



Non-Arthroplasty Hip Registry

6th Annual Report 2021

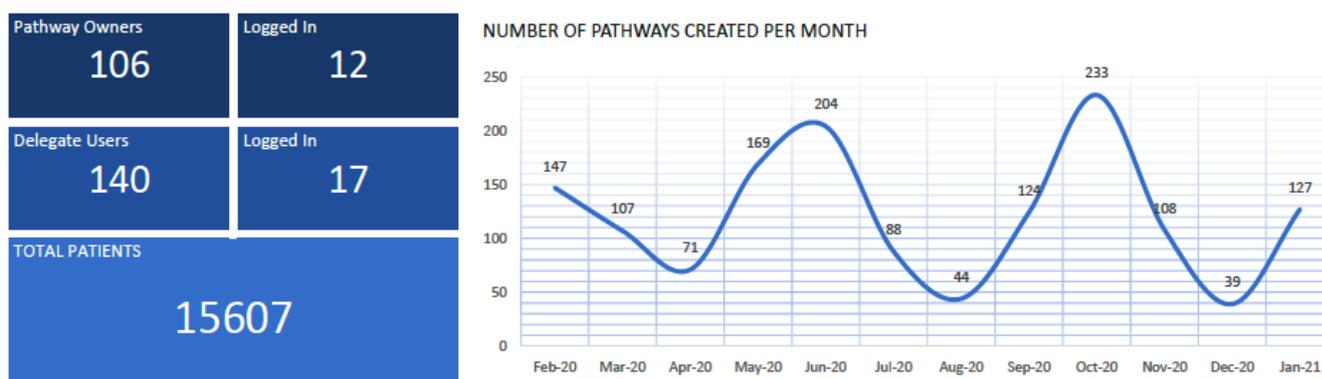
Chairman's Foreword

It gives me great pleasure to present the 6th Annual Report of the UK Non-Arthroplasty Hip Registry. After the fantastic work done by Vikas Khanduja and Marcus Bankes as previous Chairs, I took up the role with the aim to continue the progressive path set out by my predecessors. There were additional challenges that needed addressing, particularly concerning the Covid-19 pandemic and as a team, we wanted to demonstrate that we were proactive and using our time effectively. I am glad to report that this certainly has been the case and there have been some exciting background developments which I'll cover in this foreword. However, please do look at our new upgraded [website](#) which has more modern and vibrant features.



Number of pathways and surgeons contributing and the effect of the pandemic

We currently have close to 15,607 pathways registered in the NAHR under 106 surgeons. As can be seen in the latest monthly report from Amplitude, after the initial drop in March/April 2020 in patient recruitment there was a gradual increase until October 2020 when the second wave kicked in and there has been a slow resumption of patients entered into the system in Jan 2021, in keeping with the effect of the pandemic on elective surgery provision.



Covid-19 surveillance

The young patients that we typically see in our practice were perhaps best suited to test the waters during the resumption of elective operating, especially as day case procedure and some of the trusts including mine were keen to get things kick-started with this group. It was therefore critical that we put systems in place to facilitate this and ensure a safe resumption of elective operating, and as a team, we created a Covid-19 questionnaire.

From 1st June 2020, all patients entered in the NAHR receive an additional set of questions. These include an introductory email to the patient at the time of the surgery to establish what protocols were in place to ensure they had their intervention in a safe environment and whether they understood the implications of having elective procedure during this time. It is followed up by a 30-day and 90-day email to ensure that they did not develop any Covid-19 related complication. During this period, of the 468 patients entered, 287 have completed their baseline scores with a 61% compliance. Of these 257 have completed their 30-day questionnaire and 175 their 90-day questionnaire.

Instant reporting upgrade

From the various conversations I've had with members, it was apparent that some of you have struggled to analyse the data entered in the registry. At its inception in 2012, the expectation to critically analyse the data was different. It was therefore imperative that we improve the functionality, specifically to look at the data in more granular details. Over the last year, Marcus Bankes and I have explored this with Amplitude and identified some fundamental

issues with the current report. Upgrades have now taken place, and you will be able to objectively examine your data further. Please use the link “NAHR PROCEDURE CHART” in the reports section of the portal and play around with the data. This will be beneficial not just for appraisal but for additionally for audits and research and indeed to find out what works better in your hands. The team would be happy to help you if any clarification is required.

Research

Some of you would have listened to the stellar work done by the team from the NAHR dataset presented in the free paper session at BHS 2020. We had the [first paper from NAHR](#) published in JBJs Am with others to follow. The key message from the recent publication is that periacetabular osteotomy is a successful surgical intervention for hip dysplasia and acetabular retroversion in the short term, with significant improvement in patient-reported outcome scores maintained up to two years postoperatively.

The study looking at the role of hip arthroscopy for femoroacetabular impingement (FAI) group has shown that 67% of patients achieved improvement in scores over and beyond the minimum clinically important difference. Pincer pathology, high-grade chondral lesions and higher preoperative score are predictors of lower improvement in scores. Age more than 40 and high BMI are also associated with poorer outcomes. Labral repair leads to significantly better improvement in scores as compared with labral debridement.

If you are interested in looking at the NAHR dataset and have an appealing research proposal, do look at the [application process](#). Please note that to be eligible you'll need to be submitting data regularly to the NAHR.

Restructuring

The NAHR board has recently submitted to the BHS executive a proposal to restructure the board with well-defined roles for the executive and an expansion of the team. It will be presented to the BHS membership during the AGM for ratification. The proposal includes the formation of a group of trustees formed by the ex-Chairpersons of NAHR; appointment of a Vice-Chairman and allocating dedicated portfolios to the current team ranging from the treasurer, research lead, compliance lead, editorial secretary and website lead. We also want to be inclusive and want to invite candidates for the role of regional representative (10 in total); these typically would-be members who have been actively contributing to the registry for at least two years. We are hoping that this will go a long way in achieving our goal of increasing surgeon engagement and patient compliance. We'll be looking forward to the applications once this is approved.

Education Programme

Over the last few years, there has been an education programme in place, which hopefully you have found informative. For BHS Annual meeting in June 2021, we are hoping to have a case-based discussion involving periarticular pathologies in the hip with a panel of experts debating the management of these conditions. It will give a different perspective to the other themes we have been discussing. In addition to this the BHS Education Committee, led by Vikas Khanduja, has launched an ambitious series of Webinars every 2nd Wednesday of the month in the evening. The NAHR will be running four of these – FAI, Hip Dysplasia, AVN of hip and Periarticular pathologies around the hip. Please be on the lookout for what would hopefully be some engaging sessions.

Travelling Fellowships

We will also be looking at inviting applications for a travelling fellowship for two weeks for enthusiastic candidates wishing to visit various centres in the UK and get exposed to the non-arthroplasty hip practice in different parts of the country. It will most likely be for the summer of 2021 depending on the pandemic, and I am grateful to Callum McBryde for the work that he is doing to organise this.

None of these would be possible without the support of a fantastic team to help, and I am grateful to the whole of the NAHR board for their support and time to improve all aspects of NAHR. On behalf of the team, I would also like to thank Matt Wilson who had been an integral member for a long time and has decided to leave the role to allow space for other candidates to join. Matt had been instrumental in producing the first NAHR report in 2016 and was heavily involved in preparing the subsequent annual reports. I would also like to extend my heartfelt thanks to all the surgeons contributing to NAHR and would like to get your feedback on aspects we should be working on (ajay.malviya1@nhs.net).

User Group

Ajay Malviya (Chair)



Mr Ajay Malviya is a Consultant Orthopaedic Surgeon at Northumbria Healthcare NHS Foundation Trust. He trained in the Northern Deanery and has done specialist fellowships in hip preservation and joint replacement surgery in Cambridge, London and Switzerland. He specialises in hip arthroscopy for femoroacetabular impingement, trochanteric pain syndrome and periacetabular osteotomy for hip dysplasia using a minimally invasive approach. He deals with sports injuries of the hip and has published and presented widely on the results of hip arthroscopy in athletes and general population. He has completed a PhD on the role of hip arthroscopy in femoroacetabular impingement.

He was awarded the prestigious ABC (America-Britain-Canada) fellowship in 2016 by the British Orthopaedic Association that involved visits to various high-profile centres in USA and Canada learning about new systems and techniques. He is a very active researcher with more than 75 peer-reviewed publications in esteemed journals. He is in the British Orthopaedic Association Education and Careers committee and the national lead of the UK and Ireland orthopaedic in-training examination, which is an annual assessment of orthopaedic surgeons in training. He is an examiner for the Royal College of Surgeons (FRCS T&O).

Vikas Khanduja (Past chair)



Mr. Vikas Khanduja is a Consultant in Addenbrooke's - Cambridge University Hospital. Vikas has been instrumental in setting up the tertiary referral service for Young Adult Hip Surgery in Cambridge and is the Lead for Elective Clinical Trials in Orthopaedics. He is a keen researcher and has published and lectured extensively with over 100 peer reviewed articles. Complementing his clinical practice, his research is focused pre-operative modelling of FAI to understand morphology and stresses, disease stratification via novel imaging techniques, optimisation of arthroscopic management of FAI and precision surgery via navigation and to improve outcomes.

Vikas is the recipient of the prestigious American and British Hip Society Fellowship, the Arnott Medal presented by the RCS, England and the Insall Fellowship presented by the American Knee Society and Insall Foundation. He is an enthusiastic educator and convenes the Cambridge Basic Science Course & the Cambridge ESSKA Hip Arthroscopy Course annually. He is the Speciality Editor for Hip Preservation at the BJJ and also Chairs the NAHR & the SICOT Education Academy.

Tony Andrade



Mr Tony Andrade is a consultant Orthopaedic, Hip and Knee surgeon with a special interest in Young Adult Hip problems. He was appointed to the Royal Berkshire Hospital in 2002, where he established a hip arthroscopy and hip preservation service that quickly evolved into a tertiary referral centre. Since then he has been at the forefront of the evolving surgical techniques in arthroscopic and other types of hip preservation surgery, and this led to a visiting surgeon program where surgeons from the UK and across the world are able to join him to learn these surgical techniques. He established a Lower Limb Arthroplasty Fellowship in 2004, and a Hip Arthroscopy Fellowship in 2016. He sits on the UK Non-Arthroplasty Hip Registry (NAHR) user group for the British Hip Society and has been an active member of the International Society of Hip Arthroscopy (ISHA) since it was founded in 2008. He joined the board as the ISHA membership secretary in October 2012 and was the host chairman for the ISHA Annual Scientific Meeting in Cambridge in September 2015. He is the President of ISHA – The International Hip Preservation Society since October 2020.

Marcus Bankes



Mr Marcus Bankes is the senior surgeon on the Hip Unit at Guy's and St Thomas' Foundation NHS Trust and was appointed Consultant Orthopaedic Surgeon in 2002. His practice consists almost exclusively of the surgical treatment of young adult hip disorders, including arthroscopic and open hip preservation techniques and arthroplasty, particularly with ceramic-on-ceramic bearings. Recognised as an opinion leader in hip surgery, Marcus is a regular speaker at national meetings and ISHA (The Hip Preservation Society) as well as being a reviewer for a number of orthopaedic journals. He pioneered the use of the British Non-Arthroplasty Hip Registry (NAHR) and was the first Chair of its User Group. He remains on the User Group of the NAHR and has recently led on the Minimum Data Set 2.0 project. His interests outside work include film, TV, pop music, Apple electronic goods, and most sport, particularly cycling.

