# Descriptive Stats

```
xls_path <- '../../data/ESSG extraction June 2022_1st report 5Y - ONLY DPS.xlsx'
```

#### **Filters**

```
discarded_patients <- readLines('five_years/discarded_patients')</pre>
clinical_data %<>%
  .[, followup_2y :=
      !is.na(`2 YEAR VISIT - Date of visit`) |
      !is.na(`3 YEAR VISIT - Date of visit`)] %>%
  .[, followup_5y :=
      !is.na(`5 YEAR VISIT - Date of visit`) |
      !is.na(`6 YEAR VISIT - Date of visit`)]
# clinical_data %<>%
  .[Site != 'ANK Op'] %>%
  .[`Vital status` == 'Alive'] %>%
# .[!(`Code of the patient` %in% discarded_patients)] %>%
   .[`st1. Date of Stage` %>% as.Date() < as.Date('2015-3-15')]
total <- clinical_data[, `Code of the patient` %>% uniqueN]
patients_2y <- clinical_data[followup_2y==TRUE, `Code of the patient` %>% uniqueN]
patients_5y <- clinical_data[followup_5y==TRUE, `Code of the patient` %>% uniqueN]
```

- Number of Patients: 575
- Number of patients with visit in 2 years: 434
- Number of patients with visit in 5 years: 224

```
# clinical_data %<>%
# .[followup_2y==TRUE] %>%
# .[`st1. Date of Stage` %>% as.Date() < as.Date('2016-6-1')]
```

Total Patients for the analysis: 575

# Demographics

```
Age
[1] "mean"
[1] 53.23652
[1] "sd"
[1] 20.06322
```

```
Gender
[1] "table"
variable
Female Male
   468
         107
[1] "proportion"
variable
  Female
             Male
0.813913 0.186087
Prior Spine Surgery
[1] "table"
variable
No Yes
401 172
[1] "proportion"
variable
      No
0.6998255 0.3001745
Height (cm)_First Visit
[1] "mean"
[1] 162.9387
[1] "sd"
[1] 9.128984
Weight (kgs)_First Visit
[1] "mean"
[1] 65.99476
[1] "sd"
[1] 13.70447
BMI_First Visit
[1] "mean"
[1] 24.82758
[1] "sd"
[1] 4.680972
ASA classification
[1] "table"
variable
 1 2 3
136 307 129
[1] "proportion"
variable
                      2
                                  3
0.236933798\ 0.534843206\ 0.224738676\ 0.003484321
```

Tobacco use\_First Visit [1] "table" variable Current User: Current User: 1 pack per day Current User: 2 packs per day Current User: 3 packs or more per day 5 Current User: Less than 1pk per day Ex-User: 1 Ex-User: 0-6 months Ex-User: 1 year or greater Ex-User: 6-12 months Ex-User: 2 yrs or greater Ex-User: N.A. Non-User 1 361 [1] "proportion" variable Current User: Current User: 1 pack per day 0.001760563 0.045774648 Current User: 2 packs per day Current User: 3 packs or more per day 0.001760563 0.008802817 Current User: Less than 1pk per day Ex-User: 0.142605634 0.001760563 Ex-User: 0-6 months Ex-User: 1 year or greater 0.035211268 0.008802817 Ex-User: 2 yrs or greater Ex-User: 6-12 months 0.109154930 0.007042254 Non-User Ex-User: N.A. 0.001760563 0.635563380 ESSG Diagnosis [1] "table" variable Congenital Degenerative 10 243 Failed-back Idiopathic Neuromuscular Other: radiotherapy induced Post-infection Other: Spondylolisthesis Post-traumatic Scheuermann 12 17 Syndromic [1] "proportion" variable Congenital Degenerative

Neuromuscular Other: radiotherapy induced

0.422608696

Idiopathic

0.417391304

0.017391304

Failed-back

0.050434783

0.010434783 0.001739130
Other: Spondylolisthesis Post-infection
0.012173913 0.003478261
Post-traumatic Scheuermann
0.020869565 0.029565217
Syndromic

