British Society for
Rheumatology

National Early Inflammatory Arthritis Audit (NEIAA)

Year 4 Annual Report
(Data collection: 1 April 2021 – 31 March 2022)

October 2022

HQIP
Healthcare Quality Improvement Partnership

British Society for Rheumatology (BSR) is the UK's leading specialist medical society for rheumatology and musculoskeletal (MSK) professionals. We support our members to help deliver the best care for their patients, in order to improve the lives of children, young people and adults with rheumatic and MSK disease. Our members represent the entire profession – from those at the beginning of their career to the most senior consultants, researchers, academics and health professionals in the multidisciplinary team. Together, they form a powerful voice for paediatric, adolescent and adult rheumatology in the UK.

Healthcare Quality Improvement Partnership (HQIP) commissions the National Early Inflammatory Arthritis Audit (NEIAA) as part of the National Clinical Audit and Patient Outcomes Programme (NCAPOP). HQIP is led by a consortium of the **Academy of Medical Royal Colleges**, the **Royal College of Nursing** and **National Voices**. Its aim is to promote quality improvement (QI) in patient outcomes and, in particular, to increase the impact that clinical audits, outcome review programmes and registries have on healthcare quality in England and Wales. HQIP holds the contract to commission, manage and develop NCAPOP, comprising around 40 projects covering care provided to people with a wide range of medical, surgical, and mental health conditions. **The programme** is funded by **NHS** England, the Welsh Government and, with some individual projects, other devolved administrations and Crown Dependencies.

The National Early Inflammatory Arthritis Audit (NEIAA) is a programme of work that aims to improve the quality of care for people living with inflammatory arthritis, collecting information on all newly diagnosed patients over the age of 16 referred into specialist rheumatology departments in England and Wales. NEIAA assesses the quality of care provided for people with early inflammatory arthritis (EIA) from the start of symptom onset, through referral to secondary care, and treatment thereafter. It includes strong collaboration with patients and healthcare professionals, and aspires to set out a vision for a service that puts patient needs first. To find out more about the NEIAA visit the **BSR website**.

Year four annual report was prepared by the following people, on behalf of the NEIAA project working group, senior governance group and patient panel (the full list of members are included in the online appendices **here**):

Dr James Galloway, Lead Methodologist, NEIAA, BSR; Senior Clinical Lecturer,
Kings College London

Dr Jo Ledingham, Clinical Lead, NEIAA, BSR; Consultant Rheumatologist,
Portsmouth Hospitals NHS Trust

Callum Coalwood, Administrator, BSR

Sarah Oyebanjo, Project Manager, BSR

Neena Garnavos, Head of Quality Improvement, BSR

British Society for Rheumatology
Bride House, 18–20 Bride Lane
London EC4Y 8EE

Registered charity no **1067124**
www.rheumatology.org.uk/practice-quality/audits/neiaa
@RheumatologyUK #NEIAA

Contents

List of tables

List of figures

Return to contents page

Foreword

I am delighted to share the Year 4 **NEIAA** Annual Report. This builds on the previous annual reports and the 2014–16 National Clinical Audit for Rheumatoid and Early Inflammatory Arthritis.

The last two years have impacted us all in a profound way and I am encouraged to see that the rheumatology community's commitment to improving patient care has not diminished. This report comes at a time when rheumatology services are still experiencing the impact of the COVID-19 pandemic, facing mounting pressures and stretched resources. With mandatory data collection resuming in May 2021, data included in this report cover nearly a full year of mandatory data collection.

Despite the pandemic, performance was steady or improved in metrics focusing on the speed of referrals from primary care, treatment initiation, disease education, treat-to-target strategies, and access to emergency advice. While the performance for first review by a specialist decreased by 6%, it is still an improvement in comparison to the findings reported in the **first annual report**. I am aware that although service provision has not deteriorated significantly, there are still several aspects of care that require improvement. As services review their data and continue to engage with the audit, I hope we can take focused actions to improve performance further.

Early and effective treatment of inflammatory arthritis has many benefits and continuing to strive to achieve this is important. As seen in the report, although the majority of patients presenting with **EIA** are of working age, just under half were working over 20 hours per week. Working to achieve the **NICE Quality Standards 33 (QS33)** will help us improve a patient's long-term outcomes, reduce long-term disability and also benefit society as a whole by helping people remain in the workforce and reduce the cost of health and social care needs in the long term through the prevention of disability.

Even before the global pandemic, our rheumatology multidisciplinary teams (MDTs) have been experiencing staff shortages and high vacancy rates. As noted in this report, we need more consultants, nurses and allied health professionals (AHPs) to help us deliver the best care for people with rheumatology conditions. Only a minority of departments in the UK currently meet the workforce recommendations made in **BSR's workforce report** stating that one rheumatology consultant and specialist nurse should be available for very 60,000–80,000 people.

The healthcare landscape is rapidly changing in England and Wales with the uptake of new ways of working encouraged by the COVID-19 pandemic and new policy drivers and frameworks. In England, the emergence of the **Best MSK Health Collaborative** and the rheumatology **Getting it Right First Time (GIRFT)** workstream are redefining measures of quality and best practice. **Integrated Care Systems (ICS)** have been introduced to plan and deliver joined up health services regionally. While in Wales, the upcoming arthritis and long-term **MSK** conditions in adults framework provides a definite model of access and advises health boards on designing, planning and managing services. Two national clinical leads for MSK and arthritis have also been appointed in Wales to drive forward this work. These present opportunities to seize this momentum and reconsider the design and delivery of their services.

BSR will continue to do our best in supporting service users, services and commissioners with implementing the 12 recommendations set in the report. I was pleased to see the **NEIAA** patient panel publish a clinical framework to support the MDT with improving the early arthritis pathway, which was one of the recommendations set in the **previous report**.

We will work on increasing engagement with the audit as providing care for people with inflammatory arthritis is one of the core activities of our work. BSR will continue working with

Return to contents page

audit leads to gain insight into the challenges that they face with engagement and ways that we can support you. Please reflect on these results and consider how you can implement the recommendations within your respective services. If you're already using the audit data to improve your service, the audit team would like to hear from you.

With the audit continuing until September 2025 at the earliest, we have a real opportunity to make a difference to the care provided to people with inflammatory arthritis.

Finally, I would like to thank everyone for their contribution to the audit. Your hard work and dedication can and does improve the lives of people living with **EIA**.

Dr Sanjeev Patel
BSR President

Executive summary

NEIAA collects information on all new patients over the age of 16 seen in specialist rheumatology departments with suspected inflammatory arthritis in England and Wales. The data presented in this report were gathered from 1 April 2021 until 31 March 2022. Data collection was suspended by **HQIP** across all national audit programmes at the start of the pandemic (March 2020) and reinstated as being mandatory in May 2021.

Information is reported for the first 3 months of specialist care for patients with rheumatoid pattern inflammatory arthritis (including psoriatic arthritis of the rheumatoid type) and from the first appointment for all patients with suspected inflammatory arthritis.

The audit assesses seven key metrics of care, based on **NICE QS33 (2013 version)**. In addition, it assesses clinical outcomes and how inflammatory arthritis affects people's day-to-day function, mobility, sleep, wellbeing and ability to work.

This report provides information on national and regional performance against these metrics and on outcomes. Comprehensive breakdown of trust/health board level performance are provided in the **supplementary documents**.

Return to contents page

Introduction

Rheumatoid arthritis (RA) is an incurable autoimmune disease that affects approximately 430,000 people in the UK **[1]**. The disease leads to disability and work loss, with between 39% and 86% of the overall disease costs linked to these **[2]**. A large body of research has demonstrated that effective treatment, if instituted early, can prevent disability.

The aim of **NEIAA** is to assess the provision of care and the impact of that care on outcomes for people with **EIA** in England and Wales. NEIAA determines whether the care provided is consistent with current recommended best practice defined by **NICE QS 33**. It provides information to support multidisciplinary healthcare professionals, **NHS** managers, chief executives, service commissioners, regulators, policy makers, patients, their carers and families to improve quality of care, service delivery and outcomes.

In 2020, **NICE QS33** was updated to cover five quality statements focusing on referral, treatment, patient education, rapid access to specialist care and annual review. This report uses the **2013 version** of QS33 for consistency against previous NEIAA annual reports, and to facilitate comparative analysis. This shouldn't have any implications on understanding the state of care, as the 2013 version covers all the quality statements in the updated version. NEIAA also captures data on the following outcome measures: disease activity, **MSK** health, disability, work and mental health.

Furthermore, NEIAA assesses timelines to specialist review for patients with inflammatory disease of the spine axial spondyloarthritis (axSpA), a subtype of inflammatory arthritis with a need for early referral and treatment, comparable to EIA.

The audit assesses **seven key metrics** of care for people with new symptoms of suspected inflammatory arthritis attending rheumatology services for the first time:

1. How quickly do primary care and other health professionals refer people suspected to have inflammatory arthritis?
2. How soon after referral are people seen in specialist secondary care services?
3. How long does it take to start treatment?
4. Do patients receive prompt education about their condition?
5. Are treatment targets set and agreed?
6. Do patients have access to emergency advice?
7. Are annual reviews taking place?

Annual reports detailing findings from NEIAA were published for data collected in **2018/2019** and **2019/2020**. Due to the COVID-19 pandemic, the annual report detailing findings for 2020/2021 was not published. In place of this, a **short report** using data from the previous years, with a focus on the link between ethnicity and health outcomes in people with EIA in England and Wales was published.

Data in this report will provide some information on the impact of COVID-19 on service provision and outcomes for patients with EIA. We acknowledge that this report only partially captures the impact of the pandemic on rheumatology services.

Return to contents page

Interpreting this report

Data for this report were collected from 11,722 patients seen in England and Wales for the first time within specialist rheumatology services between 1 April 2021 and 31 March 2022. For patients with suspected inflammatory arthritis, information is provided on timelines prior to the first appointment and the first appointment in a rheumatology department. Additional information is reported over the first three months of specialist care for patients with confirmed rheumatoid pattern inflammatory arthritis (including psoriatic arthritis of the rheumatoid type). Data for targeted therapies (e.g., biologics[1]), annual reviews, remission rates (resolution of active inflammation) at 12 months, and patient-reported outcomes (PROs) at 12 months, are not reported because insufficient data were returned at the time of reporting. This is due to a lag in patient recruitment when data collection was made mandatory again in May 2021.

Information on trust/health board performance against each metric is available in the **supplementary documents**. We recommend that these data provide a starting point for reflection on the possible reasons for variation in practice and outcomes and be used to help services identify improvements and workforce needs/planning.

We advise users to practice caution when comparing the findings in this report with previous annual reports, as the COVID-19 pandemic impacted both rheumatology care provision and **NEIAA** data collection. There is a risk of participation bias, as a higher number of non-participating services were reported in this annual report (see **Appendix B** –19 vs five healthcare providers in year two). We know from pre-pandemic reports that variation in care occurred nationally. The impact of the pandemic also varied within regions, for example some areas had longer and stricter lockdowns and more hospital admissions. These variations in impact of the pandemic might skew the NEIAA findings.

Although adaptations were made to the online platform to support data collection, there are still areas for improvement in data completeness. Data available for quality statements 3, 4, 5 and 6 are significantly lower than the data initially submitted for quality statement 1 and 2. The drop off in data return is likely to reflect the challenge of longitudinal outpatient data collection in the post COVID-19 environment, with widespread recognition of the unprecedented burden on outpatient services following the service disruption. We would like to encourage users of this report to consider opportunities to improve data completeness.

Return to contents page

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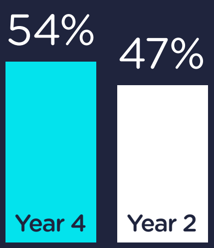
[1] Biologics are a special type of powerful drug that slows or stops damaging inflammation

Key findings

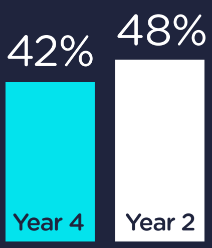
11,722

Key finding 1 – 11,722 patients were recruited with suspected inflammatory arthritis (vs 13,578 in year two).

