Spine Tango User's Manual

Part I: Dictionary of Terms
Surgery Version 2011 and Follow up

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Spine Tango Dictionary of Terms; V. 2.3; April 2012

Surgery Form:

Format	
minimal	Minimal data set, all questions with white background are excluded.
complete	Complete data set, all questions must be answered.

Level of main pathology*	
upper cervical	C0-C2
mid/lower cervical	C3-C7
cervicothoracic	including C7 and T1
thoracic	T1-T12
thoracolumbar	including T12 and L1
thoraco-lumbo-sacral	including T12-lumbar and S1
lumbar	L1-L5
lumbo-sacral	including L5 and S1
sacral	S1-S5
coccyx	Os coccyx

*Number of levels in the section has priority:

Pathology from C0-C3: upper cervical

Pathology from C0-C6: mid/lower cervical

Admission/Pathology

Admission*	
date of admission*	format: Day/Month/Year (DD/MM/YYYY)

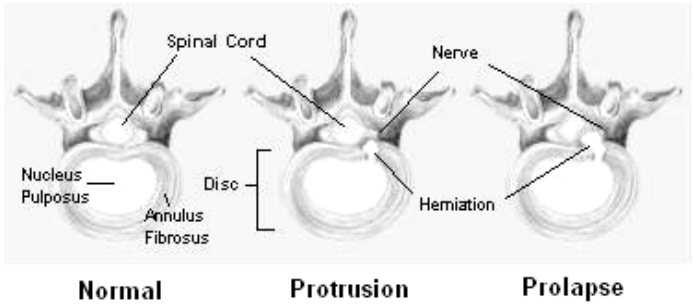
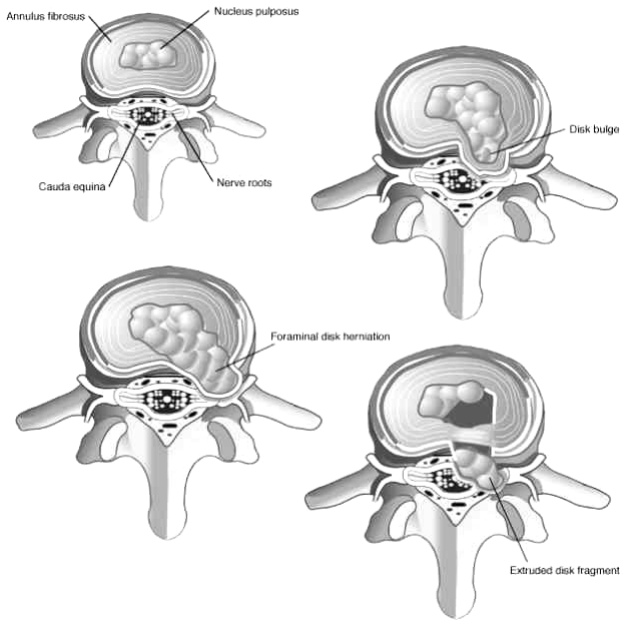
*days are counted 0000hrs-2400hrs.

Main pathology	single answer
same as stage 1 surgery (This item is only on the surgery staged 2011 form)	If yes: excludes „specification of main pathology".

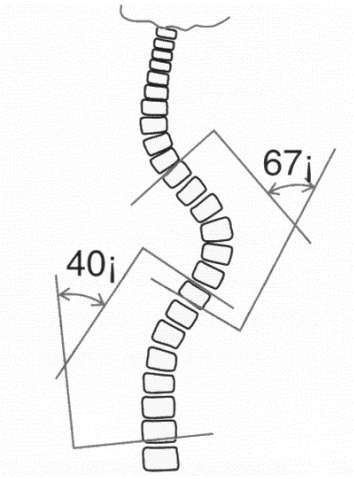
degenerative disease	Pathology without apparent changes other than those due to aging.
deformity	Clinically relevant scoliosis or deviation of sagittal alignment (more than two segments).
fracture/trauma	Fracture or discoligamentous injury as sequelae of trauma.
pathological fracture	Fracture/dislocation due to pathologic conditions of bone (tumor, osteoporosis etc.).
spondylolisthesis (non degenerative**)	Vertebral slippage including segmental rotational displacement.
inflammation	Pathology due to rheumatic diseases (e.g. RA, ankylosing spondylitis, psoriasis etc.).
infection	Affection due to microorganisms.
tumor	Includes paravertebral soft tissue, bone and neurogenic tumors of the spine.
repeat surgery	Any repeat surgery related to the index treatment/ operation.
other	Any other condition that does not fit the aforementioned pathologies.

****Degenerative spondylolisthesis**: includes by definition degenerative changes and spondylolisthesis. If there is a typical degenerative spondylolisthesis, e.g. vertebral slippage due to wear and tear of the facets without anatomical changes of the pars interarticularis, tick "degenerative disease" as main pathology and specify as "degen. Spondylolisthesis".
If there is both degenerative spondylolisthesis. and spinal stenosis you can now choose both since the Type of degeneration is a multiple choice question.

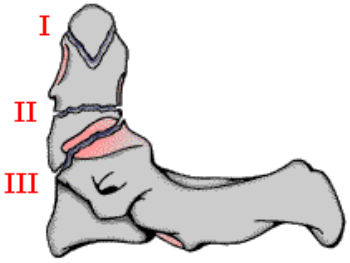
Specification of main pathology	Specify **only** in relation to items in the section corresponding to the chosen "main pathology" .
degenerative Disease	

