BOFAS

British Orthopaedic Foot & Ankle Society

Registry Report 2020

INTRODUCTION

The data presented in this report cover procedures entered into the British Orthopaedic Foot & Ankle Society (BOFAS) Registry from 2014 until April 2020. The 1st Metatarsophalangeal Joint Arthrodesis Pathway (1st MTPJAP) and the Ankle Arthrodesis Pathway (AAP) have been open since the registry started, however the Foot and Ankle General Pathway (FAG) was only opened towards the end of 2016.

Over this period of time we have seen a steady increase in data entry but, it is clear that as it currently stands, the registry only captures a small proportion of national activity, both in the Private & NHS sectors. The majority of the information in this report is summary data, it is anticipated that as the number of cases increase, we will be able to analyse the outcomes statistically.

The information contained within this report will be useful for BOFAS members in their appraisals and, as we continue to collect data, it will aid quality improvement and help direct practice nationally.

The BOFAS Registry is one of the eight Emerging Registries forming part of the Trauma & Orthopaedic Registries Unifying Structure (TORUS). TORUS is a collaborative project of the British Orthopaedic Association (BOA) in conjunction with the specialist societies.

AIMS

The broad aims of the BOFAS Registry are in line with those of the BOA Quality Outcomes project:

- Help surgeons to track the outcomes of their patients.

- Allow Surgeons/Trusts to compare themselves to others or the average and to identify areas for improvement.

- Provide surgeons with information for revalidation.

- Provide evidence on trends in outcomes, performance of different implants/procedures/etc.

- Enable individuals and Trusts who may be potential outliers to be alerted to this in order to take action.

BACKGROUND

The BOFAS Registry is the responsibility of the BOFAS Outcomes Committee. The role of the committee is to support the Society and Council in developing suitable processes to collect patient outcome measures.

Duties of the Outcomes Committee include:

- Working with the platform provider to enable collection of information into central BOFAS registry

- Ensuring that the consent form remains compliant with legal requirements.

- Oversight of information governance.

- Publication of data.

- Registry funding.

- Long term strategy.

Further details regarding the BOFAS Registry can be found on the BOFAS Website.

MEMBERSHIP OF OUTCOMES COMMITTEE

- Chair: Paul Halliwell

- Member: Nick Harris

- Member: Lyndon Mason

- Member: Nilesh Makwana

- Member: James McKenzie

- Member: Ed Wood

- Caldicott Guardian: Stephen Bendall

- President: James Davies

- Treasurer: Hiro Tanaka

- Secretary: Mark Davies

- Co-opted: Andy Goldberg

- Co-opted: Karan Malhotra

LIST OF CONTRIBUTING SURGEONS / UNITS

Adam Devany	Robert Jones and Agnes Hunt
Andrea Sott	Epsom St Helier NHS Trust
Andrew Gower	County Durham and Darlington NHS Foundation Trust
Andrew Riddick	Southmead Hospital
Arshad Khaleel	
Ashok Acharya	
Barry Rose	Eastbourne District General Hospital
Billy Jowett	
Claire Topliss	ABMU HB
Cliff Butcher	University Hospital Aintree
Daniel Marsland	Hampshire
James Davenport	Wrightington Hospital
D Mahadevan	Reading Foot & Ankle Unit
Edward Wood	Countess of Chester Hospital
Heath Taylor	Royal Bournemouth Hospital
Iain Bissell	
Jamie McKenzie	Royal Orthopaedic Hospital Birmingham
Joel Humphrey	Milton Keynes
John Stuart Moir	Greater Glasgow & Clyde
Julian Grundy	YDH
Kar Teoh	Princess Alexandra hospital, Harlow
Kate Thomason	Countess Of Chester Hospital
Lyndon Mason	University hospital Aintree
Lynne Barr	Colchester
Mark B Davies	Sheffield Teaching Hospital NHS
M Henderson	Gloucester
Matthew Solan	Guildford
Maurice O'Flaherty	Musgrave Park Hospital
Melwyn Pereira	Joint Clinic, Droitwch
Michael Butler	Cornwall

Michael Karski	Wrightington Hospital
Neal Jacobs	Salisbury
Nicholas Savva	Dorset County Hospital
Nilesh Makwana	RJAH
Osmond Thomas	NewCross Hospital
Paul Halliwell	Royal Surrey County Hospital NHS
Paul Hamilton	Epsom & St. Helier
Peter Robinson	Southmead Hosptial, Bristol
Phil Vaughan	West Suffolk
Raghu Kankate	High Wycombe
Robbie Ray	Kings College London NHS Trust
Robert Smith	
Robin Elliot	Hampshire Hospital
Robin Rees	University Hospital of North Midlands
Sanjeev Goswami	Walsall Healthcare NHS Trust
Simon Henderson	Musgrave Park Hospital
Stephen Hepple	Southmead Hospital Bristol
Steve Milner	Royal Derby Hospital
Sue Kendall	
S Chandrashekar	Homerton
Tim Clough	Wrightington Hospital
Tim Millar	University Hospitals of Morecambe Bay
Tim Sinnett	Chelsea and Westminster NHS FT
Timothy Williams	Colchester General Hospital
Togay Koc	Queen Alexandra Hospital
Tristan Barton	Royal United Hospital Bath, NHS FT
Turab Syed	Royal Free London Hospital
Vivek Dhukaram	University Hospitals Coventry & Warwickshire
Williams Harries	Southmead Hospital Bristol

*Where Organisation is blank – information not available from individual's BOFAS Profile.

UPTAKE & COMPLIANCE

The degree of uptake of the registry by the BOFAS membership is increasing with time. We have seen an almost exponential increase in the total number of cases in the combined pathways (Fig 1). This is still however only a small proportion of the national figures.

BARRIERS TO UPTAKE

A number of factors may prevent surgeons from registering and entering cases: time pressure, unfamiliarity, concern
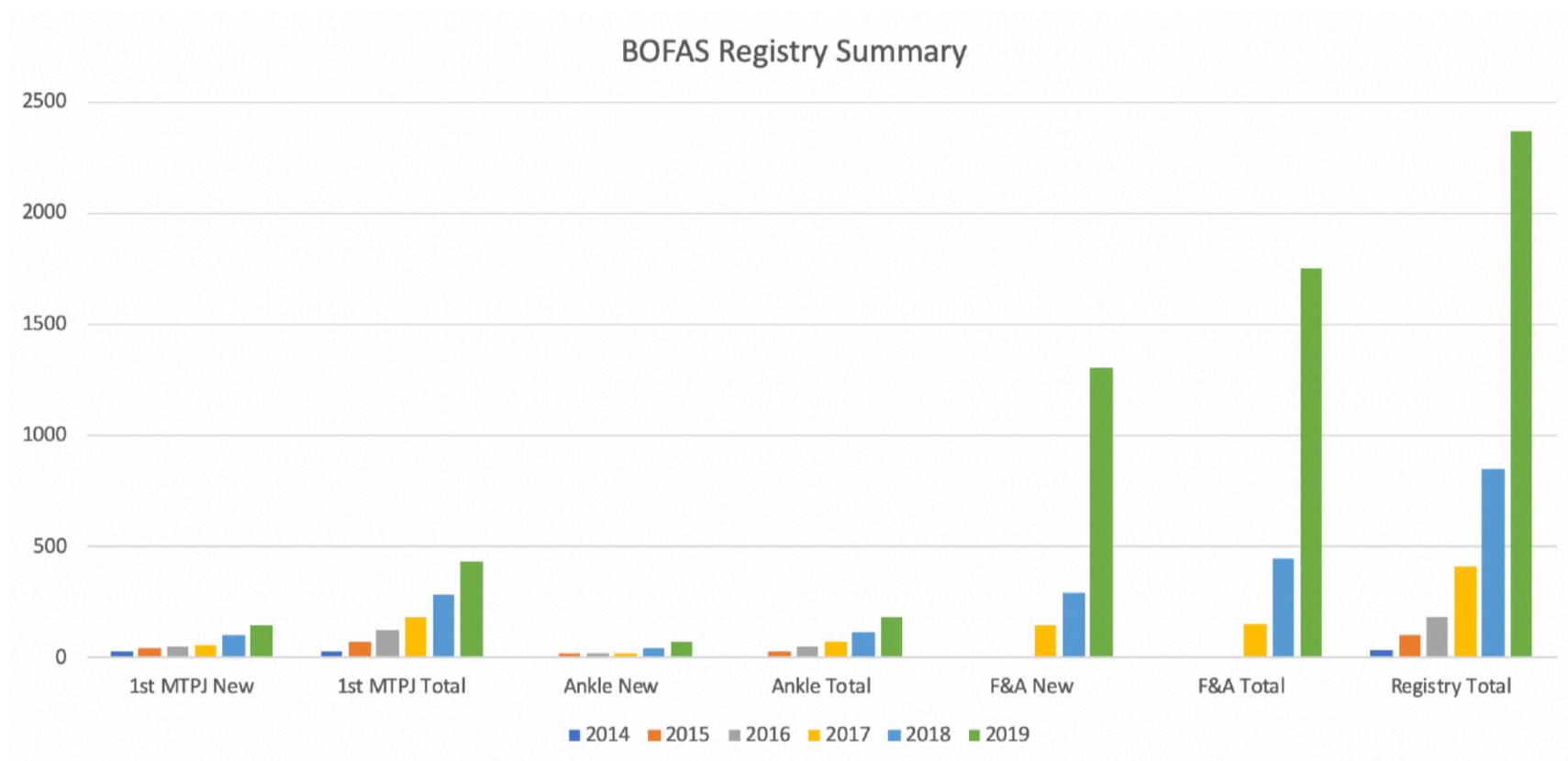

