



DICTIONARY OF TERMS

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1. Aim of the document

The document explains the terms from the international Spine Tango and Swiss Implant Registry SIRIS Spine data structure, provides standardised definitions, and includes coding guidance.

Minor discrepancies between the terminology used in this document and that used in the web application cannot always be avoided, as both the document and the web application are subject to ongoing development and their development cycles may differ.

2. Authors

The terms and definitions are developed by EUROSPINE, the body responsible for managing the registry, and approved by the Spine Tango committee and the SIRIS Spine Scientific Advisory Board.

3. Addressees

This document is intended for all SIRIS Spine registrants, regardless of their function and tasks.

4. Further development of the document

The document will be further developed as required. Further developments are generally based on demand. In the case of substantial and implication-rich adjustments to the document, the time of publication is chosen carefully in order to ensure the highest possible data quality.

Change requests and comments can be sent to spinetango@eurospine.org at any time.

5. Data structure

Admission / Pathology

Question	Response options	Explanations and definitions
Admission date	[Date]	The date of the initial admission to the hospital (not the department).
Main pathology	Degenerative disease	Pathological changes due to age-related wear and tear processes. In the case of degenerative spondylolisthesis , e.g. spondylolisthesis due to wear of the facets without anatomical changes to the pars interarticularis, please select degenerative disease as the main pathology and specify further as "degenerative spondylolisthesis" under the question "Primary type of degeneration".
	Non-degenerative deformity	Clinically relevant scoliosis or deviation of sagittal alignment on more than two segments that is not caused by degenerative changes.
	Fracture/Trauma	A fracture resulting from a trauma without known or suspected pathological bone disease. Inadequate low-energy trauma, for example a vertebral compression fracture resulting from a change in body position or in rest, is to be considered a pathological fracture (see below).
	Pathological fracture	A fracture due to a pathological bone disease, such as a tumour or osteoporosis. It commonly occurs without adequate trauma as a low-energy trauma. A common example is a vertebral compression fracture in an older patient with suspected or confirmed osteoporosis. If a pathological bone disease is diagnosed, this main pathology should be chosen, even if low-energy trauma did occur (for example, a fall).
	Spondylolisthesis (non-degenerative)	Vertebral slippage of the vertebrae including segmental rotational displacement (including isthmic spondylolisthesis (also Meyerding 0) in spondylolysis).
	Infection	Condition due to the confirmed (not suspected) invasion and multiplication of pathogenic microorganisms (according to the criteria of the Center for Disease Control and Prevention (CDC)).
	Tumour	Includes paravertebral soft tissue, bone and neurogenic tumours of the spine.
	Revision / Reoperation	According to the register's definition, reoperations or revisions are follow-up operations performed on the same or an adjacent vertebral body or segment for the same condition. For Swiss registry users only: Only reoperations and revisions that are related to the SIRIS-relevant index operation should be recorded. This includes, for example, surgery performed because the index surgery did not achieve its technical objectives (e.g. incorrectly placed screw, insufficient decompression, lack of fusion, etc.) or clinical objectives (technical objectives are met but symptoms persist, e.g. successful fusion but

		persistent pain). Elective reoperations are also included, e.g. for metal removal. Whether or not the index operation is recorded in the register is irrelevant for the registration of reoperations and revisions. Reoperations and revisions relating to index operations that are not relevant to SIRIS do not need to be registered.
	Other...	→ Specify another pathology if the above answer options do not cover it.

Specification of the main pathology

These questions serve to improve the definition of the main pathology and to form subgroups for later more differentiated identification.

Degenerative disease

The **primary** degeneration type refers to the main degenerative diagnosis that is the main indication for treatment. Only one answer is permitted. In case of doubt, the more severe degeneration type should be selected as the primary degeneration.

Secondary degeneration type refers to all secondary degenerative diagnoses that are associated with the primary diagnosis but are not the primary indication for treatment.

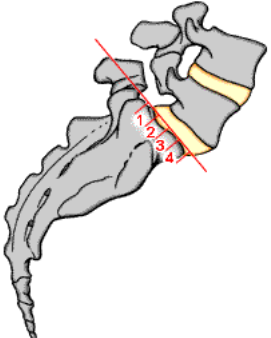
Similar patients with a similar combination of degenerative diagnoses may be treated with a different treatment focus. The registrant must ensure that the **primary** pathology is the main indication for the treatment carried out.

Question	Response options	Explanations and definitions
Type of degeneration	Disc hernia	Protrusion of disc material that is either still connected to the disc space (e.g. a bulge) or has become separated from it (e.g. a sequestrum or extrusion). For further details, please tick "other" and specify.
	Central or lateral stenosis	Narrowing of the central spinal canal or the recess through bony and ligamentous structures with consecutive nerve compression. Possible causes include hypertrophy of the yellow ligament (lig. flavum), bony dislocation due to enlargement of the facet joints (osteoarthritis), osteophyte formation, degenerative spondylolisthesis, a reduction in the height of the intervertebral disc or disc protrusion. In the case of a combination of spinal stenosis and degenerative spondylolisthesis, the surgery must be registered as a degenerative spondylolisthesis. A recess stenosis is to be registered in this category, as a central or lateral stenosis.
	Foraminal stenosis	Narrowing of the foramen, intraforaminal stenosis with compression of the nerve root.
	Degenerative spondylolisthesis	Spondylolisthesis (also known as olisthesis) due to degenerative changes, e.g. spondylolisthesis due to facet wear without anatomical changes in the pars interarticularis. Please also specify the degree of spondylolisthesis.

Question	Response options	Explanations and definitions
	Degenerative disc disease	Degeneration of the intervertebral disc. Disc-related pathology, e.g. loss of height, endplate changes, intradiscal gas, etc. Advanced degeneration disc disease is typically associated with loss of stiffness in a motion segment (if not a spondylolisthesis). This category also includes degenerative changes to the facet joints and the spinal segment, as well as spondylosis, discopathy and/or osteochondrosis.
	Degenerative deformity	Deformity (also called structural spine disorders) of the spine due to degenerative changes, e.g. scoliosis, kyphosis. Also referred to as 'de novo', i.e. a deformity diagnosed in adulthood that was not present at the end of skeletal growth.
	Myelopathy	Progressive narrowing of the spinal canal with neurological impairment.
	Facet joint arthrosis	Spondylarthrosis, degenerative changes (arthrosis) of the facet joints.
	Synovial cyst	A fluid-filled sac that has developed as a result of spinal degeneration. Synovial cysts are arising from degenerative facet joints and are most commonly seen in the lumbar spine (especially at L4/5 and L5/S1 levels).
	SI joint	Degeneration of the sacroiliac joint.
	Other...	→ Specify another degenerative diagnosis if the answer options above do not cover it.