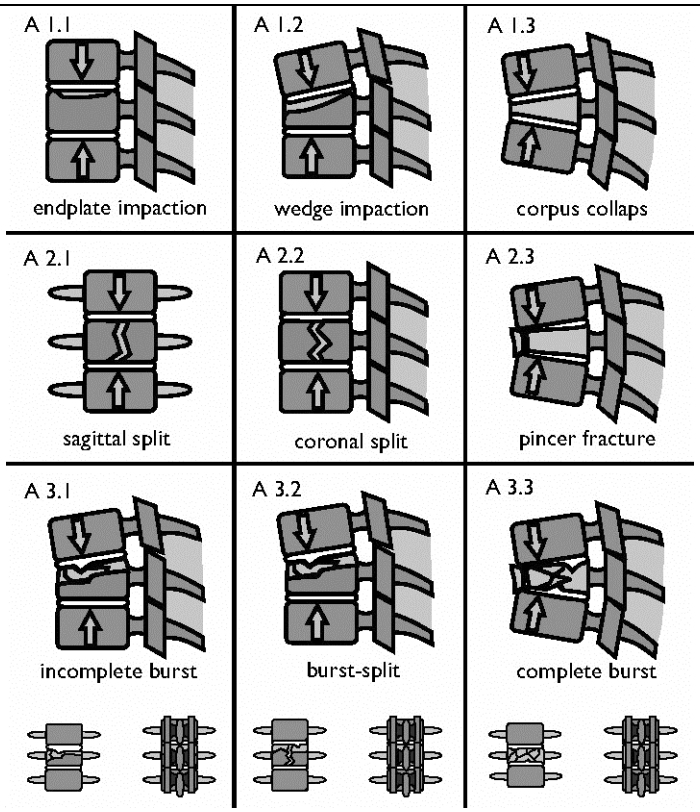
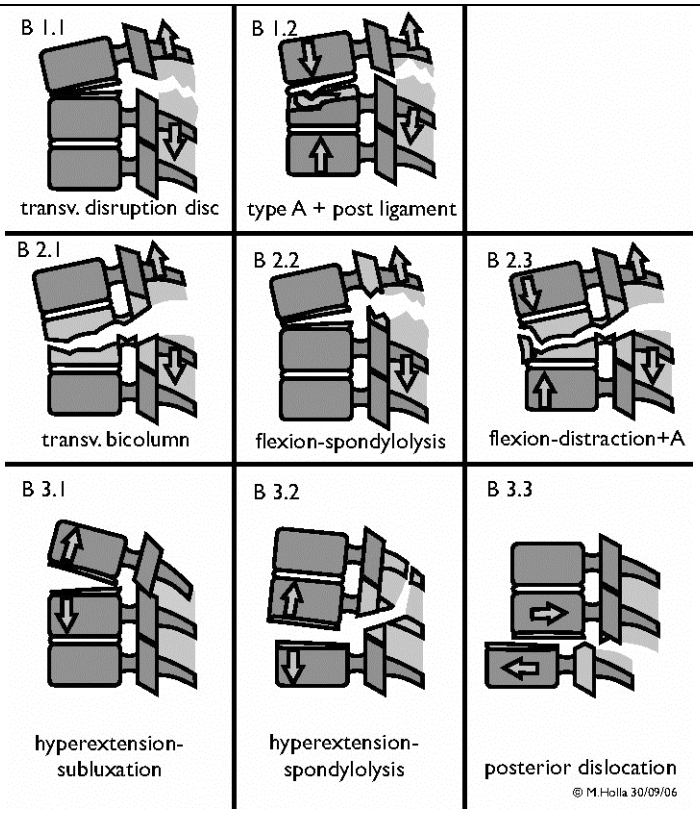
Type of degeneration	Multiple answers allowed, but only in relation to the main pathology. These questions serve to improve the definition of „main pathology" and to establish subgroups for later more differentiated identification.
disc herniation/ protrusion	Disc material within the borders of the spinal canal either connected to the disc space (bulging, protrusion) or separated from it (sequester). For further classification please tick: "other" and categorise.  
central stenosis	Central narrowing of the spinal canal due to e.g. hypertrophy of the yellow ligament (lig. flavum) or bony restriction caused by enlargement of the facet joint (osteoarthrosis), osteophyte formation, or degenerative spondylolisthesis

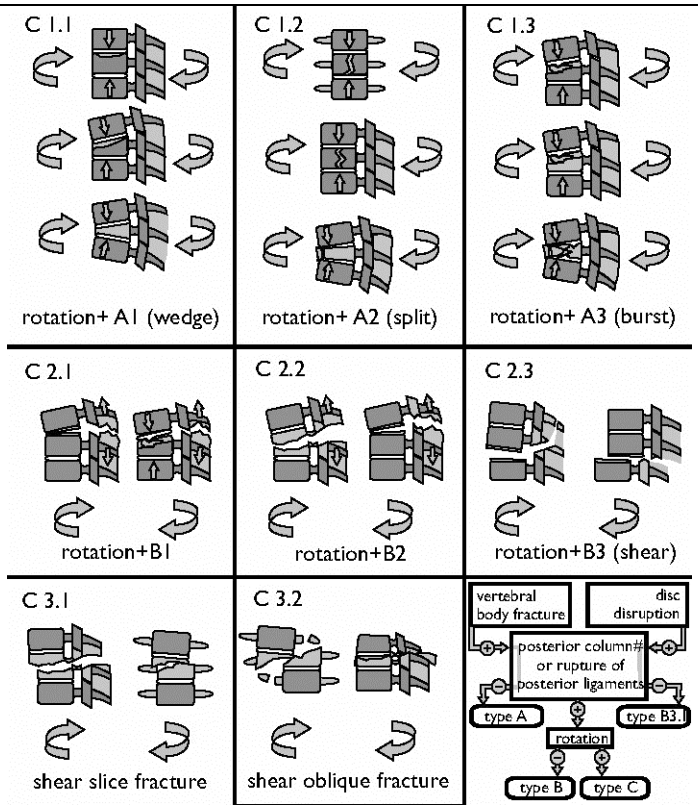
lateral stenosis	Narrowing of the lateral recess of the spinal canal caused by e.g. disc height decrease,posterolateral disc protrusion or hypertrophy of the superior articular process.
foraminal stenosis	Narrowing of the foramen , intraforaminal stenosis with nerve root compression.
degenerative disc disease	Degeneration of the intervertebral disc. Disc related pathology, e.g. loss of height, end plate modifications, intra-discal gas, etc. (Changing in the disc metabolism may lead to cellular changes, matrix degradation and structural damages occurring in disc degeneration).
deformity	Deformation of the spine due to degenerative changes e.g. scoliosis, kyphosis. ➔ Please specify type of deformity!!
degenerative spondylolisthesis	Spondylolisthesis due to degenerative changes, e.g. vertebral slippage due to wear and tear of the facets without anatomical changes of the pars interarticularis. ➔ Please specify grade of spondylolisthesis!
other instability	Hypermobility / loss of stiffness in a motion segment (not spondylolisthesis) caused by degenerative changes.
myelopathy	Gradual loss of nerve function caused by progressive narrowing of the spinal canal.
facet joint arthrosis	Spondylarthrosis, degenerative changes (osteoarthritis) of the facet joints.
other	Any other condition that does not fit the aforementioned pathologies.
Deformity	
Type of deformity	

scoliosis	Coronal spinal curvature of at least 10° with rotation of the vertebral bodies of unknown origin (Def. Cobb, 1948). Cobb:   Classifications: Infantile (0-3 years; IIS) Juvenile (3-10 years; JIS) Adolescent (10-18 years; AIS) Adult (>18 years) onset: primary degenerative or de Novo Reference: Cobb, J.R.; Outline for the Study of Scoliosis. Instructional Course Lectures, The American Academy of Orthopaedic Surgeons. Vol. 5, pp.261-275. Ann Arbor, J. W. Edwards, 19488
kyphosis	The Scoliosis research Society proposes to regard 10-40 degrees as the range for normal kyphosis between the upper endplate T5 and the lower endplate T12.
combined	scoliosis and kyphosis
Type of scoliosis	
single curve	one single curve
double curve	two curves: Major curve: curve with the largest Cobb angle Minor curves may be compensatory.
Predominant etiology	In the case of combined aetiology, indicate the most prominent.

