EURO SPINE | SPINE TANGO

Hospital Report

Containing usage data up to **31/12/2022**
Created on **21/12/2023**

Contents

Notes

This report has been produced by NEC Software Solutions on behalf of EUROSPINE. It represents activity recorded in the Spine Tango registry for Sample Hospital, based on data collected up to the specified date. This report is made available to Sample Hospital under the Spine Tango Agreement between the parties. Under this Agreement, Sample Hospital is free to share this report as they choose.

Notes on Methodology
Please see the accompanying Methodology and Guidance Notes for further information.

Pathologies Included

Main Pathology	Number of Cases	Included in Report?
Degenerative Disease	17,700	Yes
Fracture / Trauma	865	Yes
Repeat Surgery	758	Yes
Tumor	851	Yes

Activity Overview for Sample Hospital

First Recorded Procedure	01/10/2000
Last Recorded Procedure	30/12/2022
Number of Patients	19,521
Number of Procedures	21,651
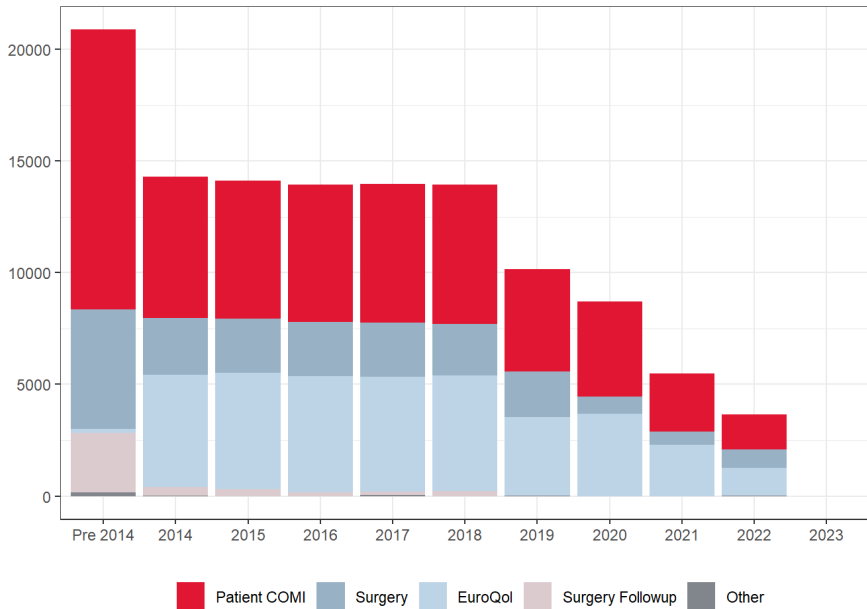
Form Type	Pre 2014	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
Patient COMI	12,529	6,336	6,203	6,157	6,193	6,229	4,592	4,250	2,620	1,568	0	56,677
Surgery	5,341	2,528	2,412	2,427	2,421	2,306	2,040	772	575	829	0	21,651
EuroQol	180	5,015	5,190	5,200	5,146	5,173	3,530	3,688	2,299	1,242	0	36,663
Surgery Followup	2,651	401	323	166	168	220	4	0	0	0	0	3,933
Other	171	11	0	0	36	2	4	2	1	5	0	232
Total	20,872	14,291	14,128	13,950	13,964	13,930	10,170	8,712	5,495	3,644	0	119,156

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Degenerative Disease
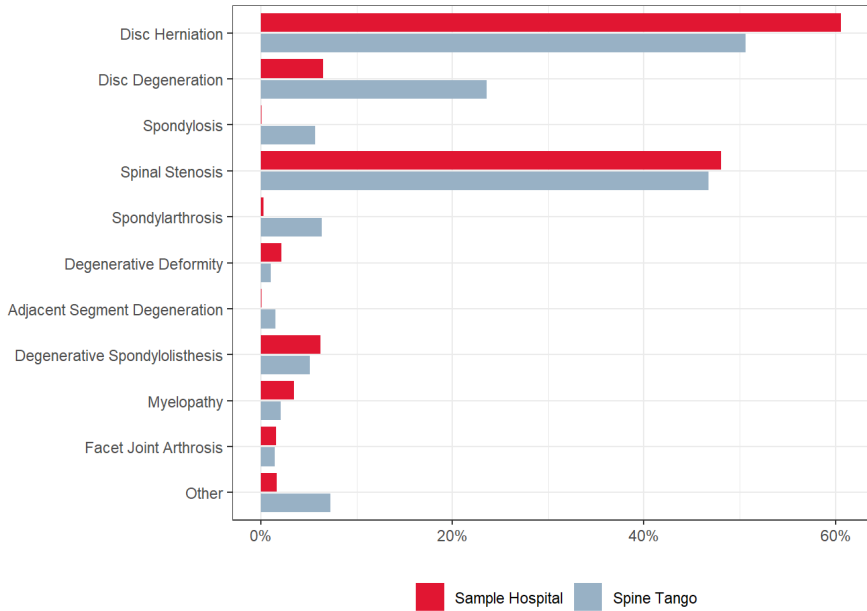
Type of Degenerative Disease	Sample Hospital	Spine Tango
Disc Herniation	60.6% (10722)	50.7% (27648)
Disc Degeneration	6.5% (1152)	23.6% (12873)
Spondylosis	0.1% (10)	5.7% (3090)
Spinal Stenosis	48.1% (8510)	46.8% (25533)
Spondylarthrosis	0.2% (42)	6.4% (3470)
Degenerative Deformity	2.1% (378)	1.0% (560)
Adjacent Segment Degeneration	0.1% (13)	1.5% (801)
Degenerative Spondylolisthesis	6.2% (1092)	5.1% (2796)
Myelopathy	3.4% (610)	2.0% (1118)
Facet Joint Arthrosis	1.6% (275)	1.4% (780)
Segment Degeneration	0.0% (0)	0.0% (0)
Other	1.7% (293)	7.3% (3960)

Preoperative Profile

	Sample Hospital	Spine Tango
Mean Age	54.7	56.6
< 18	0.1% (13)	0.2% (106)
18-39	19.4% (3433)	14.5% (7932)
40-49	21.3% (3772)	20.2% (11031)
50-59	21.1% (3732)	22.9% (12512)
60-79	33.4% (5905)	37.7% (20601)
>= 80	4.7% (833)	4.5% (2486)
Gender		
Male	51.3% (9080)	50.3% (27488)
Female	48.7% (8611)	49.7% (27196)
Smoker		
No	36.5% (6461)	29.8% (16277)
Yes	10.9% (1932)	7.9% (4334)
Unknown	52.6% (9307)	62.3% (34076)
Median BMI	28.2	28.0
< 20	5.1% (901)	1.6% (851)
20-25	24.7% (4368)	14.9% (8135)
26-30	33.2% (5872)	22.3% (12216)
31-35	15.3% (2701)	11.1% (6056)
> 35	9.3% (1654)	4.7% (2556)
Unknown	12.5% (2204)	45.5% (24873)
Number of Segments Affected		
1	71.2% (12596)	65.2% (35636)
2-3	17.3% (3061)	26.4% (14457)
>= 4	5.0% (885)	4.1% (2245)
Unknown	6.5% (1158)	4.3% (2349)
Previous Surgeries (Any Level)		
0	80.6% (14272)	77.2% (42226)
1	14.9% (2629)	16.7% (9148)
> 1	4.5% (794)	5.9% (3209)
Unknown	0.0% (5)	0.2% (104)

Perioperative Profile

Characteristic	Sample Hospital	Spine Tango
Blood Loss		
< 100 ml	67.1% (11874)	42.9% (23448)
100 - 500 ml	12.5% (2216)	39.9% (21803)
500 - 1000 ml	2.4% (423)	4.6% (2524)
1000 - 2000 ml	0.8% (143)	1.1% (593)
> 2000 ml	0.2% (39)	0.2% (120)
Unknown	17.0% (3005)	11.3% (6199)
Blood Transfusion		
None	94.1% (16659)	54.5% (29789)
< 2 units	0.4% (75)	0.5% (291)
>= 2 units	0.2% (41)	0.3% (171)
Cell Saver	2.0% (357)	0.8% (442)
Unknown	3.4% (600)	43.9% (24032)
Prophylaxis		
None	6.3% (1108)	1.1% (593)
Infection	62.0% (10968)	39.9% (21844)
Thromboembolism	41.3% (7311)	30.7% (16805)
Ossification	0.2% (36)	0.5% (247)
Other	0.1% (9)	0.3% (165)
Unknown	30.4% (5382)	57.8% (31622)
Technology		
Conventional	34.7% (6144)	41.9% (22916)
MISS / LISS	13.2% (2332)	14.2% (7790)
Loops	9.0% (1596)	10.5% (5761)
Endoscope	0.5% (81)	0.8% (419)
Microscope	62.7% (11105)	60.2% (32918)
CASS	0.1% (17)	0.7% (364)
Neuromonitoring	1.5% (270)	0.6% (306)
Intraoperative 3d-Imaging	0.1% (16)	0.3% (189)
Other	1.6% (285)	3.4% (1875)
Unknown	0.6% (110)	1.1% (621)

Characteristic	Sample Hospital	Spine Tango
Operation Time		
< 1 hr.	24.5% (4337)	31.8% (17393)
1-2 hrs.	46.3% (8195)	41.9% (22934)
2-3 hrs.	15.5% (2745)	14.9% (8145)
3-4 hrs.	5.1% (901)	4.6% (2507)
4-5 hrs.	1.9% (340)	1.6% (849)
5-6 hrs.	1.2% (213)	0.7% (398)
6-8 hrs.	1.0% (174)	0.5% (264)
8-10 hrs.	0.3% (47)	0.1% (64)
> 10 hrs.	0.0% (0)	0.0% (0)
Unknown	4.2% (748)	3.9% (2133)
Anterior Access		
No Anterior Access	82.1% (14528)	79.6% (43529)
Transoral	0.6% (113)	0.1% (50)
Anterolateral	16.6% (2930)	10.6% (5819)
Cervicothoracic Anterolateral	0.4% (67)	0.3% (143)
Cervicothoracic With Sternotomy	0.0% (1)	0.0% (1)
Cervicothoracic Anterolat With Sternotomy	0.0% (0)	0.0% (3)
Thoracotomy	0.1% (10)	0.1% (81)
Cervicothoracic Anterolat With Thoracotomy	0.0% (0)	0.0% (0)
Thoracoabdominal	0.0% (6)	0.0% (13)
Retroperitoneal	0.1% (14)	1.8% (960)
Thoraco-Phrenico-Lumbotomy	0.0% (0)	0.0% (8)
Transperitoneal	0.0% (1)	0.0% (24)
Trans-Psoas (XLIF)	0.1% (11)	0.6% (344)
Other	0.1% (20)	0.2% (119)
Unknown	0.0% (2)	6.6% (3603)
Posterior Access		
No Posterior Access	18.0% (3186)	18.9% (10314)
Midline	76.7% (13572)	69.8% (38159)
Paramedian	4.8% (843)	8.8% (4813)
Posterolateral	0.4% (73)	2.0% (1068)
Percutaneous	0.1% (20)	0.3% (161)
Para-Coccygeal (AxiaLIF)	0.0% (0)	0.0% (2)
Other	0.2% (36)	0.3% (190)

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Surgical Measures

Decompression

Characteristic	Sample Hospital	Spine Tango
Decompression		
None	1.4% (252)	2.8% (1533)
Discectomy	64.1% (11342)	54.7% (29907)
Vertebrectomy Partial	0.9% (159)	1.2% (651)
Vertebrectomy Full	0.2% (33)	0.3% (168)
Osteotomy	0.5% (92)	2.1% (1129)
Laminotomy	31.5% (5576)	22.7% (12418)
Hemi-Laminectomy	3.9% (685)	10.3% (5637)
Laminectomy	14.6% (2577)	16.8% (9197)
Facet Joint Resection Partial	21.0% (3711)	25.1% (13731)
Facet Joint Resection Full	3.2% (572)	4.2% (2270)
Flavectomy	32.9% (5829)	42.5% (23242)
Foraminotomy	22.4% (3957)	31.2% (17059)
Sequestrectomy	4.0% (703)	17.4% (9497)
Flavotomy	2.5% (434)	2.1% (1149)
Uncoforaminotomy	2.7% (480)	1.3% (707)
Other	1.4% (255)	2.3% (1253)
Unknown	0.0% (4)	0.3% (166)

Fusion

Characteristic	Sample Hospital	Spine Tango
Fusion Promoting Measures		
None	75.0% (13274)	65.8% (36000)
Posterolateral Fusion	2.7% (484)	7.2% (3929)
Posterior Fusion	1.8% (326)	2.5% (1347)
Interbody Fusion (A-IF)	11.1% (1971)	7.0% (3819)
Interbody Fusion (PLIF)	5.6% (999)	3.0% (1628)
Interbody Fusion (TLIF)	1.8% (317)	3.2% (1767)
Interbody Fusion (XLIF)	0.1% (21)	0.8% (417)
Other Interbody Fusion	3.1% (544)	2.7% (1499)
Ilio-Sacral Fusion	0.0% (2)	0.0% (3)
Other	1.3% (235)	12.2% (6670)
Unknown	0.0% (1)	0.8% (449)

Stabilisation

Characteristic	Sample Hospital	Spine Tango
Rigid Stabilisation		
None	76.8% (13600)	66.0% (36086)
Interbody Stabilisation With Cage	16.5% (2926)	21.8% (11918)
Interbody Stabilisation With Auto-/ Allograft	0.9% (153)	0.3% (183)
Vertebral Body Replacement By Cage	0.2% (28)	0.4% (217)
Plates	2.7% (475)	8.0% (4401)
Pedicle Screws With Rod	5.7% (1012)	13.0% (7086)
Pedicle Screws With Plate	0.0% (0)	0.2% (125)
Facet Screws	0.1% (9)	0.1% (81)
Transarticular Screw	0.0% (0)	0.1% (58)
Transarticular Screw C1-C2	0.0% (1)	0.0% (7)
Laminar Hooks	0.0% (5)	0.0% (27)
Pedicle Hooks	0.1% (22)	0.2% (96)
Lateral Mass Screw	1.5% (270)	1.0% (568)
Odontoid Screws	0.0% (2)	0.0% (2)
Laminar Screws	0.1% (11)	0.0% (16)
Pedicle Screws Cemented	0.1% (22)	0.1% (35)
Pedicle Screws Uncemented	2.2% (391)	1.9% (1019)
Other	0.2% (38)	0.6% (340)
Unknown	0.0% (2)	1.8% (989)
Motion Preserving Stabilisation		
None	98.9% (17505)	91.8% (50228)
Disc Replacement	0.6% (114)	2.2% (1213)
Dynamic Stabilization	0.1% (23)	3.4% (1859)
Interspinous Spacer	0.2% (43)	0.2% (107)
Other	0.1% (15)	0.3% (181)
Unknown	0.0% (0)	2.1% (1130)

Complications

General Complications

	Sample Hospital	Spine Tango
Intraoperative General Complications		
None	99.2% (17563)	57.8% (31590)
Anaesthesiological	0.1% (12)	0.1% (30)
Cardiovascular	0.1% (16)	0.1% (30)
Pulmonary	0.0% (5)	0.0% (6)
Thromboembolism	0.0% (5)	0.0% (2)
Death	0.0% (0)	0.0% (0)
Not Documented	0.5% (90)	42.1% (23018)
Other	0.1% (12)	0.0% (18)
Postoperative General Complications		
None	97.6% (17268)	56.9% (31132)
Cardiovascular	0.2% (30)	0.2% (95)
Pulmonary	0.3% (46)	0.2% (103)
Cerebral	0.1% (18)	0.0% (27)
Kidney / Urinary	0.2% (34)	0.3% (145)
Liver / Gi	0.1% (15)	0.1% (43)
Thromboembolism	0.1% (9)	0.0% (18)
Death	0.0% (5)	0.0% (21)
Not Documented	1.3% (231)	42.1% (23016)
Positioning-Related	0.0% (1)	0.0% (3)
Other	0.3% (60)	0.3% (170)

Surgical Complications

	Sample Hospital	Spine Tango
Intraoperative Surgical Complications		
None	93.0% (16453)	54.8% (29982)
Nerve Root Damage	0.3% (50)	0.1% (77)
Spinal Cord Damage	0.0% (3)	0.0% (4)
Dural Lesion	5.8% (1021)	2.9% (1570)
Vascular Injury	0.1% (12)	0.0% (21)
Fracture Vertebral Structures	0.1% (12)	0.0% (23)
Not Documented	0.5% (86)	41.9% (22937)
Other	0.5% (95)	0.2% (113)
Postoperative Surgical Complications		
None	95.9% (16981)	56.2% (30737)
Epidural Hematoma	0.4% (69)	0.2% (122)
Other Hematoma	0.1% (21)	0.1% (81)
Radiculopathy	0.7% (117)	0.2% (135)
CSF Leak / Pseudomeningocele	0.3% (57)	0.2% (111)
Motor Dysfunction	0.6% (106)	0.3% (191)
Sensory Dysfunction	0.5% (91)	0.3% (146)
Bowel / Bladder Dysfunction	0.2% (32)	0.2% (130)
Wound Infection Superficial	0.2% (31)	0.2% (88)
Wound Infection Deep	0.1% (19)	0.1% (53)
Implant Malposition	0.1% (14)	0.1% (38)
Implant Failure	0.1% (11)	0.0% (21)
Wrong Level	0.0% (5)	0.0% (3)
Not Documented	1.2% (205)	42.0% (22942)
Recurrent Nerve Paresis	0.0% (4)	0.0% (2)
Other	0.4% (70)	0.3% (152)

Adverse Events

Adverse Event	Sample Hospital	Spine Tango	Expected	p-value
Dural Lesion	5.8% (1021)	2.9% (1570)	3.4% (603)	< 0.001
Fracture Vertebral Structures	0.1% (12)	0.0% (23)	0.0% (8)	0.15
Nerve Root Damage	0.3% (50)	0.1% (77)	0.2% (30)	< 0.001
Spinal Cord Damage	0.0% (3)	0.0% (4)	0.0% (2)	0.46
Vascular Injury	0.1% (12)	0.0% (21)	0.0% (9)	0.23

Funnel Plots
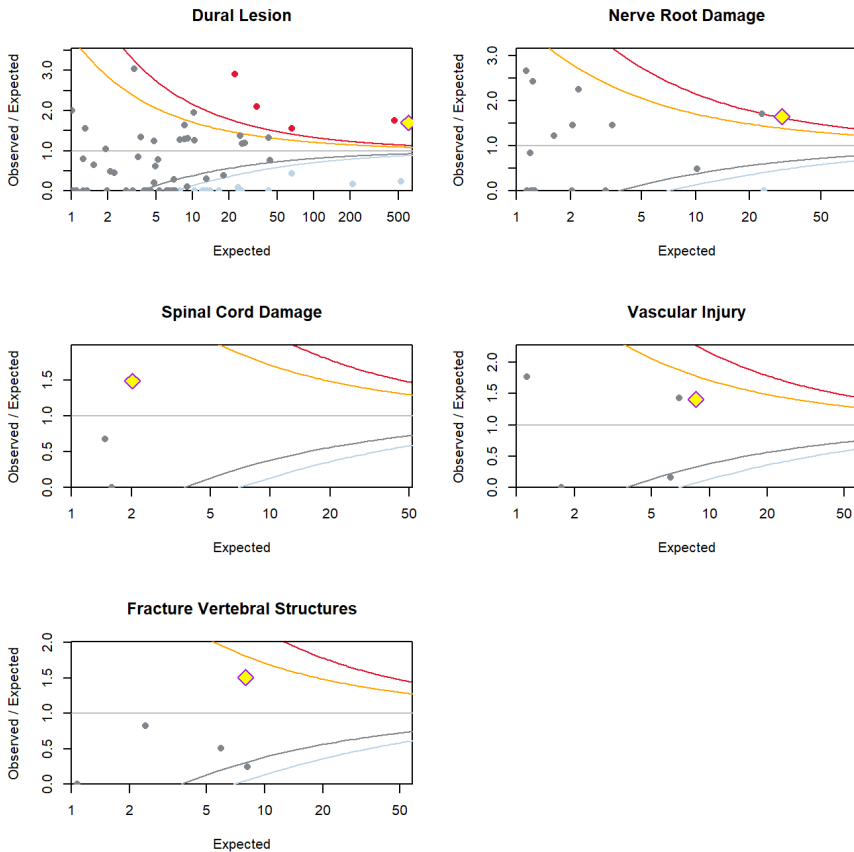
Dural Lesion

Nerve Root Damage

Spinal Cord Damage

Vascular Injury

Fracture Vertebral Structures

COMI Analysis - Back / Legs

Summary

Group	Patients	Baseline	<= 3 Months	<= 6 Months	<= 1 Year	<= 2 Years	> 2 Years	Mean (Years)	Range (Years)
Sample Hospital	8675	5840	2340	4309	1508	4774	4900	1.30	0.00-14.58
Spine Tango	28683	20576	21769	8438	11320	12365	11000	1.09	0.00-13.06

Back Pain Analysis
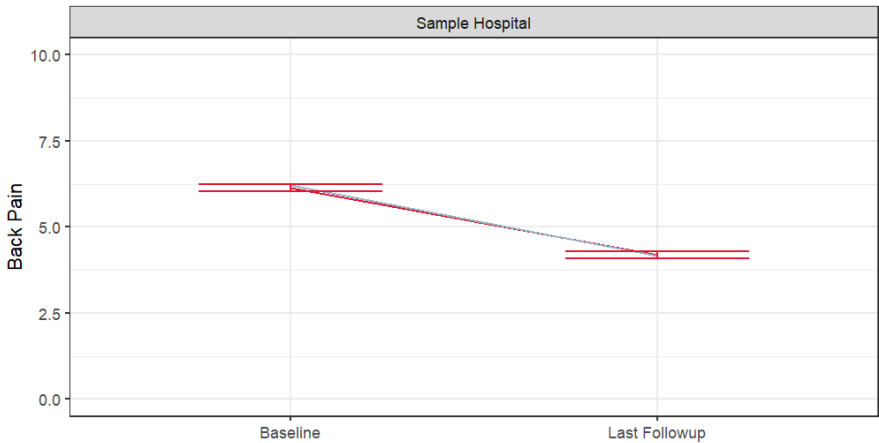
Error bars depict the 95% CI

Group	Paired Observations	Baseline Mean	Baseline CI (95%)	Baseline SD	Last Followup Mean	Last Followup CI (95%)	Last Followup SD	p-value
Sample Hospital	3429	6.14	6.04-6.23	2.81	4.19	4.09-4.29	3.04	0
Spine Tango	13120	6.21	6.16-6.25	2.80	4.15	4.10-4.21	3.10	0