Spondylolisthesis

Question	Response options	Explanations and definitions
Type of spondylolisthesis (also known as olisthesis)	Type I (congenital, dysplastic)	Congenital anomalies of the upper sacrum or the L5 arch, which can lead to olisthesis.
	Type II (isthmic)	This is the most common type of a non-degenerative spondylolisthesis. The interarticular part (between the joints) of the vertebral arch is only cartilaginous - not ossified - and therefore represents a weak point. A fracture (lysis) of this allows the vertebral body to slip. There are two subtypes: 1) Repeated flexion-extension movements can cause the lysis gap and thus slippage; 2) A healed fracture caused by external impact or stress with subsequent lengthening of the intervertebral space enables slippage. This pathology is often seen in a younger patient versus a degenerative spondylolisthesis dominated in elderly patients.

Question	Response options	Explanations and definitions
	Type III (degenerative)	Long-lasting intersegmental instability. To register a degenerative spondylolisthesis, select "degenerative disease" as the main pathology and enter "degenerative spondylolisthesis" as the degeneration type.
	Type IV (traumatic)	Fracture in areas of the bony hook other than the pars.
	Type V (pathological)	A local or systemic bone disease.
	Type IV (iatrogenic)	Due to iatrogenic instability. If in the neighbouring segment, select "Revision / Reoperation" as the main pathology and tick "Connecting segment pathology".
	Other...	→ Specify a different type of spondylolisthesis.
Grade of spondylolisthesis [Meyerding HW (1932 Spondylolisthesis. Surg Gynecol Obstet 54: 371-377)]		The extent of spondylolisthesis is described according to the Meyerding classification. This is assessed using a sagittal (side) X-ray, MRI scan or CT scan. A distinction is made between grades I-IV. If a vertebral body slips completely from the underlying vertebral body, the spondylolisthesis is classified as grade V, which is referred to as spondyloptosis. 
	Grade I	0 - 25% Sliding of the vertebral body over the vertebral body below.
	Grade II	25 - 50%
	Grade III	50 - 75%
	Grade IV	75 - 100%
	Grade V	>100% = spondyloptosis

Pathological / traumatic fracture

Question	Response options	Explanations and definitions
Type of fracture	C0 condylar fracture	C0 condylar fracture.
	C0/1 dissociation	C0/1 dissociation.

Question	Response options	Explanations and definitions
	C1 fracture	C1 fracture.
	C1/2 instability	Instability between C1 and C2.
	C2 dens fracture	Also known as odontoid process fracture. → Specify the type of dens fracture.
	C2 other fracture	A C2 fracture with the exception of dens fractures.
	C3-C7 fracture	Traumatic injuries or fractures of the lower cervical spine as the indication for the underlying surgery (may have fractures at other locations).
	Th1-L5/S1 fracture	Traumatic fractures of the thoracic and lumbar spine including the lumbosacral junction as the indication for the underlying surgery (may have fractures at other locations).
	Sacrum fracture	Fracture of the sacrum, often caused by high-energy trauma (like car crashes/falls) or repetitive stress.
	Other...	→ Specify another fracture if the above answer options do not cover it.
Fracture age	Fresh fracture (<28 days)	Fractures that are operated on less than 4 weeks after their occurrence or radiological diagnosis.
	Old fracture (≥28 days)	Fractures that are operated on from 4 weeks after their occurrence or after their radiological diagnosis.
Pathological fracture due to	Osteoporosis	Osteoporosis: progressive systemic skeletal disease characterised by reduced bone mineral density (BMD). Since many pathological fractures occur within the osteopenia range of BMD, this category should also be ticked in osteopenia cases. Also state the classification of osteoporotic vertebral fractures.
	Tumour	A fracture that is favoured or even caused by a tumour disease. If necessary, also specify the type and localisation of the tumour.
	Other...	→ Please state another reason for the pathological fracture (including metabolic, systemic or medication-related causes).
Classification [Schnake KJ et al. Global Spine J. 2018 Sep;8(2 Suppl): 46S-49S]	OF1	No deformation or structural changes seen on x-ray or CT. Can only be seen in an MRI (for example in a STIR sequence) as a bony marrow oedema. If there are several fractures, please select the highest OF grade (Link). Purely morphological, this type of fracture is typically treated conservatively.
	OF2	Deformation with minor/without posterior wall involvement <1/5, while only one endplate is affected (osteoporotic fracture 2) (Link).

Question	Response options	Explanations and definitions
		Purely morphological, this type of fracture is often treated conservatively.
	OF3	Incomplete burst fracture. Deformation with a pronounced posterior wall involvement >1/5 and an anterior wall involvement, while only one endplate is affected (osteoporotic fracture 3) (Link). This type of fracture may be instable and further collapses.
	OF4	Complete burst fracture with both endplates affected. Loss of the frame structure (vertebral body collapse, pinch fracture) (osteoporotic fracture 4) (Link). This type of fracture is instable.
	OF5	Distraction and rotation injury with or without fracture (Link).
Dens fracture [Anderson LD, D'Alonzo RT (1974) JBJS-A 56 (8): 1663-1674.]	I	Oblique avulsion fracture of the tip of the dens (odontoid). Usually stable.
	II	Fracture of base of the dens (through the waist of the odontoid). Considered unstable.
	III	Fracture at junction of body of C2 and dens, which may go into the lateral masses / cancellous body of C2. Considered highly unstable.

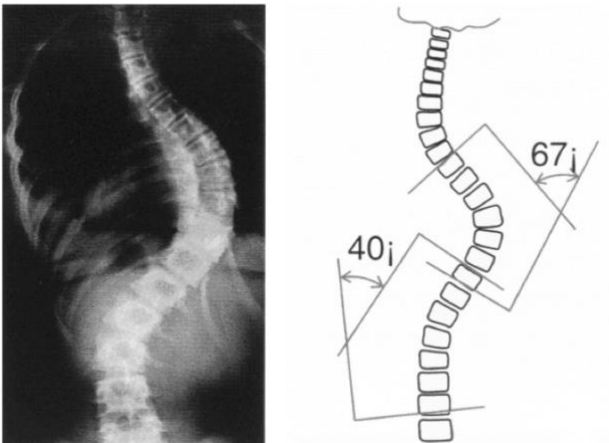
AO Classification	Response options	Explanations and definitions
C3-L5/S1 AO Fracture type	Thoraco-lumbar fractures. If there are several fractures, please select the highest grade.	
	A0	Minor, non-structural fractures: no bony injury or minor injury such as an isolated lamellar fracture or spinous process fracture (Link).
	A1	Wedge compression fracture: Compression fracture with a single end plate without involvement of the posterior wall of the vertebral body (Link).
	A2	Cleft and pincer fracture ("pincer") with involvement of both end plates without involvement of the posterior wall of the vertebral body (Link).
	A3	Incomplete burst fracture: burst fracture of a single end plate involving the posterior vertebral wall (Link).
	A4	Complete burst fracture: burst fracture or sagittal split involving both end plates (Link).
	Distraction injuries	

