acupuncture is useful in patients with acute non-specific low back pain.	TOP	SR (do not know)	Australian Acute Musculoskeletal Pain Group 2003 IHE Database
	CLIP	Low (may be recommended)	Manheimer et al, 2005
	ITALIAN	A (not effective)	Negrini et al, 2006
	APS-ACP	Poor (unable to estimate)	Manheimer et al, 2005 Furlan et al, 2005b,c
Inconsistent level of evidence – Moderate volume – Non-current – Variable thought			
2017 Updated Recommendations and Evidence Sources			
Recommendation	Guideline	Level of Evidence	References
There is some evidence that acupuncture is useful in patients with acute non-specific low back pain.	TOP 2015	SR (Do not know)	Australian Acute Musculoskeletal Pain Group 2003 IHE Database
	ACP-APS (NI) 2017	Low (Strong recommendation)	Lee at al, 2013 Hasegawa et al, 2014 Vas et al, 2012
Inconsistent level of evidence - Moderate volume – Non-current – Uniform thought			

ADAPTE 2: The recommendation remains unchanged but the strength of evidence changed (increased) from the 2011 PARM guideline. PARM recommends use of epidural spinal injection as treatment for acute non-specific low back pain.

2017 Recommendation Statement			
There is insufficient evidence against the use of percutaneous nerve stimulation as treatment for acute non-specific low back pain.	ACOEM 2012	Insufficient (not recommended)	Hsieh et al, 2002
Low volume – Non-current			
PARM does not suggest percutaneous nerve stimulation as treatment for acute non-specific low back pain.			

4.2 ACUTE LOW BACK PAIN WITH RADICULOPATHY

4.2.1 CONSERVATIVE MANAGEMENT

4.2.1.1 PHARMACOLOGIC MANAGEMENT

Table 29. Pharmacologic management of acute low back pain with radiculopathy

2011 Recommendation Statement			
There is some evidence that paracetamol is effective in reducing pain for acute low back pain with radiculopathy.	Italian	A	Negrini et. al. 2006
Low volume – Current			
2017: No new evidence			
PARM recommends the use of paracetamol in reducing pain for acute low back pain with radiculopathy.			

2011 Recommendation Statement			
There is conflicting evidence that NSAID is effective in reducing pain for acute low back pain with radiculopathy.	Italian	A	Negrini et. al. 2006
	APS-ACP	Fair (not effective)	Vroomen et. al. 2000
Consistent level of evidence - Low volume – Current – Variable thought			
2017 Updated Recommendations and evidence sources			
There is some evidence that NSAID is effective in patients with acute radicular low back pain	ACOEM 2016	A (high)	Hermann et al, 2009 Weber et al, 1993
Low volume – Non-current			

ADAPTE 2: The recommendation remains unchanged but the strength of evidence changed (increased) from the 2011 PARM guideline. PARM recommends NSAIDs in the treatment of acute low back pain with radiculopathy.

2011 Recommendation Statement			
There is some evidence that muscle relaxant is effective in reducing pain for acute low back pain with radiculopathy.	Italian	A	Negrini et. al. 2006
Low volume – Current			
2017: No new evidence			
PARM recommends muscle relaxants in the treatment of acute low back pain with radiculopathy.			

2011 Recommendation Statement			
There is some evidence that tramadol is effective in reducing pain for acute low back pain with radiculopathy.	Italian	A	Negrini et. al. 2006
Low volume – Current			
2017: No new evidence			
PARM recommends tramadol in reducing pain for acute low back pain with radiculopathy.			

2011 Recommendation Statement			
There is some evidence that paracetamol with light opioid can be an effective alternative when NSAIDs or paracetamol alone do not control pain.	Italian	A	Negrini et. al. 2006
Low volume – Current			
2017: No new evidence			
PARM recommends the use of paracetamol with light opioid as an effective alternative when NSAIDs or paracetamol alone do not control pain.			

2011 Recommendation Statement			
There is conflicting evidence that systemic corticosteroid is useful for a short period in the treatment of acute low back pain with radiculopathy.	Italian	C	Negrini et. al. 2006
	APS-ACP	Fair (not effective)	Finckh et. al. 2006 Haimovic & Beresford 1986 Porsman & Friss 1979
Inconsistent level of evidence – Moderate volume – Current – Variable thought			
2017 Updated Recommendations and evidence sources			
There is insufficient evidence for the use of systemic glucocorticosteroids for the treatment of acute low back pain with radiculopathy.	ACOEM 2016	C (low)	Goldberg et al, 2015 Finckh et al, 2006 Holve et al, 2008 Haimovic et al, 1986

			Prosman et al, 1979
Moderate volume – Non-current			
ADAPTE 1: The recommendation and strength of evidence remain unchanged from the 2011 PARM guideline. PARM suggests use of systemic corticosteroid in the treatment of acute low back pain with radiculopathy.			

2011 Recommendation Statement			
There is some evidence that anti-epileptic drug is effective in the treatment of low back pain with radiculopathy.	APS-ACP	Fair	Khoromi et. al. 2005 Mc Cleane 2001 Yildirim et. al. 2003
Low volume – Non-current			
2017 Recommendations and Evidence Sources			
There is insufficient evidence to recommend for or against anticonvulsants (gabapentin, topiramate) for acute low back pain with radiculopathy.	TOP 2015	EO – Do not know (low)	Chou et al, 2007 GUC 2015
Low volume – Non-current			
ADAPTE 1: The recommendation remains unchanged but the strength of evidence changes (decreased) from the 2011 PARM guideline. PARM recommends the use of anticonvulsants (gabapentin, topiramate) in the treatment of acute low back pain with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence to recommend for or against analgesic antidepressants such as amitriptyline, other tricyclic antidepressants, or serotonin-norepinephrine reuptake inhibitors (SNRIs) for acute low back pain with radiculopathy.	TOP 2015	EO –Do not know (low)	Chou et al, 2007 GUC
Low volume – Non-current			
PARM suggests that antidepressants such as amitriptyline, or other tricyclic antidepressants, or serotonin-norepinephrine reuptake inhibitors (SNRIs) may be considered as treatment options for acute low back pain with radiculopathy.			

4.2.1.2 PHYSICAL ACTIVITY, THERAPEUTIC EXERCISE WITH RELATED INTERVENTIONS, EDUCATION & ADVICE

Table 30. Non-pharmacologic management (physical activity, therapeutic exercise with related interventions, education & advice) of acute low back pain with radiculopathy

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is some evidence to avoid bed rest in acute low back pain with radiculopathy, except for 2-4 days in severe cases	ITALIAN	A	Negrini et al. 2006
Low volume – Current			
2017 Updated recommendations and evidence sources			
There is insufficient evidence that clinicians should not recommend bed rest for patients with low back pain.	ACOEM 2016	C (low)	Deyo et al. 1986 Evans et al. 1987 Gilbert et al. 1985 Jensen et al 2012 Malmivaara et al. 1995 Molde et al. 2003 Rozenberg et al. 2002 Szpalski et al. 1992 Wilkinson et al. 1995 Wiesel et al. 1980
Low Volume - Non-current			
ADAPTE 1: The recommendation remains unchanged but the strength of evidence changed (decreased) from the 2011 PARM guideline. PARM recommends acute low back pain patients with radiculopathy to avoid bed rest (except for 2-4 days in severe cases).			

2011 Recommendation Statement			
There is some evidence that it is useful to advice acute low back patients with radiculopathy to remain physically active within limits of pain, and to return early to work accompanied by activity modifications.	ITALIAN	A	Negrini et al. 2006
Low volume – Current			
2017: No new evidence			
PARM recommends that patients should remain physically active within limits of pain, and to return early to work accompanied by activity modifications.			

2017 Recommendation Statement			
There is insufficient evidence that lordotic sitting posture is effective for treatment of acute radicular low back pain.	ACOEM 2016	Insufficient (low)	Delitto et al, 1993 Williams et al ,1991

Low volume - Non current
PARM suggests that lordotic posture may be considered as treatment option for acute low back pain with radiculopathy.

4.2.1.3 PHYSICAL AGENTS, MODALITIES, TRACTION & LUMBAR SUPPORTS

Table 31. Non-pharmacologic management (physical agents, modalities, traction & lumbar supports) of acute low back pain with radiculopathy

2011 Recommendation Statement			
There is some evidence that heat is not useful in the treatment of acute sciatica.	ITALIAN	A	Negrini et al. 2006
Low volume – Current			
2017: No new evidence			
PARM does not recommend the use of heat in the treatment of acute low back pain with radiculopathy.			

2011 Recommendation Statement			
There is insufficient evidence that ultrasound is not useful in the treatment of acute sciatica.	ITALIAN	A	Negrini et al. 2006
	APS-ACP	Poor	Nwuga 1983
Inconsistent level of evidence - Low volume – Current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is insufficient evidence for the use of therapeutic ultrasound in the treatment of acute low back pain with radiculopathy.	NASS RAD 2014	I	Unlu 2008
Low volume – Non-current			
ADAPTE 1: The recommendation and strength of evidence remain unchanged from the 2011 PARM guideline. PARM suggests the use of therapeutic ultrasound in the treatment of acute low back pain with radiculopathy.			

2011 Recommendation Statement			
There is some evidence that TENS is not useful in the treatment of acute sciatica.	ITALIAN	A	Negrini et al, 2006
Low volume – Current			
2017: No new evidence			
PARM does not recommend the use of TENS in the treatment of acute low back pain with radiculopathy.			

2011 Recommendation Statement			
There is some evidence that continuous traction has no effect in acute low back pain with radiculopathy.	APS-ACP	Fair	Clarke et al, 2005 Clarke et al, 2006 Harte et al, 2003 Vroomen et al, 2000
Moderate volume – Non-current			
2017 Updated Recommendations and Evidence Sources			
There is conflicting evidence on the usefulness of lumbar traction in the treatment of acute low back pain with radiculopathy.	ACOEM 2016	B (not)	Letchuman & Deusinger 1993 Fritz et al, 2007a Sweetman et al, 1993 Mathews 1975 Pal et al, 1986 Larsson et al, 1980 Weber 1973 Weber et al, 1984 Coxhead et al,1981 Mathews et al, 1987
	APTA 2012	D (benefit)	Clarke et al, 2006 Schimmel 2009b Fritz et al, 2007b Beattie et al, 2008
	NASS RAD 2014	I (insufficient)	Unlu et al, 2008
Inconsistent level of evidence – High volume – Non-current – Variable thought			
ADAPTE 3: The recommendation and the strength of evidence changed (decreased) from the 2011 PARM guideline. PARM does not recommend the use of lumbar traction in the treatment of acute low back pain with radiculopathy. However, this recommendation may change in the future due to emerging evidence for its benefit.			

2017 Recommendation Statement			
There is insufficient evidence that diathermy is not useful in the treatment of acute low back pain with radiculopathy.	ACOEM 2016	C	Sweetman et al, 1993
Low volume – Non-current			
PARM does not suggest the use of diathermy in the treatment of acute low back pain with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence that laser therapy is not useful in the treatment of acute low back pain with radiculopathy.	ACOEM 2016	C	Ay et al, 2010 Konstantinovic et al, 2010
	NASS RAD 2014	I	Unlu et al, 2008
Consistent level of evidence – Low volume – Non-current – Uniform thought			
PARM does not suggest the use of laser therapy in the treatment of acute low back pain with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence that infrared therapy is useful as home treatment of acute low back pain with radiculopathy.	ACOEM 2016	I	Mathews et al, 1988
Low volume – Non-current			
PARM suggests the use of infrared therapy as home treatment in acute low back pain with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence that decompression through traction and other spinal decompressive devices is not useful in the treatment of acute low back pain with radiculopathy.	ACOEM 2016	I	Brown 2012
Low volume – Current			
PARM does not suggest the use of decompression through traction and other spinal decompressive devices in the treatment of acute low back pain with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence that kinesiotaping and taping is not useful in the treatment of acute low back pain with radiculopathy.	ACOEM 2016	C	Alvarez-Alvarez et al, 2014
Low volume – Current			
PARM does not suggest the application of kinesiotape and other taping methods in the treatment of acute low back pain with radiculopathy.			

4.2.1.4 OTHER NON-INVASIVE PROCEDURES

Table 32. Non-pharmacologic management (other non-invasive procedures: massage, spinal manipulation) of acute low back pain with radiculopathy

2011 Recommendation Statement			
Recommendation	Guideline	Level of Evidence	Reference
There is some evidence that massage is not useful in treating acute low back pain with radiculopathy.	Italian	A	Negrini et al, 2006
Low volume – Non-current			
2017: No new evidence			
PARM does not recommend massage in the management of acute low back pain with radiculopathy.			

2011 Recommendation Statement			
Recommendation	Guideline	Level of Evidence	Reference
There is insufficient evidence for the benefit of spinal manipulation in managing acute low back with radiculopathy.	Italian	B	Negrini et al, 2006
Low volume – Current			
2017 Updated Recommendations and Evidence Sources			
There is insufficient evidence for the benefit of spinal manipulation in managing acute low back with radiculopathy.	NASS-RAD 2012	C (Recommended)	Santilli et al, 2006
Low volume – Non-current			
ADAPTE 1: The recommendation and strength of evidence changed remains unchanged from the 2011 PARM guideline. PARM suggests spinal manipulation as a possible treatment option for acute low back pain with radiculopathy.			

4.2.2 INVASIVE MANAGEMENT

4.2.2.1 INVASIVE MEDICAL PROCEDURES

Table 33. Invasive medical procedures (epidural spinal injection, acupuncture) for acute low back pain with radiculopathy

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is some evidence to use epidural spinal injection in acute low back pain with radiculopathy.	TOP	SR	Van Tulder et al, 2004
	CLIP	Low	Van Tulder et al, 2000b
	ITALIAN	B	Negrini et al, 2006
Inconsistent level of evidence – Moderate volume – Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
Recommendation	Guideline	Level of Evidence	References
There is evidence in the use of epidural spinal injection for short-term relief of acute low back pain with radiculopathy.	TOP 2015	SR (Do Not Know) EO (Do Not Know)	Van Tulder et al, 2004 Guideline Update Committee, 2015
	ACOEM 2012	Insufficient (Recommended) (short-term pain relief)	Choi et al, 2013 Arden et al, 2005 Watts et al, 1995 Karppinen et al, 2001 Carette et al, 1997
Inconsistent level of evidence – High volume – Non-current – Uniform thought			
ADAPTE 2: The recommendation remains unchanged but the strength of evidence changed (increased) from the 2011 PARM guideline. PARM endorses use of epidural spinal injection for short-term relief of acute low back pain with radiculopathy.			

2011 Recommendation Statement			
There is some evidence to use acupuncture in acute low back pain with radiculopathy.	ITALIAN	A	Negrini et al, 2006
Low Volume – Current			
2017: No new evidence			
PARM recommends use of acupuncture as treatment for low back pain with radiculopathy.			

4.2.2.2 MINIMALLY-INVASIVE PROCEDURES

Table 34. Minimally-invasive procedures (intradiscal ozone) for acute low back pain with radiculopathy

2017 Recommendation Statement			
Recommendation	Guideline	Level of Evidence	References
There is insufficient evidence in the use of intradiscal ozone as treatment for acute low back pain with radiculopathy.	NASS-RAD 2012	Insufficient	Gallucci et al, 2007
Low volume – Non-current			
PARM suggests epidural clonidine as an option for the treatment for acute low back pain with pyriformis syndrome.			

4.3 ACUTE LOW BACK PAIN DUE TO OTHER SPECIFIC CONDITIONS

4.3.1 PHYSICAL AGENTS, MODALITIES, TRACTION & LUMBAR SUPPORTS

Table 35. Non-pharmacologic management (physical agents, modalities, traction & lumbar supports) of acute low back pain due to other specific conditions.

2011 Recommendation Statement			
There is insufficient evidence supporting the use of lumbar supports and orthoses in patients with low back pain secondary to spinal stenosis and spinal instability.	ITALIAN	B/C	Negrini et al, 2006
Low volume – Current			
2017: No new evidence			
PARM suggests the use of lumbar supports in the treatment of acute low back pain in patients with low back pain secondary to spinal stenosis and spinal instability.			

2017 Recommendation Statement			
There is insufficient evidence that the application of shoe insoles is not useful in the treatment of acute low back pain in those with significant leg length discrepancy.	ACOEM 2016	I	Basford & Smith 1988 Larsen et al, 2002
Low volume – Non-current			
PARM does not suggest the application of shoe insoles in the treatment of acute low back pain in those with significant leg length discrepancy.			

4.3.2 INVASIVE PROCEDURES

Table 36. Minimally-invasive procedures (epidural clonidine) for acute low back pain due to other specific conditions

2017 Recommendation Statement			
Recommendation	Guideline	Level of Evidence	References
There is insufficient evidence in the use of epidural clonidine as treatment for acute low back pain with pyriformis syndrome.	ACOEM 2012	Insufficient	Naja et al, 2009
Low volume – Non-current			
PARM suggests epidural clonidine as an option for the treatment for acute low back pain with pyriformis syndrome.			

4.3.3 SURGICAL PROCEDURES

Table 37. Surgical procedures (vertebroplasy) for acute low back pain due to other specific conditions

2017 Recommendation Statement	**Guideline**	**Body of Evidence**	**References**
There is some evidence against the use of vertebroplasty as treatment for acute low back pain secondary to lumbar compression fracture.	ACOEM 2012	C (Not recommended)	Rousing et al, 2009 Rousing et al, 2010
Moderate volume – Non-current			
PARM does not recommend vertebroplasty as treatment for acute low back pain secondary to lumbar compression fracture			

4.4 SUMMARY OF RECOMMENDATIONS FOR ACUTE LOW BACK PAIN

4.4.1 Summary of recommendations for the treatment of non-specific acute low back pain

Table 38. Summary of recommendations for the treatment of non-specific acute low back pain

DURATION	CPG		INTERVENTION	SE	E	R	S	REMARKS
	2011	2017						
Pharmacologic Management	x	x	Acetaminophen	Yes				
	x	x	NSAIDs	Yes				as 2nd line drug
	x	x	Tricyclic anti-depressants – Amitriptyline, Imipramine, Nortriptyline, Desipramine, Maprotiline, Doxepin				Yes	
	x	x	Mixed serotonin norepinephrine reuptake inhibitors (e.g., Duloxetine)				Yes	
	x	x	Opioids			Yes		for severe acute NSLBP not controlled by acetaminophen and NSAIDs
	x	x	Muscle relaxants	Yes				
	x	x	Muscle relaxants (benzodiazepines, cyclobenzaprine, or anti-spasticity drugs) + NSAIDs or analgesic			Yes		
	x	x	Oral steroids			No		
	x	x	Systemic steroids		No			
	x		Non-benzodiazepines over Benzodiazepines	Yes				
	x		Non-opioids = NSAIDs				Yes	
	x		Opioids = NSAIDs		Yes			
	x		Opioids superior to non-opioids		Yes			
		x	Anticonvulsants (Gabapentin, Topiramate)				Yes	
		x	Marijuana/Dried Cannabis				Yes	

		x	Topical NSAIDs, other creams and ointments				Yes	
		x	Oral/IV Colcichine				No	
		x	Thiocolchicine				Yes	
		x	Oral herbal treatments (Harpagoside, Salicin)				Yes	
		x	Vitamin treatment				No	
Physical activity, therapeutic exercise with related interventions, education and advice	x	x	Bed rest	No				
	x	x	Remain active	Yes				
	x	x	Back schools (i.e. control posture, reduce stress, modify work activity)				Yes	
	x		Therapeutic exercise				Yes	
	x		Prescribing any specific exercise program over another	Yes				
	x		McKenzie approach				Yes	
		x	Limit/pace any activity or exercise that causes peripheralization		Yes			
		x	Self-treating with an exercise program not specifically designed for the patient		No			
		x	Centralization and Directional preference exercises and procedures			Yes		
		x	Aerobic exercise		Yes			
Physical Agents, Modalities, Orthosis	x	x	Heat therapy			Yes		
	x	x	Cold therapy/cryotherapy				Yes	
	x	x	Therapeutic ultrasound			No		
	x	x	Laser therapy			Yes		
	x	x	Shortwave diathermy			No		
	x	x	TENS			No		
	x	x	Interferential therapy			Yes		
	x	x	Lumbar traction	No				
	x	x	Lumbar supports				Yes	
		x	Self-application of heat				Yes	
		x	Infrared therapy as home treatment				Yes	
		x	Shockwave therapy				Yes	

		x	Kinesiotaping and other taping methods				No	
		x	Shoe insoles and lifts				No	
Other Non-invasive management	x	x	Massage				Yes	
	x	x	Spinal manipulation		Yes			
	x	x	Spinal mobilization				Yes	
		x	Reflexology				Yes	
		x	Craniosacral therapy				Yes	
Invasive/Surgical management	x	x	Epidural spinal Injection			No		
	x	x	Acupuncture			Yes		
		x	Percutaneous nerve stimulator				No	

Legend: SE – Strongly endorses
E – Endorses
R – Recommends
S – Suggests

4.4.2 Context points for the treatment of non-specific acute low back pain

Table 39. Context points for minimum and additional standard care of practice for non-specific acute low back pain.

	Minimum standard care of practice	**Additional standard care of practice**
Practice method	- Pharmacologic: - Medications (Acetaminophen, oral and topical NSAIDs, opioids, muscle relaxants, non-benzodiazepines, combination of muscle relaxant with NSAID/analgesic, anticonvulsants, TCAs, SNRIs, antispasticity drugs, cannabis, thiocolchicine) - Oral herbal treatments (theramine, harpagoside, salicin) - Physical activity, therapeutic exercise, education and advice: - Remain physically active and to avoid best rest (if needed, limit to no more than two days) - Continue usual activity, including work, within the limits permitted by the pain - Avoid bed rest - Therapeutic exercise - Back schools - Aerobic exercise - McKenzie's exercises - Centralization and directional preference exercise - Advise about risk factors (Patients should limit/pace any activity or exercise that causes spread of symptoms (peripheralization) such as: laundry, carrying/lifting/pushing that requires straining, riding tricycles or jeepneys, farming/gardening, and prolonged sitting or standing) - Physical agents, modalities, orthosis: - Heat and cold therapy - Lumbar support	- Physical agents, modalities, orthosis: - Interferential therapy - Laser therapy - Infrared therapy - Shockwave - Other non-invasive management: - Spinal manipulation++ - Spinal mobilization++ - Reflexology++ - Craniosacral therapy++ - Invasive* - Acupuncture+ - Epidural spinal injection+++ - Percutaneous nerve stimulation++

	- Other non-invasive management: - Massage	
Workforce	- Attending physician - Physiatrist - Physical therapist - Orthotist/Medical supplies distributor	- Physiatrist - Anesthesiologist - Pain specialist - Physical therapist - Health care professional trained in spinal manipulation/spinal mobilization/acupuncture/ epidural spinal injection/craniosacral therapy/reflexology/percutaneous nerve stimulation
Resources	- Physical therapy room - Electrophysical agents - Orthosis	- Physician's clinic - Physical therapy room - Electrophysical agents - Operating room - Medical supplies
Training	Within competency	Within competency
When is it done	Upon consultation Upon appointment with physical therapist	Upon consultation Upon appointment with physical therapist and other health care professionals
Reassessment using at least one standard outcome measure	Four to six weeks Pain scale before and after intervention	Two to four weeks Pain scale before and after intervention

* Consider invasive procedure when conservative management fails.
+ Acupuncture should be given only by a professional who is registered to practice in the Philippines (i.e. physician, PT, nurse), with recognized and credible training, approved by any of the following: Professional Regulation Commission (PRC), Department of Health (DOH), or their respective professional organization/s; and can provide documented evidence of safe and evidence-based practice.
++ Spinal manipulation and/or Spinal Mobilization, Reflexology, Craniosacral therapy, Percutaneous nerve stimulation should be given only by a professional who is registered to practice in the Philippines (i.e. physician, PT), with recognized and credible training, approved by any of the following: Professional Regulation Commission (PRC), Department of Health (DOH), or their respective professional organization/s; and can provide documented evidence of safe and evidence-based practice.
+++ Epidural spinal injection should be given only by a professional who is registered to practice in the Philippines (i.e. physician), with recognized and credible training, approved by the Professional Regulation Commission (PRC); and can provide documented evidence of safe and evidence-based practice.

4.4.3 Summary of recommendations for the treatment of acute low back pain with radiculopathy

Table 40. Summary of recommendations for the treatment of acute low back pain with radiculopathy

DURATION	CPG		INTERVENTION	SE	E	R	S	REMARKS
	2011	2017						
Pharmacologic Management	x	x	NSAIDs			Yes		
	x	x	Systemic corticosteroid				Yes	
	x	x	Anticonvulsants (Gabapentin, Topiramate)			Yes		
	x		Paracetamol			Yes		
	x		Tramadol			Yes		
	x		Paracetamol + light opioid			Yes		
		x	Tricyclic anti-depressants (Amytriptyline or others)				Yes	
		x	Serotonin-norepinephrine reuptake inhibitors				Yes	
Physical activity, therapeutic exercise with related interventions, education and advice	x	x	Bed rest			No		
	x		Remain physically active			Yes		
		x	Lordotic sitting posture				Yes	
Physical Agents, Modalities, Orthosis	x		Heat therapy			No		
	x	x	Therapeutic ultrasound				Yes	
	x		TENS			No		
	x	x	Lumbar traction			No		
		x	Shortwave diathermy				No	
		x	Laser therapy				No	
		x	Infrared therapy as home treatment				Yes	
		x	Decompression through traction and other devices				No	
		x	Kinesiotaping and other taping methods				No	
Other Non-invasive management	x		Massage			No		
	x	x	Spinal manipulation				Yes	
Invasive/Surgical management	x	x	Epidural spinal Injection		Yes			
	x		Acupuncture			Yes		
		x	Intradiscal ozone				Yes	

Legend: SE – Strongly endorses E – Endorses R – Recommends S – Suggests

4.4.4 Context points for the treatment of acute low back pain with radiculopathy

Table 41. Context points for the treatment of acute low back pain with radiculopathy

	Minimum standard care of practice	**Additional standard care of practice**
Practice method	- Pharmacologic: - Medications (Acetaminophen, NSAIDs, systemic corticosteroids, anticonvulsants – gabapentin, topiramate, tramadol, combination oof tramadol and light opioid, TCAs, SNRIs) - Physical activity, therapeutic exercise, education and advice: - Remain physically active and to avoid best rest (if needed, limit to no more than two days) - Lordotic sitting posture - Physical agents, modalities, orthosis: - Therapeutic ultrasound	- Physical agents, modalitites, orthosis: - Infrared therapy - Invasive management* - Intradiscal ozone+++ - Other non-invasive management: - Spinal manipulation++
Workforce	- Attending physician - Physiatrist - Physical therapist - Orthotist/Medical supplies distributor	- Physiatrist - Orthopedic surgeon - Neurosurgeon - Physical therapist - Health care professional trained in spinal manipulation
Resources	- Physical therapy room - Electrophysical agents	- Physical therapy room - Electrophysical agents - Operating room - Equipment for intradiscal ozone
Training	Within competency	Within competency
When is it done	Upon consultation Upon appointment with physical therapist	Upon consultation Upon appointment with physical therapist For invasive management, when comprehensive management fails.
Reassessment using at least one standard outcome measure	Four to six weeks Pain scale before and after intervention	Two to four weeks Pain scale before and after intervention

* Consider invasive procedure when conservative management fails.
++ Spinal manipulation and/or Spinal Mobilization, Reflexology, Craniosacral therapy, Percutaneous nerve stimulation should be given only by a professional who is registered to practice in the Philippines (i.e. physician, PT), with recognized and credible training, approved

by any of the following: Professional Regulation Commission (PRC), Department of Health (DOH), or their respective professional organization/s; and can provide documented evidence of safe and evidence-based practice.
+++ Epidural spinal injection should be given only by a professional who is registered to practice in the Philippines (i.e. physician), with recognized and credible training, approved by the Professional Regulation Commission (PRC); and can provide documented evidence of safe and evidence-based practice.