Tim Board



Professor Tim Board specialises in complex primary and revision hip surgery and hip arthroscopy at Wrightington Hospital, Lancashire. He trained in Manchester, gaining an MD for research into bone grafting and an MSc in Orthopaedic Engineering. Tim then undertook Fellowship training in Sydney, Hannover and Wrightington. Wrightington now performs over 1000 hip and 1000 knee replacements every year and is the tertiary orthopaedic unit in the North West.

Tim is the GM CLRN lead for orthopaedics and chairs the British Hip Society Research Committee. He also sits on the executive committee of the British Hip Society and the North West Surgical Trials Centre. He is a full time NHS consultant but has a strong academic interest in both basic science and clinical research having presented over 200 papers at National and

International scientific meetings and published over 100 papers in scientific journals and written numerous book chapters. He is an Honorary Professor and has numerous research collaborations with the Universities of Manchester, Leeds and Salford.

Jon Conroy



Mr Conroy has been a Consultant at Harrogate District Foundation Trust since 2006. This has included 4 years as Clinical Director for Surgical Services. He was fellowship trained in Computer Navigation Surgery at the Prince Charles Hospital in Brisbane 2005-2006. Completing his MSc in Mechanical Engineering in 2006 he has since been involved in implant design for both Hip and Knee replacements.

The Royal College of Surgeons of England approved Harrogate Hip Fellowship has been led by Mr Conroy for almost 10 years. Specialty interests includes Robotic Hip and Knee Surgery performed at Leeds Nuffield Hospital since 2017 and a Regional Hip Arthroscopy service that has led to his position on the Non-Arthroplasty Hip Registry board.

Callum McBryde



Mr. Callum McBryde is a consultant hip surgeon at the Royal Orthopaedic Hospital in Birmingham. He is proficient in all aspects of hip surgery both hip preservation surgery such as hip arthroscopy and pelvic osteotomy but also complex primary total hip replacement and hip resurfacing. He is considered an expert in the treatment of conditions such as developmental dysplasia, avascular necrosis, femoro-acetabular impingement and slipped upper femoral epiphysis. He qualified as a doctor from the University of Manchester, completed his surgical and orthopaedic training in Birmingham whilst also completing a Doctor of Medicine higher degree. He then completed a number of international specialist hip fellowships in Australia and Switzerland. He has won a number of prizes and accolades for his research and work including the McKee prize, the European Fellowship and the McMinn scholarship from the British Hip Society.

He has been instrumental in the development of the multidisciplinary young adult hip unit in Birmingham which is a recognised centre of excellence and national referral centre. He is recognised as an opinion leader with a large number of peer reviewed publications and is regularly invited both nationally and internationally to share his knowledge and experience to other surgeons.



Richard Holleyman

Richard completed his undergraduate education in Newcastle (MBBS) and London (MSc) and has been a Trauma and Orthopaedic specialist registrar in the Northern Deanery since 2016. He has a passion for health research, in particular, epidemiology and data science and has worked extensively with large national datasets and with the NAHR since 2017.

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Introduction

The User Group are pleased to present the 6th Annual Report of the Non-Arthroplasty Hip Registry (NAHR). Since formal data entry commenced, the NAHR has collected extensive data with more than 15,000 pathways entered. There has been a sustained year-on-year increase in the number of surgeons participating and the operations entered since publication of the first report.

Considerable progress has been made over the last few years in generating evidence in non-arthroplasty hip surgery. FASHIoN and FAIT trials led by Prof Damian Griffin (Coventry) and Prof Sion Glyn Jones (Oxford) have been at the forefront of world research on this. In June 2018, The Lancet published the first level one evidence output from the Femoro-Acetabular Surgery for Hip Impingement syndrome study (FASHIoN): a multicentre randomised controlled trial¹. The results of this study demonstrated a clinically significant benefit of hip arthroscopic surgery over non-operative personalised hip therapy (PHT). Similar results were seen in the FAIT trial and published in the BMJ, which showed that patients with symptomatic femoroacetabular impingement (FAI) referred to secondary or tertiary care achieved superior outcomes with arthroscopic hip surgery than with physiotherapy and activity modification². Very recently Prof Olufemi R. Ayeni (McMaster's University, Canada), published another randomised controlled trial looking at the role of femoral osteochondroplasty during hip arthroscopy³. In this multinational trial the authors have been able to demonstrate that just dealing with labral pathology may give short term benefit for one year but additional femoral osteochondroplasty to address the Cam lesion which would cause the labral damage, significantly reduces the reoperation rate at two years.

There are several other randomised trials underway and the results of these studies combined with longitudinal 'real world' data from the NAHR will certainly guide future patient selection and treatment and improve outcomes. Data from the NAHR demonstrates similar improvements in iHOT scores following hip arthroscopy for FAI at one year post-operatively although any comment on longer term outcomes is currently limited by the lack of available data.

Arthroscopic surgery still represents the largest proportion of recorded surgical procedures within the NAHR and the majority of procedures with data entered have been performed in a National Health Service (NHS) facility. There is clearly work, to be done to improve the collection of data from non-arthroscopic surgeries and even more importantly to improve data collection from private healthcare providers.

Data collection in general, has improved in comparison with the previous years, but still remains a challenge particularly over the longer term, as well-functioning patients get on with their lives, are discharged from follow-up and may choose not to reply to data collection emails. Data collection rates for post-operative patient reported outcome measures are typically less than 50% and by two years have dropped so far as to render analysis impossible. The rates for consent for data collection improved significantly from 50% to over 90% between 2013 and 2015 and have remained over 90% since. Without clear patient consent, data is anonymised and therefore cannot be linked to further surgery in this registry or others such as the National Joint Registry. The ability to link data and follow a hip joint through its life was one of the founding principles of the registry and improving consent rates has become a key area for the NAHR User Group. It is quite likely that consent for some of these patients has been obtained but not marked electronically in the Registry. Efforts are ongoing to trace the consent of these patients with their relevant Consultants. To prevent this problem continuing we have

introduced a system whereby a new record cannot be added on the Registry without activating the consent status.

The formation of the Trauma & Orthopaedic Registry Unifying Structure (TORUS) under the stewardship of the BOA, was seen as an essential umbrella organisation under which the growing number of UK orthopaedic registries could work, sharing guidelines, expertise and experience. Additional benefits around legal indemnity, investigation of breaches of data collection, contract negotiations with registry providers and dealing with issues related to information governance are all potential benefits of TORUS membership. The reality of running this organisation is proving a challenge and talks about the future direction of TORUS and its associated registries are continuing. The potential option of the TORUS registries joining the National Joint Registry (NJR) or NHS Digital, has been explored in depth and a proposal was sent to the Department of Health. However, lack of funds to support such a project has meant that the merger is on hold. NAHR has actively engaged in the process and remains keen to join the collaborative as long as we maintain ownership of data within the NAHR and BHS. It is clear from discussion with the British Hip Society (BHS) members that maintaining ownership of the data in the NAHR is desirable to avoid potential inappropriate use of the data by third parties.

The NAHR User Group, chaired by Mr Ajay Malviya, continues to meet virtually four to six times per year to drive the registry forward with the aims of improving data collection and surgeon engagement. One of the challenges faced by the User Group is funding. The NAHR is kindly supported by the BHS and its members but additional funding is needed to fund future developments. The NAHR User Group is very grateful to its primary sponsors, Stryker Orthopaedics, Smith and Nephew and Arthrex, for their generous support of the registry and their understanding of what the registry is trying to achieve. Apart from the running expenses of the

registry there are upgrades that are done which require funding. There is also a plan in place for a BHS/NAHR supported research fellow position. Discussions are ongoing with charitable organisations to help part-fund this. The pandemic has, however, had an effect on the ability to generate further support from the industry.

The 5th Annual Report was released at the BHS Annual Congress in Newport and made its presence felt in many regional meetings across the country. The report conclusively showed improvement in patient reported outcome measures (PROMS) following hip preservation procedures be it hip arthroscopy for FAI or pelvic osteotomy for hip dysplasia.

The User Group are, once again, is indebted to Mr Richard Holleyman, an Orthopaedic StR from the North-East, for his help in preparing the statistical analysis and graphical representations in this report. The NAHR remains the world's only national registry of its kind and, together with the BOA, represents an opportunity to lead the world in the field of registry data for hip preservation surgery. The data contained in this report represents the early genesis of the NAHR, but it will allow us to follow the outcome of non-arthroplasty surgery over the lifetime of our patients.

1. *Hip arthroscopy versus best conservative care for the treatment of femoroacetabular impingement syndrome (UK FASHIoN): a multicentre randomised controlled trial. The Lancet. 2018;391(10136): 2225-2235*
2. *Arthroscopic hip surgery compared with physiotherapy and activity modification for the treatment of symptomatic femoroacetabular impingement: multicentre randomised controlled trial. BMJ. 2019 Feb 7;364:l185. doi: 10.1136/bmj.*
3. *Osteochondroplasty and Labral Repair for the Treatment of Young Adults With Femoroacetabular Impingement: A Randomized Controlled Trial. Am J Sports Med. 2021 Jan;49(1):25-34. doi: 10.1177/0363546520952804.*

Aim of the NAHR

The NAHR is open to data submission by members and non-members of the BHS. The aim is to benefit both patients and surgeons by collecting longitudinal data on patients undergoing an elective surgical procedure for hip pathology excluding patients who are having an arthroplasty or who have had an arthroplasty operation. Relevant operations include: arthroscopic and open surgery for FAI; PAO; reverse PAO for retroversion, femoral osteotomy; surgery for slipped capital femoral epiphysis (SCFE); surgery for developmental dysplasia of the hip (DDH); and other treatments for extra-articular hip problems such as trochanteric bursitis, abductor tears and external snapping of the hip. In fact, any operation other than arthroplasty and acute fracture treatment is suitable for being recorded on the NAHR. It is quite likely that private institutions as well as NHS Trusts will soon require proof that outcome data is being collected. Collection of outcome data and reflection on the results is also considered an important component of the appraisal and revalidation cycle.