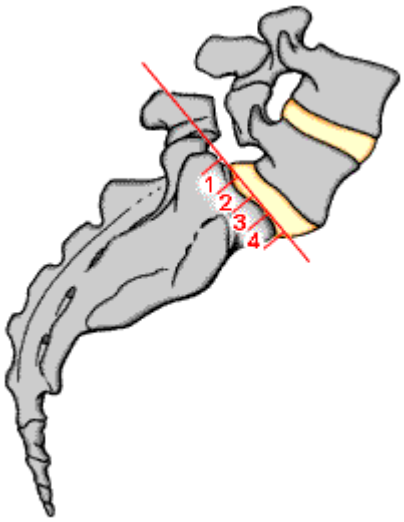
idiopathic	Arising spontaneously or from an obscure or unknown cause.
congenital	Failure of formation, failure of segmentation, or mixed.
neuromuscular	Neuropathic or myopathic conditions (e.g sub-classification: Lonstein et al: Group I: Double thoracic and lumbar curves Group II: Large lumbar or thoraco-lumbar curves).
degenerative	de novo, secondary degenerative
posttraumatic	Defective structure due to a trauma or fracture.
M. Scheuermann	Scheuermann`s disease (Type I, "classical" Scheuermann`s) is a thoracic or thoracolumbar hyperkyphosis due to wedged vertebrae developing during adolescence. Atypical Scheuermann`s disease (Type II, "lumbar" Scheuermann`s) affects the lumbar spine and or the thoracolumbar junction. It is a growth disturbance of the vertebral bodies without significant wedging causing loss of lumbar lordosis or mild kyphosis.
other	→ specify
(Pathological) Fracture/Trauma	In the case of multiple fractures with different types please use separate forms for each category, if different treatment modalities are used.
Type of (pathological) fracture/trauma	
condylar C0	fracture of the occipital condyle ➔ Classification: Type I; II und III
C0/C1 dissociation	atlanto-occipital dissociation
C1 fracture	fracture of C1
C1/2 Instability	instability between C1 and C2
C2 dens fracture	→ specify dens fractures type
C2 other fracture	C2 fractures excluding dens fractures
soft tissue injury neck	Whiplash injury: post traumatic cervicalgia without demonstratable tissue lesions by Xrays or MRI.
fracture C3-L5/S1	→ specify AO fracture type

sacrum fracture	fracture os sacrum
other	→ specify
Dens fracture type	Specify according to the classification Anderson and d'Alonzo.  Type I: Upper dens, oblique (8%) Type II: Base of dens, transverse (59%)  Type III: Body of axis, facets (33%) Reference: Anderson LD, D`Alonzo RT (1974). Fractures of the odontoid process of the axis.JBJS-A 56 (8): 1663-1674
I	
II	
III	

C3-L5/S1 AO fracture type	Specify according the AO classification , spine fracture classification.
A1 A2 A3	
B1 B2 B3	

C1 C2 C3	 Reference: F.Magerl, M.Aebi, S.D. Gertzbein, J.Harms, S.Nazarian (1994). A comprehensive classification of thoracic and lumbar injuries. Eur Spine J; 3: 184-201
Pathological fracture due to…	
osteoporosis	Osteoporosis: progressive systemic skeletal disease with reduced bone mineral density (BMD).
tumor	If ticked: -> go to section tumor and choose "type" and "localisation".
other…	→ specify
Fracture age	
fresh fracture	< 1 month
old fracture	≥ 1 month

Spondylolisthesis	1. Dysplastic Spondylolisthesis: Congenital malformation of the sacrum or neural arch of L5. 2. Isthmic Spondylolisthesis: Stress fracture, elongation, or acute fracture of the pars. 3. Degenerative Spondylolisthesis: Long-standing arthritic process of the zygapophyseal joints. 4. Traumatic Spondylolisthesis: Neural arch fracture excluding the pars region. 5. Pathologic Spondylolisthesis: Bone disease - Paget's, Metastatic disease, or Osteopetrosis. 6. Iatrogenic Spondylolisthesis: induced as a result of previous lumbar spine surgery via LAIF or Laminectomy
Type of spondylolisthesis	Reference: Wiltse LL, Rothman LG (1989). Spondylolisthesis:classification, diagnosis, and natural history. Seminars in Spine Surgery 1(2):78-94.
Type I (congenital, dysplastic)	Congenital abnormalities of the upper sacrum or the arch of L5 permit the olisthesis to occur **.**
Type II (isthmic)	The lesion is in the pars interarticularis. Three subtypes can be recognized (A. Lytic failure, B. Elongated but intact pars C. Acute fracture).
Type III (degenerative) ***	Long standing intersegmental instability, see comment "main pathology"
Type IV (traumatic)	Fracture in other areas of the bony hook than the pars
Type V (pathological)	Localized or generalized bone disease
Type VI (postsurgical)	Due to iatrogenic instability; if in adjacent segment, tick "main pathology ">"Type of degeneration" > adjacent segment and tick "other"
*** This type of spondylolisthesis is not defined in this section. To define a degenerative spondylolisthesis, tick main pathology "degenerative disease" and specify as "degenerative spondylolisthesis".	

Grade of Spondylolisthesis	Meyerding Grading System for classifying slips: Slips are graded on the basis of the percentage that one vertebral body has slipped forward over the vertebral body below. o Grade I slip indicates that 1-24% of the vertebral body has slipped forward over the body below. o Grade II indicates a 25-49% slip. o Grade III indicates a 50-74% slip. o Grade IV indicates a 75%-99% slip. If the body completely slips off the body below it is classified as a Grade V slip, known as spondyloptosis.  Reference: Meyerding HW (1932) Spondylolisthesis. Surg Gynecol Obstet 54: 371-377
Grade 0	lysis of pars without slip
Grade I	0-25% slip
Grade II	25-50% slip
Grade III	50-75% slip
Grade IV	> 75% slip
Grade V	Spondyloptosis
Inflammation	
Type of inflammation	

