






ORIGINAL RESEARCH

Exploring the macro-level, meso-level and micro-level barriers and facilitators to the provision of good quality early inflammatory arthritis (EIA) care in England and Wales

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ABSTRACT

Background Evidence from a national clinical audit of early inflammatory arthritis (EIA) shows considerable variability between hospitals in performance, unexplained by controlling for case-mix.

Objective To explore the macro-level, meso-level and micro-level barriers and facilitators to the provision of good quality EIA care.

Methods A qualitative study within 16 purposively sampled rheumatology units across England and Wales. Quality was assessed in relation to 11 quality indicators based on clinical opinion, evidence and variability observed in the data. Data from semi-structured interviews with staff (1–5 from each unit, 56 in total) and an online questionnaire (n=14/16 units) were integrated and analysed using the framework method for thematic analysis using a combined inductive and deductive approach (underpinned by an evidence-based framework of healthcare team effectiveness), and constant comparison of data within and between units and its relationship with the quality criteria.

Findings Quality of care was influenced by an interplay between macro, meso and micro domains. The macro (eg, shared care arrangements and relationships with general practitioners) and meso (eg, managerial support and physical infrastructure) factors were found to act as crucial enablers of and barriers to higher quality service provision at the micro (team) level. These organisational factors directly influenced team structure and function, and thereby EIA care quality.

Conclusions Variability in quality of EIA care is associated with an interplay between macro, meso and micro service features. Tackling macro and meso barriers is likely to have a significant impact on quality of EIA service, and ultimately patient experience and outcomes.

INTRODUCTION

Inflammatory arthritis, of which rheumatoid arthritis (RA) is the most common form, is a lifelong, incurable severe condition and can

Key messages

What is already known about this subject?

- ▶ Rheumatoid arthritis is a lifelong, incurable condition that can cause irreversible disability; prompt treatment increases the likelihood of achieving sustained remission (the current closest proxy to a 'cure').
- ▶ Results from a national clinical audit in England and Wales show great variability between units in performance that is unexplained by controlling for case-mix.

What does this study add?

- ▶ The quality of early inflammatory arthritis (EIA) care is impacted by inter-relationships between macro factors (eg, shared care with general practitioners), meso factors (eg, managerial support and the unit's physical infrastructure) and micro factors including (a) team composition (eg, nurse clinical autonomy); (b) team processes (eg, formal collaboration/communication processes) and (c) team psychosocial traits (eg, team relationships, ethos and cohesion).
- ▶ The macro and meso factors were found to act as crucial enablers of and barriers to micro features associated with higher quality service provision.

How might this impact on clinical practice or further developments?

- ▶ Addressing the macro and meso barriers identified in this study is likely to impact positively on EIA pathways and ultimately on patient experience and outcomes.

cause irreversible disability and premature death. RA occurs in approximately 1% of UK population; approximately 650 000 cases in England with >15 000 new cases diagnosed annually.¹ The average age of onset is 50, making it an important cause of absence from work with ultimately 17% of people leaving work altogether within 3 years of diagnosis.²

Table 1 NICE quality standards for early inflammatory arthritis⁶

Number	Quality standards
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 3 working days of presentation.
2	People with suspected persistent synovitis are assessed in a rheumatology service within 3 weeks of referral.
3	People with newly diagnosed rheumatoid arthritis are offered short-term glucocorticoids and a combination of disease-modifying antirheumatic drugs by a rheumatology service within 6 weeks of referral.
4	People with rheumatoid arthritis are offered educational and self-management activities within 1 month of diagnosis.
5	People who have active rheumatoid arthritis are offered monthly treatment escalation until the disease is controlled to an agreed low disease activity target.
6	People with rheumatoid arthritis and disease flares or possible drug-related side effects receive advice within 1 working day of contacting the rheumatology service.
7	People with rheumatoid arthritis have a comprehensive annual review that is coordinated by the rheumatology service.

Guidance was updated in 2020 resulting in some changes to these quality standards.

NICE, National Institute for Health and Care Excellence.