4.4.5 Summary of recommendations for the treatment of acute low back pain due to other specific conditions

Table 42. Summary of recommendations for the treatment of acute low back pain due to other specific conditions

DURATION	CPG		INTERVENTION	SE	E	R	S	REMARKS
	2011	2017						
Physical Agents, Modalities, Orthosis	x		Lumbar supports				Yes	Spinal stenosis with spinal instability
		x	Shoe insoles				No	Significant leg length discrepancy
Invasive/Surgical management		x	Epidural Clonidine				Yes	Pyriformis syndrome
		x	Vertebroplasty			No		Lumbar compression fracture

Legend: SE – Strongly endorses
E – Endorses
R – Recommends
S – Suggests

4.4.6 Context points for the treatment of acute low back pain due to other specific conditions

Table 43. Context points for the treatment of acute low back pain due to other specific conditions

	Minimum standard care of practice	**Additional standard care of practice**
Practice method	- Lumbar supports	Invasive management* - Epidural clonidine+++ Surgical Management* - Vertebroplasty+++
Workforce	- Physiatrist - Orthotist/medical supplies distributor	- Orthopedic surgeon - Neurosurgeon - Anesthesiologist
Resources	- Physician's clinic	- Operating room - Equipment for epidural procedure - Equipment for vertebroplasty
Training	Within competency	Within competency
When is it done	Upon consultation For appointment with orthotist	Upon consultation For invasive/surgical management, when comprehensive management fails.
Reassessment using at least one standard outcome measure	Four to six weeks Pain scale before and after intervention Once lumbar orthosis is available, if indicated	One – two weeks after invasive or surgical management.

* Consider invasive procedure when conservative management fails.
+++ Epidural spinal injection should be given only by a professional who is registered to practice in the Philippines (i.e. physician), with recognized and credible training, approved by the Professional Regulation Commission (PRC); and can provide documented evidence of safe and evidence-based practice.

5. Subacute Low Back Pain

5.1 NON-SPECIFIC SUBACUTE LOW BACK PAIN

5.1.1 CONSERVATIVE MANAGEMENT

5.1.1.1 PHARMACOLOGIC MANAGEMENT

Table 44. Pharmacologic management of non-specific subacute low back pain

Recommendation	Guideline	Level of Evidence	Referenes
2011 Recommendation Statement			
There is strong evidence that acetaminophen is effective for treatment of subacute non-specific low back pain. It is to be considered the first line drug not to exceed 3g/day.	TOP	SR	Van Tulder et. al 2004
	Italian	A	Negrini et. al. 2006
	WorkCoverSA	A	Aus Acute Musculoskeletal Pain Guidelines Group 2003
	APS-ACP	Good	Hickey 1982 Lee et. al. 2004 Towheed et al. 2006 Wegman et al. 2004 Zhang et al. 2004
Consistent level of evidence – High volume – Non-current – Uniform thought			
2017 Updated Recommendations and evidence sources			
There is evidence that acetaminophen may be given for pain relief in patients with subacute non-specific low back pain.	TOP 2015	SR (high)	Chou et al, 2007 ICSI 2006 ICSI 2008 Goertz et al, 2012 Van Tudler et al, 2004 Aus Acute MSK Pain 2003 IHE Database
Moderate volume – Non-current			
ADAPTE 1: The recommendation remains unchanged but the strength of evidence changed (decreased) from the 2011 PARM guideline. PARM strongly endorses the use of acetaminophen as an effective treatment for subacute non-specific low back pain. It is to be considered as the first line of drug; it should not be given >3 grams/day.			

2011 Recommendation Statement			
There is some evidence that NSAIDs is equal to acetaminophen in pain reduction in subacute non-specific low back pain. It is the second choice drug.	TOP	SR	Van Tulder et al, 2004
	CLIP	Low	Van Tulder et al, 2005
	Italian	A	Negrini e. al 2006
	WorkCoverSA	B	WorkCoverSa 2010

	APS-ACP	Good	Berry et al, 1982 Scnitzer et al, 2004
Inconsistent level of evidence – Moderate volume – Non-Current – Uniform thought			
2017 Updated Recommendations and evidence sources			
There is evidence that NSAIDs is equal to acetaminophen in pain reduction in subacute non-specific low back pain. It is the second choice drug.	TOP 2015	SR (high)	Chou et al, 2007 ICSI 2006 ICSI 2008 Goertz et al, 2012 Van Tudler et al, 2004 Aus Acute MSK Pain 2003 IHE Database
Consistent level of evidence – High volume – Non-current – Uniform thought			
ADAPTE 2: The recommendation remains unchanged but the strength of evidence changed (increased) from the 2011 PARM guideline. PARM endorses the use of NSAIDs as second line of drug in the treatment of subacute low back pain.			

2011 Recommendation Statement			
There is some evidence on superiority of opioids compared to non-opioids in the treatment of subacute non-specific low back pain.	CLIP	Low	Bogduk 2004 Jackson 2004 Van Tulder et. al. 2000b
	APS-ACP	Fair	Baratta 1976 Hale et. al. 2005
Inconsistent level of evidence – Moderate volume – Non-current – Uniform thought			
2017: No new evidence			
PARM recommends that opioids are superior over non-opioids in the treatment of subacute non-specific low back pain.			

2011 Recommendation Statement			
There is some evidence that muscle relaxant is effective in relieving subacute low back pain.	TOP	SR	Van Tulder, 2004
	Italian	A	Negrini et al, 2006
	APS-ACP	Poor	Basmajan et al, 1978 Browning et. al. 2001
Inconsistent level of evidence – Low volume – Non-Current – Variable thought			
2017: No new evidence			
PARM recommends the use of muscle relaxants in patients with aubacute non-specific low back pain.			

2011 Recommendation Statement			
There is some evidence that antidepressant (tricylic antidepressant) is effective in relieving subacute and chronic low back pain	APS-ACP	Good	Alerno Et. al. 2002 Schreiber et. al. 2001 Staiger et. al. 2003
Low volume – Non-current			
2017: No new evidence			
PARM recommends tricyclic antidepressants in the treatment of subacute low back pain.			

2011 Recommendation Statement			
There is insufficient evidence that anti-epileptic drugs are effective in the treatment of subacute and chronic low back pain	APS-ACP	Poor	Muehlbacher et. al. 2006
Low volume - Current			
2017: No new evidence			
PARM suggests the use of anti-epileptic drugs in the treatment of subacute non-specific low back pain.			

2011 Recommendation Statement			
There is some evidence that benzodiazipines are effective in the treatment of subacute and chronic low back pain	APS-ACP	Fair	Arbus et. al 1990 Basmajian 1978 Salzmann et. al. 1992
Low volume – Non-Current			
2017: No new evidence			
PARM recommends benzodiazepines in the treatment of subacute non-specific low back pain.			

2011 Recommendation Statement			
There is some evidence that tramadol is effective in the treatment of subacute non-specific low back pain.	APS-ACP	Fair	Metscher et. al. 2001 Muller et. al. 1998 Schnitzer et. al. 2000
Low volume – Non-current			
2017: No new evidence			
PARM recommends tramadol in reducing pain for subacute nonspecific low back pain.			

2017 Recommendation Statement			
There is strong evidence that non-steroidal anti-inflammatory drugs (NSAIDs) are effective to decrease pain for subacute non-specific low back pain and recommended for short term treatments when paracetamol alone is insufficient	ACP-NI 2017	High evidence	Goldie et al, 1968 Basmajian et al, 1989
	ACOEM 2016	B (high)	Evans et al, 1980 Videman et al, 1984

Consistent high level of evidence – Moderate volume – Non-current – Uniform thought
PARM strongly endorses the use of non-steroidal anti-inflammatory drugs (NSAIDs) to decrease pain in patients with subacute non-specific low back pain, when paracetamol alone is insufficient.

2017 Recommendation Statement			
There is evidence to consider adding a short course of muscle relaxant (benzodiazepines, cyclobenzaprine, or anti-spasticity drugs) on its own, or added to NSAIDs, in the treatment of subacute non-specific low back pain if acetaminophen or NSAIDs have failed to reduce pain.	TOP 2015	SR (high)	Chou et al, 2007 ICSI 2006 ICSI 2008 Goertz et al, 2012 Van Tulder et al, 2004 Aus Acute MSK Pain 2003 IHE Database
High volume – Non-current			
PARM endorses that the combination of muscle relaxant (benzodiazepines, cyclobenzaprine, or anti-spasticity drugs) and NSAIDs or analgesic may be considered as a treatment option in the treatment of subacute non-specific low back pain if acetaminophen or NSAIDs alone have failed to reduce pain.			

2017 Recommendation Statement			
There is insufficient evidence against the use of systemic glucocorticosteroids for treatment of subacute non-specific low back pain.	ACOEM 2016	Insufficient (low) DO NOT	Friedman et al, 1986
Solitary low volume - Low volume – Non-current			
PARM does not suggest the use of systemic glucocorticosteroids for treatment of subacute non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence to recommend for or against marijuana/dried cannabis for subacute non-specific low back pain.	TOP 2015	EO – Do not know (low)	GUC 2015
Low volume – Non-current			
PARM suggests that marijuana/dried cannabis may be considered as a treatment option for subacute non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence for and against the use of topical NSAIDs or other creams and ointments for the treatment of subacute non-specific low back pain.	TOP 2015	SR – Do not know (low)	IHE Database
	ACOEM 2016	Insufficient (low) Do not know	Stam et al, 2001 Ginsberg et al, 1987
Consistent low level of evidence - Low volume - Non-current – Uniform thought			
PARM suggests that topical NSAIDs or other creams and ointments may be considered as treatment options for subacute non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence to recommend for or against the use of tapentadol for subacute non-specific low back pain.	TOP 2015	EO – Do not know (low)	GUC 2015
Low volume – Non-current			
PARM suggests that tapentadol (weak opioid) may be considered as treatment option for subacute non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence against the use of oral or IV colchicine for treatment of subacute non-specific low back pain.	ACOEM 2016	Insufficient (low) DO NOT	Schnebel et al, 1988 Simmons et al, 1990 Meek et al, 1985
Low volume – Non-current			
PARM does not suggest the use of oral or IV colchicine for treatment of subacute non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence for or against the use of the following for treatment of subacute non-specific low back pain: Theramine, Harpagoside, Salicin	ACOEM 2016	Insufficient (low) DO NOT KNOW	Van Tulder et al, 2005
Low volume – Non-current			
PARM suggests that oral herbal treatments (theramine, harpagoside and salicin) may be considered as treatment options for subacute non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence against the use of vitamins for the treatment of subacute non-specific low back pain, in the absence of documented deficiencies or other nutritional deficit states.	ACOEM 2016	Insufficient (low) DO NOT	Mibielli et al, 2009 Kuhlwein et al, 1990 Vetter et al, 1988 Chiu et al, 2011
Moderate volume – Non-current			
PARM does not suggest the use of vitamins for treatment of subacute non-specific low back pain, in the absence of documented deficiencies or other nutritional deficit states.			

5.1.1.2 PHYSICAL ACTIVITY, THERAPEUTIC EXERCISE WITH RELATED INTERVENTIONS, EDUCATION & ADVICE

Table 45. Physical activity, therapeutic exercise with related interventions, education and advice for subacute non-specific low back pain

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is some evidence against bed rest as treatment for patients with subacute non-specific low back pain.	TOP	SR (against)	Australian Acute Musculoskeletal Pain Group 2003 ICSI 2006 Van Tulder et al. 2004
	CLIP	Low (against)	Hagen et al. 2005
	ITALIAN	A (against)	Negrini et al. 2006
Inconsistent level of evidence – Moderate volume – Current – Uniform thought			
2017 updated recommendations and evidence sources			
There is strong evidence against bed rest as treatment for patients with subacute non-specific low back pain.	TOP 2015	SR (high) DO NOT	ICSI 2006 ICSI 2008 Goertz et al, 2012 Van Tudler et al, 2004 Aus Acute MSK Pain 2003
	ACOEM 2016	B (high) DO NOT	Gilbert et al, 1985 Jensen et al, 2012 Molde et al, 2003
Consistent high level of evidence – High volume – Non-current – Uniform thought			
ADAPTE 2: The recommendation remains unchanged but the strength of evidence changed (increased) from the 2011 PARM guideline. PARM strongly endorses against bed rest among patients with subacute non-specific low back pain.			

2011 Recommendation Statement			
There is strong evidence that patients with subacute non-specific low back pain should be advised to remain physically active.	CLIP	High	Hagen et al, 2005 Hilde et al, 2005 Van Tulder et al, 2000b
	TOP	SR	ICSI 2006 Van Tulder et al, 2004
Consistent high level of evidence – Moderate volume – Non-current – Uniform thought			
2017 Updated recommendations and evidence sources			
There is insufficient evidence that patients with subacute non-specific low back pain should be advised to remain physically active.	TOP 2015	SR (high)	Goertz et al, 2012 Burton et al, 2004 IHE Database
High level of evidence – Non-current			

ADAPTE 1: The recommendation remains unchanged but the strength of evidence changed (decreased) from the 2011 PARM guideline. PARM strongly endorses that patients with subacute non-specific low back pain remain physically active.

2011 Recommendation Statement			
There is strong evidence that therapeutic exercise is useful in managing subacute non-specific low back pain.	TOP	SR	ICSI 2006 Van Tulder et al, 2004
	WORK-COVERSA	B	WorkCoverSA 2010
	NICE	1++	Hayden et al. 2005a, b
	APS-ACP	Good	Clare et al. 2004 Hayden et al. 2005a,b Kool et al. 2004 Liddle et al. 2004 McNeely et al. 2003 UK BEAM Trial Team 2004
Consistent level of evidence – High volume – Non-Current – Uniform thought			
2017 updated recommendations and evidence sources			
There is insufficient evidence that exercise is recommended in the treatment of subacute non-specific low back pain.	TOP 2015	SR (high)	Goertz et al, 2012 Van Tudler et al, 2004 IHE Database
High level of evidence – Non-current			
ADAPTE 1: The recommendation remains unchanged but the strength of evidence changed (decreased) from the 2011 PARM guideline. PARM strongly endorses therapeutic exercise as a treatment option in subacute non-specific low back pain.			

2011 Recommendation Statement			
There is some evidence against prescribing any specific exercise program over another in managing subacute non-specific low back pain.	CLIP	High (against)	Hayden et al, 2005a Philadelphia Panel 2001
	WORK_COVERSA	A (insufficient)	WorkCoverSA 2010
	ITALIAN	C (recommended)	Negrini et al. 2006
	TOP	SR (insufficient)	ICSI 2006 Van Tudler et al. 2004
Inconsistent level of evidence – Moderate volume – Current – Uniform thought			
2017 Updated recommendations and evidence sources			
There is insufficient evidence to recommend for or against any specific kind of exercise.	TOP 2015	SR – Do not know (low)	Goertz et al, 2012 Burton et al, 2004 IHE Database
Low volume – Non-current			

ADAPTE 1: The recommendation remains unchanged but the strength of evidence changes (decreased) from the 2011 PARM guideline. PARM does not recommend prescribing any specific exercise program over another in managing subacute non-specific low back pain.

2011 Recommendation Statement			
There is insufficient evidence for the benefit of individualized or client-specific exercises in patients with subacute non-specific low back pain	ITALIAN	C	Negrini et al. 2006
Low volume – Current			
2017: No new evidence			
PARM suggests individualized/client-specific programs as possible exercise options for subacute non-specific low back pain.			

2011 Recommendation Statement			
There is insufficient evidence that the McKenzie exercise approach is beneficial for patients with subacute non-specific low back pain.	CLIP	Moderate	Clare et al, 2004
	APS-ACP	Good	Machado et al, 2006
Inconsistent Level of evidence – Low volume – Current – Uniform thought			
2017: No new evidence			
PARM suggests McKenzie approach as possible exercise options for subacute non-specific low back pain.			

2011 Recommendation Statement			
There is conflicting evidence that back schools (i.e. control posture, reduce stress, and modify work activity) are useful in managing subacute non-specific low back pain.	TOP	SR (against)	Van Tulder et al. 2004
	ITALIAN	C	Negrini et al. 2006
	APS-ACP	Fair (small effect)	Elders et al. 2000 Heymans et al. 2004, 2005 Maier-Riehle & Härter 2001
Inconsistent level of evidence –Moderate volume – Non-Current – Variable thought			
2017 updated recommendations and evidence sources			
There is insufficient evidence to recommend for or against back schools for patients with subacute non-specific low back pain	TOP 2015	SR Do not know (low)	Chou et al. 2007
Low volume – Non-current			

ADAPTE 1: The recommendation and strength of evidence remains unchanged from the 2011 PARM guideline. PARM suggests back schools (i.e. control posture, reduce stress, and modify work activity) as treatment option in the management of subacute non-specific low back pain.

2017 Recommendation Statement			
There is insufficient evidence that lordotic sitting posture is effective for treatment of subacute non-specific low back pain.	ACOEM 2016	Insufficient (low)	Williams et al, 1991
Low volume – Non-current			
PARM suggests that lordotic sitting posture may be considered as treatment option for subacute non-specific low back pain.			

2017 Recommendation Statement			
There is evidence that patients should limit/pace any activity or exercise that causes spread of symptoms (peripheralization).	TOP 2015	SR (high)	Chou et al, 2007 ICSI 2006 ICSI 2008 Goertz et al, 2012 Van Tudler et al, 2004
Moderate volume – Non-current			
PARM endorses that patients with subacute non-specific low back pain should limit/pace any activity or exercise that causes spread of symptoms (peripheralization).			

2017 Recommendation Statement			
There is evidence against self-treating with an exercise program not specifically designed for the patient [may aggravate symptoms].	TOP 2015	SR (high)	Chou et al, 2007 ICSI 2006 ICSI 2008 Goertz et al, 2012 Van Tudler et al, 2004
Moderate volume – Non-current			
PARM endorses against self-treating with an exercise program not specifically designed for the patient.			

2017 Recommendation Statement			
There is strong evidence that centralization and directional preference exercise and procedures are effective in subacute non-specific low back pain with mobility deficits.	APTA 2012	Grade A (high) Level I evidence (high) Level III evidence (low)	 Browder et al, 2007 Clare et al, 2004 Long et al, 1999 Machado et al, 2006 Petersen et al, 2011 Long et al, 2008 Werneke et al, 2011
	ACOEM 2016	Insufficient (low)	Petersen et al, 2011 Werneke et al, 2008 Werneke et al, 2011 Long et al, 2008
Inconsistent level of evidence – High volume – Non-current – Uniform thought			
PARM strongly endorses that centralization and directional preference exercises and procedures may be treatment options for the treatment of subacute non-specific low back pain.			

2017 Recommendation Statement			
There is evidence that aerobic exercise is effective for treatment of subacute non-specific low back pain.	ACOEM 2016	B (high)	Bigos et al, 2009 Choi et al, 2010 Pescatello et al, 2014 Fritz et al, 2003 Sculco et al, 2001 Storheim et al, 2003
Moderate volume - Non current			
PARM endorses that aerobic exercise is effective in the treatment of subacute non-specific low back pain.			

2017 Recommendation Statement			
There is evidence that trunk coordination, strengthening, and endurance exercises are effective patients with subacute and chronic non-specific low back pain with movement coordination impairments <u>and patients post lumbar microdiscectomy.</u> **also described as: motor control exercises, transversus abdominis training, lumbar multifidus training, dynamic lumbar stabilization	APTA 2012	Grade A (high) Level I evidence (high) Level II evidence (high)	 Hayden et al, 2005 Macedo et al, 2009 Choi et al, 2010 Costa et al, 2009 Hides et al, 2001 Kulig et al, 2009 O'Sullivan et al, 1997 Rasmussen-Barr et al, 2009 Yilmaz et al, 2003 Hicks et al, 2005
High volume - Non-current			

PARM endorses that trunk coordination, strengthening, and endurance exercises (also described as: motor control exercises, transversus abdominis training, lumbar multifidus training, dynamic lumbar stabilization) are effective in patients with subacute non-specific low back pain with movement coordination impairments.

5.1.1.3 PHYSICAL AGENTS, MODALITIES, TRACTION AND LUMBAR SUPPORTS

Table 46. Physical agents, modalities, traction and lumbar supports for subacute non-specific low back pain

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is conflicting evidence on the efficacy of heat therapy on the treatment of subacute non-specific low back pain.	CLIP	Absent (insufficient evidence)	Van Tulder et al, 2000b
	WORK-COVERSA	B (evidence of improvement)	WorkcoverSA 2010
Inconsistent level of evidence – Low volume – Non-current – Variable thought			
2017 Updated Recommendations and Evidence Sources			
There is insufficient that the application of heat is useful in the treatment of subacute non-specific low back pain.	ACP NI 2017	Moderate	French et al, 2006
Low volume – Non-current			
ADAPTE 1: The recommendation and strength of evidence remain unchanged from the 2011 PARM guideline. PARM suggests the application of heat in the treatment of subacute non-specific low back pain.			

2011 Recommendation Statement			
There is insufficient evidence on the efficacy of cold in the treatment of subacute non-specific low back pain.	CLIP	Absent	Van Tulder et al, 2000b
	TOP	EO (Do)	ICSI 2006
Consistent level of evidence – Low volume – Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is insufficient evidence that cryotherapy is useful in the treatment of subacute non-specific low back pain.	TOP 2015	EO (Do)	EO (GUC)
Low volume – Current			
ADAPTE 1: The recommendation and strength of evidence remain unchanged from the 2011 PARM guideline. PARM suggests the use of cold therapy in the treatment of subacute non-specific low back pain.			

2011 Recommendation Statement			
There is insufficient evidence on the efficacy of ultrasound in the treatment of subacute non-specific low back pain.	CLIP	Absent	Van Tulder et al, 2004
	APS-ACP	Poor	Ansari et al, 2006
Consistent level of evidence - Low volume – Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is evidence that therapeutic ultrasound is not useful in the treatment of subacute non-specific low back pain.	ACOEM 2016	I	Goren et al, 2010 Andersson et al, 1999 Blomberg et al, 1992 Koes BMJ 1992 Hurwitz et al, 2002 Kumar et al, 2009 Borman et al, 2003
	TOP 2015	RCT, SR	Chou et al, 2007 IHE database
Inconsistent level of evidence – High volume – Non-current – Uniform thought			
ADAPTE 4: The recommendation and the strength of evidence changed (increased) from the 2011 PARM guideline. PARM does not recommend the use of therapeutic ultrasound in the treatment of subacute non-specific low back pain.			

2011 Recommendation Statement			
There is insufficient evidence on the efficacy of shortwave diathermy in the treatment of subacute non-specific low back pain.	CLIP	Absent	Van Tulder et al, 2000b
	APS-ACP	Poor	Gibson et al, 1985
Consistent level of evidence – Low volume – Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is some evidence that diathermy is not useful in the treatment of subacute non-specific low back pain.	ACOEM 2016	C	Glover et al, 1974 Koes Spine 1992 Koes Jman 1992 Koes BMJ 1992 Koes et al, 1993
	TOP 2015	RCT, SR (inconclusive)	Chou et al, 2007 IHE database
Consistent level of evidence – Moderate volume – Non-current – Uniform thought			
ADAPTE 4: The recommendation and the strength of evidence changed (increased) from the 2011 PARM guideline. PARM does not recommend the use of shortwave diathermy in the treatment of subacute non-specific low back pain.			

2011 Recommendation Statement			
There is some evidence in the use of laser therapy for subacute non-specific low back pain	APS-ACP	Poor	Basford et al, 1999 Gur et al, 2003 Klein & Eek 1990 Longo et al, 1988 Soriano & Rios 1998 Toya et al, 1994
Moderate volume – Non-current			
2017 Updated Recommendations and Evidence Sources			
There is insufficient evidence that laser therapy is useful in the treatment of subacute non-specific low back pain.	TOP 2015	RCT, SR (inconclusive)	Chou et al, 2007 IHE database
Low volume – Non-current			
ADAPTE 1: The recommendation remains unchanged but the strength of the evidence changed (decreased) from the 2011 PARM guideline. PARM recommends that laser therapy is useful in the treatment of subacute non-specific low back pain.			

2011 Recommendation Statement			
There is insufficient evidence against the use of TENS in the treatment of subacute non-specific low back pain.	CLIP	Absent	Philadelphia Panel 2001
	TOP	NR (not recommended)	Van Tulder et al, 2004
	APS-ACP	Poor	Khadilkar et al, 2005
Consistent level of evidence – Low volume – Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is insufficient evidence that TENS is not useful in the treatment of subacute non-specific low back pain.	ACOEM 2016	I	Hsieh et al, 2002 Tsukayama et al, 2002 Yip et al, 2007
Low volume – Non-current			
ADAPTE 3: The recommendation changed but the strength of evidence remains unchanged from the 2011 PARM guideline. PARM suggests the use of TENS in the treatment of subacute non-specific low back pain. However, this recommendation may change in the future due to emerging evidence against its benefit.			

2011 Recommendation Statement			
There is some evidence on the efficacy of interferential therapy, alone or in combination with other	WORK-COVERSA	B	WorkcoverSA 2010

modalities in the treatment of subacute non-specific low back pain.	APS-ACP	Poor	Hurley et al, 2001 Hurley et al, 2004 Werners et al, 1999
Inconsistent level of evidence – Moderate volume – Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is insufficient evidence that interferential therapy is useful in the treatment of subacute non-specific low back pain.	ACOEM 2016	I	Hurley et al, 2001 Werners et al, 1999
	TOP 2015	EO	EO (GUC)
Consistent level of evidence – Low volume – Non-current – Uniform thought			
ADAPTE 1: The recommendation remains unchanged but the strength of the evidence changed (decreased) from the 2011 PARM guideline. PARM recommends the use of interferential therapy, alone or in combination with other modalities in the treatment of subacute non-specific low back pain.			