Surgical Approach
[1] "table"
variable

Anterior Anterior-Posterior

1 17

Anterior-Posterior-Posterior Posterior
2 540

Posterior-Anterior Posterior-Anterior-Posterior 7

Posterior-Posterior 6

0.013913043

[1] "proportion" variable

Anterior Anterior-Posterior
0.001739130 0.029565217

Anterior-Posterior-Posterior Posterior
0.003478261 0.939130435

Posterior-Anterior Posterior-Anterior-Posterior
0.012173913 0.003478261

0.012173913 Posterior-Posterior

0.010434783

# Radiology

Static Major curve Cobb angle

- [1] "mean"
- [1] 42.93941
- [1] "sd"
- [1] 21.06148
- 6W. Static Major curve Cobb angle
- [1] "mean"
- [1] 21.41765
- [1] "sd"
- [1] 14.74182
- 2Y. Static Major curve Cobb angle
- [1] "mean"
- [1] 23.57279
- [1] "sd"
- [1] 16.26678

- 5Y. Static Major curve Cobb angle
- [1] "mean"
- [1] 22.74064
- [1] "sd"
- [1] 17.67386

Static Major curve Cobb angle tests preop vs 6w p-value 1.389876e-70 6w vs 2y p-value 0.0587429

6w vs 5y p-value 0.4684945 2y vs 5y p-value 0.6664113

Coronal Balance (C7PL to CSVL)

- [1] "mean"
- [1] 20.13404
- [1] "sd"
- [1] 19.24988
- 6W. Coronal Balance (C7PL to CSVL)
- [1] "mean"
- [1] 17.97916
- [1] "sd"
- [1] 14.78662
- 2Y. Coronal Balance (C7PL to CSVL)
- [1] "mean"
- [1] 17.33128
- [1] "sd"
- [1] 14.04835
- 5Y. Coronal Balance (C7PL to CSVL)
- [1] "mean"
- [1] 18.85894
- [1] "sd"
- [1] 15.54783

Coronal Balance (C7PL to CSVL) tests preop vs 6w p-value 0.04935578 6w vs 2y p-value 0.5508825

6w vs 5y p-value

0.6011304 2y vs 5y p-value 0.37962

## Sagittal Balance

- [1] "mean"
- [1] 45.80742
- [1] "sd"
- [1] 62.66097
- 6W. Sagittal Balance
- [1] "mean"
- [1] 24.72566
- [1] "sd"
- [1] 42.29961
- 2Y. Sagittal Balance
- [1] "mean"
- [1] 31.0822
- [1] "sd"
- [1] 48.89691
- 5Y. Sagittal Balance
- [1] "mean"
- [1] 34.35874
- [1] "sd"
- [1] 49.75912

Sagittal Balance tests preop vs 6w p-value 5.105744e-10 6w vs 2y p-value 0.06973679

6w vs 5y p-value 0.07114654 2y vs 5y p-value 0.5647263

## Sagittal T2-T5

- [1] "mean"
- [1] 12.44584
- [1] "sd"
- [1] 9.064507
- 6W. Sagittal T2-T5
- [1] "mean"
- [1] 14.34734
- [1] "sd"

- [1] 8.994355
- 2Y. Sagittal T2-T5
- [1] "mean"
- [1] 14.79493
- [1] "sd"
- [1] 10.64587
- 5Y. Sagittal T2-T5
- [1] "mean"
- [1] 14.74423
- [1] "sd"
- [1] 10.81092

Sagittal T2-T5 tests preop vs 6w p-value 0.0009184193 6w vs 2y p-value 0.5479944

6w vs 5y p-value 0.7283435 2y vs 5y p-value 0.9670423

# Sagittal T5-T12

- [1] "mean"
- [1] 32.59309
- [1] "sd"
- [1] 18.49576
- 6W. Sagittal T5-T12
- [1] "mean"
- [1] 35.20905
- [1] "sd"
- [1] 14.02715
- 2Y. Sagittal T5-T12
- [1] "mean"
- [1] 37.47884
- [1] "sd"
- [1] 17.22906
- 5Y. Sagittal T5-T12
- [1] "mean"
- [1] 40.80738
- [1] "sd"
- [1] 16.43304