The NAHR data will be used to bring direct benefits to patients by:

- *improving patient awareness of the outcomes of operations on the hip, because results are available in the public domain*
- *comparing the success rates of different operations and surgical approaches to the hip*
- *helping to identify whether they would benefit from a specific surgical technique*
- *identifying which surgical procedure is most likely to bring benefit for a specific diagnosis*

The NAHR data will bring additional long-term benefits to surgeons and hospitals by:

- *providing feedback to orthopaedic surgeons to define which patients will benefit from surgery and what details of the operative procedure will define a good result; validated outcome data will be available to the surgeon*
- *identifying which patients are likely to benefit from a particular procedure*
- *promoting open publication of outcomes following surgery*
- *comparison of patient reported outcomes for an individual surgeon with the national average and this document forms a part of the appraisal process*
- *potentially linking to Hospital Episode Statistics (HES) and NJR data to enable follow-up into arthroplasty, and accurately follow the lifespan of a patient's hip joint*

History of the NAHR

The creation of a NAHR was initiated by Mr John Timperley, Consultant Orthopaedic Surgeon at the Princess Elizabeth Orthopaedic Centre in Exeter and former President of the BHS. He identified the rise in hip preservation surgery but noted, in contrast to joint replacement surgery, a lack of outcomes data outside of small scale published series. Given his interest and expertise in joint replacement registries from around the world, setting up a registry for non-hip replacement hip surgery seemed a logical thing to do. The motion to set up such a registry was unanimously supported by the Membership of the BHS at the Annual General Meeting in Torquay in March 2011 and the membership agreed that the BHS should fund the registry. The Registry went live in March at the 2012 BHS Annual Meeting in Manchester and was formally launched at the BOA Annual Congress in September 2012. NICE (National Institute for Clinical Excellence as it was then known) Interventional Procedure Guidance on Arthroscopic (IPG408) and Open (IPG403) Femoroacetabular Surgery for Hip Impingement Syndrome, published in September and July 2011 respectively, noted that clinicians should submit details to this national registry.

The User Group, initially chaired by Professor John Timperley and then Mr Marcus Bankes, developed during 2012 and 2013 and consisted of Mr Tony Andrade, Professor Tim Board, Professor Max Fehily, Mr Paul Gaston, and Mr Matt Wilson, with assistance from Mr Johan Witt and Professor Damian Griffin. A major streamlining exercise was undertaken in 2013 to improve surgeon compliance following meetings of interested parties at the BHS in Bristol in March and of the original NAHR User group at the BOA Congress in October. Whilst many arthroscopic and hip preservation

surgeons were enthusiastic about the development of the NAHR in principle, many already had their own databases and were unsurprisingly unwilling to duplicate data entry. It was therefore decided that use of the data collection infrastructure which already existed for the NJR in every hospital in England and Wales was essential for success to minimise surgeon involvement in data collection and capture cases.

In addition, a Minimum Data Set (MDS Version 1.0) was defined which included a pre-operative specific and general health measures, namely the iHOT-12 (International hip outcome tool - 12 question version) and the EQ-5D-5L (five-dimensional measure of health-related quality of life, five level questionnaire developed by the EuroQol Group) respectively. Standardised paper data collection forms were redesigned to have a similar appearance to NJR forms to help with this process. Whilst it may seem outdated to develop a paper-based system, availability of convenient hardware, particularly in clinic and theatre environments, varies immensely between hospitals. Whilst the advent of tablet devices is often hailed as the convenient solution to pre-operative data collection, maintenance and theft of these devices remains a major problem. Clearly the NAHR can be used entirely without paper forms for those institutions with durable electronic systems in place. Post-operative outcome data is electronic however, and patients are currently invited to complete outcome questionnaires at six, twelve and twenty-four months after their operation with an email, linking them directly to the online forms.

Growth of the Registry continued and the MDS Version 1.1 was launched in February 2015 to include data fields for the extent of pre-existing articular cartilage damage on both sides of the joint. Whilst there was little change in the way data was collected, there was increasing interest in non-joint replacement registries from other specialties from the BOA, led at that time by the then President Colin Howie. This led to the formation of an umbrella organisation for these registries called TORUS

in 2016 of which the NAHR was an original member. The formation of TORUS provided a shared operating framework that allowed consistency of practice and a central support function (to deal with issues such as data governance, contracting and managing registry suppliers, and resolving day-to-day issues) to reduce the burden on individual registries and introducing efficiencies. The importance of the NAHR being part of TORUS has been particularly highlighted recently in view of the introduction of GDPR. Full release of MDS Version 2.0 along with the updated GDPR complaint consent form has been launched and is currently in use. Elements of the new dataset include: labral grafting and details of the graft length and material; number and type of labral anchors used, details of extra-articular procedures and there has been a further refinement of pelvic osteotomy types recorded.

The importance of the NAHR to the BHS was demonstrated further in 2016 by a vote at the annual meeting in Norwich to add another elected post to the Executive of the BHS with direct responsibility for the Registry and to chair the NAHR Steering Committee. Mr Vikas Khanduja from Cambridge was elected unopposed to the role at the BHS meeting in London in March 2017. Paul Gaston and Max Fehily stepped down from their roles in 2015 and 2016 respectively, with their roles taken over by Mr Ajay Malviya, Mr Jon Conroy, and Mr Callum McBryde.

Clinicians can use the NAHR to collect and display comprehensive outcome data on all their patients using various outcome measures. The information sheet, consent form and minimum dataset version 2.0, which can be downloaded [here](#), are designed to reflect the familiar format of the NJR forms. They contain a basic mandatory dataset as well as an enhanced dataset for surgeons to record additional surgical findings.

At each Annual General Meeting of the BHS, an update of the NAHR is presented and a workshop arranged to encourage surgeons to join and submit data to the

NAHR. This, the 6th Annual Report, provides a summary of the data available and can be used to guide further development of the registry.

n=1637) which most likely represents the impact of the pandemic on elective orthopaedic services in the UK.

Figure 1

Overview of the data

Pathways per year

A pathway on the NAHR is created when a patient's details are entered for a non-arthroplasty procedure. The patient should have already completed their relevant pre-operative scores. The demographic data and in particular unique identifiers such as the NHS number allow for different treatments, potentially in different centres and by different surgeons, that follow the 'journey' of that hip through one or multiple hip preservation operations. The inclusion of an NHS number potentially allows linkage of the NAHR pathway with other registries such as the NJR. Therefore, it is highly desirable that this number is included for all patients. Previous annual reports have shown cumulatively increasing amounts of pathways uploaded to the NAHR which are missing operative data. This has been particularly prevalent in 2020 and the NAHR user group has therefore taken the decision to exclude all pathways with missing operative data from this report and from future reports. As a result, there are less pathways in each year to date than previously published and again in 2020 which in turn has significantly less pathways as result of the pandemic. As the analyses of the procedures and PROMS in previous reports and in this year's report rely on recorded operative data, it is unlikely that there is any effect on the data presented on the PROMS in prior reports or in this report or in the ability to compare data on PROMS between the reports.

Between January 2012 and December 2020, a total of 10,288 pathways have been entered in the registry where operative data was also recorded. The number of pathways entered onto the NAHR increased from its inception until 2016 and then has plateaued. There have been approximately half the number of pathways in 2020 (n= 831) in comparison to previous years (2019,

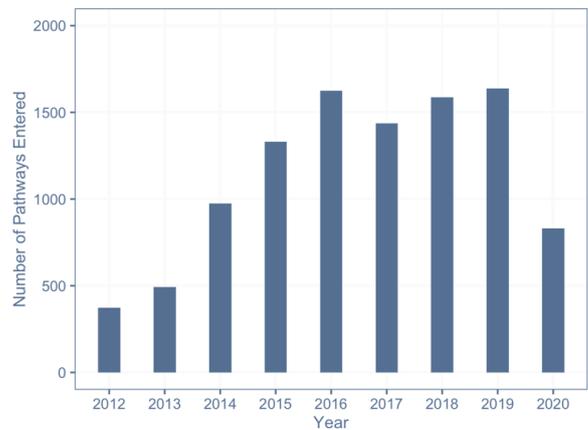


Figure 1 Pathways uploaded per year

Figure 2 shows the number of pathways by surgical approach, open or arthroscopic. Arthroscopy account for more than two thirds of recorded pathways.

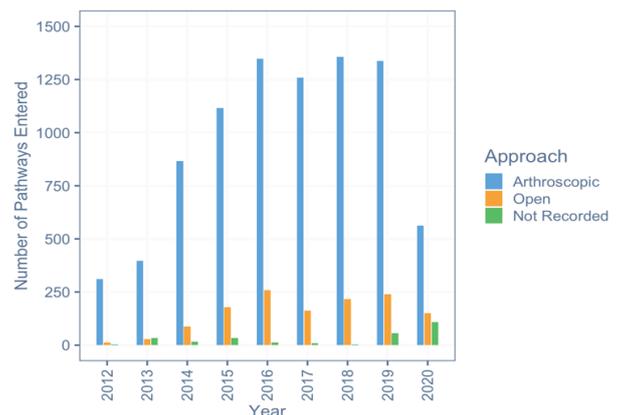


Figure 2 Pathways per year by surgical approach

Number of surgeons using NAHR

After an initial increase in the number of surgeons entering data onto the NAHR to 2018 there has been drop over the last 2 years. Figure 3 shows the number of unique surgeons entering pathways per year since 2012. This has decreased from 65 in 2018 to 59 in 2019 and then to 49 in 2020. The majority of surgeries were performed by a small number of high-volume surgeons. Explanations for this reduction include that surgeons with a low number of non-arthroplasty hip procedures have either stopped their practice or now no longer contribute to the NAHR. Whereas the NJR has a good mechanism for understanding the denominator of surgeons performing joint arthroplasty, there is no similar surrogate in hip

preservation surgery and therefore accurately calculating what percentage of surgeons are uploading data is difficult.

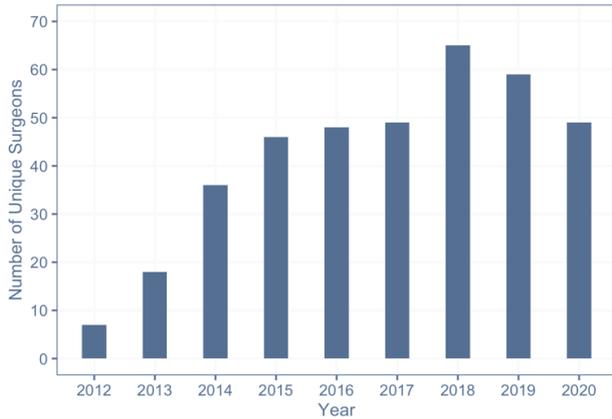


Figure 3 Surgeons contributing data to the NAHR

Surgeon procedures

Forty surgeons have submitted more than 50 cases, 26 have submitted more than 100 pathways and four more than 500 (Figure 4). One particularly high-volume surgeon and dedicated user of the registry has personally uploaded over 16.73% of all pathways on the registry. This contrast demonstrates the difference in attitudes of surgeons with some seeing the potential benefits to their own practices and patients in the follow-up of outcome data.

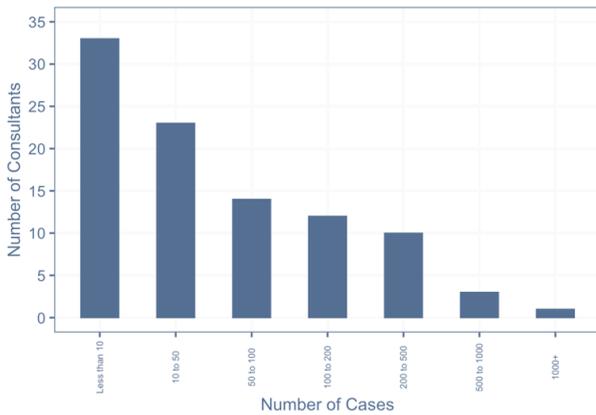


Figure 4 Number of cases per surgeon

Funding source for surgery

The funding by surgical approach is shown in Figure 5. This demonstrates that the ratio between NHS funded procedures and independently funded procedures has changed over the last 3 years with a proportionate increase in independently funded. It is not immediately apparent as to the explanation for this but it is highly likely

that the data from the independent sector was not completely recorded by the Registry or that data upload was not as accurate in the early years of the registry. It is hoped that as surgeon engagement improves with the registry or for data entry to the NAHR to become mandatory, as with the NJR, that this dataset would improve over the coming years to better reflect activity.