Fig 1: BOFAS Registry Summary Growth Figures.

regarding data use. As the registry is not currently mandated, support from Trusts regarding data collection & input is widely variable. We believe this will be a valuable tool for our members for revalidation & appraisal and may become something that Responsible Officers look to. Videos on how to use the registry are now available on the BOFAS website.

COMPLIANCE

Compliance for consent is high across the three pathways (≥95%). Where consent has been gained, surgeons can look back at individual outcomes. Where consent is absent, the record has to be anonymised: in this scenario, the PROMS enter the registry summary data, but it is not possible to identify the individual or add follow up data. Even though patients confirm consent online when they first log in, it is still necessary to take paper consent and file this in their casenotes.

Between 15% and 34% of patients either do not use or do not have access to email. In this scenario, automated data collection is not possible and different strategies for post-op PROMS collection need to be put in place. Making use of telephone review streams can be a good solution.

We have also seen a significant proportion of patients registered but with no initial PROMS entered (18% - 39% depending on pathway). It is not clear if this reflects patients registered in clinic, who are yet to come to their procedure, or if it has simply not been recorded.

OVERVIEW OF PROM SCORES

The BOFAS registry allows foot and ankle surgeons to use the outcome scores to assess patients both pre and post operatively. The Outcomes committee, following a review defined that the following scores would be collected as the Minimum Dataset:

1. MOXFQ

2. EQ- 5D-5L

3. EQ-5D Health VAS

The database is hosted by Amplitude. Other scores may be available depending on surgeon choice. Scores are recorded pre-operatively then routinely, via email or in person, at six months and one year post-operatively.

EQ-5D-5L AND EQ-5D HEALTH VAS

EQ-5D is a standardised measure of health status developed by the EuroQol Group in order to provide a simple, generic measure of health for clinical and economic appraisal. The five level EQ-5D consist of two pages: the EQ-5D descriptive system and the EQ VAS. The EQ-5D comprises five domains: mobility, self-care, usual activities, pain/discomfort and anxiety/depression. Each dimension has 5 levels: no, slight, moderate, severe and extreme problems. The digit generated for each dimension is combined into a 5 digit number that describes the patient's health state. For example a health state

21143 represents a patient who indicates slight problems with mobility, no problems with self care, and usual activities dimension, severe pain or discomfort and moderate problems on the anxiety/depression dimension. The health states can then be converted into a single Index value.

The EQ VAS records the patient's self-rated health on a vertical 20cm VAS line, where the end points are labelled `*The best health you can imagine*` (100 points) and `*The worst health you can imagine*` (0 points). The VAS can be used as a quantitative measure of health outcome that reflect the patient's own judgement.

The EQ-5D-5L has been validated in a diverse patient population in 6 countries. The EQ-5D data can be compared against data for the average person of the same age and/or gender in the general population, helping identify the burden of disease in a particular patient population.

M O X F Q

The Manchester-Oxford Foot Questionnaire is a 16 –item PROM instrument, which is self administered. It assesses how foot and ankle problems impair health-related quality of life and is completed pre and post-operatively. It was originally intended for use for hallux valgus surgery and more recently proven for use with a variety of foot and ankle problems

The questionnaire consist of three domains/scales:

1. Walking/standing – 7 items. (MOxFQ-W)

2. Pain – 5 items. (MOxFQ- P)

3. Social interaction – 4 items (MOxFQ-S)

The responses consist of a 5 point Likert scale (0-4) which ranges from no limitation (0) to maximum limitation(4). Scores for each domain are calculated by summing the responses in each domain. The raw scale scores are then converted to a metric from 0-100, where 100 denotes the most severe. The raw scores can also be used to generate a summary Index score (MOxFQ- Index). The questionnaire has been validated.

C O N F I D E N C E   I N T E R V A L S

Where expressed, a 95% confidence interval has been used.

MINIMALLY IMPORTANT CHANGE

Whilst changes in outcome scores may be statistically significant, this may, or may not, represent a clinically significant difference in patients' symptoms. The Minimally Important Change (MIC) represents a change in the outcome score that is clinically relevant. The MIC for the EQ—5D index score has been shown to be 0.074 (Walters 2005). For the MOXFQ components Walking/Standing, Pain, Social Interaction the MICs are 16, 12 and 24 respectively (Dawson 2012)

DATA ANALYSIS

As the number of cases are small, only summary data is presented in this report. As the numbers grow we aim to provide more robust, statistical analysis. For the 1st MTPJ fusion & Ankle Fusion pathways the criteria are clearly defined and analysis of the variables should be easily achieved. The more generic Foot & Ankle pathway will be more difficult to analyse because of the sheer variety of procedures undertaken. We are working with Amplitude to try to achieve consistency, particularly with definition of procedures, to help us achieve this in the future.

1ST METATARSOPHALANGEAL JOINT ARTHRODESIS PATHWAY

Within the registry, 487 1st MTPJ Arthrodesis pathways (469 Patients) have been instituted since it went live in 2016, an increase of 199 over the course of the year. There was reasonable compliance with completion of PROMS preoperatively with completion rates of 88% for EQ-5D, 85% VAS, 87% MOXFQ. The completion rates at 6 months were lower with 76%, 70% and 73% and lower again at 12 months with 65%, 57% and 64% for the EQ-5D, VAS and MOXFQ scores respectively.

Age Range

	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 to 74	75 to 79	80 to 84	85 to 89	90 to 94	95 to 100	Over 100
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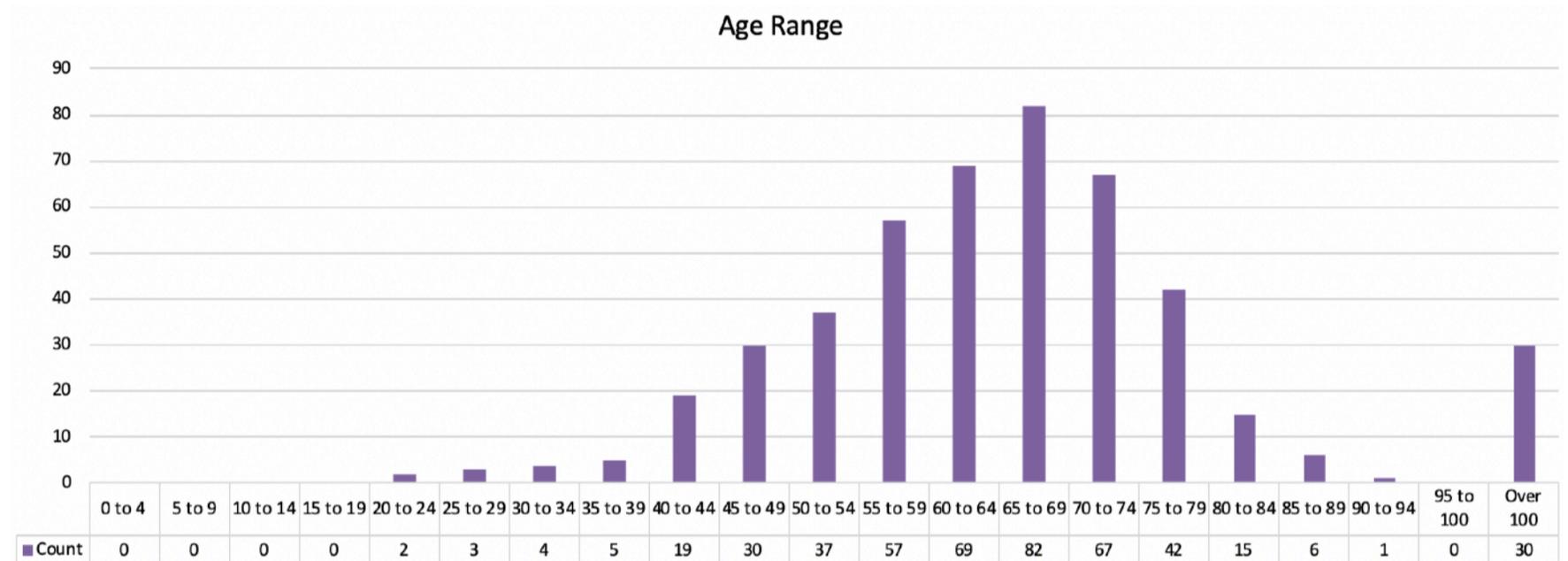
Fig 2: 1st MTPJ Age Distribution