2011 Recommendation Statement			
There is evidence that continuous traction is not beneficial in the management of subacute low back pain.	TOP	SR	Australian Acute Musculoskeletal Pain Group 2003 Van Tulder et al, 2004
	CLIP	Low	Harte et al, 2003 Philadelphia Panel 2001
	WORK-COVERSA	A	Australian Acute Musculoskeletal Pain Group 2003
	NICE	1++	Clarke et al, 2006
	APS-ACP	Fair	Clarke et al, 2005 Clarke et al, 2006 Harte et al, 2003 Vroomen et al, 2000
Inconsistent level of evidence – High volume – Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is evidence that lumbar traction is not useful in the treatment of subacute non-specific low back pain.	ACOEM 2016	A	Beurskens et al, 1995b Sweetman et al, 1993 Werners et al, 1999 Mathews et al, 1988 Larsson et al, 1980 Borman et al, 2003
	APTA 2012	D	Beurskens et al, 1995a Beattie et al, 2008
	TOP 2015	SR	Chou et al, 2007 Goertz et al, 2012 Van Tulder et al, 2004

			Australian Acute Musculoskeletal Pain Group 2003
Inconsistent level of evidence – High volume – Non-current – Uniform thought			
ADAPTE 1: The recommendation and strength of evidence remain unchanged from the 2011 PARM guideline. PARM does not endorse the use of lumbar traction in the treatment of subacute non-specific low back pain.			

2011 Recommendation Statement			
There is some evidence that lumbar supports are useful for patients with subacute low back pain.	CLIP	Absent	Valle-Jones et al, 1992 Van Tulder et al, 2004
	NICE	1++	Van Duijvenbode et al, 2008
	APS-ACP	Poor	Jellema et al, 2001 Van Tulder et al, 2000c
Inconsistent level of evidence – Moderate volume – Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is insufficient evidence that lumbar supports are not useful in the treatment of subacute non-specific low back pain.	ACOEM 2016	C	Doran & Newell 1975 van Poppel et al,1998 Reddel et al, 1992 Walsh & Schwartz 1990 Hsieh et al, 1992 Calmels et al, 2009 Oleske et al, 2007 Roelofs et al, 2007 Roelofs et al, 2010
High volume – Non-current			
ADAPTE 3: The recommendation and the strength of evidence changed (decreased) from the 2011 PARM guideline. PARM recommends the use of lumbar supports in the treatment of subacute non-specific low back pain. However, this recommendation may change in the future due to emerging evidence against its benefit.			

2017 Recommendation Statement			
There is insufficient evidence that self-application of heat is useful in the treatment of subacute non-specific low back pain.	ACOEM 2016	C	Nadler et al, 2003b Mayer et al, 2005
Low volume – Non-current			
PARM suggests the self-application of heat in the treatment of subacute non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence that infrared therapy is useful as home treatment of subacute non-specific low back pain.	ACOEM 2016	I	Mathews et al, 1988
Low volume – Non-current			
PARM suggests the use of infrared therapy as home treatment in subacute non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence that shockwave therapy is useful in the treatment of subacute non-specific low back pain.	TOP 2015	EO	EO (GUC)
Low volume – Current			
PARM suggests the use of shockwave therapy in the treatment of subacute non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence that kinesiotaping and taping are not useful in the treatment of subacute non-specific low back pain.	ACOEM 2016	C	Alvarez-Alvarez et al, 2014 Chen et al, 2012
Low volume – Current			
PARM does not suggest that the application of kinesiotape and other taping methods in the treatment of subacute non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence that shoe insoles and lifts are not helpful in the treatment of subacute non-specific low back pain with leg length discrepancies less than 2 centimeters.	ACOEM 2016	I	Basford & Smith 1988 Larsen et al, 2002
Low volume – Non-current			
PARM does not suggest the use of shoe insoles and lifts in the treatment of subacute non-specific low back pain with leg length discrepancies less than 2 centimeters.			

5.1.1.4 OTHER NON-INVASIVE PROCEDURES

Table 47. Non-pharmacologic management (other non-invasive procedures such as massage, spinal manipulation & mobilization, roptrotherapy, craniosacral therapy) of subacute non-specific low back pain

Recommendation	Guideline	Level of Evidence	Reference
2011 Recommendation Statement			
There is conflicting evidence on the usefulness of massage in patients with subacute non-specific low back pain.	CLIP	Low (Recommended)	Furlan et al. 2005a
	TOP	SR (Against)	Van Tudler et al, 2004
	APS-ACP	Fair (moderate effect)	Cherkin et al. 2001, 2003 Furlan et al. 2002a,b Melzack et al. 1983
Inconsistent level of evidence – Moderate volume – Non-current – Variable thought			
2017 Updated Recommendations and Evidence Sources			
There is some evidence on the usefulness of massage in patients with subacute non-specific low back pain.	ACOEM 2016	C (Recommended)	Preyde, 2000
	ACP 2017	Low (Recommended)	Furlan et al, 2008 Farasyn et al, 2006
	TOP 2015	SR (Inconclusive – Do Not know)	Chou et al, 2007 IHE Database
Inconsistent level of evidence – Moderate volume – Non-current – Uniform thought			
ADAPTE 2: The recommendation remains unchanged but the strength of evidence changed (increased) from the 2011 PARM guideline. PARM recommends massage as a possible treatment option for subacute non-specific low back pain			

2011 Recommendation Statement			
There is evidence that spinal manipulation can improve outcomes in patients with subacute non-specific low back pain.	CLIP	Low (for)	Van Tulder et al, 2000b
	TOP	SR (recommended)	Van Tulder et al, 2004
	WORKCOVER SA	B (insufficient)	WorkCoverSA 2010
	ICSI	M (recommended)	Ottenbacher & Difabio 1985 Shekelle et al. 1992
	APS-ACP	Good (moderate)	Bronfort et al. 2004 Brown et al. 2005 Cherkin et al. 2003 Ferreira et al. 2002, 2003 Fritz et al. 2005

			UK BEAM Trial Team 2004 Vroomen et al. 2000 Woodhead & Clough 2005
Inconsistent level of evidence – High volume – Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is evidence that spinal manipulation can improve outcomes in patients with subacute non-specific low back pain.	ACOEM 2016	Insufficient (Recommended)	Assendelft et al, 1995 Avery and Driscoll, 2004 Koes et al, 1996 Schneider et al, 2015 Andersson et al, 1999 Childs et al, 2004 Cleland et al, 2009
	ACP 2017	Low to moderate (Recommended)	Hoiriis et al, 2004 Schneider et al, 2015
	APTA 2012	A (Recommended)	Assendelft et al, 2004 Assendelt et al, 2003 Flynn et al, Childs et al, 2004 Childs et al, 2006 Fritz et al, 2005 Cleland et al, 2009
	TOP 2015	SR (Do)	Chou et al, 2007 Goertz et al, 2012 Van Tulder et al, 2004
Inconsistent level of evidence – High volume – Non-current – Uniform thought			
ADAPTE 1: The recommendation and strength of evidence changed remains unchanged from the 2011 PARM guideline. PARM endorses spinal manipulation as a possible treatment option for subacute non-specific low back pain.			

2011 Recommendation Statement			
There is insufficient evidence that spinal mobilization may be useful in the management of subacute nonspecific low back pain.	CLIP ICSI	Moderate M	Bronfort et al, 2004 Ottenbacher & Difabio, 1985 Shekelle et al. 1992
Inconsistent level of evidence – Low volume – Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is some evidence that spinal mobilization may be useful in the management of subacute nonspecific low back pain.	ACOEM 2016	Insufficient (Recommended)	Assendelft et al, 1995 Avery and Driscoll, 2004 Koes et al, 1996 Schneider et al, 2015 Andersson et al, 1999 Childs et al, 2004 Cleland et al, 2009

	APTA 2012	A (Recommended)	Cleland et al, 2009
	TOP 2015	EO (Insufficient – Do not know)	Guideline Update Committee
Inconsistent level of evidence – High volume – Non-current – Uniform thought			
ADAPTE 2: The recommendation remains unchanged but the strength of evidence changed (increased) from the 2011 PARM guideline. PARM recommends spinal mobilization as a possible treatment option for subacute non-specific low back pain.			

2017 Recommendation Statement			
There is some evidence that roptrotherapy is useful for subacute non-specific low back pain.	Ottawa 2015	Level I, A	Farasyn et al, 2006
Low volume – Current			
PARM recommends roptrotherapy as a possible treatment option for subacute non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence that craniosacral therapy is useful for subacute non-specific low back pain.	TOP 2015	EO (Do Not Know)	Guideline Update Committee
Low volume – Current			
PARM suggests craniosacral therapy as a possible treatment option for subacute non-specific low back pain.			

5.1.2 INVASIVE PROCEDURES

5.1.2.1 INVASIVE MEDICAL PROCEDURES

Table 48. Invasive medical procedures (epidural spinal injection, acupuncture, trigger point injection) for subacute non-specific low back pain

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is conflicting evidence against the use of epidural spinal injection as treatment for subacute non-specific low back pain.	TOP	SR (do not use)	Van Tulder et al, 2004
	CLIP	Absent (insufficient evidence)	Van Tulder et al, 2000b
Inconsistent level of evidence – Low volume – Non-current – Variable thought			
2017 Updated Recommendations and Evidence Sources			
Recommendation	Guideline	Level of Evidence	References
There is some evidence against the use of epidural spinal injection as treatment for subacute non-specific low back pain.	TOP 2015	SR (do not use)	Van Tulder et al, 2004
Low volume – Non-current			
ADAPTE 2: The recommendation and remains unchanged but the strength of evidence changed (increased) from the 2011 PARM guideline. PARM does not recommend use of epidural spinal injection as treatment for subacute non-specific low back pain.			

2011 Recommendation Statement			
Recommendation	Guideline	Level of Evidence	References
There is conflicting evidence that acupuncture is useful in patients with subacute non-specific low back pain.	TOP	SR (do not know)	Australian Acute Musculoskeletal Pain Group 2003 IHE Database
	CLIP	Low (recommend)	Furlan et al, 2005b
	APS-ACP	Fair (moderate effect)	Brinkhaus et al, 2006 Cherkin et al, 2001 Furlan et al, 2005a,b Manheimer et al, 2005 Thomas et al 2006 Witt et al, 2006
Inconsistent level of evidence – High volume – Non-current – Variable thought			
2017 Updated Recommendations and Evidence Sources			
There is some evidence that acupuncture is useful in patients with subacute non-specific low back pain.	TOP 2015	SR (Do not know)	Australian Acute Musculoskeletal Pain Group 2003 IHE Database

	ACP-APS (NI) 2017	Low (Strong recommendation)	Lee at al, 2013 Hasegawa et al, 2014 Vas et al, 2012
Inconsistent level of evidence - Moderate volume – Current – Uniform thought			
ADAPTE 2: The recommendation remains unchanged but the strength of evidence changed (increased) from the 2011 PARM guideline. PARM recommends acupuncture in patients as treatment for subacute non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence that trigger point injection may be used in sub-acute non-specific low back pain.	ACOEM 2012	C	Garvey et al, 1989 Sonne et al, 1985
Low volume – Non-current			
PARM suggests use of trigger point injection in the treatment of sub-acute non-specific low back pain.			

5.1.2.2 MINIMALLY-INVASIVE PROCEDURES

Table 49. Minimally-invasive medical procedures (facet joint injection) for subacute non-specific low back pain

2011 Recommendation Statement			
There is some evidence that facet joint steroid injection show no improvement when used in sub-acute non-specific low back pain.	NICE	1+ (no improvement	Boswell et al, 2007
Low volume – Current			
2017: No new evidence			
PARM does not recommend use of epidural spinal injection as treatment for subacute non-specific low back pain.			

5.2 SUBACUTE LOW BACK PAIN WITH RADICULOPATHY

5.2.1 CONSERVATIVE MANAGEMENT

5.2.1.1 PHARMACOLOGIC MANAGEMENT

Table 50. Pharmacologic management of subacute low back pain with radiculopathy

Recommendation	Guideline	Level of Evidence	References
2017 Recommendation Statement			
There is insufficient evidence for the use of systemic glucocorticosteroids for treatment of subacute low back pain with radiculopathy.	ACOEM 2016	C (Low)	Haimovic et al, 1986
Low volume – Non-current			
PARM suggests that systemic glucocorticosteroids may be considered as treatment option for subacute low back pain with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence for or against the use of medical foods, including theramine, for the treatment of sub-acute low back pain with radiculopathy.	ACOEM 2016	Insufficient (Low)	Shel et al, 2012
Low volume – Non-current			
PARM suggests that medical foods, including theramine, may be considered as treatment option for subacute low back pain with radiculopathy.			

5.2.1.2 PHYSICAL ACTIVITY, THERAPEUTIC EXERCISE WITH RELATED INTERVENTIONS, EDUCATION & ADVICE

Table 51. Non-pharmacologic management (physical activity, therapeutic exercise with related interventions, education & advice) of subacute low back pain with radiculopathy

Recommendation	Guideline	Level of Evidence	References
2017 Recommendation Statement			
There is insufficient evidence against bed rest in patient with radicular low back pain.	ACOEM 2016	C (low)	Hofstee et al, 2002 Vroomen et al, 1999 Coomes et al, 1961
Low volume – Non-current			
PARM does not suggest bed rest in patients with subacute low back pain with radiculopathy.			

5.2.1.3 PHYSICAL AGENTS, MODALITIES, TRACTION & LUMBAR SUPPORTS

Table 52. Non-pharmacologic management (physical agents, modalities, traction & lumbar supports) of subacute low back pain with radiculopathy

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is some evidence that the use of continuous traction has no effect in managing subacute low back pain with radiculopathy.	APS-ACP	High [Fair (no effect)]	Clarke et al, 2005 Clarke et al, 2006 Harte et al, 2003 Vroomen et al, 2000
Moderate volume – non-current			
2017 Updated Recommendations and Evidence Sources			
There is conflicting evidence that lumbar traction is useful in the treatment of subacute low back pain with radiculopathy.	ACOEM 2016	High [not (B)]	Letchuman & Deusinger 1993 Sweetman et al, 1993 Mathews & Hickling 1975 Pal et al, 1986 Larsson et al, 1980 Weber 1973 Weber et al, 1984 Coxhead et al,1981 Mathews et al, 1987
	APTA 2012	Low [benefit (D)]	Clarke et al, 2006 Schimmel 2009b Fritz et al, 2007b Beattie et al, 2008
Inconsistent level of evidence – high volume – non-current – variable thought			
ADAPTE 3: The recommendation and the strength of evidence changed (decreased) from the 2011 PARM guideline. PARM does not recommend the use of lumbar traction in the treatment of subacute low back pain with radiculopathy. However, this recommendation may change in the future due to emerging evidence on its benefit.			

2017 Recommendation Statement			
There is insufficient evidence that diathermy is not useful in the treatment of subacute low back pain with radiculopathy.	ACOEM 2016	Low [not (C)]	Sweetman et al, 1993
Low volume – non-current			
PARM does not suggest the use of diathermy in the treatment of subacute low back pain with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence that infrared therapy is useful as home treatment in subacute low back pain with radiculopathy.	ACOEM 2016	Low [not for or against (I)]	Mathews et al, 1988
Low volume – non-current			
PARM suggests the use of infrared therapy as home treatment in subacute low back pain with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence that decompression through traction and other spinal decompressive devices is not useful in the treatment of subacute low back pain with radiculopathy.	ACOEM 2016	Low [not (I)]	Brown 2012
Low volume – current			
PARM does not suggest the use of decompression through traction and other spinal decompressive devices in the treatment of subacute low back pain with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence that kinesiotaping and taping are not useful in the treatment of subacute low back pain with radiculopathy.	ACOEM 2016	Low [not (C)]	Alvarez-Alvarez et al, 2014
Low volume – current			
PARM does not suggest the application of kinesiotape and other taping methods in the treatment of subacute low back pain with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence that the application of shoe insoles is not useful in the treatment subacute low back pain with radiculopathy with leg length discrepancies less than 2 centimeters.	ACOEM 2016	Low [not (I)]	Basford & Smith 1988 Larsen et al, 2002
Low volume – non-current			
PARM does not suggest the use of shoe insoles in the treatment subacute low back pain with radiculopathy if there is no leg length discrepancy greater than 2 centimeters.			

5.2.2 INVASIVE PROCEDURES

Table 53. Invasive procedures (epidural spinal injection) for subacute low back pain with radiculopathy

<table>
<tr><td>Recommendation</td><td>Guideline</td><td>Level of Evidence</td><td>References</td></tr>
<tr><td colspan="4">2011 Recommendation Statement</td></tr>
<tr><td>There is insufficient evidence that epidural spinal injection may be used as treatment for patients with sub-acute low back pain with radiculopathy.</td><td>TOP</td><td>SR (Do Not Know)
EO (Do Not Know)</td><td>Van Tulder et al, 2004
Guideline Update Committee</td></tr>
<tr><td colspan="4">Low volume – Non-Current</td></tr>
<tr><td colspan="4">2017 Updated Recommendations and Evidence Sources</td></tr>
<tr><td>Recommendation</td><td>Guideline</td><td>Level of Evidence</td><td>References</td></tr>
<tr><td rowspan="2">There is evidence in the use of epidural spinal injection as treatment for sub-acute low back pain with radiculopathy.</td><td>ACOEM 2012</td><td>Insufficient (Recommended) (short-term pain relief)</td><td>Choi et al, 2013
Arden et al, 2005
Watts et al, 1995
Karppinen et al, 2001
Carette et al, 1997</td></tr>
<tr><td>TOP 2015</td><td>SR (Do Not Know)
EO (Do Not Know)</td><td>Van Tulder et al, 2004
Guideline Update Committee, 2015</td></tr>
<tr><td colspan="4">Inconsistent level of evidence – High volume – Non-current – Uniform thought</td></tr>
<tr><td colspan="4">ADAPTE 2: The recommendation remains unchanged but the strength of evidence changed (increased) from the 2011 PARM guideline.

PARM recommends use of epidural spinal injection as treatment for sub-acute low back pain with radiculopathy.</td></tr>
</table>

5.2.3 SURGICAL PROCEDURES

Table 54. Invasive procedures (lumbar discectomy) for subacute low back pain with radiculopathy

Recommendation	Guideline	Level of Evidence	References
2017 Recommendation Statement			
There is some evidence that lumbar discectomy (no specified type) may be considered after 4-6 weeks of conservative treatment for patients with ongoing nerve root compressions in sub-acute low back pain due to herniated disc.	ACOEM 2012	B (Moderately recommended)	Peul et al, 2007 Osterman et al, 2006 Weinstein et al, 2006
Low volume – Non-current			
PARM recommends lumbar discectomy (no specified type) may be considered after 4-6 weeks of conservative treatment for patients with ongoing nerve root compressions in sub-acute low back pain due to herniated disc. All of the following should be present: 1) radicular pain syndrome with current dermatomal pain and/or numbness, or myotomal muscle weakness all consistent with a herniated disc; 2) imaging findings by MRI, or CT with or without myelography that confirm persisting nerve root compression at the level and on the side predicted by the history and clinical examination; and 3) continued significant pain and functional limitation after 4 to 6 weeks of time and appropriate non-operative therapy that usually includes NSAID(s). Progressive neurological deficits are considered a separate indication.			

5.3 SUBACUTE LOW BACK PAIN DUE TO OTHER SPECIFIC CONDITIONS

5.3.1 CONSERVATIVE MANAGEMENT: PHYSICAL AGENTS, MODALITIES, TRACTION & LUMBAR SUPPORTS

Table 55. Non-pharmacologic management (lumbar supports orthosis) of subacute low back pain due to other specific conditions

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is insufficient evidence supporting the use of lumbar supports and orthoses in patients with low back pain secondary to spinal stenosis and spinal instability.	ITALIAN	Low [B/C (can't always recommend, no conclusions to recommend or not)]	Negrini et al, 2006
Low volume – Non-current			
2017: No new evidence			
PARM suggests the use of lumbar supports and orthoses in patients with low back pain secondary to spinal stenosis and spinal instability.			

5.3.2 SURGICAL PROCEDURES

Table 56. Surgical procedures (vertebroplasy) of subacute low back pain due to other specific conditions

2017 Recommendation Statement			
There is evidence against the use of vertebroplasty as treatment for subacute low back pain secondary to lumbar compression fracture.	ACOEM 2012	A (Strongly not recommended)	Rousing et al. 2010 Rousing et al. 2009 Voormolen et al, 2007
Moderate volume – Non-current			
PARM does not endorse vertebroplasty as treatment for sub-acute low back pain secondary to lumbar compression fracture.			

5.4 SUMMARY OF RECOMMENDATIONS FOR SUBACUTE LOW BACK PAIN

5.4.1 Summary of recommendations for the treatment of non-specific subacute low back pain

Table 57. Summary of recommendations for the treatment of non-specific subacute low back pain

DURATION	CPG		INTERVENTION	SE	E	R	S	REMARKS
	2011	2017						
Pharmacologic Management	x	x	Acetaminophen	Yes				
	x	x	NSAIDs		Yes			As second-line drug
	x	x	Muscle relaxant (Benzodiazepines, Cyclobenzaprine)			Yes		
	x		Opioids superior over non-opioids			Yes		
	x		Tricyclic antidepressants			Yes		
	x		Benzodiazepines			Yes		
	x		Tramadol			Yes		
		x	NSAIDs	Yes				
		x	Muscle relaxants (Benzodiazepines, Cyclobenzaprine, or Anti-spasticity drugs) + NSAIDs or analgesic		Yes			
		x	Systemic corticosteroids				No	
		x	Marijuana/Dried cannabis				Yes	
		x	Topical NSAIDs or other creams and ointments				Yes	
		x	Tapentadol				Yes	
		x	Oral/IV Colcichine				No	
		x	Oral herbal treatments (Theramine, Hapagoside, Salicin)				Yes	
		x	Vitamin treatment				No	
Physical activity, therapeutic exercise with related interventions, education and advice	x	x	Bed rest	No				
	x	x	Remain active	Yes				
	x	x	Therapeutic exercise	Yes				
	x	x	Prescribing any specific exercise program over another	No				
	x	x	Back schools				Yes	

	x		Individualized/client-specific programs				Yes	
	x		McKenzie approach				Yes	
		x	Lordotic sitting posture				Yes	
		x	Limit/pace any activity or exercise that causes peripheralization		Yes			
		x	Self-treating with an exercise program not specifically designed for the patient		No			
		x	Centralization and Directional preference exercises and procedures	Yes				
		x	Aerobic exercise		Yes			
		x	Trunk coordination, strengthening and endurance exercises (also described motor control exercises, transversus abdominis training, lumbar multifidus training, dynamic lumbar stabilization)		Yes			
Physical Agents, Modalities, Orthosis	x	x	Heat therapy				Yes	
	x	x	Cold therapy/cryotherapy				Yes	
	x	x	Therapeutic ultrasound			No		
	x	x	Shortwave diathermy			No		
	x	x	Laser therapy			Yes		
	x	x	TENS				Yes	
	x	x	Interferential therapy			Yes		
	x	x	Lumbar traction		No			
	x	x	Lumbar supports			Yes		
		x	Self-application of heat				Yes	
		x	Infrared therapy as home treatment				Yes	
		x	Shockwave therapy				Yes	
		x	Kinesiotaping and other taping methods				No	
		x	Shoe insoles and lifts				No	With leg length discrepancies less than 2 cm
Other Non-invasive management	x	x	Massage			Yes		
	x	x	Spinal manipulation		Yes			
	x	x	Spinal mobilization			Yes		
		x	Roptrotherapy			Yes		

		x	Craniosacral therapy				Yes	
		x	Reflexology				No	
Invasive/Surgical management	x	x	Epidural spinal Injection			No		
	x	x	Acupuncture			Yes		
		x	Trigger point injection				Yes	
	x		Facet joint steroid injection			No		

Legend: SE – Strongly endorses
E – Endorses
R – Recommends
S – Suggests

5.4.2 Context points for the treatment of non-specific subacute low back pain

Table 58. Context points for the treatment of non-specific subacute low back pain

	Minimum standard care of practice	**Additional standard care of practice**
Practice method	- Pharmacologic: - Medications (Acetaminophen, NSAIDs, muscle relaxant – benzodiazepine, cyclobenzaprine, TCAs, tramadol, muscle relaxant + NSAIDs or analgesic, marijuana/dried cannabis, tapentadol) - Oral herbal treatments (theramine, harpagoside, salicin) - Physical activity, therapeutic exercise, education and advice: - Remain physically active and to avoid best rest (if needed, limit to no more than two days) and self-treating with exercise program - Therapeutic exercise - Back schools - Individualized/client-specific programs - McKenzie approach - Centralization and directional preference exercises - Aerobic exercise - Trunk coordination, strengthening and endurance exercises (also described motor control exercises, transversus abdominis training, lumbar multifidus training, dynamic lumbar stabilization) - Lordotic sitting posture - Limit/pace any activity or exercise that causes peripheralization	- Physical agents, modalities, orthosis: - Interferential therapy - Laser therapy - Infrared therapy - Shockwave -Invasive management* - Trigger point injection++ - Other non-invasive management: - Spinal manipulation ++ - Spinal mobilization++ - Roptrotherapy++ - Craniosacral therapy++

	- Physical agents, modalities, orthosis: - Heat and cold therapy - TENS - Lumbar support	
Workforce	- Attending physician - Physiatrist - Physical therapist - Orthotist/Medical supplies distributor	- Physiatrist - Physical therapist - Health care professional trained in trigger point injection/spinal manipulation/spinal mobilization/roptrotherapy/craniosacral therapy
Resources	- Physician's clinic - Physical therapy room - Electrophysical agents - Orthosis	- Physician's clinic - Physical therapy room - Electrophysical agents - Medical supplies for procedure
Training	Within competency	Within competency
When is it done	Upon consultation Upon appointment with physical therapist	Upon consultation Upon appointment with physical therapist For Invasive management, when comprehensive management fails.
Reassessment using at least one standard outcome measure	Four to six weeks Pain scale before and after intervention Once lumbar orthosis is available, if indicated	Two to four weeks Pain scale before and after intervention

++ Spinal manipulation and/or Spinal Mobilization, Reflexology, Craniosacral therapy, Percutaneous nerve stimulation should be given only by a professional who is registered to practice in the Philippines (i.e. physician, PT), with recognized and credible training, approved by any of the following: Professional Regulation Commission (PRC), Department of Health (DOH), or their respective professional organization/s; and can provide documented evidence of safe and evidence-based practice.

