Narrative Review

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ICD-11

The IASP classification of chronic pain for *ICD-11*: chronic postsurgical or posttraumatic pain

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Abstract

Chronic pain after tissue trauma is frequent and may have a lasting impact on the functioning and quality of life of the affected person. Despite this, chronic postsurgical and posttraumatic pain is underrecognised and, consequently, undertreated. It is not represented in the current *International Classification of Diseases* (*ICD-10*). This article describes the new classification of chronic postsurgical and posttraumatic pain for *ICD-11*. Chronic postsurgical or posttraumatic pain is defined as chronic pain that develops or increases in intensity after a surgical procedure or a tissue injury and persists beyond the healing process, ie, at least 3 months after the surgery or tissue trauma. In the classification, it is distinguished between tissue trauma arising from a controlled procedure in the delivery of health care (surgery) and forms of uncontrolled accidental damage (other traumas). In both sections, the most frequent conditions are included. This provides diagnostic codes for chronic pain conditions that persist after the initial tissue trauma has healed and that require specific treatment and management. It is expected that the representation of chronic postsurgical and posttraumatic pain in *ICD-11* furthers identification, diagnosis, and treatment of these pain states. Even more importantly, it will make the diagnosis of chronic posttraumatic or postsurgical pain statistically visible and, it is hoped, stimulate research into these pain syndromes.

Keywords: Classification, *ICD-11*, Chronic pain, Postsurgical pain, Posttraumatic pain, Injury, Trauma, Surgery, Thoracotomy, Herniotomy, Mastectomy, Breast surgery, Hysterectomy, Arthroplasty, Whiplash, Burns, Amputation

1. Background on chronic postsurgical or posttraumatic pain

The risk for the development of chronic pain after surgery or trauma has been underestimated in the past.[20] Regarding postsurgical pain, data suggest an incidence, varying with the type of operation, from 5% to 85%.[36] Severe chronic postsurgical pain that negatively affects the patient's quality of life is in the range of 2% to 15%.[23] The high prevalence has been confirmed in a population-based study, in which 18% of patients who had surgery in the last 3 years reported pain in the area of surgery, of whom 10.5% reported pain even if all participants were excluded who had the same pain before, and still 6.2% were left after excluding any pain before surgery.[34] The proportion of neuropathic pain is variable but can be very high in operations such as amputation, hernia repair, and mastectomy[22,26] (**Table 1**). There is also a high prevalence of chronic pain after trauma, in particular multitrauma,[24,30] specifically with spinal cord injury,[16] brachial plexus injury, and other nerve injuries[66] and burns injury.[15] In conclusion, chronic pain after surgery and trauma is common, still widely unrecognised and underdiagnosed and often poorly treated.

2. The need for a classification system

To improve the quality of life and functioning, recognition of surgery and trauma as causes of chronic pain, a proper diagnosis of its type, and initiation of appropriate treatment approaches are essential. Currently, no adequate classification system is available. The *International Classification of Diseases* (*ICD*), 10th revision (*ICD-10*), does not offer appropriate diagnostic categories for the classification of many chronic pain conditions, including postsurgical and posttraumatic pain.[49,50] This hinders the identification, the diagnosis, and, in the end, the treatment of patients with these pain states. Even worse, thereby such cases fail to appear in health statistics, with all its consequences for research and health policies.

3. The IASP Task Force *ICD* initiative

To improve the representation of chronic pain in general (including that of chronic postsurgical and posttraumatic pain), the International Association for the Study of Pain (IASP) formed a taskforce that worked in close co-operation with

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Table 1

Incidence of chronic postsurgical pain (CPSP), severe CPSP, and the proportion of neuropathic pain in CPSP.