The average age was 67 and the range for this patient cohort is illustrated in figure 2. The patients aged over 100 are likely to represent an incorrect date submitted. The BMI range is illustrated in figure 3, with the majority of patients being overweight or obese. The operation was undertaken on the right foot in 48% of individuals and left side in 44% of individuals, 8% the side was not recorded. Smoking was recorded in 6% of individuals, ex-smoker in 20% of individuals and non-smoker in 74% of individuals. The numbers for smoking was too small to make any comparison in outcomes.
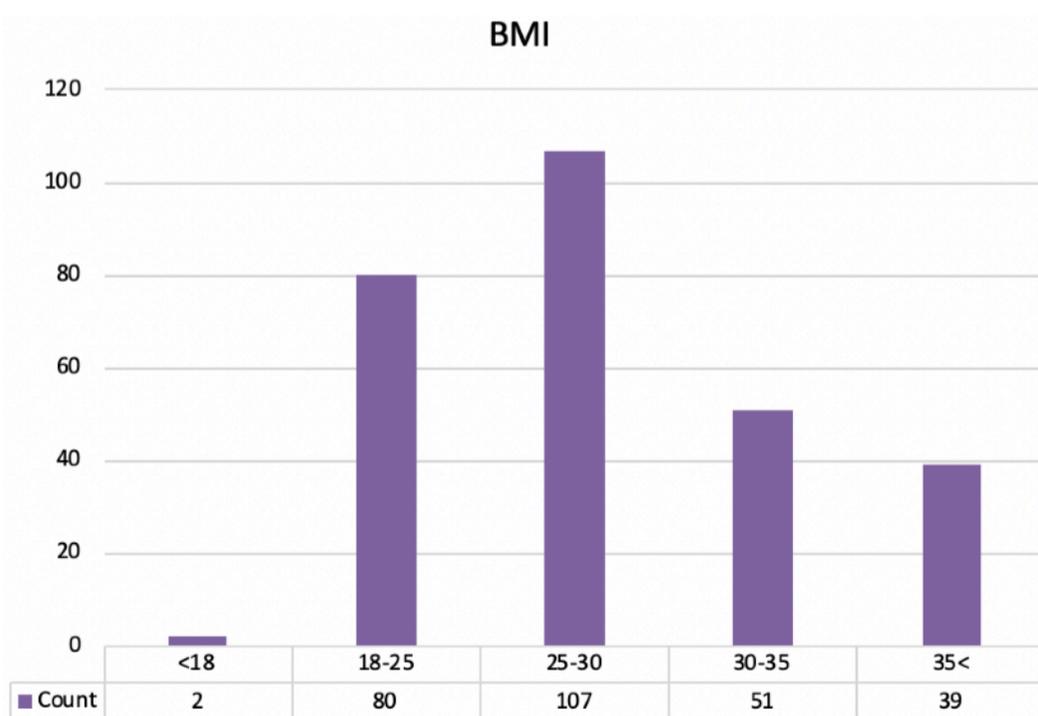
93% of patients were classed as primary procedures, with only 3% revision procedures and 1% conversion of arthroplasty on the database.

BMI

	<18	18-25	25-30	30-35	35<
Count	2	80	107	51	39

Fig 3: 1st MTPJ BMI

EQ-5D Index

	Sample Mean	StdDev	n	Confidence Interval to 2 d.p.
Baseline	0.5681	0.2317	346	0.57 ± 0.02
6 Months	0.7042	0.2077	178	0.70 ± 0.03
12 Months	0.7463	0.2053	94	0.75 ± 0.04
2 Years	0.7455	0.1599	4	0.75 ± 0.25
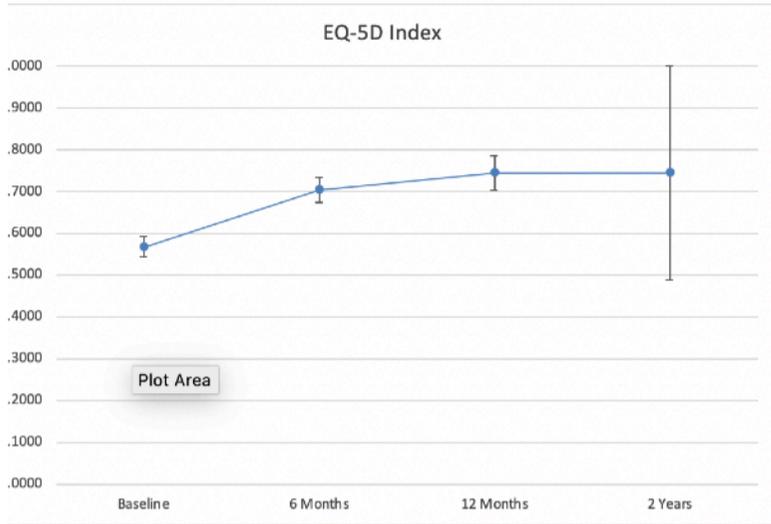
EQ-5D Health VAS

	Sample Mean	StdDev	n	Confidence Interval to 2 d.p.
Baseline	69.0405	22.0316	346	69.04 ± 2.32
6 Months	74.9888	18.2840	178	74.99 ± 2.69
12 Months	72.8511	20.2563	94	72.85 ± 4.09
2 Years	76.0000	22.3942	4	76.00 ± 35.63

Fig 4: EQ-5D Index score
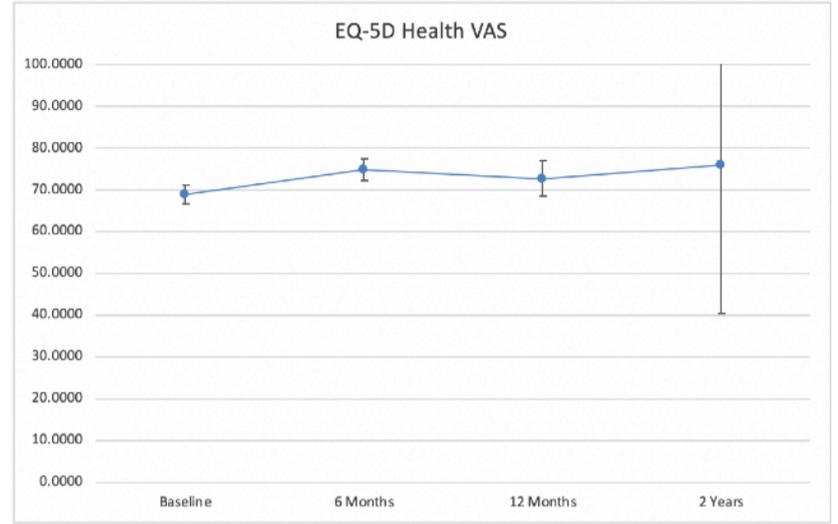
Fig 5: EQ-5D Health VAS

MOxFQ Pain (Bad)

	Sample Mean	StdDev	n	Confidence Interval to 2 d.p.
Baseline	62.3913	21.5669	253	62.39 ± 2.66
6 Months	33.9931	24.9554	144	33.99 ± 4.08
12 Months	28.1548	28.7930	84	28.15 ± 6.16
2 Years	36.6667	35.6682	3	36.67 ± 88.60
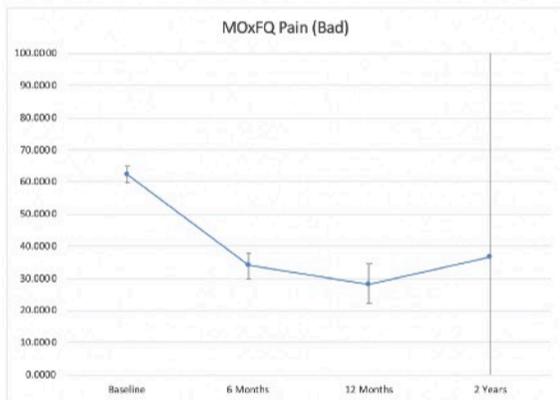
MOxFQ Walking/Standing (Bad)

