AOANJRR

Australian Orthopaedic Association National Joint Replacement Registry

Six Year Results of the AOANJRR Knee Osteotomy Registry

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I declare that in the past three years I have:

Held shares in: Nil

Received royalties from: Nil

Done consulting work for: Nil

Given paid presentations for: Nil

Received institutional support from: - Allocuro, Integral Radiology

Signed: Christopher Vertullo 30 May 2024

Background

Relatively neglected area of joint preserving research

Indications, frequency, complications, and outcomes of osteotomy in Australia remain relatively ill-defined

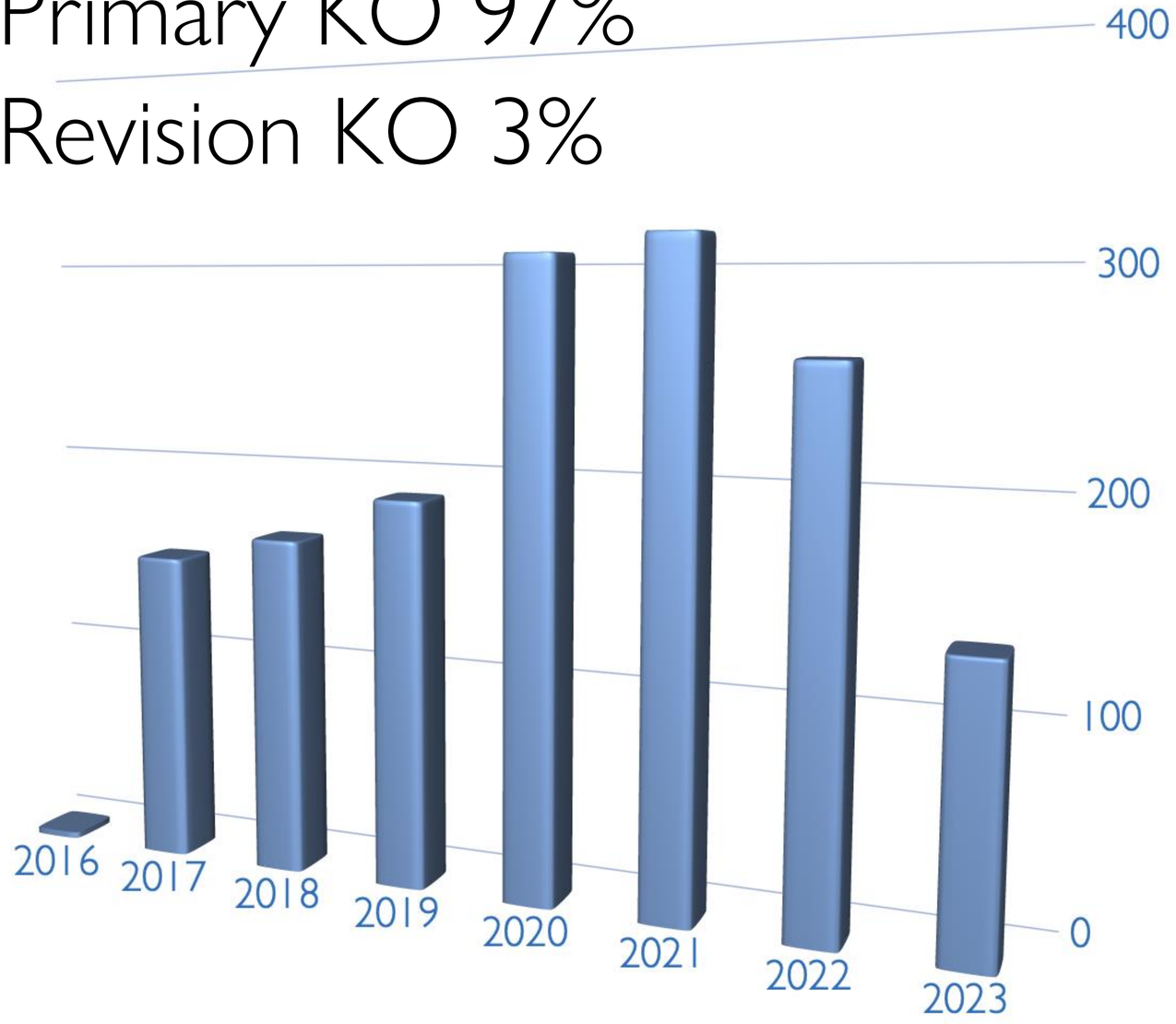
Opt out national registry under the of the governance AOANJRR