Type of surgery	Incidence of all CPSP	Incidence of severe CPSP (>5/10 of 10/10)	Proportion of neuropathic pain in CPSP
Abdominal surgery (bowel and colorectal)	17%-21%	Not reported	Not reported
Amputation	30%-85%	5%-10%	80%
Caesarean delivery	6%-55%	5%-10%	50%
Cholecystectomy	3%-50%	Not reported	Not reported
Craniotomy	7%-30%	25%	Not reported
Dental surgery	5%-13%	Not reported	Not reported
Hip arthroplasty	27%	6%	1%-2%
Inguinal herniotomy	5%-63%	2%-4%	80%
Knee arthroplasty	13%-44%	15%	6%
Melanoma resection	9%	Not reported	Not reported
Mastectomy	11%-57%	5%-10%	65%
Sternotomy	7%-17%	Not reported	Not reported
Thoracotomy	5%-65%	10%	45%
Vasectomy	0%-37%	Not reported	Not reported

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representatives of the World Health Organization (WHO) on generating a systematic classification of chronic pain.[60] The classification concentrates on chronic pain and excludes acute pain. The classification is now part of the *ICD-11* foundation layer, and the top level is included in the mortality and morbidity (MMS) linearization.[64] The foundation layer is the set of all diagnostic entities in the *ICD-11*. The foundation is continually updated and expanded. Every entity in the foundation receives a permanent identifier, which remains stable as the foundation expands (please refer to the supplementary material for a list of the codes for chronic pain, including chronic postsurgical or posttraumatic pain; available at http://links.lww.com/PAIN/A658). For the actual diagnostic coding, the WHO prepares coherent subsets from this foundation, the so-called "linearizations." The most important linearization is the mortality and morbidity linearization. It is used for reimbursement purposes in many health systems worldwide and forms the basis of the statistical reporting of morbidity and mortality for the member states. The current version was "frozen" (June 18, 2018) in preparation for its implementation by the member states from 2022 onwards.[64]

In the proposed classification of chronic pain, extension codes will allow specifying the time course and severity of the pain as well as the presence of psychological and social factors.[59] Pain severity is a combined score of pain intensity, pain-related distress, and functional impairment that are quantified using standardized rating scales; in addition, the functioning properties will be specified according to the International Classification of Functioning, Disability and Health (ICF).[47]

4. The new classification of chronic pain after surgery and trauma

In this new classification, chronic pain was defined as pain that persists or recurs longer than 3 months. This definition was chosen because it provides a clear operationalisation and agrees with widely used criteria. The Taskforce recognises that the time criterion alone might be challenging to apply in the context of pain after surgery and trauma, when the development of chronic pain may already begin earlier. For example, in a lot of postsurgical and posttraumatic pain, neuropathic pain states develop very early and then persist throughout the whole postoperative period without changing their characteristics at a given point of time.[27,43]

4.1. The general structure of the new classification

In this section, chronic pain states that develop after tissue trauma are classified. Although the initiating event for all these pain states is tissue trauma, the Taskforce felt it to be relevant to separate postsurgical pain, where the trauma is a controlled incision during the provision of healthcare, from posttraumatic pain, where the injury is caused in some other way (**Fig. 1**). The subsections are further subdivided according to the type of surgery and the type of trauma.

4.2. The diagnostic codes in the new classification of chronic postsurgical and posttraumatic pain

The original definition for these chronic pain states stems from Macrae[38] and was refined by Werner and Kongsgaard.[63] The *ICD-11* definition is that chronic postsurgical or posttraumatic pain is pain that develops or increases in intensity after a surgical procedure or a tissue injury and persists beyond the healing process, ie, at least 3 months after the initiating event.[60] The pain has to be localised to the surgical field or area of injury, projected to the innervation territory of a nerve situated in this area or referred to a dermatome or Head's zone (after surgery/injury to deep somatic and visceral tissues).[28] Other causes of pain such as pre-existing pain conditions or infections, or malignancy etc. have to be excluded in all cases of chronic post-traumatic and postsurgical pain. Dependent on the type of surgery or injury, chronic postsurgical and posttraumatic pain often may be neuropathic pain.[53] However, even if neuropathic mechanisms are crucial, chronic pain after surgery or trauma should be categorized as postsurgical or posttraumatic pain. For a complete overview of all chronic postsurgical or posttraumatic pain conditions as implemented in the *ICD-11* foundation layer, please

