



# Spine Tango

## Surgery 2017 – Quick Start Guide

An overview of the most important changes in the Surgery 2017 form

V1.0, 21 December 2017

## INTRODUCTION

This document presents the most important changes to the Spine Tango 2017 Surgery form with respect to the 2011 version. Note that this document does not include a complete list of all changes and new variables. For a direct comparison of the 2011 and 2017 forms, please refer to the “Surgery 2017 Form – Summary of Changes” document available on the module log-in pages.

Changes that only appear in the online form are indicated with the text **\*2017 ONLINE only**. The changes for specific variables are presented under the relevant sub-form sections **Admission/Pathology, Surgery, Surgical Measures, and Hospital Stay** or **General** (for changes that are not part of a specific sub-form).

### REMINDER!

All paper forms for OMR scanning must be completed with soft no. 2 **pencil** (ink, ballpoint pens, markers, etc. are NOT readable by the scanner).

Note: Follow-ups should be completed using the **same version** as the corresponding Surgery form (i.e., cases opened with the 2011 Surgery form should use the 2011 Follow-up; cases opened with the 2017 Surgery form should use the 2017 Follow-up).

## GENERAL

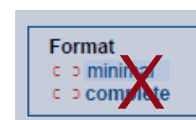
### Add Form

**\*2017 ONLINE only:** When adding a new eform to a new or existing case, please note that for a short transition period, both the 2011 and 2017 forms will be available under the E-Form selection window. You may see the form names under the Registry Forms list in one of two formats: either study heading “SSE Spine Tango 2011” or simply “Spine Tango”. Regardless of the format, select the form with the name “**Surgery 2017 (V1)**” to access the correct version.

Former selection options	Updated selection options
Please select...	Please select...
<b>Registry Forms</b>	<b>Registry Forms</b>
SSE Spine Tango 2011: Surgery (V1)	Spine Tango: Surgery 2011 (V1)
<b>SSE Spine Tango 2011: Surgery 2017 (V1)</b>	<b>Spine Tango: Surgery 2017 (V1)</b>
SSE Spine Tango 2011: Staged (V1)	Spine Tango: Staged 2011 (V1)
SSE Spine Tango 2011: Follow-up (V1)	Spine Tango: Follow-up 2011 (V1)
SSE Spine Tango 2011: Follow-up 2017 (V1)	Spine Tango: Follow-up 2017 (V1)
SSE Spine Tango 2011: Conservative therapy (V1)	Spine Tango: Conservative therapy (V1)

### Format

Note there is no longer an option to provide a “minimal” dataset. All variable fields are mandatory in the 2017 Surgery form unless otherwise specified.



## Level of intervention

In the 2011 form, users had to first specify the Level of Intervention. In the 2011 online version, this question had to be answered before a new surgery form could be created.

A screenshot of the 2011 Level of Intervention form. The form is titled "Level of intervention" and contains a grid of radio button options for different spinal regions: upper cervical, mid lower cervical, cervicothoracic, cervico-thoraco-lumbar, thoracic, thoraco-lumbar, thoraco-lumbo-sacral, lumbar, lumbo-sacral, and coccyx/sacral. A large red 'X' is drawn over the entire form, indicating it is no longer used.

In 2017, this variable is now calculated *automatically* based on the responses to 6 new variables for “extent of surgery” under the Surgical Measures sub-form.

A screenshot of the 2017 Surgical Measures sub-form. It is titled "Surgical Measures" and includes a red instruction: "Mark all treated segments/vertebral bodies." The form is divided into several sections, each with radio button options and a corresponding "Extent of surgery?" dropdown menu. The sections are:
 

- Decompression:** none, discectomy partial/total, vertebral resection partial, vertebral resection full, laminotomy, hemi-laminectomy, laminectomy, facet joint resec. partial, facet joint resection full, sequestrectomy, flavectomy, foraminotomy, laminoplasty, uncoforaminotomy, other.
- Fusion promoting measures:** none, interbody fusion (XLIF), other interbody fusion, posterolat. fusion, posterior fusion, ilio-sacral fusion, other.
- Fusion material:** none, autol. bone harvested, autol. bone locally procured, allog. bone, bone subst., cement, BMP or similar, other.
- Stabilization rigid:** none, interbody stabil. with cage, interbody stabil. with auto-/allograft, vertebral body replacement by cage, vertebral body replacement by auto-/allograft, plates, pedicle screws cemented, pedicle screws uncemented, facet screws, transarticular screws C1-C2, laminar hooks, pedicle hooks, sublaminar band/wire, lateral mass screw, odontoid screws, laminar screws, iliac screws, other.
- Deformity correction:** none, Ponte/Smith-Petersen, PSO, VCR, other.
- Stabil. motion preserving:** none, disc replacement, dynamic stabilizat., interspin. spacer, other.
- Other surgical measures:** none, vb augmentation with body restoration, vb augmentation w/o body restorat., hardware removal, wound drain<sup>3</sup>, other.