inflammatory arthritis (seropositive)	Rheumatoid arthritis (RA) is an autoimmune disorder of unknown aetiology characterized by symmetric, erosive synovitis and sometimes multisystem involvement. Most patients exhibit a chronic fluctuating course of disease that, if left untreated, results in progressive joint destruction, deformity, disability, and premature death. Rheumatoid arthritis (RA) most commonly affects the cervical spine. Tissue destruction causes instability of the atlantoaxial segment. **Criteria for the Classification of Acute Arthritis of Rheumatoid Arthritis (American College of Rheumatology)** 1. Morning stiffness: Morning stiffness in and around the joints, lasting at least 1 hour before maximal improvement. 2. Arthritis of 3 or more joint areas: At least 3 joint areas simultaneously have had soft tissue swelling or fluid (not bony overgrowth alone) observed by a physician. The 14 possible areas are right or left PIP, MCP, wrist, elbow, knee, ankle, and MTP joints. 3. Arthritis of hand joints: At least 1 area swollen (as defined above) in a wrist, MCP, or PIP joint. 4. Symmetric arthritis: Simultaneous involvement of the same joint areas (as defined in 2) on both sides fo the body (bilateral involvement of PIPs, MCPs, or MTPs is acceptable without absolute symmetry). 5. Rheumatoid nodules: Subcutaneous nodules, over bony prominences, or extensor surfaces, or in juxtaarticular regions, observed by a physician. 6. Serum rheumatoid factor: Demonstration of abnormal amounts of serum rheumatoid factor by any method for which the result has been positive in <5% of normal control subjects. 7. Radiographic changes: Radiographic changes typical of rheumatoid arthritis on posteroanterior hand and wrist radiographs, which must include erosions or unequivocal bony decalcification localized in or most marked adjacent to the involved joints (osteoarthritis changes alone do not qualify).

seronegative arthritis	Seronegative arthritis is an umbrella term for various types of arthritis that have similar symptoms to rheumatoid arthritis but do not have the rheumatoid factor determining that condition in blood tests. Seronegative arthritis also tends to have additional symptoms that rheumatoid arthritis does not. Examples of these disorders include ankylosing spondylitis, psoriatic arthritis and reactive arthritis.
ankylosing spondylitis (M. Bechterew)	Arthritis and osteitis deformans involving the spinal column, marked by nodular deposits at the edges of the intervertebral disks, by ossification of the ligaments, and by bony ankylosis of the intervertebral articulations, resulting in a rounded kyphosis with rigidity.
other	→ specify
Infection	
Infection specification	
pyogenic	due to bacteria (not specific)
parasitic	due to vermin
tuberculotic	tuberculosis
fungal	due to fungi
other	➔ specify
Affected structures	
spondylitis****	infection of the vertebrae
discitis****	infection of the intervertebral disc
epidural space	"extradural space" or "peridural space - space within the spinal canal (bony structures) outside the dura matter
paravertebral infection	infection of the paravertebral soft tissue (muscles etc.)
other	➔ specify
****for *spondylodiscitis* choose spondylitis AND discitis (multiple choice question)	
Tumor	
Type of Tumor	

primary malignant	according to the histologic classification
primary benign	according to the histologic classification
secondary malign	metastasis
tumor like lesion	intermediate
other	→ specify
Localisation	
extraosseous soft tissue	Tumor located in the soft tissue, no osseous attendance.
intraosseous (superficial)	Tumor tissue located superficial in the bone, cortical osseous structures.
intraosseous (deep)	Tumor tissue located deep in the bone, trabecular osseous structures.
extraosseous (extradural)	Tumor tissue located in the spinal canal, extradural without osseous attendance.
extraoseous (intradural)	Tumor tissue located in the spinal canal, intradural without osseous attendance.
other	→ specify
Specify type of tumor	(p)TNM, histology
Repeat surgery	Repeated surgery, because the index surgery did not reach its technical goals (misplaced screw, insufficient decompression, non-union…) or clinical goals (the technical goals are fulfilled but the symptoms remain, e.g. solid fusion but persistent pain). Also included are elective repeat surgeries for e.g. metal removal.
Type or reason of repeat surgery	
hardware removal	Removal of Implants: e.g. screws, rods.
non-union	Failure of bony consolidation of bridge/union 6 months after surgery.
instability	Exceeded motion in a spinal segment after surgery.
failure to reach therapeutic goals	Therapeutic goals were not achieved with index surgery.
neurocompression	Compression of neural structures with or without neurological deficits.

postop infection superficial	Superficial infection after surgery.
postop infection deep	Deep (subfascial) wound/ tissue infection after surgery.
implant malposition	Incorrect position of the implant.
implant failure	Problem due to an implant e.g. loosening, breakage,.. .
sagittal imbalance	Sagittal malalignment of the spine.
adjacent segment pathology	Progressive (degenerative) changes in the adjacent segment of the index surgery.
Comments regarding main pathology:	The section main pathology facilitates grouping of different pathologies. If combined pathologies of equal clinical significance are present, or there are special characteristics of a given pathology, please comment here.

Most severely affected segment/ vertebral body	
segments/vertebral body	In segments mark cranial VB (vertebral body) e.g. for segment L4/5 mark "segment" and "L4". **In deformity surgery:** Use the apex of the main curve as most severely affected segment/ vertebral body.

Extent of lesion	Indicates the number of involved segments (main pathology) nota bene: **not** the number of segments treated i.e. operated (e.g. instrumented).

Additional pathology	This section offers the opportunity to list other relevant pathologies (multiple answers). However, these pathologies are not further specified. Additional pathology must be different from "main pathology". If there is a conflict of importance, choose the more severe one as main pathology.
none	
degenerative disease	see above
deformity	see above
fracture/ Trauma	see above
pathological fracture	see above
spondylolisthesis (non degenerative)	see above
inflammation	see above
infection	see above
tumor	see above
repeat surgery	see above
other..	-> specify

No. of previous spine surgeries	This section allows the documentation of previous interventions on the spine, at the same level or at different levels compared with the current procedure. If "0" is ticked, the following two questions are excluded.
Previous surgery at the same level	single answer
no	The addressed level/vertebra was not "touched" before.
yes	The same level/vertebra has been addressed before.
partially	Applies if the current procedure includes, but is not limited to the previously operated segment(s).
Previous surgery at the same hospital	
no	A previous surgery was done elsewhere.

yes	This patient was operated in your institution already.
partially	Applies if at least one but not all the previous interventions have been performed at the present institution.

Previous treatment for main pathology	multiple answers allowed
none	No previous therapy at all.
surgical	Surgical treatment already performed because of the same pathology.
< 3 mon. conservative	Conservative treatment of the main pathology less than 3 months.
3-6 mon. conservative	Conservative treatment for the main pathology for 3-6 months.
6-12 mon. conservative	Conservative treatment for the main pathology for 6-12 months.
>12 mon. conservative	Conservative treatment for the main pathology for over 12 months.