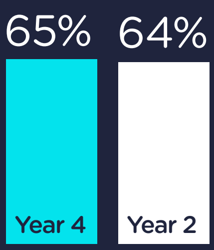
Quality statements



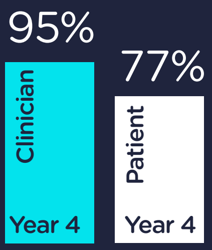
Key finding 2 – Speed of referral from primary care has improved with 54% of referrals meeting the three-day NICE target (vs 47% in year two).



Key finding 3 – First review by a specialist was achieved within three weeks of referral for 42% of patients (vs 48% in year two).



Key finding 4 – Conventional disease modifying anti-rheumatic drug (cDMARD) treatment delays remain stable with initiation within six weeks of referral in 65% of patients (vs 64% in year two).



Key finding 5 – According to clinician-reported data, 95% (vs 94% in year two) of patients received disease education and self-management support; however, 77% (vs 81% in year two) of patients submitting patient reported outcomes data reported receiving disease education and self-management support.

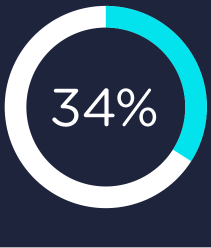
Key finding 6 – Most trust/health boards (90%) continue to engage with treat-to-target strategies (vs 89% in year two).

Year 4 95% | Year 2 92%

Key finding 7 – Whilst provision of telephone helplines for patients was still high (95%) (vs 92% in year two), only 51% of Trusts/Health Boards reported on the organisational form that they offer emergency access to rheumatology advice within 24 hours.

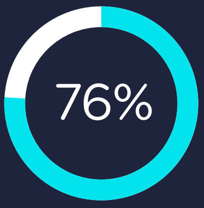
Three-month outcomes

Key finding 8 – Patient reported outcomes: Clinically meaningful improvements were recorded for all measures over the first three months of specialist care.



Key finding 9 – Disease remission was achieved in34% of patients by three months after diagnosis (vs 37% in year two).

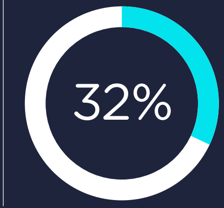
Early arthritis clinics



Key finding 10 – Early arthritis clinics were available in 76% of departments (vs 77% in year two).

Key finding 11 – Access to relevant AHP services remain suboptimal.

axSpA 5-year symptom duration prior to diagnosis



Key finding 12 – 32% of patients with axSpA had symptoms for over five years prior to assessment in comparison to 3% of patients with RA.

Return to contents page

Recommendations

Rheumatology service providers

1. Collect and submit comprehensive audit data into **NEIAA**, removing barriers to audit participation where applicable (key finding 1)
2. Use NEIAA data to evaluate service performance and identify areas for improvement (all key findings)
3. Set up **EIA** referral pathways with the aim of removing barriers to early referral, effective triage and rapid specialist review (key findings 2 and 3)
4. Establish systems to support rapid and safe initiation and escalation of **cDMARDs** (key finding 4)
5. Provide regular patient education and self-management support in a format suitable for each patient, utilising and signposting to charities (e.g., **NRAS**) (key finding 5)
6. Set up or maintain access to specialist advice within 24 hours for people with EIA (key finding 7)
7. Support patients with submitting **PRO** data, where possible (key finding 8)
8. Develop follow-up care pathways aimed at increasing the proportion of patients achieving remission within three months of diagnosis (key finding 9)

Educators (including BSR, NRAS and NASS)

9. Expand education resources for community care providers (**GP**s, physiotherapists, first contact practitioners) on
    a. the clinical features that should trigger referral, and the importance of appropriate and timely referral for patients with suspected EIA (key finding 2);
    b. the clinical features that should trigger referral, and the importance of appropriate and timely referral and diagnosis for patients with **axSpA** (key finding 12)

Commissioners, health boards and policy makers

10. Ensure that services are resourced (including workforce, financially and digitally) appropriately to facilitate
    a. participation in this audit (key finding 1)
    b. use of the audit data to support **QI** work (all key findings)
    c. the provision of person-centred equitable care (all key findings)

11. Ensure that patients in all trusts/health boards have access to all relevant specialist **AHP** services. Workforce recommendations can be found **here** (key finding 11)

12. Work to support the management of conditions more appropriately managed in primary care without specialist referral (key finding 2)

Return to contents page

Data quality

Estimating participation

To find evidence of hospital engagement in the audit, and thereby potential for sampling bias in case ascertainment, recruitment numbers by provider are described.

The average (median) number of patients recruited per trust/health board over the 12 months was 56 (**IQR**[2] 22-133). Participation is reported according to the number of NEIAA patients recruited between 1 April 2021 and 31 March 2022.

To provide informative estimates, recruitment rates for trusts/health boards lacking information were estimated using a multiple imputation model using truncated regression with 20 cycles. The imputation model uses organisational data including staffing numbers to inform estimates.

Data completeness and missing data

Baseline records were created for 11,722 patients. Information is provided on data completeness for each measure that is reported.

Information is available to calculate performance against quality statement 1 (referral) for 11,315, quality statement 2 (assessment) for 11,519, quality statement 3 (starting treatment) for 2916, quality statement 4 (education and self-management) for 4389, quality statement 5 (disease control) for 4372 and quality statement 6 (rapid access) for 4375.

Data accuracy

Data collected for this audit are self-reported by trusts/health boards. We are reliant on services reporting findings honestly and do not have any current means to externally verify the information submitted.

You can view our data analysis plan online **here**.

Governance including patient involvement

NEIAA has an independent Patient Panel, who have reviewed and supported the data analysis plan, and whose Chair and Deputy Chair sit on the Project Working Group.

The NEIAA Senior Governance Group, convened by **BSR** and including representatives of patient-focused charities and the Patient Panel Coordinator provided methodological oversight and approved the analysis plans.

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[2] The interquartile range (IQR) contains the second and third quartiles or the middle half of the data set.

Headlines: Provision of care

What are we measuring?

Data were collected on the number of rheumatology consultants, trainees, and specialist nurses, as well as availability of **EIA** services, access to **AHP** services (physiotherapy, podiatry, occupational therapy, psychology), emergency care and telephone advice lines.

Definition and methods

Organisational data are collected from each service at the outset of each year of the audit. Staffing levels and access to AHP services can fluctuate over time, and this information is collected annually to assess for change. Guidance was provided in help boxes alongside frequently asked questions (FAQs) on how to calculate whole time equivalents (WTEs).

What did we find?

We received data for 2021/2022 from 134 services (101 trusts/health boards). The national average WTE numbers of staff, departmental organisational factors, and access to AHP services are detailed in **table 1**.

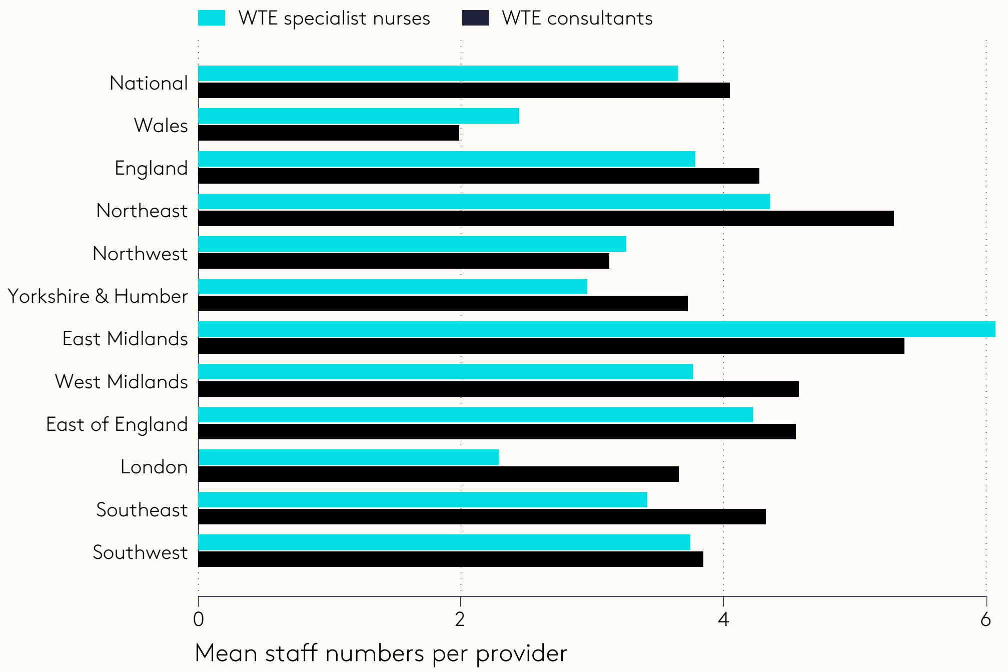
Table 1. Organisational data

Structural Factor	Year 2	Year 4
Consultants, mean (SD)	4.1 (2.0)	4.1 (2.2)
Training grade doctors, mean (SD)	1.3 (1.1)	1.1 (0.6)
Speciality doctors, mean (SD)	0.4 (0.7)	0.4 (1.0)
Specialist nurses, mean (SD)	3.6 (1.8)	3.7 (2.3)
Physiotherapy access	110/118 (93%)	126/134 (94%)
Podiatry access	90/118 (76%)	106/134 (79%)
Occupational therapy access	112/118 (95%)	126/134 (94%)
Psychology available in department	45/118 (38%)	45/134 (34%)
EIA pathway used in department	89/118 (75%)	98/134 (73%)
EIA clinics available in department	91/118 (77%)	102/134 (76%)
Shared care agreements with primary care for drug monitoring	113/118 (96%)	133/134 (99%)
MSK ultrasound available	115/118 (98%)	126/134 (94%)
Telephone advice line available to patients	115/118 (97%)	133/134 (99%)
Emergency access to rheumatology advice (within 24 hours) available to patient	59/118 (50%)	68/134 (51%)

The organisational data reported 524 WTE consultants and 473 WTE specialist nurses (vs 452 consultants and 364 specialist nurses in the **second annual report**). Consultant staffing levels were highest in the East Midlands and lowest in Wales, as seen in **figure 1**. Nurse staffing levels were also highest in East Midlands and lowest in London. Staffing levels were similar to those reported in the second annual report (4.1 for consultants and 3.6 for specialist nurses).

Return to contents page

Figure 1. Regional staff numbers: consultants and specialist nurses



There remains wide variation in staffing numbers across England and Wales and also in the proportion of consultants and specialist nurses. Of interest, Wales, East Midlands and Northwest reported a higher proportion of specialist nursing staff than consultants.

Most other results obtained were comparable to findings in the **second annual report** with a slight decrease in availability of psychology and **MSK** ultrasound services. There was a slight increase in podiatry access and shared care agreements with primary care for drug monitoring.

Availability of **EIA** clinics was fairly similar (76%) to the findings in the second annual report (77%).

What does this mean?

There has been no major clear adverse or positive impact on the aspects of service delivery that have been assessed annually throughout **NEIAA**.

The rheumatology workforce continues to lack sufficient staff to provide the care recommended by **NICE**. The slight reduction in availability of **MSK** ultrasound may reflect staff deployments and/or enforced alterations to service delivery due to the COVID-19 pandemic.

Poor access to mental health services suggests that trusts/health boards are either not able to prioritise this aspect of care or are struggling to achieve a positive change. It is possible that some clinicians are seeking **AHP** and mental health support for patients via GPs or external services such as the Improving Access to Psychological Therapies (IAPT) programme.

Why is this important?

Performance against NICE quality standards has been linked to staffing and structural factors; therefore, service providers and commissioners need to continue to focus on how to bridge this gap in local workforce recruitment and planning, underpinned by service design. A lack of adequate staffing will prevent many teams from maximising progress in

Return to contents page

improving patient care, safety and productivity. To improve outcomes for all patients, the **BSR workforce report** recommends the ratio of specialist nurses to consultants should be 1:1 within a department with one consultant/specialist nurse per 60,000–80,000. Specialist nurses can run follow-up clinics and draw on different skills across the **MDT** thus allowing consultants to focus on patients with worse symptoms **[3]**.

