BMJ Best Practice

Overview of work-related musculoskeletal disorders

Straight to the point of care

Last updated: Mar 14, 2024

Table of Contents

Introduction

Work-related musculoskeletal disorders (WMSDs) affect muscles, joints, nerves, cartilage, spinal discs, and tendons, and are caused or exacerbated by physical tasks in an occupational setting. Work patterns that can lead to WMSDs include overexertion, repetitive motion, fixed or constrained body positions, insufficient recovery between movements, and the concentration of force on smaller body parts, such as hands or wrists.[1] [2]

Related conditions

◊ Evaluation of back pain

» see our comprehensive coverage of Evaluation of back pain (https://bestpractice.bmj.com/topics/en-us/189)

The etiologies of back pain can be subdivided into 3 groups: mechanical, systemic, and referred. Mechanical back pain, defined as pain that is elicited with spinal motion and decreased with rest, is the most common type of back pain.[3] The most common cause of mechanical back pain is lumbar strain/sprain, which accounts for around 70% of cases of low back pain.[4] Patients presenting to primary care with nonspecific low back pain account for 90% to 95% of low back pain cases.[5]

◊ Musculoskeletal lower back pain

» see our comprehensive coverage of Musculoskeletal lower back pain (https://bestpractice.bmj.com/topics/en-us/778)

Musculoskeletal lower back pain is pain, stiffness, and/or soreness of the lumbosacral region (underneath the twelfth rib and above the gluteal folds). Occupations requiring physical exertion have been associated with lower back pain. Lifting objects heavier than 11.4 kg (25 lb), pushing/pulling heavy objects, and prolonged periods of standing or walking is associated with a higher incidence of lower back pain, particularly in women.[6] These occupational activities result in lower back pain because of both acute injuries and cumulative stresses to the spinal anatomy.[7]

◊ Degenerative cervical spine disease

» see our comprehensive coverage of Degenerative cervical spine disease (https://bestpractice.bmj.com/topics/en-us/577)

Cervical spondylosis (CS) is the specific term for osteoarthritis of the spine, which includes the spontaneous degeneration of either disc or facet joints. CS incidence increases with age. A population-based magnetic resonance imaging study showed that over 85% of adults ages >60 years have disc degeneration of at least one cervical level (commonly C5-C6).[8] The etiology of CS is underlying spontaneous joint degeneration. It is related to age, and to wear and tear.[9] [10] However, concordant twin studies note a significant genetic predisposition to development of cervical degeneration, in addition to occupational and activity-related factors.[11]

◊ Discogenic low back pain

» see our comprehensive coverage of Discogenic low back pain (https://bestpractice.bmj.com/topics/en-us/190)

Lumbar discogenic back pain is characterized by low back pain with or without the concurrence of radicular lower limb symptoms, in the presence of radiologically-confirmed degenerative disk disease. An association has been noted between occupation-related postures and stresses due to abnormal loading and lifting mechanics.[12] The use of vibrating equipment is considered particularly hazardous.[13] Degenerative disc disease is also associated with increasing age, smoking, the presence of facet joint tropism and arthritis, abnormal pelvic morphology, and changes in sagittal alignment.

◊ Spinal stenosis

» see our comprehensive coverage of Spinal stenosis (https://bestpractice.bmj.com/topics/en-us/191)

In nearly all patients, spinal stenosis typically results from degenerative changes in the lumbar spine. Key factors include age over 40 years, previous back injury or surgery, and manual labor. People who perform heavy-duty work may develop degenerative changes in the spine earlier in life because of increased mechanical wear of the spine and higher risk of traumatic injury.