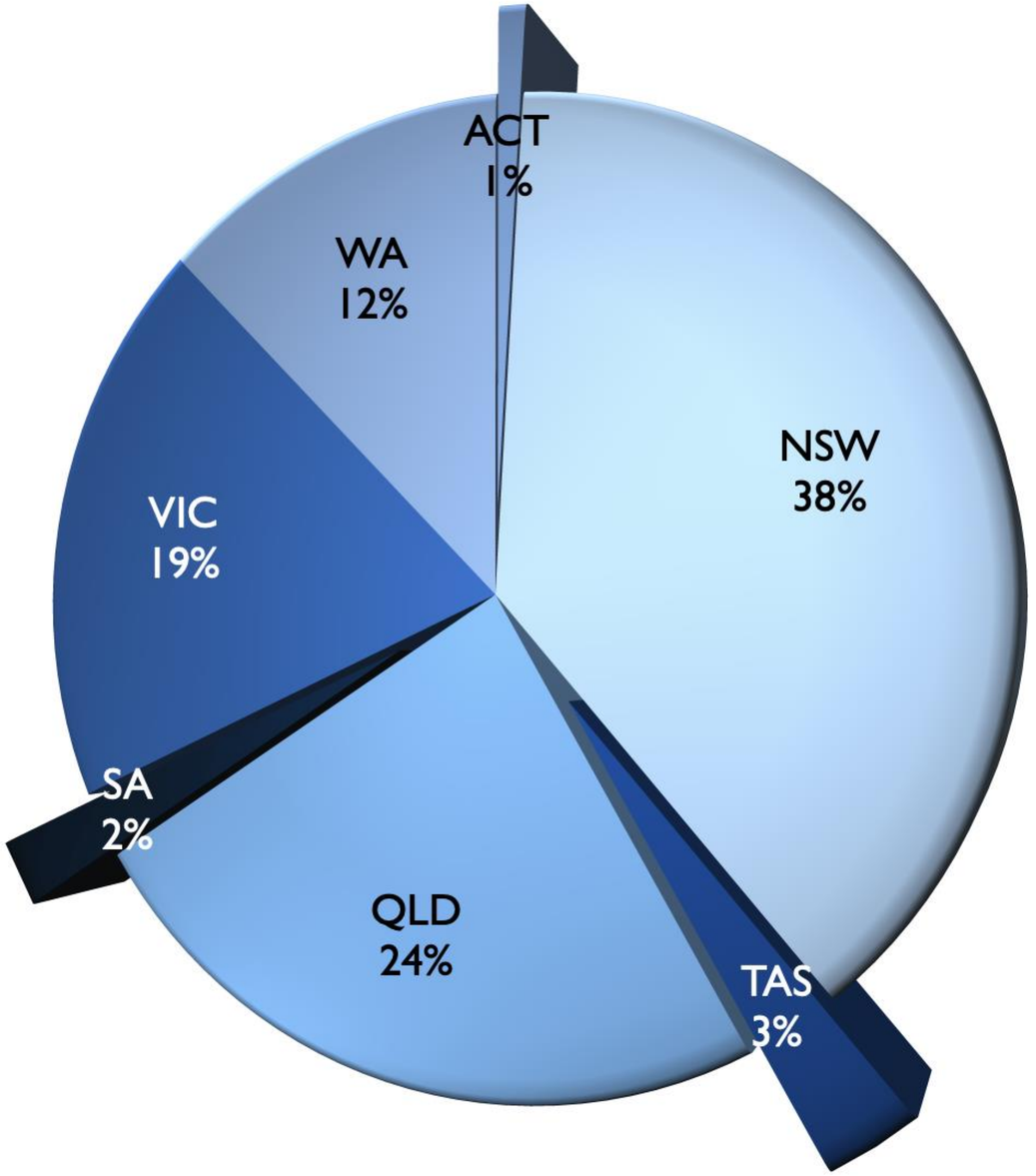
Initially funded by Australian Knee Society