Specialist AHP services are recommended by **NICE** in recognition of their importance in managing specific aspects of **EIA**. The ongoing lack of service availability in some trusts/ health boards means some patients continue to receive suboptimal care. The national drive to increase parity of esteem across physical and mental health highlights the importance of access to mental health resources. This is especially relevant to inflammatory arthritis patients who have a greater burden of mental health comorbidity than the general population **[4]**. Support for patients' anxieties and help in reducing the decline of mental health can also be addressed by patient organisation education and support services.

There is compelling evidence to suggest that access to an EIA clinic can lead to quicker treatment and improved clinical outcomes for patients with confirmed inflammatory arthritis **[5]**. Such clinics provide a comprehensive range of services (e.g., ultrasound, X-ray, blood sampling, access to physiotherapists and occupational therapists) to patients in a single appointment, meaning that suspected cases of inflammatory arthritis are confirmed or discharged, and treatment can be initiated more quicky. Improved efficiency from such clinics has also been linked with financial savings, improved waiting times, and enhanced overall patient satisfaction with their treatment **[5]**.

Further information on what a fully staffed service should look like and the importance can be found **here**.

Return to contents page

Headlines: Numbers and characteristics of patients referred

What are we measuring?

Data were collected on the number and baseline characteristics of patients referred to rheumatology services in England and Wales for suspected **EIA**.

Definition and methods

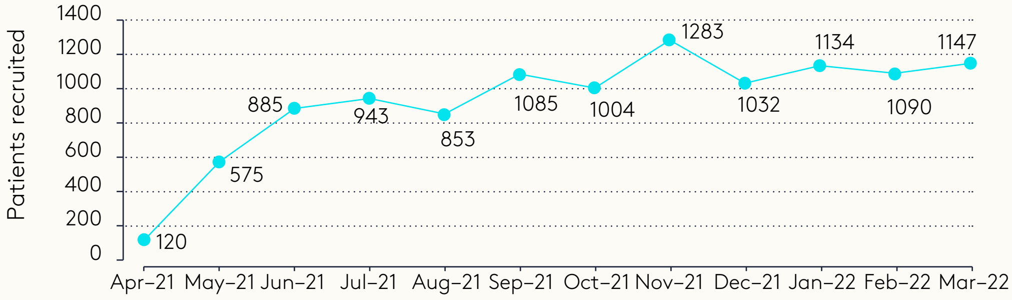
Patients were eligible for entry into **NEIAA** if they were referred by their primary care physician (or another non-rheumatology healthcare professional) for assessment of a possible inflammatory **MSK** problem. This included both potential peripheral joint and spinal problems. Patient characteristics including age, gender, ethnicity, and smoking status were supplied by clinicians.

Socioeconomic position data were estimated using a postcode-derived Index of Multiple Deprivation (IMD).

What did we find?

Data were returned for 11,722 patients with suspected inflammatory arthritis seen in rheumatology services in England and Wales. Enrolment in NEIAA by month is illustrated in figure 2.

Figure 2. NEIAA enrolment by month



The cohort demographics are representative of an EIA patient group, with a mean age of 55 and female gender predominance, as detailed in table 2. Socioeconomic position regional differences were similar to those observed in the **second annual report**.

Table 2. Patient demographics

Characteristic	Year 2	Year 4
Mean age (SD)	55 (16)	55 (16)
Female	8861/13,578 (65%)	7033/10,779 (65%)
White ethnicity	11,367/13,578 (84%)	8699/10,779 (81%)
Current smoker	2312/13,578 (17%)	1718/10,779 (16%)

What does this mean?

Rheumatology departments have progressively been re-engaging with the audit since May 2021 when data collection was mandated, with a few dips during the holiday periods.

The demographics of patients recruited were characteristic of an EIA cohort in terms of age and gender, as **RA** is a female-predominant disease and typically starts in the fifth/sixth decade of life. The patient demographics reported above are similar to the findings reported in the second annual report (65% were female, 84% from a white ethnicity background and 17% current smokers).

Why is this important?

The data support our view that patients recruited to this audit are representative.

Return to contents page

Headlines: Diagnoses of people referred

What are we measuring?
Data were collected on the diagnosis and baseline characteristics for all patients referred with suspected **EIA**. For patients with a diagnosis of a new inflammatory arthritis, additional information was collected including comorbidity burden.

Definition and methods
Information was gathered for all patients recruited to the audit on the diagnosis established by specialist departments along with additional patient characteristics including autoantibody results, smoking and work status.

Comorbidity is assessed using the Rheumatic Disease Comorbidity Index (RDCI). This is a weighted score validated for use in rheumatic diseases. The score ranges from 0–9, with higher scores showing a greater burden of multimorbidity. **RA** does not contribute to the score.

What did we find?
Data on diagnosis were provided for 10,779/11,722 patients. RA was the most common diagnosis entered into the audit, accounting for 32% (3408/10,779) of patients with a recorded diagnosis and osteoarthritis was the second most common diagnosis in 18% (1956/10,779) of patients. Variation in diagnoses of patients referred with suspected EIA are detailed in table 3.

Table 3. Diagnoses of patients referred with suspected EIA

Diagnosis	Year 2	Year 4
RA	3747 (30%)	3408 (32%)
Osteoarthritis	2307 (18%)	1956 (18%)
Undifferentiated arthritis	1199 (9%)	935 (9%)
Psoriatic arthritis	1050 (8%)	892 (8%)
Fibromyalgia	489 (4%)	503 (5%)
Crystal arthritis	464 (4%)	288 (3%)
Reactive arthritis	346 (3%)	241 (2%)
axSpA	244 (2%)	195 (2%)
Mechanical back pain	189 (1%)	152 (1%)
Connective tissue disease	160 (1%)	119 (1%)
Other	2458 (19%)	2090 (19%)

Complete data were available for patients eligible for EIA follow-up (i.e., those with a new diagnosis of inflammatory arthritis with disease warranting initiation of **cDMARD** therapy with a treat-to-target approach). RA accounted for almost three-quarters (71%) of these patients, as detailed in table 4.

Table 4. Diagnoses of patients with EIA eligible for follow-up

Diagnosis	Year 2	Year 4
RA	3579 (71%)	3269 (71%)
Psoriatic arthritis	623 (12%)	611 (13%)
Undifferentiated arthritis	555 (11%)	467 (10%)
axSpA	69 (1%)	69 (2%)
Other	188 (4%)	174 (4%)

Return to contents page

Compared to the overall cohort, patients with **EIA** were slightly older (mean age was 57). Ethnicity and work status at baseline were comparable to the overall cohort. Just under one-fifth of patients were current smokers (this is slightly higher than the general population at 14% **[6]**), which is relevant given that smoking is a risk factor for both the onset and severity of RA (see **table 5**). 60% of patients had positive autoantibodies to Rheumatoid Factor (**RhF**)[3] or Cyclic Citrullinated Peptides (**CCP**)[4].

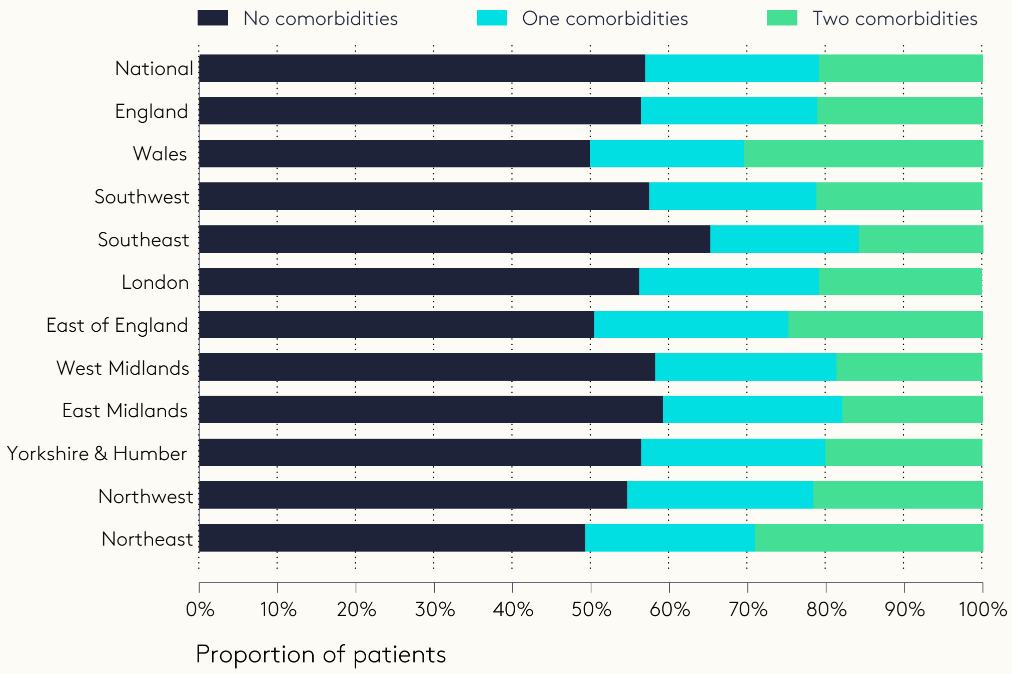
Despite the majority of patients presenting with a new EIA being of working age, just under half of the patients (48%) with confirmed EIA were working >20 hours per week (in the general population individuals work on average [mean] 33.2 paid hours per week **[7]**) at the time of presentation; this is similar to the findings in the **second annual report** (48%).

Table 5. Characteristics of patients with confirmed EIA

Characteristic	Year 2	Year 4
Mean age (SD)	57 (16)	57 (16)
Female	3071/5014 (61%)	2841/4590 (62%)
White ethnicity	4314/5014 (86%)	3831/4590 (84%)
Current smoker	995/5014 (20%)	799/4590 (17%)
Greater than 20 hrs work/week	2355/4913 (48%)	2119/4590 (48%)
RhF or CCP positive	2577/4480 (58%)	2429/4590 (60%)

The comorbidity burden is varied amongst patients across geographic regions, with the highest number of patients with comorbidities in the Northeast, East of England and Wales. Regional variation in comorbidity can be viewed in greater detail in figure 3.

Figure 3. Regional variation in comorbidity burden amongst patients with EIA



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[3] The Rheumatoid factors are proteins produced by your immune system that can attack healthy tissue in your body.

[4] Cyclic Citrullinated Peptide antibodies are produced by the immune system and can mistakenly attack healthy tissues.

What does this mean?

The proportion of patients recruited who have **EIA** has slightly increased since the start of **NEIAA**, with 35% (7216/20,688) of patients enrolled in **year one** having an EIA diagnosis, compared with 37% (5014/13,578) in **year two**, and 39% (4590/11,722) in year four. Given that primary care colleagues were conducting remote consultations, it is encouraging to see that conversion rates (percentage of patients recruited with suspected EIA vs confirmed EIA) continue to increase. The rising proportion of EIA diagnoses may reflect improved triage, referral pathways and improved awareness of symptoms.

The percentage of patients with positive autoantibodies to **RhF** or **CCP** is somewhat higher than expected. This could be explained by the fact that NEIAA captures information on patients with psoriatic arthritis who are likely to be seronegative for RhF.

RA is frequently diagnosed in conjunction with other diseases with over 40% of patients having one or more comorbidities, thus highlighting the need for case mix adjustment as comorbidity may negatively affect aspects of care, including the speed of treatment initiation.

Why is this important?

Establishing a diagnosis remains the first step in a treatment pathway for any patient with EIA, and the factors that can delay diagnosis are important targets for any **QI** work. Providers with low conversion rates can explore ways of better identifying EIA patients via referral pathways or referral criteria in letters.

In England, the **Best MSK Health Collaborative** has produced resources aimed at primary care to improve the identification and stratification of **MSK** and rheumatological conditions, to improve appropriate referrals and better manage MSK conditions within primary care. Physiotherapists, clinical leaders and other healthcare staff can now access a range of MSK service resources, contained in a new **Primary and community care MSK recovery and transformation guidance toolkit**.

Many **RA** patients have identifiable markers for less favourable outcomes at the time of diagnosis. The high burden of pre-existing comorbidity at diagnosis is important to appreciate, as comorbid illnesses will impact on treatment choices and also predict the likelihood of a good treatment response for their inflammatory arthritis.

An important ongoing message to all clinicians involved in assessing patients for possible EIA is that a significant proportion of patients will not have positive autoantibody tests.