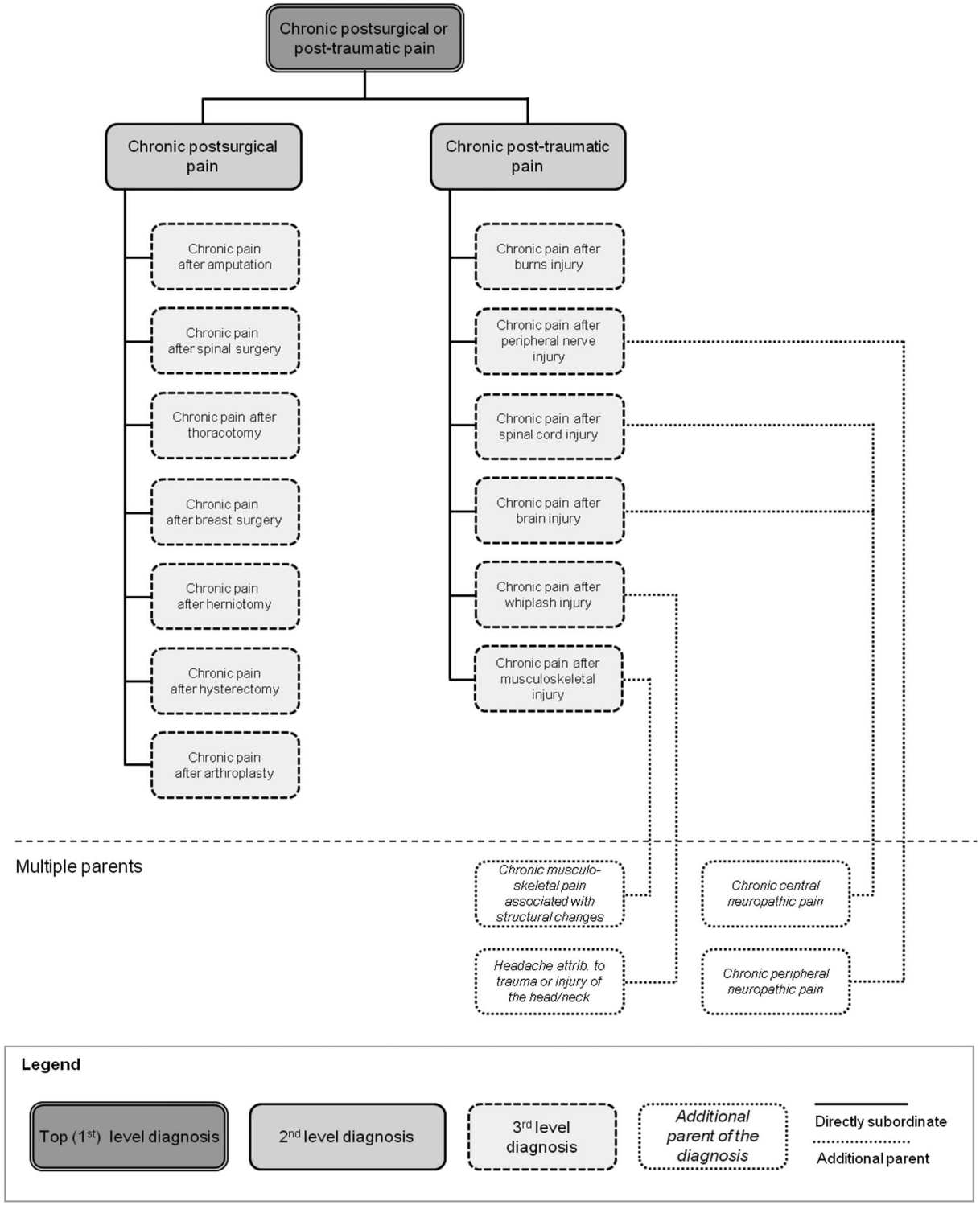

Figure 1. Organisation of the diagnoses of chronic postsurgical or posttraumatic pain in *ICD-11*. Levels 1 and 2 are part of the 2018 frozen version of the *ICD-11*; level 3 was entered into the foundation layer. According to the new concept of multiple parenting in *ICD-11*, an entity may belong to more than one group of diagnoses.

refer to the supplementary table (available at http://links.lww.com/PAIN/A658).

4.2.1. Chronic postsurgical pain

Chronic postsurgical pain is chronic pain that develops or increases in intensity after a surgical procedure. In line with common nomenclature, it was agreed that the classification system should reflect pain states after specific operations that most commonly lead to this form of chronic pain. The specific subdiagnoses included are chronic pain after amputation, spinal surgery, thoracotomy, breast surgery, herniotomy, hysterectomy, and after arthroplasty. These new codes should be used in combination with the appropriate surgery codes of *ICD-11*.