	Sample Mean	StdDev	n	Confidence Interval to 2 d.p.
Baseline	63.1739	24.6588	253	63.17 ± 3.04
6 Months	36.3958	30.3334	144	36.40 ± 4.95
12 Months	25.9524	28.0153	84	25.95 ± 5.99
2 Years	40.3333	35.1884	3	40.33 ± 87.41
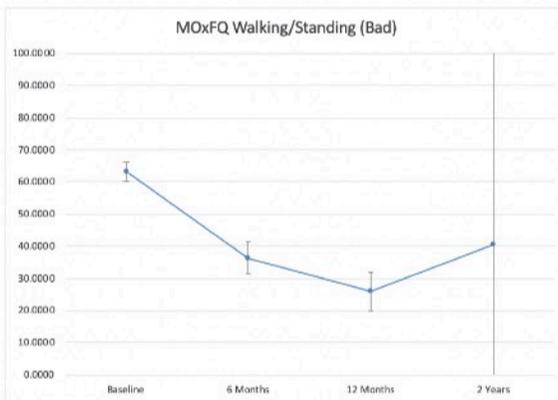
MOxFQ Social Interaction (Bad)

	Sample Mean	StdDev	n	Confidence Interval to 2 d.p.
Baseline	52.5885	25.0846	243	52.59 ± 3.15
6 Months	27.8786	26.1081	140	27.88 ± 4.32
12 Months	19.8072	26.9848	83	19.81 ± 5.81
2 Years	21.0000	21.1818	3	21.00 ± 52.62
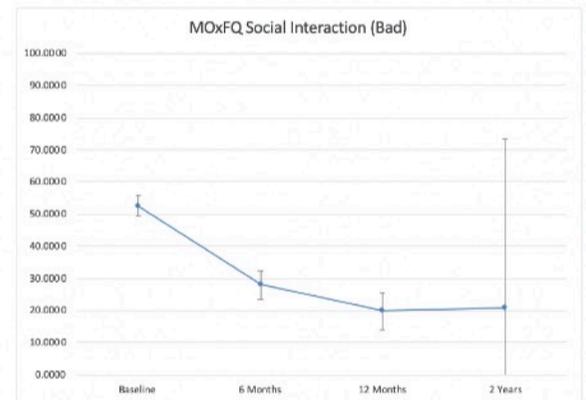
MOxFQ Pain (Good)

	Sample Mean	StdDev	n	Confidence Interval to 2 d.p.
Baseline	11.5116	20.1891	86	13.66 ± 4.27
6 Months	16.5323	22.3172	62	16.53 ± 5.95
12 Months	14.8571	17.9478	35	14.86 ± 5.95
2 Years	0.0000	0.0000	3	#NUM!
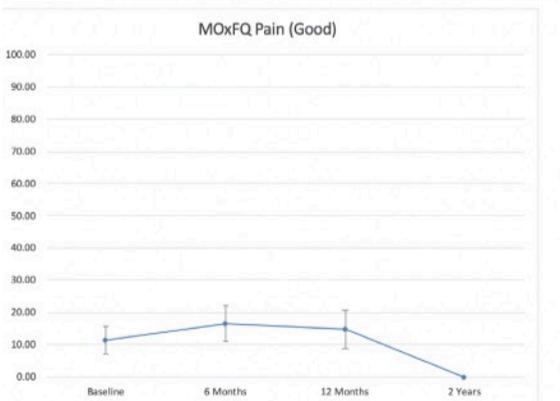
MOxFQ Walking/Standing (Good)

	Sample Mean	StdDev	n	Confidence Interval to 2 d.p.
Baseline	13.6628	25.8864	86	13.66 ± 5.47
6 Months	21.2419	30.0117	62	21.24 ± 7.47
12 Months	11.1714	15.3892	35	11.17 ± 5.10
2 Years	0.0000	0.0000	3	#NUM!
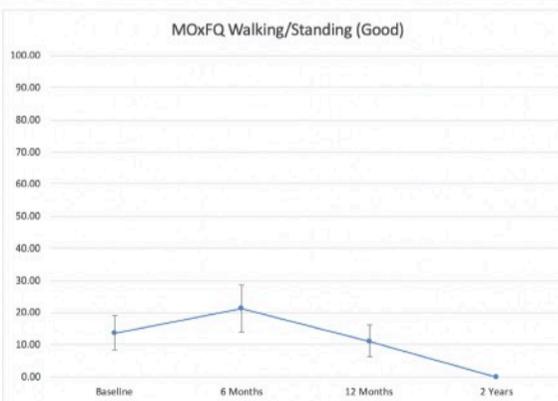
MOxFQ Social Interaction (Good)

	Sample Mean	StdDev	n	Confidence Interval to 2 d.p.
Baseline	18.9868	18.3421	76	18.99 ± 4.12
6 Months	18.8103	21.8241	58	18.81 ± 5.62
12 Months	11.5000	13.8887	34	11.50 ± 4.67
2 Years	4.3333	6.1283	3	4.33 ± 15.22
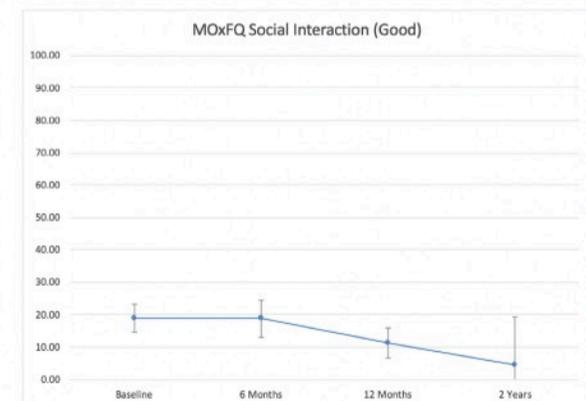
Fig 6: MOXFQ Scores

Pain VAS

|	Sample Mean	StdDev	n	Confidence Interval to 2 d.p.
Baseline	54.2288	23.7054	271	54.23 ± 2.82
6 Months	29.0142	25.7109	141	29.01 ± 4.24
12 Months	21.3158	24.2168	76	21.32 ± 5.44
2 Years	0.0000	0.0000	0	#NUM!

Pain VAS
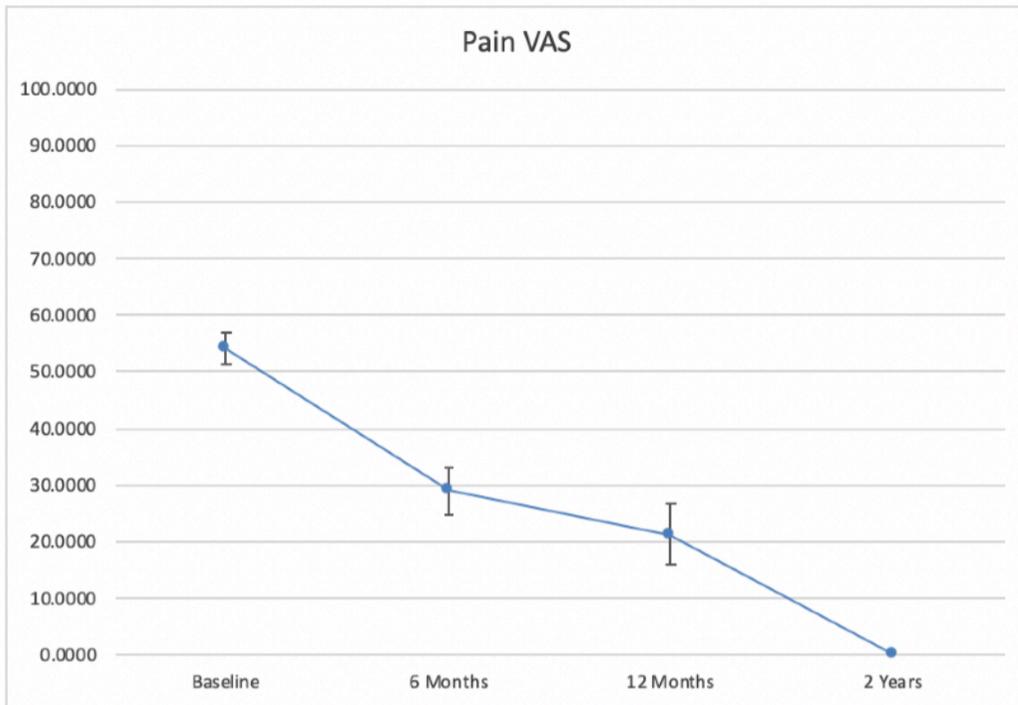
Fig 7: VAS Pain

The average increase in the EQ-5D Index was from 0.57 preoperative to 0.70 and 0.74 at 6 and 12 months post operative respectively (Fig 4). In comparison to population norms (Kind 1999) this is favourable, as the mean EQ-5D index is 0.713 (Std Dev 0.229, Median 0.786) for England. At both 6 and 12 months the improvement was greater than the MIC, indicating a clinically relevant change. Regarding the EQ-5D Health VAS (Fig 5), at 12 months there was no change seen. The number of patients with scores at 2 years is too small for analysis.