1876 KO reported

Primary KO 97%

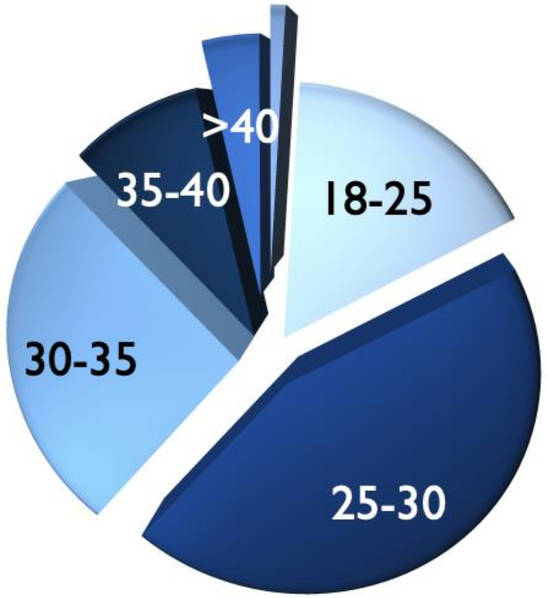
Revision KO 3%



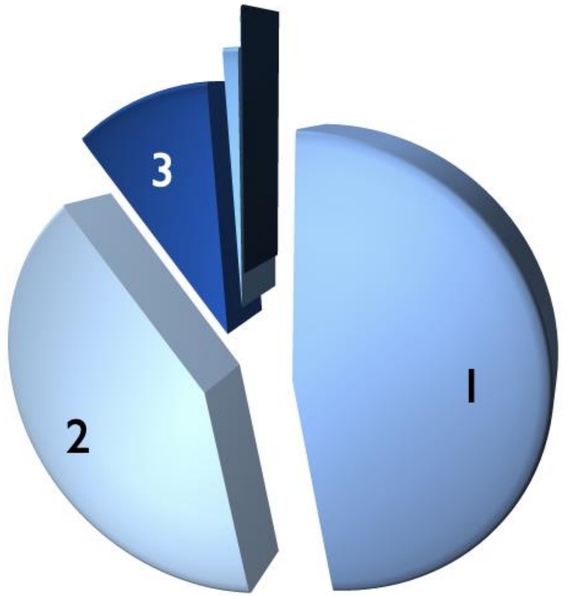


Procedures reported up to Oct 6 2023

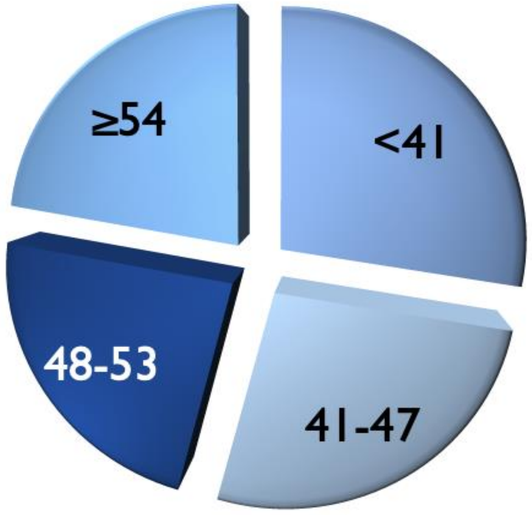
Demographics



BMI



ASA



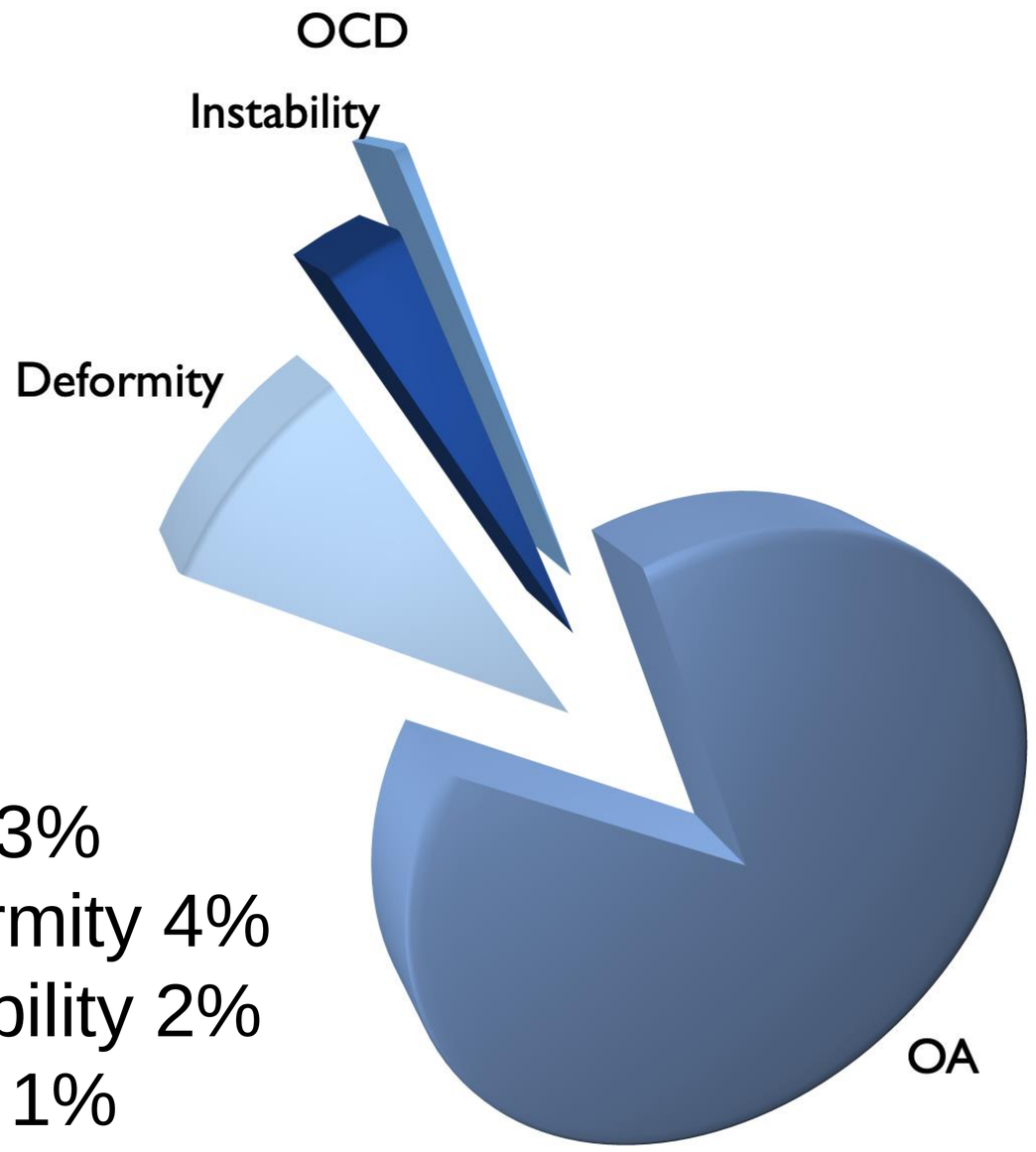
Age

76.4 % of patients were male

Mean age was 45.6 (Range 14-68 years)

Most patients had ASA 1 (49.4%) and were pre-obese 44.8%.