As smoking status has been shown to impact RA **[8]**, it is important for professionals to refer patients to smoking cessation services.

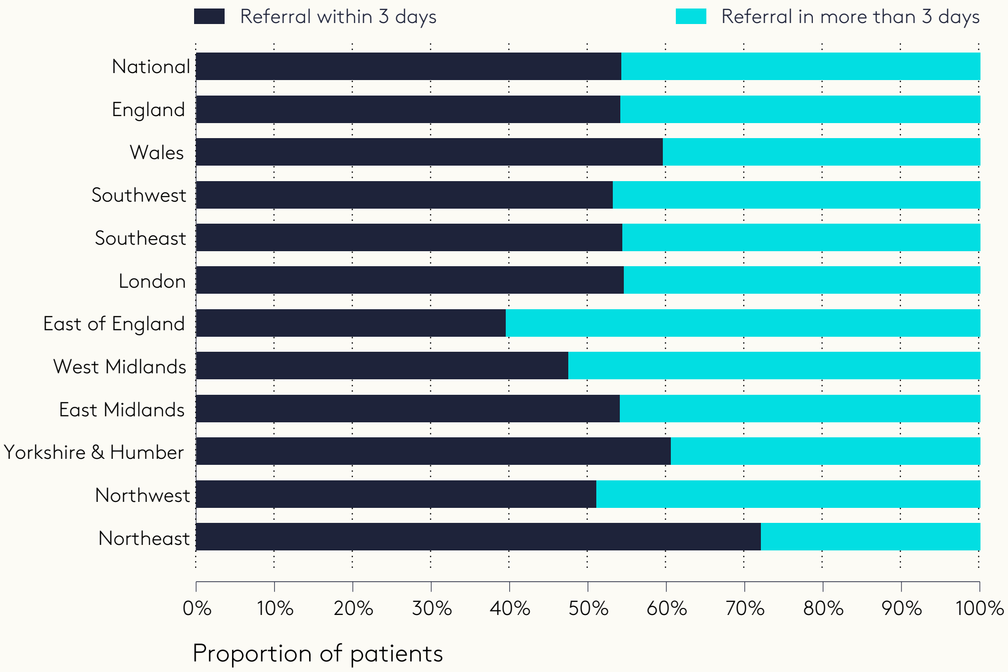
Quality statement 1: Referral delays

What are we measuring?
Whether patients with suspected **EIA** are referred to a specialist within the three working days. This corresponds to **NICE QS33 statement 1** and is a measure of primary care performance.

Definition and methods
The number of patients with a 'YES' response to the question: "Was referral made within three working days of presentation with EIA symptoms, in accordance with NICE QS33 statement 1?" against the total number of patients enrolled. Results are adjusted for case mix.

What did we find?
Nationally 54% (6134/11,315) of patients were referred within three working days, as seen in figure 4. Information was provided to calculate this metric for 97% (11,315/11,722) of patients. This reflects a 7% improvement in comparison with the **second annual report**. Substantial provider-level variation was present; patients in the Northeast were almost twice as likely to be referred in the recommended timeframe compared to patients in the East of England (72% vs 39%).

Figure 4. Primary care referral within three days by geographical region



What does this mean?
Referral timelines from primary care are improving overall but vary widely across regions and trusts/health boards. Referrals are still not happening fast enough for some patients.

Why is this important?
Delays in referral from primary care are a key barrier to prompt diagnosis and treatment. Taking action at the earliest stage to treat inflammatory arthritis can prevent irreversible damage to joints and other organs. Reducing referral times from primary care is the first crucial step in optimising care and ultimately improving patient outcomes and quality of life.

Findings serve as an indicator for where further education may still be needed within primary care and other services such as first contact practitioner, physiotherapy, and other linked specialist services.

Return to contents page

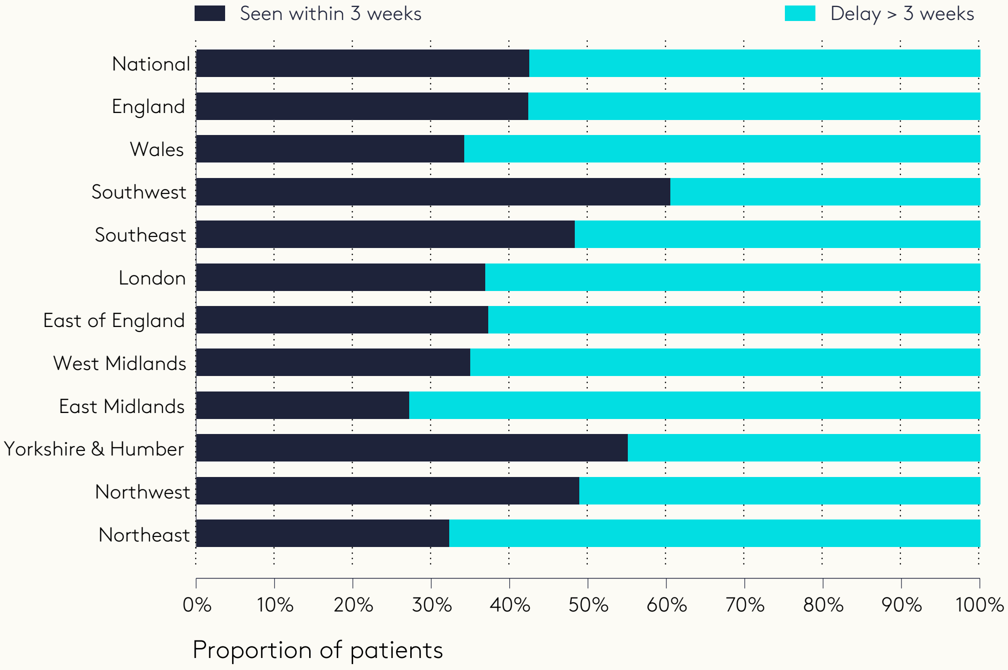
Quality statement 2: Assessment delays

What are we measuring?
The delay between a rheumatology department receiving a referral for suspected **EIA** and the date of clinic assessment. This corresponds to **NICE QS33 statement 2**.

Definition and methods
The number of patients seen within three weeks of receipt of referral is calculated against the total number of patients enrolled. Date of referral was defined as the date provided in response to: "Date referral letter received by trust/health board" and the date seen was defined as "Date of assessment in rheumatology clinic". Results are adjusted for case mix.

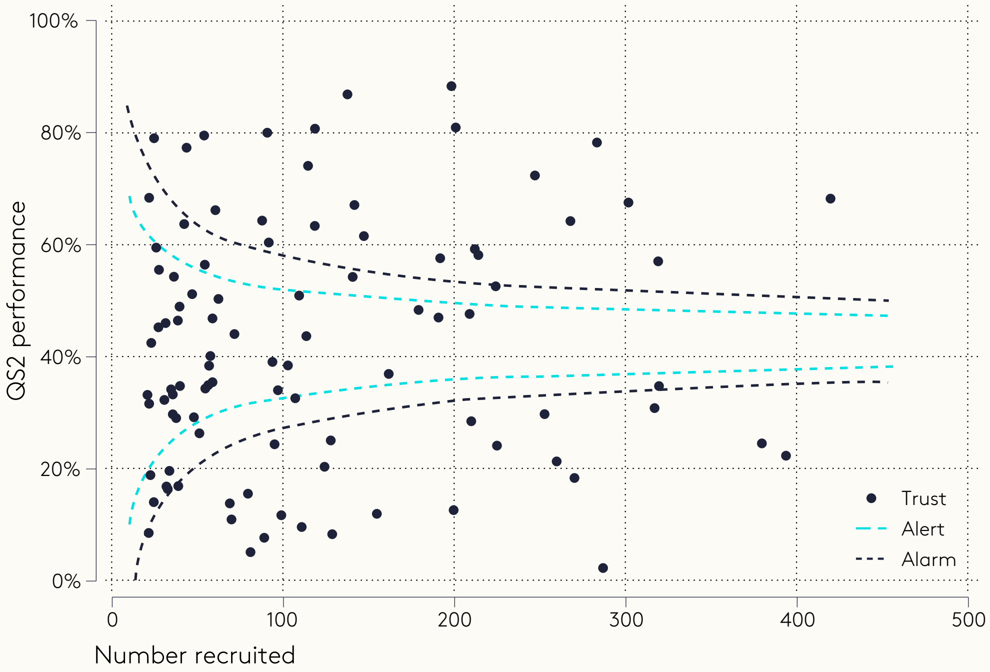
What did we find?
Nationally 42% (4887/11,519) of patients referred with suspected EIA were seen within three weeks. Information was supplied to calculate this metric for 98% (11,519/11,722) of patients. This reflects a 6% decrease in performance compared to the **second annual report**. The stacked bar graph in figure 5, shows the substantial variation in waiting times across regions. Southwest was the highest performer, with 60% of patients being seen within three weeks.

Figure 5. Delay in rheumatology review by geographical region



Return to contents page

Figure 6. Funnel plot of adjusted QS2 performance by trust/health board



A total of 38 trusts/health boards had performance against this statement that were two and three SD below the national average as can be seen in figure 6. The numbers reported are lower than those reported in the **second annual report** (49 trusts/health boards). It is important to note that there were more non-participating trusts/health boards in year four (19 vs five in year two).

What does this mean?
The proportion of patients seen for their first appointment in rheumatology within three weeks of receipt of referral has fluctuated across the years: **year one** (38%), year two (48%) and year four (42%). The pandemic has had an adverse impact on performance but importantly performance is still higher than year one.

Why is this important?
This metric gives some indication of the adverse impact of COVID-19 on the ability of trusts/health boards to offer timely appointments to patients with suspected **EIA**. In most rheumatology departments, staff were re-deployed during the pandemic which could have affected availability of appointments for suspected EIA patients.

Although quality statement two is no longer included in the updated **NICE QS33 (version 2020)**, these data provide services with important information to help guide their **QI** activity. This timeline is measured as it is a key step in the goal of achieving early assessment, and then diagnosis and treatment for the ultimate benefit to patients.

Quality statement 3: Treatment delays

What are we measuring?
Time in days to initiation of **cDMARD** therapy for those patients with a confirmed diagnosis of **RA** pattern **EIA**. This corresponds to **NICE QS33 statement 3**.

Definition and methods
The statement is defined as the number of patients starting a cDMARD within six weeks of referral against the total number of patients enrolled with RA pattern EIA. Date of referral is defined as the "Date referral letter received" and the date cDMARDs started is defined as "What date was treatment started?" either on the baseline or three-month follow-up form (the earliest date was used). To meet the standard, cDMARDs must be started within 42 days of referral.

What did we find?
Nationally 65% (1907/2916) of patients with a diagnosis of RA pattern EIA were established on a cDMARD within six weeks of referral. Information on starting cDMARDs was available for 64% (2916/4590) of patients eligible for EIA follow-up. This reflects a 1% increase in performance in comparison to the **second annual report**. The bar graph in figure 7 shows regional variation in time to cDMARD initiation. The best performing region was Southwest with 86% of services initiating cDMARD treatment within six weeks, compared to only 44% of services in the worst performing region, East Midlands.