5.4.3 Summary of recommendations for the treatment of subacute low back pain with radiculopathy

Table 59. Summary of recommendations for the treatment of subacute low back pain with radiculopathy

DURATION	CPG		INTERVENTION	SE	E	R	S	REMARKS
	2011	2017						
Pharmacologic Management		x	Systemic glucocorticoids				Yes	
		x	Medical foods				Yes	
Physical activity, therapeutic exercise with related interventions, education and advice		x	Lordotic sitting posture				Yes	
Physical Agents, Modalities, Orthosis	x	x	Lumbar traction			No		
	x		Lumbar supports				Yes	
		x	Shortwave diathermy				No	
		x	Infrared therapy as home treatment				Yes	
		x	Decompression through traction and other devices				No	
		x	Kinesiotaping and other taping methods				No	
		x	Shoe insoles				No	With leg length discrepancies less than 2 cm
Invasive/Surgical management	x	x	Epidural spinal Injection			Yes		
		x	Lumbar discectomy			Yes		

Legend: SE – Strongly endorses
E – Endorses
R – Recommends
S – Suggests

5.4.4 Context points for the treatment of subacute low back pain with radiculopathy

Table 60. Context points for the treatment of subacute low back pain with radiculopathy

	Minimum standard care of practice	**Additional standard care of practice**

Practice method	- Pharmacologic:
	  - Systemic glucocorticoids
	  - Medical foods
	
	- Advice: Lordotic sitting posture
		- Physical agents, modalities, orthosis:
		  - Infrared therapy as home therapy
		
		- Surgical Management*
		  - Lumbar discectomy+++

Workforce	- Attending physician - Physiatrist - Physical therapist	- Physiatrist - Orthopedic surgeon - Neurosurgeon - Anesthesiologist - Physical therapist
Resources	- Physician's clinic - Physical therapy room	- Electrophysical agents - Operating room - Equipment for lumbar discectomy
Training	Within competency	Within competency
When is it done	Upon consultation	Upon consultation Upon acquisition of modality for home use For surgical management, when comprehensive management fails.
Reassessment using at least one standard outcome measure	Four to six weeks Pain scale before and after intervention	One – two weeks after surgical management Two – four weeks after home therapy Pain scale before and after intervention

* Consider invasive procedure when conservative management fails.
+++ Epidural spinal injection should be given only by a professional who is registered to practice in the Philippines (i.e. physician), with recognized and credible training, approved by the Professional Regulation Commission (PRC); and can provide documented evidence of safe and evidence-based practice.

5.4.5 Summary of recommendations for the treatment of subacute low back pain due to other specific conditions

Table 61. Summary of recommendations for the treatment of subacute low back pain due to other specific conditions

DURATION	CPG		INTERVENTION	SE	E	R	S	REMARKS
	2011	2017						
Physical Agents, Modalities, Orthosis	x		Lumbar supports				Yes	Spinal stenosis and spinal instability
Invasive/Surgical management		x	Vertebroplasty		No			Lumbar compression fracture

Legend: SE – Strongly endorses
E – Endorses
R – Recommends
S – Suggests

5.4.6 Context points for the treatment of subacute low back pain due to other specific conditions

Table 62. Context points for the treatment of subacute low back pain due to other specific conditions

	Minimum standard care of practice	**Additional standard care of practice**
Practice method	- Lumbar support	- Surgical Management* - Vertebroplasty
Workforce	- Attending physician - Physiatrist - Orthotist/medical supplies distributor	- Orthopedic surgeon - Neurosurgeon - Anesthesiologist - Pain specialist
Resources	- Physician's clinic	- Operating room - Equipment and supplies for vertebroplasty
Training	Within competency	Within competency
When is it done	Upon consultation For appointment with orthotist	For surgical management, when comprehensive management fails.
Reassessment using at least one standard outcome measure	Four to six weeks Pain scale before and after intervention Once lumbar orthosis is available, if indicated	One – two weeks after surgical management. Pain scale before and after intervention

* Consider invasive procedure when conservative management fails.
tice.

6. Chronic Low Back Pain

6.1 NON-SPECIFIC CHRONIC LOW BACK PAIN

6.1.1 CONSERVATIVE MANAGEMENT

6.1.1.1 PHARMACOLOGIC MANAGEMENT

Table 63. Pharmacologic management for non-specific chronic low back pain

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is strong evidence that acetaminophen and NSAIDs are effective treatment for chronic non-specific low back pain. No one NSAID is more effective than another.	NICE	1++	Roefols et al,. 2008
	TOP	SR	Calgary Health Region 2005
	Italian	A	Negrini et. al. 2006
	APS-ACP	Good	Berry et. al. 2006 Hickey 1982 Lee et. al. 2004 Schnitzer et. al. 2004 Townheed et. al. 2006 Wegman et. al. 2004 Zhang et. al. 2004
Consistent level of evidence – High volume – Non-current – Uniform thought			
2017 Updated Recommendations and evidence sources			
There is evidence that acetaminophen and NSAIDs are effective treatment for chronic non-specific low back pain.	ACOEM 2016	A (high)	Berry et al,1982 Birba et al, 2003 Palay et al, 2004 Evans et al, 1980 Videman et al, 1984 Rosenthal et al, 1993
Moderate volume – Non-current – Uniform thought			
ADAPTE 1: The recommendation remains unchanged but the strength of evidence changed (decreased) from the 2011 PARM guideline. PARM strongly endorses the use of acetaminophen and NSAIDS in the treatment of chronic non-specific low back pain. However, PARM recommends use of a proton pump inhibitor (PPI) for patients over 45 years of age when offering treatment with an oral NSAID/COX-2 inhibitor.			

2011 Recommendation Statement			
There is conflicting evidence that anti-depressants are effective in the treatment of chronic non-specific low back pain.	TOP	DO-SR (TCA-small to mod effect)	Calgary Health Region 2005
	Italian	A	Negrini et. al. 2006
	CLIP	Low	Bogduk 2004

		(advantage for trycyclic and tetracyclic)	Schnitzer et. al. 2004
	NICE	1++ (TCA and SSRI were not found to be more effective than placebo in pain)	Urquhart et. al. 2008
	APS-ACP	Good	Salerno et. al. 2002 Schreiber et. al. 2001 Staiger et. al. 2003
Inconsistent level of evidence – High volume – Non-current – Variable thought			
2017 Updated Recommendations and evidence sources			
There is strong evidence that norepinephrine reuptake inhibitor anti-depressants (e.g. tricyclic anti-depressants – amitriptyline, imipramine, nortriptyline, desipramine, maprotiline, doxepin) mixed serotonin norepinephrine reuptake inhibitors (e.g., duloxetine) are recommended for the treatment of chronic non-specific low back.	TOP 2015 (small to moderate effect)	SR (high)	Calgary Health Region 2005 Calgary Health Region 2006 IHE Database
	ACOEM 2016	A (high)	Alcoff et al, 1982 Jenkins et al, 1976 Pheasant et al, 1983 Atkinson et al, 1998 Hameroff et al, 1984
Consistent high level of evidence – High volume – Non-current – Uniform thought			
ADAPTE 2: The recommendation remains unchanged but the strength of evidence changed (increased) from the 2011 PARM guideline. PARM recommends the use of norepinephrine reuptake inhibitor anti-depressants (e.g. tricyclic anti-depressants – amitriptyline, imipramine, nortriptyline, desipramine, maprotiline, doxepin) and mixed serotonin norepinephrine reuptake inhibitors (e.g., duloxetine) in the treatment of patients with chronic non-specific low back pain.			

2011 Recommendation Statement			
There is conflicting evidence that anti-depressants are effective in the treatment of chronic non-specific low back pain.	TOP	DO-SR (TCA-small to mod effect)	Calgary Health Region 2005
	Italian	A	Negrini et. al. 2006
	CLIP	Low (advantage for trycyclic and tetracyclic)	Bogduk 2004 Schnitzer et. al. 2004
	NICE	1++ (TCA and SSRI were not found to be more	Urquhart et. al. 2008

		effective than placebo in pain)	
	APS-ACP	Good	Salerno et. al. 2002 Schreiber et. al. 2001 Staiger et. al. 2003
Inconsistent level of evidence – High volume – Non-current – Variable thought			
2017 Updated Recommendations and evidence sources			
There is strong evidence against the use of selective serotonin reuptake inhibitors (e.g., citalopram, escitalopram, fluoxetine, paroxetine, sertraline) for the treatment of chronic non-specific low back pain. They may, however, be indicated for co-morbid depression.	TOP 2015	SR – DO NOT (high)	IHE Database
	ACOEM 2016	A (high) DO NOT	Atkinson et al, 1999 Dickens et al, 2000 Goodkin et al, 1990 Ketz et al, 2005
Consistent level of evidence – Moderate volume – Non-current – Variable thought			
ADAPTE 4: The recommendation and the strength of evidence changes (increased) from the 2011 PARM guideline. PARM does not recommend use of selective serotonin reuptake inhibitors/SSRIs (e.g., citalopram, escitalopram, fluoxetine, paroxetine, sertraline) for the treatment of chronic non-specific low back pain. They may, however, be indicated for co-morbid depression.			

2011 Recommendation Statement			
There is some evidence that muscle relaxants are effective in the treatment of chronic non-specific low back pain.	TOP (cyclobenzaprine)	DO-SR	Calgary Health Region 2005
	Italian	A	Negrini et. al. 2006
	CLIP (advantage for nonbenzodiazepine)	Low	Bogduk 2004
	APS-ACP	Poor	Schnitzer et. al. 2004
Inconsistent level of evidence – Moderate volume – Non-current – Uniform thought			
2017 Updated Recommendations and evidence sources			
There is some evidence for the use of muscle relaxants (e.g. cyclobenzaprine) for the treatment of chronic non-specific low back pain.	TOP 2015	SR - DO (high)	Calgary Health Region 2005 Calgary Health Region 2006
Low volume – Non-current			
ADAPTE 1: The recommendation and strength of evidence remain unchanged from the 2011 PARM guideline. PARM recommends the use of muscle relaxants (i.e., cyclobenzaprine, non-benzodiazepine) in the treatment of chronic non-specific low back pain, after an unsuccessful trial of non-opioid analgesic.			

<table>
<tr><td colspan="4">2011 Recommendation Statement</td></tr>
<tr><td rowspan="4">There is some evidence that short-term use of opioids can be used in the treatment of chronic non-specific low back pain, but only after unsuccessful trial of non-opioid analgesics.</td><td>TOP</td><td>SR (codeine)</td><td>Calgary Health Region 2005</td></tr>
<tr><td>NICE</td><td>1+ (oxymorphone)</td><td>Katz et al, 2007</td></tr>
<tr><td>CLIP</td><td>Low</td><td>Bogduk 2004
Schnitzer et al. 2004</td></tr>
<tr><td>APS-ACP</td><td>Fair</td><td>Baratta 1976
Hale et al. 2005</td></tr>
<tr><td colspan="4">Inconsistent level of evidence – Moderate volume – Non-current – Uniform thought</td></tr>
<tr><td colspan="4">2017 Updated Recommendations and evidence sources</td></tr>
<tr><td rowspan="2">There is evidence that short-term use of opioids (morphine, oxymorphone, hydromorphone, tapentadol) can be used in the treatment of chronic non-specific low back pain, but only after unsuccessful trial of non-opioid analgesics.</td><td>ACP-NI 2017</td><td>High evidence (Moderate evidence, weak recommendation)</td><td>Chaparro et al, 2013
Hale et al, 2005
Cloutier et al, 2013
Rauck et al, 2014
Lee et al, 2013
Schiphorst et al, 2014</td></tr>
<tr><td>TOP 2015</td><td>SR (high)
EO (GUC) (low)</td><td>Calgary Health Region 2005
Calgary Health Region 2006
IHE Database
SIGN 2013</td></tr>
<tr><td colspan="4">Inconsistent level of evidence – High volume – Current – Uniform thought</td></tr>
<tr><td colspan="4">ADAPTE 2: The recommendation remains unchanged but the strength of evidence changed (increased) from the 2011 PARM guideline.

PARM endorses the short-term use of opioids (morphine, oxymorphone, hydromorphone, tapentadol) in the treatment of chronic non-specific low back pain.</td></tr>
</table>

<table>
<tr><td colspan="4">2011 Recommendation Statement</td></tr>
<tr><td>There is insufficient evidence that anti-epileptic drugs are effective in the treatment of chronic low back pain</td><td>APS-ACP</td><td>Poor</td><td>Muehlbacher et. al. 2006</td></tr>
<tr><td colspan="4">Low volume – Current</td></tr>
<tr><td colspan="4">2017 Recommendations and Evidence Sources</td></tr>
<tr><td>There is insufficient evidence for or against the use of anticonvulsants for chronic non-neuropathic pain.</td><td>ACOEM 2016</td><td>Insufficient (low)
Do not know</td><td>McCleane et al, 2001
Yildirim et al, 2003</td></tr>
<tr><td colspan="4">Low volume – Non-current</td></tr>
</table>

ADAPTE 1: The recommendation and strength of evidence remain unchanged from the 2011 PARM guideline. PARM suggests the use of anti-epileptic drugs in the treatment of chronic non-specific low back pain.			
2011 Recommendation Statement			
There is some evidence that benzodiazepines are effective in the treatment of chronic low back pain	APS-ACP	Fair	Arbus et. al. 1990 Basmajian 1978 Salzmann et. al. 1992
Low volume – Non-current			
2017: No new evidence			
PARM recommends the use of benzodiazepines in the treatment of chronic non-specific low back pain.			

2011 Recommendation Statement			
There is some evidence that tramadol is effective in the treatment of chronic low back pain.	APS-ACP	Fair	Metscher et. al. 2001 Muller et. al. 1998
Low volume – Non-current			
2017: No new evidence			
PARM recommends tramadol in reducing pain for chronic non-specific low back pain.			

2017 Recommendation Statement			
There is evidence that NSAIDs may be considered as first line treatment for patients with chronic non-specific low back pain.	ACOEM 2016	A (high)	Berry et al.,1982 Birba et al, 2003 Palay et al, 2004 Evans et al, 1980 Videman et al, 1984 Rosenthal et al, 1993
Moderate volume – Non-current			
PARM endorses that NSAIDs may be considered as first line treatment for patients with chronic non-specific low back pain.			

2017 Recommendation Statement			
There is some evidence that tramadol or duloxetine may be considered as second-line therapy for patients with chronic non-specific low back pain.	ACP – NI 2017	High evidence	Skljarevski et al, 2009 Skljarevski et al, 2010 Skljarevski et al, 2010
Low volume – Non-current			
PARM recommends that tramadol or duloxetine may be considered as second-line therapy for patients with chronic non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence against the ongoing use of muscle relaxants for treatment of chronic low back pain particularly without documented functional benefit.	ACOEM 2016	Insufficient (low)	Basmajian et al, 1978 Bervel et al, 1977 Salzmann et al, 1992
Low volume – Non-current			
PARM does not suggest the ongoing use of muscle relaxants for treatment of chronic non-specific low back pain particularly without documented functional benefit.			

2017 Recommendation Statement			
There is insufficient evidence against the use of willow bark for chronic non-specific low back pain.	ACOEM 2016	Insufficient (low) – DO NOT	Chrubasik et al 2003
Low volume – Non-current			
PARM does not suggest the use of willow bark for the treatment of chronic non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence to recommend for or against marijuana/dried cannabis for chronic non-specific low back pain.	TOP 2015	EO – Do not know (low)	GUC
Low volume – Non-current			
PARM suggests the possible use of marijuana/dried cannabis for chronic non-specific low back pain.			

2017 Recommendation Statement			
There is some evidence to recommend for or against the use of buprenorphine transdermal system, topical NSAIDs or other creams and ointments for chronic non-specific low back pain.	TOP 2015	EO – Do not know (low)	GUC
	ACOEM 2016	Insufficient (low) Do not know	Frerick et al, 2003 Chrubasik et al, 2001 Keitel et al, 2001
Consistent low level evidence – Moderate volume – Non-current – Uniform thought			
PARM recommends the use of buprenorphine transdermal system, topical NSAIDs or other creams and ointments for chronic non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence against the use of lidocaine patches for the treatment of chronic non-specific low back pain.	ACOEM 2016	C (low) -DO NOT	Hashmi et al, 2012
Low volume – Non-current			

PARM does not suggest the use of lidocaine patches for the treatment of chronic non-specific low back pain.

2017 Recommendation Statement			
There is insufficient evidence against the use of DMSO, N-Acetylcysteine, EMLA cream and wheatgrass cream for the treatment of chronic non-specific low back pain.	ACOEM 2016	Insufficient (low) – DO NOT	Stam et al, 2001 Ginsberg et al, 1987
Low volume – Non-current			
PARM does not suggest the use of DMSO, N-Acetylcysteine, EMLA cream and wheatgrass cream for the treatment of chronic non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence against the use of systemic glucocorticosteroids for the treatment of chronic non-specific low back pain.	ACOEM 2016	I (low) – DO NOT	Friedman et al, 2006
Low volume – Non-current			
PARM does not suggest the use of systemic glucocorticosteroids for the treatment of chronic non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence against the use of oral or IV colchicine for treatment of chronic non-specific low back pain.	ACOEM 2016	Insufficient (low) – DO NOT	Schnebel et al, 1988 Simmons et al, 1990 Meek et al, 1985
Low volume – Non-current			
PARM does not suggest the use of oral or IV colchicine for treatment of chronic non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence against the use of ketamine infusion for treatment of chronic non-specific low back pain.	ACOEM 2016	Insufficient (low) – DO NOT	Kvarnstrom et al, 2003
Low volume – Non-current			
PARM does not suggest the use of ketamine infusion for treatment of chronic non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence against the use of tumor necrosis factor-α inhibitors for patients with chronic non-specific low back pain.	ACOEM 2016	Insufficient (low) – DO NOT	Wiedemet et al, 2007
Low volume – Non-current			
PARM does not suggest the use of tumor necrosis factor-α inhibitors for treatment of chronic non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence for or against the use of the following for treatment of subacute non-specific low back pain: Theramine, Harpagoside, Salicin	ACOEM 2016	Insufficient (low) DO NOT KNOW	Van Tulder et al, 2005
Low volume – Non-current			
PARM suggests that oral herbal treatments (theramine, harpagoside and salicin) may be considered as treatment options for chronic non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence against the use of vitamins for the treatment of chronic non-specific low back pain, in the absence of documented deficiencies or other nutritional deficit states.	ACOEM 2016	I (low) – DO NOT	Mibielli et al, 2009 Kuhlwein et al, 1990 Vetter et al, 1988 Chiu et al, 2011
Moderate volume – Non-current			
PARM does not suggest the use of vitamins for treatment of chronic non-specific low back pain, in the absence of documented deficiencies or other nutritional deficit states.			

6.1.1.2 PHYSICAL ACTIVITY, THERAPEUTIC EXERCISE WITH RELATED INTERVENTIONS, EDUCATION & ADVICE

Table 64. Physical activity, therapeutic exercise with related interventions, education and advice for chronic non-specific low back pain

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is strong evidence against bed rest as treatment for patients with chronic non-specific low back pain.	CLIP	High (Against)	Hagen et al. 2005 Nadler 2004 Pande 2004 Van Tulder et al. 2004 Philadelphia Panel 2001
	ITALIAN	A (Against)	Negrini et al. 2006
Consistent level of evidence – Moderate volume – Non-current – Uniform thought			

2017 updated recommendations and evidence sources			
There is some evidence against bed rest as treatment for patients with chronic non-specific low back pain.	ACOEM 2016	B (high)	Gilbert et al, 1985 Jensen et al, 2012 Molde et al, 2003
Low volume – Non-current			
ADAPTE I: The recommendation remains unchanged with the strength of evidence changed (decreased) from the 2011 PARM guideline. PARM strongly endorses that patients with chronic non-specific low back avoid bed rest.			

2011 Recommendation Statement			
There is strong evidence that therapeutic exercise is beneficial in managing chronic non-specific low back pain.	TOP	SR	Calgary Health Region 2005 ICSI 2006
	NICE	1++	Hayden et al. 2005a, b
	ITALIAN	A	Negrini et al. 2006
	ICSI	M,A	Abenhaim et al. 2000 Frost et al. 1998 Hansen et al. 1993 Lindström et al. 1992a,b Manniche et al. 1988 Scheer et al. 1997 Van Tulder et al. 1997
	APS-ACP	Good	Clare et al. 2004 Hayden et al. 2005a,b Kool et al. 2004 Liddle et al. 2004 McNeely et al. 2003 UK BEAM Trial Team 200
Consistent level of evidence – High volume – Non-current – Uniform thought			
2017: No new evidence			
PARM strongly endorses that patients with chronic non-specific low back be managed with therapeutic exercises.			

2011 Recommendation Statement			
There is strong evidence against prescribing any specific exercise program over another in managing chronic non-specific low back pain.	CLIP	HIGH (against)	Hayden et al. 2005a, b Nadler 2004 Van Tulder et al. 2004
	ICSI	M (against)	Abenhaim et al. 2000 Scheer et al. 1997
	TOP	SR (against)	ICSI 2006
Consistent level of evidence – Moderate volume – Non-current – Uniform thought			
2017: No new evidence			
PARM strongly endorses against prescribing any specific exercise program over another in managing chronic non-specific low back pain			

2011 Recommendation Statement			
There is strong evidence for the benefit of individualized or client-specific exercises in patients with chronic non-specific low back pain.	CLIP	High	Hayden et al. 2005a, b Nadler 2004 Van Tulder et al. 2004
	ITALIAN	A	Negrini et al., 2006
	TOP	SR	ICSI, 2006
Consistent level of evidence – Moderate volume – Non-current – Uniform thought			
2017 updated recommendations and evidence sources			
There insufficient evidence that a client-specific, graded, active therapeutic exercise program is recommended.	TOP	EO (Do)	GDG 2011
Low volume – Non-current			
ADAPTE 1: The recommendation remains unchanged with the strength of evidence changed (decreased) from the 2011 PARM guideline. PARM strongly endorses individualized or client-specific exercise programs in managing chronic non-specific low back pain**.**			

2011 Recommendation Statement			
There is insufficient evidence that the McKenzie exercise approach is beneficial for patients with chronic non-specific low back pain.	CLIP	LOW	Clare et al. 2004
	APS-ACP	Good	Machado et al. 2006
Inconsistent level of evidence - Low volume – Current – Uniform thought			
2017: No new evidence			
PARM suggests McKenzie exercise approach as possible management option for chronic non-specific low back pain.			

2011 Recommendation Statement			
There is some evidence that back schools (i.e. control posture, reduce stress, and modify work activity) are useful in managing chronic non-specific low back pain.	NICE	1++	Heymans et al. 2005
	ITALIAN	A	Negrini et al. 2006
	CLIP	Moderate	Heymans et al. 2005 Van Tulder et al. 2004
	APS-ACP	Fair	Elders et al. 2000 Heymans et al. 2004, 2005 Maier-Riehle & Härter 2001
Inconsistent level of evidence – Moderate volume – Non-current – Uniform thought			
2017: No new evidence			
PARM recommends back schools (i.e. control posture, reduce stress, and modify work activity) in patients with chronic non-specific low back pain.			

2017 Recommendation Statement			
There is some evidence that patients with chronic non-specific low back pain should be advised to remain physically active.	TOP 2015	SR – Do (high)	SIGN 2013
Low volume – Non-current			
PARM strongly endorses that patients with chronic non-specific low back pain remain physically active.			

2017 Recommendation Statement			
There is insufficient evidence that lordotic sitting posture is effective for treatment of chronic non-specific low back pain.	ACOEM 2016	I (low)	Williams et al 1991
Low volume – Non current			
PARM suggests that lordotic sitting posture may be considered as treatment option for chronic non-specific low back pain.			

2017 Recommendation Statement			
There is evidence that trunk coordination, strengthening, and endurance exercises are effective patients with chronic non-specific low back pain with movement coordination impairments **also described as: motor control exercises, transversus abdominis training, lumbar multifidus training, dynamic lumbar stabilization	APTA 2012	Grade A (high) Level I evidence (high) Level II evidence (high)	 Hayden et al, 2005 Macedo et al, 2009 Choi et al, 2010 Costa et al, 2009 Hides et al, 2001 Kulig et al, 2009 O'Sullivan et al, 1997 Rasmussen-Barr et al, 2009 Yilmaz et al, 2003 Hicks et al, 2005
High volume - Non-current			
PARM endorses that trunk coordination, strengthening, and endurance exercises (also described as: motor control exercises, transversus abdominis training, lumbar multifidus training, dynamic lumbar stabilization) are effective in chronic non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence that centralization and directional preference exercise and procedures are effective in chronic non-specific low back pain with mobility deficits	APTA 2012	Grade A (high) Level I evidence (high)	 Browder et al, 2007 Clare et al, 2004 Long et al, 1999 Machado et al, 2006 Petersen et al, 2011

		Level III evidence (low)	Long et al, 2008 Werneke et al, 2011
	ACOEM 2016	I (low)	Petersen et al, 2011 Werneke et al, 2008 Werneke et al, 2011 Long et al, 2008
Inconsistent level of evidence - High volume – Non-current – Uniform thought			
PARM suggests that centralization and directional preference exercises and procedures may be considered as treatment options for chronic non-specific low back pain.			

2017 Recommendation Statement			
There is evidence that progressive endurance exercises and fitness activities are effective in chronic non-specific low back pain.	APTA 2012	Grade A (high) Level I evidence (high)	Nijs et al, 2008 Nijs et al, 2010 Rainville et al, 2004 Rainville et al, 2002 Rainville et al, 1997 Airaksinen et al, 2006 Bekkering et al, 2003 Chou et al, 2007 The Chartered Society of Physiotherapy, 2006 Savigny et al, 2009 Murtezani et al, 2011 Cohen et al, 2002 Chatzitheodorou et al, 2007
High volume – Non-current			
PARM endorses that progressive endurance exercises and fitness activities are effective in chronic non-specific low back pain			

2017 Recommendation Statement			
There is evidence that aerobic exercise is effective for treatment of chronic non-specific low back pain.	ACOEM 2016	B (high)	Bigos et al, 2009 Choi et al, 2010 Pescatello et al, 2014 Fritz et al, 2003 Sculco et al, 2001 Chatzitheodorou et al, 2007 Chan et al, 2011 Dogan et al, 2008 Golby et al, 2006 Kell et al, 2009 Murtezani et al, 2011 Shnayderman et al, 2013

			Tritilanunt et al, 2001 Weiner et al, 2008
Moderate volume – Non-current			
PARM endorses that aerobic exercise is effective for treatment of chronic non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence that stretching exercises are not recommended for treatment of chronic low back pain in the absence of significant range of motion deficits. In select cases, stretching exercises may be added for self-treatment if needed	ACOEM 2016	Insufficient (low) DO NOT	Kuukkanen et al, 2000
Low volume - Non current			
PARM does not suggest stretching exercises for treatment of chronic non-specific low back pain in the absence of significant range of motion deficits. In select cases, stretching exercises may be added for self-treatment if needed.			