Risk factors	
BMI	Body Mass Index BMI (kg/m2) = Weight (kg) / Height(m)2 Classification: Underweight: ≤ 18.5 Normal weight range: >18.5 – 24.99 Overweight : 25 - 29.99 Obese: ≥ 30
current smoker	
yes	regularly smoking at present
no	currently not smoking at all

Presence of flags – for LBP patients	Flags: Identifying and managing modifiable risk factors in musculoskeletal disorders. Classification/ Assessment for the treatment of acute LBP patients considering psychosocial risk factors. The psychosocial flags system can e.g. help occupational health practitioners create suitable rehabilitation plans for employees.
none	
red	Medical - Biomedical factors: Serious pathology/ diagnosis, Co-morbidity (i.e. co-existence of other diseases), Failure of treatment.
yellow	Psychosocial or behavioral factors: Beliefs about pain & injury (e.g. that there is a major underlying illness/disease, that avoidance of activity will help recovery, that there is a need for passive physical treatments rather than active self-management); Psychological distress (e.g. depression, anger, bereavement, frustration); Unhelpful coping strategies (e.g. fear of pain and aggravation, catastrophising, illness behaviour, overreaction to medical problems) ; Perceived inconsistencies and ambiguities in information about the injury and its implications; Failure to answer patients' and families' worries about the nature of the injury and its implications
orange	Abnormal psychological processes: Distinguishing normal from abnormal psychological processes, represent the equivalent of red flags for mental health and psychological problems. Orange flags can include excessively high levels of distress, major personality disorders, post-traumatic stress disorders, drug and alcohol abuse/addictions or clinical depression.
blue	Focusing on Socioeconomic/ work factors, perceived features of work or the social environment: High demand/low control; unsupportive management style; Perceived time pressure; Lack of job satisfaction; Work is physically uncomfortable.

black	Occupational and societal factors, not matters of perception, affect all workers equally: Employer's rehabilitation policy deters gradual reintegration or mobility; threats to financial security; Qualification criteria for compensation (e.g. where inactivity is a qualification criterion); financial incentives; lack of contact with the workplace; duration of sickness absence
unable to assess	
	Ref.: Guide to Assessing Psychosocial Yellow Flags in Acute Low Back Pain, Risk Factors for Long-Term Disability and Work Loss, Accident Compensation Commission, New Zealand, January 1997. Kendall, N. A. S., Burton, A. K., Main, C. J., & Watson, P. J. (2009). Tackling Musculoskeletal Problems – A guide for clinic and workplace: identifying obstacles using the psychosocial flags framework. www.tsoshop.co.uk/flags. London: TSO.

Surgery

Surgery Date	Format: Day/Month/Year (DD/MM/YYYY)
Surgical procedure	
Therapeutic goals	What the surgery should achieve from the surgeon`s perspective.
axial pain relief	Aim of back/neck pain relief after surgery.
peripheral pain relief	Aim of leg/arm pain relief after surgery.
functional improvement	Aim of functional improvement compared to preoperative status, e.g. longer walking capacity, mobility achieved by the intervention, improvement of working ability (home and job), Improvement of capacity of sports practice.
motor improvement	Aim of motoric neurological improvement compared to the preoperative status, e.g. muscular function of the legs/arms.
sensory improvement	Aim of sensory neurological improvement compared to the preoperative status, e.g. recovery of sensibility.
bladder/ sex. function improvement	Aim of improvement of the bladder and sexual function compared to the preoperative status.
spinal stabilization	Aim of stabilization of the spine.

stop deformity progression	Aim of avoiding progression of the spinal deformity.
prophylactic decompression	Aim of prophylactic / preventive decompression for avoiding development of neurocompression.
cosmetic improvement	Improvement of the physical appearance of the patient.
diagnostic measures	Operation is diagnostic procedure (e.g. biopsy).
other	→ specify
Anterior access	
no anterior access	
transoral	through oropharyngeal cavity
anterolateral	anterior medial approach to the cervical spine for mainly C3-Th1 Note: anterior approach to the lumbar spine see retroperitoneal or transperitoneal.
cervicothorac. anterolateral	access to pathologies involving cervicothoracic the junctions
cervicothorac. w/ sternotomy	with sternotomie depending on the extent/localisation of the lesion
thoracotomy	thoracotomy to T4-T11
thoracoabdominal	Extensive approach opening the thorax and retroperitoneum by taking down the diaphragm, gives access to Th10- L2
retroperitoneal	anterior approach to L2-S without incision of peritoneum
transperitoneal	anterior approach to L2-S through the peritoneal cavity
extreme lateral (e.g. XLIF)	lateral, retroperitoneal, trans-psoas approach, (e.g for XLIF = extreme lateral interbody fusion)
other…	specify
Posterior access	
no posterior	
midline	posterior approach to the cranio-cervical-thoracic-lumbo-sacral spine
paramedian	paramedian incision
posterolateral	e.g. costotransversectomie

percutaneous	percutaneous approach for e.g. minimal invasive surgeries
trans-sacral (e.g. AxiaLIF)	trans-sacral approach (also called presacral) , used for e.g. AxiaLIF = trans-sacral axial lumbar interbody fusion (also called Percutaneous AxiaLIF , anterior para-axial or paracoccygeal interbody fusion)
other…	specify
Components	implants (e.g screws, rods, disc prosthesis,…)
with description	Activate the component subform for describing article name, article number and supplier.
without description	Implants are used but not further specified.
- component description	
Supplier	name the company
Article Name	article description (implant model, size etc. -> can be found on the Implant sticker.)
Article No	Can be found on the Implant sticker Screws and hooks for example do not have an Article N° but this field has to be filled out so then put xxx.
Surgeon credentials	
specialized spine	self indicated, spinal fellowship completed, mayority of current work focused on spinal disorders
board certif. orthopaedic	board certified orthopaedic surgeon
board certified neuro	board certified neurosurgeon
orthopaedic in training	orthopaedic surgeon in training
neuro in training	neurosurgeon in training
other	→specify
Morbidity State	ASA stands for American Society of Anaesthesiologists. In 1963 the ASA adopted a five step physical status classification system for assessing a patient before surgery.
Unknown	Only if not indicated by the anaesthesiologist .