 Each "Extent of surgery?" dropdown is circled in red in the original image.

**\*2017 ONLINE only:** The calculated level of intervention appears in the online 2017 Surgery form version only.

A screenshot of the 2017 online surgery form. Question 17, "Level of intervention", has a dropdown menu with "thoracolumbar" selected. Question 18, "Please choose the most appropriate level of intervention", has an empty dropdown menu.

**Special case:** In the case that one of the existing categories cannot be clearly determined from the “extent of surgery” selections (e.g. for an intervention over upper and lower cervical levels), “level of intervention” will be set to “other” and the user is asked to additionally specify the *most appropriate* level.

A screenshot of the 2017 online surgery form. Question 17, "Level of intervention", has a dropdown menu with "other" selected, which is circled in red. A red arrow points from "other" to question 18, "Please choose the most appropriate level of intervention". The dropdown menu for question 18 is open, showing a list of options: upper cervical, mid lower cervical, cervicothoracic, cervico-thoraco-lumbar, thoracic, thoracolumbar, thoraco-lumbo-sacral, lumbar, lumbo-sacral, sacral, and coccyx. The "upper cervical" option is highlighted in blue. At the bottom right of the form, there are "Save incomplete" and "Reset" buttons.

## ADMISSION/PATHOLOGY

### Main pathology

An additional choice for “Chiari” has been added as a main pathology. “Inflammation” is no longer a standard option, but could be added under “other: specify” if required.

Main pathology					
<input type="checkbox"/> degenerative disease	<input type="checkbox"/> fracture/trauma	<input type="checkbox"/> spondylolisthesis (non degen.)	<input type="checkbox"/> infection	<input type="checkbox"/> repeat surgery	
<input type="checkbox"/> non degen. deformity	<input type="checkbox"/> pathological fracture	<input checked="" type="checkbox"/> Chiari *new	<input type="checkbox"/> tumor	<input type="checkbox"/> other: specify .....	

### Degenerative disease: Type of degeneration

If the main pathology is “degenerative disease”, you now have 2 options for specifying the type of degeneration (primary and secondary). You must select a single choice for the “Primary type of degeneration”. Multiple choices are possible for the “secondary type of degeneration”. The *primary* type of degeneration should NOT be selected again under *secondary* type of degeneration. If there is NO secondary type of degeneration, mark only the option “none” in this column.

Deg. disease	Type of degeneration	Spec. grade of spondylolisthesis	
	primary	secondary	secondary
	<input checked="" type="checkbox"/> disc herniation	<input type="checkbox"/> none	<input type="checkbox"/> disc herniation
	<input type="checkbox"/> central stenosis	<input type="checkbox"/> disc herniation	<input type="checkbox"/> central stenosis
	<input type="checkbox"/> lateral stenosis	<input type="checkbox"/> lateral stenosis	<input type="checkbox"/> lateral stenosis
	<input type="checkbox"/> foraminal stenosis	<input type="checkbox"/> foraminal stenosis	<input type="checkbox"/> foraminal stenosis
	<input type="checkbox"/> degen. disc disease	<input type="checkbox"/> degen. disc disease	<input type="checkbox"/> degen. disc disease
	<input type="checkbox"/> degen. deformity	<input type="checkbox"/> degen. deformity	<input type="checkbox"/> degen. deformity
	<input type="checkbox"/> degen. spondylolisthesis	<input type="checkbox"/> degen. spondyl.	<input type="checkbox"/> degen. spondyl.
	<input type="checkbox"/> other instability	<input type="checkbox"/> other instability	<input type="checkbox"/> other instability
	<input type="checkbox"/> myelopathy	<input type="checkbox"/> myelopathy	<input type="checkbox"/> myelopathy
	<input type="checkbox"/> facet joint arthrosis	<input type="checkbox"/> facet joint arthrosis	<input type="checkbox"/> facet joint arthrosis
	<input type="checkbox"/> synovial cyst	<input type="checkbox"/> synovial cyst	<input type="checkbox"/> synovial cyst
	<input type="checkbox"/> SI joint	<input type="checkbox"/> SI joint	<input type="checkbox"/> SI joint
	<input type="checkbox"/> other .....	<input checked="" type="checkbox"/> other	<input type="checkbox"/> other

Select 1 option only (points to primary column)

Multiple choices possible (points to secondary columns)