AO Classification	Response options	Explanations and definitions
	B1	Flexion injury or distraction injury with dorsal, intraosseous rupture (Chance fracture); affects only one vertebral body (Link).
	B2	Flexion injury or distraction injury with dorsal, ligamentous tear with or without osseous involvement (Link).
	B3	Hyperextension injury with ventral tearing through the intervertebral disc (Link).
	Rotational injuries	
	C	Rotational injury in any axis - displacement or rotation of one vertebral body relative to another in any direction (Link).
AO Neurological injury	N0	Neurologically intact.
	N1	Temporary neurological deficit that is no longer present at the time of the examination. An example is a transient footrest.
	N2	Radiculopathy, which is irritation or compression of a spinal nerve root, causing pain, numbness, tingling, or weakness that radiates from the spine to areas like the arms, hands, legs, or feet, commonly due to a herniated disc or bone spur.
	N3	Incomplete spinal cord injury, according to the classification of the American Spinal Injury Association (ASIA) grade D to B
	N4	Complete spinal cord lesion, according to ASIA grade A classification
	NX	Neurological status cannot be assessed, e.g. intubated patient
AO Modifiers	No modifiers	No modifiers applicable.
	Case-specific modifiers	
	M1	Injury to the posterior capsule-ligament complex without complete disruption.
	M2	Critical herniated disc.

Deformity

The question of the type of deformity should also be answered in the case of degenerative deformity.

Question	Response options	Explanations and definitions
Type of defect	Scoliosis	Coronal curvature of the spine of at least 10°.

Question	Response options	Explanations and definitions
		 Reference: Cobb, JR Outline for the Study of Scoliosis. Instructional Course Lectures, The American Academy of Orthopaedic Surgeons. Vol. 5, pp. 261-275. Ann Arbor, JW Edwards, 1948
	Kyphosis	The Scoliosis Research Society suggests 10-40 degrees as the range for a normal kyphosis between the upper endplate T5 and the lower endplate T12.
	Frontal imbalance	Coronal malalignment with a displacement of C7 relative to the central sacral vertical line (CSVL) of at least 4 cm, measured on coronal radiographs of the entire spine (Jackson RP et al, Spine 1994, 19, 1611-1618).
	Sagittal imbalance	Imbalance of the spine in the sagittal plane with an abnormal position of the vertical axis or associated pathological compensatory mechanisms (Le Huec et al, Eur Spine J 2019, Volume 28, Issue 9, pp 1889-1905). Select this category if the sagittal vertical line from C7 in the entire spine radiographs is 2 cm or more in front of or behind the sacrum.
	Other...	→ Enter another deformity if the above answer options do not cover it.
Predominant aetiology	Idiopathic	Spontaneous or from an unclear or unknown cause.
	Congenital	Malformation, failure of segmentation, formation or mixed.
	Neuromuscular	Neuropathic or myopathic diseases refers to skeletal changes, like scoliosis or contractures, caused by underlying conditions affecting nerves or muscles, leading to weakness, poor control, or paralysis, disrupting normal posture and movement. Common causes include genetic disorders (muscular dystrophy, spina bifida, cerebral palsy), infections, or autoimmune issues, where nerve-muscle communication failure results in progressive muscle wasting, imbalance, and skeletal deformities that worsen over time.
	Degenerative	De novo, secondary degenerative.

Question	Response options	Explanations and definitions
	Post-traumatic	Caused by trauma or fracture. This category includes post-surgical iatrogenic deformities.
	M. Scheuermann	Scheuermann's disease (type I, "classic" Scheuermann's disease) is a thoracic or thoracolumbar hyper-kyphosis caused by a wedging of the vertebrae in adolescence. Atypical Scheuermann's disease (type II, "lumbar" Scheuermann's disease) affects the lumbar spine and/or the thoracolumbar transition. It is a growth disorder of the vertebral bodies without significant wedging, which leads to a loss of lumbar lordosis or a slight kyphosis. Definition: at least 5° wedging of three consecutive vertebrae.
	Other...	→ Specify a different aetiology if the above answer options do not cover it.

Infection

Question	Response options	Explanations and definitions
Type of infection	Pyogenic	Due to bacteria (non-specific).
	Tuberculosis	Tuberculosis.
	Other...	→ Specify a different type of infection.
	Unknown	Select this answer if the type of infection remains unknown until discharge.
Affected structures	Spondylitis	Infection of the vertebral bodies.
	Discitis	Infection of the intervertebral disc. For spondylodiscitis, select spondylitis and discitis.
	Epidural space	Extradural or peridural space. The space within the spinal canal (bony structures) outside the dura.
	Paravertebral infection	Infection of the paravertebral soft tissues (muscles, etc.).
	Other...	→ Enter another affected structure if the above answer options do not cover it.

Tumour

Question	Response options	Explanations and definitions
Localisation	Extraosseous soft tissue	The tumour is located in the soft tissue, without involving the bones.

Question	Response options	Explanations and definitions
	Intraosseous	The lesion is limited to the bony spine, with no involvement of other structures.
	Extraosseous extradural	Tumour tissue located in the spinal canal, extradural without bony involvement.
	Extraosseous intradural	Located deep in the theca, without bony involvement.
	Other...	→ Enter a different localisation if the above answer options do not cover it.
Type of tumour	Primarily malignant	Based on histological examination. A cancerous growth that starts in spinal structures (the "primary site") and has the ability to invade nearby areas and spread to distant parts of the body.
	Primarily benign	Based on histological examination. A non-cancerous growth that doesn't spread to other body parts.
	Secondary malignant	Metastasis.
	Tumour-like lesion	Tumour-like lesions are lesions that look similar to a tumour on ultrasound (US), computed tomography (CT) or magnetic resonance imaging (MRI) scans. As a rule, tumour-like lesions are described as follows: Findings that are compatible with a tumour-like lesion but where a neoplasm cannot be excluded.
	Other...	→ Enter a different tumour type if the above answer options do not cover it.

Reoperation

Question	Response options	Explanations and definitions
Reasons for repeated surgery	Another originally planned surgery	A surgery that was already planned before the primary operation. This includes, for example, the second surgery of a two-stage procedure.
	Neurocompression	Compression of neural structures with or without neurological deficits.
	Non-union	Failure of the bones to heal into a solid mass (known as bone consolidation) at least six months after surgery. This often results in instability, pain and nerve problems.
	Instability	Excessive movement in a spinal segment after surgery, caused by the spine losing its ability to limit abnormal movement.
	Postoperative superficial infection	Superficial wound infection after surgery that affects only the skin's surface and underlying fatty tissue.