Sagittal T5-T12 tests preop vs 6w p-value 0.01067358 6w vs 2y p-value 0.05656105

6w vs 5y p-value 0.001668305 2y vs 5y p-value 0.08137577

## Sagittal T2-T12

- [1] "mean"
- [1] 39.72116
- [1] "sd"
- [1] 19.25852
- 6W. Sagittal T2-T12
- [1] "mean"
- [1] 44.57706
- [1] "sd"
- [1] 15.1559
- 2Y. Sagittal T2-T12
- [1] "mean"
- [1] 47.11259
- [1] "sd"
- [1] 17.27783
- 5Y. Sagittal T2-T12
- [1] "mean"
- [1] 49.5476
- [1] "sd"
- [1] 16.41984

Sagittal T2-T12 tests preop vs 6w p-value 8.317038e-06 6w vs 2y p-value 0.03836482

6w vs 5y p-value 0.005371657 2y vs 5y p-value 0.1999636

Lordosis (top of L1-S1)
[1] "mean"

- [1] -45.08205
- [1] "sd"
- [1] 20.88472
- 6W. Lordosis (top of L1-S1)
- [1] "mean"
- [1] -51.19602
- [1] "sd"
- [1] 14.86577
- 2Y. Lordosis (top of L1-S1)
- [1] "mean"
- [1] -51.3612
- [1] "sd"
- [1] 16.17806
- 5Y. Lordosis (top of L1-S1)
- [1] "mean"
- [1] -51.68269
- [1] "sd"
- [1] 15.16752

Lordosis (top of L1-S1) tests preop vs 6w p-value 2.56624e-08 6w vs 2y p-value 0.8812856

6w vs 5y p-value 0.760728 2y vs 5y p-value 0.8514191

## Pelvic Incidence

- [1] "mean"
- [1] 55.41272
- [1] "sd"
- [1] 13.76144
- 6W. Pelvic Incidence
- [1] "mean"
- [1] 55.02632
- [1] "sd"
- [1] 13.46411
- 2Y. Pelvic Incidence
- [1] "mean"
- [1] 55.83188

- [1] "sd"
- [1] 14.00032
- 5Y. Pelvic Incidence
- [1] "mean"
- [1] 55.43343
- [1] "sd"
- [1] 12.78223

Pelvic Incidence tests preop vs 6w p-value 0.6390759 6w vs 2y p-value 0.4099569

6w vs 5y p-value 0.7653935 2y vs 5y p-value 0.784896

## Pelvic Tilt

- [1] "mean"
- [1] 21.39242
- [1] "sd"
- [1] 11.21916
- 6W. Pelvic Tilt
- [1] "mean"
- [1] 19.18372
- [1] "sd"
- [1] 10.02342
- 2Y. Pelvic Tilt
- [1] "mean"
- [1] 20.57743
- [1] "sd"
- [1] 9.87535
- 5Y. Pelvic Tilt
- [1] "mean"
- [1] 22.06731
- [1] "sd"
- [1] 10.18653

Pelvic Tilt tests preop vs 6w p-value 0.0006309153 6w vs 2y p-value

#### 0.04806447

6w vs 5y p-value 0.007976053 2y vs 5y p-value 0.1872226

## Sacral Slope

- [1] "mean"
- [1] 34.2054
- [1] "sd"
- [1] 11.63867
- 6W. Sacral Slope
- [1] "mean"
- [1] 35.78454
- [1] "sd"
- [1] 10.39609
- 2Y. Sacral Slope
- [1] "mean"
- [1] 35.30659
- [1] "sd"
- [1] 11.36744
- 5Y. Sacral Slope
- [1] "mean"
- [1] 33.36657
- [1] "sd"
- [1] 10.20094

Sacral Slope tests preop vs 6w p-value 0.01798472 6w vs 2y p-value 0.5399132

6w vs 5y p-value 0.02662536 2y vs 5y p-value 0.09863723

#### RLL

- [1] "mean"
- [1] -18.20084
- [1] "sd"
- [1] 19.88075

6W. RLL

- [1] "mean"
- [1] -11.92006
- [1] "sd"
- [1] 13.65733
- 2Y. RLL
- [1] "mean"
- [1] -12.20931
- [1] "sd"
- [1] 14.70905
- 5Y. RLL
- [1] "mean"
- [1] -11.68639
- [1] "sd"
- [1] 13.74324