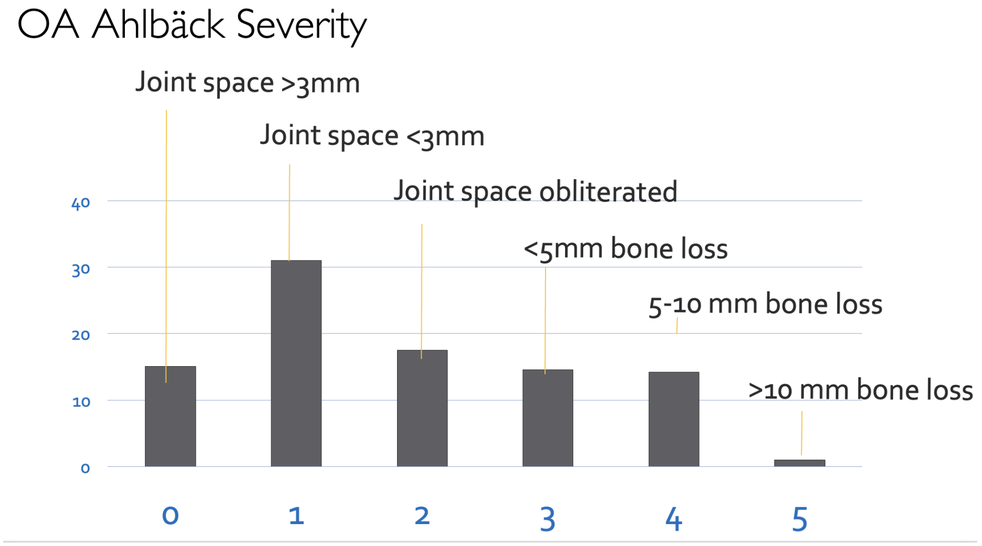
Primary Diagnosis



OA 93%
Deformity 4%
Instability 2%
OCD 1%

Prior Surgery

Arthroscopy	19.4%
Anterior Cruciate Ligament Reconstruction	10.2%
Medical Menisectomy	16.2%
Lateral Meniscectomy	1%
Medial Meniscus repair	1%
Posterior Cruciate Ligament Reconstruction	1%
Other	16.4%