6.1.1.3 PHYSICAL AGENTS, MODALITIES, TRACTION AND LUMBAR SUPPORTS

Table 65. Physical agents, modalities, traction and lumbar supports for chronic non-specific low back pain

2011 Recommendation Statement			
There is insufficient evidence that thermal therapy (heat) is not useful in chronic non-specific low back pain.	ITALIAN	B	Negrini et al, 2006
Low volume – Current			
2017: No new evidence			
PARM does not endorse thermal therapy (heat) in chronic non-specific low back pain.			

2011 Recommendation Statement			
There is insufficient evidence on the efficacy of therapeutic ultrasound for chronic non-specific low back pain.	CLIP	Low	Maher 2004 Philadelphia Panel 2001
	APS-ACP	Poor	Ansari et al, 2006
Consistent level of evidence – Low volume – Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is some evidence that therapeutic ultrasound is useful in the treatment of chronic non-specific low back pain.	ACOEM 2016	I	Licciardone et al, 2013 Costa et al, 2009 Chan et al, 2011 Goren et al, 2010

			Unsgaard-Tondel et al, 2010 Ansari et al, 2006 Murtezani et al, 2011 Dogan et al, 2008 Balthazard et al, 2012 Ebadi et al, 2012 Chatzitheodorou et al, 2007 Koes BMJ 1992 Hurwitz et al, 2002 Galiano et al, 2007 Kumar et al, 2009 Borman et al, 2003
	TOP 2015	SR (insufficient)	IHE database
Consistent level of evidence – High volume – Non-current – Uniform thought			
ADAPTE 2: The recommendation remains unchanged but the strength of the evidence changed (increased) from the 2011 PARM guideline. PARM recommends the use of therapeutic ultrasound in the treatment of chronic non-specific low back pain.			

2011 Recommendation Statement			
There is some evidence for the role of low level laser therapy in chronic non-specific low back pain.	NICE	1++	Yousefi-Nooraie et al, 2007
	APS-ACP	Poor	Basford et al, 1999 Gur et al, 2003 Klein & Eek 1990 Longo et al, 1988 Soriano & Rios 1998 Toya et al, 1994
Inconsistent level of evidence – Moderate volume – Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is conflicting evidence that low level laser therapy is useful in chronic non-specific low back pain.	ACOEM 2016	C (not)	Klein & Eek 1990 Basford et al, 1999 Toya et al, 1994 Ay et al, 2010 Soriano & Rios 1998 Glazov et al, 2009 Djavid et al, 2007
	ACP NI 2017	Low (recommend)	Basford et al, 1999 Soriano & Rios 1998 Toya et al, 1994
	TOP 2015	SR (inconclusive)	IHE database
Consistent level of evidence – High volume – Non-current – Variable thought			

ADAPTE 1: The recommendation remains unchanged but the strength of the evidence changed (decreased) from the 2011 PARM guideline. PARM recommends the use of low level laser therapy in chronic non-specific low back pain.

2011 Recommendation Statement			
There is some evidence against the use of transcutaneous electrical nerve stimulation (TENS) for chronic non-specific low back pain.	CLIP	Low	Khadilkar et al, 2005 Maher 2004 Nadler 2004
	TOP	SR (Do not)	Calgary Health Region 2005
	APS-ACP	Poor	Khadilkar et al, 2005 Manheimer et al, 2005
Inconsistent level of evidence – Moderate volume – Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is some evidence that TENS as sole treatment is not useful in chronic non-specific low back pain.	TOP 2015	SR (Do not)	Calgary Health Region 2005
Low volume – Non-current			
ADAPTE 1: The recommendation and strength of evidence remain unchanged from the 2011 PARM guideline. PARM does not recommend the use of TENS in the treatment of chronic non-specific low back pain.			

2011 Recommendation Statement			
There is insufficient evidence that interferential therapy is useful in the treatment of chronic non-specific low back pain.	APS-ACP	Poor	Hurley et al, 2001 Hurley et al, 2004 Werners et al, 1999
Low volume – Non-current			
2017 Updated Recommendations and Evidence Sources			
There is some evidence that interferential therapy is useful in the treatment of chronic non-specific low back pain.	ACOEM 2016	I	Facci et al, 2011 Zambito et al, 2006 Lara-Palomo et al, 2013 Zambito et al, 2007 Werners et al, 1999 Vong et al, 2011
	TOP 2015	EO	EO (GUC)
Consistent volume of evidence – Moderate volume – Non-current – Uniform thought			
ADAPTE 2: The recommendation is unchanged from the PARM 2011 guideline but the strength of the evidence changed (increased) from the 2011 PARM guideline. PARM recommends the use of interferential therapy in the treatment of chronic non-specific low back pain.			

2011 Recommendation Statement			
There is strong evidence that continuous traction is not beneficial in the management of chronic non-specific low back pain.	CLIP	High	Maher 2004 Nadler 2004 Van Tulder et al, 2004
	NICE	1++	Clarke et al, 2006
	APS-ACP	Fair	Clarke et al, 2005 Clarke et al, 2006 Harte et al, 2003 Vroomen et al, 2000
Consistent level of evidence – Moderate volume – Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is evidence against the use of lumbar traction in the treatment of chronic non-specific low back pain.	ACOEM 2016	A	Beurskens et al, 1995b van der Heijden 1995 Schimmel et al, 2009a Werners et al, 1999 Mathews et al, 1988 Guvenol et al, 2000 Ljunggren et al, 1984 Diab 2013 Borman et al, 2003
	APTA 2012	D	Beurskens et al, 1995a Beattie et al, 2008
	TOP 2015	SR	IHE database
Inconsistent level of evidence – High volume – Non-current – Uniform thought			
ADAPTE 1: The recommendation remains unchanged but the strength of the evidence changed (decreased) from the 2011 PARM guideline. PARM strongly endorses against the use of lumbar traction in the treatment of chronic non-specific low back pain.			

2011 Recommendation Statement			
There is some evidence against the usefulness of lumbar supports in patients with chronic non-specific low back pain.	CLIP	Absent	Jellema et al, 2001 Maher 2004 Van Tulder et al, 2004
	ITALIAN	B	Negrini et al, 2006
	NICE	1++	Van Duijvenbode et al, 2008
	APS-ACP	Poor	Jellema et al, 2001 Van Tulder et al, 2000c
Inconsistent level of evidence – Moderate volume – Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is some evidence that lumbar supports are not useful in the treatment of chronic non-specific low back pain.	ACOEM 2016	C	Nadler et al, 2003b Gale et al, 2006
	TOP 2015	EO	EO (GUC)
Consistent level of evidence – High volume – Non-current – Uniform thought			

ADAPTE 1: The recommendation and strength of evidence remain unchanged from the 2011 PARM guideline. PARM does not recommend the use of lumbar supports in the treatment of chronic non-specific low back pain.

2017 Recommendation Statement			
There is insufficient evidence that self-application of heat is useful in the treatment of flare-ups of chronic non-specific low back pain.	ACOEM 2016	C	Nadler et al, 2003b Gale et al, 2006
Low volume – Non-current			
PARM suggests the self-application of heat in the treatment of flare-ups of chronic non-specific low back pain.			

2017 Updated Recommendations and Evidence Sources			
There is insufficient evidence that self-application of low-tech cryotherapy is useful in the treatment of chronic non-specific low back pain.	ACOEM 2016	I	Roberts et al, 1992
Low volume – Non-current			
PARM suggests the self-application of low-tech cryotherapy in the treatment of chronic non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence that diathermy is not useful in the treatment of chronic non-specific low back pain.	ACOEM 2016	C	Costa et al, 2009 Koes Spine 1992 Koes Jman 1992 Koes BMJ 1992 Koes et al, 1993
Moderate volume – Non-current			
PARM does not suggest the use of diathermy in the treatment of chronic non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence that infrared therapy is useful as home treatment of chronic non-specific low back pain.	ACOEM 2016	I	Glazov et al, 2009 Gale et al, 2006 Diab & Moustafa 2012 Mathews et al, 1988 Guvenol et al, 2000
Moderate volume – Non-current			
PARM suggests the use of infrared therapy as home treatment in chronic non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence that shockwave therapy is useful in the treatment of chronic non-specific low back pain.	TOP 2015	SR (inconclusive)	IHE Database
Low volume – Non-current			
PARM suggests the use of shockwave therapy in the treatment of chronic non-specific low back pain.			

2017 Recommendation Statement			
There is some evidence that TENS is useful as an adjunct in the treatment of chronic non-specific low back pain.	ACOEM 2016	I	Jarzem et al, 2005 Deyo et al, 1990 Facci et al, 2011 Moore & Shurman 1997 Lehmann et al,1983 Thompson et al, 2008 Jarzem et al, 2005 Shimoji et al, 2007 Hsieh et al, 2002 Barker et al, 2008 Tsukayama et al, 2002 Marchand et al, 1993 Cheing & Hui-Chan1999 Buchmuller et al, 2012 Grant et al, 1999 Sherry et al, 2001 Lehmann et al, 1986 Al-Smadi et al, 2003 Melzack et al, 1983 Kofotolis et al, 2008 Fox & Melzack 1976 Itoh et al, 2009
	TOP 2015	EO	Calgary Health Region 2005
Consistent level of evidence – High volume – Non-current – Uniform thought			
PARM recommends the use of TENS as an adjunct in the treatment of chronic non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence that decompression through traction and other spinal decompressive devices is not useful in the treatment of chronic non-specific low back pain.	ACOEM 2016	I	Sherry et al, 2001
Low volume – Non-current			
PARM does not suggest the use of decompression through traction and other spinal decompressive devices in the treatment of chronic non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence that kinesiotaping and taping are not useful in the treatment of chronic non-specific low back pain.	ACOEM 2016	C	Castro-Sanchez et al, 2012 Alvarez-Alvarez et al, 2014 Chen et al, 2012 Paoloni et al, 2011
Moderate volume – Current			
PARM does not suggest the application of kinesiotape and other taping methods in the treatment of chronic non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient that the use of shoe insoles and lifts are not helpful in the treatment of chronic non-specific low back pain with leg length discrepancies less than 2 centimeters.	ACOEM 2016	I	Shabat et al, 2005 Basford & Smith 1988 Larsen et al, 2002
Low volume – Non-current			
PARM does not suggest the use of shoe insoles and lifts in the treatment of chronic non-specific low back pain with leg length discrepancies less than 2 centimeters.			

2017 Recommendation Statement			
There is insufficient evidence that the use of shoe lifts is useful in the treatment of chronic non-specific low back pain with leg length discrepancies greater than 2 centimeters.	ACOEM 2016	I	Shabat et al, 2005 Basford & Smith 1988 Larsen et al, 2002
Low volume – Non-current			
PARM suggests the use of shoe lifts in the treatment of chronic non-specific low back pain with leg length discrepancies greater than 2 centimeters.			

2017 Recommendation Statement			
There is insufficient evidence to support the use of shoe insoles in the treatment of chronic non-specific low back pain who have prolonged walking requirements.	ACOEM 2016	I	Shabat et al, 2005
Low volume – Non-current			
PARM suggests the use of shoe insoles in the treatment of chronic non-specific low back pain who have prolonged walking requirements.			

2017 Recommendation Statement			
There is insufficient evidence to support that adjusting the firmness of one's mattress can aide in the treatment of chronic non-specific low back pain.	ACOEM 2016	I	Kovacs et al, 2003 Bergholdt et al, 2008
Low volume – Non-current			
PARM suggests to consider adjusting the firmness of one's mattress to aide in the treatment of chronic non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence to advocate the use of gravity tables (inversion/inverted traction, self-traction, gravitational traction) in the treatment of chronic non-specific low back pain.	TOP 2015	SR (inconclusive)	IHE database
Low volume – Current			
PARM suggests the use of gravity tables (inversion/inverted traction, self-traction, gravitational traction) as possible treatment option in chronic non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence that routine use of cryotherapies in health care provider setting or high-tech device for home use is not useful in the treatment of low back pain.	ACOEM 2016	Low [not (I)]	Roberts et al, 1992
Low volume – Non-current			
PARM does not suggest the routine use of cryotherapies in health care provider setting or high-tech device for home use in the treatment of low back pain.			

2017 Recommendation Statement			
There is evidence that lumbar supports are not helpful in the prevention of low back pain.	ACOEM 2016	Low [not (C)]	Doran & Newell 1975 van Poppel et al,1998 Reddel et al, 1992 Walsh & Schwartz 1990 Hsieh et al, 1992 Oleske et al, 2007 Roelofs et al, 2007 Roelofs et al, 2010
	TOP 2015	High [Do Not (RCT SR)]	U.S. Preventive Services Task Force IHE Database

Inconsistent level of evidence – High volume – Non-current – Uniform thought
PARM does not endorse the use of lumbar supports in preventing low back pain.

2017 Recommendation Statement			
There is some evidence that shoe insoles and lifts are not helpful in the prevention of low back pain.	ACOEM 2016	Low [not (C)]	Basford & Smith 1988 Larsen et al, 2002
	TOP 2015	High [Do Not (RCT SR)]	Burton et al, 2004 IHE Database
Inconsistent level of evidence - Moderate volume – Non-current – Uniform thought			
PARM does not recommend the use of shoe insoles and lifts in the prevention of low back pain.			

6.1.1.4 OTHER NON-INVASIVE PROCEDURES

Table 66. Non-pharmacologic management (other non-invasive procedures such as massage, spinal manipulation & mobilization, roptrotherapy, craniosacral therapy) of chronic non-specific low back pain

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is evidence that massage is useful in the treatment of chronic non-specific low back pain.	CLIP	Low	Cherkin et al. 2003 Furlan et al. 2005a Maher 2004 Van Tulder et al. 2004
	TOP	SR	Calgary Health Region 2005
	Italian	A	Negrini et al, 2006
	APS-ACP	Fair (moderate)	Cherkin et al. 2001, 2003 Furlan et al. 2002a,b Melzack et al. 1983
Inconsistent level of evidence – High volume – Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is some evidence that massage is useful in the treatment of chronic non-specific low back pain.	ACOEM	C (Recommended)	Cherkin et al, 2001
	ACP 2017	Moderate (Recommended)	Furlan et al, 2008 Yoon et al, 2012
	TOP 2015	SR (DO)	Calgary Health Region, 2005 Regional Pain Program, 2006
	Ottawa 2015	Level I A (beneficial at 12 weeks)	Little et al, 2008
Inconsistent level of evidence – Moderate volume – Non-current – Uniform thought			

ADAPTE 1: The recommendation remains unchanged but the strength of evidence changed (decreased) from the 2011 PARM guideline.

PARM endorses massage in the management of chronic non-specific low back pain.

2011 Recommendation Statement			
There is evidence that spinal manipulation can improve outcomes in patients with chronic non-specific low back pain	CLIP	Low (recommended)	Assendelft et al. 2003 Bronfort et al. 2004 Maher 2004
	TOP	SR (insufficient)	Calgary Health Region, 2005
	Italian	A (recommended)	Negrini et al, 2006
	ICSI	MN (recommended)	Ottenbacher & Difabio 1985 Shekelle et al. 1992
	APS-ACP	Good (moderate)	Bronfort et al. 2004 Brown et al. 2005 Cherkin et al. 2003 Ferreira et al. 2002, 2003 Fritz et al. 2005 UK BEAM Trial Team 2004 Vroomen et al. 2000 Woodhead & Clough 2005
Inconsistent level of evidence – High volume – Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is evidence that spinal manipulation can improve outcomes in patients with chronic non-specific low back pain	ACOEM 2016	C (Recommended)	Assendelft et al, 1995 Avery and Driscoll, 2004 Koes et al, 1996 Andersson et al, 1999 Childs et al, 2004 Cleland et al, 2009
	ACP 2017	Low (Recommended)	Rubinstein, 2011 Senna & Machaly, 2011

	APTA 2012	A (Recommended)	Assendelft et al, 2004 Assendelt et al, 2003 Flynn et al, 2002 Childs et al, 2004 Childs et al, 2006 Fritz et al, 2005 Cleland et al, 2009 Hancock et al, 2008 Fritz et al, 2005 Aure et al, 2003 Cecchi et al, 2010
	TOP 2015	SR (Inconclusive – Do Not Know)	Calgary Health Region, 2005 Regional Pain Program, 2006 IHE database
Inconsistent level of evidence – High volume – Non-current – Uniform thought			
ADAPTE 1: The recommendation and strength of evidence changed remains unchanged from the 2011 PARM guideline. PARM endorses spinal manipulation as a possible treatment option for chronic nonspecific low back pain			

2011 Recommendation Statement			
There is evidence that spinal mobilization is beneficial in the management of chronic non-specific low back pain.	ICSI	M	Ottenbacher & Difabio 1985 Shekelle et al. 1992
	Italian	A	Negrini et al, 2006
Consistent level of evidence – Low volume – Non-current – Uniform thought			
2017 Updated Recommendations and Evidence Sources			
There is evidence that spinal mobilization is beneficial in the management of chronic non-specific low back pain.	ACOEM 2016	C (Recommended)	Assendelft et al, 1995 Avery and Driscoll, 2004 Koes et al, 1996 Andersson et al, 1999 Childs et al, 2004 Cleland et al, 2009
	APTA 2012	A (Recommended)	Cleland et al, 2009 Aure et al, 2003
	TOP 2015	SR (Inconclusive – Do Not Know)	Calgary Health Region, 2005 Regional Pain Program, 2006 IHE database
Inconsistent level of evidence – High volume – Non-current – Uniform thought			
ADAPTE 1: The recommendation and strength of evidence changed remains unchanged from the 2011 PARM guideline.			

PARM endorses spinal mobilization in possible management of chronic non-specific low back pain.

2017 Recommendation Statement			
There is some evidence that structural massage is useful for initial treatment of chronic non-specific low back pain (up to 10 weeks).	OTTAWA 2015	Level I, A (beneficial up to 10 weeks) C-D (no benefit $\geq$ 16 weeks)	Cherkin et al, 2011
Low volume – Non-current			
PARM recommends structural massage as a treatment option given up to 10 weeks for chronic non-specific low back pain.			

2017 Recommendation Statement			
There is some evidence that relaxation massage is useful for chronic non-specific low back pain.	OTTAWA 2015	Level I, A (with benefit)	Cherkin et al, 2011
Low volume – Non-current			
PARM recommends relaxation massage in the treatment option for chronic non-specific low back pain.			

2017 Recommendation Statement			
There is conflicting evidence that reflexology is useful for chronic non-specific low back pain.	ACOEM 2016	C (Not Recommended)	Quinn et al, 2008 Poole et al, 2007
	OTTAWA 2015	Level I, A (beneficial up to 6-12 weeks)	Quinn et al, 2008
Inconsistent level of evidence – Low volume – Non-current – Variable thought			
PARM suggests reflexology as a possible treatment option for chronic non-specific low back pain.			

2017 Recommendation Statement			
There is some evidence that soft tissue manipulation is useful for initial treatment of chronic non-specific low back pain (up to 4 weeks).	OTTAWA 2015	Level I, A (beneficial up to 4 weeks)	Preyde, 2000
Low volume – Non-current			
PARM recommends soft tissue manipulation as a treatment option given up to 4 weeks for chronic non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence that craniosacral therapy is useful for chronic non-specific low back pain.	TOP 2015	EO (Do Not Know)	Guideline Update Committee
Low volume – Current			
PARM suggests craniosacral therapy as a possible treatment option for chronic non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence that spa therapy is useful for chronic non-specific low back pain.	TOP 2015	EO (Do Not Know)	Guideline Update Committee
Low volume – Current			
PARM suggests spa therapy as a possible treatment option for chronic non-specific low back pain.			

6.1.2 INVASIVE PROCEDURES

6.1.2.1 INVASIVE MEDICAL PROCEDURES

Table 67. Invasive medical procedures (prolotherapy, acupuncture, epidural spinal injection, trigger point injection, ligamentous injection, botulinum toxin injection, percutaneous nerve stimulation) for chronic non-specific low back pain

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is insufficient evidence that prolotherapy alone, may not be useful in patients with chronic non-specific low back pain.	TOP	SR (do not)	Calgary Health Region 2005 Regional Pain Program 2006
	CLIP	Absent	Yelland et al, 2004
	NICE	1++ (Do not)	Dagenais et al, 2007
Inconsistent level of evidence - Low volume – Current – Variable thought (PARM suggests)			
2017 Updated Recommendations and Evidence Sources			
There is strong evidence that prolotherapy, as sole treatment, is not useful in patients with chronic non-specific low back pain.	ACOEM 2012	A (Strongly **not** recommended as sole treatment)	Yelland et al, 2004 Dechow et al, 1999 Yelland et al, 2003 Pach et al, 2011 Klein et al, 1993 Ongley et al, 1987 Feldman et al, 2004 Dagenais et al, 2007 Rabago et al, 2005
	TOP 2015	SR (do not use as sole treatment)	Calgary Health Region 2005 Regional Pain Program 2006

Consistent level of evidence – High volume – Non-current – Uniform thought
ADAPTE 2: The recommendation remains unchanged but the strength of evidence changed (increased) from the 2011 PARM guideline. PARM strongly recommend against the use of prolotherapy, as sole treatment, in patients with chronic non-specific low back pain.

2011 Recommendation Statement			
There is evidence that therapeutic acupuncture is beneficial in managing chronic non-specific low back pain.	TOP	SR (DO)	Calgary Health Region 2005
	CLIP	Low	Furlan et al, 2005b Manheimer et al, 2005
	ITALIAN	B	Negrini et al, 2006
	NICE	1++. 1+, 1+, 1+, 1+, 1-	Brinkhaus et al 2006 Furlan et al, 2005b Haake et al, 2007 Witt et al, 2006
Inconsistent level of evidence – High volume – Non-current – Uniform thought (PARM recommends)			
2017 Updated Recommendations and Evidence Sources			
There is evidence in the use of therapeutic acupuncture as treatment for chronic non-specific low back pain.	TOP 2015	SR (Do) SR (Do) SR (Do)	Calgary Health Region 2005 Regional Pain Program 2006 SIGN 2013
	ACOEM 2012	C (Recommended)	Haake et al, 2007 Cherkin et al, 2009 Brinkhaus et al, 2006a Brinkhaus et al, 2006b Leibing et al, 2002 Yuan et al, 2009 Molsberger et al, 2002 Cherkin et al, 2001 Thomas et al, 2006 Wasan et al, 2010 Witt et al, 2006 Mendelson et al ,1983
	ACP-APS (NI) 2017	Moderate (Strong recommendation)	Lam et al, 2013 Cho et al, 2013 Haake et al, 2007 Leibing et al, 2002 Sator-Katzenschlager et al, 2004 Yeh et al, 2016
Inconsistent level of evidence – High volume – Non-current – Uniform thought			
ADAPTE 2: The recommendation remains unchanged but the strength of evidence (increased) from the 2011 PARM guideline.			

PARM endorses the use of therapeutic acupuncture as treatment for chronic non-specific low back pain.

2011 Recommendation Statement			
There is insufficient evidence that epidural spinal injection does not show benefit in patients with chronic non-specific low back.	CLIP	Low (no effect)	Nelemans et al, 2001
	ITALIAN	B (no effect)	Van Tulder et al, 2004 Negrini et al, 2006
Low volume – Current			
2017 Updated Recommendations and Evidence Sources			
There is evidence that epidural spinal injection may or may not benefit patients with chronic non-specific low back.	TOP 2015	SR (do not know) SR (do not know) SR (do not know) EO (do not know)	Van Tulder, 2004 Calgary Health Region 2005 Regional Pain Program 2006 Guideline Update Committee, 2015
Moderate volume – Non-current			
ADAPTE 2: The recommendation and strength of evidence remains unchanged from the 2011 PARM guideline. PARM does not recommend epidural spinal injection as an option in patients with chronic non-specific low back.			

2011 Recommendation Statement			
There is insufficient evidence that trigger point injection does not show benefit in patients with chronic non-specific low back pain.	ITALIAN	B (no evidence)	Negrini et al, 2006
Low volume – Current (PARM – NOT suggest)			
2017 Updated Recommendations and Evidence Sources			
There is insufficient evidence in the use of trigger point injection as treatment for chronic non-specific low back pain.	TOP 2015	SR (Do Not Know)	IHE Database
	ACOEM 2012	C	Sonne et al, 1985
Inconsistent level of evidence – Low volume – Non-current – Uniform thought			
ADAPTE 1: The recommendation and level of evidence remains unchanged from the 2011 PARM guideline. PARM does not suggest use of trigger point injection in patients with chronic non-specific low back pain.			

2011 Recommendation Statement			
There is insufficient evidence that ligamentous injection does not show benefit in patients with chronic non-specific low back pain.	CLIP	Low (no effect)	Nelemans et al, 2001 Van Tulder et al, 2004
	ITALIAN	B (no effect)	Negrini et al, 2006

Low volume – Current
2017: No new evidence
PARM suggest that ligamentous injection does not show benefit in patients with chronic non-specific low back pain.

2011 Recommendation Statement			
There is insufficient evidence in the use of botulinum toxin injection as treatment for chronic non-specific low back pain.	ITALIAN	B (no effect)	Negrini et al, 2006
Low volume – Current			
2017: No new evidence			
PARM does not suggest botulinum toxin injection in patients with chronic non-specific low back pain.			

2017 Recommendation Statement			
There is some evidence against the use of percutaneous nerve stimulation in patients with chronic non-specific low back pain.	ACOEM 2012	Insufficient (Not recommended)	Hsieh et al, 2002 Pérez-Palomares et al, 2010 Ghoname et al, 1999 Hamza et al, 1999 White et al, 2001 Weiner et al, 2008
Moderate volume – Non-current			
PARM does not recommend use of percutaneous nerve stimulation in patients with chronic non-specific low back pain.			

6.1.2.2 MINIMALLY-INVASIVE MEDICAL PROCEDURES

Table 68. Minimally-invasive medical procedures (facet joint injection, sacroiliac joint injections, intradiscal steroid injections) for chronic non-specific low back pain

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is conflicting evidence that facet joint steroid injection is useful in chronic non-specific low back pain.	ITALIAN NICE	B (no evidence) 1+ (yes)	Negrini et al, 2006 Boswell et al, 2007
Inconsistent level of evidence – Low volume – Current – Uniform thought (PARM suggests)			
2017 Updated Recommendations and Evidence Sources			
There is evidence against the use of facet joint steroid injection as treatment for chronic non-specific low back pain.	ACOEM 2012	B (Moderately not recommended)	Manchikanti et al, 2010 Lilius et al, 1989 Murata et al, 2009 Carette et al, 1991 Galiano et al, 2007
Moderate volume – Non-current			

ADAPTE 4: The recommendation and strength of evidence changed (increased) from the 2011 PARM guideline. PARM does not recommend use of facet joint steroid injection as treatment option for chronic non-specific low back pain.

2017 Recommendation Statement			
There is insufficient evidence in the use of sacroiliac joint injections in patients with chronic non-specific low back pain.	TOP 2015	EO (Do not know)	Guideline Update Committee, 2015
Low volume – Non-current			
PARM suggests use of sacroiliac joint injections as an option in patients with chronic non-specific low back pain.			