The most striking improvements were seen in the Southwest of England, where the proportion of patients meeting this standard was 87% in comparison with 64% in the second annual report. Trust/health board-level variation is presented in **figure 8.**

Figure 7. Time to cDMARD initiation by geographical region

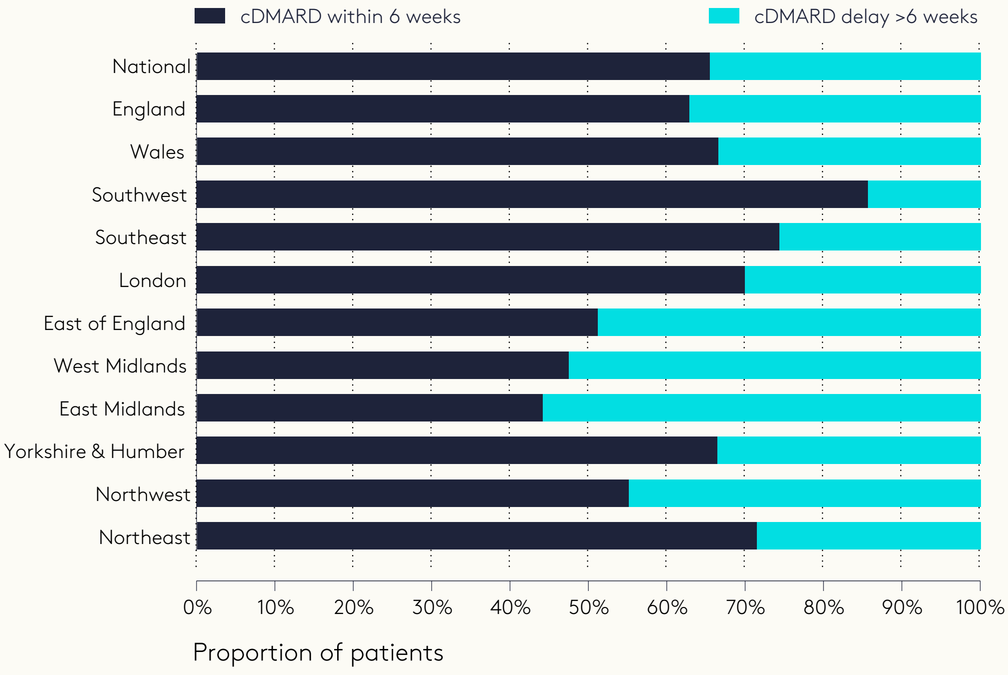
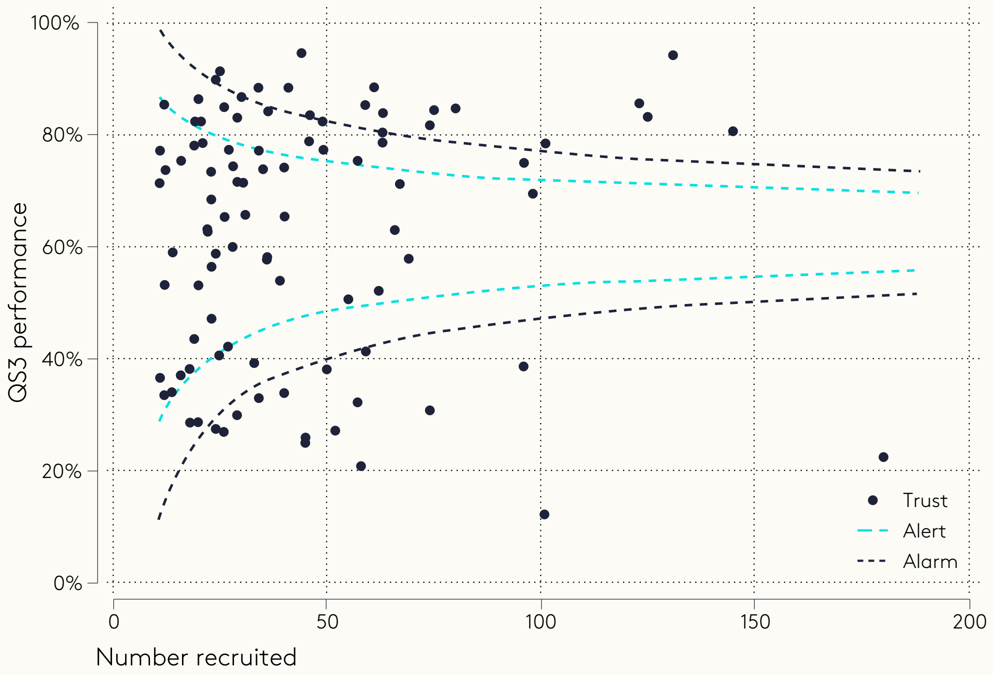


Figure 8. Funnel plot of adjusted QS3 performance by trust/health board



What does this mean?

Despite the pandemic, the improvements seen in the **second annual report** were sustained. Substantial provider-level variation remains, however, with trusts in the East Midlands being the least likely to start treatment within six weeks.

Why is this important?

Initiating treatment for patients with inflammatory arthritis without delay increases the potential efficacy of antirheumatic treatments in reducing inflammation, and thus preventing long-term joint and other organ damage. There is compelling evidence to suggest that patients who receive treatment within the first 12 weeks of symptom onset have a greater chance of attaining remission and are less likely to require joint replacement **[9]**.

Quality statement 4: Education

What are we measuring?
Timely provision of patient education: within the first three months of care patients should receive disease-specific education that encompasses information about their illness, their treatment and self-management. This corresponds to the **NICE QS33 statement 4**.

Definition and methods
Information was collected from clinical teams and from patients with a confirmed diagnosis of **RA** pattern **EIA**:

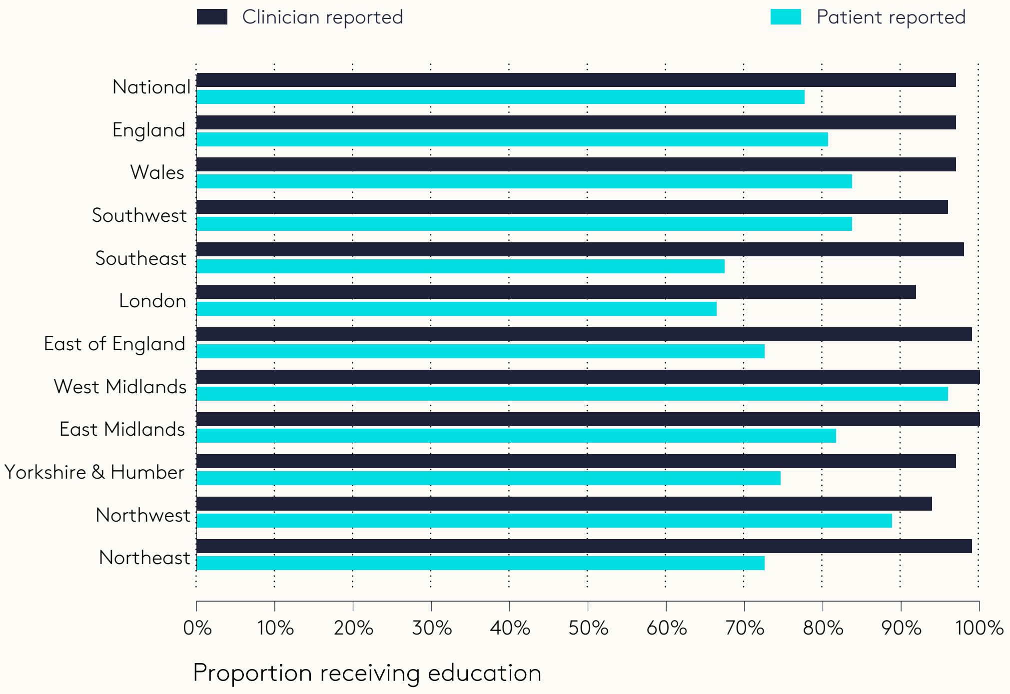
- Clinical teams: The number of patients with EIA who have a 'YES' response to the question: "Has disease-specific educational material been offered?".
- Patients: The number of patients with EIA who have a 'YES' response to the three-month follow-up question: "Has disease-specific education, including information on self-management, been provided?".

Patient-reported data are presented at national and regional level only, as too few patients responded to provide trust/health board-level data.

What did we find?
Nationally, 95% (4173/4389) of patients with confirmed EIA were offered access to education and information on self-management. Clinicians provided information to calculate this metric for 96% (4389/4590) of patients eligible for EIA follow-up. This reflects a 1% increase in performance in comparison to the **second annual report**.

Data provided from patients were available for 583 patients. Of these, 77% (449/583) reported provision of education by three months in comparison to 81% in the second annual report. The data, with regional breakdown, are presented in figure 9.

Figure 9. Clinician- and patient-reported provision of education by geographical region



Return to contents page

What does this mean?

Despite the pressures on clinical services through the COVID-19 pandemic, rheumatology services supplying data in year four report that they have managed to continue to prioritise the provision of education to newly diagnosed **EIA** patients.

Data provided by patients (583) were very limited and the trend for a lower proportion of patients reporting receipt of education continues to be seen.

Why is this important?

Disease education and self-management training has been shown in clinical trials to improve disease outcomes (fatigue, disability) and overall quality of life in patients with **RA [10]**.
It is important to understand the reasons for discrepancy in clinician- and patient-reported delivery and receipt of education. Linked with this research is the recommendation to better understand what education formats work for patients.

Return to contents page

Quality statement 5: Treatment targets

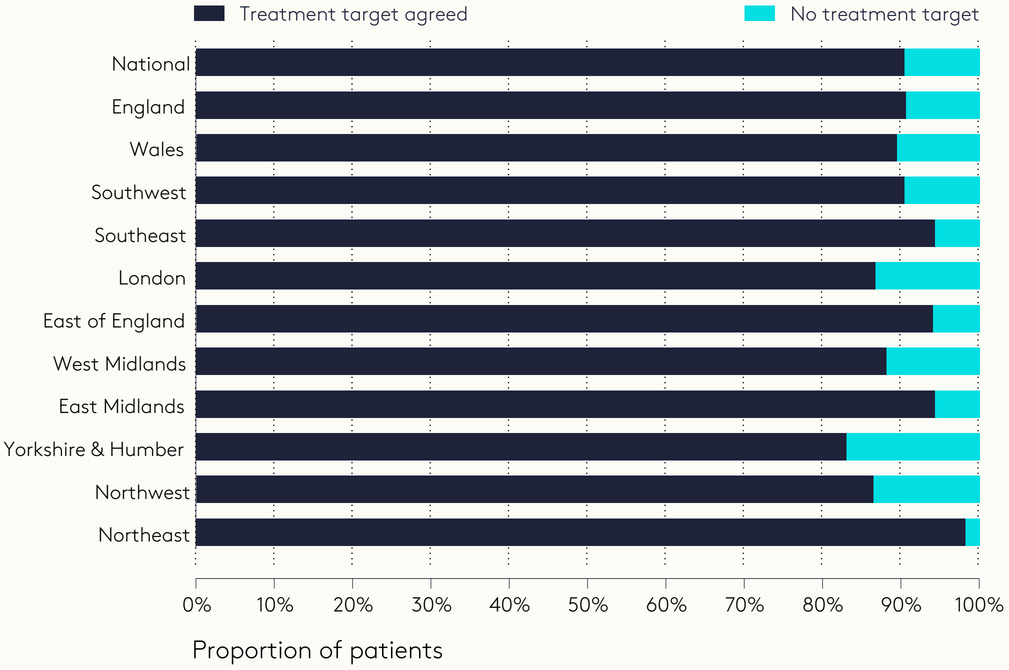
What are we measuring?
Whether a treatment target of low disease activity or remission is agreed with the patient. This contributes to the **NICE QS33 quality statement 5**.

Definition and methods
The number of patients with confirmed **RA** pattern **EIA** who have a 'YES' response to the baseline question: "Was a treatment target of low disease activity or remission agreed with the patient?".

Information on whether targeted therapies had been started at 12 months after diagnosis are not reported as very few data were available.

What did we find?
Nationally 90% (3952/4372) of patients with confirmed EIA had a treatment target set and agreed. Information on setting a treatment target was provided by clinicians for 95% (4372/4590) of patients. This reflects a 1% increase in performance in comparison to the **second annual report**. The lowest performance was seen in Yorkshire & Humber (83%), which is shown in the regional breakdown in figure 10.

Figure 10. Treatment target set and agreed performance by geographical region



What does this mean?
Most clinicians reported that a shared treatment target was set and agreed with patients but again there was quite significant variation across regions. This provides supportive evidence for a treat-to-target approach to care.

Why is this important?
Treat-to-target is a therapeutic strategy for the clinical management of inflammatory arthritis. This strategy involves frequent assessment of patients after their diagnosis to assess for any need for changes in treatment to achieve an ultimate agreed goal, usually of remission or low disease activity **[11]**. Treat-to-target has been shown to be an essential component of care for inflammatory arthritis, resulting in less joint damage and improved quality of life **[9]**. Shared decision making is also a key component to providing high quality personalised care that focuses on what matters most to patients.

Return to contents page

Quality statement 6: Emergency access to care

What are we measuring?

Provision of contact details for the rheumatology department in case of a problem with their disease or treatment. This corresponds to the **NICE QS33 statement 6**.