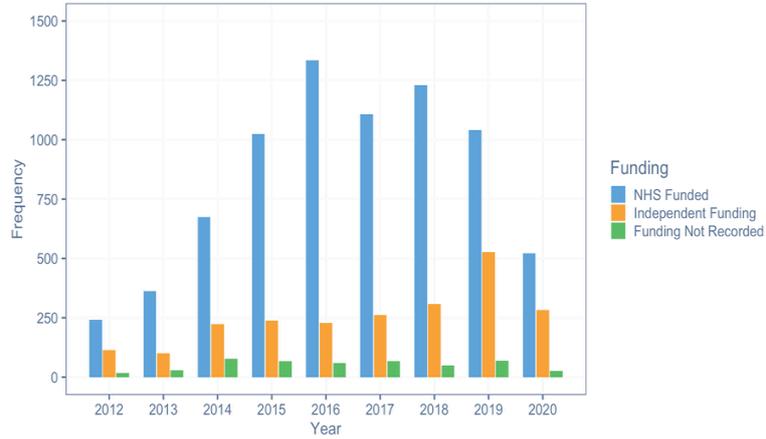


Figure 5 Funding source for procedure

Demographics

Patients by age and approach

The analysis of patient age in Figure 6 shows a skewed distribution towards a younger age for both open and arthroscopic procedures, with patients undergoing open surgery slightly younger than arthroscopic

There are large numbers of paediatric hip preservation procedures performed that are not being recorded with around 0.6% (N=60) of procedures having been performed on patients less than fifteen years old. The management of slipped femoral epiphysis and Perthes is currently a topic of research and the British Orthopaedic Surgery Surveillance (BOSS) programme (<http://www.boss.surgery>) has been running since March 2016. BOSS stopped recruiting new patients after September 2017. It is not clear how many of these cases have had surgical management but very few appear to have been submitted to the NAHR. For those who have had a surgical procedure than can be retrospectively added to the NAHR. Collaboration between the NAHR and paediatric orthopaedic surgeons is an area of future work for the Registry.

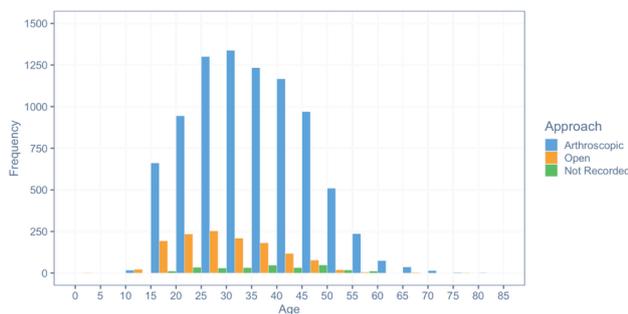


Figure 6 Patients' age distribution by approach

Gender distribution by surgical approach

Overall, the majority of patients with data entered on the NAHR are female (63.5%). Of those patients undergoing hip arthroscopy, 60% were female compared to 85% of patients undergoing open procedures. The number of

procedures that have no approach specified has been dramatically reduced in comparison to prior report due to exclusion of incomplete operative data. See Figure 7.

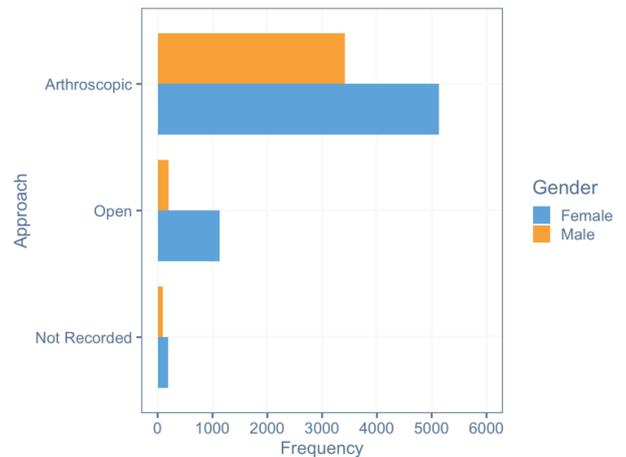


Figure 7 Gender distribution 2012-2020

Body mass index (BMI) by operation and gender

Body Mass Index (BMI) was recorded in 56.0% (N=5,278) of cases. Of the cases for which BMI is available, 50.5% (N=2,664) of patients were recorded as having a BMI of less than 25. Obvious outliers (BMI > 70 and <10) were removed as it is anticipated these were errors in data entry, See Figure 8.

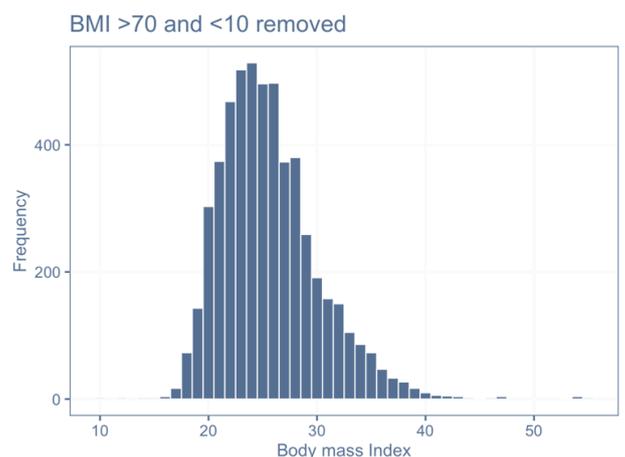


Figure 8 BMI distribution

Compliance

Follow-up and data linkage

In 2020 a high proportion of patients (94.0%) recorded their email address continuing the trend from 2015 onwards. Part of the proposed benefit of the NAHR is the automated email follow-up at six, 12 and 24 months and therefore inclusion of an email is essential. However, as shown in Section 7, there is a poor collection of follow-up scores. The reasons for this are unclear and need exploring. Whether the emails are not being received or are being rejected may explain the poor compliance at later time points.

In addition to this, a mobile phone number is requested to allow follow-up of patient via phone should emails remain unanswered. The proportion of patients who provide their mobile phone number has remained fairly static over the duration of the registry. This is shown in

Figure 9.

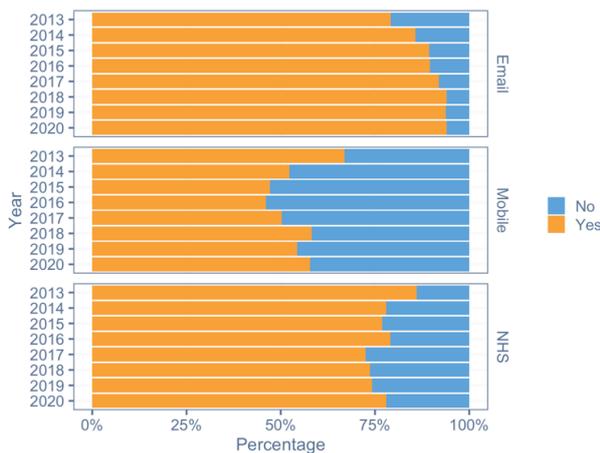


Figure 9 Patient contact details and NHS unique identifier

The recording of an NHS number has remained fairly static over the duration of registry with 78.0% of pathways in 2020 having this information recorded. Obtaining an NHS number in the private sector is possible but time-consuming and this may be a barrier to

increasing this figure. Clear advice on how to obtain the NHS number for private patients is available on the NAHR pages of the BHS website.

Consent rates

As discussed in the Introduction, the involvement of the NAHR with TORUS has highlighted the importance of good governance and consent to data upload. As a result a record that the patient has given consent to have their data recorded by the NAHR has become a mandatory field. In 2020 all patients gave consent with one patient subsequently withdrawing consent.(Figure 10)

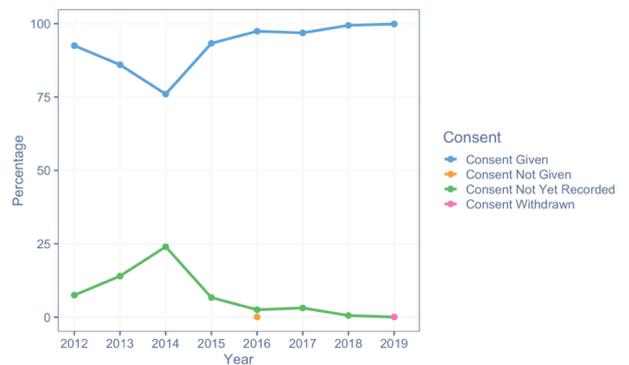


Figure 10 Consent for data collection

Collection of mandatory scores and statistics

Overview of scores

The NAHR offers clinicians the opportunity to use various hip scores for patient assessment pre- and post-operatively. The NAHR User Group, following review of evidence defined that only two hip scores would be mandatory for collection in the minimum dataset, with others being made available depending on surgeon preference. The mandatory scores are the EQ-5D-5L (including the EQ-5D-VAS) and the iHOT-12. Scores are recorded pre-operatively then routinely, via email or in person, at six months, one and two years post-operatively. Surgeons can select to use other, additional PROM scores if desired.

EQ-5D index

The EQ-5D index score is based on five domains (mobility, self-care, usual activities, pain/discomfort and anxiety/depression) each with five options (no problems, slight problems, moderate problems, severe problems and extreme problems).

EQ VAS

The EQ Visual Analogue score records the respondent's self-rated health on a 20cm vertical scale where endpoints are labelled 'Best imaginable health state' (100 points) and 'Worst imaginable health state' (0 points).

iHOT-12

This is a short form equivalent of the iHOT-33 which was developed by the Multicentre Arthroscopy of the Hip Outcomes Research Network (MAHORN). The iHOT-33 was developed for active patients (18-60 years; > Tegner 4) presenting with a variety of hip conditions. The shorter

12 question patient-derived, patient-reported outcome measure demonstrates excellent agreement with the long version with a minimum clinically important difference of 6.1 points. This report only includes the findings related to these mandatory scores. The scores are recorded as complete or incomplete and results are shown in Figures 11-12.

Statistical note

Statistical analysis was performed by Richard Holleyman using STATA version 15 (StataCorp. 2017. *Stata Statistical Software: Release 15*. College Station, TX: StataCorp LLC). The statistical approach was agreed previously in consultation with Keith Gray, PhD (Statistician, R&D Department, Northumbria Healthcare NHS Foundation Trust). A p-value of 0.05 was deemed statistically significant. It is acknowledged that p-value adjustment would be appropriate when making multiple comparisons within each analysis/pathology cohort and future reports will aim to incorporate this.