2017 Recommendation Statement			
There is insufficient evidence against the use of intradiscal steroid injection as treatment for chronic non-specific low back pain.	ACOEM 2012	C (Not recommended)	Khot et al, 2004 Cao et al, 2011
Low volume – Non-current			
PARM does not suggest use of intradiscal steroid injection as treatment for chronic non-specific low back pain.			

6.1.3 SURGICAL PROCEDURES

6.1.3.1 MINIMALLY-INVASIVE SURGICAL PROCEDURES

Table 69. Minimally-invasive surgical procedures (percutaneous intradiscal radiofrequency thermocoagulation, radiofrequency facet joint denervation, intradiscal electrothermal therapy) for chronic low back pain with radiculopathy

Recommendation	**Guideline**	**Level of Evidence**	**References**
2011 Recommendation Statement			
There is some evidence that percutaneous intradiscal radiofrequency thermocoagulation (PIRFT) may or may not benefit patients with chronic low back pain.	NICE	1+ (unclear benefit)	Freeman-Brian, 2006
Low Volume – Current (PARM – not recommend)			
2017 Updated Recommendations and Evidence Sources			
There is some evidence against the use of percutaneous intradiscal radiofrequency thermocoagulation (PIRFT) as treatment for chronic low back pain.	ACOEM 2012	B (Moderately not recommended)	Barendse et al, 2001 Erçelen et al, 2003
Low Volume – Non-Current			

ADAPTE 1: The recommendation and strength of evidence remain unchanged from the 2011 PARM guideline.

PARM does not recommend use of percutaneous intradiscal radiofrequency thermocoagulation (PIRFT) as treatment for chronic non-specific low back pain.

2011 Recommendation Statement			
There is conflicting evidence that radiofrequency facet joint denervation (neurotomy) is useful in chronic non-specific low back pain.	NICE	1+ (no effect) 1- (with benefit) 1+ (with benefit)	Leclaire et al, 2001 Nath et al, 2008 Van Wijk et al, 2005
Inconsistent level of evidence – Low volume – Non-current – Variable			
2017 Updated Recommendations and Evidence Sources			
Recommendation	Guideline	Level of Evidence	References
There is some evidence against the use of radiofrequency facet joint denervation as treatment for chronic non-specific low back pain.	ACOEM 2012	C (Not recommended)	Bogduk, 2008 Leclaire et al, 2001 van Wijk et al, 2005 van Kleef et al, 1999 Nath et al, 2008 Gallagher, 1994 Dobrogowski et al, 2005 Sanders el al, 1999 Oh et al, 2004 Buijs et al, 2004
	TOP 2015	EO (Do not know)	Guideline Update Committee, 2015
Consistent level of evidence – High volume – Non-current – Uniform thought			
ADAPTE 4: The recommendation and strength of evidence changed (increased) from the 2011 PARM guideline. PARM does not recommend use of radiofrequency facet joint denervation in chronic non-specific low back pain.			

2011 Recommendation Statement			
There is some evidence that intradiscal electrothermal therapy (IDET) may not benefit patients with chronic non-specific low back pain.	NICE	1+ (no benefit)	Freeman-Brian, 2006
Low volume – Current (PARM – does NOT recommend)			
2017 Updated Recommendations and Evidence Sources			
There is insufficient evidence that intradiscal electrothermal therapy (IDET) may not benefit patients with chronic non-specific low back pain.	ACOEM 2012	Insufficient (Not recommended)	Pauza et al, 2004 Freeman et al, 2005
Low volume – Non-current			

ADAPTE 1: The recommendation remains unchanged but the strength of evidence changed (decreased) from the 2011 PARM guideline. PARM does not recommend intradiscal electrothermal therapy (IDET) in patients with chronic non-specific low back pain.

6.1.3.2 OPEN SURGICAL PROCEDURES

Table 70. Invasive procedures (spinal fusion) for chronic low back pain with radiculopathy

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is some evidence that spinal fusion is advised to patients who have severe chronic non-specific low back pain.	NICE ITALIAN APS-ACP	1+ C Fair	Ibrahim et al, 2008 Brox et al, 2003, Brox et al, 2006 Fairbank et al, 2005 Fritzell et al, 2001 Negrini et al, 2006
Inconsistent level of evidence – Moderate volume – Current – Uniform thought			
PARM recommends use of spinal fusion as treatment for chronic non-specific low back pain.			

6.2 CHRONIC LOW BACK PAIN WITH RADICULOPATHY

6.2.1 CONSERVATIVE MANAGEMENT

6.2.1.1 PHARMACOLOGIC MANAGEMENT

Table 71. Pharmacologic management of chronic low back pain with radiculopathy

Recommendation	Guideline	Level of Evidence	References
2017 Recommendation Statement			
There is insufficient evidence for or against the use of other anticonvulsants for chronic radicular pain.	ACOEM 2016	Insufficient (low) – DO NOT KNOW	Baron et al, 2010 McCleane et al, 2001 Yildirim et al, 2003
Low volume – Non-current			
PARM suggests the use of anticonvulsants for chronic low back pain with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence against the use of tumor necrosis factor-α inhibitors for patients with chronic low back pain with radiculopathy.	ACOEM 2016	Insufficient (low) – DO NOT	Wiedemet et al, 2007 Korhonen et al , 2006 Korhonen et al, 2005
Low volume – Non-current			
PARM does not suggest the use of tumor necrosis factor-α inhibitors for treatment of chronic low back pain with radiculopathy.			

6.2.1.2 PHYSICAL ACTIVITY, THERAPEUTIC EXERCISE WITH RELATED INTERVENTIONS, EDUCATION & ADVICE

Table 72. Non-pharmacologic management (bed rest, lordotic sitting posture, aerobic exercises) of chronic low back pain with radiculopathy

Recommendation	Guideline	Level of Evidence	References
2017 Recommendation Statement			
There is insufficient evidence against bed rest in patient with radicular low back pain.	ACOEM 2016	C (low) DO NOT	Hofstee et al, 2002 Vroomen et al, 1999 Coomes et al, 1961
Low volume – Non-current			
PARM does not suggest bed rest in patients with chronic low back pain with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence that lordotic sitting posture is effective for treatment of radicular low back pain.	ACOEM 2016	Insufficient (low)	Delitto et al, 1993 Williams et al, 1991
Low volume - Non current			
PARM suggests that lordotic sitting posture may be considered as a treatment option for the treatment chronic low back pain with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence that aerobic exercise is effective for treatment of radicular low back pain.	ACOEM 2016	C (low)	Choi et al, 2010 Chatzitheodorou et al, 2007
Low volume – Non-current			
PARM suggests that aerobic exercise may be considered as a treatment option for treatment of chronic low back pain with radiculopathy.			

6.2.1.3 PHYSICAL AGENTS, MODALITIES, TRACTION & LUMBAR SUPPORTS

Table 73. Non-pharmacologic management (physical agents, modalities, traction & lumbar supports) of chronic low back pain with radiculopathy

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is some evidence on the usefulness of traction in managing chronic low back pain with radiculopathy.	APS-ACP	Fair	Clarke et al, 2005 Clarke et al, 2006 Harte et al, 2003 Vroomen et al, 2000
Low volume – Non-current			
2017 Recommendation Statement			
There is conflicting evidence on the use of traction in the treatment of chronic low back pain with radiculopathy.	ACOEM 2016	B (not)	Letchuman & Deusinger 1993 Sweetman et al, 1993 Mathews & Hickling 1975 Pal et al, 1986 Guvenol et al, 2000 Weber 1973 Weber et al, 1984 Coxhead et al,1981 Mathews et al, 1987
	APTA 2012	D (benefit)	Clarke et al, 2006 Schimmel 2009b Fritz et al, 2007b Beattie et al, 2008
Inconsistent level of evidence – High volume – Non-current – Variable thought			
ADAPTE 3: The recommendation and the strength of evidence changed (decreased) from the 2011 PARM guideline. PARM does not recommend the use of lumbar traction in the treatment of chronic low back pain with radiculopathy. However, this recommendation may change in the future due to emerging evidence on its benefit.			

2017 Recommendation Statement			
There is insufficient evidence that diathermy is not useful in the treatment of chronic low back pain with radiculopathy.	ACOEM 2016	C	Sweetman et al, 1993 Bi et al, 2013
Low volume – Current			
PARM does not suggest the use of diathermy in the treatment of chronic low back pain with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence that infrared therapy is useful as home treatment of chronic low back pain with radiculopathy.	ACOEM 2016	I	Mathews et al, 1988 Guvenol et al, 2000
Low volume – Non-current			
PARM suggests the use of infrared therapy as home treatment of chronic low back pain with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence that TENS is useful as an adjunct in the treatment of chronic low back pain with radiculopathy.	ACOEM 2016	I	Bloodworth et al, 2004 Facci et al, 2011 Thorsteinsson et al, 1977 Buchmuller et al, 2012
Moderate volume – Non-current			
PARM suggests the use of TENS as an adjunct in the treatment of chronic low back pain with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence to support the use of interferential therapy in the treatment of chronic low back pain with radiculopathy.	ACOEM 2016	I	Facci et al, 2011 Werners et al, 1999 Vong et al, 2011
Low volume – Non-current			
PARM suggests the use of interferential therapy in the treatment of chronic low back pain with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence that decompression through traction and other spinal decompressive devices is not useful in the treatment of chronic low back pain with radiculopathy.	ACOEM 2016	I	Brown 2012
Low volume – Non-current			
PARM does not suggest the use of decompression through traction and other spinal decompressive devices in the treatment of chronic low back pain with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence that kinesiotaping and taping are not useful in the treatment of chronic low back pain with radiculopathy.	ACOEM 2016	C	Alvarez-Alvarez et al, 2014
Low volume – Current			
PARM does not suggest the application of kinesiotape and other taping methods in the treatment of chronic low back pain with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence that the application of shoe insoles and lifts is not helpful in the treatment of chronic low back pain with radiculopathy with leg length discrepancies less than 2 centimeters.	ACOEM 2016	I	Basford & Smith 1988 Larsen et al, 2002
Low volume – Non-current			
PARM does not suggest the application of shoe inserts and lifts in the treatment of chronic low back pain with radiculopathy with leg length discrepancies less than 2 centimeters.			

6.2.1.4 OTHER NON-INVASIVE PROCEDURES

Table 74. Non-pharmacologic management (other non-invasive procedures such as massage, spinal manipulation) of chronic low back pain with radiculopathy

Recommendation	Guideline	Level of Evidence	References
2017 Recommendation Statement			
There is insufficient evidence for the use of massage in chronic low back pain with radiculopathy	ACOEM 2016	Insufficient (Recommended)	Albright et al, 2001
Low volume – Non-current			
PARM suggests massage as possible treatment option of chronic low back pain with radiculopathy			

2017 Recommendation Statement			
There is insufficient evidence for the use of spinal manipulation in chronic low back pain with radiculopathy	ACOEM 2016	Insufficient (Recommended)	McMorland et al, 2010
	NASS-RAD 2012	C (Recommended)	Burton et al, 2000 McMorland et al, 2010
Consistent level of evidence – Low volume – Non-current – Uniform thought			
PARM suggests spinal manipulation as possible treatment option of chronic low back pain with radiculopathy			

6.2.2 INVASIVE PROCEDURES

6.2.2.1 INVASIVE MEDICAL PROCEDURES

Table 75. Invasive medical procedures (epidural spinal injection, epidural clonidine) for chronic low back pain with radiculopathy

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is some evidence on the usefulness of epidural spinal injection in managing chronic low back pain with radiculopathy.	TOP	SR (with effect)	Calgary Health Region 2005
Low volume – Current (PARM – recommends)			
2017 Updated Recommendations and Evidence Sources			
There is some evidence that epidural spinal injection may or may not benefit patients with chronic low back with radiculopathy.	TOP 2015	SR (do not know) SR (do not know) SR (do not know) EO (do not know)	Van Tulder, 2004 Calgary Health Region 2005 Regional Pain Program 2006 Guideline Update Committee, 2015
Moderate volume – Non-current			
PARM recommends use of epidural spinal injection as treatment for chronic low back pain with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence against the use of epidural clonidine as treatment for chronic low back pain with radiculopathy.	ACOEM 2012	C (not recommended)	Burgher et al, 2011
Low volume – Current			
PARM does not suggest the use of epidural clonidine as treatment for chronic low back pain with radiculopathy.			

6.2.2.2 MINIMALLY-INVASIVE MEDICAL PROCEDURES

Table 76. Minimally-invasive procedures (facet joint injection, intradiscal high-pressure saline injection) for chronic low back pain with radiculopathy

Recommendation	Guideline	Level of Evidence	References
2017 Recommendation Statement			
There is evidence against the use of facet joint injection as treatment for chronic low back pain with radiculopathy.	ACOEM 2012	B (moderately not recommended)	Manchikanti et al, 2010 Lilius et al, 1989 Manchikanti et al, 2001 Murata et al, 2009 Carette et al, 1991 Schutz et al, 2011 Marks et al, 1992 Lilius et al 1990 Galiano et al 2007
High volume – Non-current			
PARM does not endorse the use of facet joint injection as treatment for chronic low back pain with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence to make a recommendation for or against the use of intradiscal high-pressure saline injection in the treatment of patients with lumbar disc herniation with radiculopathy.	NASS-RAD 2012	Insufficient	Kanai et al, 2009
Low volume – Non-current			
PARM suggests intradiscal high-pressure saline injection as treatment option in patients with lumbar disc herniation with radiculopathy.			

6.2.3 SURGICAL PROCEDURES

6.2.3.1 MINIMALLY-INVASIVE SURGICAL PROCEDURES

Table 77. Minimally-invasive surgical procedures (radiofrequency lesioning of dorsal root ganglia, endocopic percutaneous discectomy, automated endoscopic percutaneous discectomy, plasma disc decompression/nucleoplasty, percutaneous electrothermal disc decompression, operative microscope (microdiscectomy), tubular discectomy, open discectomy) for chronic low back pain with radiculopathy

Recommendation	Guideline	Level of Evidence	Reference
2017 Recommendation Statement			
There is some evidence that radiofrequency lesioning of dorsal root ganglia is not useful for treatment of chronic sciatica.	ACOEM 2012	B (Moderately not recommended)	Geurts et al, 2003

Low volume – Non-current
PARM does not recommend radiofrequency lesioning of dorsal root ganglia for treatment of chronic sciatica.

2017 Recommendation Statement			
There is some evidence that endoscopic percutaneous discectomy may be considered for the treatment of lumbar disc herniation with radiculopathy.	NASS-RAD 2012	C	Ahn et al, 2009 Ahn et al, 2004 Cervellini et al, 2005 Hermantin et al, 1999 Jang et al, 2006 Mayer et al, 1993 Ruetten et al, 2008
Moderate volume - Non-current			
PARM recommends endoscopic percutaneous discectomy in the treatment of patients with lumbar disc herniation with radiculopathy.			

2017 Recommendation Statement			
There is some evidence that automated percutaneous lumbar discectomy (APLD) may be considered for the treatment of lumbar disc herniation with radiculopathy.	NASS-RAD 2012	C	Alo et al, 2004 Davis et al, 1991 Haines et al, 2002 Lierz et al, 2009 Revel et al, 1993
Moderate volume - Non-current			
PARM recommends automated percutaneous lumbar discectomy (APLD) in the treatment of lumbar disc herniation with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence that automated percutaneous lumbar discectomy (APLD) is comparable to open discectomy in the treatment of patients with lumbar disc herniation with radiculopathy.	NASS-RAD 2012	Insufficient	Haines et al, 2002 Faubert et al, 1999
Low volume - Non-current			
PARM suggests that automated percutaneous discectomy and open discectomy are comparable in the treatment of patients with lumbar disc herniation with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence to recommend for or against the use of plasma disc ecompression/nucleoplasty in the treatment of patients with lumbar disc herniation with radiculopathy.	NASS-RAD 2012	Insufficient	Cohen et al, 2005 Gerszten et al, 2010
Low volume - Non-current			
PARM suggests consider plasma disc decompression/nucleoplasty as an option in the treatment of patients with lumbar disc herniation with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence to make a recommendation for or against the use of plasma disc decompression in patients with lumbar disc herniation who have previously failed in transforaminal epidural steroid injection therapy.	NASS-RAD 2012	Insufficient	Gerszten et al, 2010
Low volume - Non-current			
PARM suggests consider plasma disc decompression as an option in patients with lumbar disc herniation who have previously failed in transforaminal epidural steroid injection therapy.			

2017 Recommendation Statement			
There is insufficient evidence to make a recommendation for or against the use of percutaneous electrothermal disc decompression in the treatment of patients with lumbar disc herniation with radiculopathy.	NASS-RAD 2012	Insufficient	Schafele, 2008
Low volume - Non-current			
PARM suggests consider percutaneous electrothermal disc decompression in the treatment of patients with lumbar disc herniation with radiculopathy.			

2017 Recommendation Statement			
There is insufficient evidence that the use of an operative microscope (microdiscectomy) is suggested to obtain comparable outcomes to open discectomy for patients with lumbar disc herniation with radiculopathy whose symptoms warrant surgery	NASS-RAD 2012	B	Henrikson et al, 1996 Tureyen et al, 2003
Low volume – Non-current			
PARM suggests that the use of an operative microscope (microdiscectomy) and open discectomy have comparable outcomes in the treatment of patients with lumbar disc herniation with radiculopathy whose symptoms warrant surgery.			

2017 Recommendation Statement			
There is insufficient evidence to make a recommendation for or against the use of tubular discectomy compared with open discectomy to improve the outcomes for patients with lumbar disc herniation with radiculopathy whose symptoms warrant surgery.	NASS-RAD 2012	Insufficient	Arts et al, 2009
Low volume – Non-current			
PARM suggests that tubular discectomy and open discectomy have comparable improvement in outcomes for patients with lumbar disc herniation with radiculopathy whose symptoms warrant surgery.			

6.2.3.2 OPEN SURGICAL PROCEDURES

Table 78. Invasive procedures (spinal fusion, decompression surgery, medial facetectomy, aggressive discectomy, sequestrectomy, application of fat graft) for chronic low back pain with radiculopathy

2017 Recommendation Statement			
Recommendation	Guideline	Level of Evidence	References
There is insufficient evidence to make a recommendation for or against the performance of aggressive discectomy or sequestrectomy for the avoidance of chronic low back pain in patients with lumbar disc herniation with radiculopathy whose symptoms warrant surgery.	NASS-RAD 2012	B (p. 69)	Barth et al, 2008 Thome et al, 2005 Schick et al, 2009
Low volume – Non-current			
PARM suggests aggressive discectomy or sequestrectomy as an option to avoid chronic low back pain in patients with lumbar disc herniation with radiculopathy whose symptoms warrant surgery.			

2017 Recommendation Statement			
Recommendation	Guideline	Level of Evidence	References
There is insufficient evidence that when decompression surgery is indicated for patients with lumbar disc herniation with radiculopathy, there is no difference in rates of reherniation between sequestrectomy or aggressive discectomy.	NASS-RAD 2012	B	Barth et al, 2008 Schick et al, 2009
Low volume – Non-current			
PARM suggests that when decompression surgery is indicated for patients with lumbar disc herniation with radiculopathy, there is no difference in rates of reherniation between sequestrectomy or aggressive discectomy.			

2017 Recommendation Statement			
Recommendation	Guideline	Level of Evidence	References
There is insufficient evidence to make a recommendation for or against the use of medial facetectomy to improve the outcomes for patients with lumbar disc herniation with radiculopathy whose symptoms warrant surgery.	NASS-RAD 2012	Insufficient	Abramovitz et al, 1991
Low volume – Non-current			
PARM suggests medial facetectomy as an option to improve the outcome of patients with lumbar disc herniation with radiculopathy whose symptoms warrant surgery.			

2017 Recommendation Statement			
Recommendation	Guideline	Level of Evidence	References
There is insufficient evidence to make a recommendation for or against the specific surgical approach for far lateral disc herniations in patients with lumbar disc herniation with radiculopathy whose symptoms warrant surgery.	NASS-RAD 2012	Insufficient	Epstein, 1995 Ryang et al, 2005
Low volume – Non-current			
PARM suggests no specific surgical approach in patients with far lateral lumbar disc herniation with radiculopathy whose symptoms warrant surgery.			

2017 Recommendation Statement			
Recommendation	Guideline	Level of Evidence	References
There is insufficient evidence to make a recommendation for or against the application of a fat graft following open discectomy for patients with lumbar disc herniation with radiculopathy whose symptoms warrant surgery.	NASS-RAD 2012	Insufficient	Jensen et al, 1996 Gambardella et al, 2005
Low volume – Non-current			
PARM suggests consider the application of a fat graft following open discectomy for patients with lumbar disc herniation with radiculopathy whose symptoms warrant surgery.			

2017 Recommendation Statement			
Recommendation	Guideline	Level of Evidence	References
There is some evidence that surgical decompression provides long-term relief for patients with radiculopathy from lumbar disc herniation with whose symptoms warrant surgery. It should be noted that a substantial portion (23-28%) of patients will have chronic back or leg pain.	NASS-RAD 2012	Level IV	Bakhsh et al, 2010 Findlay et al, 1998 Loupasis et al, 1999 Padua et al, 1999 Porchet et al, 1999 Wenger et al, 2001
Moderate volume – Non-current			
PARM recommends surgical decompression in providing long-term relief for patients with radiculopathy from lumbar disc herniation with whose symptoms warrant surgery. However, it should be noted that a substantial portion (23-28%) of patients will have chronic back or leg pain.			

6.3 CHRONIC LOW BACK PAIN DUE TO OTHER MEDICAL CONDITIONS

6.3.1 CONSERVATIVE MANAGEMENT

6.3.1.1 PHARMACOLOGIC MANAGEMENT

Table 79. Pharmacologic management of chronic low back pain due to other medical conditions

Recommendation	Guideline	Level of Evidence	References
2017 Recommendation Statement			
There is insufficient evidence for the use of gabapentin for the treatment of severe neurogenic claudication with limited walking distance.	ACOEM 2016	C (low)	Muehlbacher et al, 2006
Low volume – Non-current			
PARM suggests the use of gabapentin for the treatment of severe neurogenic claudication with limited walking distance.			

2017 Recommendation Statement			
There is some evidence for the use of antibiotics for the treatment of chronic low back pain with Modic I changes and all 4 of the following: 1) at least 6 months duration; 2) prior history of disc herniation; 3) Modic I changes with vertebral edema; and 4) failure to improve with other approved treatment guideline.	ACOEM 2016	B (high)	Albert et al, 2008 Albert et al, 2013
Low volume – Non-current			
PARM recommends the use of antibiotics for the treatment of chronic low back pain with Modic I changes and all 4 of the following: 1) at least 6 months duration; 2) prior history of disc herniation; 3) Modic I changes with vertebral edema; and 4) failure to improve with other approved treatment guideline.			

6.3.1.2 PHYSICAL AGENTS, MODALITIES, TRACTION & LUMBAR SUPPORTS

Table 80. Non-pharmacologic management (physical agents, modalities, traction & lumbar supports) of chronic low back pain due to other medical conditions

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is insufficient evidence for the usefulness of continuous traction in patients with spinal stenosis.	ITALIAN	C	Negrini et al, 2006
Low volume – Current			
2017: No new evidence			
PARM suggests the use of continuous traction in patients with spinal stenosis.			

2011 Recommendation Statement			
There is insufficient evidence supporting the use of lumbar supports in patients with spinal instability.	ITALIAN	B/C	Negrini et al, 2006
Low volume – Current			
2017: No new evidence			
PARM suggests the use of lumbar supports in patients with chronic low back pain secondary to spinal stenosis with spinal instability.			

6.3.1.3 OTHER NON-INVASIVE PROCEDURES

Table 81. Non-pharmacologic management (spinal manipulation) of chronic low back pain due to other medical conditions

Recommendation	Guideline	Level of Evidence	References
2017 Recommendation Statement			
There is some evidence of the use of spinal manipulation in lumbar spinal stenosis.	APTA 2012	A (Recommended)	Whitman et al, 2006 Whitman et al, 2003 Murphy et al, 2006 Reiman et al, 2009
Moderate volume – Non-current			
PARM recommends spinal manipulation as possible treatment option for lumbar spinal stenosis.			

6.3.2 INVASIVE MEDICAL PROCEDURES

6.3.2.1 INVASIVE MEDICAL PROCEDURES

Table 82. Invasive medical procedures (epidural clonidine, percutaneous nerve stimulation, epidural spinal injection) for chronic low back pain due to other medical conditions

Recommendation	Guideline	Level of Evidence	References
2017 Recommendation Statement			
There is insufficient evidence against the use of epidural clonidine as treatment for chronic low back pain due to pyriformis syndrome	ACOEM 2012	C (Not recommended)	Naja et al, 2009
Low volume – Non-current			
PARM does not suggest the use of epidural clonidine as treatment for chronic low back pain with herniated disc.			
2017 Recommendation Statement			

There is Insufficient evidence not to recommend the use of percutaneous nerve stimulation in patients with chronic low back pain due to herniated nucleus polposus.	ACOEM 2012	Insufficient (Not recommended)	Hsieh et al, 2002
Low volume – Non-current			
PARM does not suggest the use of percutaneous nerve stimulation for the treatment for chronic low back pain due to herniated nucleus polposus.			

2017 Recommendation Statement			
There is some evidence against the use of epidural spinal injection as treatment for chronic low back pain with acute flare-up due to spinal stenosis.	ACOEM 2012	B (Moderately not recommended)	Friedly et al, 2014 Fukusaki et al, 1998 Wilson-Mac-Donald et al, 2005
Low volume – Non-current			
PARM does not recommend use of epidural spinal injection as treatment for chronic low back pain with acute flare-up due to spinal stenosis			

6.3.2.2 MINIMALLY-INVASIVE MEDICAL PROCEDURES

Table 83. Minimally-invasive medical procedures (intradiscal steroid injection) for chronic low back pain due to other medical conditions

Recommendation	Guideline	Level of Evidence	References
2017 Recommendation Statement			
There is insufficient evidence against the use of intradiscal steroid injection as treatment for chronic low back pain due to degenerative disc disease.	ACOEM 2012	C (Not recommended)	Simmons et al, 1992
Low volume – Non-current			
PARM does not suggest use of intradiscal steroid injection as treatment for chronic low back pain due to degenerative disc disease.			

6.3.3 SURGICAL PROCEDURES

6.3.3.1 MINIMALLY-INVASIVE SURGICAL PROCEDURES

Table 84. Minimally-invasive surgical procedures (radiofrequency facet joint denervation, radiofrequency neurotomy) for chronic low back pain due to other medical conditions

Recommendation	Guideline	Level of Evidence	References
2017 Recommendation Statement			
There is insufficient evidence for or against the use of radiofrequency facet joint denervation as treatment for chronic low back pain due to degenerative spondylolisthesis.	NASS-DLS 2014	Insufficient (for or against)	Klessinger et al, 2012
Low volume - Current			
PARM suggest radiofrequency facet joint denervation as treatment option for chronic low back pain due to degenerative spondylolisthesis.			

