



**BAJIR**

**BONE & JOINT INFECTION REGISTRY**

# **BAJIR REPORT 2020**

# Introduction



## Mission statement

*Our aim is to capture all Bone and Joint Infection cases presenting to UK hospitals, allowing us to improve the care of patients with these conditions through analysis of collected data on their illnesses and treatments.*

This is the second annual report from the Bone and Joint Registry (BAJIR).

The BAJIR database is the UK Bone and Joint Infection Registry. The purpose of BAJIR is to collect information on all patients who are diagnosed with, and treated for, a bone or joint infection in the UK. The purpose of obtaining the data is to provide an understanding of the burden of disease in the UK, the current treatment strategies and the outcomes of those treatments.

The data will eventually be used to inform best practice, direct research and provide information for commissioners of healthcare in the UK.

The BAJIR was established in 2018. Since then the number of sites that have been collecting data has increased, with a corresponding increase in the number of patients being included in the registry.

In line with the plans from last year, and with work over this year, we are pleased to report significant progress in the number of centres recruiting patients, and in response to feedback, the development of the software to improve its functionality.

The BAJIR has been engaging with the specialist societies and, with the drive to produce regional MDTs in a network model, the BAJIR can provide a means to record the decision making and outcomes of the MDT, in a single repository, for all the hospitals engaging in the MDT. To further support clinicians, we hope to work alongside the specialist societies to assist the data collection during the development of revision networks throughout the UK.

Whilst the data that is collected is increasing in volume, there is an understandable lag in outcomes. This means that it is not yet sufficient volume of outcome data, such a quality of life, to provide answers to the myriad of questions about this patient group. However, as the registry matures, and more sites "become live", the quality and quantity of the data will improve and the annual report will become more detailed.

# Introduction cont.



Although the greatest volume of disease lies in periprosthetic infection, native bone and joint infection is included within the remit of BAJIR. Over the next year we hope to engage with clinicians treating those patients to improve the BAJIR to make it a tool that can be used to record and support the decision making and research for that group of patients as well.

Finally, we are delighted to announce the welcome additional of fellows to support the work of the BAJIR. For the current year, we have appointed Luke Farrow as our fellow, Mike Petrie as engagement lead, and Jerry Tsang as an extra fellow joining in 2021.

## Registry growth

Despite the impact of COVID-19 on elective orthopaedic workflow 2019-2020 has seen consistent growth in the number of patients included within the registry from existing centres, as well as sustained interest from new sites regarding inclusion. There are now over 550 patients within the registry, up 74% since last year.

With the addition of a number of new sites over the later stages of 2019 and into 2020, as well as integration of MDT software, we expect the number of patients within the registry to begin to rise exponentially over the coming year.

There are now 14 fully registered trusts actively submitting patients or awaiting final information governance clearance. A further 18 trusts have expressed interest and are involved in the earlier processes of gaining the necessary permissions for patients to be included.

Current participating sites include only those in England and Wales, but there remains significant interest from Scotland regarding inclusion within BAJIR. Work is underway for an initial pilot of 6 Scottish sites with a plan for later expansion. The process of submitting the relevant information governance documentation has begun, and we are hopeful that these sites will begin data entry within 2021 once the necessary permissions are confirmed.