4.2.1.1. Chronic pain after amputation

Chronic pain after amputation is chronic pain that develops after the surgical amputation of a limb or parts thereof, but also after the amputation of a breast, tongue, teeth, genitalia, the eye, or even inner organs such as the rectum.[44] The pain is either localised to the stump (chronic stump pain) or projected into the amputated limb (phantom limb pain). Stump pain is localised to the site of the amputation, often neuropathic and increased in patients with severe preamputation pain.[32] Phantom limb pain is defined as any noxious sensory phenomenon in the missing body part in contrast to phantom sensation, a ubiquitous experience of amputees continuing to feel the pure presence of the amputated limb or organ.[33] The prevalence of phantom limb pain is estimated to be 30% to 85% after limb amputation and usually occurs in the distal portion of the missing limb.[46] There is a strong association between stump and phantom limb pain after amputation. The prevalence for chronic pain after amputation of other body parts or inner organs is lower than for limb amputation, (eg, 8% after rectum amputation[11]).

4.2.1.2. Chronic pain after spinal surgery

Chronic pain after spinal surgery is often called "failed back surgery syndrome."[17] It is either localised to the back area, where the operation took place, or projected into one or both limbs as radicular pain. Such conditions are commonly described in adults after spinal surgery for treatment of spinal stenosis or disc herniation. Around 10% to 40% (average 20%) of all patients who undergo lumbar spinal surgery develop some form of chronic pain requiring additional lumbar surgery, pain-related physician visits, or other surgical interventions such as neuromodulation to address their pain.[17] Chronic low-back pain after surgery is reported as severe by 13% of patients after both spinal stenosis and disc herniation surgery.[65] Patients with chronic pain after spinal surgery are often very disabled and report a quality of life worse than in other chronic pain conditions.[42] A neuropathic component is present in about half the patients. Chronic pain after spinal surgery can also occur in children and adolescents, most commonly after spinal fusion for idiopathic scoliosis or kyphosis surgery.[18] The prevalence here is estimated to be 38% to 53% with 11% to 15% reporting severe pain.[56]

4.2.1.3. Chronic pain after thoracotomy

Chronic pain after thoracotomy is chronic pain that develops after a surgical incision to the chest wall (thoracotomy). It is very common and occurs in approximately 50% of patients who underwent a thoracotomy (as an illustration see case vignette 1).[10] Moderate to severe pain occurs in 3% to 18% of patients. The pain is localised to the chest wall, often closely related to the area of surgery and the scar. Commonly, it is aggravated by movement and often it is of a neuropathic nature (in around 45% of cases).[25] Such neuropathic pain is often accompanied by sensory changes in the area of the scar. Intercostal nerve injury seems to be one important pathogenic factor. In children and adolescents, the prevalence is much lower with around 2%.[19]

4.2.1.4. Chronic pain after breast surgery

Chronic pain after breast surgery is chronic pain that develops after a surgical procedure in the breast area and is often called post-mastectomy pain syndrome. To include all types of surgery, in the classification, the term "chronic pain after breast surgery" was chosen. Such chronic pain develops after a surgical incision to the anterolateral chest wall and in some cases in the ipsilateral axillary region. The prevalence of chronic pain after breast surgery is in the range of 25% to 60%.[5] Moderate to severe pain occurs in around 14% of patients and is aggravated by movement. Breast surgery that causes this type of pain includes both cancer surgery, such as mastectomy or conservative breast surgery with or without axillary node dissection, and cosmetic procedures, such as breast augmentation or breast reduction.[62] The prevalence of chronic pain after cosmetic surgery is almost as high as after breast cancer surgery ranging from 22% after breast reduction to 44% after breast augmentation. In the case of breast

Case vignette 1: chronic post-thoracotomy pain (foundation ID 36517384)