RLL tests preop vs 6w p-value 1.455252e-09 6w vs 2y p-value 0.7756617

6w vs 5y p-value 0.8721757 2y vs 5y p-value 0.7373786

Global Tilt

- [1] "mean"
- [1] 25.81439
- [1] "sd"
- [1] 17.35355
- 6W. Global Tilt
- [1] "mean"
- [1] 20.64398
- [1] "sd"
- [1] 12.88732
- 2Y. Global Tilt
- [1] "mean"
- [1] 22.95066
- [1] "sd"
- [1] 13.66316
- 5Y. Global Tilt
- [1] "mean"

- [1] 24.84722
- [1] "sd"
- [1] 14.79414

Global Tilt tests preop vs 6w p-value 4.957026e-08 6w vs 2y p-value 0.01844571

6w vs 5y p-value 0.007036958 2y vs 5y p-value 0.2449217

- T1 Sagittal Tilt
- [1] "mean"
- [1] -1.370882
- [1] "sd"
- [1] 5.754555
- 6W. T1 Sagittal Tilt
- [1] "mean"
- [1] -2.81022
- [1] "sd"
- [1] 4.130116
- 2Y. T1 Sagittal Tilt
- [1] "mean"
- [1] -2.780964
- [1] "sd"
- [1] 4.594274
- 5Y. T1 Sagittal Tilt
- [1] "mean"
- [1] -2.804955
- [1] "sd"
- [1] 4.48192

T1 Sagittal Tilt tests preop vs 6w p-value 4.359108e-06 6w vs 2y p-value 0.9284296

6w vs 5y p-value 0.9910812 2y vs 5y p-value 0.9622914

#### Thoracolumbar L2-T10

- [1] "mean"
- [1] 8.97906
- [1] "sd"
- [1] 20.19146
- 6W. Thoracolumbar L2-T10
- [1] "mean"
- [1] 6.134547
- [1] "sd"
- [1] 12.04784
- 2Y. Thoracolumbar L2-T10
- [1] "mean"
- [1] 8.148125
- [1] "sd"
- [1] 13.27101
- 5Y. Thoracolumbar L2-T10
- [1] "mean"
- [1] 8.327143
- [1] "sd"
- [1] 14.0989

Thoracolumbar L2-T10 tests preop vs 6w p-value 0.005454359 6w vs 2y p-value 0.03271635

6w vs 5y p-value 0.1414805 2y vs 5y p-value 0.9094901

#### RSA

- [1] "mean"
- [1] 14.19271
- [1] "sd"
- [1] 15.41475
- 6W. RSA
- [1] "mean"
- [1] 9.185071
- [1] "sd"
- [1] 10.28024

- 2Y. RSA
- [1] "mean"
- [1] 11.02317
- [1] "sd"
- [1] 11.75875
- 5Y. RSA
- [1] "mean"
- [1] 13.23917
- [1] "sd"
- [1] 12.44046

RSA tests preop vs 6w p-value 7.19209e-10 6w vs 2y p-value 0.02518498

6w vs 5y p-value 0.001940384 2y vs 5y p-value 0.1086786

#### RPV

- [1] "mean"
- [1] -7.519146
- [1] "sd"
- [1] 9.277597
- 6W. RPV
- [1] "mean"
- [1] -5.68517
- [1] "sd"
- [1] 7.75617
- 2Y. RPV
- [1] "mean"
- [1] -6.634344
- [1] "sd"
- [1] 8.008375
- 5Y. RPV
- [1] "mean"
- [1] -8.339167
- [1] "sd"
- [1] 8.023281

RPV tests

preop vs 6w p-value
0.000399625
6w vs 2y p-value
0.09072565

6w vs 5y p-value 0.001965333 2y vs 5y p-value 0.05765243

# Quality of Life

- ODI Score (%)\_First Visit
- [1] "mean"
- [1] 40.15971
- [1] "sd"
- [1] 19.91664
- 6M. ODI Score (%)
- [1] "mean"
- [1] 29.03205
- [1] "sd"
- [1] 17.87193
- 2Y. ODI Score (%)
- [1] "mean"
- [1] 28.55474
- [1] "sd"
- [1] 19.91883
- 5Y. ODI Score (%)
- [1] "mean"
- [1] 28.62857
- [1] "sd"
- [1] 20.29673