# Spotlight on DAIR



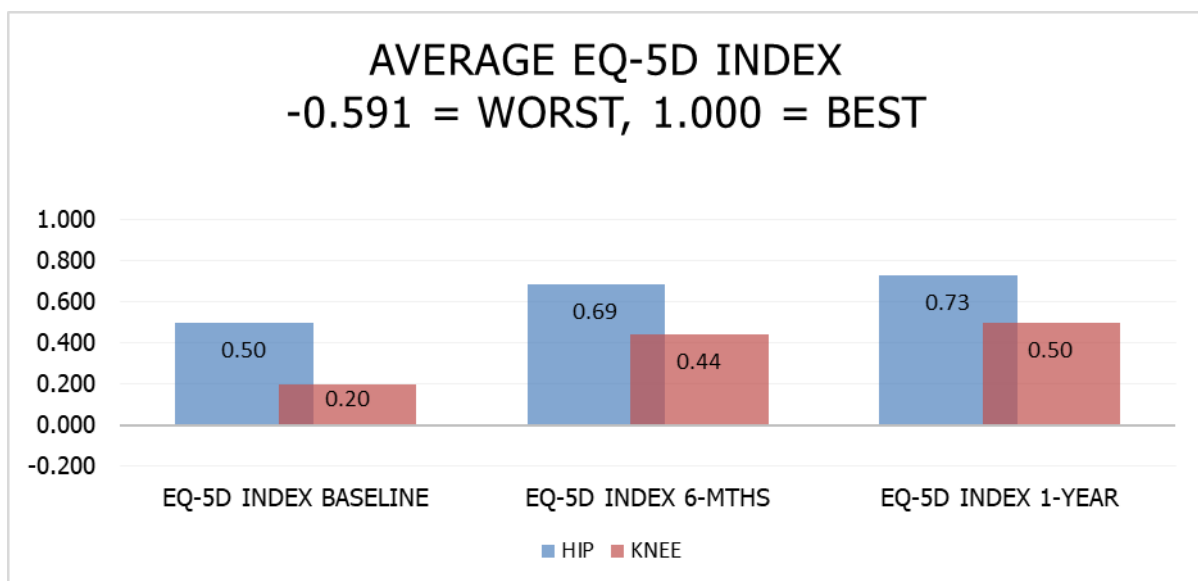
## Spotlight on Debridement, Antibiotics and Implant Retention (DAIR) for Periprosthetic Joint Infection – Patient Reported Outcome Measures (PROMs) at 1 year

The use of patient reported outcome measures (PROMs) has become integral to understanding the impact of musculoskeletal infection on a patient's quality of life. Use of PROMs within registries provides significant benefit over the use of traditional measures such as revision surgery, which often are an insufficient measure of success<sup>1</sup>.

There is still much about DAIR for periprosthetic joint infection (PJI) that is poorly understood. Success of this technique has been shown to vary from 50-80%<sup>2</sup>, with potential for excellent medium term implant survival in successful patients<sup>3</sup> (DAIR survival). There is ongoing particular interest in relation to factors which predict the potential for a successful outcome<sup>4</sup>. In time the registry will provide an excellent resource to answer such questions, by accumulating significant data to better understand optimum treatment for this rare but desperately impactful set of problems.

As part of this year's annual report we present current anonymised data regarding 1 year PROMs from patients undergoing DAIR within the registry. An overview of EQ-5D index can be seen in figure 1 respectively. The results include data from 25 hip PJI patients, and 9 knees.

**Figure 1 – Mean EQ5D**



# Spotlight on DAIR Cont.



Regarding EQ-5D index there is an overall improvement in both hip and knee scores from baseline to 1 year. These changes are most marked in the first 6 months, followed by a slower gradual increase from 6 months to 1 year. Scores for patients with PJI around the hip appear to be markedly better than those with PJI around the knee at all time points.

These results provide a snapshot of potential further insight that can be provided by the registry. Future comparisons of PROMs between DAIR procedures to single and two stage revision can provide information on how each treatment affect patient quality of life in both the short and long term.