Note: p-values were calculated using a one-sided Wilcoxon test
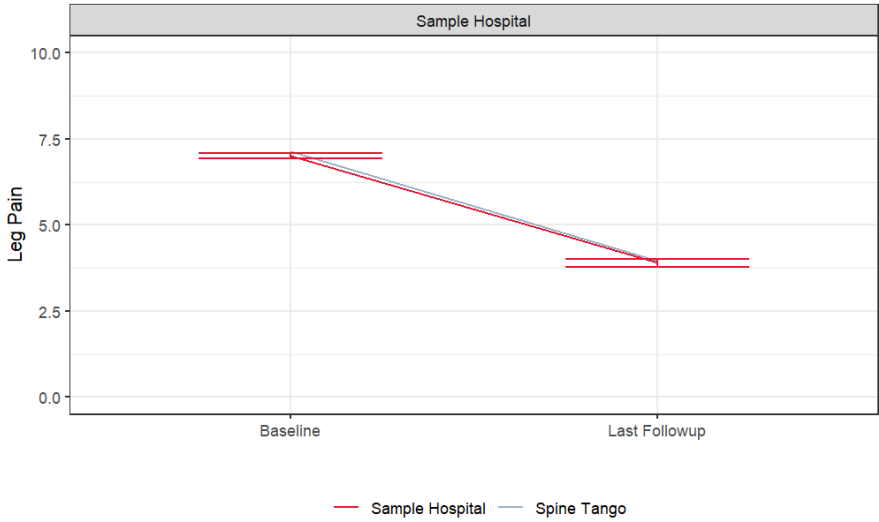
Leg Pain Analysis

Error bars depict the 95% CI

		Baseline			Last Followup			
Group	Paired Observations	Mean	CI (95%)	SD	Mean	CI (95%)	SD	p-value
Sample Hospital	3429	7.01	6.92-7.10	2.63	3.90	3.79-4.01	3.31	0
Spine Tango	13120	7.13	7.09-7.18	2.58	3.95	3.90-4.01	3.37	0

Note: p-values were calculated using a one-sided Wilcoxon test
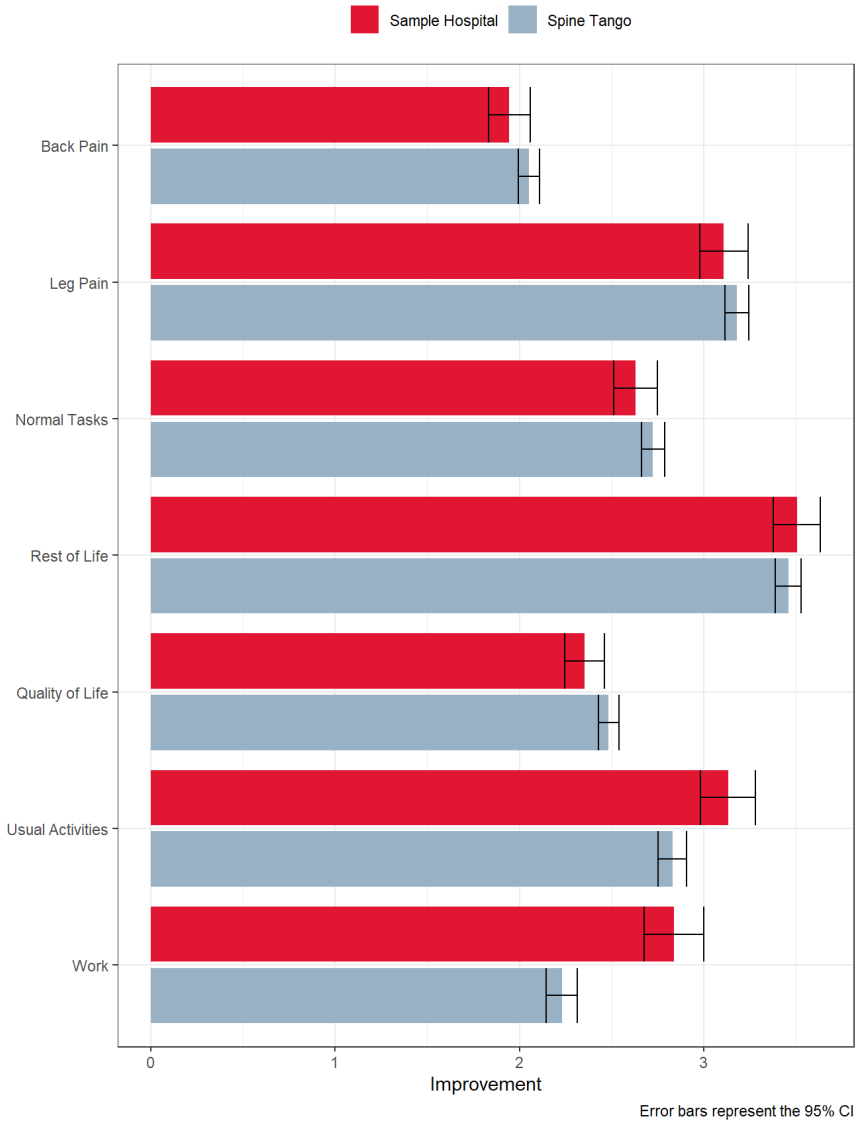
Composite Score Analysis

Error bars depict the 95% CI

Group	Paired Observations	Baseline			Last Followup			
		Mean	CI (95%)	SD	Mean	CI (95%)	SD	p-value
Sample Hospital	3429	7.58	7.52-7.64	1.83	4.75	4.66-4.85	2.93	0
Spine Tango	13120	7.76	7.73-7.79	1.78	4.97	4.92-5.02	3.01	0

Note: p-values were calculated using a one-sided Wilcoxon test
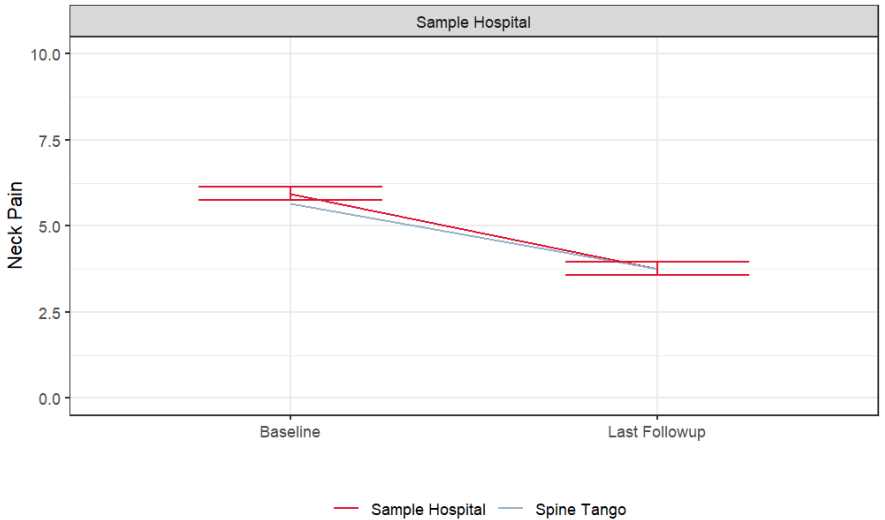
Domain Analysis

Error bars represent the 95% CI

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COMI Analysis - Neck / Arms

Summary

Group	Patients	Baseline	<= 3 Months	<= 6 Months	<= 1 Year	<= 2 Years	> 2 Years	Mean (Years)	Range (Years)
Sample Hospital	2546	1456	697	1069	323	1202	1296	1.28	0.00-12.67
Spine Tango	7657	5441	5504	1811	2285	3521	2672	1.08	0.00-10.46

Neck Pain Analysis

Error bars depict the 95% CI

		Baseline			Last Followup			
Group	Paired Observations	Mean	CI (95%)	SD	Mean	CI (95%)	SD	p-value
Sample Hospital	785	5.94	5.74-6.13	2.77	3.76	3.56-3.96	2.87	0
Spine Tango	3707	5.66	5.56-5.75	2.94	3.75	3.65-3.85	3.06	0

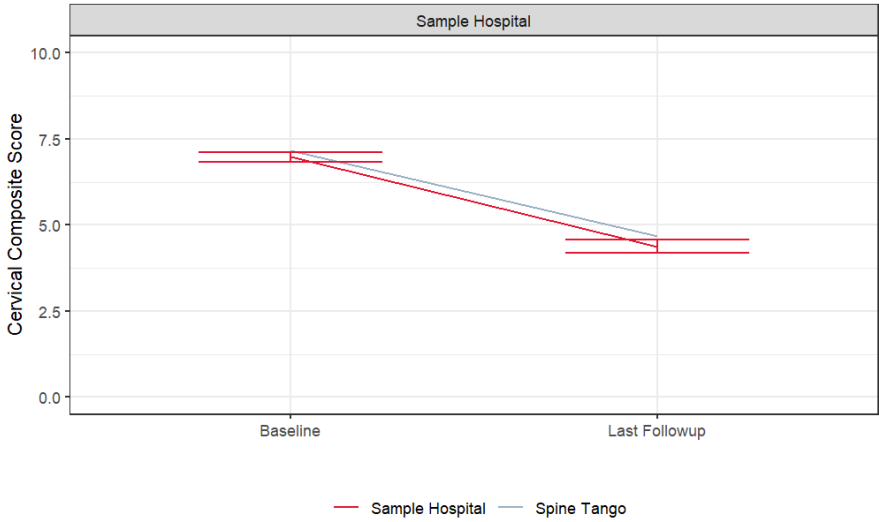*Note:* p-values were calculated using a one-sided Wilcoxon test
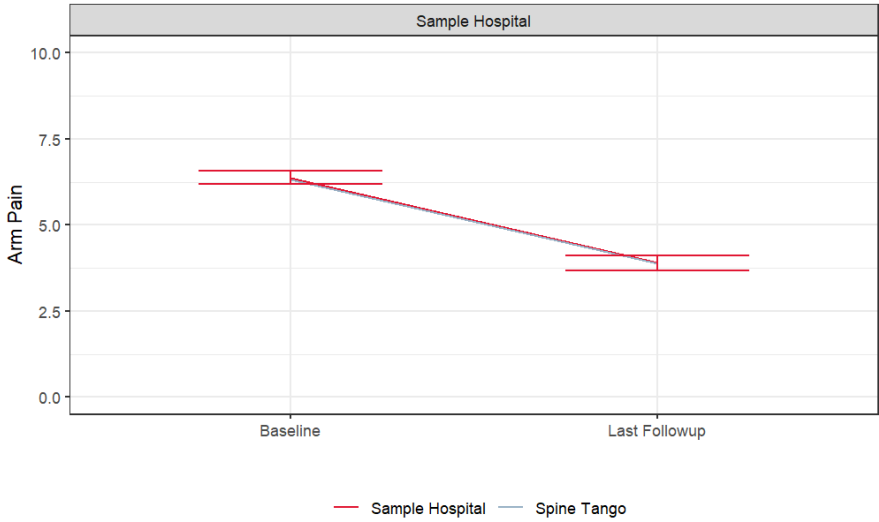
Arm Pain Analysis

Error bars depict the 95% CI

		Baseline			Last Followup			
Group	**Paired Observations**	**Mean**	**CI (95%)**	**SD**	**Mean**	**CI (95%)**	**SD**	**p-value**
Sample Hospital	785	6.37	6.18-6.56	2.75	3.90	3.68-4.11	3.05	0
Spine Tango	3707	6.32	6.23-6.41	2.87	3.88	3.77-3.98	3.26	0
Note: p-values were calculated using a one-sided Wilcoxon test								

Composite Score Analysis

Error bars depict the 95% CI

		Baseline			Last Followup			
Group	Paired Observations	Mean	CI (95%)	SD	Mean	CI (95%)	SD	p-value
Sample Hospital	785	6.97	6.83-7.11	2.03	4.37	4.18-4.56	2.75	0
Spine Tango	3707	7.16	7.09-7.22	2.03	4.67	4.57-4.76	2.90	0

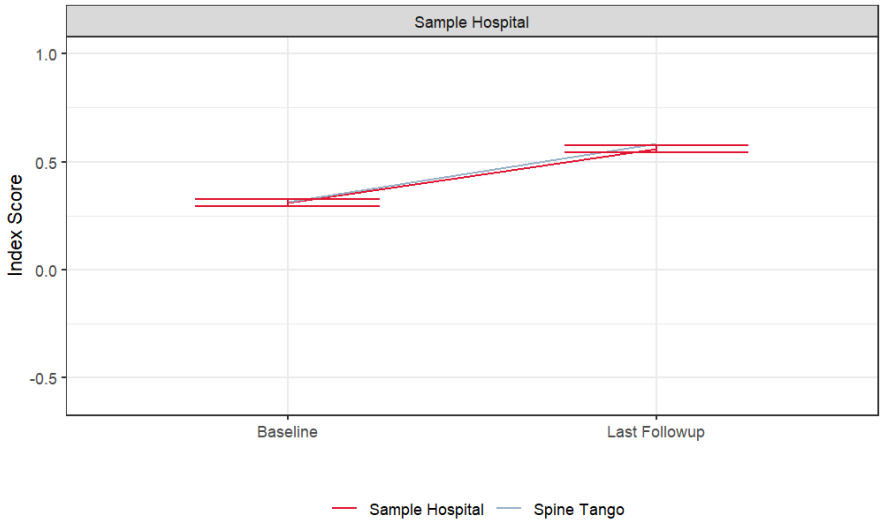Note: p-values were calculated using a one-sided Wilcoxon test
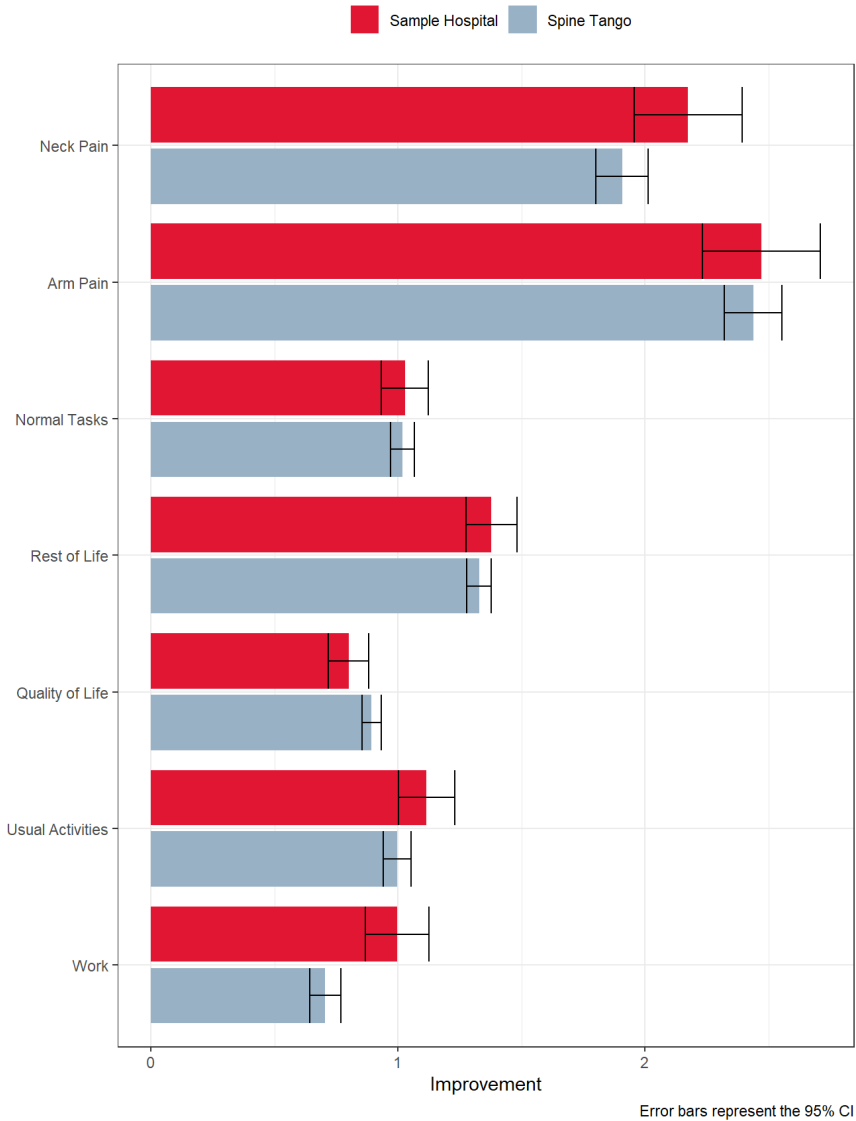
Domain Analysis

Error bars represent the 95% CI

EQ-5D-3L Analysis

Summary

Group	Patients	Baseline	<= 3 Months	<= 6 Months	<= 1 Year	<= 2 Years	> 2 Years	Mean (Years)	Range (Years)
Sample Hospital	6915	2986	2350	2778	922	3726	4114	1.29	0.00-10.39
Spine Tango	6368	5236	2575	697	767	1293	1434	1.10	0.00-9.37

Index Score Analysis

Error bars depict the 95% CI

		Baseline			Last Followup			
Group	Paired Observations	Mean	CI (95%)	SD	Mean	CI (95%)	SD	p-value
Sample Hospital	1870	0.31	0.29-0.33	0.35	0.56	0.54-0.58	0.36	0
Spine Tango	3255	0.31	0.30-0.33	0.34	0.58	0.57-0.60	0.33	0

Note: p-values were calculated using a one-sided Wilcoxon test
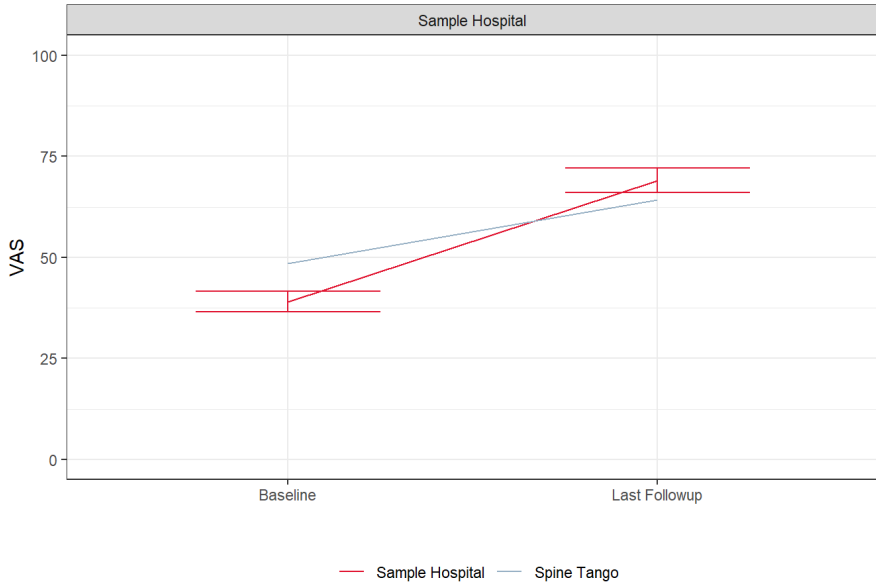
VAS Analysis

Error bars depict the 95% CI

		Baseline			Last Followup			
Group	Paired Observations	Mean	CI (95%)	SD	Mean	CI (95%)	SD	p-value
Sample Hospital	219	39.05	36.53-41.56	19.01	69.08	66.08-72.08	22.65	0
Spine Tango	395	48.58	46.53-50.64	20.84	64.20	62.03-66.38	22.03	0

Note: p-values were calculated using a one-sided Wilcoxon test
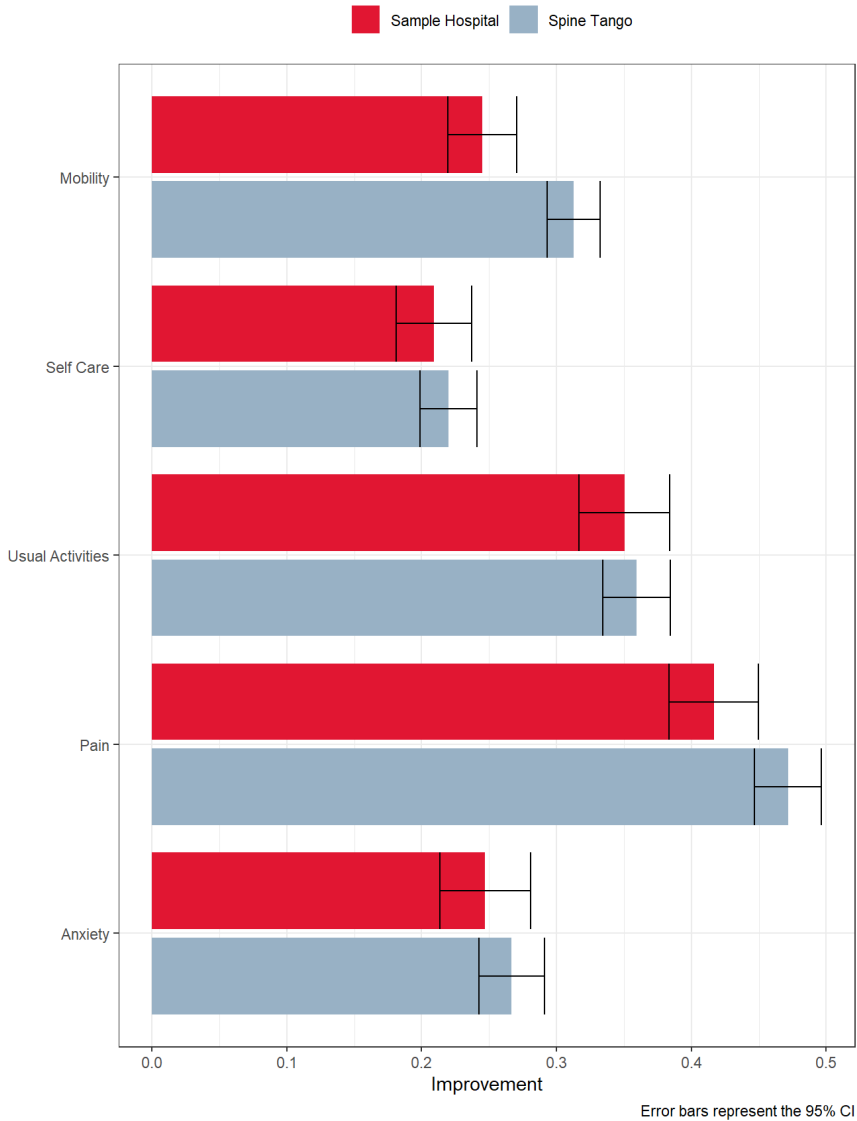
Domain Analysis

Error bars represent the 95% CI

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Surgery Follow-up

Summary

Group	Patients	6 Weeks	3 Months	6 Months	1 Year	2 Years	Other	Mean	Range
Sample Hospital	2463	1026	657	817	369	131	933	0.60	0.02-9.61
Spine Tango	24000	11380	8941	4001	4441	1722	2229	0.65	0.00-8.57

Outcome

Outcome	Sample Hospital	Spine Tango
Excellent	42.2% (1658)	31.6% (10338)
Good	35.9% (1411)	49.1% (16054)
Fair	13.7% (537)	13.3% (4343)
Poor	8.2% (322)	5.4% (1771)
Not Applicable	0.1% (5)	0.6% (203)
Unknown	0.0% (0)	0.0% (5)

Work Status

Work Status	Sample Hospital	Spine Tango
Not at work since OP	25.4% (999)	30.8% (10077)
Started partially, same job	3.9% (154)	5.9% (1915)
Fully reintegrated	15.9% (626)	17.4% (5692)
Resumed work, but quit again	0.6% (24)	0.4% (140)
Resumed work, different job	0.6% (22)	0.9% (286)
Has been dismissed	1.4% (54)	0.6% (190)
Retired since OP	1.5% (60)	1.6% (521)
Retired before OP	38.7% (1521)	31.4% (10262)
Housewife/man	3.0% (118)	4.0% (1320)
Child/student	7.2% (282)	1.1% (347)
Other	1.9% (73)	6.0% (1964)