Definition and methods

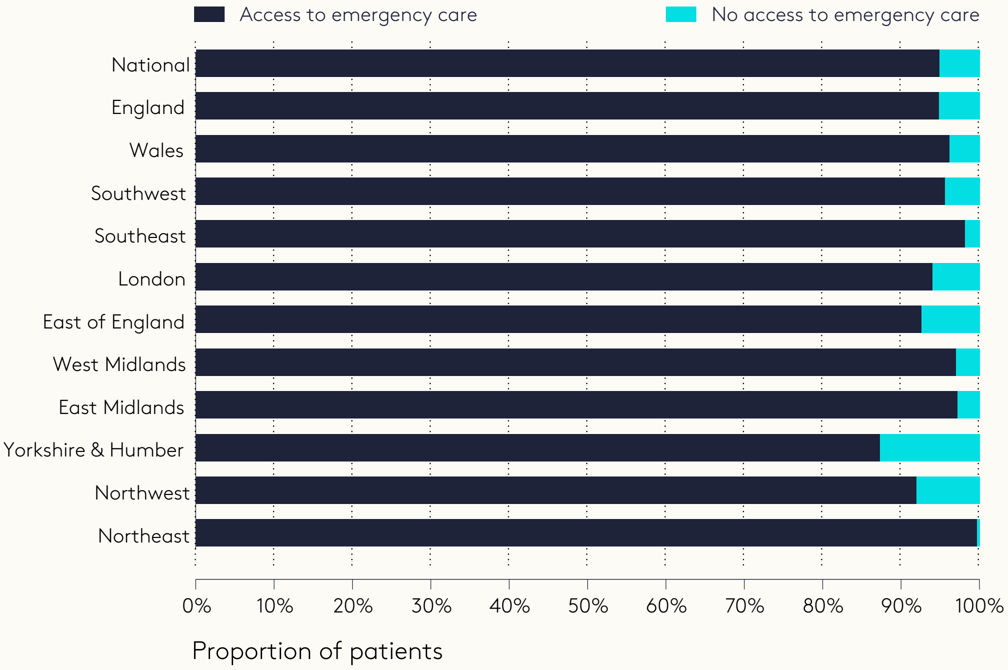
The number of patients with a confirmed diagnosis of **RA** pattern **EIA** who have a 'YES' response to the baseline question: "Has the patient been provided with contact details for a rheumatology specialist advice line?".

What did we find?

Nationally 95% (4148/4375) of patients were provided with access to rheumatology specialist advice (e.g., a telephone advice line). Information was provided to calculate this metric for 95% (4375/4590) of patients. This reflects a 3% increase in performance in comparison to the **second annual report**. Regional variation in access to emergency care can be seen in figure 11.

To supplement this, the organisational data collected annually from trusts/health boards indicate that 99% of services have an advice line service, but only 51% offer emergency access (within 1 working day) to patients.

Figure 11. Availability of access to emergency care by geographical region



What does this mean?
Access to urgent advice via a dedicated advice line or other avenues such as email is available to a majority of newly diagnosed **EIA** patients but is still not universal. The audit does not capture information on the proportion of urgent advice provided through the helpline as opposed to other formats.

Findings from the organisational data show that just over half of services provide emergency access to rheumatology, which suggests that for many trusts/health boards their specialist advice may not be available within 24 hours.

Why is this important?
EIA is treated with medications that must be prescribed by a specialist in the field. Therefore, access to clinical advice from a specialist team allows prompt intervention in the case of flare-ups of disease or complications from any treatment, which can help prevent unnecessary outpatient visits and hospital admissions.

Headlines: Treatment response

What are we measuring?

The disease activity of patients with **RA** (**DAS**28) at baseline, after three months and 12 months of follow-up.

Definition and methods

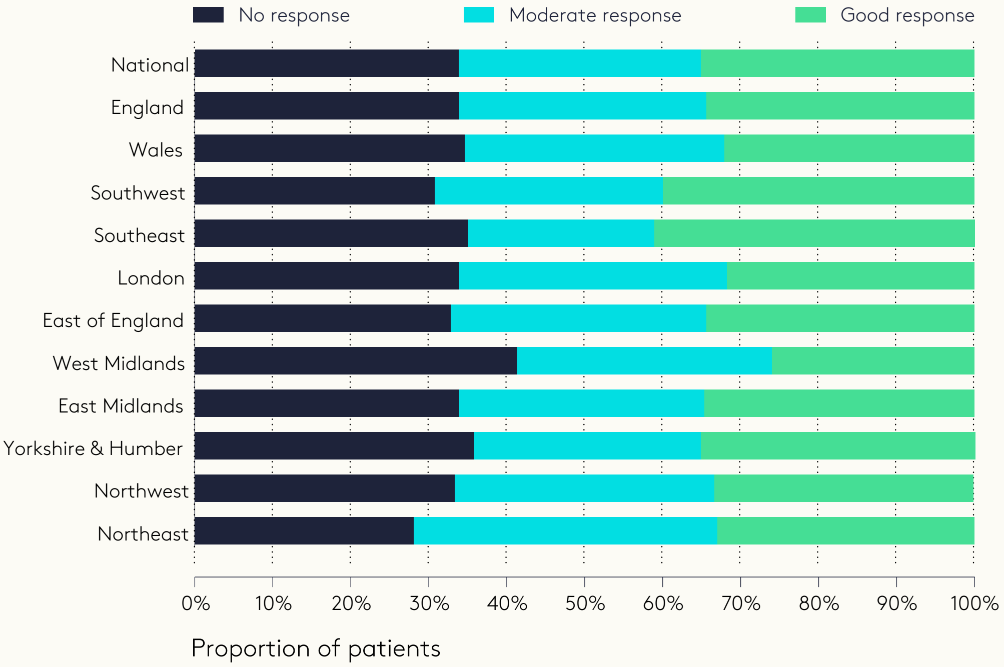
DAS28 information was collected for individual patients eligible for **EIA** follow-up via a clinician questionnaire at baseline and three months after diagnosis.

Data for 12 months were extremely low; therefore, only three-month data are reported. This is due to a lag in patient recruitment when data collection was mandated in May 2021.

What did we find?

Data were available to calculate DAS28 for 34% (1577/4590) patients. The mean DAS28 by three months was 3.4 (1.5), and 34% (539/1577) patients were in disease remission by three months. This reflects a 3% decrease in comparison to the **second annual report**. The breakdown according to European Alliance of Associations for Rheumatology (EULAR) response is shown in figure 12.

Figure 12. Disease response at three months



Return to contents page

What does this mean?

A little over a third of patients achieved disease remission at three months which is encouraging, as this is higher than what is typically seen in most contemporary clinical trials. Although this is positive, it is important to note that compared with remission rates before the pandemic, this figure is slightly lower and a third were in the **EULAR** 'no response' category despite receiving treatment.

When interpreting these results, it is important to consider that the audit only captures a snapshot at specified time points after diagnosis.

Why is this important?

Remission is the ultimate goal in treating patients, and if achieved early, it can reduce the adverse impact of active disease on joints as well as on other adverse outcomes such as cardiovascular disease linked with **RA**. Achieving and sustaining remission will reduce the impact of **EIA** long-term and improve clinical outcomes, quality of life and productivity.

It is crucial to measure and report outcomes so that we can learn and improve care over time. These data will also help us to improve our understanding of the relationship between process and clinical outcomes.

Headlines: Patient-reported outcomes

What are we measuring?
PROs capturing information on disease impact, functional impairment, mental health, and work impacts.

Definition and methods
All patients eligible for **EIA** follow up are invited to return PROs at baseline, three and 12 months. Patients could complete information either online via the patient portal or using printed questionnaires available in clinic from the rheumatology department.

Data for 12 months were extremely low; therefore, only three-month data are reported.

For **MSK-HQ**, higher scores indicate better musculoskeletal health whilst for **HAQ**, higher scores indicate worse functional status.

What did we find?
PROs were available for 33% (1501/4590) at baseline and 19% (593/3098) at three months. At baseline, patients reported a high impact of the disease, with significant levels of functional and work impairment, and symptoms of anxiety and depression. Improvement was seen across all domains, with changes consistently exceeding the Minimum Clinically Important Difference (MCID) for each measure over the first three months of specialist care. See figures 13, 14, **15**, and **16** for more detail.

Figure 13. Patient-reported outcome data: disease impact

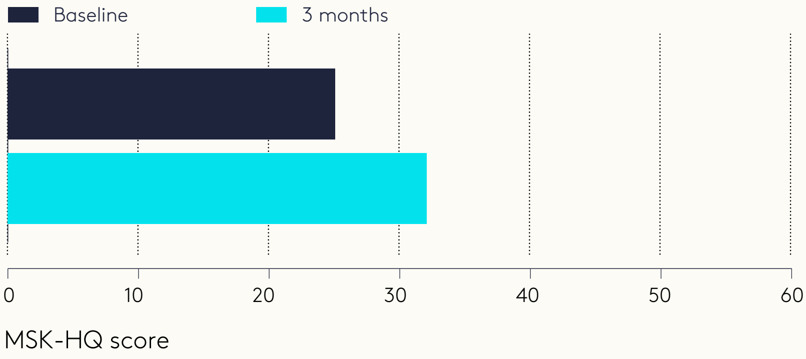
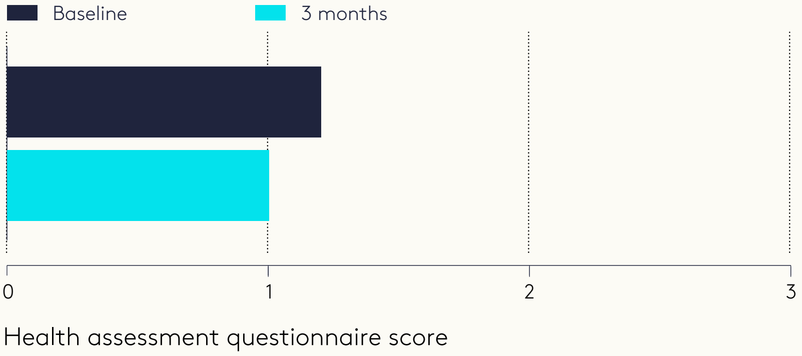


Figure 14. Patient-reported outcome data: disability



Return to contents page

Figure 15. Patient-reported outcome data: work impact

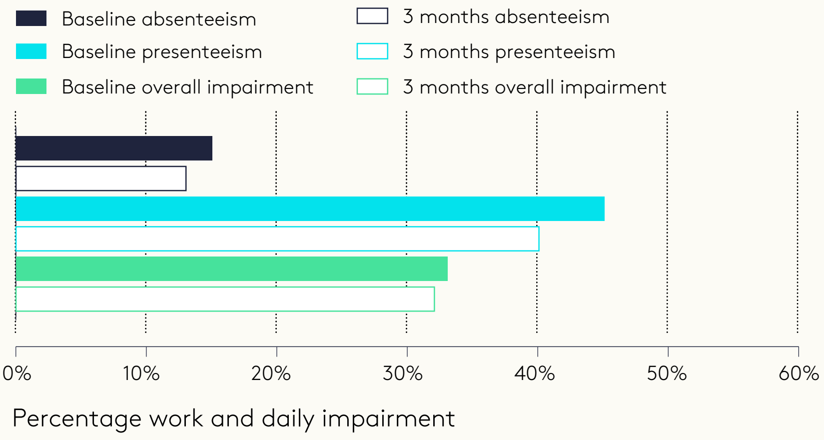
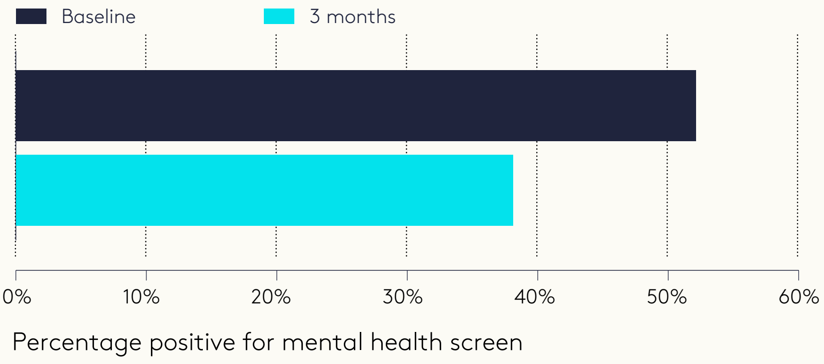


Figure 16. Patient-reported outcome data: mental health



What does this mean?
Inflammatory arthritis has a significant impact on patient quality of life, even in the early stages of their diagnosis. Even with improvements at three months after diagnosis, the level of overall impairment remains significant.