◊ Costochondritis

» see our comprehensive coverage of Costochondritis (https://bestpractice.bmj.com/topics/en-us/300)

Costochondritis is inflammation of one or more costal cartilages. It is a self-limiting condition that presents with insidious onset of anterior chest-wall pain exacerbated by certain movements of the chest and deep inspiration. A history of unaccustomed repetitive upper-limb movement is commonly associated with constochondritis.[14]

◊ Evaluation of knee injury

» see our comprehensive coverage of Evaluation of knee injury (https://bestpractice.bmj.com/topics/en-us/575)

Patient description of the mechanism of injury is an essential part of the history. For example, most anterior cruciate ligament tears are non-contact twisting injuries. Location of contact and pain, history of previous injury, and areas of anesthesia/dysaesthesia, should be investigated.

◊ Evaluation of neck pain

» see our comprehensive coverage of Evaluation of neck pain (https://bestpractice.bmj.com/topics/en-us/943)

Neck pain is a common condition that causes significant disability. High body mass index, frequent neck extension during the working day, high initial pain intensity, and high psychological job demands are all predictors of chronic neck pain development in office workers.[15]

◊ Popliteal cyst

» see our comprehensive coverage of Popliteal cyst (https://bestpractice.bmj.com/topics/en-us/1044)

Popliteal (Baker) cyst is an accumulation of synovial fluid. It is usually the result of a knee joint abnormality, such as arthritis or a cartilage tear. One ultrasonographic study which investigated the prevalence of popliteal cysts in patients with knee pain identified the pathology in 102 (25.8%) patients; a positive association with features of osteoarthritis and joint effusion was also noted.[16] Trauma in the knee joint, specifically injury of the medial meniscus, chondral lesions, and tears of the anterior cruciate ligament, is a significant risk factor in the development of popliteal cysts.

◊ Evaluation of lower extremity mononeuropathy

» see our comprehensive coverage of Evaluation of lower extremity mononeuropathy (https://bestpractice.bmj.com/topics/en-us/772)

Examples of mononeuropathies in the lower extremities caused by work tasks include common peroneal mononeuropathy (squatting for long periods - carpet layers, farm workers), mononeuropathy of the lateral cutaneous nerve of the thigh (wearing a heavy belt - carpenters), and sciatic mononeuropathy (sitting on a hard surface).[17]

◊ Iliotibial band syndrome

» see our comprehensive coverage of Iliotibial band syndrome (https://bestpractice.bmj.com/topics/en-us/587)

Iliotibial band syndrome (ITBS) results from repetitive friction of the iliotibial band sliding over the lateral femoral epicondyle, moving anterior to the epicondyle as the knee extends and posterior as the knee flexes, and remaining tense in both positions. ITBS may be observed in athletes participating in volleyball, tennis, soccer, skiing, weight lifting, and aerobics. More experienced runners may be less likely to develop ITBS.[18] It is unusual in nonathletes.

◊ Evaluation of upper extremity mononeuropathy

» see our comprehensive coverage of Evaluation of upper extremity mononeuropathy (https://bestpractice.bmj.com/topics/en-us/771)

There are more than 10 individual nerves in the arm distal to the brachial plexus, so many different mononeuropathies can occur. Osteoarthritis, tendinitis, or repetitive strain symptoms are often confused with carpal tunnel syndrome and/or ulnar neuropathy, as the distribution of pain can be similar in these conditions. Electrophysiologic studies can help identify or rule out an associated mononeuropathy in these cases.

◊ Rotator cuff injury

» see our comprehensive coverage of Rotator cuff injury (https://bestpractice.bmj.com/topics/en-us/586)

A common cause of shoulder pain, especially in older and active people. The spectrum of rotator cuff pathology is one of the most common groups of conditions affecting the adult shoulder. Rotator cuff pathology is the leading cause of shoulder-related disability seen by orthopedic surgeons in the US.[19] [20] An episode of vigorous overhead activity, such as painting or overhead lifting, may incite subacromial bursitis or impingement symptoms, which can be prodromes to tearing and failure of the rotator cuff. Not all patients present with symptoms related to activity or injury; the onset of symptoms can be insidious.