ODI - Score (%)\_First Visit tests preop vs 6m p-value 3.619095e-20 6m vs 2y p-value 0.7101174

6m vs 5y p-value 0.8041769 2y vs 5y p-value

0.9656013

SRS22 - Function / Activity\_First Visit
[1] "mean"

- [1] 3.073092
- [1] "sd"
- [1] 0.8966536
- 6M. SRS22 Function / Activity
- [1] "mean"
- [1] 3.24683
- [1] "sd"
- [1] 0.8154125
- 2Y. SRS22 Function / Activity
- [1] "mean"
- [1] 3.423479
- [1] "sd"
- [1] 0.9259905
- 5Y. SRS22 Function / Activity
- [1] "mean"
- [1] 3.44381
- [1] "sd"
- [1] 0.8750796

SRS22 - Function / Activity\_First Visit tests preop vs 6m p-value 0.001217608 6m vs 2y p-value 0.002914801

6m vs 5y p-value 0.005903485 2y vs 5y p-value 0.7884323

SRS22 - Pain\_First Visit

- [1] "mean"
- [1] 2.575497
- [1] "sd"
- [1] 0.9873956
- 6M. SRS22 Pain
- [1] "mean"
- [1] 3.330915
- [1] "sd"
- [1] 0.9683423
- 2Y. SRS22 Pain
- [1] "mean"
- [1] 3.421071

```
[1] "sd"
```

[1] 1.063229

## 5Y. SRS22 - Pain

- [1] "mean"
- [1] 3.349286
- [1] "sd"
- [1] 1.128062

SRS22 - Pain\_First Visit tests preop vs 6m p-value 1.382934e-32 6m vs 2y p-value 0.1909873

6m vs 5y p-value 0.83793 2y vs 5y p-value 0.4448486

## SRS22 - Self image / Appearance\_First Visit

- [1] "mean"
- [1] 2.437306
- [1] "sd"
- [1] 0.7282947

## 6M. SRS22 - Self image / Appearance

- [1] "mean"
- [1] 3.454872
- [1] "sd"
- [1] 0.8488936

## 2Y. SRS22 - Self image / Appearance

- [1] "mean"
- [1] 3.416107
- [1] "sd"
- [1] 0.9088572

# 5Y. SRS22 - Self image / Appearance

- [1] "mean"
- [1] 3.339762
- [1] "sd"
- [1] 0.9384031

SRS22 - Self image / Appearance\_First Visit tests preop vs 6m p-value 1.239193e-76 6m vs 2y p-value

#### 0.5150541

6m vs 5y p-value 0.1290853 2y vs 5y p-value 0.3329476

## SRS22 - Mental health\_First Visit

- [1] "mean"
- [1] 3.204756
- [1] "sd"
- [1] 0.8929975
- 6M. SRS22 Mental health
- [1] "mean"
- [1] 3.516149
- [1] "sd"
- [1] 0.9011591
- 2Y. SRS22 Mental health
- [1] "mean"
- [1] 3.514039
- [1] "sd"
- [1] 0.9601993
- 5Y. SRS22 Mental health
- [1] "mean"
- [1] 3.521905
- [1] "sd"
- [1] 0.8993997

SRS22 - Mental health\_First Visit tests preop vs 6m p-value 4.077532e-08 6m vs 2y p-value 0.9732971

6m vs 5y p-value 0.9386187 2y vs 5y p-value 0.9197936

SRS22 - SRS Subtotal score\_First Visit

- [1] "mean"
- [1] 2.827107
- [1] "sd"
- [1] 0.695308

6M. SRS22 - SRS Subtotal score

- [1] "mean"
- [1] 3.38172
- [1] "sd"
- [1] 0.752566
- 2Y. SRS22 SRS Subtotal score
- [1] "mean"
- [1] 3.444015
- [1] "sd"
- [1] 0.8409511
- 5Y. SRS22 SRS Subtotal score
- [1] "mean"
- [1] 3.398436
- [1] "sd"
- [1] 0.8737467

SRS22 - SRS Subtotal score\_First Visit tests preop vs 6m p-value 8.301669e-32 6m vs 2y p-value