1. Hip arthroscopy versus best conservative care for the treatment of femoroacetabular impingement syndrome (UK FASHIoN): a multicentre randomised controlled trial. *The Lancet*. 2018;391(10136): 2225-2235

Rates of score collection

EQ-5D index

Figure 11 shows the rate of collection of the Index scores at the various time intervals. The proportions of completed scores as presented in this report have increased compared to previous reports as a result of the exclusion this year of pathways with missing operative data. In 2019 49.0% (n=802) patients completed a 6 month EQ-5D and in 2020 this was 45.4% (n=239). One of the greatest challenges that face any registry that is measuring PROMs data is patient compliance in completing the forms during follow-up. The use of e-mail and the updating of the NAHR are measures that are being employed to improve this. Further work by the user group in collaboration with Amplitude are looking at a variety of other measures to increase completion and this a major focus for the NAHR over the next year.

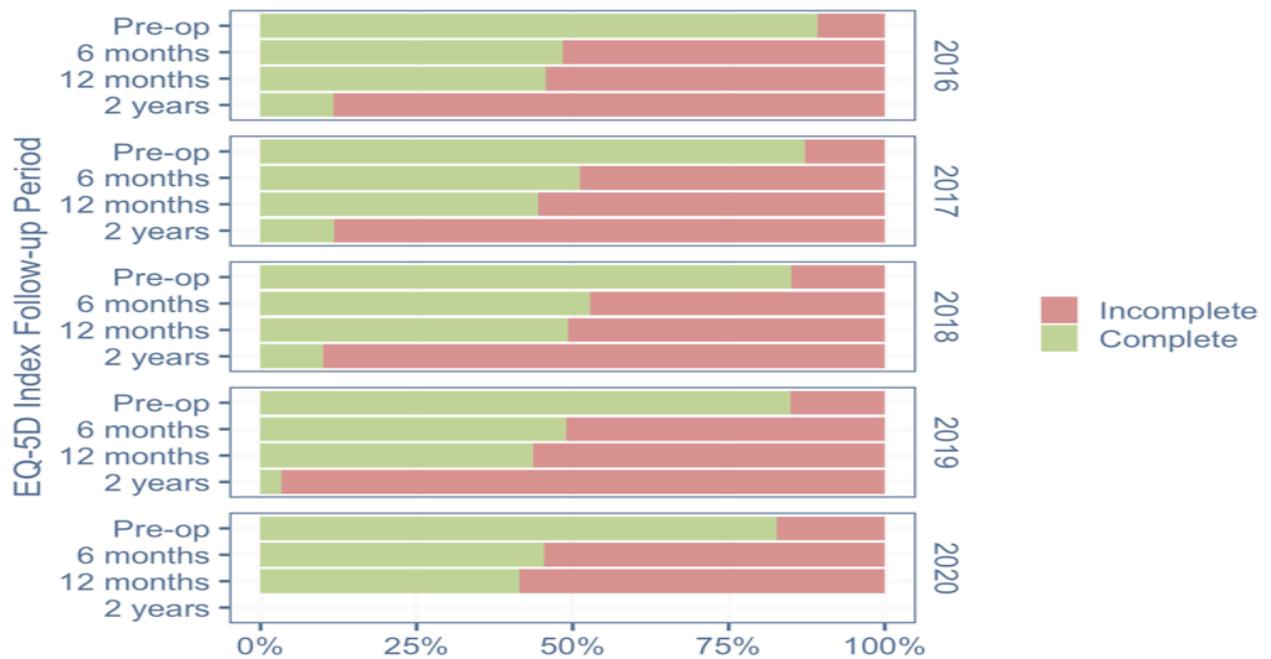


Figure 11 EQ-5D index score completion.

iHOT-12

The iHOT-12 score was presented to the International Society for Hip Arthroscopy (ISHA) in 2011. Since 2014, this score has been collected as part of the same scoring sheet as the EQ-5D and the collection rates since are very similar to those for EQ-5D. (Figure 12)

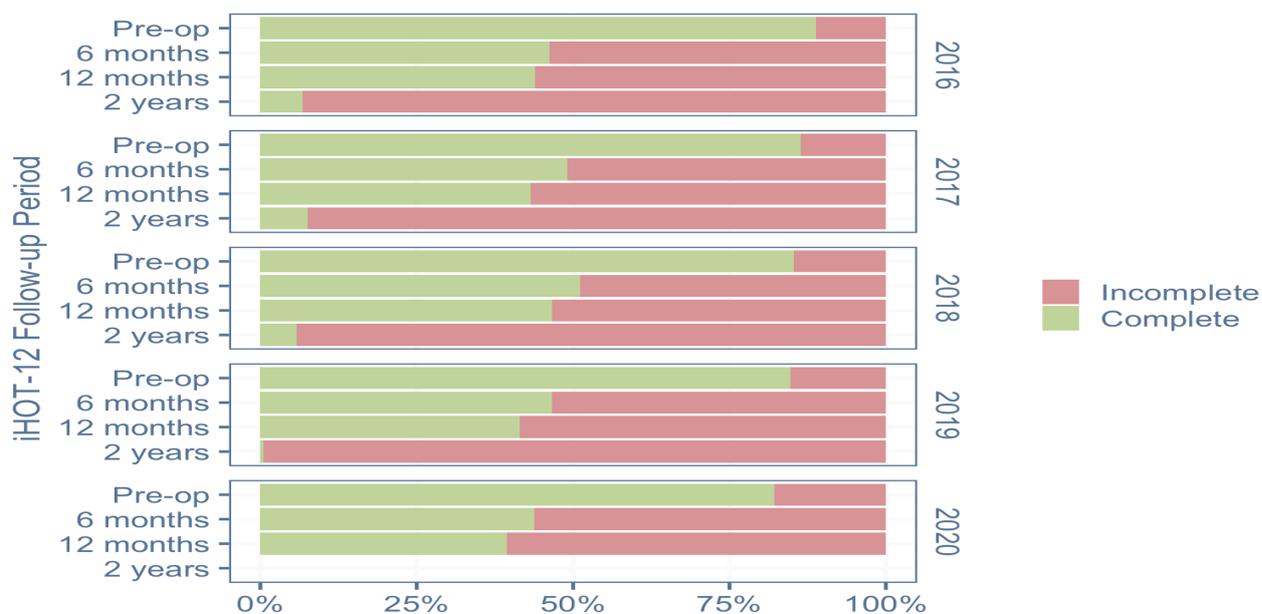


Figure 12 iHOT-12 Score completion

Surgical procedures

Overview

Figure 13 and Figure 15 show the different types of surgical procedures recorded in the NAHR, including core acetabular and femoral procedures, additional surgical procedures and the different combinations of femoral and acetabular osteotomies. (Note that the data presented in this section reports the frequency of procedures recorded and that more than one or any combination of surgical

Acetabular procedures

Labral debridement (23.5%) is no longer the most commonly performed acetabular procedure performed with labral repair (25.0%) becoming overall the most commonly performed acetabular procedure. Regarding all acetabular procedures performed by an arthroscopic approach, labral repair comprises 37.3% of procedures as compared with labral debridement, which accounts for 35.7% of acetabular procedures. There has been a move from acetabular labral debridement towards acetabular labral repair, Figure 14.

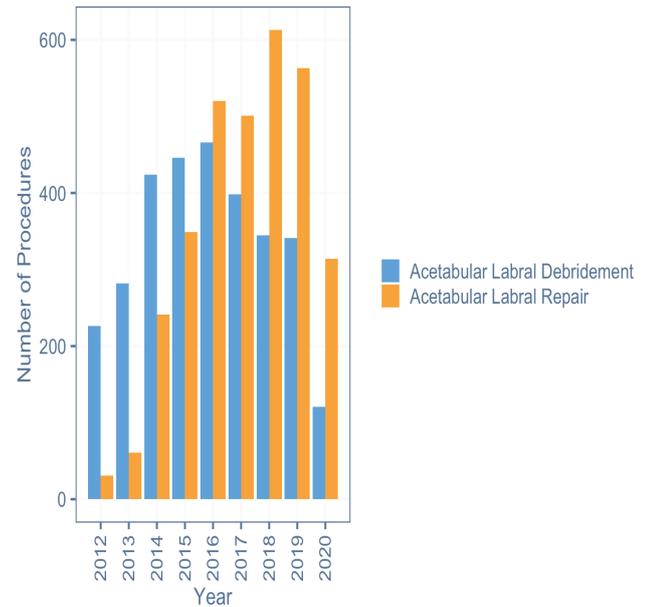


Figure 14 Arthroscopic labral debridement and labral repair per year

Femoral procedures

Figure 15 shows the range of femoral procedures recorded on the NAHR. Cam removal is the commonest femoral procedure accounting for 90% of all femoral procedures performed. Cam removal was the most common femoral procedures recorded via arthroscopy (n=5,798 of 6,417, 90.4%). A very small number of cartilage procedures were recorded, including debridement, microfracture, cartilage grafting and core decompression.