RA accounts for over £660 million a year in direct health-care costs, the majority in the acute sector, and additional impact from sick leave and work-related disability resulting in an estimated cost to the UK economy of £3.8–£4.75 billion per year.³

Treatment for RA involves lifelong immunosuppression; the main treatment involves conventional synthetic disease-modifying antirheumatic drugs (DMARDs). If these are unsuccessful, escalation to more expensive biological DMARDs is indicated. In recent years, early intervention in RA by accessing a rheumatologist, appropriate diagnostics, treatment and engagement of the relevant multidisciplinary team members has been found to halt joint damage and preserve physical function.⁴ Early treatment increases the likelihood of achieving drug-free sustained remission, the current closest proxy to a ‘cure’.⁵ However, for remission to be a reality, early diagnosis and treatment is key.

In 2014, the Health Quality Improvement Partnership commissioned a National Clinical Audit into early inflammatory arthritis (EIA) to measure trust level performance against the seven National Institute for Health and Care

Excellence (NICE) quality standards in the 2013 version of the guidance (table 1).⁶

The audit recorded information on the quality of care from symptom onset until the end of the first 12 months of secondary care follow-up. In total, 96% of rheumatology units and 11 751 patients were recruited. The report revealed considerable variability between units across England and Wales; a timely access to treatment ‘postcode lottery’ was observed. Poor performance against NICE standards was associated with poorer clinical outcomes. The report revealed that less than a third of patients achieved disease remission during follow-up.

The report also included information regarding the structure and organisation of units. This provided important insights into where scope for improvement may lie, for example, a third of units lacked a dedicated EIA clinic, relying on common triage pathways for all rheumatology referrals. However, the contribution of organisational factors to variation in care and outcomes was difficult to ascertain. Previous research has identified the key features impacting on team effectiveness in healthcare, resulting in the Integrated (Healthcare) Team Effectiveness (ITEM) model,⁷ considering macro (wider societal/context); meso (organisation/hospital) and micro (team/unit) factors and their inter-relations. This model was used to underpin qualitative data collection and analysis aimed at exploring the relationship between organisational factors and quality of EIA care in a range of rheumatology units in England and Wales.

METHODS

Study objective

To explore the macro-level, meso-level and micro-level barriers and facilitators to the provision of good quality EIA care.

Study design

Qualitative case studies comprising semi-structured interviews and an online questionnaire.

Source of participants/data

Sixteen purposively selected rheumatology units across England and Wales were invited to participate through initial invitation to the unit lead clinician. Sampling was based on data from the 2014–2015 National Clinical Audit for Rheumatoid and Early Inflammatory Arthritis. Department performance was defined in terms of time to assessment and treatment (quality statements 2 and 3, table 1), adjusted for departmental size. Sampling also sought to ensure diversity in relation to geographical location; urban and rural catchment areas and type of organisation. Eight departments were identified from the highest performers, three from mid-range and five from low performers.

Data collection

Online questionnaire: each lead clinician was invited to complete a short (n=20 questions) online questionnaire

prior to interviews. Questions sought to collect 'factual' information about EIA service provision; for example, eligibility criteria for EIA referral, number of dedicated EIA slots per week, waiting times for test results and allied health professional (AHP) appointments.

Interviews: each lead clinician distributed the study participant information sheets to team members and requested consent to pass their contact details to the research team. Those who consented were contacted by the researcher to arrange the interview. Consent forms were emailed ahead of interviews and consent was confirmed verbally prior to interviews. Semi-structured interviews followed a topic guide designed to explore barriers and facilitators to providing a high-quality EIA service, and were informed by the NICE⁶ recommendations for EIA care (aspects relating to team administrative and clinical processes, and clinical pathway and protocols) and ITEM (aspects relating to organisational context and team composition and processes).⁷

In addition, interviewees were asked about any key changes in staffing or ways of working since collection of the 2014–15 audit data on which sampling had been based. The aim was to conduct 3–5 interviews in each unit, with diversity in roles including consultants, nurses, AHPs, administrative staff and managers. Fieldwork was conducted from July 2019 to January 2020. Most interviews were conducted face-to-face (minority conducted by telephone due to diary constraints) by a member of the research team who was independent to the delivery of care at the units. All interviews were audio recorded and transcribed.