Therapeutic Goals

Legend: Acheived | Partially Acheived | Not Acheived

Categories (top to bottom):
- Pain Relief
- Functional Improvement
- Neurological Improvement
- Bowel / Bladder Function Improvement
- Cosmetic Improvement
- Spinal Stabilisation
- Diagnostic Measures
- Stop Deformity Progression
- Prophylactic Decompression
- Deformity Correction
- Other

Postoperative Complications

Complications?	Sample Hospital	Spine Tango
No	86.2% (3389)	92.0% (30085)
Yes	13.8% (544)	8.0% (2629)

Complication Type	Sample Hospital	Spine Tango
Sensory dysfunction	2.3% (91)	1.6% (514)
Motor dysfunction	1.5% (59)	0.9% (298)
Bowel/ bladder dysfunction	0.5% (21)	0.4% (143)
Non-union	0.8% (30)	0.1% (29)
Implant failure	1.0% (39)	0.5% (152)
Instability	0.3% (12)	0.2% (50)
CSF leak/ pseudomeningocele	0.9% (37)	0.4% (147)
Wound infection superficial	0.7% (29)	1.2% (404)
Wound infection deep	1.0% (41)	0.5% (166)
Spondylitis	0.0% (1)	0.0% (12)
Discitis	0.1% (2)	0.1% (23)
Epidural hematoma	0.7% (26)	0.1% (40)
Extravertebral hematoma	0.2% (7)	0.0% (16)
Wrong level	0.1% (4)	0.0% (0)
Implant malposition	0.3% (12)	0.2% (81)
Recurrence of symptoms	2.3% (90)	1.3% (417)
Graft complication	0.3% (10)	0.0% (11)
Internal medicine	0.2% (6)	0.1% (24)
Sequelae anaesthesia	0.1% (3)	0.0% (7)
Adjac. segment pathology	0.5% (21)	0.1% (35)
Recurrent tumor	0.0% (0)	0.0% (2)
Decompensation of spine	0.1% (3)	0.0% (5)
Cardiovascular	0.1% (2)	0.1% (23)
Gastrointestinal	0.1% (5)	0.0% (9)
Central nervous system	0.1% (5)	0.0% (10)
Fracture vertebral structures	0.2% (6)	0.0% (9)
Thromboembolism	0.1% (3)	0.0% (13)
Other	3.5% (139)	1.5% (493)
None	86.2% (3389)	92.0% (30085)

Complication Time

Chart categories (top to bottom):
- Sensory dysfunction
- Motor dysfunction
- Bowel/ bladder dysfunction
- Non-union
- Implant failure
- Instability
- CSF leak/ pseudomeningocele
- Wound infection superficial
- Wound infection deep
- Spondylitis
- Discitis
- Epidural hematoma
- Extravertebral hematoma
- Wrong level
- Implant malposition
- Recurrence of symptoms
- Graft complication
- Internal medicine
- Sequelae anaesthesia
- Adjac. segment pathology
- Decompensation of spine
- Cardiovascular
- Gastrointestinal
- Central nervous system
- Fracture vertebral structures
- Thromboembolism
- Other

Legend: Early (< 28 Days), Sub-acute (2-6 Months), Late (> 6 Months)

Fracture / Trauma

Type of Fracture / Trauma	Sample Hospital	Spine Tango
Condylar (C0)	1.2% (10)	0.2% (4)
C0/1 Dissociation	0.4% (3)	0.2% (5)
C1 Fracture	0.4% (3)	0.5% (13)
C1/2 Instability	1.2% (10)	1.3% (33)
C2 Dens Fracture	2.9% (25)	7.0% (176)
C2 Other Fracture	1.4% (12)	1.5% (38)
Soft Tissue Injury Neck	3.2% (27)	1.2% (31)
Fracture C3-L5/S1	46.3% (397)	75.0% (1898)
Sacrum Fracture	0.2% (2)	0.5% (13)
Fracture C3-C7	12.3% (105)	1.6% (40)
Fracture Th1-L5/S1	24.4% (209)	7.4% (187)
Other	6.3% (54)	3.6% (91)

Preoperative Profile

	Sample Hospital	Spine Tango
Mean Age	51.6	54.7
< 18	1.3% (11)	2.6% (67)
18-39	28.5% (246)	25.2% (658)
40-49	16.0% (138)	12.0% (314)
50-59	18.4% (159)	15.4% (401)
60-79	28.9% (250)	32.5% (846)
>= 80	6.9% (60)	12.3% (320)
Gender		
Male	67.9% (587)	56.8% (1481)
Female	32.1% (277)	43.2% (1126)
Smoker		
No	28.9% (250)	24.0% (626)
Yes	13.5% (117)	6.9% (179)
Unknown	57.6% (498)	69.1% (1802)
Median BMI	24.8	25.5
< 20	9.2% (80)	1.8% (46)
20-25	37.1% (321)	16.1% (420)
26-30	27.2% (235)	13.8% (359)
31-35	8.2% (71)	4.8% (124)
> 35	3.6% (31)	1.6% (43)
Unknown	14.7% (127)	61.9% (1615)
Number of Segments Affected		
1	66.4% (574)	67.8% (1767)
2-3	20.2% (175)	24.3% (634)
>= 4	7.1% (61)	4.9% (129)
Unknown	6.4% (55)	3.0% (77)
Previous Surgeries (Any Level)		
0	89.8% (777)	87.0% (2267)
1	7.6% (66)	9.2% (239)
> 1	1.8% (16)	2.9% (75)
Unknown	0.7% (6)	1.0% (26)

Perioperative Profile

Characteristic	Sample Hospital	Spine Tango
Blood Loss		
< 100 ml	34.3% (297)	30.0% (782)
100 - 500 ml	41.0% (355)	43.0% (1120)
500 - 1000 ml	8.8% (76)	8.6% (224)
1000 - 2000 ml	1.8% (16)	2.8% (74)
> 2000 ml	0.1% (1)	0.7% (19)
Unknown	13.9% (120)	14.9% (388)
Blood Transfusion		
None	82.9% (717)	34.0% (887)
< 2 units	1.8% (16)	4.4% (116)
>= 2 units	0.9% (8)	2.0% (51)
Cell Saver	9.6% (83)	0.6% (16)
Unknown	5.0% (43)	59.2% (1543)
Prophylaxis		
None	6.0% (52)	1.3% (35)
Infection	51.0% (441)	28.3% (737)
Thromboembolism	42.4% (367)	21.7% (566)
Ossification	0.6% (5)	1.0% (26)
Other	0.0% (0)	0.3% (7)
Unknown	40.6% (351)	69.6% (1815)
Technology		
Conventional	72.1% (624)	55.6% (1449)
MISS / LISS	5.7% (49)	21.4% (557)
Loops	4.9% (42)	9.6% (250)
Endoscope	0.0% (0)	0.3% (8)
Microscope	26.1% (226)	16.7% (435)
CASS	0.0% (0)	1.4% (37)
Neuromonitoring	4.0% (35)	0.6% (16)
Intraoperative 3d-Imaging	0.6% (5)	0.7% (17)
Other	1.8% (16)	4.4% (114)
Unknown	0.2% (2)	3.4% (88)

Characteristic	Sample Hospital	Spine Tango
Operation Time		
< 1 hr.	5.9% (51)	24.2% (632)
1-2 hrs.	23.5% (203)	28.5% (743)
2-3 hrs.	30.8% (266)	23.2% (604)
3-4 hrs.	18.6% (161)	9.5% (248)
4-5 hrs.	7.9% (68)	3.6% (93)
5-6 hrs.	5.4% (47)	1.8% (48)
6-8 hrs.	2.9% (25)	1.0% (25)
8-10 hrs.	0.3% (3)	0.2% (6)
> 10 hrs.	0.0% (0)	0.0% (0)
Unknown	4.7% (41)	8.0% (208)
Anterior Access		
No Anterior Access	78.4% (678)	74.4% (1940)
Transoral	0.2% (2)	0.0% (0)
Anterolateral	19.2% (166)	11.3% (295)
Cervicothoracic Anterolateral	1.3% (11)	0.5% (14)
Cervicothoracic With Sternotomy	0.1% (1)	0.0% (0)
Cervicothoracic Anterolat With Sternotomy	0.0% (0)	0.0% (0)
Thoracotomy	0.3% (3)	2.5% (65)
Cervicothoracic Anterolat With Thoracotomy	0.0% (0)	0.0% (1)
Thoracoabdominal	0.2% (2)	0.1% (3)
Retroperitoneal	0.3% (3)	1.5% (38)
Thoraco-Phrenico-Lumbotomy	0.0% (0)	0.3% (9)
Transperitoneal	0.0% (0)	0.0% (1)
Trans-Psoas (XLIF)	0.1% (1)	0.1% (3)
Other	0.0% (0)	0.5% (12)
Unknown	0.0% (0)	8.7% (226)
Posterior Access		
No Posterior Access	16.3% (141)	21.9% (570)
Midline	80.6% (697)	51.7% (1347)
Paramedian	0.9% (8)	17.9% (467)
Posterolateral	0.2% (2)	4.0% (105)
Percutaneous	1.6% (14)	3.5% (91)
Para-Coccygeal (AxiaLIF)	0.0% (0)	0.0% (0)
Other	0.5% (4)	1.2% (31)

Surgical Measures

Decompression

Characteristic	Sample Hospital	Spine Tango
Decompression		
None	62.5% (541)	59.0% (1537)
Discectomy	16.5% (143)	15.3% (399)
Vertebrectomy Partial	2.2% (19)	4.5% (117)
Vertebrectomy Full	1.0% (9)	2.6% (69)
Osteotomy	0.2% (2)	0.6% (15)
Laminotomy	3.8% (33)	3.2% (83)
Hemi-Laminectomy	0.9% (8)	2.1% (54)
Laminectomy	13.1% (113)	15.4% (402)
Facet Joint Resection Partial	2.8% (24)	3.7% (97)
Facet Joint Resection Full	0.8% (7)	1.7% (44)
Flavectomy	5.7% (49)	6.0% (156)
Foraminotomy	2.5% (22)	3.1% (81)
Sequestrectomy	0.9% (8)	0.9% (23)
Flavotomy	0.1% (1)	0.1% (3)
Uncoforaminotomy	1.0% (9)	0.5% (12)
Other	0.8% (7)	1.9% (49)
Unknown	0.3% (3)	2.5% (64)

Fusion

Characteristic	Sample Hospital	Spine Tango
Fusion Promoting Measures		
None	33.9% (293)	45.5% (1187)
Posterolateral Fusion	17.0% (147)	17.3% (450)
Posterior Fusion	22.8% (197)	14.4% (376)
Interbody Fusion (A-IF)	17.0% (147)	6.6% (171)
Interbody Fusion (PLIF)	6.4% (55)	0.3% (9)
Interbody Fusion (TLIF)	0.8% (7)	0.4% (11)
Interbody Fusion (XLIF)	0.2% (2)	0.1% (2)
Other Interbody Fusion	5.0% (43)	1.8% (47)
Ilio-Sacral Fusion	0.1% (1)	0.0% (1)
Other	2.2% (19)	18.0% (469)
Unknown	0.5% (4)	2.6% (69)

Stabilisation

Characteristic	Sample Hospital	Spine Tango
Rigid Stabilisation		
None	5.8% (50)	27.1% (706)
Interbody Stabilisation With Cage	15.5% (134)	9.1% (237)
Interbody Stabilisation With Auto-/ Allograft	2.3% (20)	0.8% (21)
Vertebral Body Replacement By Cage	2.2% (19)	3.6% (94)
Plates	14.7% (127)	14.5% (378)
Pedicle Screws With Rod	37.9% (328)	37.0% (965)
Pedicle Screws With Plate	0.0% (0)	0.5% (12)
Facet Screws	0.6% (5)	0.4% (10)
Transarticular Screw	0.0% (0)	1.2% (31)
Transarticular Screw C1-C2	0.1% (1)	0.5% (13)
Laminar Hooks	0.7% (6)	0.4% (11)
Pedicle Hooks	0.2% (2)	0.6% (15)
Lateral Mass Screw	17.8% (154)	7.4% (194)
Odontoid Screws	1.0% (9)	4.1% (106)
Laminar Screws	0.5% (4)	0.2% (6)
Pedicle Screws Cemented	1.7% (15)	0.5% (12)
Pedicle Screws Uncemented	25.1% (217)	6.8% (177)
Other	1.2% (10)	2.8% (72)
Unknown	0.7% (6)	2.2% (57)
Motion Preserving Stabilisation		
None	99.1% (857)	94.2% (2455)
Disc Replacement	0.5% (4)	0.3% (9)
Dynamic Stabilization	0.3% (3)	0.3% (8)
Interspinous Spacer	0.0% (0)	0.0% (1)
Other	0.0% (0)	1.3% (34)
Unknown	0.1% (1)	3.8% (100)

Complications

General Complications

	Sample Hospital	Spine Tango
Intraoperative General Complications		
None	98.0% (848)	43.7% (1140)
Anaesthesiological	0.2% (2)	0.0% (1)
Cardiovascular	0.2% (2)	0.0% (1)
Pulmonary	0.0% (0)	0.0% (1)
Thromboembolism	0.0% (0)	0.0% (0)
Death	0.1% (1)	0.0% (0)
Not Documented	1.4% (12)	56.1% (1462)
Other	0.0% (0)	0.1% (2)
Postoperative General Complications		
None	90.2% (780)	40.0% (1042)
Cardiovascular	0.8% (7)	0.3% (8)
Pulmonary	3.0% (26)	1.5% (38)
Cerebral	0.3% (3)	0.2% (6)
Kidney / Urinary	0.9% (8)	0.8% (22)
Liver / Gi	0.2% (2)	0.4% (10)
Thromboembolism	0.0% (0)	0.2% (4)
Death	1.5% (13)	0.7% (19)
Not Documented	3.6% (31)	56.2% (1465)
Positioning-Related	0.0% (0)	0.0% (1)
Other	1.3% (11)	1.0% (25)

Surgical Complications

	Sample Hospital	Spine Tango
Intraoperative Surgical Complications		
None	96.8% (837)	42.7% (1112)
Nerve Root Damage	0.0% (0)	0.0% (1)
Spinal Cord Damage	0.0% (0)	0.0% (0)
Dural Lesion	0.8% (7)	0.8% (22)
Vascular Injury	0.0% (0)	0.0% (1)
Fracture Vertebral Structures	0.2% (2)	0.1% (2)
Not Documented	1.4% (12)	56.0% (1461)
Other	0.8% (7)	0.3% (8)
Postoperative Surgical Complications		
None	91.9% (795)	41.4% (1079)
Epidural Hematoma	0.0% (0)	0.0% (1)
Other Hematoma	0.1% (1)	0.2% (4)
Radiculopathy	0.0% (0)	0.1% (2)
CSF Leak / Pseudomeningocele	0.2% (2)	0.2% (6)
Motor Dysfunction	0.5% (4)	0.4% (10)
Sensory Dysfunction	0.0% (0)	0.3% (8)
Bowel / Bladder Dysfunction	0.2% (2)	0.2% (4)
Wound Infection Superficial	0.7% (6)	0.3% (7)
Wound Infection Deep	0.9% (8)	0.3% (9)
Implant Malposition	0.9% (8)	0.2% (5)
Implant Failure	0.3% (3)	0.5% (13)
Wrong Level	0.1% (1)	0.0% (0)
Not Documented	3.2% (28)	56.2% (1465)
Recurrent Nerve Paresis	0.1% (1)	0.0% (0)
Other	1.3% (11)	0.7% (17)

Adverse Events

Adverse Event	Sample Hospital	Spine Tango	Expected	p-value
Dural Lesion	0.8% (7)	0.8% (22)	0.9% (8)	1.00
Fracture Vertebral Structures	0.2% (2)	0.1% (2)	0.1% (1)	0.30
Nerve Root Damage	0.0% (0)	0.0% (1)	0.0% (0)	1.00
Spinal Cord Damage	0.0% (0)	0.0% (0)	0.0% (0)	1.00
Vascular Injury	0.0% (0)	0.0% (1)	0.0% (0)	1.00

Funnel Plots

Dural Lesion
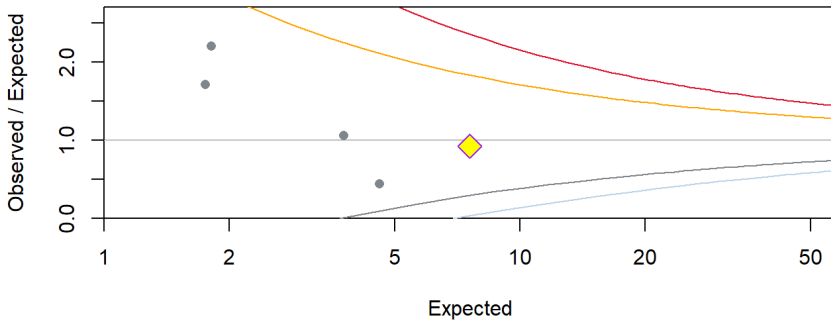
Fracture Vertebral Structures
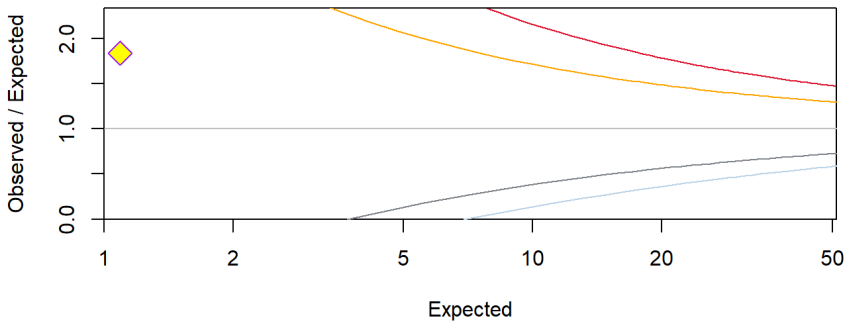
EURO SPINE SPINE TANGO

COMI Analysis - Back / Legs

Summary

Group	Patients	Baseline	<= 3 Months	<= 6 Months	<= 1 Year	<= 2 Years	> 2 Years	Mean (Years)	Range (Years)
Sample Hospital	233	48	75	120	44	143	145	1.28	0.00-12.24
Spine Tango	653	283	359	199	270	301	257	1.05	0.00-6.83

Back Pain Analysis
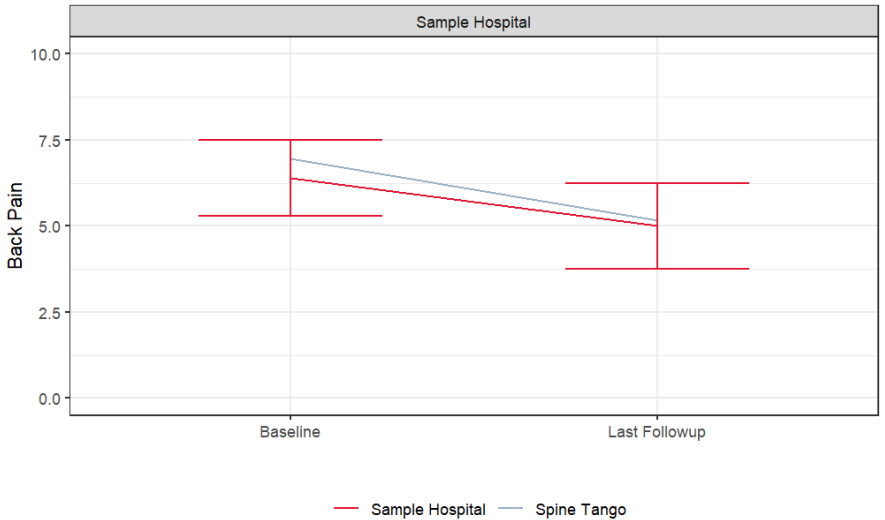
Error bars depict the 95% CI

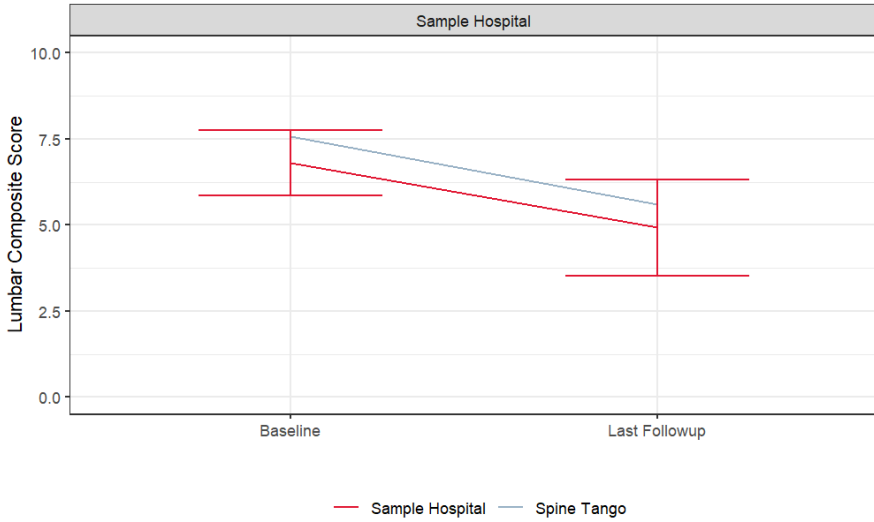|		Baseline			Last Followup			
Group	Paired Observations	Mean	CI (95%)	SD	Mean	CI (95%)	SD	p-value
Sample Hospital	23	6.39	5.29-7.49	2.69	5.00	3.75-6.25	3.06	0.0763241
Spine Tango	151	6.95	6.54-7.35	2.52	5.16	4.71-5.60	2.79	0.0000000
Note: p-values were calculated using a one-sided Wilcoxon test								
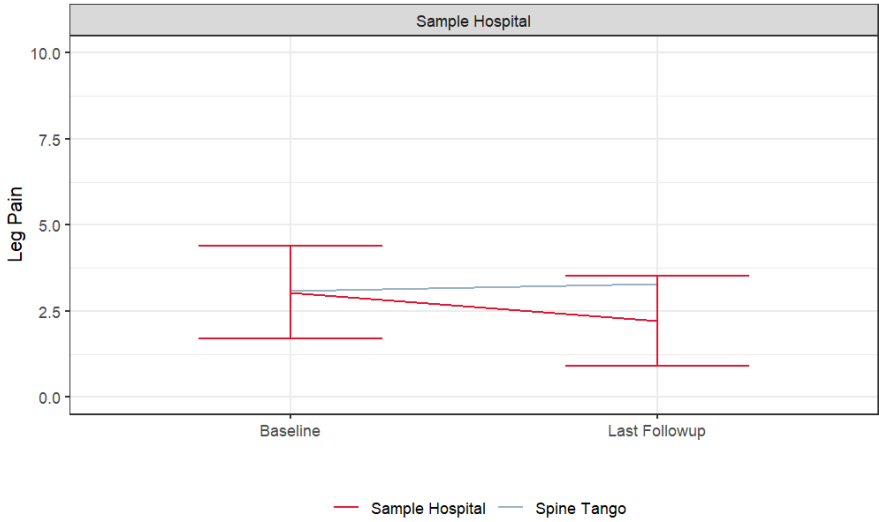
Leg Pain Analysis