## Fracture/Trauma: Type of (pathological) fracture/trauma

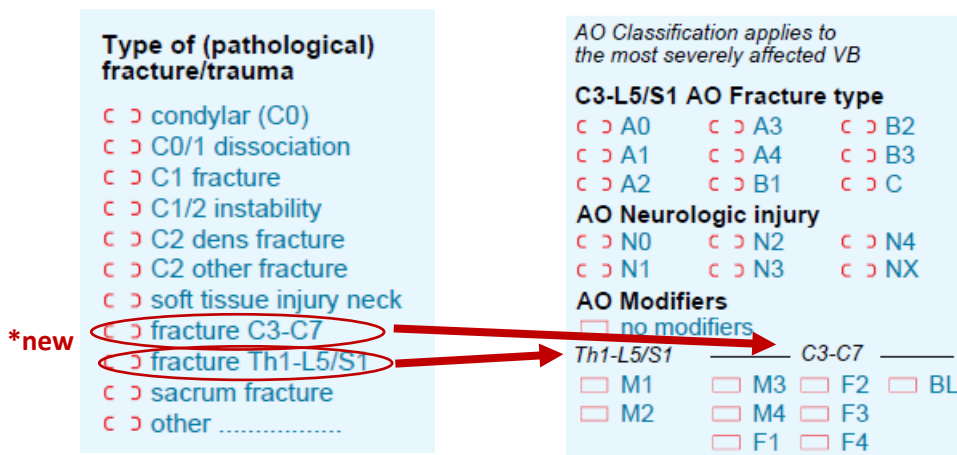
New categories have been added to further specify the level of fracture between cervical and thoracolumbar, with separate categories for “fracture C3-C7” and “fracture Th1-L5/S1”. These levels correspond to the “AO Modifiers” under the AO Classification field.

## Fracture/Trauma: AO Classification

The new AO classification has been implemented. For more details, please refer here:

[AO Spine Subaxial Classification System](#)

[AO Spine Thoracolumbar Classification System](#)



## Fracture/Trauma: Osteoporotic vertebral fractures classification

A new variable has been added to capture the classification of osteoporotic fractures.

**Osteoporotic vertebral fractures classification<sup>1</sup>** \_\_\_\_\_  
 OF1    OF2    OF3    OF4    OF5

- OF1** = no deformation;
- OF2** = deformation of posterior wall < 1/5
- OF3** = deformation of posterior wall > 1/5
- OF4** = loss of vertebral frame structure (body collapse, pincer type fracture)
- OF5** = injuries with distraction/rotation

## ASIA impairment scale

A new variable has been added to capture the extent of spinal cord injury (SCI), defined by the American Spinal Injury Association (ASIA) Impairment Scale. If not relevant for the main pathology, mark “not assessable/applicable”.

**ASIA impairment scale**    A    C    E  
 B    D    not assessable/  
 applicable

- A = Complete:** No sensory or motor function is preserved in sacral segments S4-S5
- B = Sensory Incomplete:** Sensory, but not motor, function is preserved below the neurologic level and includes the sacral segments S4-S5 (light touch or pin prick at S4-S5 or deep anal pressure) AND no motor function is preserved more than three levels below the motor level on either side of the body.

**C = Motor Incomplete:** Motor function is preserved at the most caudal sacral segments for voluntary and contraction (VAC) OR the patient meets the criteria for sensory incomplete status and has some sparing of motor function more than three levels below the ipsilateral motor level on either side of the body. (This includes key or non-key muscle functions to determine motor incomplete status.) For AIS C – less than half of key muscle functions below the single NLI have a muscle grade  $\geq 3$ .

**D = Motor Incomplete:** Motor incomplete status as defined above, with at least half (half or more) of key muscle functions below the single NLI having a muscle grade  $\geq 3$ .

**E = Normal:** If sensation and motor function as tested with the ISNCSCI are graded as normal in all segments, and the patient had prior deficits, then the AIS grade is E. Someone without an initial SCI does not receive an AIS grade.

## Height & Weight (calculated BMI)

On the paper forms, you must mark a value on all 3 lines (for hundreds, tens, and ones digits).

**Risk factors**

**Height (cm) Mark all 3 lines (e.g. 178 cm = 1 - 7 - 8)**  
 hundreds digits (0) (1) (2)  
 tens digits (0) (1) (2) (3) (4) (5) (6) (7) (8) (9)  
 ones digit (0) (1) (2) (3) (4) (5) (6) (7) (8) (9)

**Weight (kg) Mark all 3 lines (e.g. 98 kg = 0 - 9 - 8)**  
 hundreds digits (0) (1) (2) (3)  
 tens digits (0) (1) (2) (3) (4) (5) (6) (7) (8) (9)  
 ones digit (0) (1) (2) (3) (4) (5) (6) (7) (8) (9)

**\*2017 ONLINE only:** BMI is calculated automatically and displayed in the online form.

27. Height (cm) 178	28. Weight (kg) 98
BMI (calculated) 30.9	

## SURGERY

This section has only minor changes with respect to the 2011 form.