◊ Carpal tunnel syndrome

» see our comprehensive coverage of Carpal tunnel syndrome (https://bestpractice.bmj.com/topics/en-us/380)

A collection of symptoms and signs caused by compression of the median nerve in the carpal tunnel. With a prevalence of approximately 1 in 25, carpal tunnel syndrome is the most common entrapment neuropathy affecting the upper extremities.[21] Occupations involving exposure to repetitive bending or twisting of the hands or wrists, or the use of vibrating tools (e.g., construction or manufacturing), may cause damage to the median nerve over time and increase the likelihood of carpal tunnel syndrome.[21] [22]

◊ Epicondylitis

» see our comprehensive coverage of Epicondylitis (https://bestpractice.bmj.com/topics/en-us/978)

Epicondylitis of the elbow is described as a history of activities contributing to overuse of the forearm muscles that originate at the elbow. Epicondylitis has a worldwide distribution. Prevalence rates for both lateral and medial epicondylitis are similar. Both medial and lateral epicondylitis have been associated with repetitive elbow and forearm activities, such as hammering, typing, meat-cutting, plumbing, and painting, as well as leisure activities including tennis and golf.

◊ Tenosynovitis of the hand and wrist

» see our comprehensive coverage of Tenosynovitis of the hand and wrist (https://bestpractice.bmj.com/topics/en-us/982)

A group of entities with a common pathology involving the extrinsic tendons of the hand and wrist and their corresponding retinacular sheaths. Repetitive shear stress through the retinacular sheath causes irritation to the tendon and its synovial lining (tenosynovium), and subsequent inflammation followed by hypertrophy and fibrosis, which may lead to the development of trigger finger. The most common presentation is trigger finger, followed by de Quervain disease (thumb extensor tendonitis in the first dorsal compartment).

◊ Plantar fasciitis

» see our comprehensive coverage of Plantar fasciitis (https://bestpractice.bmj.com/topics/en-us/487)

This condition causes an acute or chronic pain in the inferior heel at the attachment of the medial band of the plantar fascia to the medial calcaneal tubercle. It is commonly seen in people who work in a standing position, especially those who are standing on a hard, unforgiving surface such as concrete (e.g., factory or postal workers).[23] [24] Other risk factors include running, obesity, presence of equinus, people ages between 40-60 years, and presence of pes planus or pes cavus. Plantar fasciitis is the most common cause of infracalcaneal pain and accounts for 11% to 15% of all foot complaints that require professional treatment.[25]

◊ Inguinal hernia

» see our comprehensive coverage of Inguinal hernia (https://bestpractice.bmj.com/topics/en-us/723)

A protrusion of abdominal or pelvic contents through a dilated internal inguinal ring or attenuated inguinal floor into the inguinal canal and usually out of the external inguinal ring, causing a visible bulge. Occurs because of a defect in the structure of the inguinal canal that may be either congenital or acquired. In England, 69,637 primary inguinal hernia repairs were performed in 2014-2015, and 92% of patients were male.[26] Patients with inguinal hernia have been shown to have abnormal collagen metabolism and decreased collagen levels.

◊ Bursitis

» see our comprehensive coverage of Bursitis (https://bestpractice.bmj.com/topics/en-us/523)

An acute or chronic inflammatory condition of a bursa - a jelly-like sac that usually contains a small amount of synovial fluid. Any occupation that causes repetitive mechanical stress over a bursa may result in bursitis. Symptoms and signs vary according to the anatomic site of the affected bursa, but localized swelling and fluctuance are usually present. In primary care, bursitis most commonly presents in the knee, and as subacromial (subdeltoid), trochanteric, retrocalcaneal, and olecranon bursae.

◊ Tendinopathy

» see our comprehensive coverage of Tendinopathy (https://bestpractice.bmj.com/topics/en-us/582)

Tendon degeneration characterized by a combination of pain, swelling, and impaired performance. The etiology is unclear, studies suggest it is an overuse condition leading to inadequate tendon repair that predisposes the tendon to microtears and degeneration. Tendinopathy affects millions of people in athletic and occupational settings as well as the general population.[27] [28] [29] Risk factors include: athletic training, poor athletic training technique, inappropriate equipment, hard and high-friction playing surface, poor flexibility, poor cardiovascular conditioning, imbalance in muscle use/training, and history of old tendon or muscle injury.