A 35-year-old man is referred by the cardiothoracic surgeon for severe pain at 4 months after a left thoracotomy for neurofibroma. The posterior arches of Th4 to Th5 ribs were resected during the procedure. The patient reports severe continuous pain (score >7 on a numerical rating scale [NRS] from 0-10). He describes burning pain, tingling with electric shocks, and pain on contact with his shirt. The pain is not relieved by paracetamol, ibuprofen, and tramadol and interferes with his daily life. He experiences difficulty in lifting charges, poor sleep quality, and depressed mood. A clinical examination shows the presence of hypoesthesia around the scar, an area of mechanical (pressure) hyperalgesia on the anterior part of the left thorax, close to the sternum, at the level of Th4 and Th5 ribs, and an extended area of mechanical allodynia on the left thorax. This patient fits the diagnostic criteria of "Chronic postsurgical pain" (MG30.21) in the MMS Statistics linearization of *ICD-11*. More detailed coding is available in the foundation layer of *ICD-11*, eg, for country-specific versions or for a specific "chronic pain linearization." Treatment involves the addition of an anticonvulsant drug, ie, a gabapentinoid. One week later, the patient reports a reduction of the pain scores, improved sleep quality, and a disappearance of the mechanical allodynia.

Case vignette 2: chronic pain after burns injury (foundation ID 883268554)

A 57-year-old woman is rescued by emergency services out of her car, which caught fire after a collision. The patient sustains second degree burns to 35% of her body surface area including most of her right leg. After a stay in an intensive care unit and then a burns unit, the patient is discharged home with access to outpatient physiotherapy. She presents to a pain clinic 6 months after the accident on request of her plastic surgeon. The patient describes itchiness over most of the large scar on her right leg accompanied by burning sensations and areas with extreme sensitivity to touch. The pain disturbs her sleep and impairs her mobility. On examination, there is a well-healed scar of the burns injury with large areas of complete sensory deficit, which are at the same time described as painful. The presentation is typical for neuropathic pain due to superficial nerve injury by second degree burns. This patient fits the diagnostic criteria of "Chronic posttraumatic pain" (MG30.20) in the MMS Statistics linearization of *ICD-11*. More detailed coding is available in the foundation layer of *ICD-11*, eg, for country-specific versions or for a specific "chronic pain linearization." Pain control and sleep are improved over time by use of the tricyclic antidepressant amitriptyline.

cancer surgery, subsequent breast reconstruction does not increase the incidence of chronic pain or the pain intensity, although autologous flap reconstruction is usually associated with more severe pain compared with implant reconstruction.[62] The chronic pain is often neuropathic pain (25%-31% of cases).[35] Causes of such neuropathic pain include injury to the intercostal brachial nerve, neuroma pain located to the scar area, and even phantom breast pain (see above). Such neuropathic pain is often accompanied by sensory changes in the area of the scar or the arm.[61]

4.2.1.5. Chronic pain after herniotomy

Chronic pain after herniotomy is chronic pain that develops after a surgical repair of an inguinal or femoral hernia (herniotomy). The pain is localised to the inguinal area and may radiate into the genital or femoral area. The incidence of chronic pain after herniotomy is in the range of 20% to 30%, with 6% to 11% of patients reporting interference with daily life such as work or leisure activity.[9] The incidence seems to be similar after repair of inguinal and femoral hernias. Herniotomy in early childhood (below 3 months) does not lead to chronic pain and in older children to less pain than in adults.[2] Such chronic pain is often neuropathic pain (in around 80% of cases).[1] Such neuropathic pain may be the consequence of an injury to cutaneous or subcutaneous fibres as well as to nerves traversing the area of surgery, ie, ilioinguinal, iliohypergastric, and genitofemoral nerves. The innervation area of these nerves explains the radiation of the pain into the femoral or genital area. Neuropathic pain after this type of surgery is commonly accompanied by sensory dysfunction; however, sensory dysfunction is also found after herniotomy in pain-free patients.[3] Accompanying sexual dysfunction such as ejaculatory pain may occur.[4]

4.2.1.6. Chronic pain after hysterectomy

Chronic pain after hysterectomy is chronic pain that develops after the surgical removal of the uterus and annexes by abdominal open, laparoscopic, or vaginal access. The pain is often visceral pelvic pain[7] but can also have neuropathic features. The overall incidence ranges from 5% to 32% with moderate to severe pain in 9% to 10% of cases[13,14,58] and seems to be similar after vaginal, abdominal, and laparoscopic hysterectomy.[13] Forty-five percent of affected women report midline deep pelvic area pain, but the pain may also be located in the area of the abdominal scar in the lower abdominal wall and the femoral area.[13] Neuropathic mechanisms are less frequent and mainly related to the type of incision. A previous Caesarean section is one risk factor for the development of chronic pain after hysterectomy. Chronic pain after hysterectomy may increase during sexual intercourse and in general has a significant impact on the quality of life of the affected women.