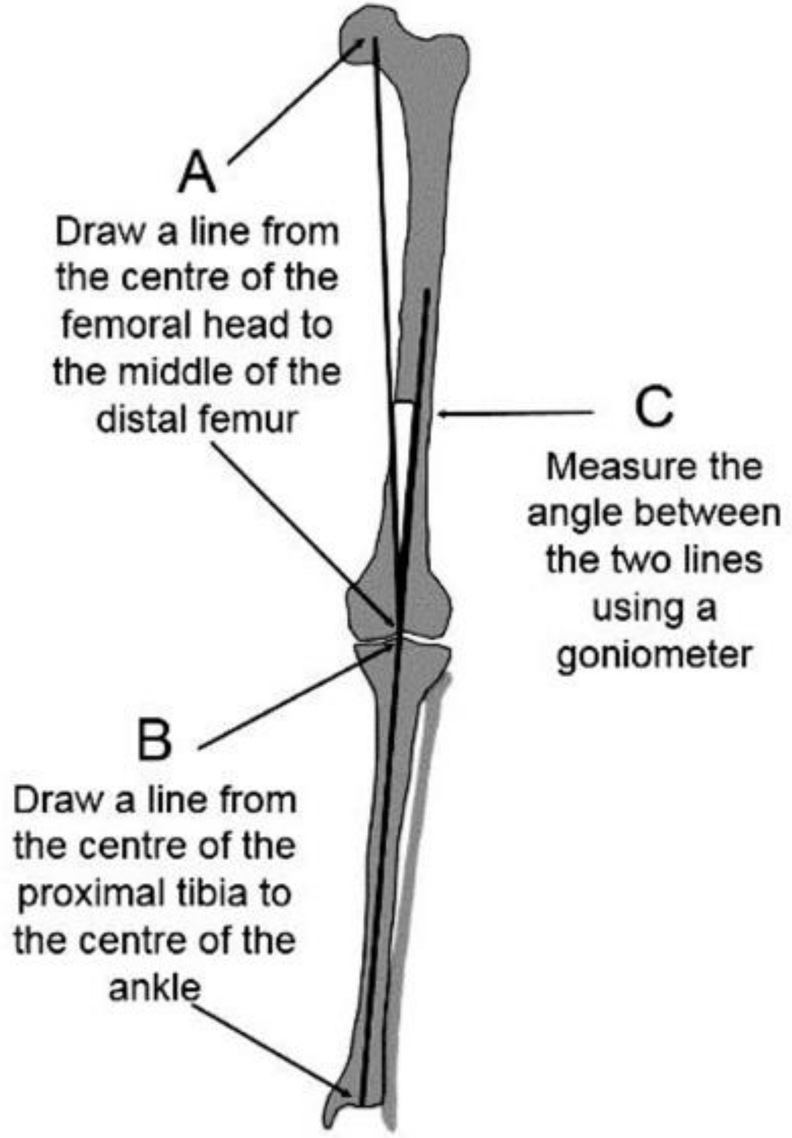
Alignment Techniques

Pre-operative alignment XR, fluoroscopy and were the commonest alignment method 36%

Custom Patient Specific 27.3%

Navigation was used in 12.3%

Approximately 60% of surgeons used 2 or more methods of alignment.



Type of Osteotomy

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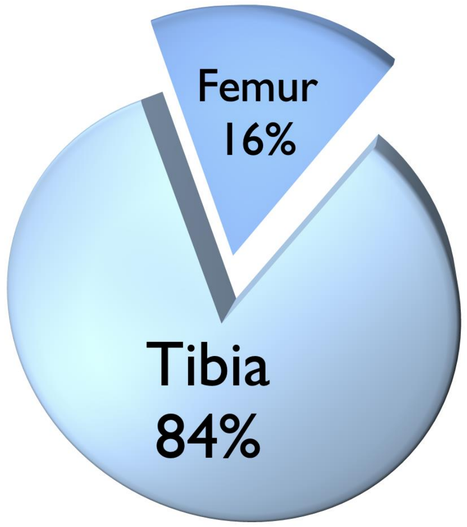
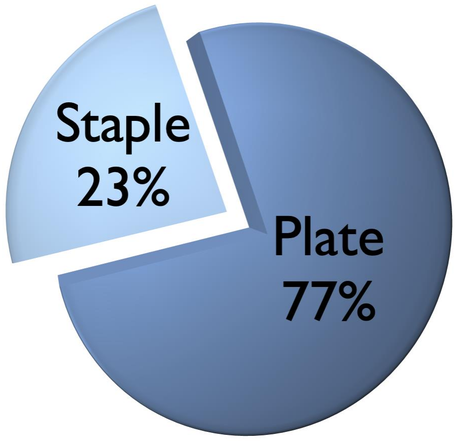
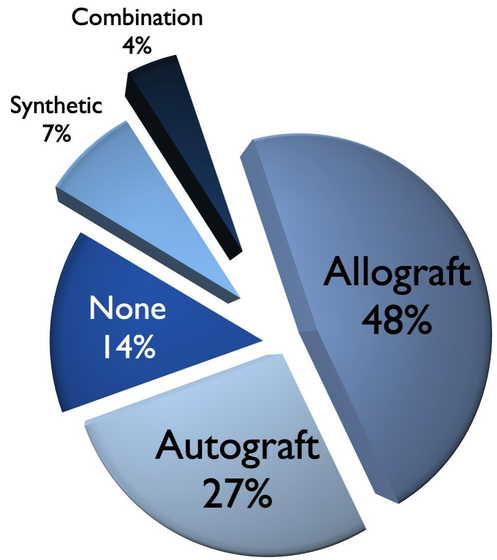