◊ Musculoskeletal sprains and strains

» see our comprehensive coverage of Musculoskeletal sprains and strains (https://bestpractice.bmj.com/topics/en-us/578)

Strain is an injury to the muscle or musculotendinous junction, whereas sprain is an injury to the ligament. Around 30% to 50% of musculoskeletal (tendon/muscle/bone) injuries presenting to physicians are tendon and ligament injuries.[29] Muscle injuries can be caused by contusion, strain, or laceration.[30] [31] Predisposing factors are: type of muscle architecture (i.e., pennate muscle, type II fast twitch muscle fibers, and muscle-tendon units that span two joints), and previous injuries.

◊ Chronic pain syndromes

» see our comprehensive coverage of Chronic pain syndromes (https://bestpractice.bmj.com/topics/en-us/694)

Pain persisting longer than 3 months is deemed to be chronic. Chronic pain is common and has a significant impact on quality of life. Prevalence increases with increasing age (especially for pain due to musculoskeletal causes), so the number of people living with chronic pain worldwide will increase as life expectancy increases.[32] High-risk occupations are healthcare workers (e.g., healthcare assistants, nurses, dentists, and chiropractors), construction workers, car mechanics, housekeepers/janitors, and hairstylists. Unemployment and previous job change due to pain are also risk factors for pain chronicity.

◊ Overview of musculoskeletal pain

» see our comprehensive coverage of Overview of musculoskeletal pain (https://bestpractice.bmj.com/topics/en-us/834)

Musculoskeletal pain refers to acute or chronic pain in the muscles, bones, tendons, and ligaments. It is very common and is a major cause of morbidity and occupational sickness absence.

◊ Overview of sport-related injuries

» see our comprehensive coverage of Overview of sport-related injuries (https://bestpractice.bmj.com/topics/en-us/1074)

Sport-related injuries are generally categorized as acute or chronic. The range of medical conditions potentially resulting from sport- or exercise-related injuries is wide. More than 90% of all sport-related injuries are either contusions or strains.[30] Contact sports (e.g., soccer, hockey) may increase the risk of contusion, whereas sprinting and jumping are the most common activities associated with muscle strains.[31] [33]

Key articles

References

1. Health and Safety Executive. Work related musculoskeletal disorder statistics (WRMSDs) in Great Britain, 2020. November 2020 [internet publication]. Full text (https://www.hse.gov.uk/statistics/causdis/msd.pdf)

2. Centers for Disease Control and Prevention. Work-related musculoskeletal disorders & ergonomics. Feb 2020 [internet publication]. Full text (https://www.cdc.gov/workplacehealthpromotion/health-strategies/musculoskeletal-disorders/index.html)

3. Deyo RA, Weinstein JN. Low back pain. N Engl J Med. 2001 Feb 1;344(5):363-70.

4. Will JS, Bury DC, Miller JA. Mechanical Low Back Pain. Am Fam Physician. 2018 Oct 1;98(7):421-28. Full text (https://www.aafp.org/afp/2018/1001/p421.html) Abstract (http://www.ncbi.nlm.nih.gov/pubmed/30252425?tool=bestpractice.bmj.com)

5. Bardin LD, King P, Maher CG. Diagnostic triage for low back pain: a practical approach for primary care. Med J Aust. 2017 Apr 3;206(6):268-73. Abstract (http://www.ncbi.nlm.nih.gov/pubmed/28359011?tool=bestpractice.bmj.com)

6. Macfarlane GJ, Thomas E, Papageorgiou AC, et al. Employment and physical work activities as predictors of future low back pain. Spine (Phila Pa 1976). 1997 May 15;22(10):1143-9. Abstract (http://www.ncbi.nlm.nih.gov/pubmed/9160474?tool=bestpractice.bmj.com)