Question	Response options	Explanations and definitions
	Postoperative deep infection	A deep wound infection (according to CDC criteria) involving the deep tissues (fascia/muscle), organs, implants or bones.
	Wound healing problem	Delayed or atypical wound healing, irrespective of the underlying cause. If an infection is present at the same time, an infection should be recorded.
	Implant malposition	Incorrect position of the implant.
	Implant migration or loosening	Screw loosening, cage sintering or implant migration.
	Implant breakage	Breakage of a screw, rod, cage or other implant.
	Implant assembly failure	Failure of an implant assembly with or without implant breakage. A failure of an expandable cage is to be seen as an assembly failure.
	Adjacent segment pathology	Degenerative changes in the neighbouring segment of the index surgery.
	Hardware removal	Removal of certain parts or the entire implant.
	Spinal imbalance	Spinal imbalance with an abnormal position of the vertical axis or associated pathological compensatory mechanisms.
	Liquor leakage	Cerebrospinal fluid leakage in case of dura injury.
	Failure to achieve therapeutic goals	Therapeutic goals were not achieved with the index surgery.
	Other...	→ to specify

Additional pathologies

Question	Response options	Explanations and definitions
Additional pathologies	Degenerative disease	Pathological changes due to age-related wear processes as an additional pathology.
	Non-degenerative deformity	Clinically relevant scoliosis or deviation of sagittal alignment on more than two segments as a further pathology.
	Fracture/Trauma	Fracture of the spine as a result of trauma as another pathology.
	Pathological fracture	Fracture of the spine due to a pathological bone disease such as tumour, osteoporosis or similar as a further pathology.
	Spondylolisthesis (non-degenerative)	Vertebral slippage of the vertebrae including segmental rotational displacement of non-degenerative origin and as another pathology.

Question	Response options	Explanations and definitions
	Inflammation	Inflammation of the spine, also known as spondylitis. It often involves stiffness and pain, most commonly seen in ankylosing spondylitis.
	Infection	Condition due to the invasion and proliferation of pathogenic microorganisms in the spine as another pathology.
	Tumour	An oncological disease of the spine as a further pathology.
	Repeated surgery	A previous surgery that is related to the current surgery. → Also state the reason for the repeated surgery.
	Other...	→ Specify another pathology if the above answer options do not cover it.

Risk factors

Question	Response options	Explanations and definitions
Extent of surgery (segments / vertebral body)	1	Enter the number of operated segments or vertebral bodies
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
	>10	
Number of previous spine surgeries at the same or adjacent segment(s)	0	Enter the number of previous spinal interventions at the same or adjacent segment(s) . If the main diagnosis is repeat surgery, then a zero number of previous surgeries is not possible.
	1	
	2	
	3	
	4	

Question	Response options	Explanations and definitions
	>4	
- of which at the same segment(s)	0	Enter the number of previous spinal interventions at the same segment(s) . If the main diagnosis is repeat surgery, then either the number of previous spine surgeries at the same or the number of previous spine surgeries at the adjacent segment(s) must be greater than zero.
	1	
	2	
	3	
	4	
	>4	
- of which at the adjacent segment(s)	0	Enter the number of previous spinal interventions at adjacent segment(s) . If the main diagnosis is repeat surgery, then either the number of previous spine surgeries at the same or the number of previous spine surgeries at the adjacent segment(s) must be greater than zero.
	1	
	2	
	3	
	4	
	>4	
Duration of symptoms of the main pathology	<3 months	Indicate the known or, if not known, the most likely duration of the symptoms. In the case of a combination of several symptoms, indicate the duration of the symptoms that form the main basis for the decision on surgery.
	3-12 months	
	>12 months	
ASIA Classification	A	Complete: No sensory or motor function is preserved in the sacral segments S4-S5.
	B	Incomplete: Sensory but no motor function preserved below the neurological level; extends into the sacral segments S4-S5.
	C	Incomplete: Motor function is preserved below the neurologic level, but more than half of the key muscles below the neurologic level have a muscle grade less than 3 (i.e., they are not strong enough to move against gravity).
	D	Incomplete: Motor function is preserved below the level of damage and the majority of the characteristic muscles below the neurological level have a degree of muscle strength greater than or equal to 3.
	E	Normal: Sensory and motor function is normal.
Height (cm)	[a number between 50-280]	Height in centimetres.

Question	Response options	Explanations and definitions
Weight (kg)	[a number between 4-399]	Weight in kilograms.
BMI	[will be calculated automatically]	Weight classification according to WHO: Underweight: <18.5 kg/m ² Normal weight: >18.5 - <25 kg/m ² Overweight: 25 - <30 kg/m ² Obesity: ≥30 kg/m ²
Active smoker	Yes	A person who currently smokes regularly OR a current occasional smoker (unknown number of days in the past month). Smoking includes the consumption of nicotine-containing and similar products.
	No	A person who does not currently smoke (either has never smoked or used to smoke).
	Unknown	Smoking status unknown.
Morbidity state (ASA)	ASA 1 (healthy)	Normal, otherwise healthy patient.
	ASA 2 (minor impairment)	Patient with mild general illness, e.g. mild diabetes, hypertension or anaemia.
	ASA 3 (severe impairment)	Patient with severe general illness, e.g. angina pectoris or healed myocardial infarction.
	ASA 4 (life-threatening)	Patient with severe general illness that poses a permanent threat to life, e.g. advanced lung, liver, kidney or endocrine insufficiency.
	ASA 5 (moribund)	Moribund (terminally ill) patient who is unlikely to survive without life-saving surgery, e.g. brain trauma with increasing intracranial pressure, burst abdominal aneurysm with deep shock, massive pulmonary embolism.
Therapeutic goal	Axial pain relief	Goal of the surgery: to relieve back/neck pain.
	Peripheral pain relief	Goal of the surgery: to relieve arm/leg pain including gluteal pain.
	Functional improvement	Goal of the surgery: to improve the function of the spine as a whole or of individual spinal segments. E.g. ability to walk longer distances, greater mobility, improved ability to work (at home and at work), improved sporting abilities.
	Motor improvement	Goal of the surgery: Improvement of neurological-motor function, e.g. muscle function of the legs/arms.
	Sensory improvement	Goal of the surgery: Improvement of neurological sensory function in comparison, e.g. restoration of sensation.
	Improvement of bladder/sexual function	Goal of the surgery: to improve bladder and sexual function.