The MOXFQ components all revealed a clinically relevant improvement in symptoms at 12 months post-operative (Fig 6). The Pain scores improved from a pre-operative baseline of 62.39 to 28.15 at 12 months post-operative, the Walking/Standing scores improved from 63.17 to 25.95 and the Social Interaction scores from 52.59 to 19.81. The Pain and Walking/Standing scores showed a trend towards normal at 12 months and the Social Interaction score had normalised. The number of patients with scores at 2 years is too small for analysis.

The VAS pain score again showed continued improvement up to 12 months post-operative (Fig 7).

Details of complications and revision surgery were inconsistently documented and it is not possible to draw meaningful conclusions from the dataset as it currently stands.

ANKLE ARTHRODESIS PATHWAY

Within the registry, 201 Ankle Arthrodesis pathways have been instituted since the pathway went live in 2016. There are twice as many males as females. Of the 201 pathways, 64 have completed 6 month follow up scores and 31 patients have completed follow up MOxFQ scores to 12 months. The age range for this patient cohort is illustrated in figure 8.


Age Range

	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 to 74	75 to 79	80 to 84	85 to 89	90 to 94	95 to 100	Over 100
Count	0	0	0	0	0	2	4	3	12	16	22	25	29	30	18	15	9	4	0	0	0
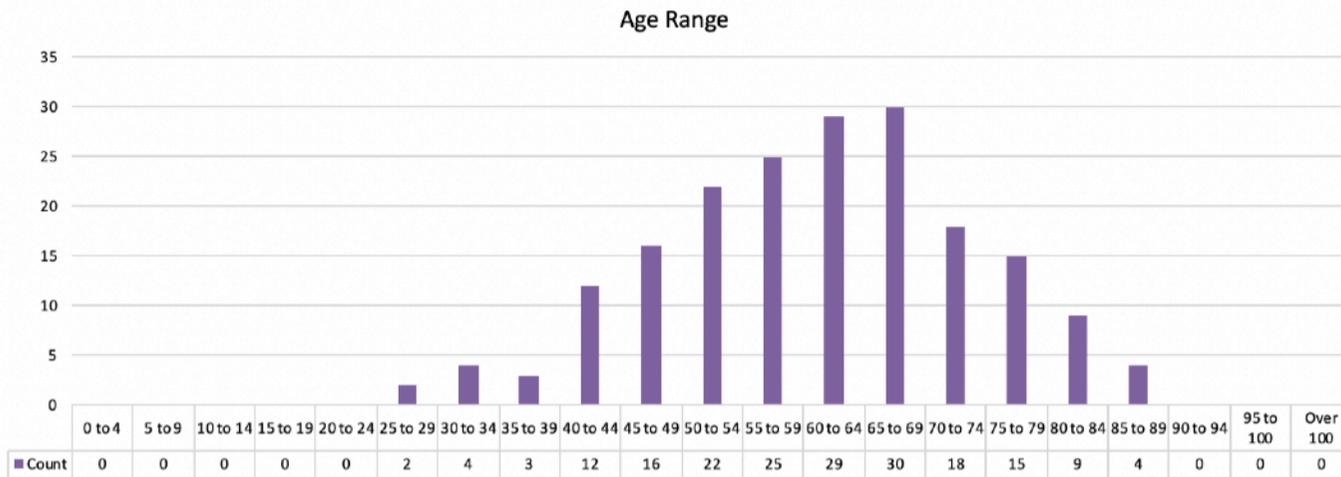
Fig 8: Age demographics of ankle arthrodesis pathway

The BMI range is illustrated in figure 9. Smoking was recorded in 7% of individuals, ex-smoker in 20% of individuals and non-smoker in 73% of individuals. The numbers for smoking was too small to make any comparison in outcomes.

The most common indications for fusion were primary and post-traumatic arthritis. Other indications include inflammatory arthritis and avascular necrosis of talus.

Arthroscopic fusions accounted for 52% of the recorded pathways and 47% were open. The number of 1 year post-operative completed scores are too small to make comparisons between the approaches. Ankle fusion fixation was undertaken using cannulated screws in 87% of patients. The other forms of fixation include plates, an external fixator and staples. In those individuals undergoing fusion using screws, 2 screws were used in 82% and 3 screws in 15%.

The average increase in the EQ-5D index was from 0.43 preoperative to 0.75 at 1 year post operative(Fig 10). In comparison to population norms (Kind P 1999), this is favourable as the mean EQ-5D index is 0.713 for England. The pain scores improved in both the VAS pain and MOxFQ pain, walking and standing, and social interaction indices as illustrated in figures 11 and 12.


BMI

	<18	18-25	25-30	30-35	35<
Count	2	17	38	20	26
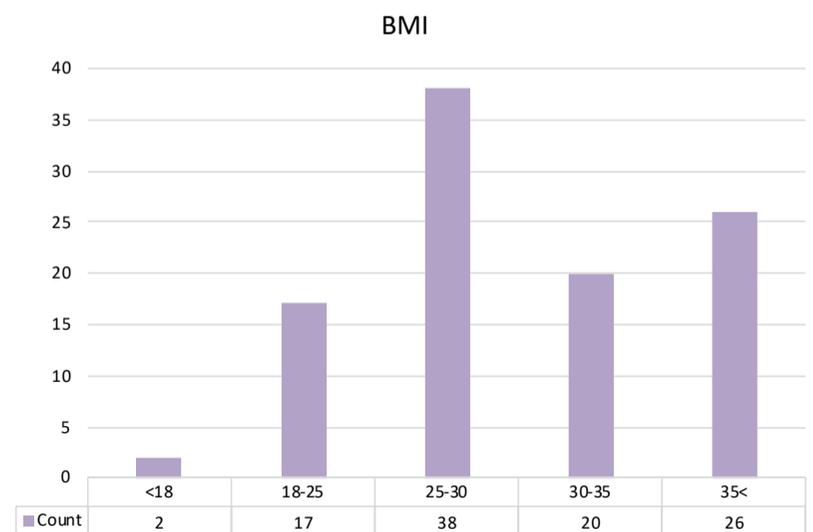
Fig 9: BMI - ankle arthrodesis pathway

	Sample Mean	StdDev	n	Confidence Interval to 2 d.p.
Baseline	0.4213	0.2402	118	0.42 ± 0.04
6 Months	0.5833	0.2810	64	0.58 ± 0.07
12 Months	0.7073	0.2240	31	0.71 ± 0.08