7. Shelerud RA. Epidemiology of occupational low back pain. Clin Occup Environ Med. 2006;5:501-28. Abstract (http://www.ncbi.nlm.nih.gov/pubmed/16963373?tool=bestpractice.bmj.com)

8. Matsumoto M, Fujimura Y, Suzuki N, et al. MRI of cervical intervertebral discs in asymptomatic subjects. J Bone Joint Surg Br. 1998 Jan;80(1):19-24. Abstract (http://www.ncbi.nlm.nih.gov/pubmed/9460946?tool=bestpractice.bmj.com)

9. Binder AI. Cervical spondylosis and neck pain. BMJ. 2007;334:527-531. Abstract (http://www.ncbi.nlm.nih.gov/pubmed/17347239?tool=bestpractice.bmj.com)

10. Rao RD, Currier BL, Albert TJ, et al. Degenerative cervical spondylosis: clinical syndromes, pathogenesis and management. J Bone Joint Surg Am. 2007;89:1360-1378. Abstract (http://www.ncbi.nlm.nih.gov/pubmed/17575617?tool=bestpractice.bmj.com)

11. Williams FM, Sambrook PN. Neck and back pain and intervertebral disc degeneration: role of occupational factors. Best Pract Res Clin Rheumatol. 2011;25:69-79. Abstract (http://www.ncbi.nlm.nih.gov/pubmed/21663851?tool=bestpractice.bmj.com)

12. Heliovaara M. Risk factors for low back pain and sciatica. Ann Med. 1989;21:257-264. Abstract (http://www.ncbi.nlm.nih.gov/pubmed/2528971?tool=bestpractice.bmj.com)

REFERENCES

13. Kuisma M, Karppinen J, Haapea M, et al. Are the determinants of vertebral endplate changes and severe disc degeneration in the lumbar spine the same? A magnetic resonance imaging study in middle-aged male workers. BMC Musculoskeletal Disord. 2008;9:51. Full text (http://bmcmusculoskeletdisord.biomedcentral.com/articles/10.1186/1471-2474-9-51) Abstract (http://www.ncbi.nlm.nih.gov/pubmed/18416819?tool=bestpractice.bmj.com)

14. Fam AG, Smythe HA. Musculoskeletal chest wall pain. CMAJ. 1985;133:379-389. Full text (http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1346531/pdf/canmedaj00268-0035.pdf) Abstract (http://www.ncbi.nlm.nih.gov/pubmed/4027804?tool=bestpractice.bmj.com)

15. Sihawong R, Sitthipornvorakul E, Paksaichol A, et al. Predictors for chronic neck and low back pain in office workers: a 1-year prospective cohort study. J Occup Health. 2016;58(1):16-24. Full text (https://www.doi.org/10.1539/joh.15-0168-OA) Abstract (http://www.ncbi.nlm.nih.gov/pubmed/26498979?tool=bestpractice.bmj.com)

16. Picerno V, Filippou G, Bertoldi I, et al. Prevalence of baker's cyst in patients with knee pain: an ultrasonographic study. Reumatismo. 2014 Mar 14;65(6):264-70. Full text (https://www.reumatismo.org/index.php/reuma/article/view/reumatismo.2013.715) Abstract (http://www.ncbi.nlm.nih.gov/pubmed/24705029?tool=bestpractice.bmj.com)

17. Evans RW. Neurology and trauma. 2nd ed. New York, NY: OUP USA; 2006.

18. Messier SP, Edwards DG, Martin DF, et al. Etiology of iliotibial band friction syndrome in distance runners. Med Sci Sports Exerc. 1995 Jul;27(7):951-60. Abstract (http://www.ncbi.nlm.nih.gov/pubmed/7564981?tool=bestpractice.bmj.com)