Question	Response options	Explanations and definitions
	Stabilisation of the spine	Goal of the surgery: to stabilise and/or fuse spinal segments.
	Stopping the progression of the deformity	Goal of the surgery: to prevent the progression of the spinal deformity.
	Prophylactic decompression	Goal of the surgery: prophylactic/preventive decompression to avoid the development of neurocompression.
	Cosmetic improvement	Goal of the surgery: to improve the patient's physical appearance.
	Diagnostic measures	Goal of the surgery is a diagnostic procedure (e.g. a biopsy) to rule out a suspected pathology.
	Other...	→ Specify another goal if the above answer options do not cover it (for example deformity correction).
Anaesthesia	Local	Local anaesthesia of a specific small area of the body.
	Spinal	Spinal anaesthesia (or spinal block) is a type of regional anaesthesia where a local anaesthetic, often with an opioid, is injected into the subarachnoid space, the fluid-filled area surrounding the spinal cord in the lower back. This type of anaesthesia is common for vertebral height restoration with or without vertebral body augmentation, which is vertebroplasty or kyphoplasty.
	General	General anaesthesia, which is a medically induced, temporary state of controlled unconsciousness, where a patient feels no pain, has no memory (amnesia), and cannot be woken, achieved through anaesthetic drugs (injected or inhaled) to block pain signals and reflexes.

Surgery

Question	Response options	Explanations and definitions
Surgery date	[DD/MM/YYYY]	Date on which the patient underwent surgery in dd/mm/yyyy format.
Name of the surgeon	[Pull-down menu]	Name of the performing surgeon (from the pull-down menu). All registered surgeons in the respective department appear there. The assignment of the surgery to the surgeon allows a statistical overview of all surgeries that he or she has performed.
Qualification of the surgeon	Board certified and/or specialised	The primary surgeon is a specialist and performs the surgery at his/her own discretion.

Question	Response options	Explanations and definitions
	In training and/or instructed	The first surgeon is in training or has been instructed for the surgery.
Component	Yes - minimal registration (by manufacturer and brand)	Activates the "Component" subform for registering the implant manufacturer and the brand name of the implant.
	Yes - detailed registration (by catalog number)	Activates the 'Implants' subform to register the implants using the catalogue number (also corresponds to the article number or product number). The batch number (corresponds to the LOT number or LOS number) of the implant can also be optionally registered.
	No - no new implants	No new implants are inserted.
Anterior / lateral access	No anterior or lateral access	No anterior or lateral access.
	Transoral	Transoral access.
	Anterolateral	Anterolateral access. For a cervical surgery, this approach is applicable until C6/7. For a cervico-thoracic level code cervicothoracic anterolateral approach. For lumbar surgery, this approach is to be used for OLIF.
	Lateral	Lateral access. On lumbar spine it is commonly by going through the psoas muscle or alongside it.
	Cervicothoracic anterolateral	Cervicothoracic anterolateral approach.
	Thoracotomy	Thoracotomy, which is a surgical incision into the chest for a surgery on T4-T11.
	Retroperitoneal	Anterior approach without incision of the peritoneum.
	Thoracoscopy	Endoscopic procedure.
	Other...	→ Specify a different anterior access.
Posterior approach	No posterior approach	No posterior approach was used.
	Midline	Posterior approach through the midline. It is by far the most frequent posterior approach.
	Paramedian	Paramedian incision, which is a vertical surgical cut made about 2-5 centimetres to the side (lateral) of the midline midline, rather than directly on it. The Wiltse-approach is a paramedian approach.

Question	Response options	Explanations and definitions
	Percutaneous	Percutaneous access, where instruments are inserted through the skin via small punctures or incisions to treat spine conditions, avoiding large cuts and extensive muscle dissection
	Other...	→ Specify a different posterior access.
Technology	Conventional	Traditional open surgery commonly through a skin cut with a dissection of muscles. This can be combined with other technologies if used. Open surgery can involve intraoperative 3D imaging. It may be combined with a minimally invasive spinal surgery at another spinal level (like navigated placement of thoracic pedicle screws alongside open placement of lumbar pedicle screws).
	MISS/LISS	MISS: Minimally invasive spinal surgery commonly with a smaller incision than traditional open surgery, commonly using specialized tools, cameras (scopes), and sometimes robotics, resulting in less tissue damage, reduced pain, quicker recovery, and shorter hospital stays. LISS: Less invasive spinal surgery taking an intermediate position between traditional open and minimally invasive surgery. An example of this type of technology is percutaneous rigid stabilisation. Another example is ALIF or XLIF surgery performed with a MISS approach.
	Intraoperative 3D imaging	Imaging of the spine during the surgery with devices that can generate axial as well as coronal and sagittal images similar to a CT reconstruction.
	Endoscope	An endoscope was used, which is a thin, lighted tube with a camera, used in minimally invasive surgery to view and treat spinal problems like herniated discs or stenosis through tiny incisions.
	Robot navigation	A robotic navigation was used, which is a computer-assisted robotic technology to guide surgeons during complex spine surgeries, enhancing precision, visualization (often 3D), and control for procedures like spinal fusion or instrumentation.
	Other navigation	A different navigation was used than robotic (like O-arm, Airo CT, Augmented Reality, fluoroscopy and similar).
	Microscope	A microscope was used.
	Neuromonitoring	Intraoperative neurophysiological monitoring (IONM) or intraoperative neuromonitoring to monitor the functional integrity of certain neuronal structures. It is often applied in paediatric and adult deformity surgery, cervical spine surgeries and high-grade spondylolisthesis surgery.
	Other...	→ Specify a different technology.

Question	Response options	Explanations and definitions
Blood loss	Unknown	Not documented or not known.
	<100 ml	Corresponds to a blood loss volume of up to 100 millilitres or a blood loss volume rounded to 100 millilitres measured or estimated.
	100 - 500 ml	Corresponds to a blood loss of between 100 and 500 millilitres measured or estimated.
	500 - 1000 ml	Corresponds to a blood loss of between 500 millilitres and 1 litre measured or estimated.
	1000 - 2000 ml	Corresponds to a blood loss of between 1 and 2 litres measured or estimated.
	>2000 ml	Corresponds to a blood loss of more than 2 litres measured or estimated.
Duration of surgery	<1 hr.	Indicate the duration of the surgery from the incision to the suture.
	1 - 2 hrs.	
	2 - 3 hrs.	
	3 - 4 hrs.	
	4 - 5 hrs.	
	5 - 6 hrs.	
	6 - 8 hrs.	
	8 - 10 hrs.	
	>10 hrs.	
Blood transfusion	None	No blood transfusion during the surgery.
	< 2 units	Blood transfusion of less than two units during the surgery.
	>= 2 units	Blood transfusion of two or more units during the surgery.
	Cell Saver	Use of the Cell Saver during the surgery.

Implants

Question	Response options	Explanations and definitions
Manufacturer	[from the catalogue]	Name of the manufacturer.
Brand name	[from the catalogue]	The name of the implant brand is a mandatory entry in the minimal implant registration.