Error bars depict the 95% CI

		Baseline			Last Followup			
Group	Paired Observations	Mean	CI (95%)	SD	Mean	CI (95%)	SD	p-value
Sample Hospital	23	3.04	1.70-4.39	3.30	2.22	0.91-3.53	3.20	0.3125715
Spine Tango	151	3.08	2.55-3.61	3.32	3.29	2.80-3.79	3.10	0.2552968

Note: p-values were calculated using a one-sided Wilcoxon test
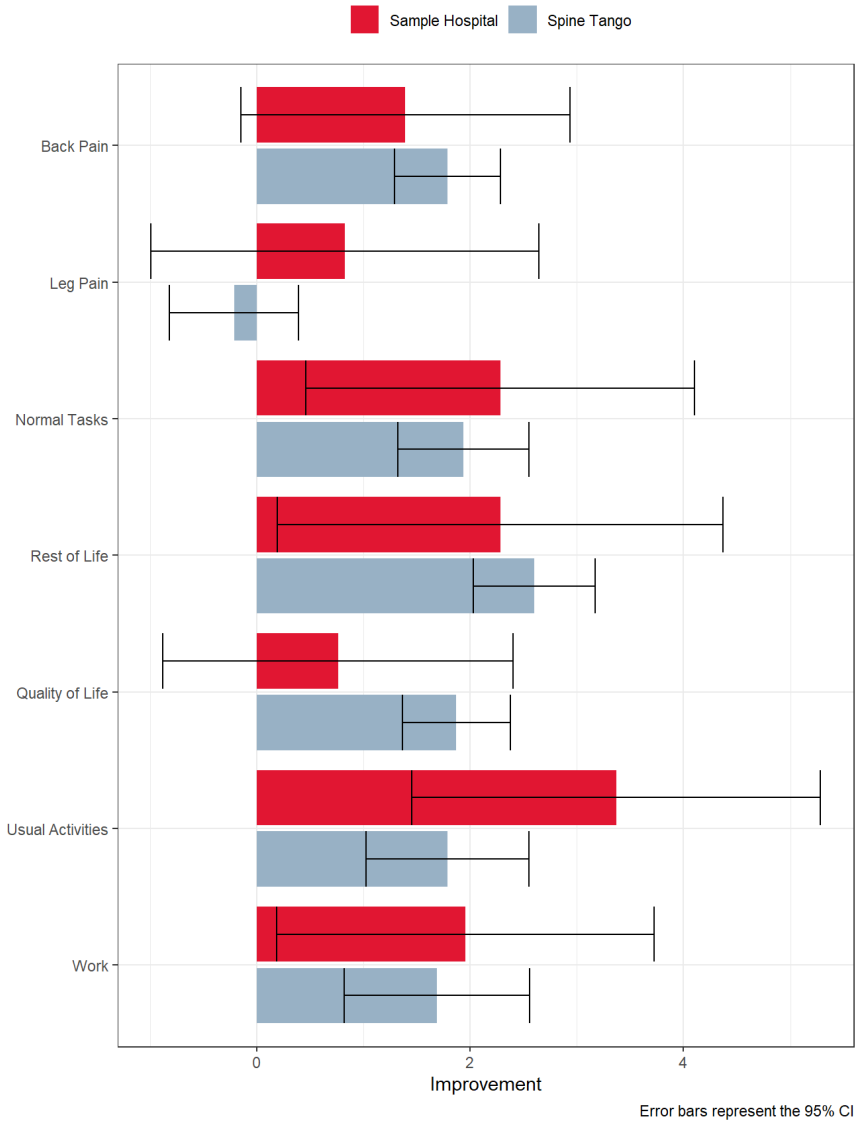
Composite Score Analysis

Error bars depict the 95% CI

		Baseline			Last Followup			
Group	**Paired Observations**	**Mean**	**CI (95%)**	**SD**	**Mean**	**CI (95%)**	**SD**	**p-value**
Sample Hospital	23	6.80	5.86-7.75	2.31	4.92	3.53-6.31	3.40	0.0495181
Spine Tango	151	7.56	7.26-7.87	1.94	5.61	5.18-6.04	2.71	0.0000000

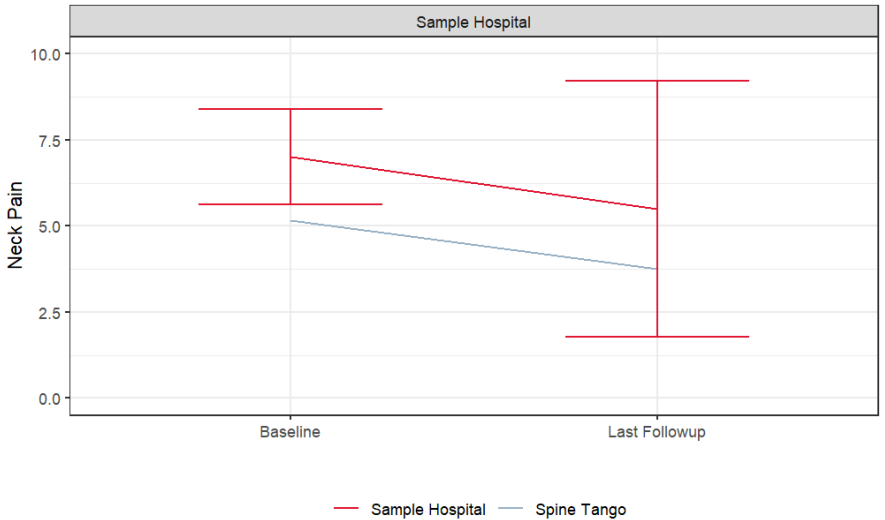*Note:* p-values were calculated using a one-sided Wilcoxon test

Domain Analysis

Error bars represent the 95% CI

COMI Analysis - Neck / Arms

Summary

Group	Patients	Baseline	<= 3 Months	<= 6 Months	<= 1 Year	<= 2 Years	> 2 Years	Mean (Years)	Range (Years)
Sample Hospital	132	15	43	66	25	85	64	1.11	0.02-13.15
Spine Tango	280	85	144	66	106	114	95	1.08	0.00-10.83

Neck Pain Analysis

Error bars depict the 95% CI

		Baseline			Last Followup			
Group	Paired Observations	Mean	CI (95%)	SD	Mean	CI (95%)	SD	p-value
Sample Hospital	4	7.00	5.61-8.39	1.41	5.50	1.79-9.21	3.79	0.5862137
Spine Tango	52	5.17	4.30-6.04	3.20	3.75	2.98-4.52	2.83	0.0180098

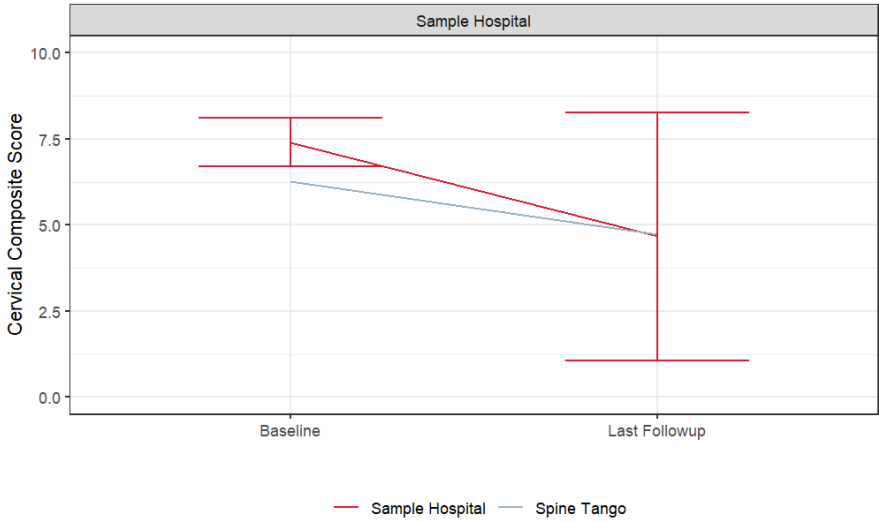*Note:* p-values were calculated using a one-sided Wilcoxon test
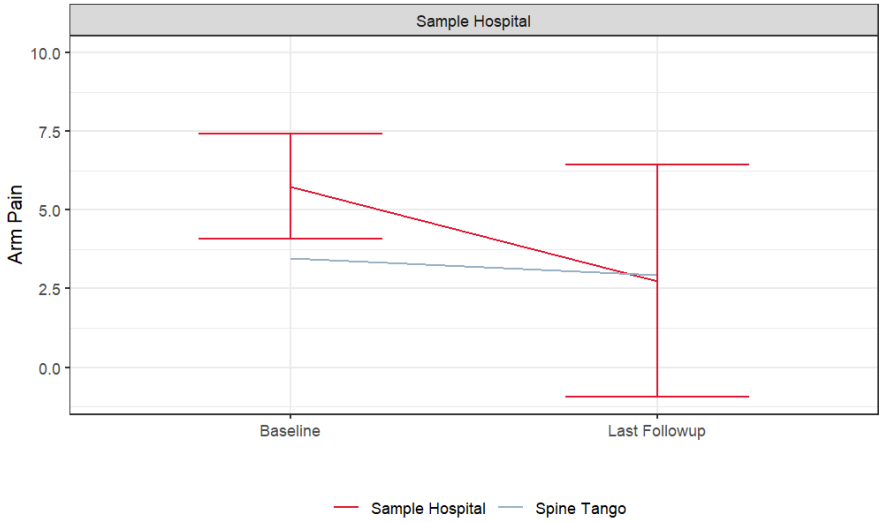
Arm Pain Analysis

Error bars depict the 95% CI

		Baseline			Last Followup			
Group	**Paired Observations**	**Mean**	**CI (95%)**	**SD**	**Mean**	**CI (95%)**	**SD**	**p-value**
Sample Hospital	4	5.75	4.08-7.42	1.71	2.75	-0.95-6.45	3.77	0.1814492
Spine Tango	52	3.46	2.55-4.38	3.37	2.94	2.17-3.71	2.84	0.4167248
Note: p-values were calculated using a one-sided Wilcoxon test								

Composite Score Analysis

Error bars depict the 95% CI

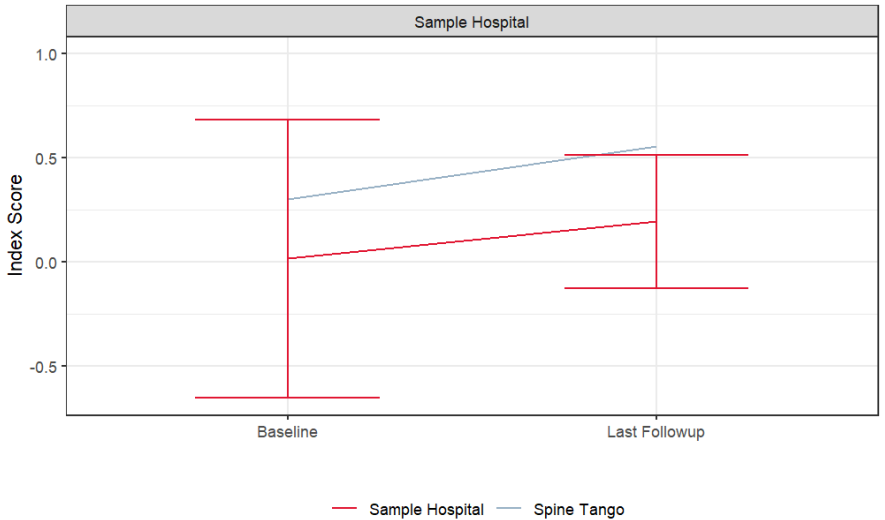|		Baseline			Last Followup			
Group	**Paired Observations**	**Mean**	**CI (95%)**	**SD**	**Mean**	**CI (95%)**	**SD**	**p-value**
Sample Hospital	4	7.40	6.70-8.10	0.72	4.66	1.06-8.27	3.68	0.4226781
Spine Tango	52	6.27	5.60-6.95	2.49	4.71	3.92-5.51	2.94	0.0016346
Note: p-values were calculated using a one-sided Wilcoxon test								
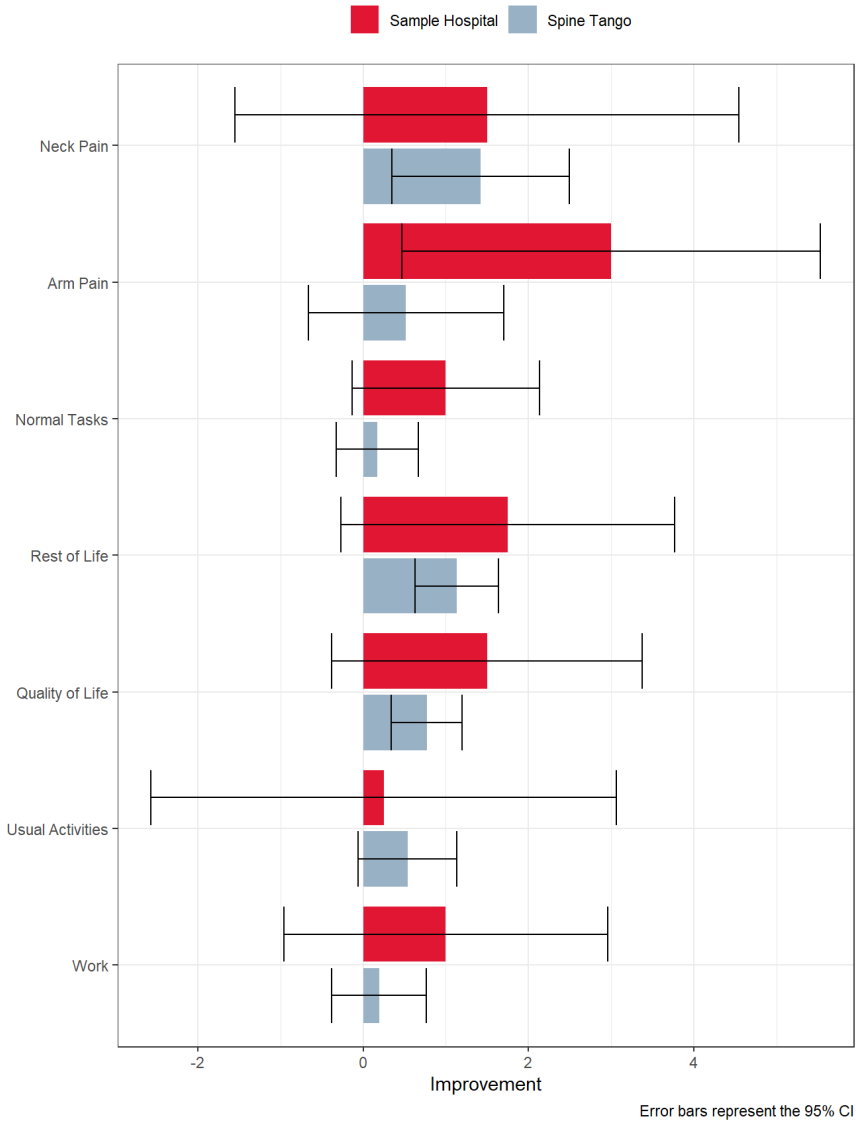
Domain Analysis

Error bars represent the 95% CI

EQ-5D-3L Analysis

Summary

Group	Patients	Baseline	<= 3 Months	<= 6 Months	<= 1 Year	<= 2 Years	> 2 Years	Mean (Years)	Range (Years)
Sample Hospital	253	7	95	111	38	152	126	1.04	0.02-3.75
Spine Tango	198	58	79	18	50	66	80	1.15	0.01-4.27

Index Score Analysis

Error bars depict the 95% CI

		Baseline			Last Followup			
Group	Paired Observations	Mean	CI (95%)	SD	Mean	CI (95%)	SD	p-value
Sample Hospital	3	0.02	-0.65-0.69	0.59	0.19	-0.13-0.51	0.28	0.7500000
Spine Tango	32	0.30	0.17-0.43	0.36	0.56	0.43-0.68	0.37	0.0024639

Note: p-values were calculated using a one-sided Wilcoxon test
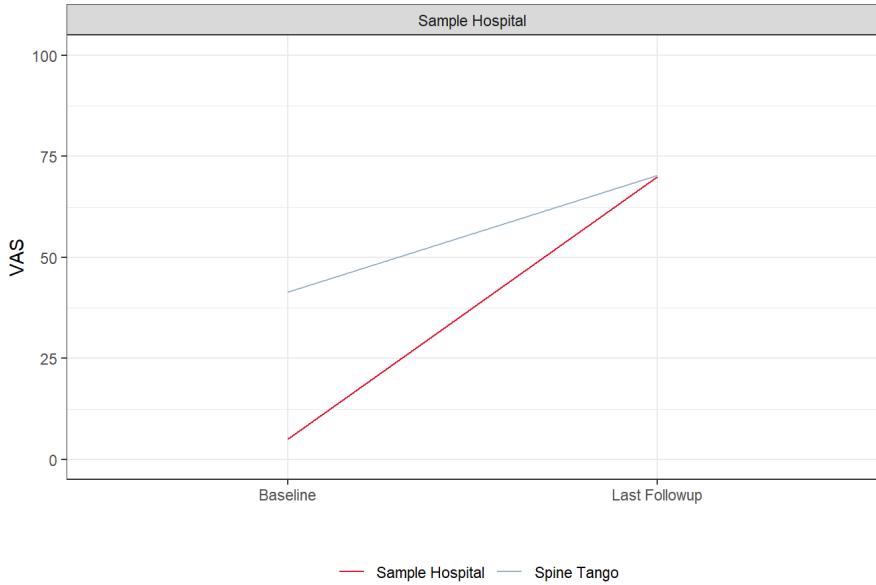
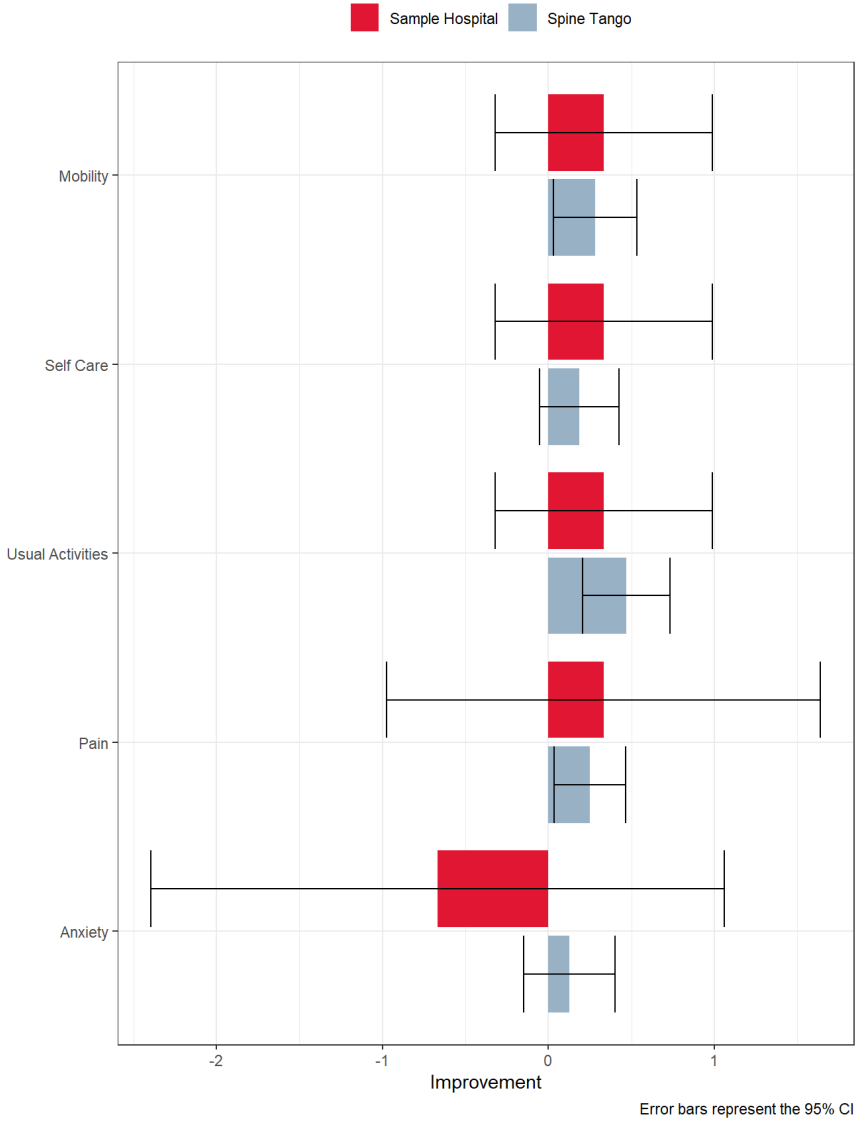EURO SPINE SPINE TANGO

VAS Analysis

Error bars depict the 95% CI

| Group | Paired Observations | Baseline | | | Last Followup | | | |
		Mean	CI (95%)	SD	Mean	CI (95%)	SD	p-value
Sample Hospital	1	5.00	Undefined	Undefined	70.00	Undefined	Undefined	1.0000000
Spine Tango	4	41.50	19.25-63.75	22.71	70.25	53.84-86.66	16.74	0.0975125

Note: p-values were calculated using a one-sided Wilcoxon test

Domain Analysis

Error bars represent the 95% CI

Surgery Follow-up

Summary

Group	Patients	6 Weeks	3 Months	6 Months	1 Year	2 Years	Other	Mean	Range
Sample Hospital	2463	1026	657	817	369	131	933	0.61	0.03-3.28
Spine Tango	24000	11380	8941	4001	4441	1722	2229	0.83	0.02-7.62

Outcome

Outcome	Sample Hospital	Spine Tango
Excellent	42.2% (1658)	31.6% (10338)
Good	35.9% (1411)	49.1% (16054)
Fair	13.7% (537)	13.3% (4343)
Poor	8.2% (322)	5.4% (1771)
Not Applicable	0.1% (5)	0.6% (203)
Unknown	0.0% (0)	0.0% (5)

Work Status

Work Status	Sample Hospital	Spine Tango
Not at work since OP	25.4% (999)	30.8% (10077)
Started partially, same job	3.9% (154)	5.9% (1915)
Fully reintegrated	15.9% (626)	17.4% (5692)
Resumed work, but quit again	0.6% (24)	0.4% (140)
Resumed work, different job	0.6% (22)	0.9% (286)
Has been dismissed	1.4% (54)	0.6% (190)
Retired since OP	1.5% (60)	1.6% (521)
Retired before OP	38.7% (1521)	31.4% (10262)
Housewife/man	3.0% (118)	4.0% (1320)
Child/student	7.2% (282)	1.1% (347)
Other	1.9% (73)	6.0% (1964)

Therapeutic Goals

Chart legend: Acheived (red), Partially Acheived (medium blue), Not Acheived (light blue)

Categories shown (each comparing Sample Hospital vs Spine Tango):
- Pain Relief
- Functional Improvement
- Neurological Improvement
- Bowel / Bladder Function Improvement
- Cosmetic Improvement
- Spinal Stabilisation
- Diagnostic Measures
- Stop Deformity Progression
- Prophylactic Decompression
- Deformity Correction
- Other

Postoperative Complications

Complications?	Sample Hospital	Spine Tango
No	86.2% (3389)	92.0% (30085)
Yes	13.8% (544)	8.0% (2629)