	Sample Mean	StdDev	n	Confidence Interval to 2 d.p.
Baseline	68.0593	18.7803	118	68.06 ± 3.39
6 Months	67.0313	18.5632	64	67.03 ± 4.55
12 Months	74.4839	16.9684	31	74.48 ± 5.97
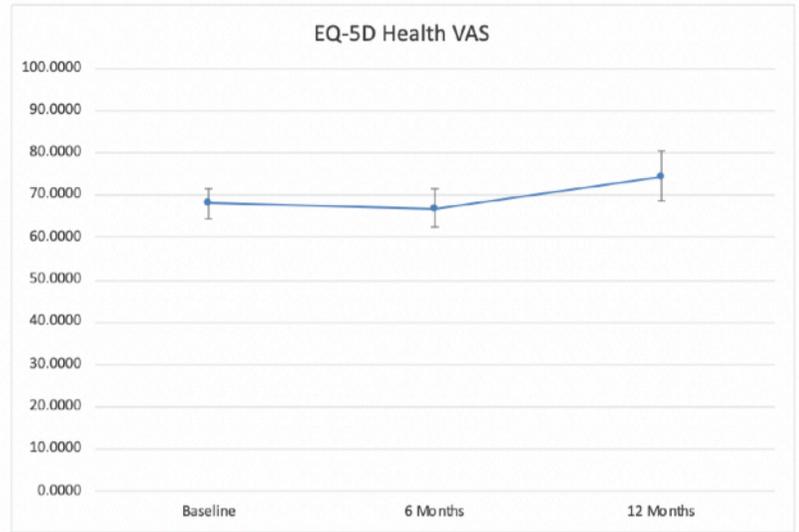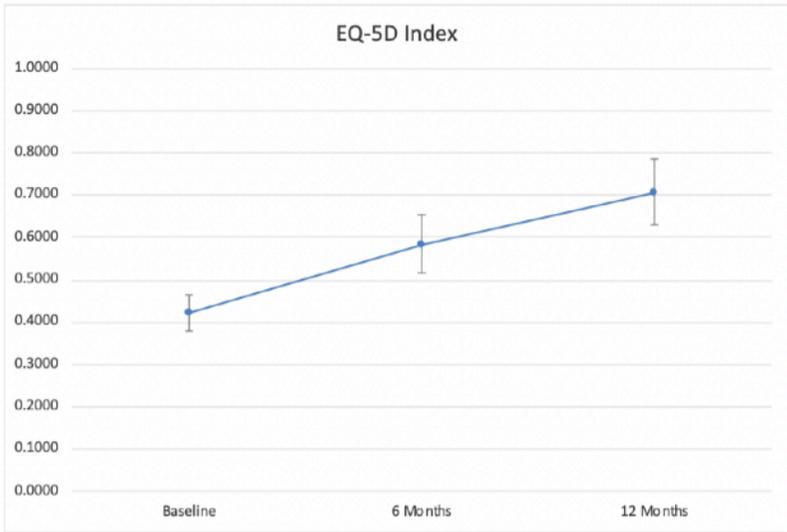
Fig 10: Ankle arthrodesis EQ-5D

	Sample Mean	StdDev	n	Confidence Interval to 2 d.p.
Baseline	68.4956	18.6477	113	68.50 ± 3.44
6 Months	45.5556	28.8965	63	45.56 ± 7.14
12 Months	30.6667	25.2565	30	30.67 ± 9.04

	Sample Mean	StdDev	n	Confidence Interval to 2 d.p.
Baseline	80.9646	19.0481	113	80.96 ± 3.51
6 Months	60.1270	32.4274	63	60.13 ± 8.01
12 Months	37.4667	25.9355	30	37.47 ± 9.28

	Sample Mean	StdDev	n	Confidence Interval to 2 d.p.
Baseline	60.4679	23.7806	109	60.47 ± 4.46
6 Months	44.9355	29.9639	62	44.94 ± 7.46
12 Months	24.2000	25.5204	30	24.20 ± 9.13
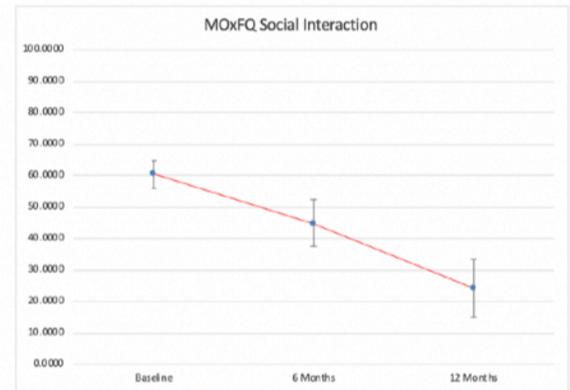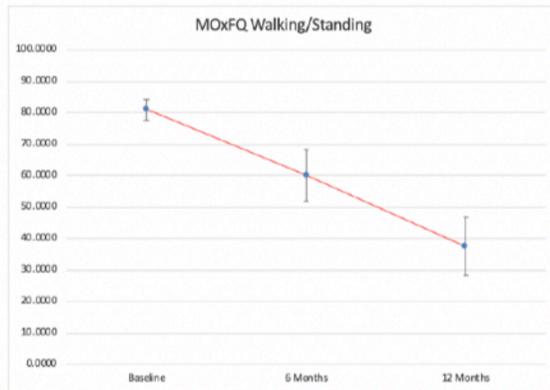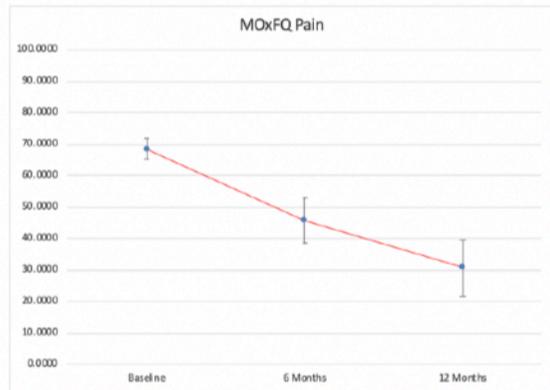
	Sample Mean	StdDev	n	Confidence Interval to 2 d.p.
Baseline	11.4286	23.2610	42	11.43 ± 7.04
6 Months	9.7826	14.1020	23	9.78 ± 22.00
12 Months	13.7500	26.3095	8	13.75 ± 22.00

	Sample Mean	StdDev	n	Confidence Interval to 2 d.p.
Baseline	13.0714	26.2909	42	13.07 ± 7.95
6 Months	7.6087	12.4577	23	7.61 ± 5.39
12 Months	13.3750	23.4677	8	13.38 ± 19.62

	Sample Mean	StdDev	n	Confidence Interval to 2 d.p.
Baseline	20.5263	22.6504	38	20.53 ± 7.20
6 Months	12.4286	12.0774	21	12.43 ± 5.50
12 Months	7.8750	11.1517	8	7.88 ± 9.32
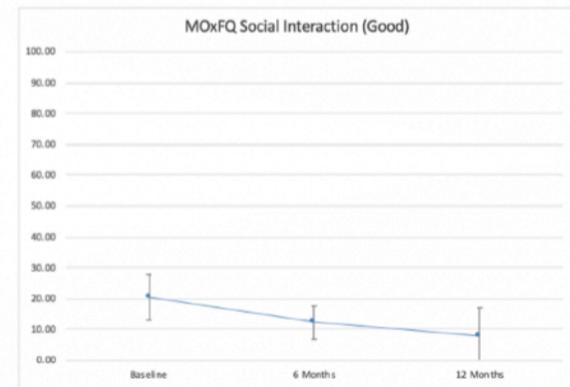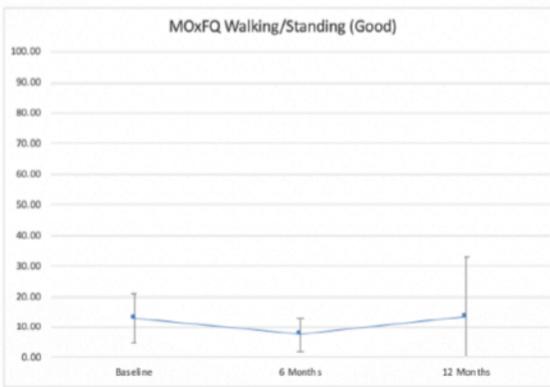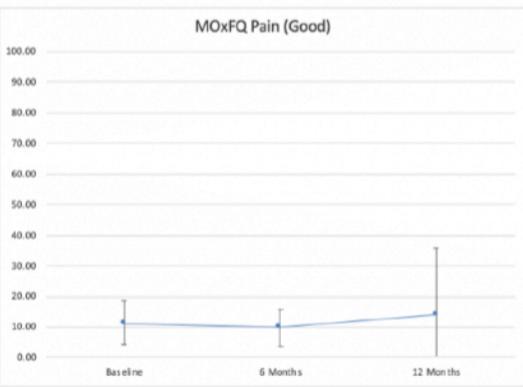
Fig 11: Ankle arthrodesis MOxFQ

|	Sample Mean	StdDev	n	Confidence Interval to 2 d.p.
Baseline	62.4000	23.8859	95	62.40 ± 4.80
6 Months	38.3958	31.4111	48	38.40 ± 8.89
12 Months	19.8095	22.3854	21	19.81 ± 10.19
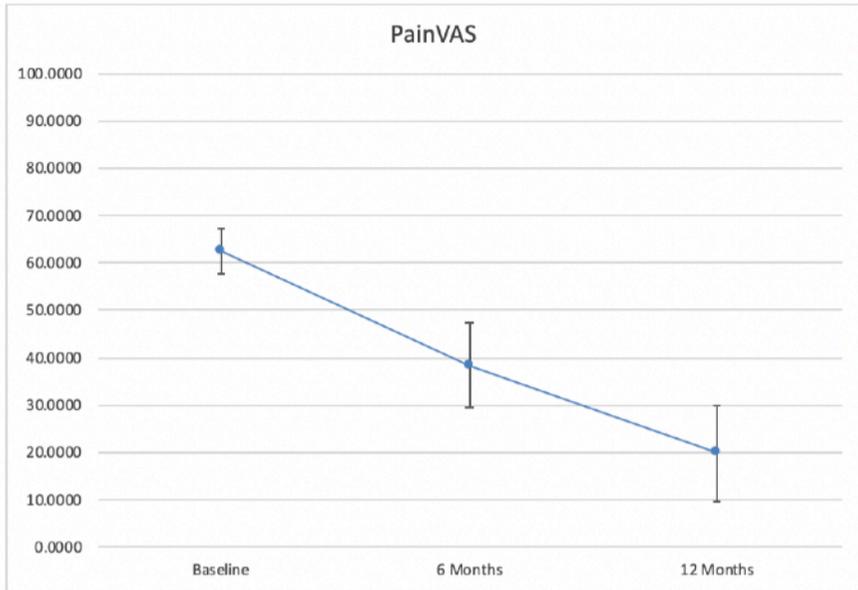
Fig 12: Ankle arthrodesis VAS Pain Score