ASA 1 (no disturbance)	**ASA I:** Healthy individual **with no systemic disease**, undergoing elective surgery. Patient not at extremes of age. (Note: age is often ignored as affecting operative risk; however, in practice, patients at extreme of age are often thought to represent increased risk). Examples: - Fit patient with inguinal hernia. - Fibroid uterus in otherwise healthy woman.
ASA 2 (mild/moderate)	**ASA II:** Individual with **one system, well controlled disease**. Disease does not affect daily activities. Other anesthetic risk factors, including mild obesity, alcoholism, and smoking can be incorporated at this level. Examples: - Non-limiting or only slightly limiting organic heart disease. - Mild diabetes, essential hypertension, or anemia.
ASA 3 (severe)	**ASA III:** Individual with **multiple system disease or well-controlled major system disease**. Disease status limits daily activity. However, there is no immediate danger of death from any individual disease. Examples: - Severely limiting organic heart disease. - Severe diabetes with vascular complications. - Moderate to severe degrees of pulmonary insufficiency. - Angina pectoris or healed myocardial infarction

ASA 4 (life threatening)	**ASA IV:** Individual with **severe incapacitating disease**. Normally, disease stage is poorly controlled or end stage. Danger of death due to organ failure is always present. Examples: - Organic heart disease showing marked signs of cardiac insufficiency, persistent anginal syndrome, or active myocarditis. - Advanced degrees of pulmonary, hepatic, renal, or endocrine insufficiency.
ASA 5 (moribund)	**ASA V:** Patient who is in **imminent danger of death**. Operation deemed to be a last resort attempt at preserving life. Patient not expected to live through the next 24 hours. In some cases, the patient may be relatively healthy prior to catastrophic event which led to current medical condition. Examples: - Burst abdominal aneurysma with profound shock. - Major cerebral trauma with rapidly increasing intracranial pressure. - Massive pulmonary embolus (Note: most of these patients require operations as a resuscitative measure with little, if any, anesthesia.) Reference: Composite from different editions of the "Textbook of Surgery" (Sabiston, David C., Textbook of surgery. Philadelphia: W.B. Saunders Company).
Technology	
conventional	Conventional open surgery without any of the assistive devices mentioned below.
MISS/LISS	MISS: minimally invasive spine surgery LISS: less invasive spine surgery
loops	Surgeon uses loops.
endoscope	Surgeon uses endoscope.

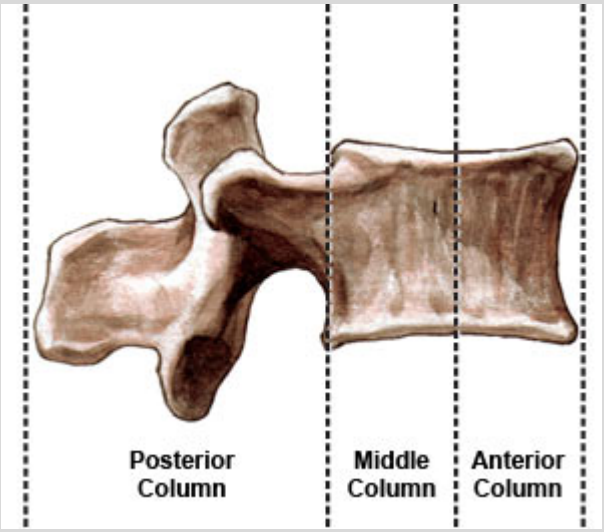
CASS	computer assisted surgery
microscope	Surgeon uses microscope.
neuromonitoring	Intraoperative neurophysiological monitoring (IONM) or intraoperative neuromonitoring to monitor the functional integrity of certain neural structures during surgery.
other…	specify
Operation time	Indicate the duration of surgery (skin to skin)
Prophylaxis	
none	
infection	antibiotic prophylaxis
thrombembolism	thromboembolism prophylaxis: pharmacological and/or compression hosiery
ossification	ossification prophylaxis, e.g. with NSAIDs
Blood loss	Indicate the amount of blood lost.
Blood transfusion	Indicate the number of transfused units (autologous and allogeneic). Also indicate if a cell-saver was used.
units	Specify the number of units.
cell saver	The cell saver collects blood from the surgical field to a machine which separates the red blood cells from detritus, washes and concentrates the red blood cells to be reinfused into the patient.

Surgical measures

Decompression	Indicate the anatomical location where decompression is performed (**not** the route of access).
none	

anterior	decompression in front of the dural sack, whatever the approach (anterior or posterior): removal of disk or endplate osteophytes
posterior	decompression about the posterior aspect of the dural sack: facet joint osteophytes, ligamentum flavum, synovial cyst
Specification:	
discectomy partial/total	excision of an intervertebral disk partially and total
vertebrectomy partial	partial resection of the vertebra
vertebrectomy full	complete / full resection of the vertebra
osteotomy	resection of bone
laminotomy	partial resection resp. opening the spinal canal through the lamina
hemi-laminectomy	removal of one side of the vertebral lamina
laminectomy	Removal of the posterior arch of a vertebra
facet joint resection partial	partial resection of the facet joints
facet joint resection full	complete resection of the facet joint
sequestrectomy	excision of a sequester
Flavectomy	removal of the lig. flavum
flavotomy	opening of the lig. flavum
foraminotomy	bone resection / widening of the foraminae
laminoplasty	The laminae are reattached to preserve lumbar stability.
uncoforaminotomy	anterior cervical foraminotomy
other…	specify
Fusion	Indicate the anatomical location where the structures are prepared for fusion (not the route of access) (e.g. TLIF/PLIF with pedicle fixation: anterior and posterior).
none	
anterior	Implies an anterior interbody fusion whatever the approach : anterior or posterior.
posterior	Implies a posterior fusion whatever the approach : anterior or posterior

Specification:	
none	
interbody fusion A-IF	Interbody Fusion A-IF Anterior interbody fusion of adjacent or distant vertebrae through an anterior approach A-IF= anterior cervical/thoracic/lumbar interbody fusion (location defined by Level of intervention question)
interbody fusion PLIF	anterior interbody fusion of adjacent or distant vertebrae through a posterior approach PLIF= posterior lumbar interbody fusion
interbody fusion TLIF	anterior interbody fusion of adjacent or distant vertebrae through a posterior approach. TLIF = transforaminal lumbar interbody fusion
interbody fusion XLIF	anterior interbody fusion of adjacent or distant vertebrae through a far lateral approach) XLIF = Extreme lateral interbody fusion
other interbody fusion	If anterior interbody fusion types like A-IF, PLIF, TLIF and XLIF do not apply, e.g. with AxiaLIF.
posterolateral fusion	posterolateral attachment of fusion material
posterior fusion	posterior attachment of fusion material
other...	specify
Fusion material	Substance that is intended to contribute to future bony union (e.g. BMP)
none	
autol. bone harvested	fusion material: autologous bone, harvested in extra location
autol. bone locally produced	fusion material: autologous bone locally produced during operation, e.g. via spinal decompression
allog. bone	fusion material: allogeneic bone
bone subst.	fusion material: bone substitute
cement	fusion material: cement
BMP or similar	bone morphogenetic protein, other growth factors
other…	specify