Complication Type	Sample Hospital	Spine Tango
Sensory dysfunction	2.3% (91)	1.6% (514)
Motor dysfunction	1.5% (59)	0.9% (298)
Bowel/ bladder dysfunction	0.5% (21)	0.4% (143)
Non-union	0.8% (30)	0.1% (29)
Implant failure	1.0% (39)	0.5% (152)
Instability	0.3% (12)	0.2% (50)
CSF leak/ pseudomeningocele	0.9% (37)	0.4% (147)
Wound infection superficial	0.7% (29)	1.2% (404)
Wound infection deep	1.0% (41)	0.5% (166)
Spondylitis	0.0% (1)	0.0% (12)
Discitis	0.1% (2)	0.1% (23)
Epidural hematoma	0.7% (26)	0.1% (40)
Extravertebral hematoma	0.2% (7)	0.0% (16)
Wrong level	0.1% (4)	0.0% (0)
Implant malposition	0.3% (12)	0.2% (81)
Recurrence of symptoms	2.3% (90)	1.3% (417)
Graft complication	0.3% (10)	0.0% (11)
Internal medicine	0.2% (6)	0.1% (24)
Sequelae anaesthesia	0.1% (3)	0.0% (7)
Adjac. segment pathology	0.5% (21)	0.1% (35)
Recurrent tumor	0.0% (0)	0.0% (2)
Decompensation of spine	0.1% (3)	0.0% (5)
Cardiovascular	0.1% (2)	0.1% (23)
Gastrointestinal	0.1% (5)	0.0% (9)
Central nervous system	0.1% (5)	0.0% (10)
Fracture vertebral structures	0.2% (6)	0.0% (9)
Thromboembolism	0.1% (3)	0.0% (13)
Other	3.5% (139)	1.5% (493)
None	86.2% (3389)	92.0% (30085)

Complication Time

Sample Hospital	Sensory dysfunction
Sample Hospital	Motor dysfunction
Sample Hospital	Bowel/ bladder dysfunction
Sample Hospital	Non-union
Sample Hospital	Implant failure
Sample Hospital	Instability
Sample Hospital	CSF leak/ pseudomeningocele
Sample Hospital	Wound infection superficial
Sample Hospital	Wound infection deep
Sample Hospital	Spondylitis
Sample Hospital	Discitis
Sample Hospital	Epidural hematoma
Sample Hospital	Extravertebral hematoma
Sample Hospital	Wrong level
Sample Hospital	Implant malposition
Sample Hospital	Recurrence of symptoms
Sample Hospital	Graft complication
Sample Hospital	Internal medicine
Sample Hospital	Sequelae anaesthesia
Sample Hospital	Adjac. segment pathology
Sample Hospital	Decompensation of spine
Sample Hospital	Cardiovascular
Sample Hospital	Gastrointestinal
Sample Hospital	Central nervous system
Sample Hospital	Fracture vertebral structures
Sample Hospital	Thromboembolism
Sample Hospital	Other

Early (< 28 Days)   Sub-acute (2-6 Months)   Late (> 6 Months)

Repeat Surgery

Type of Repeat Surgery	Sample Hospital	Spine Tango
Hardware Removal	28.6% (215)	17.6% (304)
Non-Union	21.1% (159)	18.9% (326)
Instability	13.6% (102)	11.3% (195)
Failure To Reach Therapeutic Goals	15.3% (115)	16.1% (277)
Neurocompression	20.5% (154)	24.0% (414)
Postoperative Infection Superficial	0.9% (7)	2.5% (43)
Postoperative Infection Deep	9.2% (69)	4.1% (70)
Implant Malposition	5.9% (44)	2.8% (49)
Implant Failure	13.4% (101)	13.9% (240)
Sagittal Imbalance	9.0% (68)	7.1% (123)
Adjacent Segment Pathology	12.6% (95)	21.2% (365)
Wound Healing Problem	0.0% (0)	0.0% (0)
CSF-Leak	0.0% (0)	0.0% (0)
Spinal Imbalance	0.0% (0)	0.0% (0)

Preoperative Profile

	Sample Hospital	Spine Tango
Mean Age	52.1	56.2
< 18	1.3% (10)	1.8% (31)
18-39	22.8% (173)	14.0% (242)
40-49	16.2% (123)	16.6% (287)
50-59	24.3% (184)	23.3% (402)
60-79	32.5% (246)	41.0% (708)
>= 80	2.9% (22)	3.2% (55)
Gender		
Male	41.2% (312)	44.6% (770)
Female	58.8% (446)	55.4% (955)
Smoker		
No	57.9% (439)	57.7% (995)
Yes	23.9% (181)	15.8% (273)
Unknown	18.2% (138)	26.5% (457)
Median BMI	26.3	27.3
< 20	8.7% (66)	4.8% (82)
20-25	40.5% (307)	26.1% (450)
26-30	28.1% (213)	32.8% (566)
31-35	12.4% (94)	17.9% (309)
> 35	6.2% (47)	7.2% (124)
Unknown	4.1% (31)	11.2% (194)
Number of Segments Affected		
1	38.5% (292)	45.6% (787)
2-3	20.3% (154)	22.0% (380)
>= 4	29.0% (220)	19.8% (342)
Unknown	12.1% (92)	12.5% (216)
Previous Surgeries (Any Level)		
0	0.0% (0)	0.0% (0)
1	55.5% (421)	59.2% (1022)
> 1	43.9% (333)	40.8% (703)
Unknown	0.5% (4)	0.0% (0)

Perioperative Profile

Characteristic	Sample Hospital	Spine Tango
Blood Loss		
< 100 ml	47.1% (357)	37.9% (654)
100 - 500 ml	31.0% (235)	29.2% (504)
500 - 1000 ml	8.4% (64)	10.4% (180)
1000 - 2000 ml	5.3% (40)	3.8% (66)
> 2000 ml	2.5% (19)	1.3% (23)
Unknown	5.7% (43)	17.3% (298)
Blood Transfusion		
None	81.4% (617)	80.9% (1395)
< 2 units	2.8% (21)	3.0% (51)
>= 2 units	3.2% (24)	4.0% (69)
Cell Saver	13.9% (105)	7.6% (131)
Unknown	1.8% (14)	6.3% (108)
Prophylaxis		
None	2.2% (17)	1.7% (29)
Infection	57.4% (435)	73.9% (1275)
Thromboembolism	19.8% (150)	61.4% (1060)
Ossification	0.0% (0)	0.3% (6)
Other	0.0% (0)	0.4% (7)
Unknown	39.7% (301)	23.3% (402)
Technology		
Conventional	71.5% (542)	66.5% (1147)
MISS / LISS	13.2% (100)	9.9% (171)
Loops	25.7% (195)	5.7% (99)
Endoscope	0.3% (2)	0.1% (1)
Microscope	14.8% (112)	25.3% (437)
CASS	0.3% (2)	4.1% (71)
Neuromonitoring	3.0% (23)	3.6% (62)
Intraoperative 3d-Imaging	0.3% (2)	1.3% (23)
Other	3.0% (23)	2.4% (42)
Unknown	0.3% (2)	1.7% (29)

Characteristic	Sample Hospital	Spine Tango
Operation Time		
< 1 hr.	28.6% (217)	19.2% (331)
1-2 hrs.	26.9% (204)	29.8% (514)
2-3 hrs.	14.1% (107)	20.3% (350)
3-4 hrs.	10.7% (81)	11.6% (200)
4-5 hrs.	7.0% (53)	5.6% (97)
5-6 hrs.	4.9% (37)	3.9% (67)
6-8 hrs.	4.9% (37)	3.9% (68)
8-10 hrs.	1.6% (12)	1.9% (32)
> 10 hrs.	0.0% (0)	0.0% (0)
Unknown	1.3% (10)	3.8% (66)
Anterior Access		
No Anterior Access	91.8% (696)	78.1% (1348)
Transoral	0.1% (1)	0.1% (2)
Anterolateral	5.9% (45)	7.1% (123)
Cervicothoracic Anterolateral	0.1% (1)	0.1% (2)
Cervicothoracic With Sternotomy	0.0% (0)	0.0% (0)
Cervicothoracic Anterolat With Sternotomy	0.0% (0)	0.0% (0)
Thoracotomy	0.0% (0)	0.7% (12)
Cervicothoracic Anterolat With Thoracotomy	0.0% (0)	0.0% (0)
Thoracoabdominal	0.0% (0)	0.7% (12)
Retroperitoneal	2.0% (15)	5.7% (98)
Thoraco-Phrenico-Lumbotomy	0.0% (0)	0.0% (0)
Transperitoneal	0.0% (0)	0.1% (1)
Trans-Psoas (XLIF)	0.0% (0)	7.0% (121)
Other	0.0% (0)	0.4% (7)
Posterior Access		
No Posterior Access	6.9% (52)	8.7% (150)
Midline	87.5% (663)	78.2% (1349)
Paramedian	3.0% (23)	10.9% (188)
Posterolateral	0.1% (1)	0.9% (16)
Percutaneous	1.6% (12)	1.2% (20)
Para-Coccygeal (AxiaLIF)	0.0% (0)	0.0% (0)
Other	1.1% (8)	0.1% (2)

Surgical Measures

Decompression

Characteristic	Sample Hospital	Spine Tango
Decompression		
None	48.9% (371)	36.9% (637)
Discectomy	31.9% (242)	38.4% (663)
Vertebrectomy Partial	4.4% (33)	2.1% (36)
Vertebrectomy Full	0.0% (0)	0.5% (8)
Osteotomy	3.2% (24)	3.0% (52)
Laminotomy	14.6% (111)	16.3% (281)
Hemi-Laminectomy	2.2% (17)	3.5% (61)
Laminectomy	8.6% (65)	14.7% (253)
Facet Joint Resection Partial	12.9% (98)	10.6% (183)
Facet Joint Resection Full	10.7% (81)	11.5% (199)
Flavectomy	17.7% (134)	17.4% (301)
Foraminotomy	12.4% (94)	18.3% (315)
Sequestrectomy	6.5% (49)	1.8% (31)
Flavotomy	0.4% (3)	0.4% (7)
Uncoforaminotomy	1.3% (10)	0.5% (8)
Other	3.2% (24)	3.7% (64)
Unknown	0.5% (4)	0.0% (0)

Fusion

Characteristic	Sample Hospital	Spine Tango
Fusion Promoting Measures		
None	58.3% (442)	43.0% (741)
Posterolateral Fusion	10.3% (78)	26.4% (456)
Posterior Fusion	15.2% (115)	10.7% (185)
Interbody Fusion (A-IF)	7.5% (57)	11.3% (195)
Interbody Fusion (PLIF)	14.5% (110)	6.4% (111)
Interbody Fusion (TLIF)	5.8% (44)	11.7% (202)
Interbody Fusion (XLIF)	0.0% (0)	8.4% (145)
Other Interbody Fusion	1.3% (10)	2.4% (42)
Ilio-Sacral Fusion	0.1% (1)	0.3% (6)
Other	0.8% (6)	0.6% (11)
Unknown	0.7% (5)	0.0% (0)

Stabilisation

Characteristic	Sample Hospital	Spine Tango
Rigid Stabilisation		
None	56.1% (425)	39.9% (689)
Interbody Stabilisation With Cage	19.9% (151)	32.8% (565)
Interbody Stabilisation With Auto-/ Allograft	7.7% (58)	2.7% (46)
Vertebral Body Replacement By Cage	0.8% (6)	0.6% (11)
Plates	2.5% (19)	6.0% (103)
Pedicle Screws With Rod	23.2% (176)	38.3% (660)
Pedicle Screws With Plate	0.0% (0)	0.0% (0)
Facet Screws	0.0% (0)	0.2% (4)
Transarticular Screw	0.0% (0)	0.0% (0)
Transarticular Screw C1-C2	0.1% (1)	0.0% (0)
Laminar Hooks	1.3% (10)	0.9% (16)
Pedicle Hooks	1.3% (10)	1.3% (22)
Lateral Mass Screw	2.0% (15)	3.4% (59)
Odontoid Screws	0.1% (1)	0.1% (1)
Laminar Screws	0.0% (0)	0.1% (1)
Pedicle Screws Cemented	1.3% (10)	1.4% (24)
Pedicle Screws Uncemented	10.8% (82)	7.4% (127)
Other	3.2% (24)	3.0% (51)
Unknown	0.8% (6)	1.6% (28)
Motion Preserving Stabilisation		
None	99.5% (754)	95.8% (1653)
Disc Replacement	0.3% (2)	0.8% (13)
Dynamic Stabilization	0.1% (1)	1.6% (28)
Interspinous Spacer	0.0% (0)	0.1% (1)
Other	0.1% (1)	0.1% (2)
Unknown	0.0% (0)	1.6% (28)

Complications

General Complications

	Sample Hospital	Spine Tango
Intraoperative General Complications		
None	98.9% (750)	97.5% (1682)
Anaesthesiological	0.4% (3)	0.2% (3)
Cardiovascular	0.0% (0)	0.0% (0)
Pulmonary	0.0% (0)	0.1% (1)
Thromboembolism	0.0% (0)	0.0% (0)
Death	0.0% (0)	0.0% (0)
Not Documented	0.0% (0)	2.0% (35)
Other	0.7% (5)	0.2% (4)
Postoperative General Complications		
None	94.7% (718)	93.4% (1612)
Cardiovascular	0.4% (3)	0.5% (9)
Pulmonary	0.7% (5)	0.6% (10)
Cerebral	0.8% (6)	0.2% (4)
Kidney / Urinary	0.9% (7)	1.2% (21)
Liver / Gi	0.5% (4)	0.6% (10)
Thromboembolism	0.3% (2)	0.1% (1)
Death	0.4% (3)	0.1% (2)
Not Documented	0.7% (5)	2.3% (39)
Positioning-Related	0.1% (1)	0.0% (0)
Other	1.5% (11)	1.4% (25)

EURO SPINE / SPINE TANGO

Surgical Complications

	Sample Hospital	Spine Tango
Intraoperative Surgical Complications		
None	86.9% (659)	92.3% (1592)
Nerve Root Damage	1.1% (8)	0.1% (2)
Spinal Cord Damage	0.0% (0)	0.0% (0)
Dural Lesion	9.9% (75)	4.8% (82)
Vascular Injury	0.1% (1)	0.2% (3)
Fracture Vertebral Structures	0.4% (3)	0.1% (2)
Not Documented	0.0% (0)	2.0% (34)
Other	2.5% (19)	0.8% (14)
Postoperative Surgical Complications		
None	90.4% (685)	91.0% (1569)
Epidural Hematoma	0.1% (1)	0.4% (7)
Other Hematoma	0.4% (3)	0.7% (12)
Radiculopathy	3.0% (23)	1.1% (19)
CSF Leak / Pseudomeningocele	0.8% (6)	1.0% (18)
Motor Dysfunction	1.7% (13)	0.9% (15)
Sensory Dysfunction	1.1% (8)	0.9% (16)
Bowel / Bladder Dysfunction	0.4% (3)	0.2% (4)
Wound Infection Superficial	0.3% (2)	0.8% (14)
Wound Infection Deep	1.3% (10)	1.1% (19)
Implant Malposition	0.5% (4)	0.3% (6)
Implant Failure	0.4% (3)	0.3% (5)
Wrong Level	0.1% (1)	0.0% (0)
Not Documented	0.7% (5)	2.1% (36)
Recurrent Nerve Paresis	0.0% (0)	0.1% (1)
Other	2.0% (15)	1.3% (22)

Adverse Events

Adverse Event	Sample Hospital	Spine Tango	Expected	p-value
Dural Lesion	9.8% (75)	4.7% (82)	5.9% (45)	< 0.001
Fracture Vertebral Structures	0.4% (3)	0.1% (2)	0.2% (2)	0.21
Nerve Root Damage	1.0% (8)	0.1% (2)	0.4% (3)	< 0.05
Spinal Cord Damage	0.0% (0)	0.0% (0)	0.0% (0)	1.00
Vascular Injury	0.1% (1)	0.2% (3)	0.2% (1)	1.00

Funnel Plots
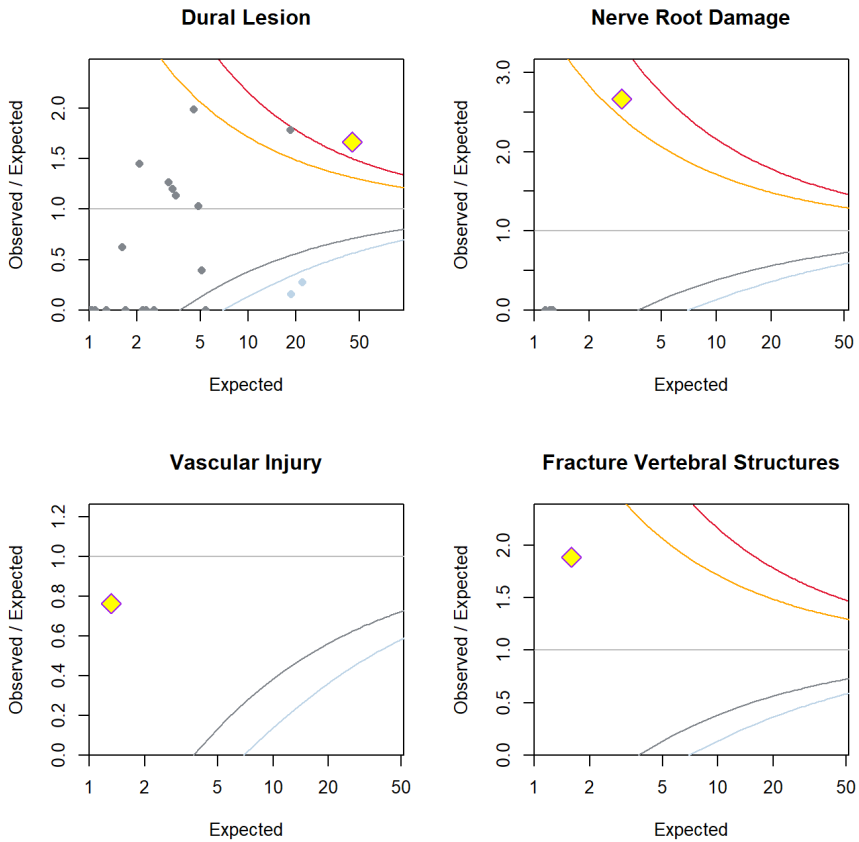
Dural Lesion

Nerve Root Damage

Vascular Injury

Fracture Vertebral Structures

EURO SPINE SPINE TANGO

COMI Analysis - Back / Legs

Summary

Group	Patients	Baseline	<= 3 Months	<= 6 Months	<= 1 Year	<= 2 Years	> 2 Years	Mean (Years)	Range (Years)
Sample Hospital	469	897	50	224	112	343	340	1.60	0.03-8.66
Spine Tango	1050	1910	754	324	419	558	301	0.93	0.00-7.16

Back Pain Analysis
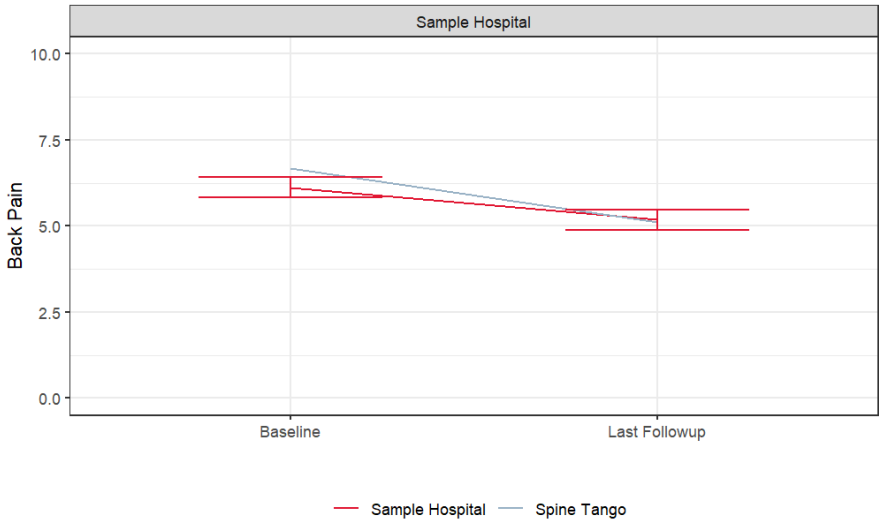
Error bars depict the 95% CI

		Baseline			Last Followup			
Group	Paired Observations	Mean	CI (95%)	SD	Mean	CI (95%)	SD	p-value
Sample Hospital	341	6.12	5.83-6.41	2.72	5.18	4.89-5.46	2.70	0
Spine Tango	655	6.68	6.48-6.89	2.68	5.12	4.90-5.35	2.95	0

Note: p-values were calculated using a one-sided Wilcoxon test
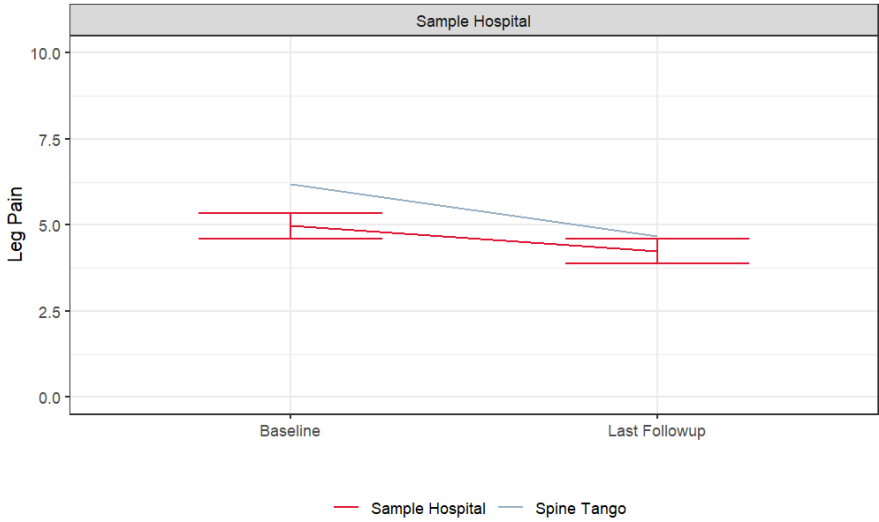
Leg Pain Analysis

Error bars depict the 95% CI

		Baseline			Last Followup			
Group	**Paired Observations**	**Mean**	**CI (95%)**	**SD**	**Mean**	**CI (95%)**	**SD**	**p-value**
Sample Hospital	341	4.98	4.60-5.35	3.53	4.23	3.87-4.59	3.41	5.76e-05
Spine Tango	655	6.18	5.94-6.42	3.18	4.69	4.43-4.94	3.35	0.00e+00

Note: p-values were calculated using a one-sided Wilcoxon test

Composite Score Analysis
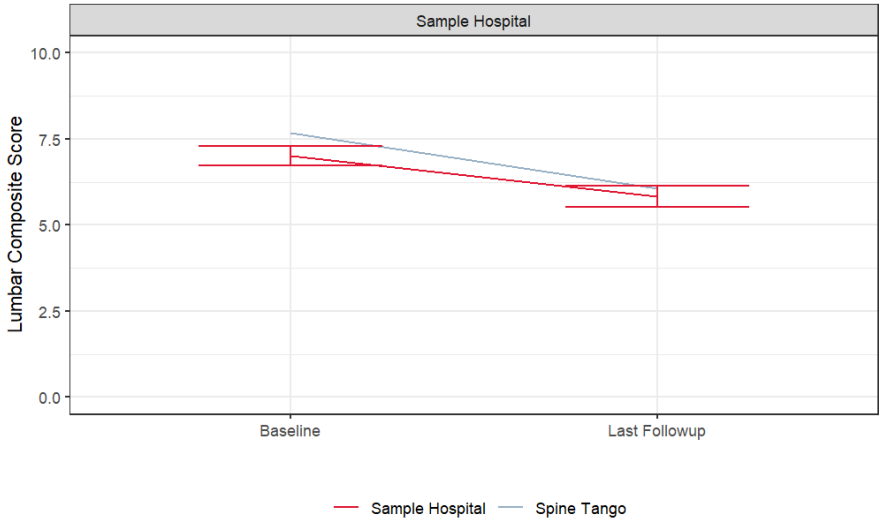
Error bars depict the 95% CI