Description	[from the catalogue]	Is automatically loaded from the catalogue when the implant is selected from the catalogue. Can be used to search for implants. If an implant is not available in the catalogue, please click on "Request missing implant" and let us know the known details. We will then add the implant to the catalogue in cooperation with the manufacturer.
Catalogue number	[from the catalogue]	Is automatically loaded from the catalogue when the implant is selected or scanned from the catalogue. A manual catalogue number entry can be used for a unique search of the implant. If an implant is not available in the catalogue, please click on "Request missing implant" and let us know the known details. We will then add the implant to the catalogue in cooperation with the manufacturer.
Barcode (GTIN) number	[will be scanned]	First or primary barcode or QR code located on the implant sticker. The code can be scanned using a barcode scanner.
Additional barcode (if available)	[will be scanned]	(if present on the implant sticker) Second or secondary bar or QR code. If applicable, this code contains the serial number, batch number (also known as LOT or LOS number) and other information that can be read in with a scan.
LOT number	[will be scanned or manual specification]	The batch number is also known as the LOS number. It is used to identify a specific product quantity and should not be confused with the serial number, which is a unique number for an individual product. If available, this number can be found on the implant sticker and can be scanned using a barcode scanner or entered manually. You are not obliged to enter it. However, it can be very helpful for identifying the patients concerned when calling for implants.

Surgical measures and complications

Question	Response options	Explanations and definitions
Specify decompression	None	No decompression.
	Partial/total discectomy	A partial or total excision of an intervertebral disc. It is often accompanied by a flavectomy. This type of decompression always take place in an interbody fusion (ALIF, OLIF, XLIF, TLIF, PLIF and other interbody fusion), in anterior cervical discectomy and fusion (ACDF) as well as in cervical and lumbar intervertebral prosthesis surgery. A partial or total discectomy is to be coded for disc herniation and if annulotomy or nucleotomy have been performed. For sequester resection tick sequestrectomy below.

Question	Response options	Explanations and definitions
	Laminotomy	Partial resection or opening of the spinal canal through the lamina. "Refreshing" and chiselling the lamina are to be coded as laminotomy too.
	Hemi-laminectomy	Removal of one side of the spinal lamina.
	Laminectomy	Removal of the posterior arch of a vertebra.
	Facet joint resection partial	Partial resection of a facet joint on one or both sides.
	Facet joint resection full	Total resection of a facet joint on one or both sides.
	Synovial cyst resection	Code this category if a synovial cyst was resected. In such a case, and if the main pathology is degenerative disease, make sure that a synovial cyst was specified under primary or secondary type of degenerative disease.
	Sequestrectomy	A resection of a sequester, which is a piece of disc that has separated from the rest of the intervertebral disc.
	Foraminotomy	Bone resection / widening of the foramina.
	Uncoforaminotomy	An uncoforaminotomy of the cervical spine, which is a surgical technique to widen the foramen. This type of decompression is carried out via an anterolateral approach on cervical spine.
	Other...	→ Specify another relevant decompression.
Extent of surgery - decompression	C0/C1 or C0, C1/2 or C1, C2/3 or C2, C3/4 or C3, C4/5 or C4, C5/6 or C5, C6/7 or C6, C7/Th1 or C7, Th1/2 or Th1, Th2/3 or Th2, Th3/4 or Th3, Th4/5 or Th4, Th5/6 or Th5, Th6/7 or Th6, Th7/8 or Th7, Th8/9 or Th8, Th9/10 or Th9, Th10/11 or Th10, Th11/12 or Th11, Th12/L1 or Th12, L1/2 or L1, L2/3 or L2, L3/4 or L3, L4/5 or L4, L5/S1 or L5, S1, Sacrum (S2-5), Coccyx, Ilium	Tick all treated segments or vertebral bodies.
Specify fusion	None	No fusion.
	Interbody fusion A-IF	An interbody fusion through an anterior approach. It includes anterior lumbar and cervical interbody fusion. Anterior lumbar interbody fusion is typically performed via a retroperitoneal approach.

Question	Response options	Explanations and definitions
	Interbody fusion OLIF	OLIF= oblique lumbar interbody fusion, which is a lumbar interbody fusion through an anterolateral approach.
	Interbody fusion PLIF	PLIF= posterior lumbar interbody fusion, which is a lumbar interbody fusion through a posterior approach. It is typically accompanied with a laminotomy.
	Interbody fusion TLIF	TLIF= transforaminal lumbar interbody fusion, which is a transforaminal lumbar interbody fusion through a posterior approach. TLIF is typically combined with a laminotomy, a partial facet joint resection and a foraminotomy.
	Interbody fusion XLIF	XLIF = extreme lateral interbody fusion, which is a lumbar interbody fusion from the side through a lateral approach.
	Other Interbody fusion	An interbody fusion other than A-IF, OLIF, PLIF, TLIF and XLIF.
	Posterolateral fusion	Posterolateral application of the fusion material.
	Posterior fusion	Posterior application of the fusion material.
	Corpectomy fusion	A vertebral body resection and replacement with a cage and/or an auto-/allograft.
	Other...	→ Specify a different merger.
Extent of surgery - Fusion	C0/C1 or C0, C1/2 or C1, C2/3 or C2, C3/4 or C3, C4/5 or C4, C5/6 or C5, C6/7 or C6, C7/Th1 or C7, Th1/2 or Th1, Th2/3 or Th2, Th3/4 or Th3, Th4/5 or Th4, Th5/6 or Th5, Th6/7 or Th6, Th7/8 or Th7, Th8/9 or Th8, Th9/10 or Th9, Th10/11 or Th10, Th11/12 or Th11, Th12/L1 or Th12, L1/2 or L1, L2/3 or L2, L3/4 or L3, L4/5 or L4, L5/S1 or L5, S1, Sacrum (S2-5), Coccyx, Ilium	Tick all segments with a fusion.
Fusion material	None	No fusion material used.
	Autologous bone harvested	Autologous bone harvested bone from a different location of the patient, such as the iliac crest.
	Autologous bone locally procured	Autologous bone that accumulates locally during spinal decompression including a rib resection.
	Allogenic bone	Allogenic bone, which is processed, bone tissue from a human donor (cadaver) used as a scaffold for the patient's