Data were pseudo-anonymised: units were allocated pseudonyms (names of trees), and participants were given a unique study ID, all identifiable information was removed. All study data were stored electronically on University remote servers with access password protected and restricted to members of the research team.

Measuring quality of EIA care

Quality of EIA care was intended to be measured according to adherence to the NICE quality standards from the national audit. However, the reliability of this (due to the time lag between publication of audit data and study data collection), and sensitivity to measure overall quality of EIA service (due to focusing on the first appointment only) led to the design of a different measure. Quality was redefined according to 11 quality indicators based on clinical judgement, evidence base and patient perspective through discussions in the wider research team.

Criteria were defined for scoring each quality indicator on a scale of 0–2 (with higher values representing better quality), based on clinical opinion, evidence and the variability observed in the data. The quality indicators and criteria for scoring are provided for transparency (table 2).

Each site was scored by two members of the team independently at first to ensure application of the criteria

was reliable, with discrepancies resolved by reference to scoring criteria. A comparative analysis between sites of higher and lower scoring was performed.

Data analysis

Data from questionnaires and interviews were integrated and analysed using a Framework method,⁸ using a combined inductive (allowing themes to emerge from the data) and deductive (mapping data to the evidence-based framework of healthcare team effectiveness⁷) approach. Themes were reviewed between and within data sources and sites using a constant comparative approach and by two independent researchers. Emergent themes that did not contribute to explaining variation between the sites (eg, all reported similar regardless of their 'quality' indicators, eg, 'appointment types' and 'approach to using steroids'), or that could not be reliably compared between units due to missing data (eg, relationship with commissioning groups) were removed from the explanatory framework. The analytic process resulted in identification of themes within five key domains: (1) macro: external context; (2) meso: organisational context and three micro domains: (3) team composition; (4) team processes and (5) team psychosocial traits. Data in relation to each domain were extracted and relationships between the five domains and the quality outcomes, both within and between the clusters of higher and lower scoring units, were analysed by two members of the research team (MZ and NA) working independently on each site interpreting the data by constant comparison and checking and rechecking against the source data. The data from each unit were also rated in relation to its quality and reliability, according to: (a) number and length/depth of interviews in each site and (b) consistency between reports/perceptions between interviewees within a site.

FINDINGS

Characteristics of case study sites

The 16 units were located in 8 regions in England (North West (n=4), South West (n=4), Greater London (n=2) and one Trust each from the South East, East Midlands, West Midlands, Yorkshire, the North East), and one unit was in Wales. The units included both urban (n=8) and rural (n=8) areas; and represented different types of organisation: district general hospitals (n=8), university hospitals (n=7) and a community foundation trust (n=1). Two researchers conducted 56 interviews in total (ranging from 1 to 5 in each unit). Questionnaire data were collected from 14 units.

Quality of EIA service

Once scoring was applied, units were seen to cluster into two groups according to their 'overall score' on the quality indicators: higher scoring (scores >11/22, n=10) and lower scoring (scores <11/22, n=6), and these clusters formed the basis for the comparative analysis between sites (table 3). Of the higher scoring