Group	Paired Observations	Baseline			Last Followup			
		Mean	CI (95%)	SD	Mean	CI (95%)	SD	p-value
Sample Hospital	341	7.01	6.72-7.29	2.67	5.82	5.52-6.13	2.86	0
Spine Tango	655	7.68	7.53-7.84	2.04	6.07	5.86-6.28	2.74	0

Note: p-values were calculated using a one-sided Wilcoxon test
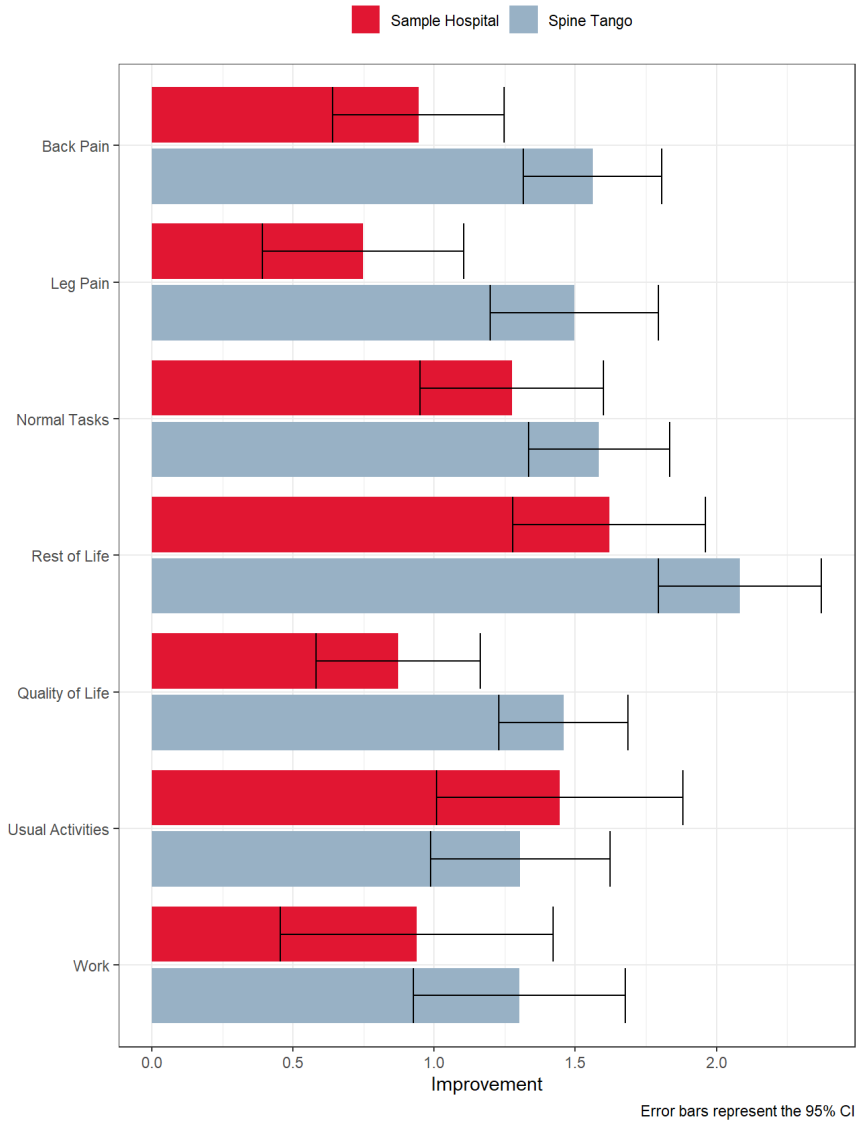
Domain Analysis

Error bars represent the 95% CI

COMI Analysis - Neck / Arms

Summary

Group	Patients	Baseline	<= 3 Months	<= 6 Months	<= 1 Year	<= 2 Years	> 2 Years	Mean (Years)	Range (Years)
Sample Hospital	50	87	8	16	8	14	32	2.28	0.02-8.65
Spine Tango	183	275	115	37	51	81	26	0.87	0.01-7.59

Neck Pain Analysis
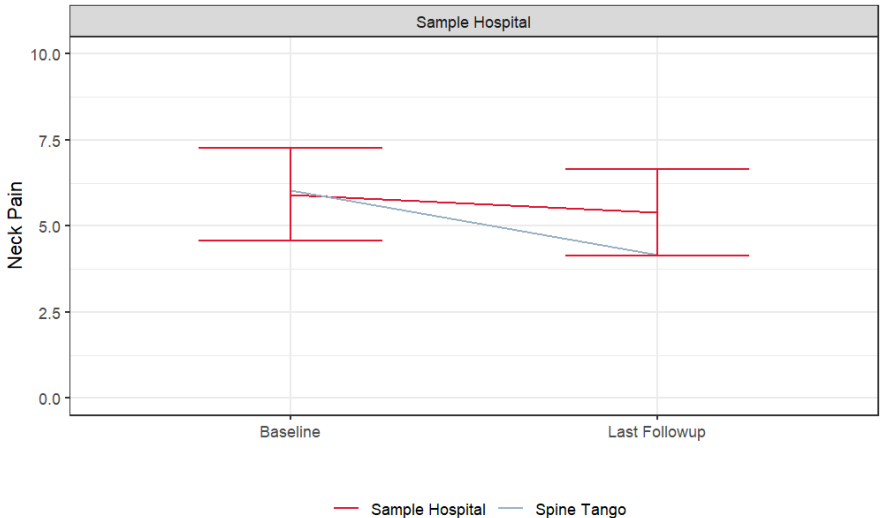
Error bars depict the 95% CI

		Baseline			Last Followup			
Group	Paired Observations	Mean	CI (95%)	SD	Mean	CI (95%)	SD	p-value
Sample Hospital	23	5.91	4.56-7.26	3.30	5.39	4.12-6.66	3.10	0.3293438
Spine Tango	87	6.03	5.47-6.60	2.70	4.16	3.62-4.71	2.59	0.0000001
Note: p-values were calculated using a one-sided Wilcoxon test								
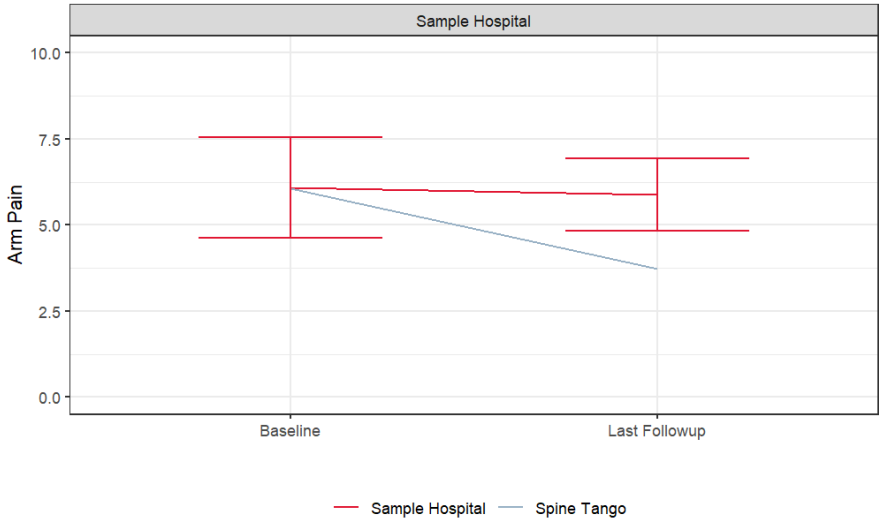
EURO SPINE SPINE TANGO

Arm Pain Analysis

Error bars depict the 95% CI

		Baseline			Last Followup			
Group	Paired Observations	Mean	CI (95%)	SD	Mean	CI (95%)	SD	p-value
Sample Hospital	23	6.09	4.63-7.54	3.55	5.87	4.82-6.92	2.56	0.8785217
Spine Tango	87	6.06	5.47-6.65	2.81	3.72	3.07-4.38	3.10	0.0000004

Note: p-values were calculated using a one-sided Wilcoxon test
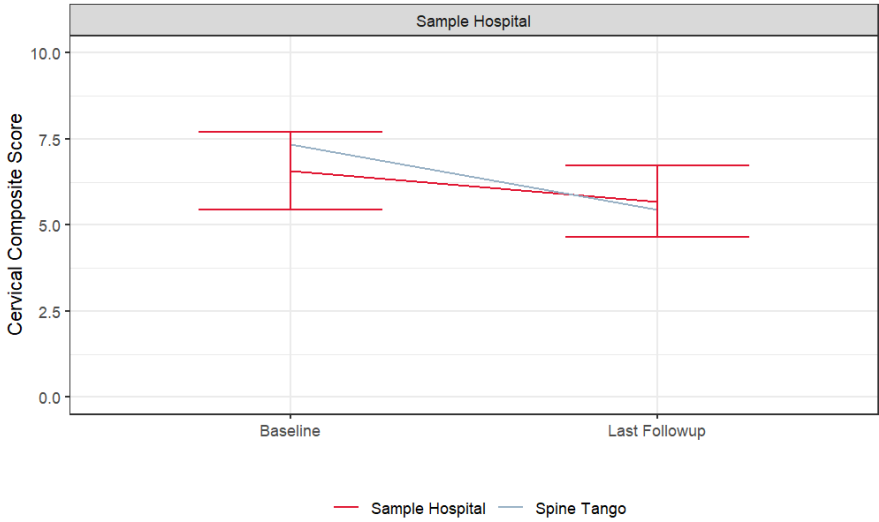
Composite Score Analysis

Error bars depict the 95% CI

		Baseline			Last Followup			
Group	Paired Observations	Mean	CI (95%)	SD	Mean	CI (95%)	SD	p-value
Sample Hospital	23	6.57	5.46-7.69	2.74	5.68	4.64-6.71	2.53	0.1750474
Spine Tango	87	7.33	6.90-7.76	2.04	5.43	4.90-5.97	2.55	0.0000000

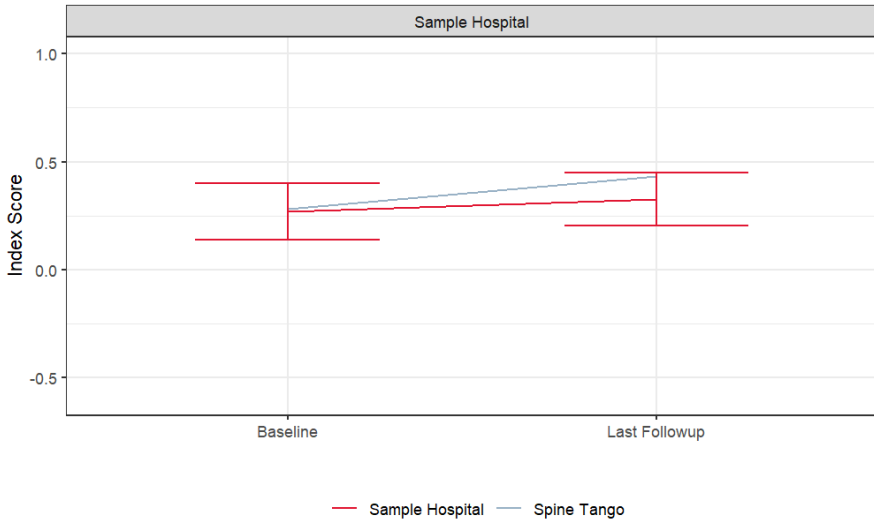*Note:* p-values were calculated using a one-sided Wilcoxon test
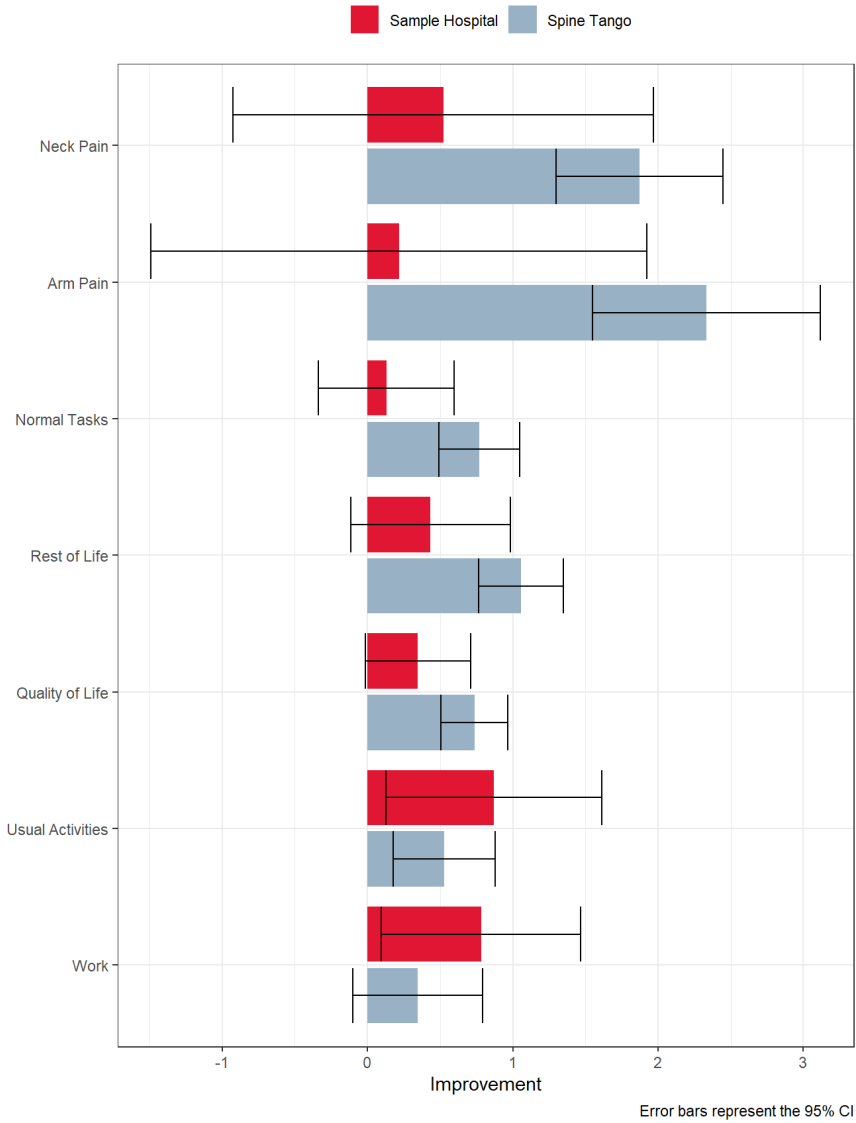
Domain Analysis

Error bars represent the 95% CI

EQ-5D-3L Analysis

Summary

Group	Patients	Baseline	<= 3 Months	<= 6 Months	<= 1 Year	<= 2 Years	> 2 Years	Mean (Years)	Range (Years)
Sample Hospital	118	155	37	35	18	49	68	1.39	0.03-7.33
Spine Tango	329	574	183	22	43	67	66	0.90	0.00-5.90

Index Score Analysis

Error bars depict the 95% CI

		Baseline			Last Followup			
Group	Paired Observations	Mean	CI (95%)	SD	Mean	CI (95%)	SD	p-value
Sample Hospital	42	0.27	0.14-0.40	0.43	0.33	0.21-0.45	0.40	0.3873966
Spine Tango	231	0.28	0.23-0.33	0.35	0.43	0.39-0.48	0.36	0.0000000

*Note:* p-values were calculated using a one-sided Wilcoxon test
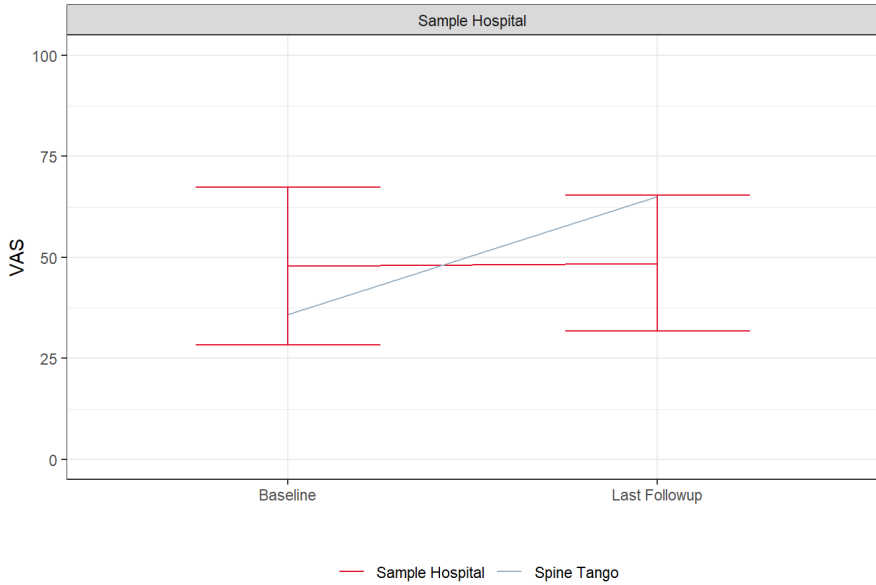
VAS Analysis

Error bars depict the 95% CI

		Baseline			Last Followup			
Group	Paired Observations	Mean	CI (95%)	SD	Mean	CI (95%)	SD	p-value
Sample Hospital	7	47.86	28.27-67.44	26.44	48.57	31.77-65.37	22.68	0.5827020
Spine Tango	10	35.80	22.27-49.33	21.84	65.00	55.76-74.24	14.91	0.0177172

Note: p-values were calculated using a one-sided Wilcoxon test
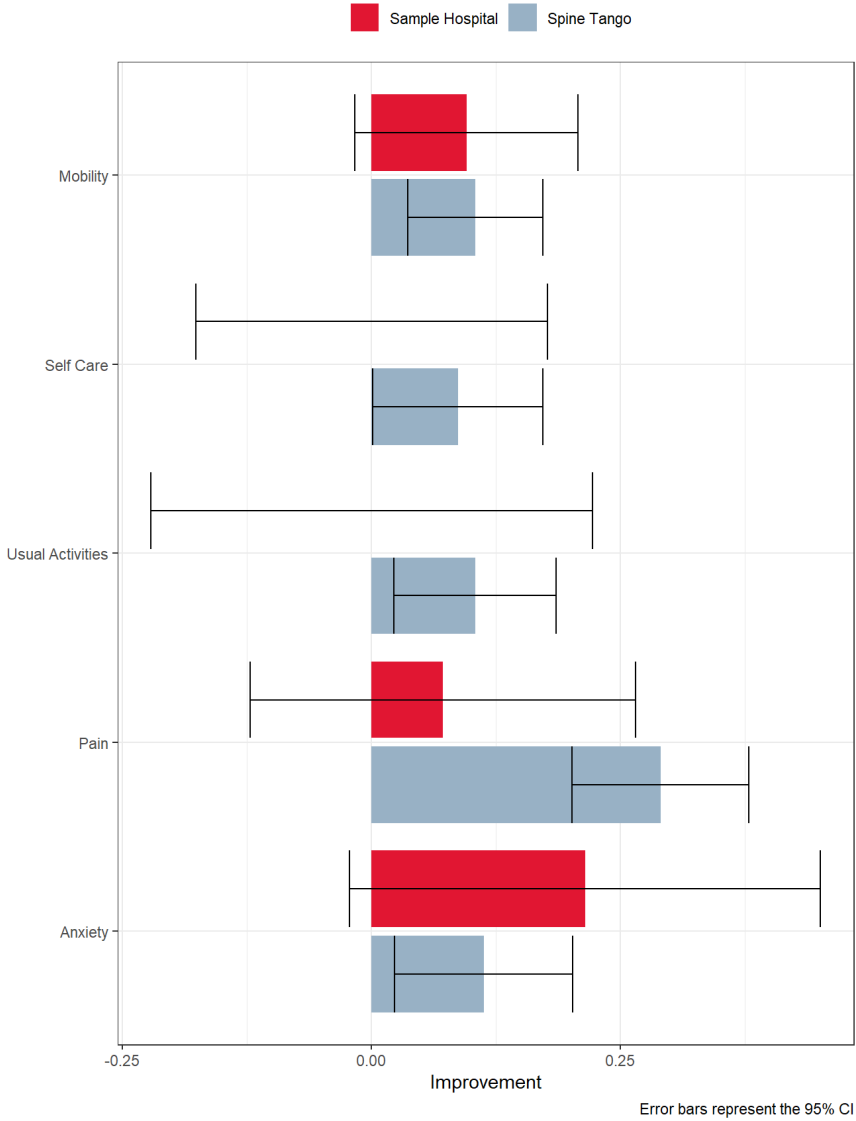
Domain Analysis

Error bars represent the 95% CI

Surgery Follow-up

Summary

Group	Patients	6 Weeks	3 Months	6 Months	1 Year	2 Years	Other	Mean	Range
Sample Hospital	2463	1026	657	817	369	131	933	0.71	0.04-6.15
Spine Tango	24000	11380	8941	4001	4441	1722	2229	0.62	0.02-4.05

Outcome

Outcome	Sample Hospital	Spine Tango
Excellent	42.2% (1658)	31.6% (10338)
Good	35.9% (1411)	49.1% (16054)
Fair	13.7% (537)	13.3% (4343)
Poor	8.2% (322)	5.4% (1771)
Not Applicable	0.1% (5)	0.6% (203)
Unknown	0.0% (0)	0.0% (5)

Work Status

Work Status	Sample Hospital	Spine Tango
Not at work since OP	25.4% (999)	30.8% (10077)
Started partially, same job	3.9% (154)	5.9% (1915)
Fully reintegrated	15.9% (626)	17.4% (5692)
Resumed work, but quit again	0.6% (24)	0.4% (140)
Resumed work, different job	0.6% (22)	0.9% (286)
Has been dismissed	1.4% (54)	0.6% (190)
Retired since OP	1.5% (60)	1.6% (521)
Retired before OP	38.7% (1521)	31.4% (10262)
Housewife/man	3.0% (118)	4.0% (1320)
Child/student	7.2% (282)	1.1% (347)
Other	1.9% (73)	6.0% (1964)

Therapeutic Goals

Postoperative Complications

Complications?	Sample Hospital	Spine Tango
No	86.2% (3389)	92.0% (30085)
Yes	13.8% (544)	8.0% (2629)