Question	Response options	Explanations and definitions
		own bone to grow into with (for example Vivigen) or without living bone cells (e.g. demineralised bone matrix).
	Bone replacement	Synthetic bone without active components like proteins, hormones or growth factors. An example is MagnetOs.
	BMP or similar	Synthetic product with bone morphogenetic proteins or other growth factors. An example is InductOs.
	others...	→ Specify a different fusion material.
Specify rigid stabilisation	Pedicle screws cemented	Stabilisation using pedicle screws augmented by synthetic materials that increase the biomechanical properties of the pedicle screws (e.g. polymethyl methacrylate or calcium phosphate). Generally regarded as posterior rigid stabilisation (posterior column).
	Pedicle screws uncemented	Stabilisation with non-augmented pedicle screws, which are specialised spinal screws placed in vertebral pedicles. Usually regarded as posterior rigid stabilisation.
	Cage	A hollow medical implant called cage and used in spinal fusion surgery to replace a damaged disc. This would typically be an interbody fusion (ACDF, ALIF, OLIF, XLIF, TLIF, PLIF).
	Plates	Stabilisation with plates. This is usually considered an anterior rigid stabilisation, whereby the plates can be attached to the anterior or lateral side of the vertebral body.
	Facet screws	Screws through one or more facet joints.
	Iliac screws	Posterior screws implanted from the posterior superior iliac spine towards the anterior inferior iliac spine.
	S2-Ala-Iliac screws	Screws for spinal fusion that anchors the spine to the pelvis.
	Massa lateralis screws	Screws through one or more facet joints in the cervical spine, typically indicated for C3-7 levels.
	Transarticular screws C1-C2	Stabilisation with transarticular screws through the C1-C2 joint through a posterior approach, also known as Goel-Harms-Plastik. The screws are entered from the back of the C2 vertebra through the facet joints into the C1 vertebra.
	C2 Pars/isthmic screw	Use of C2 Pars/isthmic screw(s), which are specialised spinal screws for stabilization and anchoring into the pars interarticularis (isthmus) of the C2 vertebra.
	Laminar hook	Stabilisation with supra- or infra-laminar hooks connected with rods. Spinal stabilisation from posterior.

Question	Response options	Explanations and definitions
	Pedicle hook	Stabilisation with pedicle hooks connected with rods. Spinal stabilisation from posterior.
	Sublaminar band/wire	Use of a sublaminar band/wire.
	Odontoid screw(s)	Anterior cervical spinal stabilisation with one or more odontoid screws.
	Laminar screw(s)	Translaminar facet screw fixation (TLFS). Spinal stabilisation from the posterior.
	Cement	Use of cement to reinforce the stabilisation.
	Other...	→ to be specified
Extent of surgery - Rigid stabilisation	Same scope as for the fusion, C0/C1 or C0, C1/2 or C1, C2/3 or C2, C3/4 or C3, C4/5 or C4, C5/6 or C5, C6/7 or C6, C7/Th1 or C7, Th1/2 or Th1, Th2/3 or Th2, Th3/4 or Th3, Th4/5 or Th4, Th5/6 or Th5, Th6/7 or Th6, Th7/8 or Th7, Th8/9 or Th8, Th9/10 or Th9, Th10/11 or Th10, Th11/12 or Th11, Th12/L1 or Th12, L1/2 or L1, L2/3 or L2, L3/4 or L3, L4/5 or L4, L5/S1 or L5, S1, Sacrum (S2-5), Coccyx, Ilium	Tick all treated segments or vertebral bodies included in the rigid stabilisation intervention. Tick the 'Same scope as for the fusion' box if the rigid stabilisation was performed on the same vertebral bodies and/or segments as the fusion.
Specify deformity correction	None	No deformity correction.
	Ponte / Smith-Petersen	A posterior column closing wedge osteotomy applied to a mobile segment involving the removal of a portion of the adjacent laminae, facets and lig. flavum to correct spinal deformities (Figure 5 in the linked article). Corresponds to grade II osteotomy according to Schwab. Also called Chevron-Osteotomy or facet joint osteotomy.
	PSO	Pedicle Subtraction Osteotomy (Figure 5 in the linked article). An osteotomy with a closing wedge on the posterior column, performed with (at least) partial removal of the vertebral body, the two adjacent laminae, the pedicles of the affected vertebra, the facet joints and the lig. flavum to correct spinal deformities. Corresponds to grade III osteotomy according to Schwab or grade IV according to Schwab if the intervertebral disc is also removed. This osteotomy is typical for a kyphosis.

Question	Response options	Explanations and definitions
	VCR	Vertebral Column Resection, which is a variant of PSO in which the vertebral body is excised from the front of the spine in order to protect nerve roots in sensitive areas of the cervical and lumbar spine (Figure 5 in the linked article).
	Other...	→ to be specified.
Extent of surgery - deformity correction	C0/C1 or C0, C1/2 or C1, C2/3 or C2, C3/4 or C3, C4/5 or C4, C5/6 or C5, C6/7 or C6, C7/Th1 or C7, Th1/2 or Th1, Th2/3 or Th2, Th3/4 or Th3, Th4/5 or Th4, Th5/6 or Th5, Th6/7 or Th6, Th7/8 or Th7, Th8/9 or Th8, Th9/10 or Th9, Th10/11 or Th10, Th11/12 or Th11, Th12/L1 or Th12, L1/2 or L1, L2/3 or L2, L3/4 or L3, L4/5 or L4, L5/S1 or L5, S1, Sacrum (S2-5), Coccyx, Ilium	Tick all treated segments or vertebral bodies to achieve structural spine disorder correction.
Specify motion-preserving stabilisation	Intervertebral disc replacement	Intervertebral disc replacement with a prosthesis, also known as disc arthroplasty. Code this category only if a disc prosthesis was used.
	Dynamic stabilisation	Posterior dynamic technique. Dynamic stabilization works by using flexible implants to brace the spine with the goal to provide support to a weakened or unstable spinal segment, while preserving some natural flexibility and motion. An example for such a system is Dynesys.
	Interspinous spacer	Implants between the spinous processes to increase the distance between adjacent levels.
	Lumbar pars screw	Lumbar pars screw called a pars repair to fix a fractured or defected area of the vertebra called the pars interarticularis.
	Other...	→ to be specified.
Extent of surgery - motion-preserving stabilisation	C0/C1 or C0, C1/2 or C1, C2/3 or C2, C3/4 or C3, C4/5 or C4, C5/6 or C5, C6/7 or C6, C7/Th1 or C7, Th1/2 or Th1, Th2/3 or Th2, Th3/4 or Th3, Th4/5 or Th4, Th5/6 or Th5, Th6/7 or Th6, Th7/8 or Th7, Th8/9 or Th8, Th9/10 or Th9, Th10/11 or Th10, Th11/12 or Th11, Th12/L1 or Th12,	Tick all treated segments or vertebral bodies in the motion-preserving portion of the intervention.