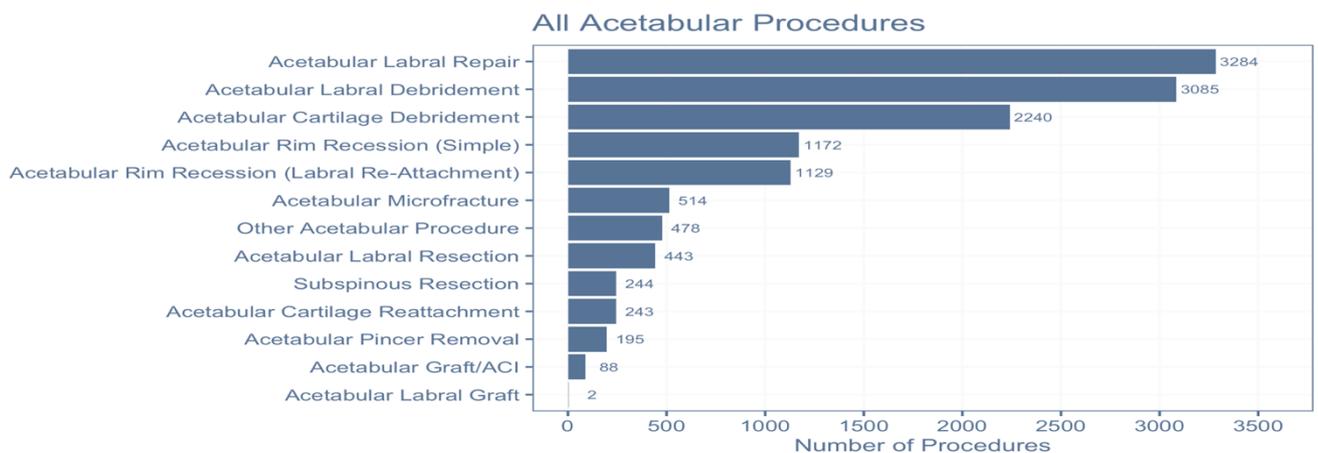


Figure 13 Acetabular procedures performed

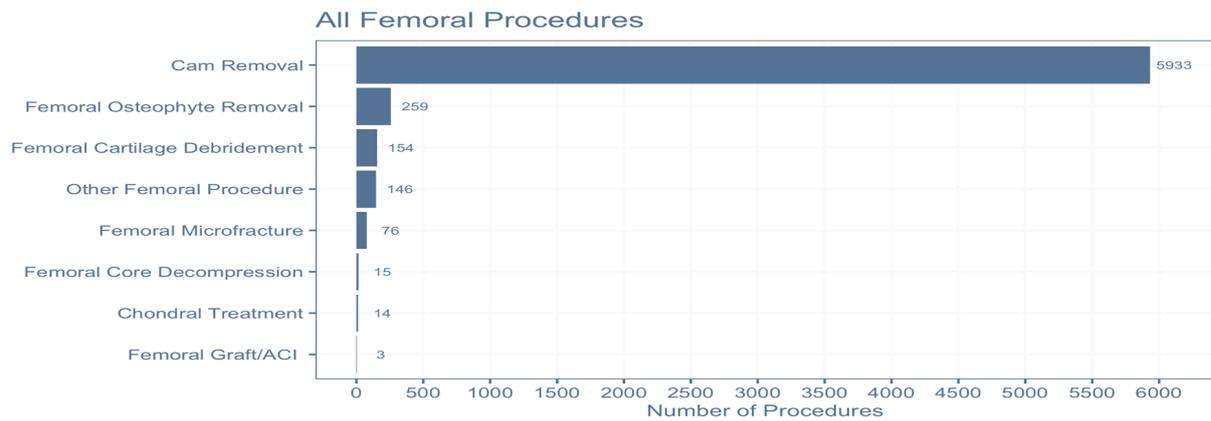


Figure 15 Femoral head/neck procedures performed

Additional surgical procedures

The NAHR dataset records a wide range of additional surgical procedures performed during hip preservation surgery, the majority of which relate to extra-articular structures and soft tissue releases. Relatively few of these procedures were recorded and the majority were performed as part of an arthroscopic approach. Figure 16 show the frequency of additional procedures recorded in the NAHR. Psoas release is still the most common additional procedure performed. Trochanteric bursal debridement has been recorded 99 times, compared to just 28 in the 2016 report. Together these two procedures account for two-thirds of all additional procedures performed. Gluteal tendon repair was performed infrequently, with only 16 cases entered of which only 1 was in 2020.

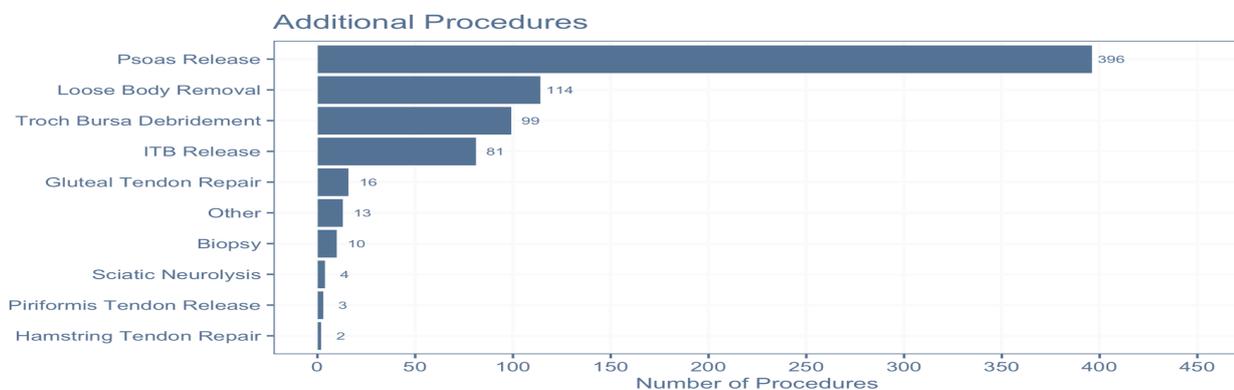


Figure 16 Additional surgical procedures

Periacetabular osteotomies (PAO)

A total of 1113 periacetabular osteotomies have been reported of which 1070 were isolated and 43 combined with femoral osteotomy.

Femoral osteotomies

A total of 127 femoral osteotomies have been recorded in the NAHR, 78 of which were isolated and 43 combined with a PAO. [Figure 18](#)

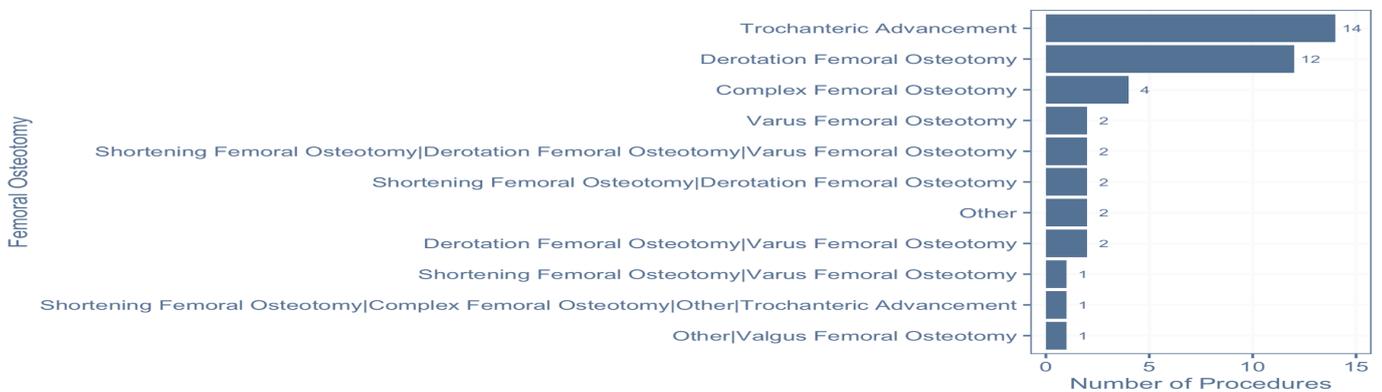


Figure 17 Combination of femoral osteotomy with PAO

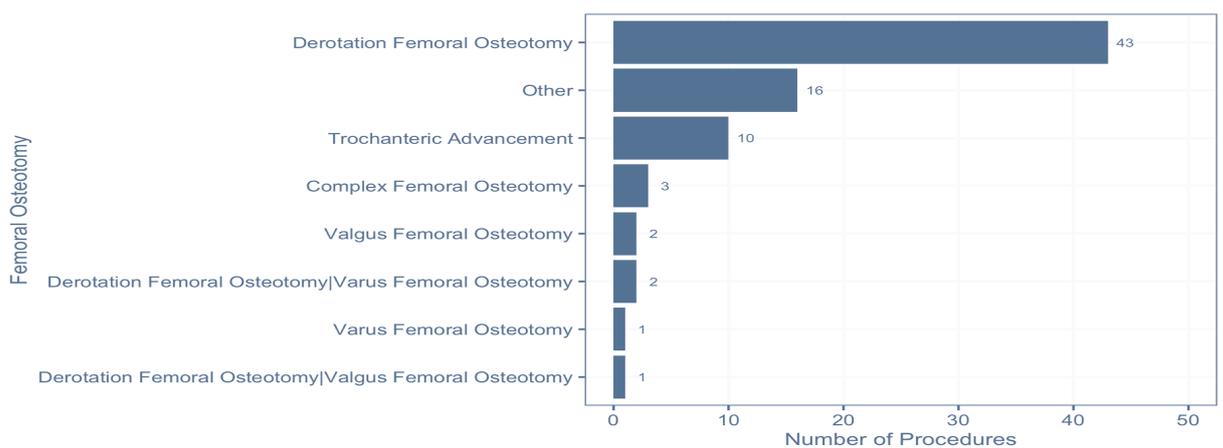


Figure 18 Femoral osteotomies performed by type

Outcome scores

Overview

All scores are presented as a mean score with +/- one standard deviation error bars. In most cases, raw data has also been plotted and, where appropriate, a violin plot is also provided to demonstrate the data distribution. It is acknowledged that showing two standard deviations would show 95% confidence intervals. As the primary indication of hip arthroscopy is FAI, we have reported the results for impingement surgery in detail in this section.

Outcomes of surgery for FAI

Overall

We have reported the outcomes of FAI surgery where cam and/ or acetabular rim recession or acetabular pincer removal has been performed. Cases for which concurrent microfracture or other cartilage procedure were excluded as in previous reports. Scores for these cases are shown in [Figure 19](#) and [Figure 20](#) For the whole group with pre-op scores (3,549) there was improvement in the pre-operative iHOT-12 score at six months (mean iHOT-12 change 32.8 (n=3,549) to 56.7 (n=1,993), $p < 0.0001$ (Paired t-test) n=1,648 [n.b. lower 'n' as paired t-test derived from patients with both pre **and** post-op scores]) and 12 months (mean 12 month iHOT-12 = 58.1 (n=1,733), $p < 0.0001$ (Paired t-test) n=1,486) post-operatively.

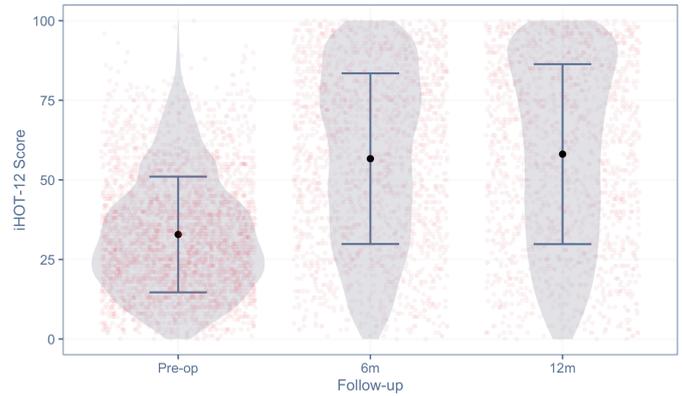


Figure 19 iHOT-12 - whole cohort for FAI

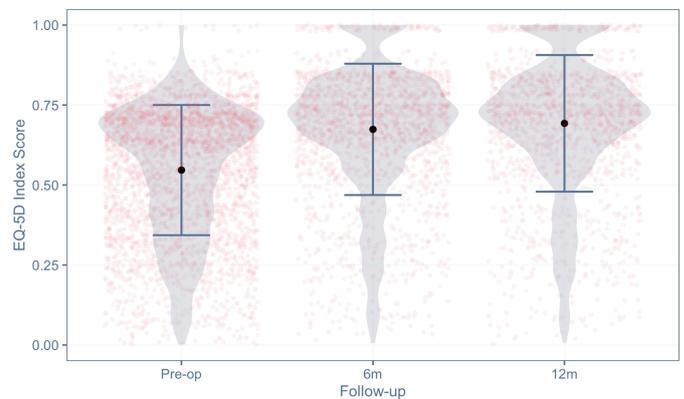


Figure 20 EQ-5D index score - whole cohort for FAI

[Figure 21](#) shows the iHOT-12 score with gender distribution. Females may start with a lower preoperative baseline score but catch up by one year.