4.2.1.7. Chronic pain after arthroplasty

Chronic pain after arthroplasty is chronic pain that develops after surgical replacement of a knee or hip joint (arthroplasty). The pain is localised in the area of the surgery and may radiate into adjacent areas. The prevalence of chronic pain after total hip replacement is in the range of 27% to 38% with 6% to 12% reporting moderate to severe pain[45]; it is significantly higher after total knee replacement in the range of 44% to 53% with 15% to 19% reporting severe pain.[48] The prevalence is even higher after revision surgery of total knee joint replacement with a reported incidence of 47% of patients with severe pain. Chronic pain after arthroplasty may be neuropathic pain[26]; this is more common in around 8% to 12% of cases after knee arthroplasty compared with 1% to 2% after hip arthroplasty.

4.2.1.8. Other specified chronic postsurgical pain

The codes for chronic postsurgical pain include only those that are most frequent. There are many further surgical procedures that may lead to chronic postsurgical pain (**Table 1**). These can be coded under "Other specified chronic postsurgical pain." The category is a residual category added by the WHO for specific diagnoses that are not represented individually.

4.2.2. Chronic post-traumatic pain

Chronic posttraumatic pain is chronic pain that develops or increases in intensity after a tissue injury (involving any trauma including burns). The pain is either localised to the area of the injury, projected to the innervation territory of a nerve situated in this area or referred to a dermatomal region (Head's zone[28]; after injury to deep somatic or visceral tissue). Just as in postsurgical pain, other causes of the pain must be excluded, and although chronic posttraumatic pain may often be neuropathic pain, it should be diagnosed as chronic posttraumatic pain. Chronic pain can develop after any trauma, with an incidence of 46% to 85% after multitrauma.[24,30] Typical examples were identified and taken into account through separate diagnoses. These new codes should be used in combination with the appropriate trauma codes of *ICD-11*.

4.2.2.1. Chronic pain after burns injury

Chronic pain can also develop after a burns injury. The injuries are commonly caused by heat, but also by cold, electricity, chemicals, friction, or radiation (for an illustration see case vignette 2). The prevalence of chronic pain after burns injury is poorly documented with a range of 18% to 52%.[15,21] Chronic pain after burns injury is often neuropathic pain.[31,52] The neuropathic feature may be the consequence of injury to cutaneous or subcutaneous fibres of nerves damaged by the initial burns injury. Such neuropathic pain is often accompanied by sensory dysfunction (eg, paraesthesias) or sensory deficits.[40,41] However, these are also found after burns injury in pain-free patients.

4.2.2.2. Chronic pain after peripheral nerve injury or chronic pain after central nervous system injury

These diagnoses are classified with double parenting in chronic neuropathic pain (**Fig. 1**).[53,59]

These conditions include multiple diagnoses after peripheral nerve injury and chronic pain after central nervous system injury, specifically brain and spinal cord injury. Double parenting is a new concept in the 11th edition of *ICD*; it means that one entity can belong to several sections of *ICD-11*, but it always has the same definition in the foundation layer.

4.2.2.3. Whiplash injury-associated pain

Whiplash injury-associated pain is chronic pain that develops after a whiplash injury (neck injury due to forceful rapid acceleration–deceleration movement of the neck). Whiplash injuries are common in rear-end motor vehicle crashes, sports accidents, or physical abuse. The accumulative incidence of whiplash injuries resulting from motor vehicle crashes has increased to over 300 per 100,000 people in North America

and Western Europe since 1990.[29] Most pain associated with whiplash injury does not fulfil the current diagnostic criteria of neuropathic pain, but central hyperexcitability plays a major role in the pathogenesis.[57]

4.2.2.4. Chronic pain after musculoskeletal injury

Chronic pain after a musculoskeletal injury is chronic pain that develops after injury to muscles, bones, or joints (post-traumatic arthritis). Among patients attending a chronic pain clinic, trauma after musculoskeletal injury is a cause of pain in 18.7% of cases. The trauma particularly concerns the limbs and the spine.[20] Traumatic musculoskeletal injury results in a high incidence of chronic pain (11% with moderate-to-severe pain by 4 months) with around 30% of patients reporting chronic neuropathic pain.[51]

4.2.2.5. Other specified chronic posttraumatic pain

Many tissue traumas can lead to chronic posttraumatic pain and not all can be represented by an individual diagnostic code. For chronic posttraumatic pain not included, the code "other specified chronic posttraumatic pain" can be used.