Stabilization rigid	Anatomical location, where implants are placed (not route of access) according to the 3-column model (anterior and middle column count as anterior, posterior column counts as posterior) 
anterior	Use of device for stabilizing the anterior/ middle spinal column in a rigid way, e.g. interbody cage
posterior	Use of device for stabilizing the posterior spinal column in a rigid way, e.g. pedicle screws with rod
Specification:	
interbody stabil. with cage	Cage implantation between two adjacent vertebrae (through an anterior **OR** posterior approach). Usually regarded as anterior rigid stabilization/ anterior and middle column).
interbody stabil. with auto-/ allograft	Stabilization between adjacent vertebrae with autogeneic or allogeneic bone graft. Usually regarded as anterior rigid stabilization.
Vertebral body replacement with auto-/ allograft	Vertebral body replacement by an auto- or allograft with total or partial vertebral resection. Usually regarded as anterior rigid stabilization.
vertebral body replacement by cage	Cage implantation as vertebral body replacement with total or partial vertebral resection. Usually regarded as anterior rigid stabilization.

plates	stabilisation with plates Usually regarded as anterior rigid stabilization whereby plate can be attached at anterior or lateral aspect of vertebral body.
pedicle screws with rod	Stabilisation with pedicle screws with rod. A posterior form of spinal stabilization.
facet screws	Means of posterior ??? osteosynthesis specific to the lumbar spine. The screw (usually two per level) crosses the facet joint ????
transarticular screws C1-C2	Stabilisation with transarticular screws through the C2-C1 joint realized by posterior approach
laminar hooks with rod	Stabilisation with laminar hooks with rod. A posterior form of spinal stabilization.
pedicle hooks with rod	Stabilisation with pedicle hooks with rod. A posterior form of spinal stabilization.
lateral mass screw with rod	Stabilisation with lateral mass screw with rod. A posterior form of cervical spinal stabilization.
odontoid screw	Anterior cervical spinal stabilisation with odontoid screw
laminar screws	Translaminar facet screw fixation (TLFS). A posterior form of spinal stabilization.
other…	→ specify
Stabilisation motion preserving	Any measure aiming to preserve some motion of the adressed area.
none	
anterior	The total disc replacement is a typical anterior motion preserving stabilization.
posterior	Dynesis or interspinous spacers are examples for posterior motion preserving stabilization devices.
Specification:	
disc replacement	motion preserving stabilization by disc replacement (disc arthroplasty)
interspinous spacer	interspinous process implants
dynamic stabilization system	motion preserving stabilization by posterior dynamic technique
other…	specify
Percutaneous measures	

none	
posterior *-> specify*	
facet block	injection of anesthetic into the facet joints
root block	Nerve root block performed (under image intensifier control) allowing a direct application of an anti-inflammatory/analgesic agent to the target nerve root.
discography	intradiscal injection, provoking discogenic pain
vertebroplasty	Injection of cement into the fractured vertebral body for internal stabilization.
kyphoplasty	Similar to vertebroplasty in the use of cement for internal stabilization of a vertebral compression fracture but by injecting the cement into a intervertebral cavity created by the insertion and inflation of a balloon.
epidural injections	injection of e.g. anaesthetic, corticosteroids into the epidural space
other…	specify
Other surgical measures	Any other surgical procedure not matching the surgical terminology matrix given above.
no	
yes	
Extent of surgery – indicate as:	Cranio-caudal spinal range treated i.e. operated (e.g. instrumented or decompressed) from (first row) to (second row) for non-contiguous segments (i.e. L1/2 and L4/5 in one surgery) document the extent of surgery .from the most cranial to the most caudal segment, even if there are healthy ones in between.
segments/ vertebral body	
from	First row: Indicate the most cranial segment or vertebral body of the operation.
to	Second row: Indicate the most caudal segment or vertebral body of the operation.

Intraoperative surgical complications	surgical complications occurring during the surgery
none	
nerve root damage	iatrogenic nerve root damage due to surgery
spinal cord damage	iatrogenic spinal cord damage due to surgery
dura lesion	iatrogenic damage of the dura with liquor emission
vascular injury	iatrogenic damage of a vessel
fx spinal structures	fx = fracture iatrogenic fracture of osseous spinal structures, e.g. pedicle or vertebral body
other	→specify
not documented	Complications unknown or unwillingness to record them.
Surgical measures during index surgery	measures taken because of complications occurred during surgery
none	
suture/ glue	suture or glueing of e.g. a dura lesion
other	→specify
Intraoperative general complications	general complications occurring during the surgery
none	
anaesthesiological	complications during operation due to anaesthesia / narcosis
Cardiovascular	cardiovascular complications during operation but not necessarily due to surgical intervention
Pulmonary	pulmonary complications during operation but not necessarily due to surgical intervention
thrombembolism	thrombosis / embolism Intraoperative clot formation (thrombus) in a blood vessel that breaks loose and is carried by the blood stream to plug another vessel (e.g. in the leg, kidneys, lungs (pulmonary embolism), brain (stroke) or gastrointestinal tract).
death	death during the operation
other	→specify
not documented	Complications unknown or unwillingness to record them.

Hospital stay

Postoperative surgical complications before discharge	Complications occured after index surgery but during hospitalisation. Refers exclusively to complications that occur during the hospital stay of the recorded surgery
none	No complication occurred
epidural hematoma	bleeding hematoma outside dural sack but inside bony spinal canal
other hematoma	hematoma in other localization, but related to surgery
radiculopathy	affection of nerve root which can lead to radicular pain, weakness, numbness, or difficulty controlling specific muscles
CSF leak/ pseudomeningocele	cerebrospinal fluid leak, fistula
motor dysfunction	motoric/ muscle dysfunction, new or worse compared to preoperative
sensory dysfunction	sensory dysfunction, new or worse compared to preoperative
bowel / bladder dysfunction	bowel or bladder dysfunction due to iatrogenic damage, new or worse compared to preoperative
wound infection superficial	postoperative superficial wound infection
wound infection deep	postoperative deep / subfascial wound infection
implant malposition	incorrect positioning of the implant
implant failure	failure of the implant e.g. breakage
wrong level	surgery on the wrong level, not on level of main pathology
other	→specify
not documented	Complications unknown or unwillingness to record them.
Postoperative general complications before discharge	Complications appeared after index surgery but during hospitalisation. Refers exclusively to complications that occur during the hospital stay of the recorded surgery
none	