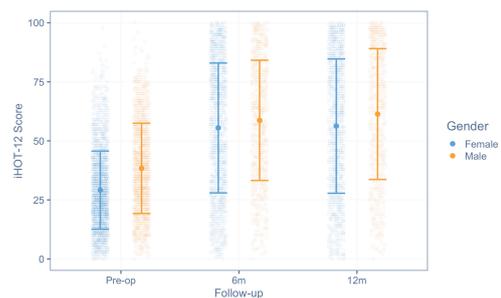


Figure 21 iHOT-12 by gender for FAI

Results of surgery for cam lesions

In this group, patients who had surgery for pincer lesions or any case with cartilage debridement have been excluded. Results of the scores are shown in [Figure 22](#) and [Figure 23](#) reported by gender in [Figure](#)

24. For isolated cam lesion surgery, there was improvement in pre-operative iHOT-12 scores at six months (mean iHOT-12 change 33.05 (n=2,038) to 56.5 (n=1,089), $p < 0.0001$ (Paired t-test) $n=920$) and 12 months (mean 12 month iHOT-12 = 58.9 (n=935), $p < 0.0001$ (Paired t-test) $n=810$) post-operatively.

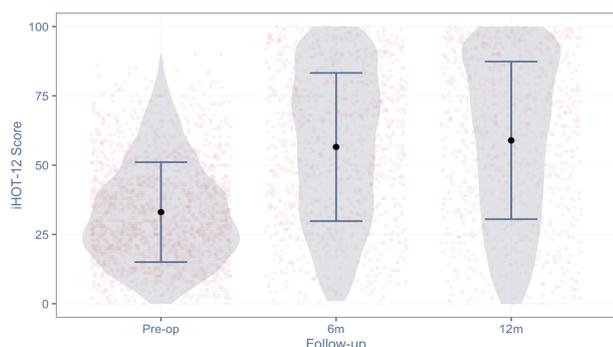


Figure 22 iHOT-12 - surgery for cam lesion

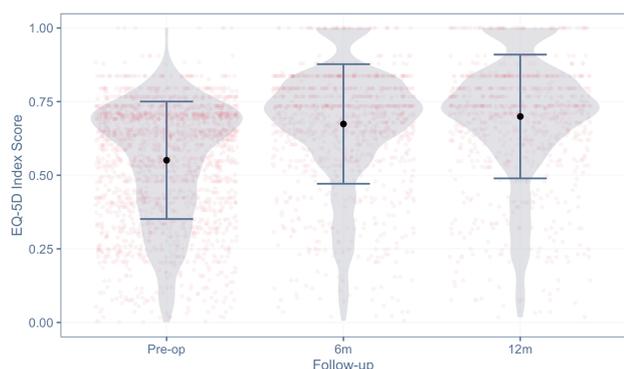


Figure 23 EQ-5D Index score – surgery for cam lesion

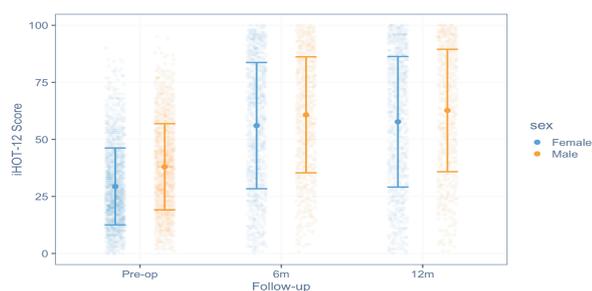


Figure 24 iHOT-12 by gender for cam

Results of surgery for pincer lesions

In this section, patients who had surgery for cam lesion and a cartilage procedure on the acetabular or femoral side have been excluded. For isolated pincer lesion surgery there was improvement in pre-operative iHOT-12

scores at six months (mean iHOT-12 change 29.7 (n=337) to 52.6 (n=214), $p < 0.0001$ (Paired t-test) $n=156$) and 12 months (mean 12 month iHOT-12 = 52.7 (n=193), $p < 0.0001$ (Paired t-test) $n=154$) post-operatively. These scores are shown in Figure 25 and Figure 26.

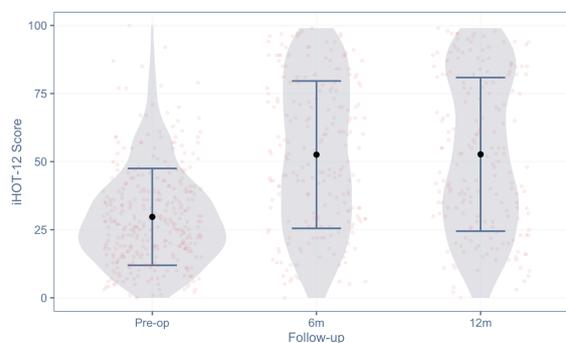


Figure 25 iHOT-12 - surgery for pincer lesion

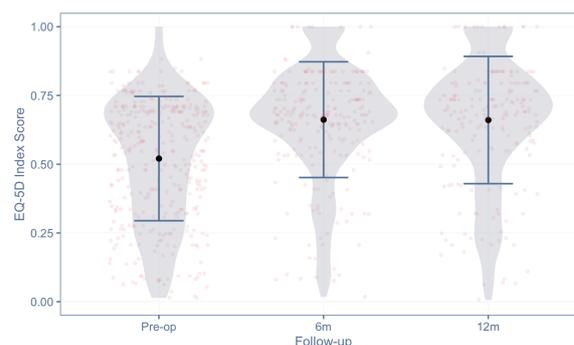


Figure 26 EQ-5D Index - surgery for pincer lesion

Outcome following isolated pelvic osteotomy (PO)

There are 1,120 pelvic osteotomies (1,070 peri-acetabular osteotomy (PAO), 49 Triple, 1 Chiari) recorded without simultaneous femoral osteotomy. The following figures (Figure 27 and Figure 28) show the mandatory scores for these cases in isolation. For patients undergoing PO with no concurrent femoral osteotomy there was improvement in pre-operative iHOT-12 score at six months (mean iHOT-12 change 29.4 (n=950) to 55.1 (n=563), $p < 0.0001$ (Paired t-test) $n=501$) and 12 months (mean 12 month iHOT-12 = 63.2 (n=523), $p < 0.0001$ (Paired t-test) $n=473$) post-operatively.

iHOT-12 in Pelvic osteotomy

There is a trend towards improvement in the iHOT-12 score at six months and one year post-operatively.

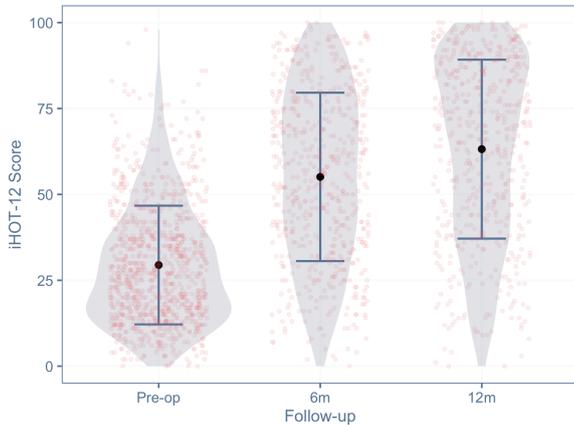


Figure 27 iHOT12 in Pelvic Osteotomy surgery

Results of PO vs age

Figure 29 illustrates the iHOT-12 scores of various age groups. All ages seem to benefit from surgery. 2-year data not presented due to small numbers. The graph shows scatter plot of age vs outcome score with a LOESS method smoothing curve along with 95% confidence interval.

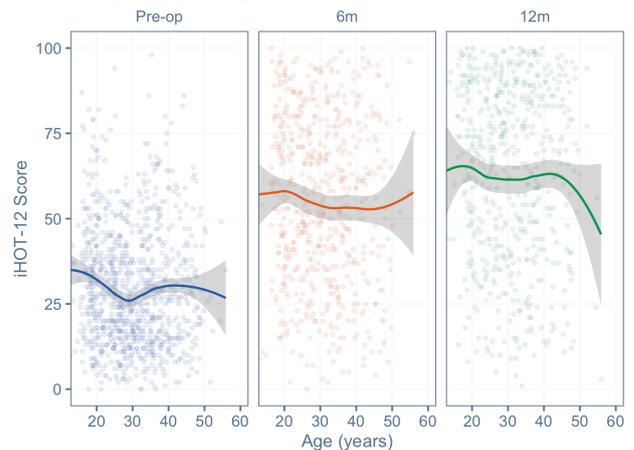


Figure 29 iHOT-12 scores with age distribution for pelvic osteotomy surgery

EQ-5D index in PO

Similar trends are shown with the index score with an improvement on the pre-operative scores, which appears to continue to improve at 12 months.

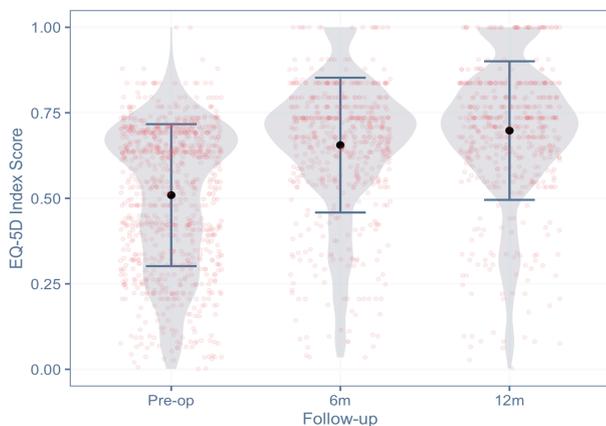


Figure 28 EQ-5D Index scores for Pelvic Osteotomy Surgery

Results of PO vs gender

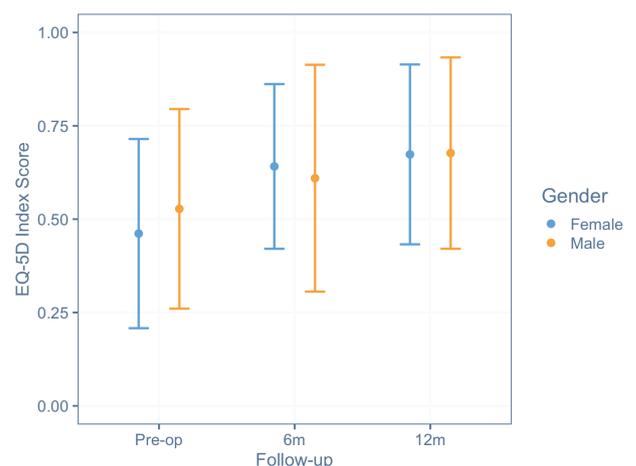


Figure 30 iHOT-12 scores with gender distribution for pelvic osteotomy

Summary

The evidence for the role of non-arthroplasty hip surgery continues to evolve. Several randomised controlled studies around the world have already been published showing benefits of arthroscopic hip surgery over non-operative management. The improvements in clinical scores are, admittedly, modest but the data, as show in this NAHR report is highly heterogeneous and future work needs to focus on disease stratification and defining which subsets of patients benefit most from which surgical procedures.

The challenge for any registry is to develop a clearly defined minimum dataset which captures critical information, allowing useful analysis, while at the same time being succinct enough to minimise inter-recorder error and encourage complete data collection. In addition, the psychology of young adult hip pain is a confounder in both presentation and outcome and more work is needed to understand the impact of an individual's personal circumstances on the result of surgery.