5. Discussion

A classical definition of chronic pain suggests that chronic pain is pain that outlasts the normal healing time.[12] This concept suggests a continuum from acute to chronic pain and seems particularly plausible in the context of chronic postsurgical and posttraumatic pain.[55] Since it is hard to pinpoint the exact time when this transition may happen and thus when acute or subacute pain becomes chronic pain and should be assigned the diagnosis of chronic pain,[37] the current classification opted for a clearly operationalized criterion, ie, pain that lasts longer than 3 months. For reasons of transparency and uniformity, this criterion was stipulated for all diagnoses in the classification, although one could argue that chronic postsurgical pain may be identified at a slightly earlier stage[39] and the prevalence decreases over time beyond 3 months.[6]

The codes for postsurgical and posttraumatic pain are new and recognize that chronic pain following these initiating events constitutes a health problem in its own right. Using this new code in combination with the appropriate codes for the initiating surgery or trauma will allow the treating clinician to tailor treatment options accordingly. For a given patient, the diagnosis of postsurgical or posttraumatic pain may become the leading diagnosis, which may be important in initiating multimodal pain management (see case vignettes). These case vignettes illustrate how a patient presenting with a pain complaint after surgery or injury can be coded in line with the new proposed codes as chronic pain after surgery or trauma and the appropriate subcodes. It is important to keep in mind that surgery is often performed for pain as an indication for the surgery (eg, amputation for ischemia and spinal surgery for radiculopathy or arthroplasty for osteoarthritic pain); therefore, chronic post-surgical pain is specifically defined as pain that develops or increases in intensity after a surgical procedure.

The selection of subcodes to be included was guided by the prevalence of chronic pain and the amount of research published with respect to the type of initiating surgery or trauma. The inclusion of further subcodes in the future as more research becomes available would be welcomed; currently, the standard WHO subcode "other" captures those initiating events that are not listed specifically. These codes will also be available for epidemiological studies on the usefulness of individual surgical interventions. In the pilot field testing of the classification, the inclusion of chronic postsurgical and posttraumatic pain codes was welcomed strongly.[8]

6. Summary and conclusions

Including chronic pain after surgery and trauma into the classification of chronic pain in *ICD-11* will lead to the recognition of the significant consequences of chronic pain after surgery and trauma. Hopefully, such recognition will result in a better statistical representation of the prevalence and relevance of these conditions and lead to improved treatments for patients affected by these chronic pain states.

Conflict of interest statement

A. Barke reports personal fees from IASP, during the conduct of the study. W. Rief reports grants from IASP, during the conduct of the study; personal fees from Heel, personal fees from Berlin Chemie, outside the submitted work. S.A. Schug: The Discipline of Anaesthesiology and Pain Medicine at the University of Western Australia, but not S.A. Schug personally, has received research and travel funding and speaking and consulting honoraria from Andros Pharmaceuticals, Aspen, bioCSL, Eli Lilly, Grunenthal, Invidior, Janssen, Luye Pharma, Mundipharma, Pfizer, Pierre Fabre, Seqirus and iX Biopharma, outside the submitted work. R.-D. Treede reports grants from Boehringer Ingelheim, Astellas, AbbVie, Bayer, personal fees from Astellas, Grünenthal, Bauerfeind, Hydra, Bayer, grants from EU, DFG, BMBF, outside the submitted work. The remaining authors have no conflict of interest to declare.

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Appendix A. Supplemental digital content

Supplemental digital content associated with this article can be found online at http://links.lww.com/PAIN/A658. SDC includes a complete reference list of the diagnoses entered into the foundation with the foundation IDs as well as the extension codes (specifier). Since the complete list is contained, the material is identical for all papers of the series.

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