0.2495706

6m vs 5y p-value

0.8098784

2y vs 5y p-value

0.5331138

- ${\tt SRS22 Satisfaction \ with \ management\_First \ Visit}$
- [1] "mean"
- [1] 3.073418
- [1] "sd"
- [1] 1.045744
- 6M. SRS22 Satisfaction with management
- [1] "mean"
- [1] 4.231602
- [1] "sd"
- [1] 0.8864106
- 2Y. SRS22 Satisfaction with management
- [1] "mean"
- [1] 4.128429
- [1] "sd"
- [1] 1.000795
- 5Y. SRS22 Satisfaction with management
- [1] "mean"

- [1] 3.959135
- [1] "sd"
- [1] 1.040027

SRS22 - Satisfaction with management\_First Visit tests preop vs 6m p-value 4.272742e-57 6m vs 2y p-value 0.111712

6m vs 5y p-value 0.001143494 2y vs 5y p-value 0.05436182

SF36 - PCS\_First Visit

- [1] "mean"
- [1] 35.78183
- [1] "sd"
- [1] 10.24874
- 6M. SF36 PCS
- [1] "mean"
- [1] 40.34817
- [1] "sd"
- [1] 9.564251
- 2Y. SF36 PCS
- [1] "mean"
- [1] 41.65167
- [1] "sd"
- [1] 10.51772
- 5Y. SF36 PCS
- [1] "mean"
- [1] 40.74315
- [1] "sd"
- [1] 11.311

SF36 - PCS\_First Visit tests preop vs 6m p-value 7.177113e-13 6m vs 2y p-value 0.05919641

6m vs 5y p-value 0.6652213 2y vs 5y p-value 0.3401059 SF36 - MCS\_First Visit

- [1] "mean"
- [1] 43.99314
- [1] "sd"
- [1] 12.61867
- 6M. SF36 MCS
- [1] "mean"
- [1] 47.69998
- [1] "sd"
- [1] 12.87508
- 2Y. SF36 MCS
- [1] "mean"
- [1] 47.64317
- [1] "sd"
- [1] 12.66176
- 5Y. SF36 MCS
- [1] "mean"
- [1] 47.39961
- [1] "sd"
- [1] 11.32544

SF36 - MCS\_First Visit tests preop vs 6m p-value 5.458755e-06 6m vs 2y p-value 0.9481616

6m vs 5y p-value 0.7633328 2y vs 5y p-value 0.810136

## Surgery

Total Operative Blood Loss st1+st2+st3

- [1] "mean"
- [1] 1236.401
- [1] "sd"
- [1] 1079.994

Total surgical time

- [1] "mean"
- [1] 324.2705
- [1] "sd"

#### [1] 181.8661

[1] "table" variable

```
Number of Posterior Instrumented Levels
[1] "mean"
[1] 8.11324
[1] "sd"
[1] 3.941022
Pelvic fixation
[1] "table"
variable
No Yes
380 195
[1] "proportion"
variable
      No
                Yes
0.6608696 0.3391304
Surgical Approach
[1] "table"
variable
                    Anterior
                                     Anterior-Posterior
                                                        17
Anterior-Posterior-Posterior
                                                Posterior
                                                       540
          Posterior-Anterior Posterior-Anterior-Posterior
         Posterior-Posterior
[1] "proportion"
variable
                    Anterior
                                       Anterior-Posterior
                 0.001739130
                                               0.029565217
Anterior-Posterior-Posterior
                                                Posterior
                 0.003478261
                                               0.939130435
          Posterior-Anterior Posterior-Anterior-Posterior
                 0.012173913
                                               0.003478261
         Posterior-Posterior
                 0.010434783
Number of Interbody Fusions
[1] "mean"
[1] 0.9443478
[1] "sd"
[1] 1.204101
Decompression
```

No Yes 363 212 [1] "proportion" variable No Yes 0.6313043 0.3686957

Interbody Fusion
[1] "table"
variable
No Yes
288 287
[1] "proportion"
variable
 No Yes
0.5008696 0.4991304

Osteotomy
[1] "table"
variable
No Yes
315 260
[1] "proportion"
variable
No Yes
0.5478261 0.4521739

3CO
[1] "table"
variable
FALSE TRUE
504 71
[1] "proportion"
variable
FALSE TRUE
0.8765217 0.1234783