In interpreting these findings, it is important to bear in mind the high proportion of missing data. More needs to be done to encourage patients to return their **PRO** data.

Why is this important?
Patients with inflammatory arthritis may find it difficult to perform daily tasks due to symptoms such as fatigue and pain, resulting in work-related absence. These symptoms could also affect their mental wellbeing, as shown by these data, thus making it even more challenging to continue working. Research shows that being unable to work permanently is associated with a poorer quality of life, therefore, supporting patients to continue working is important **[12]**.

The ultimate goal of care is to impact positively on the aspects of day-to-day life that matter most to patients.

Axial spondyloarthritis

What are we measuring?
Route of referral and delays in specialist assessment for suspected **axSpA**.

Definition and methods
Date of referral was defined as the date provided in response to: "Date referral letter received by trust/health board" and the date seen was defined as "Date of assessment in rheumatology clinic". The referral source was collected via the clinician baseline form.

What did we find?
In total 2% (195/11,722) of referrals were diagnosed with axSpA. Most referrals for patients with axSpA originated from primary care, with a minority from specialists involved in managing the non-articular presentations of disease, as seen in figure 17. The findings are in line with the **second annual report** with 2% (244/13,578) patients receiving an axSpA diagnosis.

Primary care was the most common source of referral (65%) followed by other (18%) and musculoskeletal triage service (11%).

In contrast to **RA**, **NEIAA** data continue to show that patients with axSpA tended to have substantially greater symptom duration (32% have symptoms for >5yrs) prior to assessment, as can be seen in **figure 18**.

Figure 17. Source of referral for axSpA patients

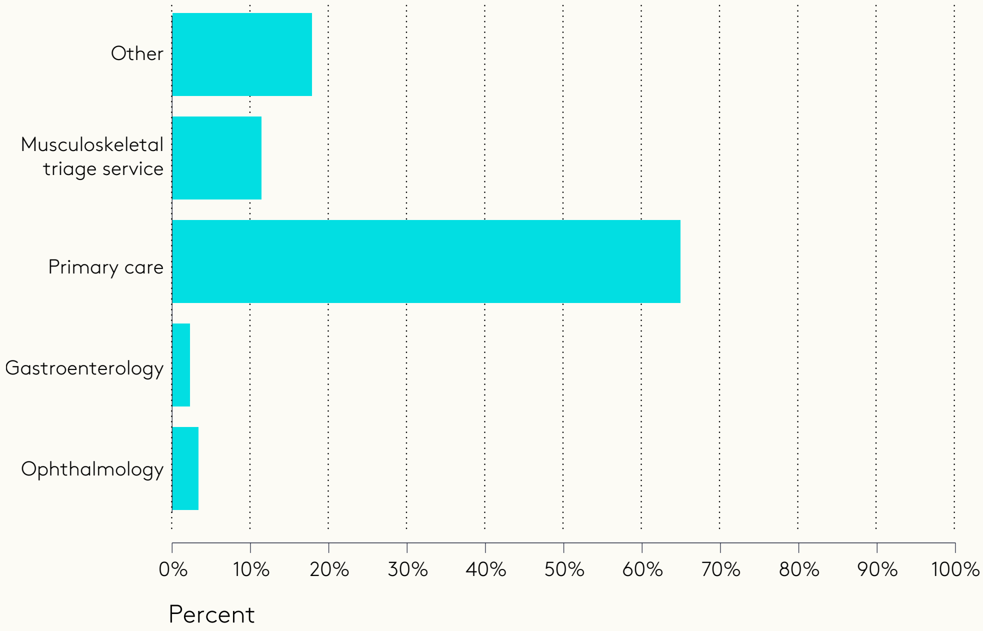
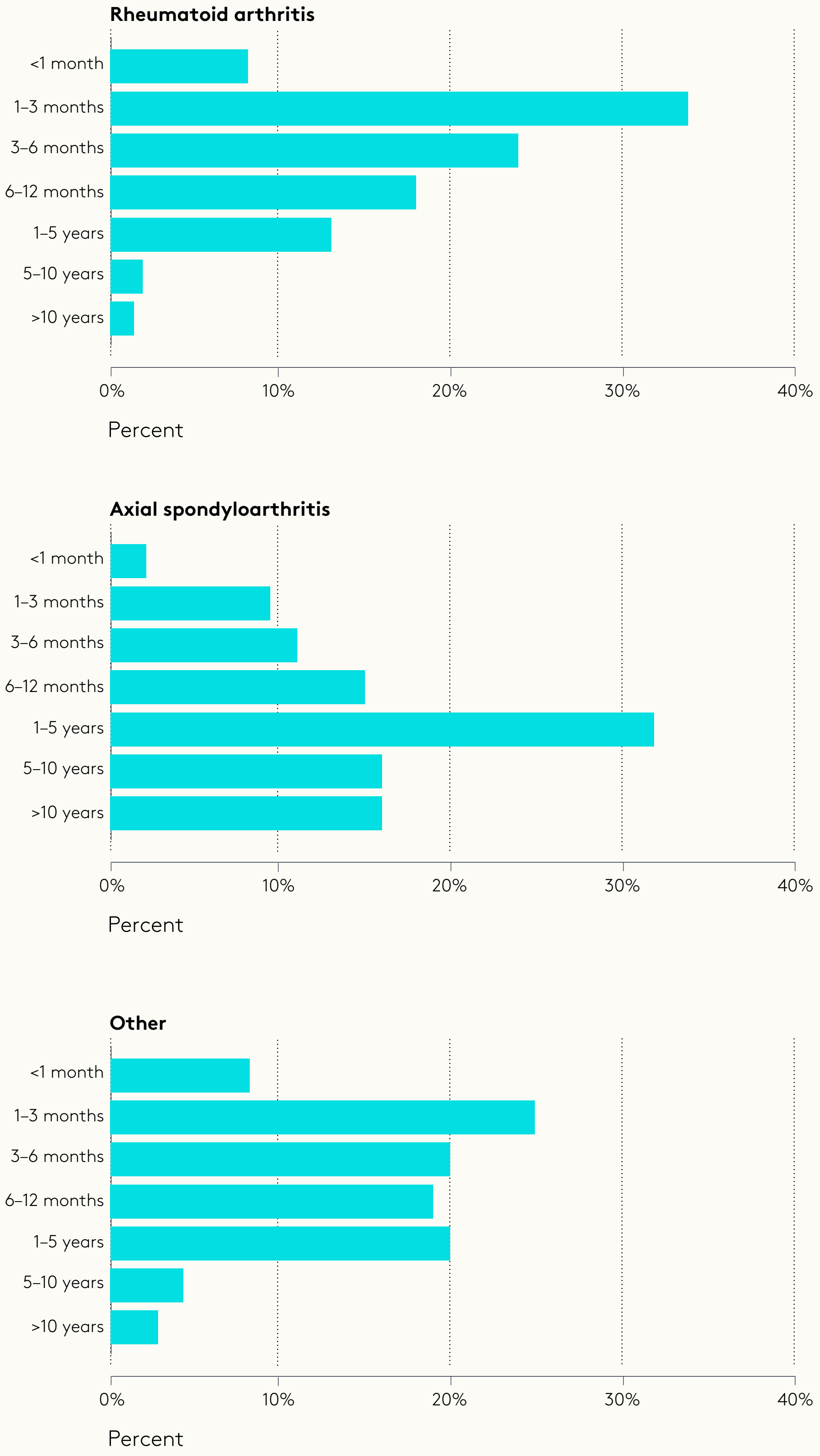


Figure 18. Comparison of symptom duration prior to specialist assessment in rheumatology



Return to contents page

What does this mean?

Diagnosing patients with **axSpA** continues to be challenging and results in delay in specialist assessment. There are many factors that may be contributing to this finding, including poor disease awareness in both primary and secondary care and failure to recognise inflammatory back pain.

Referrals would be expected from other specialists as well as from primary care. The low number of referrals from gastroenterology, ophthalmology and dermatology suggests that colleagues in these fields may be failing to recognise the association with inflammatory spine disease or perhaps the absence of appropriate direct referral pathways to rheumatology.

Why is this important?

axSpA is a serious disease with substantial patient morbidity. Prompt diagnosis is important as research has found that patients with axSpA who experience diagnostic delay have poorer general and disease-specific quality of life, more progressive disease, experience a reduced efficacy of disease-modifying medication and report increased work disability **[13]**.

The lack of direct referrals from gastroenterology, ophthalmology and dermatology highlights an aspect of care that warrants further exploration/guidance to help reduce delays in specialist assessment. **NICE** has published **guidance on referral** recommending that unexplained cases of uveitis are referred to rheumatology for axSpA assessment.

A study describing baseline sociodemographic and clinical characteristics for patients with axSpA in England and Wales, including time to diagnosis using the **NEIAA** data captured between May 2018 and March 2020 is available **here**.

Return to contents page

Conclusions

Despite ongoing pressures on **NHS** services following the COVID-19 pandemic, the rheumatology community has actively re-engaged with this audit over the last year.

Although performance against **NICE QS33** continues to vary, there has been no major deterioration, and for some aspects of care, there have been ongoing improvements in performance, despite the COVID-19 pandemic. Performance, however, remains well below the target of 100% for many performance indicators. Of note is the significant regional variation in achievement of NICE QS33. The NEIAA team will continue to support services to reduce this variation by publishing **case studies of good practice** (under Resources), providing access to near real time data and notifying services quarterly if they are at risk of being an outlier (**quality statement 2**). BSR have also launched a rheumatology accreditation programme, **Quality Review Scheme (QRS)**, which aims to improve the quality of and reduce variation in care.

The audit continues to provide evidence of the positive impact of specialist care on both clinician- and patient-reported outcomes over the first 12 months of care and has adapted data capture processes in response to the rise in remote consultations.

Real time audit data are available to local services to help them understand their performance and to support **QI**.

The report highlights that collection of **PROMs** is suboptimal given the importance of these data. Therefore the **NEIAA** team will continue to work with rheumatology teams, patient charity partners and our patient panel to improve data capture and quality of PROMs.

Our findings and recommendations continue to align with a number of the aims set out in the **NHS Long-term Plan 2019 for England** and **A Healthier Wales: long term plan for health and social care** for Wales – including more joined-up and coordinated care, and support for the increasing number of people with long-term conditions; person-centred care and shared decision-making; increased investment in mental health services; expansion of the NHS workforce; and recognition of the links between health and employment.

Next steps

The impact of the COVID-19 pandemic on rheumatology teams has been substantial for many services and some services continue to have problems engaging with this audit (evidenced by the higher non-participation rate in year four compared to year two [19 vs five]). The audit team will continue to work with audit leads for these services to gain insight into this to increase engagement with the audit and reduce non-participation.

The audit team will continue to develop online tools and send out quarterly notifications to help services monitor and understand their performance.

The support systems for local trusts/health boards will be reviewed with the aim of more effectively supporting engagement with the audit and use of data for QI activity. The **QI plan** for the next year of the audit provides more detail on strategies for supporting **NEIAA**-related QI work.

Opportunities for capturing data required for the audit from other sources, hence reducing the burden of data capture on clinicians and patients, will continue to be explored.

Return to contents page

Changes to the audit will be made as needed for changes in contractual requirements.

Acknowledgements

This report was prepared by members of the **NEIAA** operations team, using data provided by patients and staff within the **NHS**. The continued success of this national clinical audit is due to the hard work and commitment of the rheumatology clinical community and patients. We are very grateful to all the clinical and administrative staff and patients who support and contribute to NEIAA. We would particularly like to congratulate participating rheumatology teams for contributing data over the last two years as we acknowledge the challenging environment you have been working in due to the ongoing COVID-19 pandemic.