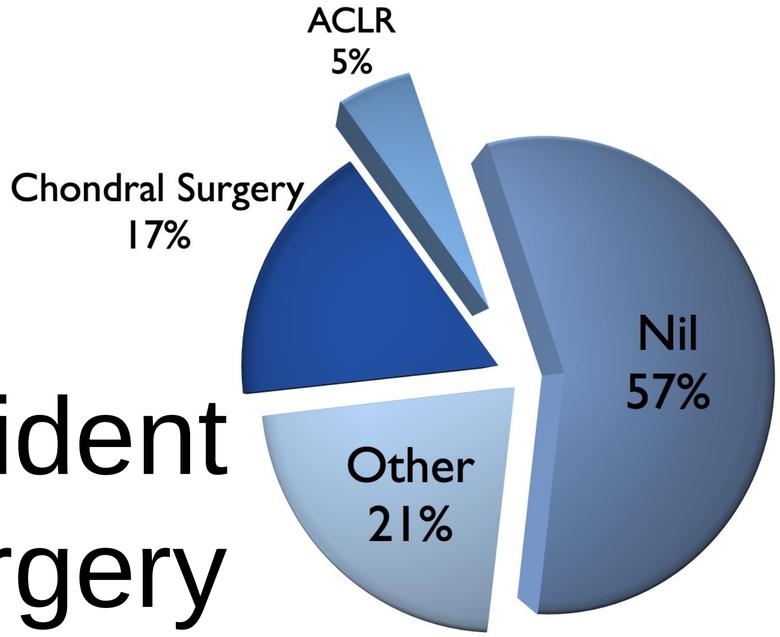
Site of Osteotomy

Fixation and Bone Graft

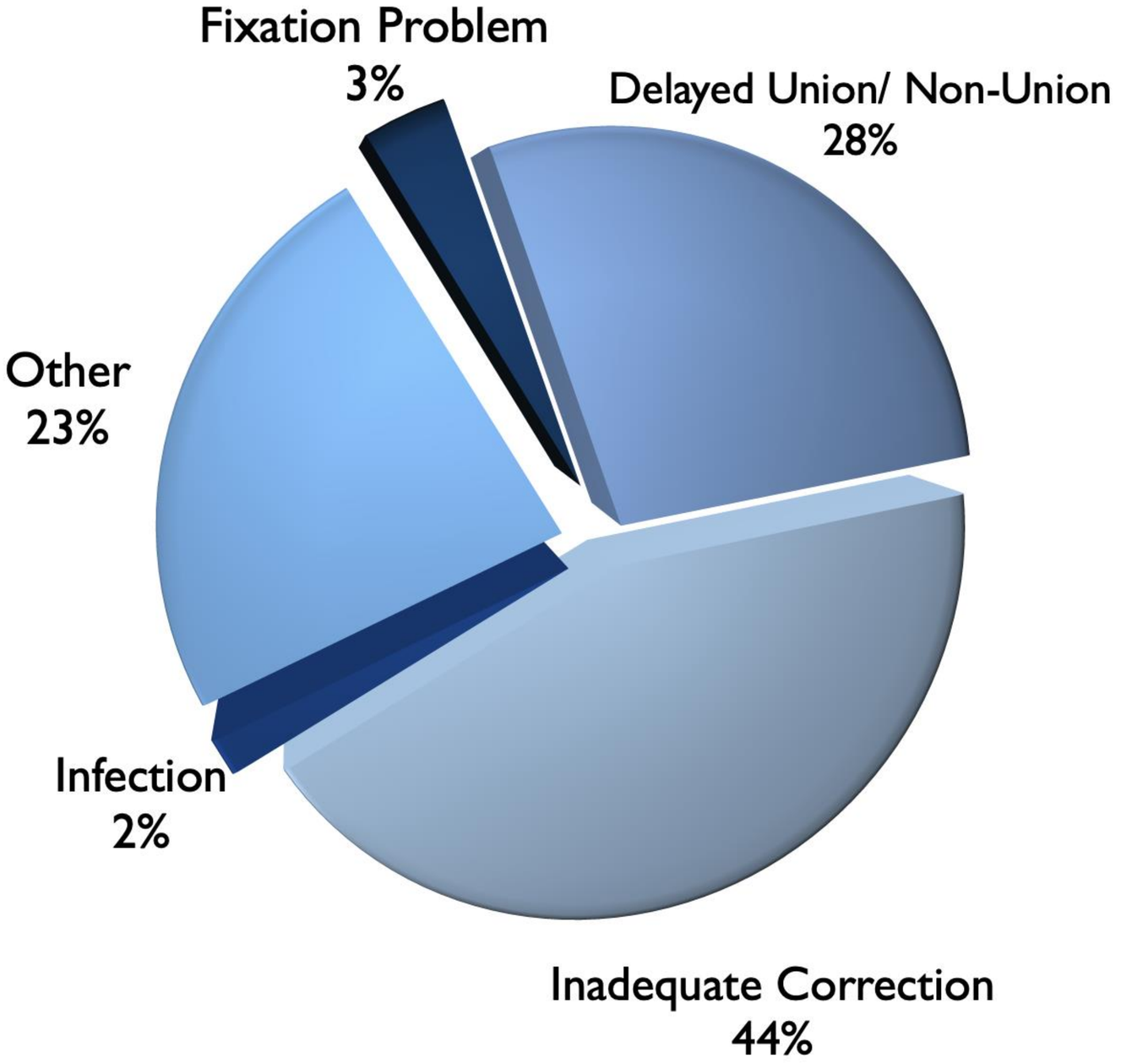




Coincidental Surgery



Revision of Osteotomy to Osteotomy



61/1815 patients

3.3%

Routine Removal Hardware Not Included as Revision

Revised Number of Knee Osteotomy Conversion to Primary TKR

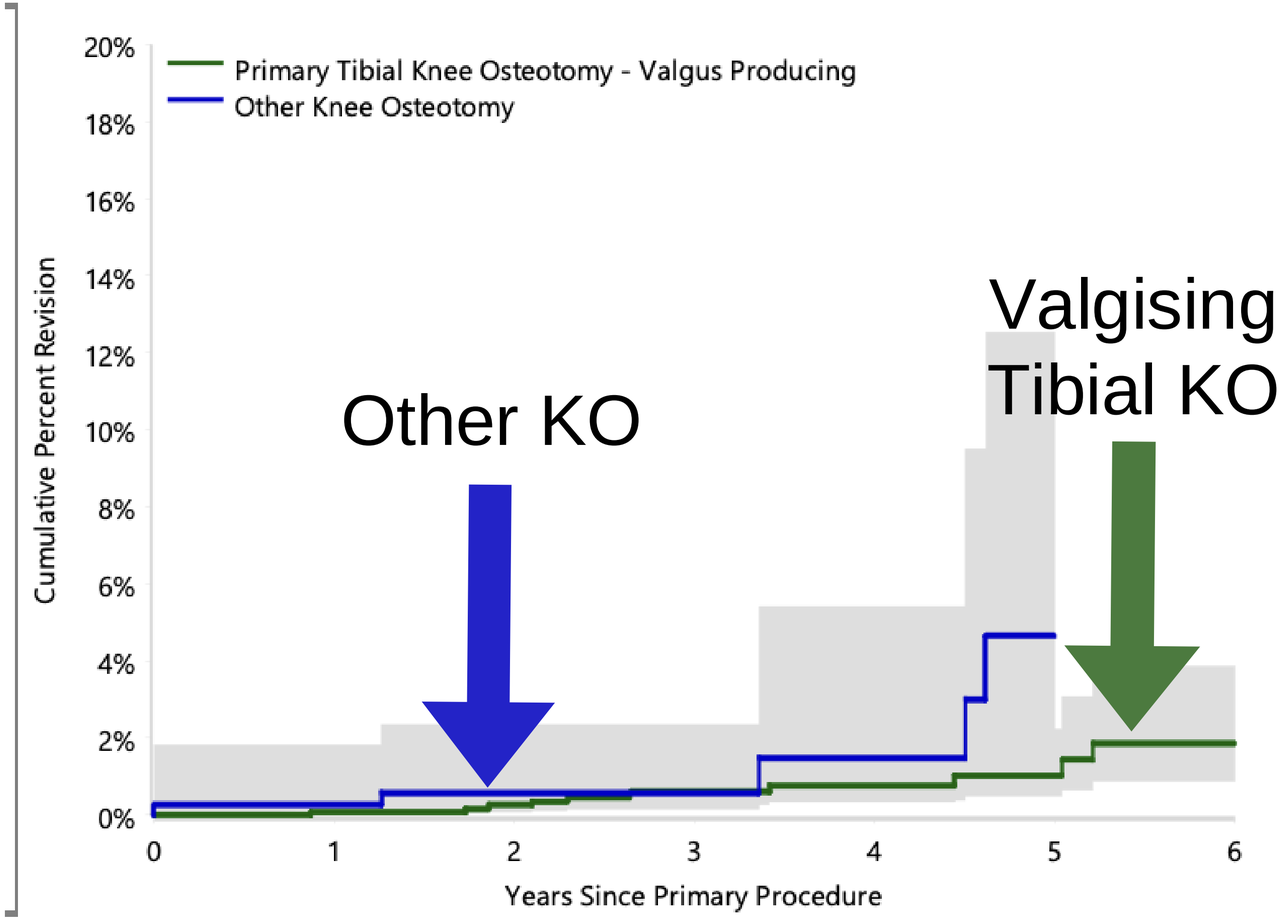
Knee Osteotomy	N Revised	N Total
Primary Femoral Knee Osteotomy - Other	0	8
Primary Femoral Knee Osteotomy - Valgus Producing	2	25
Primary Femoral Knee Osteotomy - Varus Producing	2	256
Primary Tibial Knee Osteotomy - Other	1	32
Primary Tibial Knee Osteotomy - Valgus Producing	10	1432
Primary Tibial Knee Osteotomy - Varus Producing	0	62
TOTAL	**15**	**1815**

Yearly CPR of Knee Osteotomy Conversion to Primary TKR

CPR	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	6 Yrs
Primary Femoral Knee Osteotomy - Other	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)		
Primary Femoral Knee Osteotomy - Valgus Producing	4.0 (0.6, 25.2)	9.3 (2.4, 32.9)	9.3 (2.4, 32.9)			
Primary Femoral Knee Osteotomy - Varus Producing	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	1.1 (0.2, 7.8)		
Primary Tibial Knee Osteotomy - Other	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)		
Primary Tibial Knee Osteotomy - Valgus Producing	0.1 (0.0, 0.5)	0.3 (0.1, 0.8)	0.6 (0.3, 1.3)	0.8 (0.4, 1.7)	1.0 (0.5, 2.2)	1.9 (0.9, 3.9)
Primary Tibial Knee Osteotomy - Varus Producing	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)			

Risk of Knee Osteotomy Conversion to Primary TKR

Figure 1: Cumulative Percent Revision of Primary Known Knee Osteotomy Procedure to Total Knee Procedure