2017 Recommendation Statement			
There is insufficient evidence to make a recommendation for or against the use of radiofrequency neurotomy for the treatment of low-grade degenerative lumbar spondylolisthesis.	NASS-DLS 2014	Insufficient	Klessinger et al, 2012
Low volume – Current			
PARM suggests radiofrequency neurotomy as an option for the treatment of low-grade degenerative lumbar spondylolisthesis.			

6.3.3.2 OPEN SURGICAL PROCEDURES

Table 85. Open surgical procedures (such artificial disc placement, laminectomy, spinal {posterolateral/ 360^0/ anterior lumbar interbody} fusion, application of interspinous spacer device, vertebroplasty, addition of instrumentation/pedicular screws, direct/indirect surgical decompression, use of autogenous bone graft or bone graft substitutes,) for chronic low back pain due to other medical conditions

Recommendation	Guideline	Level of Evidence	References
2011 Recommendation Statement			
There is insufficient evidence that surgery is useful in chronic low back pain due to spinal instability.	ITALIAN	B	Negrini et al, 2006
Low volume – Current			
2017: No new evidence			
PARM suggests surgery as treatment for chronic low back pain due to spinal instability.			

2011 Recommendation Statement			
There is insufficient evidence that artificial disc placement is beneficial for single-level degenerative disc disease from L3 or L4 to S1 who have chronic low back pain.	APS-ACP	Fair	Blumenthal et al, 2005 Zigler et al, 2007
Low Volume – Current			
2017: No new evidence			
PARM suggests artificial disc placement as treatment for single-level degenerative disc disease from L3 or L4 to S1 who have chronic low back pain.			

2011 Recommendation Statement			
There is some evidence that laminectomy with or without fusion is useful compared to non-surgical treatment of patients with chronic low back pain due to spinal stenosis with or without degenerative spondylolisthesis.	ITALIAN	A	Negrini et al, 2006
	APS-ACP	Good	Amundsen et al, 2000 Malmivaara et al, 2007 Weinstein et al, 2007 Weinstein et al, 2008
Moderate volume – Current			
2017: No new evidence			
PARM recommends laminectomy with or without fusion as treatment for chronic low back pain due to spinal stenosis with or without degenerative spondylolisthesis.			

2011 Recommendation Statement			
There is insufficient evidence that spinal fusion is effective in adult painful scoliosis.	ITALIAN	B	Negrini et al, 2006
Low volume – Current			
2017: No new evidence			
PARM suggests spinal fusion as treatment for adult painful scoliosis.			

2011 Recommendation Statement			
There is some evidence that immediate surgery is not indicated for presence of disc extrusion or sequestration, without a trial of conservative therapy, and unaccompanied by severe or uncontrolled pain, and/or profound or progressive neurologic symptoms.	ICSI	R R D R D C D D D	Bozzao et al, 1992 Butterman, 2002 Deyo et al, 1990b Gundry & Heithoff,1993 Henmi et al, 2002 Komori et al, 1996 Matsubara et al, 1995 Saal, 2006 Spitzer, 1987
High volume – Non-current			
2017: No new evidence			

PARM does not recommend immediate surgery for disc extrusion or sequestration, without a trial of conservative therapy, and unaccompanied by severe or uncontrolled pain, and/or profound or progressive neurologic symptoms.

2011 Recommendation Statement			
There is some evidence that the use of interspinous spacer device is more effective than non-surgical treatment for patients with chronic low back pain due to 1-2 level spinal stenosis relieved by flexion.	APS-ACP	Fair	Anderson et al, 2006 Hsu et al, 2006 Zucherman et al, 2004, 2005
Low volume – Non-current			
2017: No new evidence			
PARM recommends use of interspinous spacer device is more effective than non-surgical treatment for patients with chronic low back pain due to 1-2 level spinal stenosis relieved by flexion.			

2011 Recommendation Statement			
There is insufficient evidence that lumbar fusion is beneficial for chronic low back pain due to common degenerative changes.	APS-ACP	Fair	Brox et al, 2003, 2006 Fairbank et al, 2005 Fritzell et al. 2001
	ITALIAN	C	Negrini et al. 2006
Moderate volume – Current			
2017: No new evidence			
PARM suggests that lumbar fusion is beneficial for chronic low back pain due to common degenerative changes.			

2017 Recommendation Statement			
There is some against the use of vertebroplasty as treatment for chronic low back pain secondary to lumbar compression fracture.	ACOEM 2012	A (Strongly not recommended)	Voormolen et al, 2007
Low volume – Non-current			
PARM does not recommend vertebroplasty as treatment for chronic low back pain secondary to lumbar compression fracture.			

2017 Recommendation Statement			
There is some evidence that in patients with low-grade isthmic spondylolisthesis, the addition of instrumentation may not improve outcomes in the setting of posterolateral fusion, with or without decompression.	NASS-AIS 2014	B	Moller et al, 2000a Moller et al, 2000b Ekman et al, 2005 Thomsen et al, 1997 Bjarke Christensen et al, 2002

Moderate volume – Non-current
PARM does not recommend the addition of instrumentation in the setting of posterolateral fusion, with or without decompression in patients with low-grade isthmic spondylolisthesis.

2017 Recommendation Statement			
There is some evidence that posterolateral fusion and 360^0 fusion surgeries are recommended to improve the clinical outcomes in adult patients with low-grade isthmic spondylolisthesis.	NASS-AIS 2014	A	Christensen et al, 2002 Swan et al, 2006
Low volume – Current			
PARM recommends posterolateral fusion and 360^0 fusion surgeries to improve clinical outcomes in adult patients with low-grade isthmic spondylolisthesis.			

2017 Recommendation Statement			
There is some evidence that 360° fusion provide higher radiographic fusion rates compared to posterolateral fusion in adult patients with low-grade isthmic spondylolisthesis.	NASS-AIS 2014	A	Swan et al, 2006 Suk et al, 1997
Low volume – Non-current			
PARM recommends 360° fusion over posterolateral fusion, in terms of higher radiographic fusion rates, in adult patients with low-grade isthmic spondylolisthesis.			

2017 Recommendation Statement			
There is insufficient evidence whether or not 360° fusion provides better clinical outcomes than posterolateral fusion alone in adult patients with low-grade isthmic spondylolisthesis.	NASS-AIS 2014	Insufficient (conflicting)	Christensen et al, 2002
Low volume – Non-current			
PARM suggests either 360° fusion or posterolateral fusion alone, may provide better clinical outcomes in adult patients with low-grade isthmic spondylolisthesis.			

2017 Recommendation Statement			
There is insufficient evidence that anterior lumbar interbody fusion (ALIF) may be considered as an option to indirectly decompress foraminal stenosis in adult patients with low-grade isthmic spondylolisthesis.	NASS-AIS 2014	C	Kim et al, 1999 Kim et al, 2010 Riouallon et al, 2013
Low volume – Non-current			
PARM suggests anterior lumbar interbody fusion (ALIF) as an option to indirectly decompress foraminal stenosis in adult patients with low-grade isthmic spondylolisthesis.			

2017 Recommendation Statement			
There is insufficient evidence that those with low-grade adult isthmic spondylolisthesis undergoing anterior lumbar interbody fusion (ALIF), with supplemental posterior percutaneous pedicle screws lead to shorter hospital stays, less operation room time and less blood loss compared to open posterior instrumentation.	NASS-AIS 2014	B	Kim et al, 2010
Low volume – Non-current			
PARM suggests that supplemental posterior percutaneous pedicle screws in those undergoing anterior lumbar interbody fusion (ALIF), may lead to shorter hospital stays, less operation room time and less blood loss, as compared to open posterior instrumentation for those with low-grade adult isthmic spondylolisthesis.			

2017 Recommendation Statement			
There is insufficient evidence whether in adult patients undergoing Anterior Interbody lumbar fusion (ALIF), supplemental posterior percutaneous pedicle screws lead to comparable clinical outcomes to those undergoing open posterior instrumentation.	NASS-AIS 2014	Insufficient (conflicting)	Shim et al, 2011
Low volume – Non-current			
PARM suggests that anterior Interbody lumbar fusion (ALIF) with supplemental posterior percutaneous pedicle screws may lead to comparable clinical outcomes to those undergoing open posterior instrumentation.			

2017 Recommendation Statement			
There is insufficient evidence that adult patients undergoing surgical treatment for isthmic spondylolisthesis, fusion is suggested to provide long-term clinical outcomes.	NASS-AIS 2014	B	Ekman et al, 2005
Low volume – Non-current			
PARM suggests fusion may provide long-term clinical outcomes in adult patients undergoing surgical treatment for isthmic spondylolisthesis.			

2017 Recommendation Statement			
There is insufficient evidence to recommend one surgical fusion technique over another to improve long-term outcomes in adult patients undergoing surgical treatment for isthmic spondylolisthesis.	NASS-AIS 2014	Insufficient	Bjarke Christensen et al, 2002 Videbaek et al, 2006
Low volume – Non-current			
PARM does not suggest one surgical fusion technique over another, in terms of improving long-term outcomes in adult patients undergoing surgical treatment for adult isthmic spondylolisthesis.			

2017 Recommendation Statement			
There is insufficient evidence to determine the clinical significance of adjacent segment degeneration on the long-term outcomes of fusion.	NASS-AIS 2014	Insufficient	Ekman et al, 2009
Low volume – Non-current			
PARM suggests that adjacent segment degeneration may have clinical significance on long-term outcomes of fusion.			

2017 Recommendation Statement			
There is insufficient evidence that direct surgical decompression may be considered for the treatment of patients with symptomatic spinal stenosis associated with low-grade degenerative lumbar spondylolisthesis whose symptoms have been recalcitrant to a trial of medical /interventional treatment.	NASS-DLS 2014	C	Matsudaira et al, 2005 Murat et al, 2012
Low volume – Current			
PARM suggests consider direct surgical decompression for those whose symptoms have been recalcitrant to a trial of medical/interventional treatment for their symptomatic spinal stenosis associated with low-grade degenerative lumbar spondylolisthesis.			

2017 Recommendation Statement			
There is insufficient evidence for or against the use of indirect surgical decompression for the treatment of patients with symptomatic spinal stenosis associated with low grade degenerative lumbar spondylolisthesis whose symptoms have been recalcitrant to a trial of medical /interventional treatment.	NASS-DLS 2014	Insufficient	Anderson et al, 2006
Low volume – Non-current			
PARM suggests consider indirect surgical decompression as treatment for patients with symptomatic spinal stenosis associated with low grade degenerative lumbar spondylolisthesis whose symptoms have been recalcitrant to a trial of medical /interventional treatment.			

2017 Recommendation Statement			
There is some evidence that surgical decompression with fusion is suggested for the treatment of patients with symptomatic spinal stenosis and degenerative lumbar spondylolisthesis to improve clinical outcomes compared with decompression alone.	NASS-DLS 2014	B	Bridwell et al, 1993 Herkowitz et al, 1991 Mardjetko et al, 1994 Martin et al, 2007 Matsudaira et al, 2005
Moderate volume – Non-current			
PARM recommends surgical decompression with fusion over surgical decompression alone in improving clinical outcomes in patients with symptomatic spinal stenosis and degenerative lumbar spondylolisthesis.			

2017 Recommendation Statement			
There is insufficient evidence that for symptomatic single-level degenerative spondylolisthesis that is low-grade (<20%) and without lateral foraminal stenosis, decompression alone with preservation of midline structures provide equivalent outcomes when compared to surgical decompression with fusion.	NASS-DLS 2014	B	Aihara et al, 2012 Kleinstueck et al, 2012 Park et al, 2012
Low volume – Current			
PARM suggests both decompression alone with preservation of midline structures or surgical decompression with fusion, provide equivalent outcomes in patients with low-grade (<20%), symptomatic single-level spondylolisthesis without lateral foraminal stenosis.			

2017 Recommendation Statement			
There is insufficient evidence that surgical decompression with fusion, with or without instrumentation, may improve the functional outcomes of single-level degenerative lumbar spondylolisthesis compared to medical /interventional treatment.	NASS-DLS 2014	B	Matsudaira et al, 2005 Weinstein et al, 2007 Weinstein et al, 2009
Low volume – Non-current			
PARM suggests that both surgical decompression with fusion with or without instrumentation, and medical/interventional treatment, may improve functional outcomes of single-level degenerative lumbar spondylolisthesis.			

2017 Recommendation Statement			
There is insufficient evidence for or against efficacy of surgical decompression with fusion, with or without instrumentation, for treatment of multi-level degenerative lumbar spondylolisthesis compared to medical /interventional treatment.	NASS-DLS 2014	Insufficient	Park et al, 2010
Low volume – Non-current			
PARM suggests to consider either surgical decompression with fusion with or without instrumentation, or medical /interventional treatment, for patients with multi-level degenerative lumbar spondylolisthesis.			

2017 Recommendation Statement			
There is insufficient evidence that the addition of instrumentation improve fusion rates in patients with symptomatic spinal stenosis and degenerative lumbar spondylolisthesis.	NASS-DLS 2014	B	Bridwell et al, 1993 Fischgrund et al, 1997 Kimura et al, 2001
Low volume – Non-current			
PARM suggests the addition of instrumentation may improve fusion rates in patients with symptomatic spinal stenosis and degenerative lumbar spondylolisthesis.			

2017 Recommendation Statement			
There is insufficient evidence to make a recommendation for or against the use of either decompression with posterolateral fusion or 360° fusion in the surgical treatment of patients with degenerative lumbar spondylolisthesis.	NASS-DLS 2014	Insufficient	Rousseau et al, 2005 Ha et al, 2008
Low volume – Non-current			
PARM suggests consider decompression with posterolateral fusion or 360° fusion as surgical treatment options in patients with degenerative lumbar spondylolisthesis.			

2017 Recommendation Statement			
There is insufficient evidence to make a recommendation for or against the efficacy of interspinous spacers versus medical/ interventional treatment in the management of degenerative lumbar spondylolisthesis patients.	NASS-DLS 2014	Insufficient	Anderson et al, 2006 Kim et al, 2012 Verhoof et al, 2008
Low volume – Non-current			
PARM suggests consider either the use of interspinous spacers or medical/ interventional treatment, as treatment options in the management of degenerative lumbar spondylolisthesis patients.			

2017 Recommendation Statement			
There is insufficient evidence for or against the use of reduction with fusion in the treatment of degenerative lumbar spondylolisthesis.	NASS-DLS 2014	Insufficient	Bednar, 2002 Lee, 1994 Sears, 2005
Low volume – Non-current			
PARM suggests the use of reduction with fusion as a treatment option in degenerative lumbar spondylolisthesis.			

2017 Recommendation Statement			
There is insufficient evidence for or against the use of autogenous bone graft or bone graft substitutes in patients undergoing posterolateral fusion for the surgical treatment of degenerative lumbar spondylolisthesis.	NASS-DLS 2014	Insufficient	Vaccaro et al, 2008
Low volume – Non-current			
PARM suggests consider either the use of autogenous bone graft or bone graft substitutes in patients undergoing posterolateral fusion for the surgical treatment of degenerative lumbar spondylolisthesis.			

2017 Recommendation Statement			
There is some evidence that both minimally invasive techniques and open decompression and fusion, with or without instrumentation	NASS-DLS 2014	Insufficient	Harris et al, 2011 Kotani et al, 2012 Mori et al, 2012

demonstrate significantly improved clinical outcomes for the surgical treatment of degenerative lumbar spondylolisthesis; however, there is conflicting evidence which leads to better outcomes.			Adogwa et al, 2011
Moderate volume – Current			
PARM recommends both minimally invasive techniques or open decompression and fusion, with or without instrumentation, as treatment options for the surgical treatment of degenerative lumbar spondylolisthesis; however, it is not yet certain which between them would lead to a better clinical outcome.			

2017 Recommendation Statement			
There is some evidence that decompression and fusion may be considered as a means to provide satisfactory long-term results for the treatment of patients with symptomatic spinal stenosis and degenerative spondylolisthesis.	NASS-DLS 2014	C	Schaeren et al, 2008 Toyoda et al, 2011 Tsutsumimoto et al, 2008 Turunen et al, 2012 Booth et al, 1999 Kornblum et al, 2004
Moderate volume – Non-current			
PARM recommends decompression and fusion as a means to provide satisfactory long-term results for the treatment of patients with symptomatic spinal stenosis and degenerative spondylolisthesis.			

6.4 SUMMARY OF RECOMMENDATIONS FOR CHRONIC LOW BACK PAIN

6.4.1 Summary of recommendations for the treatment of non-specific chronic low back pain

Table 86. Summary of recommendations for the treatment of non-specific chronic low back pain

DURATION	CPG		INTERVENTION	SE	E	R	S	REMARKS
	2011	2017						
Pharmacologic Management	x	x	Acetaminophen	Yes				
	x	x	NSAIDs	Yes				
	x	x	Tricyclic anti-depressants – amitriptyline, imipramine, nortriptyline, desipramine, maprotiline, doxepin			Yes		
	x	x	Mixed serotonin norepinephrine reuptake inhibitors (e.g., Duloxetine)			Yes		
	x	x	Selective serotonin reuptake inhibitors (Citalopram, Escitalopram, Fluoxetine, Paroxetine, Sertraline)			No		
	x	x	Muscle relaxants (Cyclobenzaprine, Hyromorphone, Tapentadol)			Yes		
	x	x	Opioids (Morphine, Oxymorphone, Hydromorphone, Tapentadol)		Yes			
	x	x	Anti-epileptic drugs				Yes	
	x		Benzodiazepines			Yes		
	x		Tramadol			Yes		
		x	NSAIDS as first line		Yes			
		x	Tramadol or Duloxetine			Yes		As 2nd-line drug
		x	Use of muscle relaxants without documented functional benefit				No	
		x	Willow bark				No	
		x	Marijuana/Dried cannabis				Yes	
		x	Buprenorphine, Transdermal system, Topical NSAIDs or other creams and ointments			Yes		
		x	Lidocaine patches				No	

		x	DMSO, N-acetylcycteine, EMLA cream, wheatgrass cream				No	
		x	Sytemic glucocorticosteroids				No	
		x	Oral/IV Colcichine				No	
		x	Ketamine infusion				No	
		x	Tumor necrosis factor-α inhibitors				No	
		x	Oral herbal treatments (theramine, harpagoside, salicin)				Yes	
		x	Vitamin treatment				No	
Physical activity, therapeutic exercise with related interventions, education and advice	x	x	Bed rest	No				
	x	x	Individualized/client-specific programs	Yes				
	x		Therapeutic exercises	Yes				
	x		Prescribing any specific exercise program over another	No				
	x		McKenzie approach				Yes	
	x		Back schools (i.e. control posture, reduce stress, modify work activity)			Yes		
		x	Remain physically active	Yes				
		x	Lordotic sitting posture				Yes	
		x	Trunk coordination, strengthening and endurance exercises (also described motor control exercises, transversus abdominis training, lumbar multifidus training, dynamic lumbar stabilization)		Yes			
		x	Centralization and Directional preference exercises and procedures				Yes	
		x	Progressive endurance exercises and fitness activities		Yes			
		x	Aerobic exercise		Yes			
		x	Stretching exercises		No			In the absence of significant ROM deficits
Physical Agents, Modalities, Orthosis	x		Heat therapy		No			
	x	x	Therapeutic ultrasound			Yes		
	x	x	Laser therapy			Yes		

	x	x	TENS as sole treatment			No		
	x	x	Interferential therapy			Yes		
	x	x	Lumbar traction	No				
	x	x	Lumbar supports			No		
		x	Self-application of heat				Yes	
		x	Self-application of cold				Yes	
		x	Shortwave diathermy				No	
		x	Infrared therapy as home treatment				Yes	
		x	Shockwave therapy				Yes	
		x	TENS as an adjunct			Yes		
		x	Decompression through traction and other devices				No	
		x	Kinesiotaping and other taping methods				No	
		x	Shoe insoles and lifts				No	With leg length discrepancies less than 2 cm
		x	Shoe lifts				Yes	With leg length discrepancies greater than 2 cm
		x	Shoe insoles				Yes	With those with prolonged walking requirements
		x	Adjusting firmness of mattress				Yes	
		x	Gravity tables				Yes	
		x	Cold therapy/cryotherapy				No	
		x	Lumbar supports for LBP prevention		No			
		x	Shoe insoles and lifts for LBP prevention			No		
Other Non-invasive management	x	x	Massage		Yes			
	x	x	Spinal manipulation		Yes			
	x	x	Spinal mobilization		Yes			
		x	Structural massage			Yes		
		x	Relaxation massage			Yes		
		x	Reflexology				Yes	
		x	Soft tissue manipulation			Yes		
		x	Craniosacral therapy				Yes	
		x	Spa therapy				Yes	
Invasive management	x	x	Prolotherapy			No		
	x	x	Acupuncture		Yes			

	x	x	ESI			Yes		
	x	x	Trigger Point Injection				No	
	x		Ligamentous Injection				Yes	
	x		Botulinum toxin injection				No	
		x	Percutaneous nerve stimulator			No		
	x	x	Facet joint steroid injection			No		
		x	Sacroiliac joint injection				Yes	
		x	Intradiscal steroid injection				No	
	x	x	Percutaneous intradiscal radiofrequency thermocoagulation (PIRFT)			No		
	x	x	Radiofrequency facet joint denervation (Neurotomy)			No		
	x	x	intradiscal electrothermal therapy (IDET)			No		
Surgical management	x		Spinal fusion			Yes		

Legend: SE – Strongly endorses
E – Endorses
R – Recommends
S – Suggests

6.4.2 Context points for the treatment of non-specific chronic low back pain

Table 87. Context points for the treatment of non-specific chronic low back pain

	Minimum standard care of practice	**Additional standard care of practice**
Practice method	- Pharmacologic: - Oral Medications (Acetaminophen, NSAIDs, TCAs, mixed SNRIs, muscle relaxants, opioids, anti-epileptic drugs, benzodiazepines, tramadol, duloxetine, marijuana/dried cannabis - Topical Medications (Buprenorphine, transdermal system, topical NSAIDs or other creams and ointments) - Oral herbal treatments (theramine, harpagoside, salicin) - Physical activity, therapeutic exercise, education and advice: - Remain physically active and to avoid best rest (if needed, limit to no more than two days) and self-treating with exercise program - Therapeutic exercise - Back schools - Individualized/client-specific programs - McKenzie approach - Centralization and directional preference exercises - Aerobic exercise - Stretching exercise - Progressive endurance exercises and fitness activities - Trunk coordination, strengthening and endurance exercises (also described motor control exercises, transversus abdominis training, lumbar multifidus training, dynamic lumbar stabilization)	- Physical agents, modalities, orthosis: - Interferential therapy - Laser therapy - Infrared therapy - Shockwave - Gravity tables - Invasive management* - Percutaneous nerve stimulator++ - Sacroiliac joint injection+++ - Intradiscal steroid injection+++ - Other non-invasive management: - Spinal manipulation++ - Spinal mobilization++ - Reflexology++ - Soft tissue manipulation++ - Craniosacral therapy++ - Spa therapy

	- Lordotic sitting posture - Limit/pace any activity or exercise that causes peripheralization - Physical agents, modalities, orthosis: - Heat and cold therapy as home treatment - Therapeutic ultrasound - TENS as an adjunct - Shoes insoles - Shoe lifts - Adjusting firmness of mattress	
Workforce	- Attending physician - Physiatrist - Physical therapist - Orthotist/Medical supplies distributor	- Physiatrist - Physical therapist - Surgeon - Anesthesiologist - Pain specialist - Health care professional trained in spinal manipulation/spinal mobilization/reflexology/soft tissue manipulation/craniosacral therapy - Trained spa therapist
Resources	- Physician's clinic - Physical therapy room - Electrophysical agents - Orthosis	- Physical therapy room - Electrophysical agents - Operating room - Equipment for intradiscal/sacroiliac injection/procedure - Spa
Training	Within competency	Within competency
When is it done	Upon consultation Upon appointment with physical therapist	Upon consultation Upon appointment with physical therapist For invasive management, when comprehensive management fails.
Reassessment using at least one standard outcome measure	Four to six weeks Pain scale before and after intervention Once lumbar orthosis is available, if indicated	One – two weeks after invasive management Two – four weeks after non-invasive management Pain scale before and after intervention

* Consider invasive procedure when conservative management fails.
++ Spinal manipulation and/or Spinal Mobilization, Reflexology, Craniosacral therapy, Percutaneous nerve stimulation should be given only by a professional who is registered to practice in the Philippines (i.e. physician, PT), with recognized and credible training, approved by any of the following: Professional Regulation Commission (PRC), Department of Health

(DOH), or their respective professional organization/s; and can provide documented evidence of safe and evidence-based practice.
+++ Epidural spinal injection should be given only by a professional who is registered to practice in the Philippines (i.e. physician), with recognized and credible training, approved by the Professional Regulation Commission (PRC); and can provide documented evidence of safe and evidence-based practice.