FOOT AND ANKLE GENERAL PATHWAY

Within the registry, 4936 FAG pathways have been instituted since the pathway went live in 2017 a ten fold increase from the 451 pathways reported in the last report. This is largely due to the inclusion of a large Hospital dataset. Of the 4936 pathways, 1387 pathways have a preoperative score and 200 have completed to 1 year. The age range for this patient cohort is much more diverse than the previous pathways, as illustrated in figure 13. The BMI range for the foot and ankle pathway is shown in figure 14.
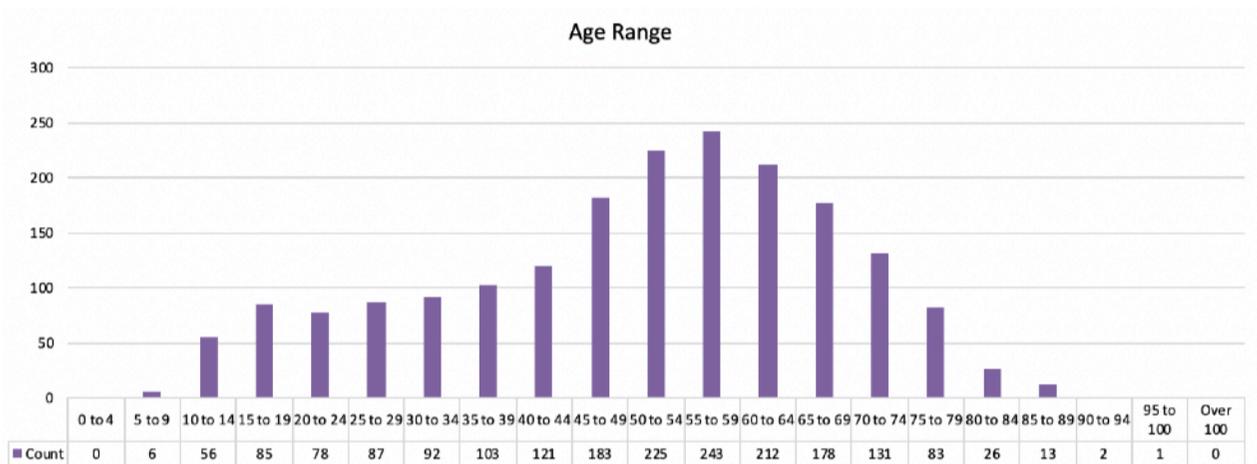
Fig 13: Age range foot and ankle pathway

	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 to 74	75 to 79	80 to 84	85 to 89	90 to 94	95 to 100	Over 100
■ Count	0	6	56	85	78	87	92	103	121	183	225	243	212	178	131	83	26	13	2	1	0

The most common diagnoses in this pathway were: hallux valgus (n=253), arthritis (n=204), hallux rigidis (n=72), toe deformity (n=103) and Achilles tendon disorders (n=64). The surgical coding in the FAG pathway is currently under review, as little can be drawn from the individual coding of procedure by each individual surgeon.
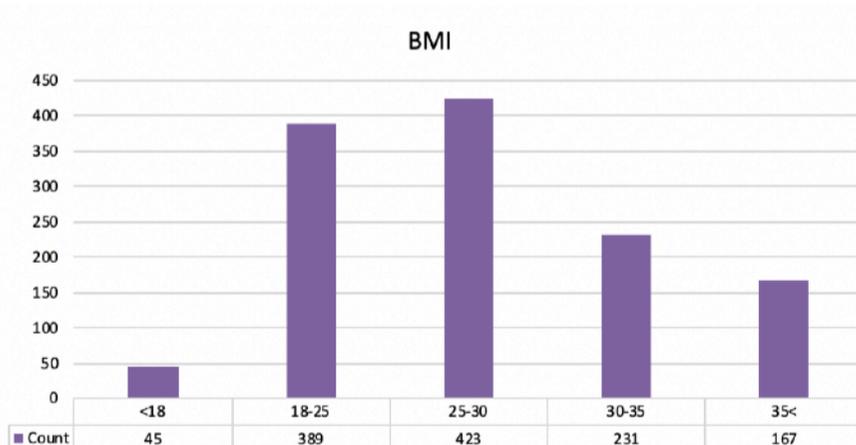
Fig 14: BMI range of foot and ankle pathway

	<18	18-25	25-30	30-35	35<
■ Count	45	389	423	231	167

It is possible look at the amalgamated overall outcomes for the Foot and Ankle General pathway. The EQ-5D, VAS Pain & MOxFQ are shown below (figures 15, 16 and 17). The EQ-5D Health VAS shows a subtle improvement at 6 months becoming more evident at 12 months. The EQ-5D index scores reveal improvements in outcomes at 6 & 12 months compared to the baseline scores. The VAS Pain scores reveal a progressive improvement in symptoms from a baseline of 50.17 to 24.84 at 12 months post operative. The MOxFQ domains show improvements in outcomes at 6 and 12 months post operative in comparison with baseline scores in all domains.

	Sample Mean	StdDev	n	Confidence Interval to 2 d.p.
Baseline	70.2627	19.7707	1401	70.26 ± 1.04
6 Weeks	66.5450	21.7132	222	66.55 ± 2.86
6 Months	73.4990	21.2116	525	73.50 ± 1.81
12 Months	78.1084	18.3920	203	78.11 ± 2.53

	Sample Mean	StdDev	n	Confidence Interval to 2 d.p.
Baseline	0.5836	0.2354	1401	0.58 ± 0.01
6 Weeks	0.5693	0.2470	222	0.57 ± 0.03
6 Months	0.6802	0.2483	525	0.68 ± 0.02
12 Months	0.7123	0.2463	203	0.71 ± 0.03
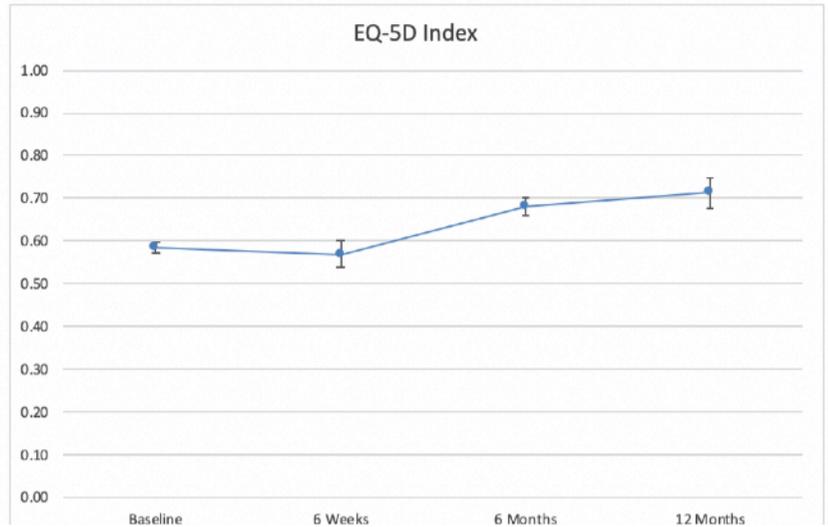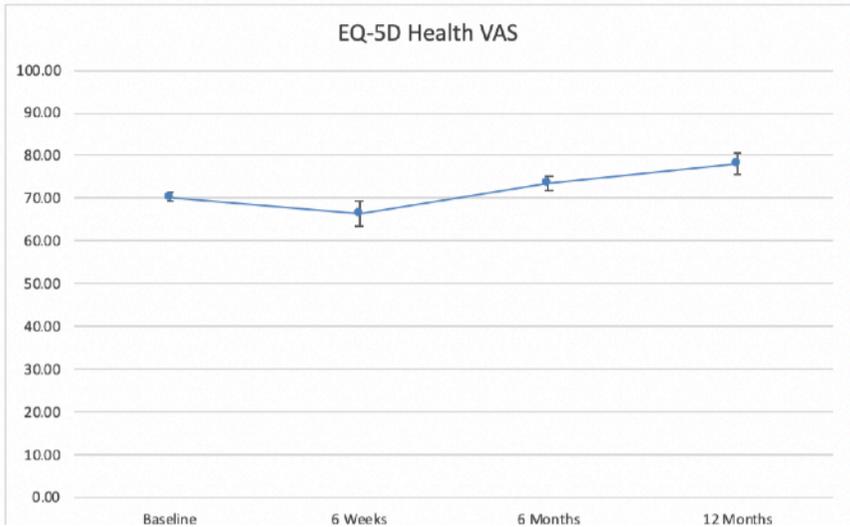
Figure 14: EQ-5D results for foot and ankle pathway.