Complication Type	Sample Hospital	Spine Tango
Sensory dysfunction	2.3% (91)	1.6% (514)
Motor dysfunction	1.5% (59)	0.9% (298)
Bowel/ bladder dysfunction	0.5% (21)	0.4% (143)
Non-union	0.8% (30)	0.1% (29)
Implant failure	1.0% (39)	0.5% (152)
Instability	0.3% (12)	0.2% (50)
CSF leak/ pseudomeningocele	0.9% (37)	0.4% (147)
Wound infection superficial	0.7% (29)	1.2% (404)
Wound infection deep	1.0% (41)	0.5% (166)
Spondylitis	0.0% (1)	0.0% (12)
Discitis	0.1% (2)	0.1% (23)
Epidural hematoma	0.7% (26)	0.1% (40)
Extravertebral hematoma	0.2% (7)	0.0% (16)
Wrong level	0.1% (4)	0.0% (0)
Implant malposition	0.3% (12)	0.2% (81)
Recurrence of symptoms	2.3% (90)	1.3% (417)
Graft complication	0.3% (10)	0.0% (11)
Internal medicine	0.2% (6)	0.1% (24)
Sequelae anaesthesia	0.1% (3)	0.0% (7)
Adjac. segment pathology	0.5% (21)	0.1% (35)
Recurrent tumor	0.0% (0)	0.0% (2)
Decompensation of spine	0.1% (3)	0.0% (5)
Cardiovascular	0.1% (2)	0.1% (23)
Gastrointestinal	0.1% (5)	0.0% (9)
Central nervous system	0.1% (5)	0.0% (10)
Fracture vertebral structures	0.2% (6)	0.0% (9)
Thromboembolism	0.1% (3)	0.0% (13)
Other	3.5% (139)	1.5% (493)
None	86.2% (3389)	92.0% (30085)

Complication Time

| | Early (< 28 Days) | Sub-acute (2-6 Months) | Late (> 6 Months) |

Tumor

Type of Tumor	Sample Hospital	Spine Tango
Primary Malignant	8.6% (73)	19.1% (364)
Primary Benign	28.3% (241)	35.0% (666)
Secondary Malignant	53.5% (455)	35.9% (683)
Tumor Like Lesion	2.4% (20)	5.0% (96)
Other	7.3% (62)	5.0% (95)

Preoperative Profile

	Sample Hospital	Spine Tango
Mean Age	58.5	56.8
< 18	0.5% (4)	2.3% (44)
18-39	12.8% (109)	13.3% (256)
40-49	12.8% (109)	14.5% (278)
50-59	22.1% (188)	21.1% (405)
60-79	46.8% (397)	45.1% (866)
>= 80	4.9% (42)	3.7% (72)
Gender		
Male	50.4% (428)	53.1% (1020)
Female	49.6% (421)	46.9% (902)
Smoker		
No	39.4% (335)	35.1% (675)
Yes	6.0% (51)	5.3% (102)
Unknown	54.6% (465)	59.6% (1145)
Median BMI	25.7	26.0
< 20	8.7% (74)	2.3% (45)
20-25	31.0% (264)	18.5% (356)
26-30	30.6% (260)	18.7% (359)
31-35	12.0% (102)	7.4% (143)
> 35	5.3% (45)	3.3% (64)
Unknown	12.5% (106)	49.7% (955)
Number of Segments Affected		
1	47.9% (408)	49.8% (957)
2-3	29.0% (247)	32.5% (624)
>= 4	10.7% (91)	10.2% (196)
Unknown	12.3% (105)	7.5% (145)
Previous Surgeries (Any Level)		
0	86.3% (734)	84.5% (1625)
1	10.8% (92)	10.9% (210)
> 1	2.9% (25)	3.6% (70)
Unknown	0.0% (0)	0.9% (17)

Perioperative Profile

Characteristic	Sample Hospital	Spine Tango
Blood Loss		
< 100 ml	22.3% (190)	25.6% (492)
100 - 500 ml	35.6% (303)	36.4% (700)
500 - 1000 ml	22.2% (189)	12.4% (238)
1000 - 2000 ml	4.5% (38)	5.8% (111)
> 2000 ml	1.1% (9)	2.9% (56)
Unknown	14.3% (122)	16.9% (325)
Blood Transfusion		
None	74.7% (636)	45.6% (877)
< 2 units	4.0% (34)	3.7% (71)
>= 2 units	1.8% (15)	3.2% (62)
Cell Saver	16.1% (137)	0.6% (11)
Unknown	4.2% (36)	47.1% (905)
Prophylaxis		
None	8.8% (75)	0.6% (12)
Infection	57.8% (492)	37.9% (729)
Thromboembolism	50.6% (431)	25.7% (494)
Ossification	0.1% (1)	0.6% (12)
Other	0.0% (0)	0.6% (11)
Unknown	30.7% (261)	60.7% (1167)
Technology		
Conventional	47.7% (406)	47.6% (915)
MISS / LISS	4.7% (40)	6.4% (123)
Loops	2.0% (17)	4.9% (95)
Endoscope	0.1% (1)	0.3% (6)
Microscope	54.2% (461)	55.0% (1058)
CASS	0.2% (2)	1.1% (22)
Neuromonitoring	6.3% (54)	8.7% (168)
Intraoperative 3d-Imaging	0.7% (6)	0.6% (12)
Other	2.0% (17)	6.8% (130)
Unknown	0.6% (5)	2.1% (40)

Characteristic	Sample Hospital	Spine Tango
Operation Time		
< 1 hr.	2.1% (18)	8.1% (156)
1-2 hrs.	10.8% (92)	22.9% (441)
2-3 hrs.	24.1% (205)	30.7% (590)
3-4 hrs.	28.3% (241)	17.6% (339)
4-5 hrs.	15.6% (133)	7.1% (136)
5-6 hrs.	7.6% (65)	3.7% (72)
6-8 hrs.	5.6% (48)	2.7% (52)
8-10 hrs.	1.1% (9)	1.0% (20)
> 10 hrs.	0.0% (0)	0.0% (0)
Unknown	4.7% (40)	6.0% (116)
Anterior Access		
No Anterior Access	93.1% (792)	91.6% (1761)
Transoral	0.0% (0)	0.1% (1)
Anterolateral	3.8% (32)	3.3% (63)
Cervicothoracic Anterolateral	1.1% (9)	0.3% (5)
Cervicothoracic With Sternotomy	0.0% (0)	0.1% (1)
Cervicothoracic Anterolat With Sternotomy	0.0% (0)	0.1% (1)
Thoracotomy	0.9% (8)	1.5% (28)
Cervicothoracic Anterolat With Thoracotomy	0.0% (0)	0.0% (0)
Thoracoabdominal	0.2% (2)	0.1% (2)
Retroperitoneal	0.8% (7)	1.0% (20)
Thoraco-Phrenico-Lumbotomy	0.0% (0)	0.1% (2)
Transperitoneal	0.0% (0)	0.3% (5)
Trans-Psoas (XLIF)	0.0% (0)	0.1% (2)
Other	0.1% (1)	0.1% (2)
Unknown	0.0% (0)	1.5% (29)
Posterior Access		
No Posterior Access	3.8% (32)	7.3% (140)
Midline	91.0% (774)	79.9% (1535)
Paramedian	4.2% (36)	9.8% (188)
Posterolateral	0.5% (4)	1.8% (35)
Percutaneous	0.9% (8)	1.2% (23)
Para-Coccygeal (AxiaLIF)	0.0% (0)	0.0% (0)
Other	0.1% (1)	0.4% (7)

Surgical Measures

Decompression

Characteristic	Sample Hospital	Spine Tango
Decompression		
None	8.6% (73)	17.3% (333)
Discectomy	3.5% (30)	6.1% (118)
Vertebrectomy Partial	5.3% (45)	9.4% (181)
Vertebrectomy Full	4.8% (41)	5.8% (111)
Osteotomy	1.2% (10)	0.8% (15)
Laminotomy	7.4% (63)	8.1% (156)
Hemi-Laminectomy	4.7% (40)	11.4% (220)
Laminectomy	66.0% (562)	49.6% (953)
Facet Joint Resection Partial	9.0% (77)	8.3% (159)
Facet Joint Resection Full	13.4% (114)	4.3% (82)
Flavectomy	20.7% (176)	19.3% (371)
Foraminotomy	1.9% (16)	5.6% (107)
Sequestrectomy	0.7% (6)	0.9% (18)
Flavotomy	0.8% (7)	0.1% (2)
Uncoforaminotomy	0.1% (1)	0.0% (0)
Other	8.6% (73)	15.0% (289)
Unknown	0.0% (0)	0.8% (15)

Fusion

Characteristic	Sample Hospital	Spine Tango
Fusion Promoting Measures		
None	83.0% (706)	77.0% (1480)
Posterolateral Fusion	7.9% (67)	6.2% (119)
Posterior Fusion	3.8% (32)	7.4% (142)
Interbody Fusion (A-IF)	2.8% (24)	2.2% (42)
Interbody Fusion (PLIF)	1.5% (13)	0.5% (10)
Interbody Fusion (TLIF)	0.1% (1)	0.4% (8)
Interbody Fusion (XLIF)	0.0% (0)	0.1% (1)
Other Interbody Fusion	1.1% (9)	1.5% (28)
Ilio-Sacral Fusion	0.0% (0)	0.0% (0)
Other	1.6% (14)	7.3% (141)
Unknown	0.0% (0)	0.9% (17)

Stabilisation

Characteristic	Sample Hospital	Spine Tango
Rigid Stabilisation		
None	36.9% (314)	60.4% (1161)
Interbody Stabilisation With Cage	4.1% (35)	3.7% (71)
Interbody Stabilisation With Auto-/ Allograft	0.2% (2)	0.1% (1)
Vertebral Body Replacement By Cage	3.6% (31)	5.7% (110)
Plates	3.2% (27)	3.5% (68)
Pedicle Screws With Rod	37.0% (315)	28.1% (540)
Pedicle Screws With Plate	0.0% (0)	0.5% (9)
Facet Screws	0.2% (2)	0.3% (6)
Transarticular Screw	0.0% (0)	0.2% (3)
Transarticular Screw C1-C2	0.0% (0)	0.1% (1)
Laminar Hooks	0.1% (1)	0.8% (16)
Pedicle Hooks	0.4% (3)	1.0% (20)
Lateral Mass Screw	8.9% (76)	3.2% (62)
Odontoid Screws	0.0% (0)	0.0% (0)
Laminar Screws	0.7% (6)	0.2% (3)
Pedicle Screws Cemented	3.3% (28)	0.1% (2)
Pedicle Screws Uncemented	14.7% (125)	2.3% (45)
Other	2.6% (22)	2.0% (38)
Unknown	0.0% (0)	0.9% (17)
Motion Preserving Stabilisation		
None	99.2% (844)	98.5% (1894)
Disc Replacement	0.4% (3)	0.0% (0)
Dynamic Stabilization	0.1% (1)	0.1% (2)
Interspinous Spacer	0.0% (0)	0.0% (0)
Other	0.4% (3)	0.2% (4)
Unknown	0.0% (0)	1.1% (22)

Complications

General Complications

	Sample Hospital	Spine Tango
Intraoperative General Complications		
None	99.3% (845)	56.7% (1089)
Anaesthesiological	0.2% (2)	0.1% (2)
Cardiovascular	0.5% (4)	0.2% (3)
Pulmonary	0.0% (0)	0.1% (1)
Thromboembolism	0.0% (0)	0.0% (0)
Death	0.0% (0)	0.0% (0)
Not Documented	0.0% (0)	42.9% (825)
Other	0.1% (1)	0.2% (3)
Postoperative General Complications		
None	94.8% (807)	51.6% (992)
Cardiovascular	0.4% (3)	0.4% (8)
Pulmonary	1.5% (13)	1.9% (37)
Cerebral	0.2% (2)	0.2% (4)
Kidney / Urinary	0.6% (5)	1.6% (31)
Liver / Gi	0.4% (3)	0.5% (10)
Thromboembolism	0.1% (1)	0.2% (3)
Death	0.5% (4)	1.2% (24)
Not Documented	1.1% (9)	43.1% (829)
Positioning-Related	0.0% (0)	0.0% (0)
Other	0.9% (8)	0.4% (8)

Surgical Complications

	Sample Hospital	Spine Tango
Intraoperative Surgical Complications		
None	94.4% (803)	53.2% (1022)
Nerve Root Damage	0.5% (4)	0.3% (6)
Spinal Cord Damage	0.2% (2)	0.1% (2)
Dural Lesion	3.5% (30)	2.9% (55)
Vascular Injury	0.1% (1)	0.3% (6)
Fracture Vertebral Structures	0.1% (1)	0.0% (0)
Not Documented	0.0% (0)	42.8% (822)
Other	1.4% (12)	0.7% (14)
Postoperative Surgical Complications		
None	92.0% (783)	51.2% (985)
Epidural Hematoma	0.2% (2)	0.4% (8)
Other Hematoma	0.1% (1)	0.2% (3)
Radiculopathy	0.0% (0)	0.2% (4)
CSF Leak / Pseudomeningocele	0.7% (6)	0.9% (17)
Motor Dysfunction	2.0% (17)	2.1% (40)
Sensory Dysfunction	0.7% (6)	1.3% (25)
Bowel / Bladder Dysfunction	0.9% (8)	0.9% (17)
Wound Infection Superficial	1.1% (9)	0.5% (10)
Wound Infection Deep	0.5% (4)	0.7% (13)
Implant Malposition	0.4% (3)	0.2% (4)
Implant Failure	0.5% (4)	0.2% (3)
Wrong Level	0.0% (0)	0.0% (0)
Not Documented	1.1% (9)	43.0% (826)
Recurrent Nerve Paresis	0.0% (0)	0.0% (0)
Other	1.5% (13)	0.8% (16)

Adverse Events

Adverse Event	Sample Hospital	Spine Tango	Expected	p-value
Dural Lesion	3.5% (30)	2.9% (55)	3.1% (26)	0.43
Fracture Vertebral Structures	0.1% (1)	0.0% (0)	0.0% (0)	0.27
Nerve Root Damage	0.5% (4)	0.3% (6)	0.4% (3)	0.56
Spinal Cord Damage	0.2% (2)	0.1% (2)	0.1% (1)	0.35
Vascular Injury	0.1% (1)	0.3% (6)	0.2% (2)	1.00

Funnel Plots
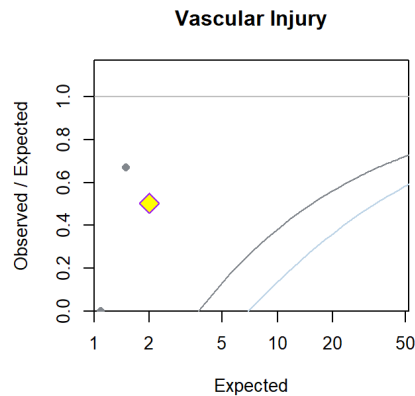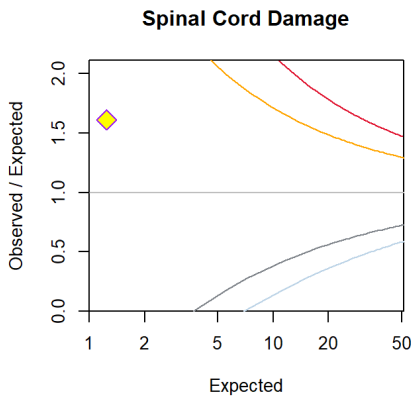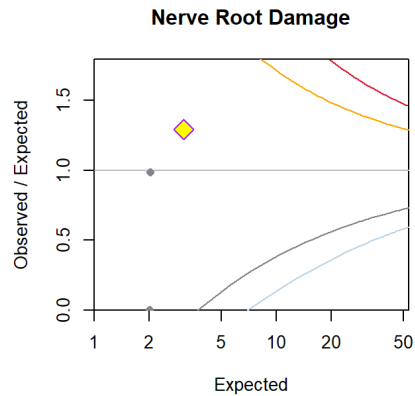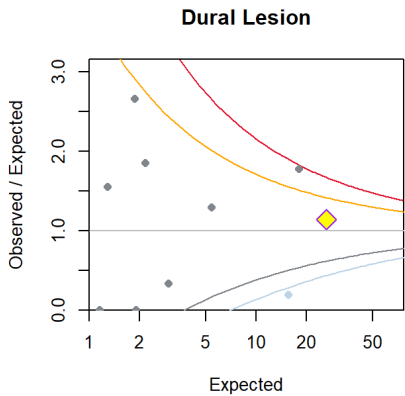
COMI Analysis - Back / Legs

Summary

Group	Patients	Baseline	<= 3 Months	<= 6 Months	<= 1 Year	<= 2 Years	> 2 Years	Mean (Years)	Range (Years)
Sample Hospital	336	71	181	154	56	167	135	0.95	0.01-7.80
Spine Tango	814	457	400	194	264	371	201	1.04	0.00-9.84

Back Pain Analysis
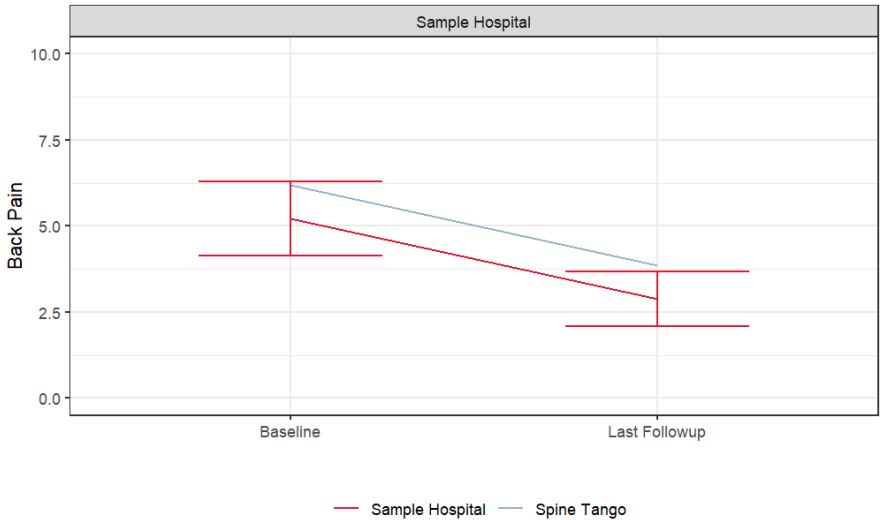
Error bars depict the 95% CI

		Baseline			Last Followup			
Group	Paired Observations	Mean	CI (95%)	SD	Mean	CI (95%)	SD	p-value
Sample Hospital	39	5.21	4.13-6.28	3.42	2.87	2.08-3.66	2.53	2.14e-05
Spine Tango	181	6.18	5.75-6.60	2.90	3.85	3.38-4.31	3.16	0.00e+00

Note: p-values were calculated using a one-sided Wilcoxon test
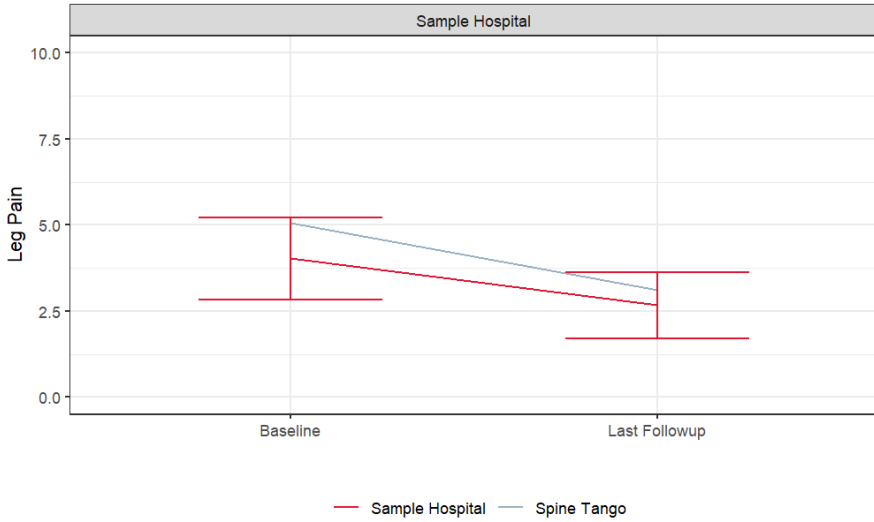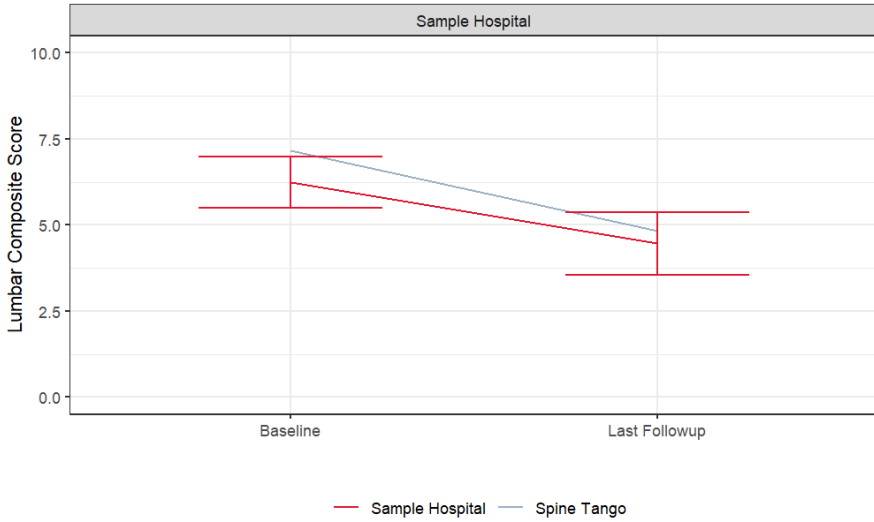
Leg Pain Analysis

Error bars depict the 95% CI

		Baseline			Last Followup			
Group	**Paired Observations**	**Mean**	**CI (95%)**	**SD**	**Mean**	**CI (95%)**	**SD**	**p-value**
Sample Hospital	39	4.03	2.84-5.21	3.78	2.67	1.70-3.63	3.07	0.0083444
Spine Tango	181	5.07	4.54-5.59	3.62	3.12	2.62-3.63	3.46	0.0000000