HR - adjusted for age and gender

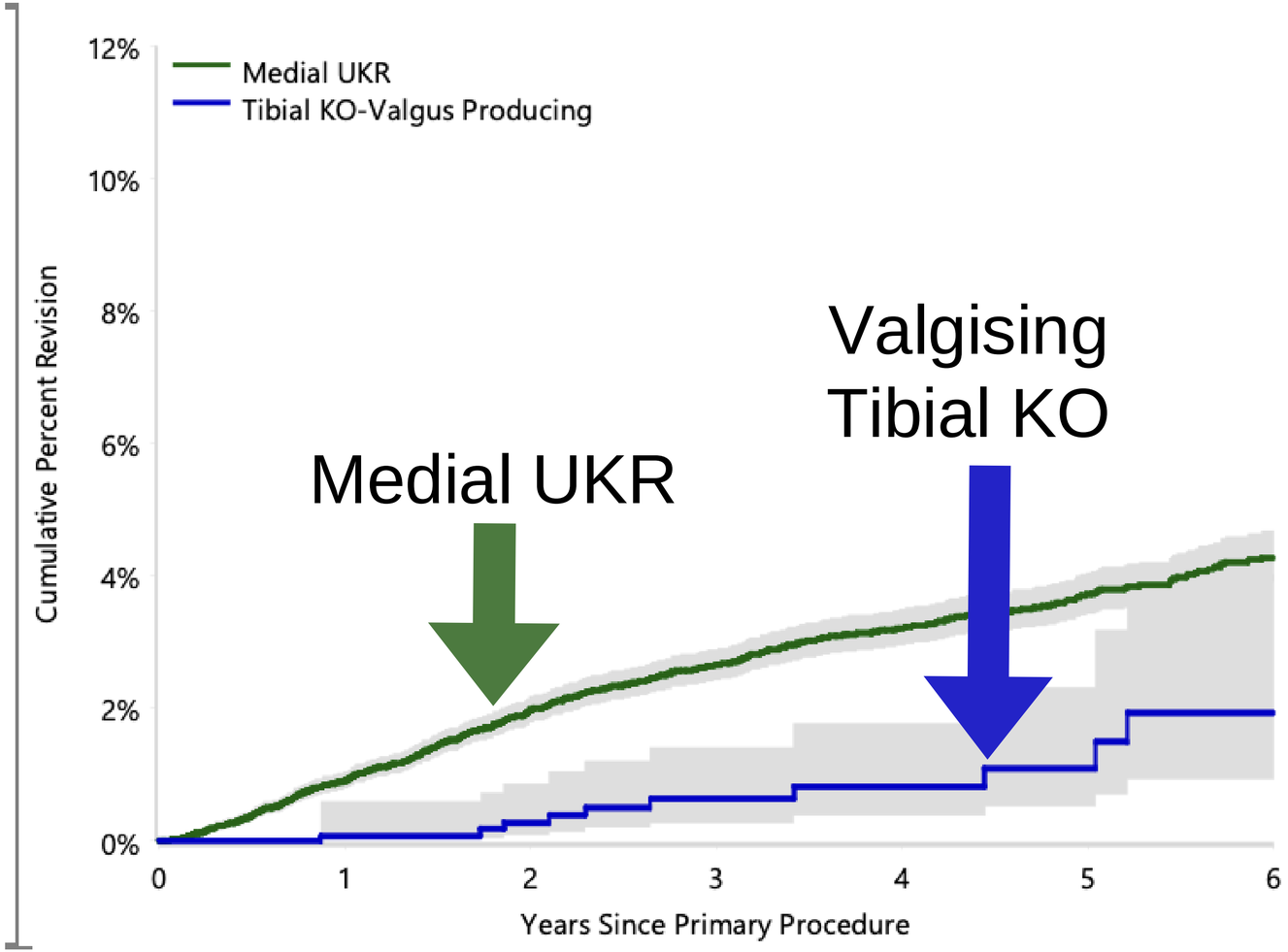
Primary Tibial Knee Osteotomy - Valgus Producing vs Other Knee Osteotomy

Entire Period: HR=0.23 (0.07, 0.73), p=0.012

Valgus Producing Tibial KO have lower risk than Other Knee Osteotomy of conversion to TKR HR=0.23

Number at Risk	0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	6 Yrs
Primary Tibial Knee Osteotomy - Valgus Producing	1432	1259	1003	692	432	266	113
Other Knee Osteotomy	383	324	239	146	87	41	16

Risk of Valgus Producing Tibial Knee Osteotomy (Primary Diagnosis OA) Conversion to TKR vs Medial UKR Revision



HR - adjusted for age and gender

Tibial KO-Valgus Producing vs Medial UKR

Entire Period: HR=0.19 (0.10, 0.36), p<0.001

Valgus Producing Tibial KO have a lower risk than Medial UKR for Conversion to TKR
HR=0.19

Number at Risk	0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	6 Yrs
Medial UKR	23015	19840	16457	12795	9456	6071	2611
Tibial KO-Valgus Producing	1323	1173	947	658	417	259	108

Conclusions

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Knee Osteotomy conversion to TKR is low at <2 % CPR at 6 years

Revision of Knee Osteotomy is uncommon (3.3%) and mainly due to delayed union & inadequate correction

The planned addition of PROMs will be a valuable aid to surgical decision-making regards osteotomy vs arthroplasty

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