19. Narvy SJ, Didinger TC, Lehoang D, et al. Direct cost analysis of outpatient arthroscopic rotator cuff repair in medicare and non-medicare populations. Orthop J Sports Med. 2016 Oct;4(10):2325967116668829. Full text (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5084526) Abstract (http://www.ncbi.nlm.nih.gov/pubmed/27826595?tool=bestpractice.bmj.com)

20. Tashjian RZ. Epidemiology, natural history, and indications for treatment of rotator cuff tears. Clin Sports Med. 2012 Oct;31(4):589-604. Abstract (http://www.ncbi.nlm.nih.gov/pubmed/23040548?tool=bestpractice.bmj.com)

21. Currie KB, Tadisina KK, Mackinnon SE. Common hand conditions: a review. JAMA. 2022 Jun 28;327(24):2434-45. Abstract (http://www.ncbi.nlm.nih.gov/pubmed/35762992?tool=bestpractice.bmj.com)

22. Hassan A, Beumer A, Kuijer PPFM, et al. Work-relatedness of carpal tunnel syndrome: systematic review including meta-analysis and GRADE. Health Sci Rep. 2022 Nov 2;5(6):e888. Full text (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9629628) Abstract (http://www.ncbi.nlm.nih.gov/pubmed/36340637?tool=bestpractice.bmj.com)

23. Paige NM, Nouvong A. The top 10 things foot and ankle specialists wish every primary care physician knew. Mayo Clin Proc. 2006;81:818-822. Full text (http://www.mayoclinicproceedings.org/article/S0025-6196%2811%2961736-9/fulltext) Abstract (http://www.ncbi.nlm.nih.gov/pubmed/16770982?tool=bestpractice.bmj.com)

24. Irving DB, Cook JL, Menz HB. Factors associated with chronic plantar heel pain: a systematic review. J Sci Med Sport. 2006;9:11-22. Abstract (http://www.ncbi.nlm.nih.gov/pubmed/16584917?tool=bestpractice.bmj.com)

25. Buchbinder R. Clinical practice. Plantar fasciitis. N Engl J Med. 2004 May 20;350(21):2159-66.

26. National Health Service. Hospital episode statistics, admitted patient care - England, 2014-15. Feb 2022 [internet publication]. Full text (https://digital.nhs.uk/data-and-information/publications/statistical/hospital-admitted-patient-care-activity/hospital-episode-statistics-admitted-patient-care-england-2014-15)

27. Maffulli N, Kader D. Tendinopathy of tendo achillis. J Bone Joint Surg Br. 2002 Jan;84(1):1-8.

28. Paavola M, Kannus P, Järvinen TA, et al. Achilles tendinopathy. J Bone Joint Surg Am. 2002 Nov;84(11):2062-76.

29. Maffulli N, Wong J, Almekinders LC. Types and epidemiology of tendinopathy. Clin Sports Med. 2003 Oct;22(4):675-92. Abstract (http://www.ncbi.nlm.nih.gov/pubmed/14560540?tool=bestpractice.bmj.com)

30. Jarvinen MJ, Lehto MU. The effects of early mobilisation and immobilisation on the healing process following muscle injuries. Sports Med. 1993;15:78-89. Abstract (http://www.ncbi.nlm.nih.gov/pubmed/8446826?tool=bestpractice.bmj.com)

31. Garrett WE Jr. Muscle strain injuries. Am J Sports Med. 1996;24(suppl 6):2-8. Abstract (http://www.ncbi.nlm.nih.gov/pubmed/8947416?tool=bestpractice.bmj.com)

32. GBD 2017 Disease and Injury Incidence and Prevalence Collaborators. Global, regional, and national incidence, prevalence, and years lived with disability for 354 diseases and injuries for 195 countries and territories, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017. Lancet. 2018 Nov 10;392(10159):1789-858. Full text (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6227754) Abstract (http://www.ncbi.nlm.nih.gov/pubmed/30496104?tool=bestpractice.bmj.com)

33. Crisco JJ, Jokl P, Heinen GT, et al. A muscle contusion injury model: biomechanics, physiology, and histology. Am J Sports Med. 1994;22:702-710. Abstract (http://www.ncbi.nlm.nih.gov/pubmed/7810797?tool=bestpractice.bmj.com)

Disclaimer

BMJ Best Practice is intended for licensed medical professionals. BMJ Publishing Group Ltd (BMJ) does not advocate or endorse the use of any drug or therapy contained within this publication nor does it diagnose patients. As a medical professional you retain full responsibility for the care and treatment of your patients and you should use your own clinical judgement and expertise when using this product.