There has been a year-on-year increase in the number of pathways uploaded, but during analyses this year we found that this did not reflect the number of procedures performed. A large number of patients in the pathway did not have any intervention. We investigated this further with the help of Amplitude and also had discussions with individual centres where this was more prevalent. It was found that some centres were entering patients at the point of referral and also when they were booked into the clinic. This resulted in multiple entries of the same patient, a proportion of whom did not require surgery. After further discussion it was decided that we would remove these patients from data analyses. It would indeed mean that the numbers we have reported this year are different to those published in previous reports, but is a true representation of the procedures performed and entered in the registry. Amplitude will work with these centres to ensure that these errors will be minimised in the future. After reconciling the data, the 6th Annual report includes data on 10,288 procedures. Perhaps expectedly, the numbers dropped to 831 in 2020 reflective of the impact of Covid-19 pandemic on elective practice. The NAHR have been

proactive in setting up a Covid-19 surveillance from 1st of June 2020, the results of which are being analysed and would be shared in the annual BHS meeting in June 2021.

We have also noted that the number of surgeons actively contributing last year has, unfortunately, decreased to 49 compared with 59 in 2019 and 65 in 2018. It is difficult to explain this, given that the annual number of patients entered continued to increase up to 2019. The NAHR user group is working hard to understand if this represents low volume surgeons stopping surgery or non-submitted data. There remain a few high-volume surgeons contributing the majority of the data with over 58% of data submitted by only 10 surgeons. It is apparent that a large number of surgeries are being performed by surgeons not entering data and this is an area that the Registry, the BHS as well as health care commissioners are keen to address.

The BHS and the registry are committed towards maintaining ownership of data in spite of the challenges of managing the increasing costs and governance regulations. Indeed, in recent years a number of patients have withdrawn consent for data collection with their records having been purged from the registry. The membership of TORUS, the BOA registry umbrella organisation, is seen as essential by all those at the registry and we hope that the BOA will continue to support TORUS in safeguarding the data use and independence of the NAHR and other smaller registries.

Compliance with recording patient contact details is seen as essential to improving longer term follow-up and the recoding of an email address has improved this year to 94%. The recording of mobile phone details has not improved slightly to around 58%. The new MDS Version 2.0 has improved methods of recording mobile number and we are hopeful that data capture will continue to improve. Making contact details mandatory is not considered an option as this may prejudice data entry if patients decide not to give consent because of a concern about entering email or mobile phone numbers. Recording of patient NHS numbers has also been fairly static at around 75% but improved slightly to 78% for 2020. This represents those patients operated on the private sector not having an NHS number available. Although this is possible to overcome, again this is difficult to mandate without risking losing data entry.

Longer term data collection is the main challenge for the NAHR at present. Including only those eligible for follow-up, pre-op scores are recorded in 83% of cases but this drops to 45% at six months, 42% at 12 months and 6% at two years. Data collection following surgery is an issue for all registries and the recent changes to data protection laws have done nothing to improve the opportunities to rectify this.

Looking at acetabular procedures, labral work is the most common surgical procedure with number of repairs overtaking debridement over the duration of the registry, particularly driven by the significant increase in the rates of labral repair over the last few years, likely due to a combination of improving surgical skills, training and instrumentation. Evidence for labral debridement vs repair is not level one but there is a suggestion from the literature that cases undergoing labral repair have an improved outcome. One explanation for this is that hips with a labrum which is felt more appropriate for debridement rather than repair may be in a worse general condition. Therefore, it is intuitive that those hips will have a worse outcome. Presently, the NAHR user group are closely examining the labral repair and debridement cohort with early analyses suggesting significantly improved outcomes in the repair group at 12 months follow-up after adjustment for other patient and surgical factors. This is an area that would warrant further study and data from the NAHR suggests a feasibility study for a randomised controlled study of labral repair vs debridement would be reasonable.

On the femoral side, cam removal remains the most commonly performed procedure at 90%. For isolated cam lesion removal, outcome scores are significantly improved at both six and 12 months post-operatively.

The increasing use of arthroscopic techniques for extra-articular problems are demonstrated with 99 cases of trochanteric bursal debridement recorded compared to 28 in 2016. Psoas release remains the most common extra-articular procedure performed with 396 psoas release recorded in the registry.

There are more than 1,100 PAOs recorded in the registry, with 43 in combination with femoral osteotomy. Outcome scores for PAO are again significantly improved at six and 12 months with no difference between genders

although the number of males undergoing the procedure and with longer term follow-up is small.

Overall, arthroscopic hip surgery for FAI (with more complex acetabular and femoral procedures removed from analysis) demonstrates significant improvements in hip outcome scores with females having a significantly greater increase than males although men start from a significantly higher baseline score. The results from the NAHR registry support the findings of recent level one publications and are useful for surgeons, commissioners and, most importantly, patients.

For a registry to be able to provide this level of data in only its sixth report is some achievement and the BHS and the NAHR would like to thank all of the members of the user group, all the surgeons, administrative staff and patients that have contributed data to make this possible. We hope that continued engagement with all of these groups will continue to improve data collection and quality, allowing future reports to shed even more light on this complex area of hip surgery.

Future plans

The NAHR has demonstrated promising progress in several fronts. There is a plan to restructure the team with appointment of ten regional representatives to help champion local engagement. The programme will be rolled out, once ratified, in the upcoming British Hip Society Annual General Body Meeting. Please be on the lookout for these opportunities and contact us if interested (nahr@britishhipsociety.com).

We also have some exciting plans for research and travelling fellowships and are exploring options for a sustainable and financially viable solution. Over the next year the education offering of the BHS is expanding, with NAHR being allocated four webinars for various topics. More information will be rolled out in due course. In the long term we aim to establish and support regional and national MDTs for complex case discussion.

Hospitals that have submitted data to the NAHR

Alder Hey Children's NHS Foundation Trust, Liverpool
Addenbrooke's Hospital, Cambridge
Ashford Hospital, Ashford
Basingstoke and North Hampshire Hospital
BMI Bath Clinic, Bath
BMI Harrogate Hospital, Harrogate
BMI Mount Alvernia Hospital, Guildford
BMI Ross Hall Hospital, Glasgow
BMI The Alexandra Hospital, Stockport
BMI The Beaumont Hospital, Bolton
BMI The Edgbaston Hospital, Birmingham
BMI The Princess Margaret Hospital, Windsor
BMI The Ridgeway Hospital, Swindon
BMI The Runnymede Hospital, Chertsey
BMI Winterbourne Hospital, Dorchester
BMI Woodlands Hospital, Darlington
Cardiff and Vale UHB
Chapel Allerton Hospital, Leeds
Circle Bath
Circle Reading Hospital
Colchester General Hospital, Colchester
Derriford Hospital, Plymouth
Doncaster Royal Infirmary, Doncaster
Dorset County Hospital, Dorchester
Evelina Children's Hospital, London
Fortius Surgical Centre
Frimley Park Hospital, Frimley
Gartnavel General Hospital, Glasgow
Great Western Hospital, Swindon
Guy's Hospital, London
Harrogate District Hospital, Harrogate
Hereford County Hospital, Hereford
Hexham General Hospital, Hexham
Hospital of St John and St Elizabeth, London
James Cook University Hospital, Middlesbrough
James Paget Hospital, Great Yarmouth
Jersey General Hospital
King Edward VII's Hospital Sister Agnes, London
Leeds General Infirmary, Leeds
Leicester General Hospital, Leicester
Lister Hospital, London
Lister Hospital, Stevenage
London Bridge Hospital, London
London Clinic, London
Manchester Royal Infirmary, Manchester
Musgrave Park Hospital, Belfast
Neath Port Talbot Hospital, Port Talbot
Newham General Hospital, London
North Tyneside General Hospital, North Shields
Northern General Hospital, Sheffield
Northumbria Specialist Care Hospital
Nuffield Health Cambridge Hospital, Cambridge
Nuffield Health Chichester Hospital, Chichester
Nuffield Health Exeter Hospital, Exeter
Nuffield Health Glasgow Hospital, Glasgow
Nuffield Health Leicester Hospital, Leicester
Nuffield Health Newcastle upon Tyne Hospital, Newcastle upon Tyne
Nuffield Health The Manor Hospital (Oxford), Oxford
Nuffield Health Wessex Hospital, Eastleigh
Nuffield Orthopaedic Centre, Oxford
One Hatfield Hospital
Pembury Hospital, Pembury
Peterborough City Hospital, Peterborough
Portland Hospital for Women and Children, London
Princess Grace Hospital, London
Queen Alexandra Hospital, Portsmouth
Queen Elizabeth Hospital, Gateshead
Ramsay Ashtead Private Hospital, Ashtead
Ramsay Berkshire Independent Hospital, Reading
Ramsay Duchy Private Hospital, Truro
Ramsay Fitzwilliam Private Hospital, Peterborough
Ramsay Oaks Private Hospital, Colchester
Ramsay Pinehill Private Hospital, Hitchin
Robert Jones & Agnes Hunt Orthopaedic Hospital, Oswestry
Royal Berkshire Hospital, Reading
Royal Bolton Hospital, Bolton
Royal Bournemouth Hospital, Bournemouth
Royal Cornwall Hospital, Truro
Royal Devon & Exeter Hospital, Exeter
Royal Infirmary of Edinburgh, Edinburgh
Royal London Hospital, London
Royal National Orthopaedic Hospital, Stanmore
Royal Oldham Hospital, Oldham
Royal Orthopaedic Hospital, Birmingham
Royal Victoria Infirmary, Newcastle Upon Tyne
Schoen Clinic, London
Sheffield Childrens Hospital, Sheffield
South West London Elective Orthopaedic Centre, Epsom
Southern General Hospital, Glasgow
Southmead Hospital, Bristol
Spire Bushey Hospital, Watford
Spire Cambridge Lea Hospital, Cambridge
Spire Cheshire Hospital, Warrington
Spire Clare Park Hospital, Farnham
Spire Dunedin Hospital, Reading
Spire Harpenden Hospital, Harpenden
Spire Hull And East Riding Hospital, Hull
Spire Leeds Hospital, Leeds
Spire Little Aston Hospital, Sutton Coldfield
Spire Manchester Hospital, Manchester
Spire Montefiore, Hove
Spire Murrayfield Hospital Edinburgh, Edinburgh

Spire Norwich Hospital, Norwich
Spire Portsmouth Hospital, Havant
Spire South Bank Hospital, Worcester
Spire Southampton Hospital, Southampton
Spire Thames Valley Hospital, Wexham
St Albans City Hospital, St Albans
St Anthony's Hospital, Sutton
St George's Hospital (London), London
St Michael's Hospital, Hayle
Stepping Hill Hospital, Stockport
The Alexandra, Cheshire

The Vale Hospital, Hensol
Torbay District General Hospital, Torquay
Trafford General Hospital, Manchester
University College Hospital, London
University Hospital Llandough, Penarth
Wansbeck General Hospital, Ashington
Weston General Hospital, Weston-super-Mare
William Harvey Hospital, Ashford
Wrightington Hospital, Wigan

Surgeons that have submitted data to the NAHR

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