## References

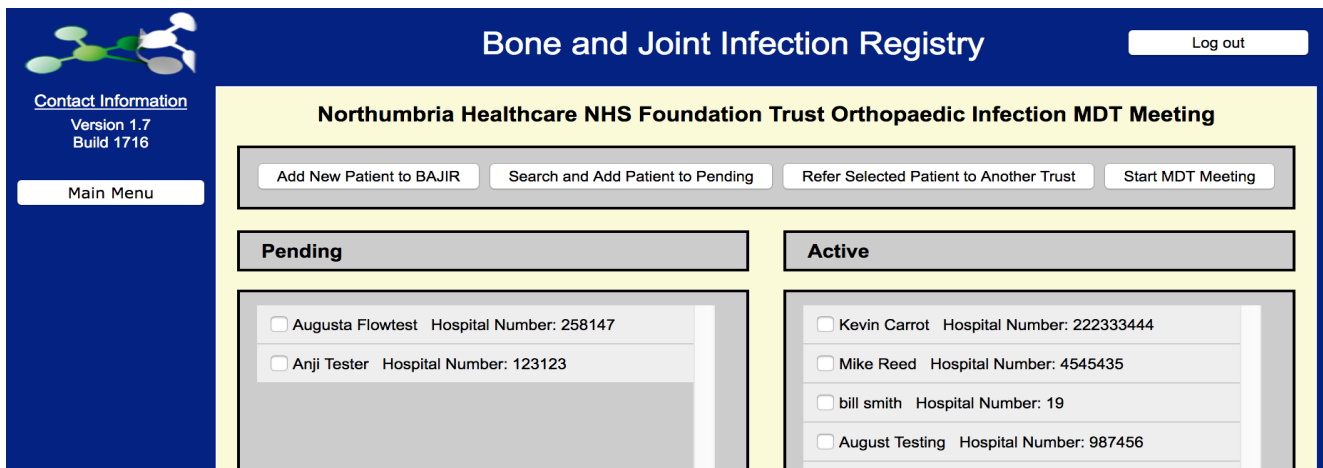
1. Wilson I, Bohm E, Lübbecke A, Lyman S, Overgaard S, Rolfson O, W-Dahl A, Wilkinson M, Dunbar M. Orthopaedic registries with patient-reported outcome measures. *EFORT open reviews*. 2019 Jun;4(6):357-67.
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3. Grammatopoulos G, Bolduc ME, Atkins BL, Kendrick BJ, McLardy-Smith P, Murray DW, Gundle R, Taylor AH. Functional outcome of debridement, antibiotics and implant retention in periprosthetic joint infection involving the hip: a case-control study. *The Bone & Joint Journal*. 2017 May;99(5):614-22.
4. Shohat N, Goswami K, Tan TL, Yayac M, Soriano A, Sousa R, Wouthuyzen-Bakker M, Parvizi J, ESCMID Study Group of Implant Associated Infections (ESGIAI) and the Northern Infection Network of Joint Arthroplasty (NINJA). 2020 Frank Stinchfield Award: Identifying who will fail following irrigation and debridement for prosthetic joint infection: a machine learning-based validated tool. *The Bone & Joint Journal*. 2020 Jul;102(7 Supple B):11-9.

# MDT Software



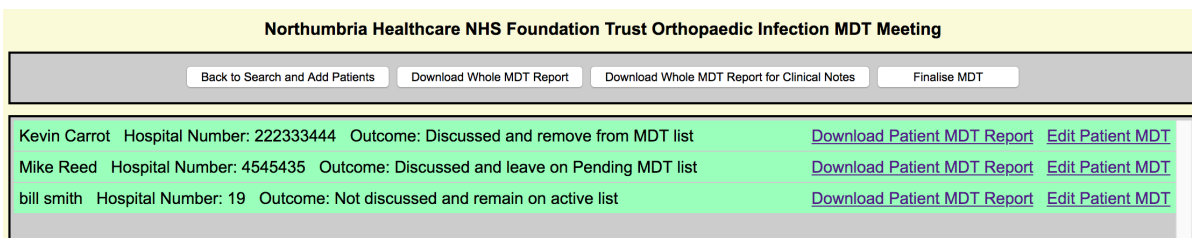
We are very pleased to announce the imminent arrival of the new MDT meeting software within the BAJIR Registry. We hope that this platform will allow units to run their revision and/or infection MDT meetings through the BAJIR.

**Figure - MDT platform (1)**



The MDT page has two lists; one for Pending patients and one for Active patients, with the ability to move patients between the two. The Active patient list will form the basis of the next MDT meeting and can be pre-populated prior to the meeting. Any patient entered on to the registry under a unit can be searched for and selected for the MDT meeting. New patients not previously entered on to BAJIR can also be added during the meeting for those last-minute additions. Patients can also be referred to another Trust at this point to be discussed in their MDT meeting, with the patient record accessible to both Trusts.

**Figure - MDT Platform (2)**



Once the meeting has been started, the list of attending clinicians must be confirmed. The MDT page will show a summary of the patient's relevant record, including their previous MDT discussion, with all information pulled through from their BAJIR record. The full record is easily accessible from the MDT page for further information.



# MDT Software Cont.



The active MDT discussion can be summarised and then an outcome must be completed; whether the patient has been discussed or not and whether they need to remain on the pending or active MDT list.

Once all patients have been discussed and an outcome confirmed, the MDT list can be finalised. The MDT report can then be downloaded for printing and insertion in to the patient's notes.

The MDT meeting software has been designed by BAJIR Committee clinicians to allow MDT meetings to be easily organised and run through the registry. This exciting new development will provide significant advantages to BAJIR users in helping with organisation of meetings and patient lists, and production of clear documented meeting outcomes. For the registry we hope and expect it to significantly boost engagement and data within the registry.