This content is not intended to cover all possible diagnosis methods, treatments, follow up, drugs and any contraindications or side effects. In addition, since such standards and practices in medicine change as new data become available, you should consult a variety of sources. We strongly recommend that you independently verify specified diagnosis, treatments and follow-up and ensure it is appropriate for your patient within your region. In addition, with respect to prescription medication, you are advised to check the product information sheet accompanying each drug to verify conditions of use and identify any changes in dosage schedule or contraindications, particularly if the drug to be administered is new, infrequently used, or has a narrow therapeutic range. You must always check that drugs referenced are licensed for the specified use and at the specified doses in your region.

Information included in BMJ Best Practice is provided on an “as is” basis without any representations, conditions or warranties that it is accurate and up to date. BMJ and its licensors and licensees assume no responsibility for any aspect of treatment administered to any patients with the aid of this information. To the fullest extent permitted by law, BMJ and its licensors and licensees shall not incur any liability, including without limitation, liability for damages, arising from the content. All conditions, warranties and other terms which might otherwise be implied by the law including, without limitation, the warranties of satisfactory quality, fitness for a particular purpose, use of reasonable care and skill and non-infringement of proprietary rights are excluded.

Where BMJ Best Practice has been translated into a language other than English, BMJ does not warrant the accuracy and reliability of the translations or the content provided by third parties (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages). BMJ is not responsible for any errors and omissions arising from translation and adaptation or otherwise.Where BMJ Best Practice lists drug names, it does so by recommended International Nonproprietary Names (rINNs) only. It is possible that certain drug formularies might refer to the same drugs using different names.

Please note that recommended formulations and doses may differ between drug databases drug names and brands, drug formularies, or locations. A local drug formulary should always be consulted for full prescribing information.

Treatment recommendations in BMJ Best Practice are specific to patient groups. Care is advised when selecting the integrated drug formulary as some treatment recommendations are for adults only, and external links to a paediatric formulary do not necessarily advocate use in children (and vice-versa). Always check that you have selected the correct drug formulary for your patient.

Where your version of BMJ Best Practice does not integrate with a local drug formulary, you should consult a local pharmaceutical database for comprehensive drug information including contraindications, drug interactions, and alternative dosing before prescribing.

Interpretation of numbers

Regardless of the language in which the content is displayed, numerals are displayed according to the original English-language numerical separator standard. For example 4 digit numbers shall not include a comma nor a decimal point; numbers of 5 or more digits shall include commas; and numbers stated to be less than 1 shall be depicted using decimal points. See Figure 1 below for an explanatory table.

BMJ accepts no responsibility for misinterpretation of numbers which comply with this stated numerical separator standard.

This approach is in line with the guidance of the International Bureau of Weights and Measures Service. https://www.bipm.org/en/about-us/

Figure 1 – BMJ Best Practice Numeral Style

5-digit numerals: 10,000

4-digit numerals: 1000

numerals < 1: 0.25

Our full website and application terms and conditions can be found here: Website Terms and Conditions. http://www.bmj.com/company/legal-information/

Contact us

+ 44 (0) 207 111 1105
support@bmj.com

BMJ
BMA House
Tavistock Square
London
WC1H 9JR
UK

BMJ Best Practice

Contributors:

// Authors:

Editorial Team,

BMJ Publishing Group
DISCLOSURES: This overview has been compiled using the information in existing sub-topics.