Question	Response options	Explanations and definitions
	L1/2 or L1, L2/3 or L2, L3/4 or L3, L4/5 or L4, L5/S1 or L5, S1, Sacrum (S2-5), Coccyx, Ilium	
Other surgical measures	None	No other operational measures.
	VB augmentation with height restoration	Select this answer option if an implant for vertebral body augmentation (balloon kyphoplasty, stent or similar) was used in addition to the cement or if this was combined with vertebroplasty at different levels for the purpose of recovering adequate body height.
	VB augmentation without height restoration	Select this answer option if no implant for vertebral body augmentation was inserted into the vertebral body during the procedure, but only cement.
	Hardware removal	Removal of certain parts or the entire implant.
	Wound drainage	Application of a drain to support the drainage of wound fluids such as blood and/or pus.
	others...	→ to specify If a biopsy or a similar diagnostic procedure performed, then chose "diagnostic measures" as the therapeutic goal and specify the type of procedure under "other" as a free text entry.
Extent of surgery - Other surgical measures	C0/C1 or C0, C1/2 or C1, C2/3 or C2, C3/4 or C3, C4/5 or C4, C5/6 or C5, C6/7 or C6, C7/Th1 or C7, Th1/2 or Th1, Th2/3 or Th2, Th3/4 or Th3, Th4/5 or Th4, Th5/6 or Th5, Th6/7 or Th6, Th7/8 or Th7, Th8/9 or Th8, Th9/10 or Th9, Th10/11 or Th10, Th11/12 or Th11, Th12/L1 or Th12, L1/2 or L1, L2/3 or L2, L3/4 or L3, L4/5 or L4, L5/S1 or L5, S1, Sacrum (S2-5), Coccyx, Ilium	Tick all treated segments or vertebral bodies involved in the intervention listed as other surgery measures.
Intraoperative adverse events	None	No intraoperative adverse events.
	Cement leakage requiring intraoperative therapeutic measures	For all cement leaks that require intraoperative therapeutic measures during the same surgery.
	Please describe the intraoperative therapeutic measures	If "Cement leakage requiring intraoperative therapeutic measures" is indicated, please describe the intraoperative therapeutic measures.

Question	Response options	Explanations and definitions
	Nerve root injury	Iatrogenic nerve root damage.
	Spinal cord injury	Iatrogenic spinal cord damage.
	Dura lesion	Iatrogenic dural lesion with cerebrospinal fluid leakage.
	Vascular injury	Iatrogenic injury to large vessels. Diffuse, even substantial bleeding in the surgical wound without injury to a large vessel is not considered a complication and does not have to be reported as a vascular injury.
	Fracture of vertebral body (structures)	Iatrogenic fracture of the bony structures.
	Other...	→ to be specified.
Surgical re-intervention/intervention in the same session	None	No surgical re-intervention/intervention in the same session.
	Suture	Repair of an anatomical structure during surgery with a suture.
	(Fibrin) Glue	Application of a biological sealant to (supplement) repair or heal a dura injury.
	Implant reposition	Revision of the position of an implant, typically using screws and cages.
	Other...	→ to specify
Intraoperative general complications	None	No intraoperative general complications.
	Anaesthesiological	Complications during surgery due to anaesthesia / narcosis.
	Cardiovascular	Cardiovascular complications (such as heart attack, stroke, heart failure, arrhythmias, and aneurysms) during surgery, including those not necessarily attributable to the surgical procedure.
	Pulmonary	Pulmonary complications (such as pneumonia, pleural effusion, pulmonary oedema, respiratory failure, collapsed lungs) during the surgery including those not necessarily attributable to the surgical procedure.
	Thromboembolism	Intraoperative clot (thrombus) in a blood vessel that becomes detached and is carried by the bloodstream to block another vessel (e.g. in the leg, kidney, lung [pulmonary embolism], brain [stroke] or gastrointestinal tract).
	Death	Death during the surgery.
	Other...	→ to be specified.
	None	No surgical complications after skin suture during hospital stay.

Question	Response options	Explanations and definitions
Postoperative surgical complications	Epidural haematoma	Bleeding haematoma outside the dural sac but inside the bony spinal canal.
	Other haematoma	Haematoma elsewhere, but in connection with the surgery.
	Radiculopathy	Impairment of a nerve root, which can lead to radicular pain, weakness, numbness or difficulty controlling certain muscles.
	Cerebrospinal fluid leak / pseudomeningocele	Leakage of cerebrospinal fluid including fistula.
	Motor dysfunction	Motor / muscular dysfunction, new or worsening since surgery.
	Sensory dysfunction	Sensory dysfunction, new or worsening since surgery.
	Bowel/bladder dysfunction	Bowel or bladder dysfunction due to iatrogenic damage, new or worsening since surgery.
	Superficial wound infection	Postoperative confirmed superficial wound infection in the wound area or in the soft tissues just below. If an infection was suspected, check the results of the microbiological analysis before coding this complication.
	Deep wound infection	Postoperative confirmed deep (subfascial) wound infection. This infection is reaching out to bones, organs and implants. If an infection was suspected, check the results of the microbiological analysis before coding this complication.
	Malposition of the implant	Incorrect position of the implant.
	Implant migration or loosening	Screw loosening, cage sintering or implant migration.
	Implant breakage	Breakage of a screw, rod, cage or other implant.
	Implant assembly failure	Failure of an implant assembly with or without implant breakage. A failure of an expandable cage is to be seen as an assembly failure.
	Wrong level	Wrong level.
	Other...	→ to be specified.
[If implant migration, fracture of implant, failure of implant assembly] Specify affected implant	Screw	Tick Screw if the affected implant is a screw.
	Rod	Tick Rod if the affected implant is a rod.
	Cage	Tick Cage if the affected implant is a cage.
	Other...	→ to be specified.

Question	Response options	Explanations and definitions
Postoperative general complications	None	No general complications after skin suture during hospital stay.
	Cardiovascular	Cardiovascular complications after the surgery (such as heart attack, stroke, heart failure, arrhythmias, and aneurysms).
	Pulmonary	Pulmonary complications after surgery, such as pulmonary oedema with dyspnoea.
	Cerebral	Cerebral complication after surgery, such as stroke.
	Kidney / urinary tract	Complications in the kidneys or urinary tract, such as infection or a new or substantial worsening of an existing renal insufficiency.
	Liver / GIT	Complications of the liver or gastrointestinal tract, such as diarrhoea. A frequently seen transitional slowed bowel movement is not considered as a complication.
	Thromboembolism	Clot (thrombus) in a blood vessel that becomes detached and is carried by the bloodstream to block another vessel (e.g. in the leg, kidney, lung [pulmonary embolism], brain [stroke] or gastrointestinal tract).
	Positioning-related	Positioning-related complication.
	Death	Death after surgery during hospitalisation.
	Other...	→ to be specified.
Re-intervention after index surgery	none	No re-intervention.
	Haematoma evacuation	A haematoma evacuation.
	Suture/glue	A suture or a (fibrin) glue.
	Hardware removal	Partial or total implant removal.
	Hardware re-implantation	Reimplantation of a removed implant.
	Abscess drainage	Abscess drainage, which is a medical procedure draining the infected fluid (pus) and then thoroughly cleaning (washing) the internal cavity of the abscess.
	(further) decompression	An additional decompression.
	Other...	→ to be specified.
Discharge date	[Date]	This is the date on which the patient is discharged from hospital or transferred to another medical facility. Staying in the ICU (or another internal unit) is part of the hospital stay before discharge.