|	Sample Mean	StdDev	n	Confidence Interval to 2 d.p.
Baseline	50.1680	24.3448	1369	50.17 ± 1.29
6 Weeks	44.5602	24.7726	216	44.56 ± 3.30
6 Months	31.8516	26.3541	512	31.85 ± 2.28
12 Months	24.8363	24.2701	171	24.84 ± 3.64
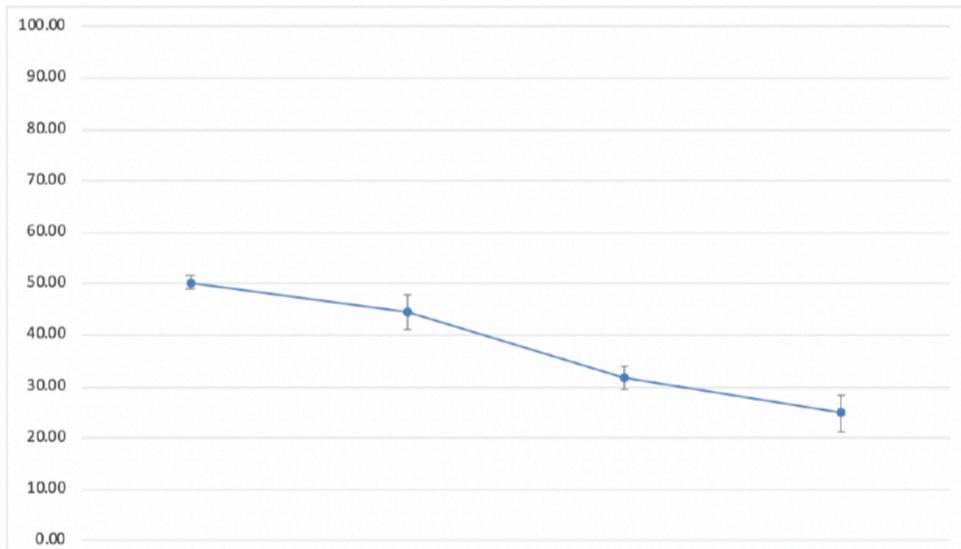
**Fig15: VAS pain score for foot and ankle pathways**
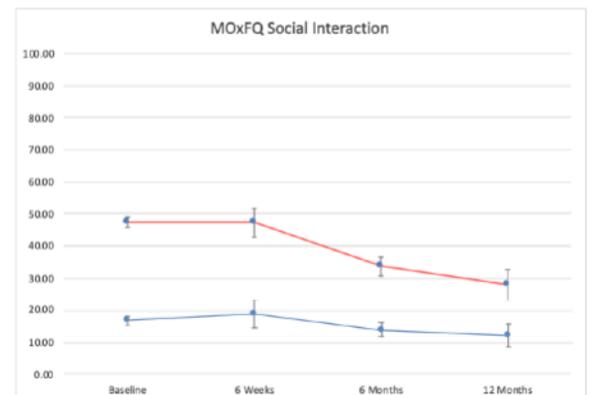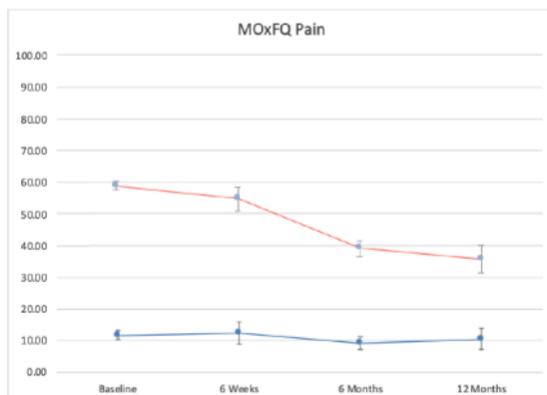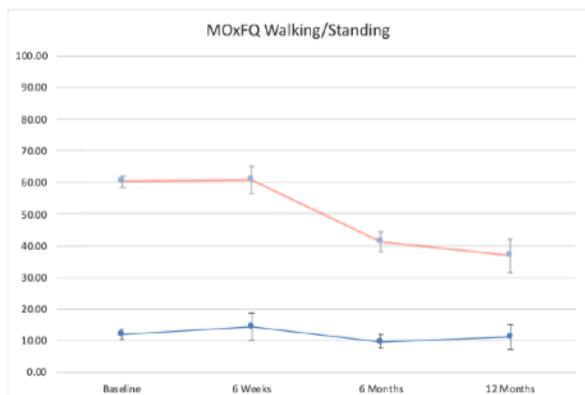
Fig 16: MOxFQ, FAG pathway. Red illustrates treated limb, blue illustrates untreated limb.

QUALITY ASSURANCE

BOFAS was successful in a competitive bid for Amplitude to quality assure the BOFAS registry. The study commissioned by Amplitude was undertaken by Dr Alison Rushton, Reader in Musculoskeletal Rehabilitation Sciences at Birmingham University (Ethical approval ERN_19-1274AP2).

The Objectives of the study were to evaluate data quality and capture, to evaluate accuracy of the data and to evaluate the pre and post patient reported outcome measures (PROMs) and associated clinical data of the three pathways within BOFAS (First metatarsophalangeal joint arthrodesis, Ankle Arthrodesis and Foot and Ankle pathway).

The draft reports for the three pathways have been reported: The reports included data from August 2014 to May 2019. The report concluded that whilst data completeness was good for some variables such as gender, baseline BMI and medication and generally poor for other variables such as smoking, previous surgery and type of surgery.

MOXFQ (pain, walking-standing and social interaction) VAS, and EQ5D scores were improved compared to baseline values following surgery at 12 months.

The reports highlighted the following issues, missing data, unrealistic data input (e.g. BMI of 4500), and staggered data in one field (co-morbidities) rendering analysis in that field implausible.

The Outcomes committee will review these conclusions and work with Amplitude to improve the data quality and capture as well as reducing missing data.

FUTURE PATHWAYS

This year the following new pathways have already been launched:

- Ankle (Primary Arthroplasty) - with option to link to NJR

- Ankle (Revision Arthroplasty) - with option to link to NJR

- Achilles Tendinopathy

- Achilles Rupture

- Paediatric foot and ankle

Later this year, a foot and ankle trauma and ankle fracture pathways will also be available.

SUMMARY

The BOFAS Outcomes Registry has been conceived and developed by working clinicians with minimal funding, motivated by the wish and professional requirement to improve patient outcomes by data collection. This 2020 Annual Report demonstrates how much has been achieved already, but also highlights the limitations of data quality in the absence of resources to increase compliance and volume. The generic pathway was deliberately intended to collect basic PROMS across many procedures. Despite the intrinsic coding complexities, it shows just how much our interventions are improving the quality of life of our patients. We now wish to increase data capture with the expanded dedicated pathways so as to more accurately reflect national activity and enable valid analysis of outcomes, especially where variation in practice exists. At the time of writing, the NHS is facing recovery from Covid-19's impact. We will actively seek ways of using our established system to monitor and inform the process in our field.

The 2020 Annual Report shows that the BOFAS Registry fundamentally works and tantalisingly hints at its true potential for patient benefit. BOFAS will continue to lobby for central NHS England support via its Outcomes Committee, as it did last year working with the National Joint Registry and Trauma and Orthopaedic Registries Unified Structure (TORUS). Meanwhile I commend BOFAS members who have engaged with the Registry and thank my Committee for their work in preparing this Report.

Paul Halliwell

Chairman, BOFAS Outcomes Committee

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