anaesthesiological	postoperative complications related to anaesthesia / narcosis e.g.: sore throat or swallowing problems after intubation
cardiovascular	Cardiovascular postoperative complications e.g.: heart rhythm disturbances after index surgery
pulmonary	Pulmonary postoperative complications e.g.: pulmonary edema with dyspnea after index surgery
thrombembolism	thrombosis / embolism Clot formation (thrombus) in a blood vessel during hospitalization that breaks loose and is carried by the blood stream to plug another vessel (e.g. in the leg, kidneys, lungs (pulmonary embolism), brain (stroke) or gastrointestinal tract).
death	death after surgery, related or unrelated to the intervention.
other…	specify
Re-intervention after index surgery	Second or multiple Interventions caused by complications, performed after index surgery, not planned in advance, during the same hospitalization.
none	
hematoma evacuation	surgical evacuation of hematoma
suture / glue	suture or glueing of any structure that was not anatomically restored or became apparently insufficient after surgery
hardware removal	metal removal because of a complication
hardware re-implantation	re-implantation after metal removal or implant failure
abscess drainage	abscess drainage because of postoperative infection
(further) decompression	expanded enlarged decompression because initial decompression was insufficient
other	→ specify
not documented	Details of re-intervention unknown or unwillingness to record them.
Hospital stay	
uneventful	no special events other than during a routine hospitalisation
ICU > 2 days	intensive care unit stay longer than 2 days
extended stay	extended stay longer than normal with regard to the respective intervention and because of complications

Status of complications	status of complications at the time of discharge
resolved	Complications are completely or almost completely resolved. No more obvious restrictions from complications.
improved	Complications have improved but are still obvious and may still restrict patient function or well-being.
persisting	Complications remain with same severity as when they occurred.
Therapeutic goals upon discharge	achievement of the therapeutic goals that were set preoperatively and recorded in the surgery section (see above)
achieved	The surgical goals are already completely or almost completely achieved at the time of discharge.
partially achieved	The surgical goals are only partially achieved at the time of discharge and a further improvement is needed in order to consider them as achieved.
not achieved	The surgical goals are definitely not yet achieved at the time of discharge and a further improvement is needed in order to consider them as at least partially or even achieved.
FU foreseen	Indicates that one or several followups in the institution were the surgery was performed are foreseen/ planned.
Discharge date	format: Day/Month/Year (DD/MM/YYYY)

Follow-up

Level of intervention*	
upper cervical	C0-C2
mid/lower cervical	C3-C7
cervicothoracic	Including C7 and T1
thoracic	T1-T12
thoracolumbar	Including T12 and L1
thoraco-lumbo-sacral	Including T12-lumbar and S1

lumbar	L1-L5
lumbosacral	Including L5 and S1
sacral	S1-S5
coccyx	Os coccyx

*Number of levels in the section has priority:

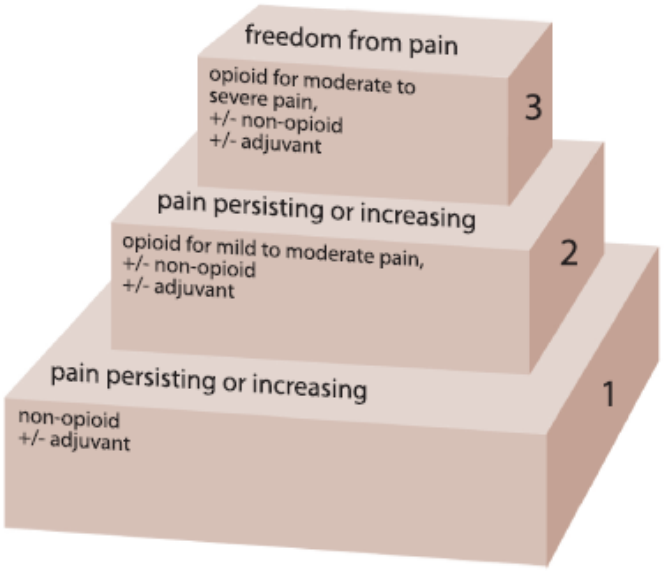
Fixation from C0-C3: upper cervical

Fixation from C0-C6: mid/lower cervical

FU interval	Tick the interval closest to the respective date or use the "other" answer option and specify followup interval.

Work status	
not at work since op	no work activity at all since surgery
started partially same job	any amount of activity in old job (%)
fully reintegrated	same professional situation as before surgery
resumed work, but quit again	failed attempt to go back to work, even if part time
resumed work, different job	successful attempt to go back to work but in a different position
has been dismissed	job loss, no new occupation yet
retired since OP	includes both age and disability pension
retired before OP	includes both age and disability pension
housewife	full-time homemaker
child/student	not yet in professional or home based work situation
other	→ specify

Therapeutic goals / measures ***Achieved*** ***Partially achieved*** ***Not achieved***	Tick all that apply referring to the therapeutic goals chosen in the surgery form. Has to reflect the subjective impression of the surgeon, i.e the achievement of the goals as they were "negotiated" preoperatively . For description see surgery form above

Medication	Tick all that apply, take note of WHO scheme of pain treatment.
WHO Scheme	
Level 1	Step 1: MILD PAIN Paracetamol , NSAIDS (and adjuvants if needed) adjuvants include: if nerve pain: tricyclic antidepressants / anti convulsants, steroids
Level 2	Step 2: MILD TO MODERATE PAIN Mild acting opioids + Step 1 Non-opoids (and adjuvants if needed) mild acting opioids: codeine, dihydrocodeine, dextropropoxyphene
Level 3	Step 3: MODERATE TO SEVERE PAIN Stronger opioids + Step 1 non-opioids (and adjuvants if needed) Stronger opioids: Morphine, dimorphine, fentanyl, hydromorphine

Overall outcome (examiner)	Reflects the general impression of the outcome from the physician`s perspective.

Rehabilitation	
none	no organized and structured postop treatment
home based	individually practiced exercises at home, as initially shown by a therapist in hospital
outpatient/inpatient	structured and monitored rehabilitation program

Decision	
no further follow-up	Patient discharged from care and supervision by treatment center.
further follow-up	Appointment made for further followup at treating center.
revision foreseen	Surgical revision decided at the time of followup visit/ examination.
other primary intervention foreseen	Additional spinal intervention decided that is not related to complications or (insufficient) outcome of index intervention but to a different main pathology or same main pathology at different level.

Complications*

*Complications to be indicated in relation to untoward events arising since the last recorded Tango form.
Examples:
Infection after discharge: will be recorded only at first FU examination.
Implant loosening will be reported at first FU when diagnosis is made.

The complication is either a new event or a remaining sequela from a previously mentioned complication That sequela may disappear at a later follow-up.