# HES-BAJIR Linkage



The process of establishing a data-linkage between Hospital Episode Statistics (HES) and BAJIR data is currently underway, and is anticipated to be completed by the end of 2020.

It is recognised that due to heavy workload of clinical staff, and significant variation in the way that musculoskeletal infection patients attend (including the potential for patients to be too unwell to offer complete information at the time of initial presentation), there may be issues with data completeness or accuracy of patient information collected by the BAJIR.

Such issues with data quality are significantly relevant to its role as an audit and quality improvement tool for treatment of bone and joint infection throughout the U.K., where data integrity is essential to draw appropriate inferences from the collected information. In order to ensure that the BAJIR provides a viable tool for audit and quality improvement we are in the process of establishing a data-linkage between BAJIR and HES. The HES data will act as an additional data source to fact check relevant patient information included in the registry to ensure that it is appropriately completed and accurate.

Any discrepancies between HES data and the submitted BAJIR information (for example missing comorbidity information) will be flagged back to clinical teams submitting information for patients so these inconsistencies can be appropriately investigated and rectified as necessary. Records provided by HES will be automatically added to the information held within BAJIR for the date of death for patients if applicable.

Dependent on the success of the proposed linkage it may become routine that certain parts of a patients information (e.g. co-morbidities and mortality outcomes), are completed utilising the HES-BAJIR linkage to reduce pressure on longitudinal completion of data entry by clinical teams.

## Future directions

### Recruitment

With the MDT software now in place, and the HES-BAJIR Linkage project well underway, as we move to the future the emphasis for the next year will certainly be on recruitment and facilitating data entry. With the number of Trusts in a position to enter data with regards governance and permissions now much greater than last year, we now move into a phase of encouragement of units to enter cases into the registry. To aid this we have developed user guides and paper entry forms, all these resources being available through the BAJIR website. A webinar for users is proposed for the upcoming months.



# Future directions cont.



## Data Analysis

Not yet in a position to produce significant outputs, this of course is our predominant aim. As data volume increases over the next year, we hope to be able to produce formal analysis of information held within the registry for future reports. The spotlight on DAIR above gives an idea of the sort of questions we can explore.

## Non-PJI Orthopaedic Infection

The initial focus of the registry has been with PJI, this being the largest volume of work. We include facility to enter data on all bone and joint infection, and will strengthen this side of the registry over the next year. Proposed definitions for native joint septic arthritis and osteomyelitis are being discussed and hopefully ratified at the September 2020 Steering Committee meeting, and following this we can confirm definite infections in other categories within the registry to allow analysis. Our Steering Committee members from the relevant societies are a great help in this regard.

## Financial Support

Industry response to the project has been superb, and continues to be crucial to our success. The generous support to this point has funded the creation and developments we see in the registry, for example the recent MDT and HES-BAJIR Linkage projects described above. With the ongoing support of our sponsoring companies we can continue to grow and develop BAJIR. Many thanks to all those companies listed below.



Aquilant Orthopaedics



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# Steering Committee



The BAJIR Executive are grateful to the following members of the steering committee for their help and guidance in continued growth of the registry

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## BAJIR STEERING COMMITTEE 2020

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|                                     |  |
|-------------------------------------|--|
| Mike Reed (Chair)                   | Luke Farrow (BAJIR Fellow)   |
| Tim Petheram (Treasurer)            | Mike Petrie (Engagement lead)  |
| Iain McNamara (Secretary)           | Anji Kingman (Clinical Outcomes Manager)   |
| James Masters (Governance)          | Helen Vint (BAJIR)   |
| Andy Toms (BASK)                    | Simon Jameson (BHS)  |
| Mike Hutton (BASS)                  | Amar Rangan (BESS)   |
| Rhidian Morgan-Jones (BOA / PJI UK) | Ian Sharpe (BOFAS)   |
| Will Eardley (BTS)                  | Setor Kunutsor (Scientist)   |
| Lucinda Barrett (Microbiologist)    | Neil Jenkins (Microbiologist)  |
| Martin Sarungi (Scotland)           | Nigel Westwood (Patient representative)  |
| Jamie Ferguson (Member at large)    | Abtin Alvand (Member at large)   |
| Pedro Foguet (Member at large)      | Email: <a href="mailto:nhc-tr.bajir@nhs.net">nhc-tr.bajir@nhs.net</a> / Twitter: @BAJIR_UK |

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