Note: p-values were calculated using a one-sided Wilcoxon test
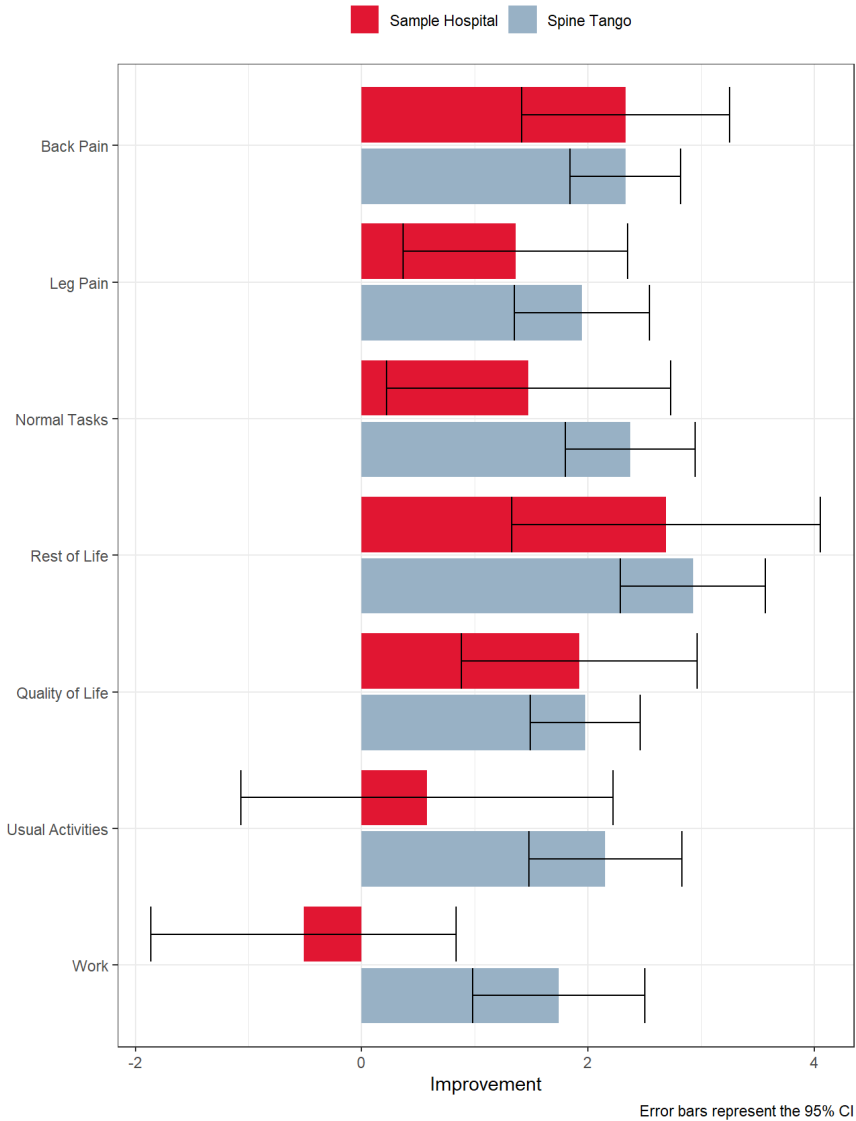
Composite Score Analysis

Error bars depict the 95% CI

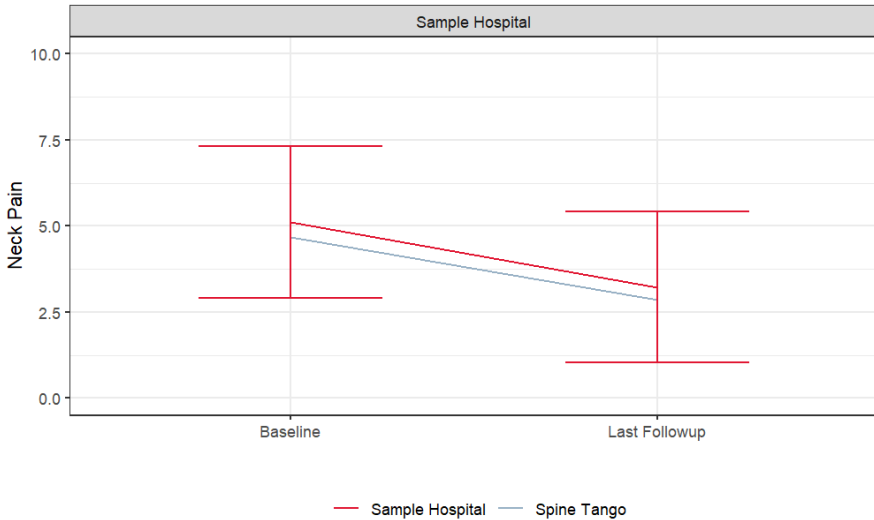|		Baseline			Last Followup			
Group	Paired Observations	Mean	CI (95%)	SD	Mean	CI (95%)	SD	p-value
Sample Hospital	39	6.24	5.48-6.99	2.40	4.46	3.55-5.37	2.90	0.0021556
Spine Tango	181	7.17	6.83-7.52	2.35	4.83	4.36-5.30	3.20	0.0000000
Note: p-values were calculated using a one-sided Wilcoxon test								

Domain Analysis

Error bars represent the 95% CI

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COMI Analysis - Neck / Arms

Summary

Group	Patients	Baseline	<= 3 Months	<= 6 Months	<= 1 Year	<= 2 Years	> 2 Years	Mean (Years)	Range (Years)
Sample Hospital	76	28	38	31	12	37	30	0.94	0.02-5.60
Spine Tango	209	114	116	54	54	102	45	0.96	0.00-6.07

Neck Pain Analysis

Error bars depict the 95% CI

		Baseline			Last Followup			
Group	Paired Observations	Mean	CI (95%)	SD	Mean	CI (95%)	SD	p-value
Sample Hospital	9	5.11	2.91-7.31	3.37	3.22	1.04-5.41	3.35	0.1562601
Spine Tango	43	4.67	3.67-5.68	3.35	2.86	1.99-3.73	2.92	0.0085959

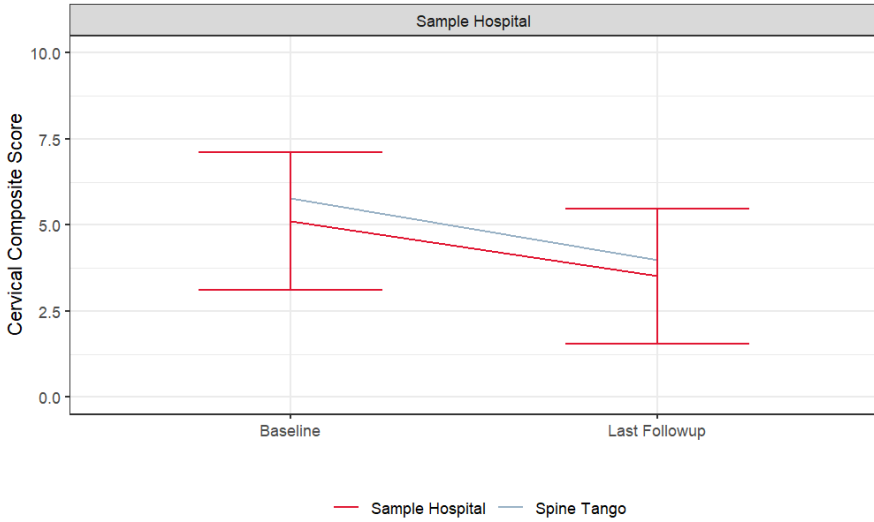*Note:* p-values were calculated using a one-sided Wilcoxon test
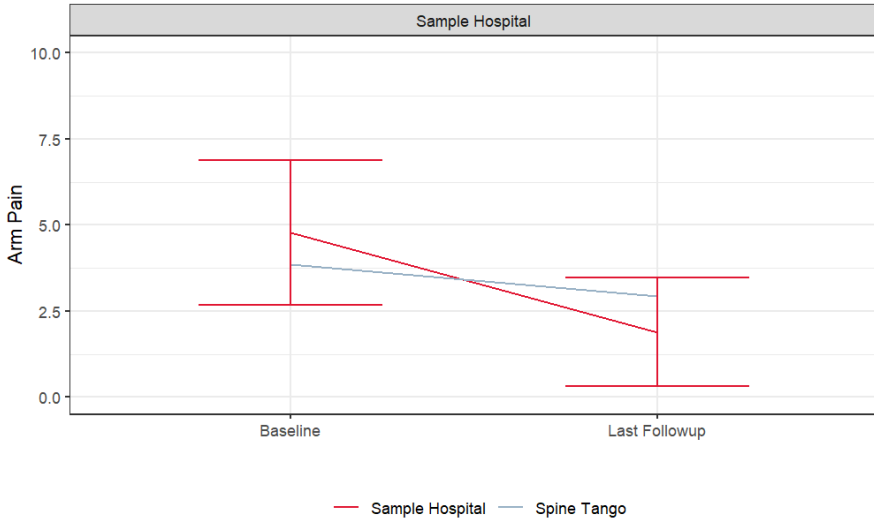
Arm Pain Analysis

Error bars depict the 95% CI

|		Baseline			Last Followup			
Group	Paired Observations	Mean	CI (95%)	SD	Mean	CI (95%)	SD	p-value
Sample Hospital	9	4.78	2.67-6.89	3.23	1.89	0.31-3.47	2.42	0.0136767
Spine Tango	43	3.86	2.89-4.83	3.24	2.93	2.00-3.86	3.11	0.0650964
Note: p-values were calculated using a one-sided Wilcoxon test								

Composite Score Analysis

Error bars depict the 95% CI

		Baseline			Last Followup			
Group	Paired Observations	Mean	CI (95%)	SD	Mean	CI (95%)	SD	p-value
Sample Hospital	9	5.11	3.10-7.12	3.08	3.51	1.54-5.48	3.01	0.2031250
Spine Tango	43	5.77	4.95-6.59	2.74	3.99	3.11-4.88	2.95	0.0002994

Note: p-values were calculated using a one-sided Wilcoxon test
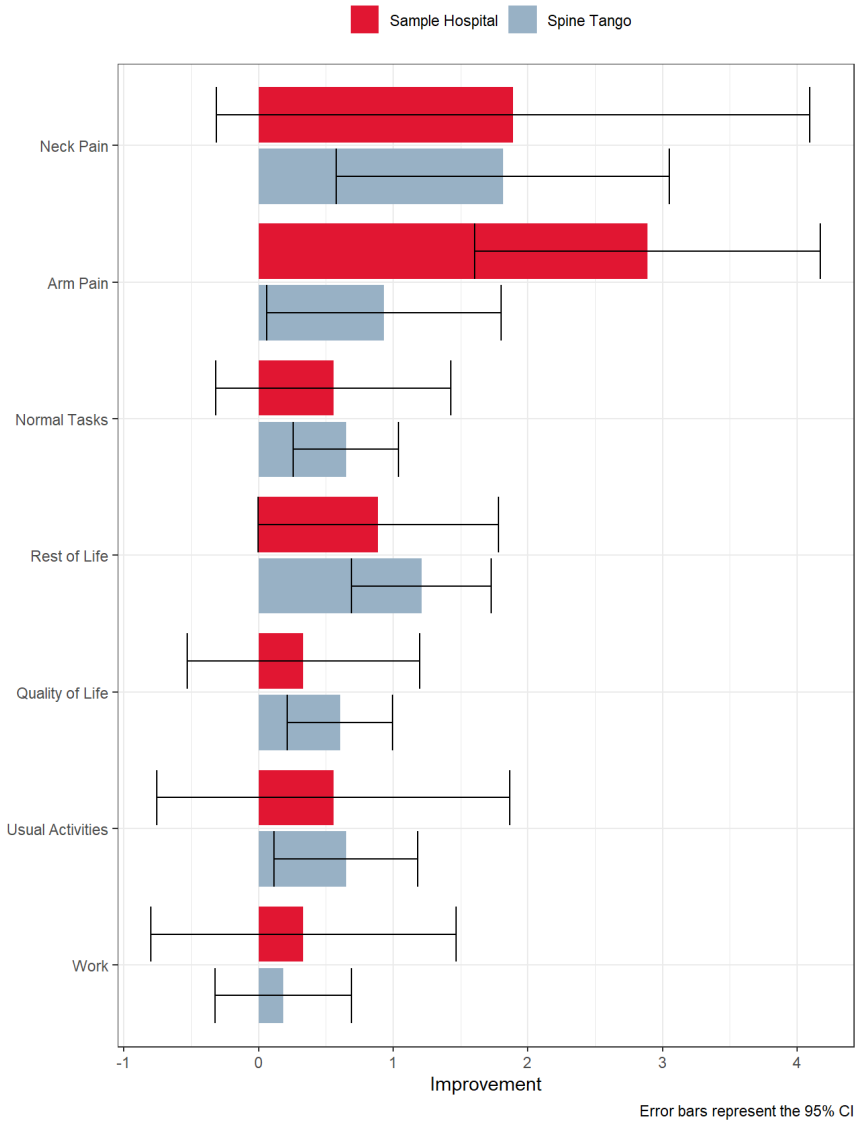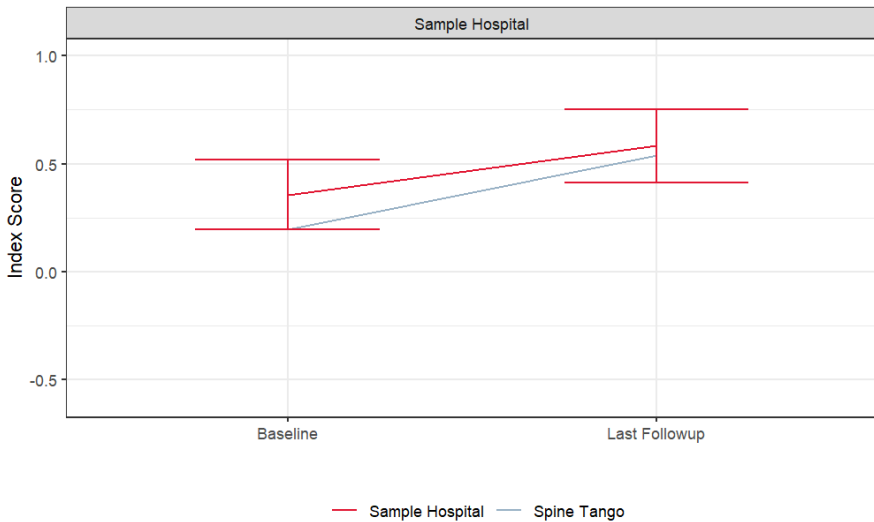
Domain Analysis

Error bars represent the 95% CI

EQ-5D-3L Analysis

Summary

Group	Patients	Baseline	<= 3 Months	<= 6 Months	<= 1 Year	<= 2 Years	> 2 Years	Mean (Years)	Range (Years)
Sample Hospital	313	43	158	125	53	156	143	1.03	0.01-7.80
Spine Tango	126	80	28	11	13	32	20	1.14	0.00-6.07

Index Score Analysis

Error bars depict the 95% CI

		Baseline			Last Followup			
Group	Paired Observations	Mean	CI (95%)	SD	Mean	CI (95%)	SD	p-value
Sample Hospital	26	0.36	0.20-0.52	0.42	0.58	0.41-0.75	0.44	0.0144736
Spine Tango	31	0.20	0.05-0.35	0.43	0.54	0.40-0.68	0.39	0.0001357
Note: p-values were calculated using a one-sided Wilcoxon test								
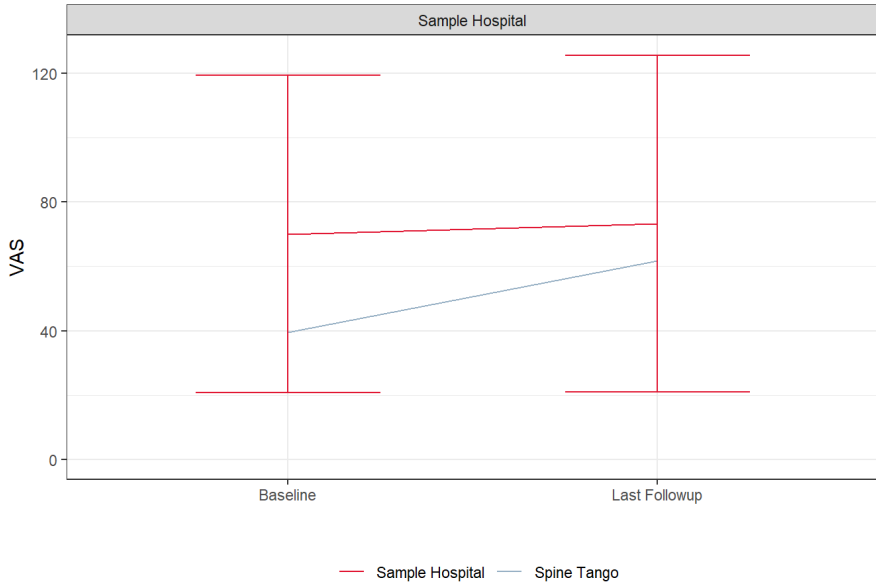
VAS Analysis

Error bars depict the 95% CI

		Baseline			Last Followup			
Group	Paired Observations	Mean	CI (95%)	SD	Mean	CI (95%)	SD	p-value
Sample Hospital	3	70.00	20.68-119.32	43.59	73.33	21.07-125.60	46.19	1.0000000
Spine Tango	9	39.56	28.71-50.40	16.60	61.78	42.92-80.64	28.87	0.0421535

Note: p-values were calculated using a one-sided Wilcoxon test
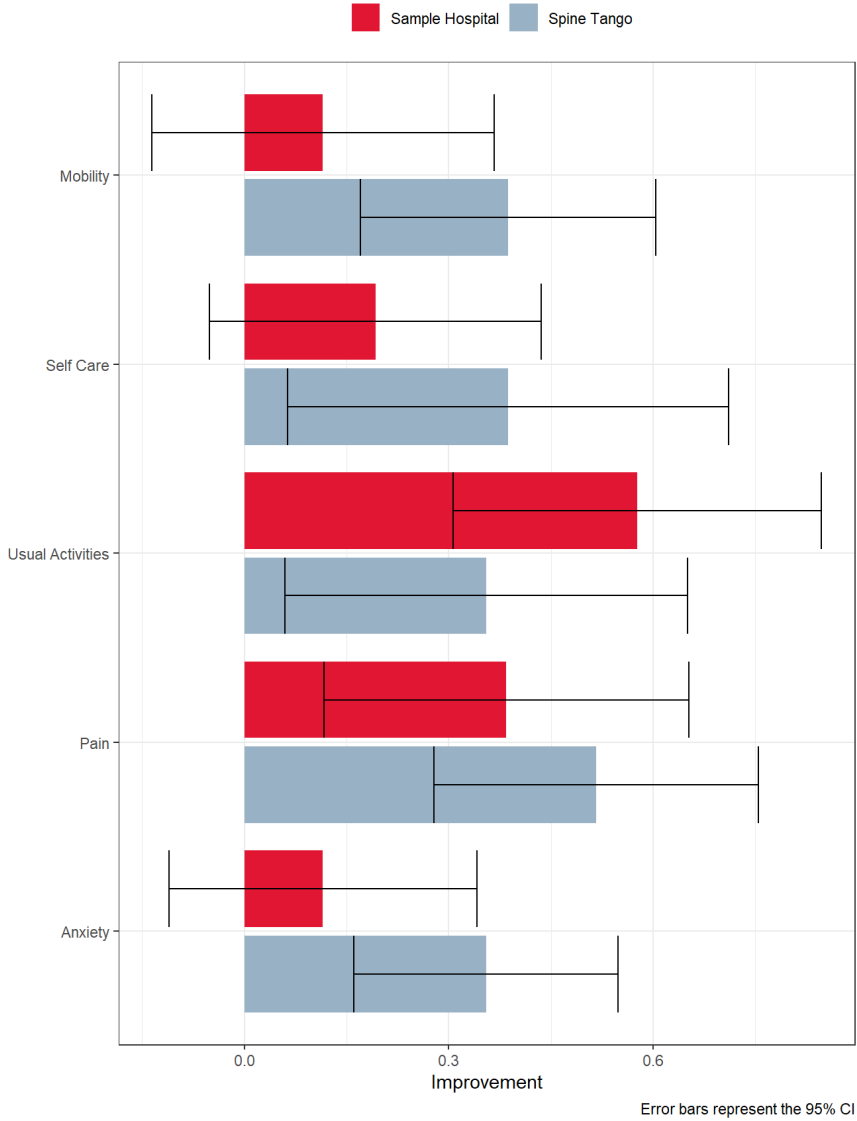
Domain Analysis

Error bars represent the 95% CI

Surgery Follow-up

Summary

Group	Patients	6 Weeks	3 Months	6 Months	1 Year	2 Years	Other	Mean	Range
Sample Hospital	2463	1026	657	817	369	131	933	0.47	0.04-3.54
Spine Tango	24000	11380	8941	4001	4441	1722	2229	0.74	0.02-5.28

Outcome

Outcome	Sample Hospital	Spine Tango
Excellent	42.2% (1658)	31.6% (10338)
Good	35.9% (1411)	49.1% (16054)
Fair	13.7% (537)	13.3% (4343)
Poor	8.2% (322)	5.4% (1771)
Not Applicable	0.1% (5)	0.6% (203)
Unknown	0.0% (0)	0.0% (5)

Work Status

Work Status	Sample Hospital	Spine Tango
Not at work since OP	25.4% (999)	30.8% (10077)
Started partially, same job	3.9% (154)	5.9% (1915)
Fully reintegrated	15.9% (626)	17.4% (5692)
Resumed work, but quit again	0.6% (24)	0.4% (140)
Resumed work, different job	0.6% (22)	0.9% (286)
Has been dismissed	1.4% (54)	0.6% (190)
Retired since OP	1.5% (60)	1.6% (521)
Retired before OP	38.7% (1521)	31.4% (10262)
Housewife/man	3.0% (118)	4.0% (1320)
Child/student	7.2% (282)	1.1% (347)
Other	1.9% (73)	6.0% (1964)

Therapeutic Goals

Postoperative Complications

Complications?	Sample Hospital	Spine Tango
No	86.2% (3389)	92.0% (30085)
Yes	13.8% (544)	8.0% (2629)

Complication Type	Sample Hospital	Spine Tango
Sensory dysfunction	2.3% (91)	1.6% (514)
Motor dysfunction	1.5% (59)	0.9% (298)
Bowel/ bladder dysfunction	0.5% (21)	0.4% (143)
Non-union	0.8% (30)	0.1% (29)
Implant failure	1.0% (39)	0.5% (152)
Instability	0.3% (12)	0.2% (50)
CSF leak/ pseudomeningocele	0.9% (37)	0.4% (147)
Wound infection superficial	0.7% (29)	1.2% (404)
Wound infection deep	1.0% (41)	0.5% (166)
Spondylitis	0.0% (1)	0.0% (12)
Discitis	0.1% (2)	0.1% (23)
Epidural hematoma	0.7% (26)	0.1% (40)
Extravertebral hematoma	0.2% (7)	0.0% (16)
Wrong level	0.1% (4)	0.0% (0)
Implant malposition	0.3% (12)	0.2% (81)
Recurrence of symptoms	2.3% (90)	1.3% (417)
Graft complication	0.3% (10)	0.0% (11)
Internal medicine	0.2% (6)	0.1% (24)
Sequelae anaesthesia	0.1% (3)	0.0% (7)
Adjac. segment pathology	0.5% (21)	0.1% (35)
Recurrent tumor	0.0% (0)	0.0% (2)
Decompensation of spine	0.1% (3)	0.0% (5)
Cardiovascular	0.1% (2)	0.1% (23)
Gastrointestinal	0.1% (5)	0.0% (9)
Central nervous system	0.1% (5)	0.0% (10)
Fracture vertebral structures	0.2% (6)	0.0% (9)
Thromboembolism	0.1% (3)	0.0% (13)
Other	3.5% (139)	1.5% (493)
None	86.2% (3389)	92.0% (30085)

Complication Time

Sample Hospital	Category
	Sensory dysfunction
	Motor dysfunction
	Bowel/ bladder dysfunction
	Non-union
	Implant failure
	Instability
	CSF leak/ pseudomeningocele
	Wound infection superficial
	Wound infection deep
	Spondylitis
	Discitis
	Epidural hematoma
	Extravertebral hematoma
	Wrong level
	Implant malposition
	Recurrence of symptoms
	Graft complication
	Internal medicine
	Sequelae anaesthesia
	Adjac. segment pathology
	Decompensation of spine
	Cardiovascular
	Gastrointestinal
	Central nervous system
	Fracture vertebral structures
	Thromboembolism
	Other

Legend: Early (< 28 Days) — Sub-acute (2-6 Months) — Late (> 6 Months)