Net Solving
Established in 2001, Net Solving has spent over a decade perfecting the art of clinical data collection. It has revolutionised the way clinical data collection is conducted by pioneering the move to integrated online data collection methods, leveraging the latest technology to provide highly accurate data collection and analysis. Its market-leading platform CaseCapture™ is the culmination of 15 years' experience in creating many of the largest clinical data collection web platforms in the UK and worldwide. Net Solving is wholly committed to its continuing work with **BSR** on NEIAA.

King's College London
The Centre for Rheumatic Diseases at King's College London has provided methodological and analytical support for NEIAA from its outset.

Return to contents page

Appendices

Appendix A: NICE Quality standard 33

Care was assessed against **NICE QS33 (2013)** for care of patients over the age of 16 with RA. Details of the standards of care can be found below. During the course of year two data collection a new version of **NICE QS33** was published with a reduced number of statements. To allow reporting on changes in performance from year one to year four, and in recognition of the importance of each of the previous quality statements, data relevant to these continue to be collected, analysed and reported on.

Quality statement	Description
Statement 1	People with suspected persistent synovitis affecting the small joints of the hands or feet, or more than one joint, are referred to a rheumatology service within three working days of presentation.
Statement 2	People with suspected persistent synovitis are assessed in a rheumatology service within three weeks of referral.
Statement 3	People with newly diagnosed rheumatoid arthritis are offered conventional disease-modifying anti-rheumatic drug (cDMARD) monotherapy within three months of onset of persistent symptoms.
Statement 4	People with rheumatoid arthritis are offered educational and self-management activities within one month of diagnosis.
Statement 5	People who have active rheumatoid arthritis have their C-reactive protein (CRP) and disease activity measured monthly in specialist care until they are in remission or have low disease activity.
Statement 6	People with rheumatoid arthritis and disease flares or possible drug related side effects receive advice within one working day of contacting the rheumatology service.
Statement 7	People with rheumatoid arthritis have a comprehensive annual review that is coordinated by the rheumatology service.

Appendix B: Non-participating services

Brighton and Sussex University Hospitals NHS Trust
Dorset Healthcare University NHS Foundation Trust
East Cheshire NHS Trust
East Sussex Healthcare NHS Trust
Gateshead Health NHS Foundation Trust
Herefordshire and Worcestershire Health and Care NHS Trust
Midlands Partnership NHS Foundation Trust
North Cumbria Integrated Care NHS Foundation Trust
Northern Devon Healthcare NHS Trust
Oldham Integrated Care Centre
Queen Victoria Hospital NHS Foundation Trust
Royal Surrey County Hospital NHS Foundation Trust
Southern Health NHS Foundation Trust
Southport and Ormskirk Hospital NHS Trust
Sussex Community NHS Foundation Trust
The Hillingdon Hospitals NHS Foundation Trust
The Rotherham NHS Foundation Trust
The Shrewsbury and Telford Hospital NHS Trust
University College London Hospitals NHS Foundation Trust

Return to contents page

Appendix C:

Trusts/Health Boards that were more than two SDs below the mean for QS2. Those marked with an asterisk are more than three SDs below the mean.

Aneurin Bevan University Health Board*
Bolton NHS Foundation Trust
Cambridge University Hospitals NHS Foundation Trust*
Chelsea and Westminster Hospital NHS Foundation Trust*
Countess of Chester Hospital NHS Foundation Trust*
County Durham and Darlington NHS Foundation Trust*
Doncaster and Bassetlaw Teaching Hospitals NHS Foundation Trust*
East and North Hertfordshire NHS Trust*
East Suffolk and North Essex NHS Foundation Trust*
Gloucestershire Hospitals NHS Foundation Trust*
Guy's and St Thomas' NHS Foundation Trust*
Hampshire Hospitals NHS Foundation Trust*
Homerton University Hospital NHS Foundation Trust
Hywel Dda University Health Board*
Isle Of Wight NHS Trust
James Paget University Hospitals NHS Foundation Trust
Maidstone and Tunbridge Wells NHS Trust
Medway NHS Foundation Trust
North Middlesex University Hospital NHS Trust
North West Anglia NHS Foundation Trust*
Northampton General Hospital NHS Trust*
Northern Care Alliance NHS Foundation Trust*
Oxford University Hospitals NHS Foundation Trust*
Royal Free London NHS Foundation Trust
Sherwood Forest Hospitals NHS Foundation Trust*
South Tyneside and Sunderland NHS Foundation Trust
Southend University Hospital NHS Foundation Trust
St George's University Hospitals NHS Foundation Trust
Stockport NHS Foundation Trust*
The Newcastle Upon Tyne Hospitals NHS Foundation Trust*
The Robert Jones and Agnes Hunt Orthopaedic Hospital NHS Foundation Trust*
United Lincolnshire Hospitals NHS Trust
University Hospitals Coventry and Warwickshire NHS Trust*
University Hospitals of Derby and Burton NHS Foundation Trust*
University Hospitals of Leicester NHS Trust*
West Hertfordshire Teaching Hospitals NHS Trust
Whittington Health NHS Trust*
Yeovil District Hospital NHS Foundation Trust

Appendix D: Methodology

Trust/health board participation

All trusts/health boards providing rheumatology care and seeing patients with suspected **EIA** were eligible to take part. Participation in **NEIAA** is a contractual requirement for all trusts/health boards in England and Wales. The audit still relies on clinician goodwill for active engagement. It is possible that there may be some bias: those more adversely impacted by COVID-19 redeployments, departments with less resource, and lower historical engagement in **QI** activities may have found it more challenging to take part.

NEIAA has a dedicated **email address** for queries, helping users to access the audit platform. Trusts/health boards that have been identified as non-participants have been approached by **BSR** and local audit champions to offer support. The audit has five local audit champions who support local services in addressing emerging issues.

Case ascertainment

All patients aged 16 or over who were first seen in a specialist rheumatology service with suspected EIA between 1 April 2021 and 31 March 2022 were eligible. All results reported in this document are from this data collection period unless stated to the contrary. Currently we have no external method to assess case ascertainment, so there may be sampling bias. Given the steady recruitment levels, and the demographic similarities of the sample compared to other large EIA cohorts, we believe that any sampling bias is small and does not impact on the validity of the findings.

Data quality and completeness

To minimise issues relating to data entry errors and incompleteness, all information was entered via the online audit platform. This prompted users to complete mandatory fields, as well as sense checking fields such as **NHS** number and postcode. As a result, the dataset required minimal cleaning prior to analysis.

Analysis method

The report presents performance data for rheumatology services across England and Wales, with breakdown by region[5]. Performance data by NHS regions can be found **here**. Descriptive analyses of patient characteristics across each region are presented using horizontal bar charts.

Metrics used

Care was assessed against **NICE QS33 (2013 version)** for care of patients over the age of 16 with early **RA**. Details of the metrics of care can be found in **Appendix A**. To allow direct comparison of performance from years one and two with year four, we continue to assess care against the 2013 version of the standards.

The probability that a patient achieves quality statement 1 to quality statement 3 are estimated using multi-level logistic regression models, which provide an empirical Bayes mean estimate for each individual trust/health board, accounting for local population variation in age, gender, social deprivation, ethnicity and comorbidity. The empirical Bayes method is a statistical approach to account for differences in sample size between departments, allowing meaningful comparisons. Missing data are accounted for using multiple imputation. For quality statement 4 to quality statement 6 estimates are calculated using unadjusted logistic models.

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[5] Regions defined by the old BSR divisions.

Return to contents page

Clinical outcomes

NEIAA reports on clinician-reported outcomes and **PRO**s. Clinicians complete disease activity assessments at baseline, three, and twelve months. Disease activity score (DAS)28 is a composite measure that incorporates objective measures of inflammation (number of swollen joints and laboratory markers of inflammation (c-reactive protein [CRP] or erythrocyte sedimentation rate [ESR]) as well as patient measures (tender joint count and global rating scale of symptom severity). Scores range from 0–10, with remission defined as scores below 2.6, low disease activity 2.6–<3.2, moderate disease 3.2–5.1, and severe disease >5.1.

EULAR DAS28 response is a validated measure of treatment response, incorporating both the baseline and follow-up DAS28 scores to stratify patients into 'good response', 'moderate response' and 'no
response' groups.

Patients are asked to complete patient-reported measures at corresponding time points with the clinician-reported outcomes. The patient-reported measures capture the impact of disease using the Musculoskeletal Health Questionnaire (MSK-HQ), disability using the Health Assessment Questionnaire (HAQ), mental health using the Patient Health Questionnaire 4 item Anxiety and Depression Screener (PHQ4ADS), and work using the Work Productivity and Activity Index (WPAI).

Patient-reported outcomes

MSK-HQ: This is a fifteen-item questionnaire evaluating symptom impact. It is validated for use across several MSK health conditions. A score is calculated from the first 14 items and ranges from 0– 56, with higher scores indicating better MSK health.

HAQ: This is a ten-item questionnaire developed to measure disability. Scores range from 0– 3, with higher scores indicating worse functional status.

PHQ4ADS: These are the two questionnaires that are the standard screening tools recommended for use in the **NHS** to identify people who have experienced symptoms of depression or anxiety. Each measure contains two items, with a score from 0–6. A score greater than 2 on either measure is considered a positive screen for mental health comorbidity.

WPAI: Absenteeism is calculated as the number of hours missed as a percentage of the total hours contracted to work. Presenteeism is the degree to which a patient's health affects their performance at work. Overall impairment incorporates both absenteeism and presenteeism.

Patients can return information through one of three mechanisms: online data entry via the **patient audit platform**, direct entry with the healthcare provider, or completion of paper forms which are entered online by the clinical team.

During the COVID-19 pandemic, the patient audit platform was updated to allow patients to upload information on their tender and swollen joint counts to support the supply of DAS28 data through remote consultations.

Small numbers policy

Data for trusts/health boards that have enrolled fewer than 11 patients into the audit have not been included in the supplementary report.

Outlier policy

The NEIAA outlier policy is available online **here**. Outliers at alert (2 **SD**) and alarm (3 SD) levels are reported in **Appendix C**.

Return to contents page

Appendix E: Glossary

AHP	Allied Health Professional
axSpA	Axial Spondyloarthritis
BSR	**British Society for Rheumatology**
CCP	Cyclic Citrullinated Peptide
cDMARD	Conventional Disease-Modifying Anti-Rheumatic Drug
CI	Confidence Interval
CRP	C-reactive Protein
DAS	Disease Activity Score
EIA	Early Inflammatory Arthritis
ESR	Erythrocyte Sedimentation Rate
EULAR	**European Alliance of Associations for Rheumatology**
FRAX	Fracture Risk Assessment Tool
FAQs	Frequently Asked Questions
GIRFT	**Getting It Right First Time**
GP	General Practitioner
HAQ	Health Assessment Questionnaire
HQIP	**Healthcare Quality Improvement Partnership**
IAPT	Improving Access to Psychological Therapies
IMD	Index of Multiple Deprivation
IQR	Interquartile Range
MCID	Minimum Clinically Important Difference
MDT	Multidisciplinary Team
MSK	Musculoskeletal
MSK-HQ	Musculoskeletal Health Questionnaire
NCAPOP	National Clinical Audit and Patient Outcomes Programme
NEIAA	National Early Inflammatory Arthritis Audit
NHS	National Health Service
NICE	**National Institute for Health and Care Excellence**
NRAS	**National Rheumatoid Arthritis Society**
NASS	**National Axial Spondyloarthritis Society**
PHQ4ADS	Patient Health Questionnaire 4 Anxiety and Depression Screener
PRO	Patient-Reported Outcome
QI	Quality Improvement
QRISK3	Prediction Algorithm for Cardiovascular Disease
QS	Quality Statement
RA	Rheumatoid Arthritis
RDCI	Rheumatic Disease Comorbidity Index
RhF	Rheumatoid Factor
SD	Standard Deviation
WPAI	Work Productivity and Activity Index
WTE	Whole Time Equivalents

Return to contents page

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Return to contents page

British Society for
Rheumatology

British Society
for Rheumatology
Bride House
18–20 Bride Lane
London, EC4Y 8EE

+44 (0)20 7842 0900
bsr@rheumatology.org.uk
rheumatology.org.uk

BSR-NEIAA-OCT22