### Therapeutic goals

There are new options for “bowel/bladder function improvement” and “deformity correction”.

**Therapeutic goals**

<input type="checkbox"/> axial pain relief	<input type="checkbox"/> stop deformity progression
<input type="checkbox"/> peripheral pain relief	<input type="checkbox"/> deformity correction <b>*new</b>
<input type="checkbox"/> functional improvement	<input type="checkbox"/> prophylactic decompression
<input type="checkbox"/> motor improvement	<input type="checkbox"/> cosmetic improvement
<input type="checkbox"/> sensory improvement <b>*new</b>	<input type="checkbox"/> diagnostic measures
<input type="checkbox"/> bowel / bladder function improvement <b>*new</b>	<input type="checkbox"/> other .....
<input type="checkbox"/> spinal stabilization	

## SURGICAL MEASURES

### Extent of surgery

For each surgical measure, you are asked to **mark ALL treated segments/vertebral bodies** (not just the uppermost and lowest segments as was done in the 2011 version with the variables “from” and “to”). **The extent of surgery must be completed for each different surgical measure separately.**

Example for decompression carried out at levels C4, C5, and C6:

#### 2011

Extent of surgery - indicate as: (from cranial to caudal) SA = sacrum (S2-5) / CO = coccyx

segments from  C0  C1  C2  C3  C4  C5  C6  C7  C8  C9  T0  T1  T2  T3  T4  T5  T6  T7  T8  T9  T10  T11  T12  L1  L2  L3  L4  L5  S1  SA  CO  Ilium

vertebral bodies to  C0  C1  C2  C3  C4  C5  C6  C7  C8  C9  T0  T1  T2  T3  T4  T5  T6  T7  T8  T9  T10  T11  T12  L1  L2  L3  L4  L5  S1  SA  CO  Ilium

#### 2017

Mark all treated segments/vertebral bodies.

**Decompression**

none  discectomy partial/total  vertebroctomy partial

vertebroctomy full  laminotomy  hemi-laminectomy  laminectomy

facet joint resec. partial  facet joint resection full  resectectomy  flavectomy

foraminotomy  laminoplasty  uncoforaminotomy  other .....

Extent of surgery<sup>2</sup>  C0  C1  C2  C3  C4  C5  C6  C7  T1  T2  T3  T4  T5  T6  T7  T8  T9  T10  T11  T12  L1  L2  L3  L4  L5  S1  SA  CO  Ilium

**Decompression**

none  discectomy partial/total  vertebroctomy partial

vertebroctomy full  laminotomy  hemi-laminectomy  laminectomy

facet joint resec. partial  facet joint resection full  resectectomy  flavectomy

foraminotomy  laminoplasty  uncoforaminotomy  other .....

Extent of surgery<sup>2</sup>  C0  C1  C2  C3  C4  C5  C6  C7  T1  T2  T3  T4  T5  T6  T7  T8  T9  T10  T11  T12  L1  L2  L3  L4  L5  S1  SA  CO  Ilium

### Deformity correction

You can now specify surgical measures for deformity correction (Ponte/Smith-Petersen, pedicle subtraction osteotomy (PSO), vertebral column resection (VCR), or other) and the extent of surgery.

**Deformity correction**  none  Ponte/Smith-Petersen  PSO  VCR  other .....

Extent of surgery<sup>2</sup>  C0  C1  C2  C3  C4  C5  C6  C7  T1  T2  T3  T4  T5  T6  T7  T8  T9  T10  T11  T12  L1  L2  L3  L4  L5  S1  SA  CO  Ilium

### Other surgical measures

**Special Case:** If the *only* “Other surgical measure” marked is “wound drain”, then the “extent of surgery” fields should be left blank.

**Other surgical measures**  none  vb augmentation with body restoration  vb augmentation w/o body restorat.  wound drain<sup>3</sup>

hardware removal  other .....

Extent of surgery<sup>2</sup>  C0  C1  C2  C3  C4  C5  C6  C7  T1  T2  T3  T4  T5  T6  T7  T8  T9  T10  T11  T12  L1  L2  L3  L4  L5  S1  SA  CO  Ilium

## HOSPITAL STAY

### Postop surgical complications before discharge

A new option has been added for “recurrent nerve paresis” as a post-operative surgical complication.

**Postop surgic complic. before discharge**

none  wound infect. superficial

epidural hematoma  wound infection deep

other hematoma  implant malposition

radiculopathy  implant failure

CSF leak / pseudomeningocele  wrong level

motor dysfunction  recurrent nerve paresis **\*new**

sensory dysfunction  other .....

bowel / bladder dysfunction  not documented