6.4.3 Summary of recommendations for the treatment of chronic low back pain with radiculopathy

Table 88. Summary of recommendations for the treatment of chronic low back pain with radiculopathy

DURATION	CPG		INTERVENTION	SE	E	R	S	REMARKS
	2011	2017						
Pharmacologic management		x	Anti-convulsants				Yes	
		x	Tumor necrosis factor- α				No	
		x	Capsaicin (Capsicum)				Yes	for acute exacerbations of chronic low back pain
		x	Muscle relaxants				Yes	
		x	Aqueous extract of Harpagophytumprocumbens (also called Devil's Claw, grapple plant, wood spider) at a standardized daily dosage of 50 mg harpagoside,				Yes	
		x	A combination of extract of Salix daphnoides and Salix purpurea (also called purple willow, red willow) at a standardized dosage of 240 mg salicin/day				Yes	
		x	A plaster of Capsicum frutescens (also called bird pepper, hot pepper, red chili, spur pepper, Tabasco pepper)				Yes	
Physical activity, therapeutic exercise with related interventions, education and advice		x	Bed rest				Yes	
		x	Lordotic sitting posture				Yes	
		x	Aerobic exercise				Yes	
Physical Agents, Modalities, Orthosis	x	x	Lumbar traction			No		
		x	Shortwave diathermy				No	
		x	Infrared therapy as home treatment				Yes	
		x	TENS as an adjunct				Yes	
		x	Interferential therapy				Yes	
		x	Decompression through traction and other devices				No	

		x	Kinesiotaping and other taping methods				No	
		x	Shoe insoles and lifts				No	With leg length discrepancies less than 2 cm
Other Non-invasive management		x	Massage				Yes	
		x	Spinal manipulation				Yes	
Invasive management	x	x	Epidural spinal Injection			Yes		
		x	Epidural Clonidine				No	
		x	Facet joint steroid injection		No			
		x	Intradiscal high-pressure saline injection				Yes	
Surgical management		x	Radiofrequency lesioning of dorsal root ganglion			No		
		x	Endoscopic percutaneous discectomy			Yes		
		x	Automated percutaneous lumbar discectomy (APLD)			Yes		
		x	Automated percutaneous lumbar discectomy (APLD)				Yes	Comparable to open discectomy
		x	Plasma disc decompression/ nucleoplasty				Yes	
		x	Plasma disc decompression/ nucleoplasty				Yes	For those with previously failed transforaminal epidural steroid injection.
		x	Percutaneous electrothermal disc decompression				Yes	
		x	Operative microscope (microdiscectomy)				Yes	compared to open discectomy
		x	Tubular discectomy				Yes	Compared to open discectomy
		x	Aggressive discectomy or Sequestrectomy				Yes	
		x	Decompression surgery using sequestrectomy or aggressive discectomy				Yes	Similar rates of reherniation
		x	Medial facetectomy				Yes	
		x	No specific surgical approach				Yes	For far lateral disc herniations in patients whose symptoms warrant surgery.

		x	Application of a fat graft following open discectomy				Yes	
		x	Surgical decompression			Yes		Long-term relief, but will have chronic back or leg pain

Legend: SE – Strongly endorses
E – Endorses
R – Recommends
S – Suggests

6.4.4 Context points for the treatment of chronic low back pain with radiculopathy

Table 89. Context points for the treatment of chronic low back pain with radiculopathy

	Minimum standard care of practice	**Additional standard care of practice**
Practice method	- Pharmacologic: - Medications (anti-convulsants, capsaicin, muscle relaxants - Medical foods (Aqueous extract of Harpagophytumprocumbens (also called Devil's Claw, grapple plant, wood spider) at a standardized daily dosage of 50 mg harpagoside, combination of extract of Salix daphnoides and Salix purpurea (also called purple willow, red willow) at a standardized dosage of 240 mg salicin/day and plaster of Capsicum frutescens (also called bird pepper, hot pepper, red chili, spur pepper, Tabasco pepper) - Physical activity, therapeutic exercise, education and advice: - Avoid bed rest - Aerobic exercise - Lordotic sitting posture - Physical agents, modalities, orthosis: - TENS as adjunct	- Physical agents, modalities, orthosis: - Infrared therapy as home therapy - Interferential therapy - Invasive management* - Epidural spinal injection+++ - Epidural clonidine+++ - Facet joint injection+++ - Intradiscal high-pressure saline injection+++ - Surgical management - Radiofrequency lesioning of dorsal root ganglia+++ - Endoscopic percutaneous discectomy+++ - Automated endoscopic percutaneous discectomy+++ - Plasma disc decompression+++ - Nucleoplasty+++ - Percutaneous electrothermal disc decompression+++ - Operative microscope (microdiscectomy)+++ - Tubular discectomy+++ - Open discectomy+++ - Spinal fusion+++ - Decompression surgery+++ - Medial facetectomy+++ - Aggressive discectomy,+++ - Sequestrectomy+++ - Application of fat graft+++ - Other non-invasive management

		- - Spinal manipulation++
Workforce	- Attending physician - Physiatrist - Physical therapist	- Physiatrist - Physical therapist - Orthopedic surgeon - Neurosurgeon - Anesthesiologist - Pain specialist - Health care professional trained in spinal manipulation
Resources	- Physical therapy room - Electrophysical agents	- Physical therapy room - Electrophysical agents - Operating room - Equipment and supplies for epidural/facet joint injection, radiofrequency lesioning, endoscopic percutaneous discectomy, automated endoscopic percutaneous discectomy, plasma disc decompression, nucleoplasty, percutaneous electrothermal disc decompression, operative microscope, tubular discectomy, open/aggressive discectomy, spinal fusion, decompression surgery, medial facetectomy, sequestrectomy and for application of fat graft
Training	Within competency	Within competency
When is it done	Upon consultation Upon appointment with physical therapist	Upon consultation Upon appointment with physical therapist Upon acquisition of modality for home use For invasive/surgical management, when comprehensive management fails
Reassessment using at least one standard outcome measure	Four to six weeks Pain scale before and after intervention	One – two weeks after invasive/surgical management Two – four weeks after non-invasive management Pain scale before and after intervention

* Consider invasive procedure when conservative management fails.
++ Spinal manipulation and/or Spinal Mobilization, Reflexology, Craniosacral therapy, Percutaneous nerve stimulation should be given only by a professional who is registered to practice in the Philippines (i.e. physician, PT), with recognized and credible training, approved by any of the following: Professional Regulation Commission (PRC), Department of Health (DOH), or their respective professional organization/s; and can provide documented evidence of safe and evidence-based practice.

+++ Epidural spinal injection should be given only by a professional who is registered to practice in the Philippines (i.e. physician), with recognized and credible training, approved by the Professional Regulation Commission (PRC); and can provide documented evidence of safe and evidence-based practice.

6.4.5 Summary of recommendations for the treatment of chronic low back pain due to other specific conditions

Table 90. Summary of recommendations for the treatment of chronic low back pain due to other specific conditions

DURATION	CPG		INTERVENTION	SE	E	R	S	REMARKS
	2011	2017						
Pharmacologic management		x	Gabapentin				Yes	
		x	Antibiotics				Yes	for (+) Modic changes with the following: 1. ≥6 months duration 2. prior history of disc herniation; 3. Modic I changes with vertebral edema 4. failure to improve with other approved treatment guideline
Physical Agents, Modalities, Orthosis	x		Lumbar traction				Yes	Spinal stenosis
	x		Lumbar supports				Yes	Spinal instability
Other Non-invasive management		x	Spinal manipulation			Yes		for lumbar spinal stenosis
Invasive management (from this part till end, ALL changed)		x	Epidural Clonidine				No	Pyriformis syndrome
		x	Percutaneous nerve stimulator				No	HNP
		x	Epidural spinal Injection			No		Acute flare-up Spinal Stenosis
		x	Intradiscal steroid injection				No	DDD
		x	Sacroiliac joint injecction				Yes	Sacroiliitis
Surgical management		x	Radiofrequency facet joint denervation				Yes	Degenerative Spondylolisthesis
		x	Radiofrequency neurotomy				Yes	Degenerative Spondylolisthesis
	x		Surgery				Yes	Spinal Instability
	x		Artificial disc placement				Yes	Single-level DDD from L3 or L4 to S1
	x		Laminectomy with or without fusion over non-surgical treatment			Yes		Spinal stenosis with or without degenerative spondylolisthesis.
	x		Spinal fusion				Yes	Adult painful scoliosis
	x		Immediate surgery (-) trial of conservative treatment, & (-) severe/uncontrolled pain, &/or profound/progressive neurologic symptoms			No		Disc extrusion or sequestration

	x		Interspinous spacer device			Yes		1-2 level spinal stenosis relieved by flexion
	x		Lumbar fusion				Yes	Common degenerative changes
		x	Vertebroplasty			No		Lumbar compression fracture
		x	Add instrumentation in posterolateral fusion (+/-) decompression			No		To improve clinical outcomes in Adult Istmic Spondylolisthesis (AIS)
		x	Posterolateral fusion and 360^0 fusion			Yes		To improve clinical outcomes in AIS
		x	360° fusion over posterolateral fusion			Yes		Higher radiographic fusion rates in AIS
		x	Either 360° fusion or posterolateral fusion alone				Yes	Better clinical outcomes in AIS
		x	Anterior lumbar interbody fusion (ALIF)				Yes	Indirectly decompress foraminal stenosis in AIS
		x	ALIF w/ supplemental posterior percutaneous pedicle screws over open posterior instrumentation				Yes	Lead to shorter hospital stays, less operation room time and less blood loss in AIS
		x	ALIF w/ supplemental posterior percutaneous pedicle screws over open posterior instrumentation				Yes	Improved clinical outcomes in AIS
		x	Fusion, choice of surgery				Yes	Improved long-term clinical outcome in AIS
		x	Comparing one surgical fusion technique over another				No	To improve long-term clinical outcome in AIS
		x	Clinical significance of adjacent segment degeneration				Yes	Long-term outcome of fusion in AIS
		x	Direct surgical decompression				Yes	Low-grade DLS
		x	Indirect surgical decompression				Yes	Symptomatic spinal stenosis whose symptoms recalcitrant to trial of medical / interventional treatment
		x	Surgical decompression w/ fusion over decompression alone			Yes		Symptomatic spinal stenosis whose symptoms recalcitrant to trial of medical / interventional treatment
		x	Either decompression alone w/ preservation of midline structures, or, surgical decompression w/ fusion				Yes	Symptomatic spinal stenosis with Degenerative Lumbar Spondylolisthesis (DLS)

		x	Surgical decompression w/ fusion, w/ or w/o instrumentation compared to medical / interventional treatment				Yes	Symptomatic single-level DLS, that is low- grade (<20%) and w/o lateral foraminal stenosis
		x	Surgical decompression w/ fusion, w/ or w/o instrumentation compared to medical / interventional treatment				Yes	On functional outcomes of single-level DLS
		x	Addition of instrumentation				Yes	Multi-level DLS
		x	Addition of instrumentation				No	To improve fusion rates in symptomatic spinal stenosis w/ DLS
		x	Decompression with posterolateral fusion or with 360° fusion				Yes	To improve clinical outcomes in symptomatic spinal stenosis w/ DLS
		x	Interspinous spacers or medical / interventional treatment				Yes	Surgical treatment of DLS
		x	Reduction with fusion				No	DLS
		x	Autogenous bone graft or bone graft substitutes in posterolateral fusion				Yes	DLS
		x	Minimally-invasive techniques and open decompression and fusion, (+/-) instrumentation			Yes		DLS
		x	Decompression and fusion			Yes		On clinical outcomes for surgical treatment of DLS

Legend:
SE – Strongly endorses
E – Endorses
R – Recommends
S – Suggests

DLS – Degenerative Lumbar Spondylolisthesis
AIS – Adult Isthmic Spondylolisthesis
DDD – Degenerative Disc Disease
HNP – Herniated Nucleus Polposus

6.4.6 Context points for the treatment of chronic low back pain due to other specific conditions

Table 91. Context points for the treatment of chronic low back pain due to other specific conditions

	Minimum standard care of practice	**Additional standard care of practice**
Practice method	- Pharmacologic: - Gabapentin - Antibiotics - for (+) Modic changes with the following: 1. >6 months duration 2. prior history of disc herniation; 3. Modic I changes with vertebral edema 4. failure to improve with other approved treatment guideline - Physical agents, modalities, orthosis: - Lumbar traction - Lumbar support	- Other non-invasive management: - Spinal manipulation++ Invasive management* - Percutaneous nerve stimulation++ - Epidural clonidine+++ - Epidural spinal injection+++ - Intradiscal steroid injection+++ - Radiofrequency facet joint denervation+++ - Radiofrequency Neurotomy+++ - Surgical Management* - Vertebroplasty+++ - Aggressive discectomy+++ - Sequestrectomy+++ - Artificial disc placement+++ - Laminectomy+++ - Spinal {posterolateral/ 360^0/ anterior lumbar interbody} fusion+++ - Application of interspinous spacer device+++ - Vertebroplasty+++ - Addition of instrumentation/pedicular screws+++ - Direct/indirect surgical decompression - Use of autogenous bone graft or bone graft substitutes+++
Workforce	- Attending physician - Physiatrist - Physical therapist - Orthotist/medical supplies distributor	- Physiatrist - Orthopedic Surgeon - Neurosurgeon - Anesthesiologist - Pain specialist

		- Physical Therapist - Health care professional trained in spinal manipulation
Resources	- Physician's clinic - Physical therapy room - Traction machine - Orthosis	- Physical therapy room - Operating room - Equipment and supplies for epidural/facet joint/intradiscal injection, radiofrequency facet joint denervation/neurotomy, vertebroplasty, discectomy, sequestrectomy, artificial disc placement, laminectomy, spinal {posterolateral/ 360^0/ anterior lumbar interbody} fusion, application of interspinous spacer device, vertebroplasty, addition of instrumentation/pedicular screws, direct/indirect surgical decompression, use of autogenous bone graft or bone graft substitutes
Training	Within competency	Within competency
When is it done	Upon consultation Upon appointment with physical therapist For appointment with orthotist	For invasive/surgical management, when comprehensive management fails.
Reassessment using at least one standard outcome measure	Four to six weeks Pain scale before and after intervention Once lumbar orthosis is available, if indicated	One – two weeks after invasive/surgical management Two – four weeks after non-invasive management Pain scale before and after intervention

* Consider invasive procedure when conservative management fails.
++ Spinal manipulation and/or Spinal Mobilization, Reflexology, Craniosacral therapy, Percutaneous nerve stimulation should be given only by a professional who is registered to practice in the Philippines (i.e. physician, PT), with recognized and credible training, approved by any of the following: Professional Regulation Commission (PRC), Department of Health (DOH), or their respective professional organization/s; and can provide documented evidence of safe and evidence-based practice.
+++ Epidural spinal injection should be given only by a professional who is registered to practice in the Philippines (i.e. physician), with recognized and credible training, approved by the Professional Regulation Commission (PRC); and can provide documented evidence of safe and evidence-based practice.

Abbreviations

ACOEM	American College of Occupational and Environmental Medicine
ACP	American College of Physicians
AGREE	Appraisal of Guidelines Research and Evaluation
ALIF	Anterior Lumbar Interbody Fusion
AP	Anterior Posterior
APLD	Automated Percutaneous Lumbar Discectomy
APTA	American Physical Therapy Association
ASD	Adjacent Segment Degeneration
CLIP	Clinic on Low-Back Pain in Interdisciplinary Practice Guidelines
CPG	Clinical Practice Guidelines
CT scan	Computed Tomography scan or Computed Axial Tomography (CAT scan)
EBP	Evidence-Based Practice
EMG	Electromyography exam
FCE	Functional Capacity Evaluation
GDG	Guideline Development Group
GPP	Good Practice Points
iCAHE	International Centre for Allied Health Evidence (University of South Australia)
ICSI	Institute for Clinical Systems Improvement
IDET	Intradiscal Electrothermal Therapy
LAT	Lateral
LBP	Low back pain
MRI	Magnetic Resonance Imaging
NASS	North American Spine Society
NCV	Nerve Conduction Velocity
NGC	National Guidelines Clearinghouse
NHMRC	National Health and Medical Research Center
NICE	National Institute for Health and Clinical Excellence
NSAIDs	Non-steroidal Anti-inflammatory Drugs
NZGG	New Zealand Guidelines Group
PARM	Philippine Academy of Rehabilitation Medicine
PIRFT	Percutaneous Intradiscal Radiofrequency Thermocoagulation
PLIF	Posterior Lumbar Interbody Fusion
SIGN	Scottish Intercollegiate Guidelines Network
SLR	Straight Leg Raise test
SPECT	Single-photon emission computed tomography
SNRI	Serotonin-norepinephrine reuptake inhibitors
SSEP	Somatosensory Evoked Potentials
SSRI	Selective serotonin reuptake inhibitors
TCA	Tricyclic antidepressants
TENS/TNS	Transcutaneous Electrical Nerve Stimulation
TOP	Toward Optimized Practice
WorkCoverSA	WorkCover Corporation (South Australia)

Index

FIGURES

BOX

TABLES

Appendix 1. iCAHE Critical Appraisal Tool for CPGs

Table A1. iCAHE scores for each included clinical practice guideline.

CRITERIA	ACOEM 2016	APTA 2012	ACP 2017	ICSI 2012	NASS-RAD 2012	NASS-DLS 2014	NASS-AIS 2014	Ottawa 2012	TOP 2015
1. Availability									
Is the guideline readily available in full text?	1	1	1	1	1	1	1	1	1
Does the guideline provide a complete reference list?	1	1	1	1	1	1	1	1	1
Does the guideline provide a summary of its recommendations?	1	1	1	1	1	1	1	1	1
2. Date									
Is there a date of completion available?	1	1	1	1	1	1	1	1	1
Does the guideline provide an anticipated review date?	1	1	0	1	1	1	1	0	0
Does the guideline provide dates for when literature was included?	1	1	1	1	1	1	1	1	1
3. Underlying Evidence									
Does the guideline provide an outline of the strategy they used to find underlying evidence?	1	1	1	1	1	1	1	1	1
Does the guideline use a hierarchy to rank the quality of the underlying evidence?	1	1	1	1	1	1	1	1	1
Does the guideline appraise the quality of the evidence which underpins its recommendations?	1	1	1	1	1	1	1	1	1
Does the guideline link the hierarchy and quality of underlying evidence to each recommendation?	1	1	1	1	1	1	1	1	1
4. Guideline developers									
Are the developers of the guideline clearly stated?	1	1	1	1	1	1	1	1	1
Does the qualifications and expertise of the guideline developer(s) link with the purpose of the guideline and its end users?	1	1	1	1	1	1	1	1	1
5. Guideline purpose and user									
Are the purpose and target users of the guideline stated?	1	1	1	1	1	1	1	1	1
6. Ease of use									
Is the guideline readable and easy to navigate?	1	1	1	1	1	1	1	1	1
TOTAL	**14**	**14**	**13**	**14**	**14**	**14**	**14**	**13**	**13**

* 1 = criterion met ; 0 = criterion not met

Appendix 2. Guideline Implementation and Compliance Feedback Form

IMPLEMENTATION AND COMPLIANCE FEEDBACK FORM

PARM Clinical Practice Guidelines on the Diagnosis and Management of Low Back Pain (2nd Edition)

NAME: _____ AGE: _____ GENDER: _____

REGION OF PRACTICE: _____

TYPE OF PRACTICE: (Check all that apply)

( ) Hospital-based Rehabilitation Center

( ) Free-standing Rehabilitation Center

This survey will help the developers in assessing stakeholder acceptance and compliance of the guideline being evaluated. This will aid in further refinement and improvement of the CPG in future revisions.

Section 1. Guideline layout and construction

Description	Strongly agree	agree	Neither agree nor disagree	Disagree	Strongly disagree
The guideline is simple to navigate					
The layout of the guideline encourages physiatrists and other clinicians to use it					
The purpose of the guideline is clear					
The end-users are clearly specified					
The guideline group and their affiliations are provided					
The methodological processes are clear					
• Guideline identification and selection					
• Inclusion and exclusion criteria					
• Patient journey construction					
• Guideline critical appraisal					
• Mapping relevant guideline recommendations to the patient journey					
• Summarising strength of the evidence underpinning the recommendations					
• Providing relevant references					

Section 2. Guideline uptake

Description	Strong agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Use of this document promotes evidence-based practice in the care of patients with low back pain in the Philippines					
Any Filipino physiatrist could use this document					
Use of this document could improve the quality of care of patients with low back pain in the Philippines					
Use of this document could promote multidisciplinary practices in the care of patients with low back pain in the Philippines					

3. PARM Context Points

Description	Strongly agree	agree	Neither agree nor disagree	Disagree	Strongly disagree
The PARM Context Points deals with important issues which may impact the quality of care provided to Filipino patients with low back pain					
The PARM Context Points assists physiatrists to identify and deal with local issues which may impact on the quality of care provided to Filipino patients with low back pain					
The PARM Context Points supports better training at undergraduate and postgraduate levels regarding evidence-based practice					

Please provide comments and suggestions if you Strongly disagreed or Disagreed with any of the above statements

_____
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Appendix 3.

Elements of Clinical Evaluation in Low Back Pain

Below are the elements of pertinent history taking and physical examination of low back pain to Establish a significant relationship with the aim of giving behavioral counseling and start secondary prevention. History and PE are enough to evaluate and diagnose LBP, and propose the treatment.

I. Important to take note in the history are the following:
Age
Pain evaluation Localization
Pain characteristics
Radiation
Pain schedule
Posture pain relationship
Functional and working impairment
Previous treatment effect
Physical and psychosocial risk factors
Professional risk factors

RED FLAGS
• Violent trauma (such as a fall from height or an automobile accident)
• Constant, progressive, non-mechanical pain
• Thoracic or abdominal pain
• Pain at night that is not eased by a prone position
• History of or suspected cancer, HIV or other pathologies that can cause back pain
• Chronic corticosteroid consumption
• Unexplained weight loss, chills or fever
• Significant and persistent limitation of lumbar flexion
• Loss of feeling in the perineum (saddle anesthesia), recent onset of urinary incontinence
The risk of a serious condition may be higher in those under 20 or over 55 years of age. Particular attention must be paid to the previously mentioned signs and symptoms in patients in these age groups.

YELLOW FLAGS
• Belief that pain and activity are harmful
• 'Sickness behaviors' (like extended rest)
• Low or negative moods, social withdrawal
• Treatment beliefs do not fit best practice
• Problems at work, poor job satisfaction
• Heavy work, unsociable hours (shift work)
• Overprotective family or lack of support

II. Clinical Evaluation of Low Back Pain

Pain and/or functional limitation of the trunk

Pain during spinous process, facet joints, ligament and muscle palpation

Neurological examination

Strength testing

- Ankle dorsiflexion strength (able to heel walk)
- Great toe dorsiflexion strength
- Plantar flexion (able to toe walk)
- Hip flexors

Reflex testing

- Ankle and knee reflexes
- Knee extension

Sensory testing

- A sensory exam to evaluate the medial, dorsal and lateral aspects of the foot and the medial and lateral calf

Special tests

Postural evaluation

Gait analysis

Appendix 4.

Guide to Special Tests/Maneuvers

SPECIAL TEST	TECHNIQUE/PROCEDURE
Straight Leg Raising Test (Lasègue's Test)	• The patient is in the supine position. The tested hip is medially rotated and adducted to neutral, with the knee extended. • The examiner then flexes the tested hip until the patient complains of pain or tightness in the back or back of the leg. • If the pain is primarily on the low back, the source is likely from a disc herniation due to pressure on the anterior theca of the spinal cord, or a more central back pathology. • If pain is primarily in the tested leg, it is more likely that the pathology causing the pressure on neurological tissues is more lateral.
Crossed Straight Leg Raising Test (Crossed Lasègue's Test)	• The patient is in the supine position. The contralateral hip is medially rotated and adducted to neutral, with the knee extended. • The examiner then flexes the contralateral hip until the patient complains of pain or tightness in the back or back of the opposite (tested) leg. • If the pain is primarily on the low back, the source is likely from a disc herniation due to pressure on the anterior theca of the spinal cord, or a more central back pathology. • If pain is primarily in the opposite (tested) leg, it is more likely that the pathology causing the pressure on neurological tissues is more lateral and extreme.
Slump Test (Sitting Dural Stretch Test)	• The patient sits on the examining table with the hands behind his back. • Patent is then asked to "slump" so that the spine flexes and the shoulders sag forward while the examiner holds the chin and head erect • The patient is asked if any symptoms are produced. If no symptoms are produced, the examiner flexes the patient's neck while holding the head down and keeping the shoulders slumped to see if symptoms appear. • If no symptoms are produced, the examiner passively extends one of the patient's knees. • If again no symptoms are produced. the examiner passively dorsiflexes the foot of the tested leg. • Symptoms of sciatic pain or reproduction of the patient's symptoms indicates a positive test, implicating impingement of the dura and spinal cord or nerve roots

SPECIAL TEST	**TECHNIQUE/PROCEDURE**
Provocative Side Bend test	• In standing position, the patient is asked to run the hand down the side of the leg and not to bend forward or backward while performing the movement. • If this movement (trunk side flexion toward the painful side) increases the symptoms, the lesion is probably intraarticular, because the muscles and ligaments on that side are relaxed. • If a disc protrusion is present and lateral to the nerve root, side flexion to the painful side increases the pain and radicular symptoms on that side. • If a movement (such as side flexion away from the painful side) alters the symptoms, the lesion may be articular or muscular in origin, or it may be a disc protrusion medial to the nerve root
Prone Knee Bend test (Nachlas Test)	• The patient lies prone while the examiner passively flexes the knee as far as possible so that the patient's heel rests against the buttock. • Unilateral neurological pain in the lumbar area, buttock, or posterior thigh, or sometimes the anterior thigh, may indicate an L2 or L3 nerve root lesion or a femoral neuropathy.
Femoral Stretch test / Femoral Nerve Traction Test (Wasserman Test)	• The patient lies on the unaffected side with the unaffected limb flexed slightly at the hip and knee. The patient's back should be straight, not hyperextended. The patient's head should be slightly flexed. • The examiner grasps the patient's affected or painful limb and extends the knee while gently extending the hip approximately 15°. The patient's knee is then flexed on the affected side; this movement further stretches the femoral nerve. • The test is positive if neurological pain radiates down the anterior thigh.

Appendix 5.

Guide to Medications

MEDICATION	HOW TO PRESCRIBE WHEN RECOMMENDED	POSSIBLE ADVERSE EFFECTS	PRECAUTIONS/ MONITORING
Acetaminophen	500 mg every 4-6 hours (3 g daily maximum)	Negligible	Liver toxicity for long-term, high-dose use
NSAIDs	Examples: Ibuprofen 200-400mg 4 hourly Diclofenac 50mg 8 hourly Naproxen 250/500 mg 12 hourly Celecoxib 100-200 mg 12 hourly	Gastrointestinal Possible fluid retention or CNS effects such as dizziness or fatigue at higher doses	Specific choice of NSAIDs must consider the patients' gastrointestinal, cardiovascular, renal and coagulation risks. Consider lowest effective dose for the shortest duration possible
Tricyclic Antidepressants	Examples: Amitriptyline 10-100mg at bedtime Nortriptyline 10-100mg at bedtime	Drowsiness Anticholinergic effects	Cardiac abnormalities Glaucoma
Mixed Serotonic Norepinephrine Inhibitors (SNRIs)	Examples: Duloxetine 30mg daily, max:60mg Venlafaxine 37.5mg daily, max: 225mg	Dizziness Headache Insomnia or sedation Gastrointestinal complaints	Significant renal impairment May cause possible weight loss
Muscle relaxants	Example: Cyclobenzaprine 10-30mg daily up to 2 weeks	Sedation Dry mouth	Time-limited therapeutic option
Benzodiazepines	Example: Diazepam 2-10 mg 6-12 hourly	Somnolence Fatigue Lightheadedness, Addiction Fractures	Monitor for possible addiction and abuse
Weak Opioids	Tramadol 50-100 mg 4-6 hourly Max: 400 mg daily	Dizziness Drowsiness Asthenia Gastrointestinal complaints Potential hypoglycemia	Hepatic disease Renal dysfunction Pre-existing seizure risk
Strong Opioids	Examples: Morphine sulfate 15-100 BID Hydromorphone 3-24mg BID Oxycodone 10-40mg BID to TID	Constipation Nausea CNS effects Opiate-induced hyperalgesia and endocrinological changes	Monitor for tolerance
Anticonvulsants	Examples: Gabapentin 100mg OD HS up to max: 1,200mg Pregabalin 75-300mg OD to BID (may start at 25mg for elderly or sensitive patients)	Sedation Dizziness Other CNS side effects	Renal impairment requires dose adjustment

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