Table 2 Quality of EIA service: quality indicators and criteria for scoring

Indicator (NICEQS from 2013 guidance ⁶)	Criteria for each score		
	2	1	0
Effectiveness of referral process (NICE QS 2)	Standardised process with agreed criteria (not too many/rigid) Separate EIA referral daily triage	Referral to service with or without proforma Complex criteria Goes through double process through external booking platform	Letter/Non-template information Non-direct referrals (eg, via CCG) No triage or infrequent triage
Effectiveness of appointment booking process (NICE QS 2)	Team control Admin dedicated EIA slots	Team control, but no dedicated admin EIA slots but overbooked Discrepancy in main and peripheral sites	Centralised admin/limitations on choose and book; no EIA dedicated slots
Waiting time for first appointment (NICE QS 2)	Patients with suspected EIA are seen within 21 days of primary care referral	Patients seen >3 but up to 6 weeks of primary care referral	Delays over 6 weeks
First appointment quality	Sufficient time for diagnosis and disease counselling One stop shop More than one doctor sharing EIA workload—team responsibility	Clinic shared across team, but diagnosis and treatment in same clinic slot	Time limit—not shared appointments EIA all on one doctor Diagnosis and treatment all in one slot
Speed of diagnosis (NICE QS 3)	Good access to diagnostics—bloods, ultrasound—within a week	Varied timings for blood/X-ray and ultrasounds Having to wait for some results—not all on same day	2 weeks plus delays
Timeliness of DMARD initiation (NICE QS 3)	Within 2 weeks consultant/nurse controlled	Most at first appointment but some situations untimely appointments	GP control
Quality of DMARD⁴ initiation (NICE QS 4)	DMARD support (education) separate appointment/counselling	Prescription on day of diagnosis but nurse counselling 2–3 weeks later	Prescription on same day as diagnosis only
Typical follow-up appointment pattern (NICE QS 5)	Systematic/Planned approach (with flex) Monthly in person or on phone with doc or nurse review with consultant around 6 months; annual review Nurse DMARD clinic	Inconsistencies in follow-up appointments Good protocol but not followed due to insufficient staff capacity Varied/Ad hoc appointments	Losing track of patients Less nurse/more consultant involvement (relates to MDT)
Treat to target escalation decisions (NICE QS 5)	Nurse involvement; autonomy; protocol (consistently followed); timely decision	Nurse involvement with protocol but appointment delays	Delays due to lack of autonomy or lack of protocol/training Process not supporting it to happen
Quality of patient education (NICE QS 6)	Variety of approaches; integral to process; multiple timepoints; rapid accessibility (eg, helplines)	Education only in appointments with nurses/doctors and allied health professionals	Lack of structure-limited options Ad hoc—relies on individual clinician input in appointments Relies on patients being proactive
Support between appointments	Multiple options-rapid accessibility-staffed well; get back within 24 hours Patients are well informed of the options secretaries/admin support Rapid access in clinics Emergency slots available	Calls returned within 24–48 hours with no access to quick appointments	Patients lack clarity regarding options Limited options Restricted hours Not staffed well Unable to prioritise answering calls No mechanism for rapid assessment/treatment

CCG, Clinical Commissioning Group; DMARD, disease-modifying antirheumatic drug; EIA, early inflammatory arthritis; GP, general practitioner; MDT, multidisciplinary team; NICE, National Institute for Health and Care Excellence; QS, quality standard.

sites, seven were in the original high performing group, two were in the mid-range group and one was in the low performing group. Of the lower scoring sites, four were in the original low performing group, and one each in the mid-range and high performing group.

There was wide variability between units for four indicators: quality of first appointment; quality of DMARD initiation; appointment pattern and treat-to-target escalation. Four of the lower scoring units scored zero on these indicators, and at least half of

Table 3 Quality of EIA service in each unit according to the 11 quality indicators

Site name	Waiting times	Referral process	Appointment booking	Quality of first appointment	Speed of diagnosis	Timeliness of DMARD initiation		Appointment pattern	T2T escalation	Patient education	Support between appointments	Score
						Quality of first appointment	Speed of diagnosis					
Hawthorn	2	2	2	2	2	2	2	2	2	2	2	22
Walnut	1	1	0	2	1	2	2	2	2	2	2	17
Cedar	2	2	2	2	0	2	2	1	1	2	1	17
Maple	1	2	1	2	1	0	1	2	2	2	2	16
Elm	2	0	2	1	2	2	0	2	2	1	2	16
Ash	2	2	1	2	1	2	2	1	2	0	1	16
Pine	2	1	1	2	2	0	2	1	1	2	2	16
Chestnut	0	2	2	1	1	2	1	2	2	1	1	15
Oak	2	0	2	0	2	2	0	1	2	2	2	15
Beech	1	1	1	1	0	1	2	1	2	2	2	14
Birch	1	2	1	0	2	0	0	0	0	2	2	10
Juniper	0	1	1	0	1	2	0	0	1	2	1	9
Elder	2	0	1	1	1	1	1	0	0	1	1	9
Larch	1	1	0	0	0	2	1	1	1	0	0	7
Poplar	2	0	1	0	1	1	0	2	0	0	0	7
Willow	1	0	1	1	1	0	0	0	0	1	0	5

DMARD, disease-modifying antirheumatic drug; EIA, early inflammatory arthritis; T2T, treat to target.

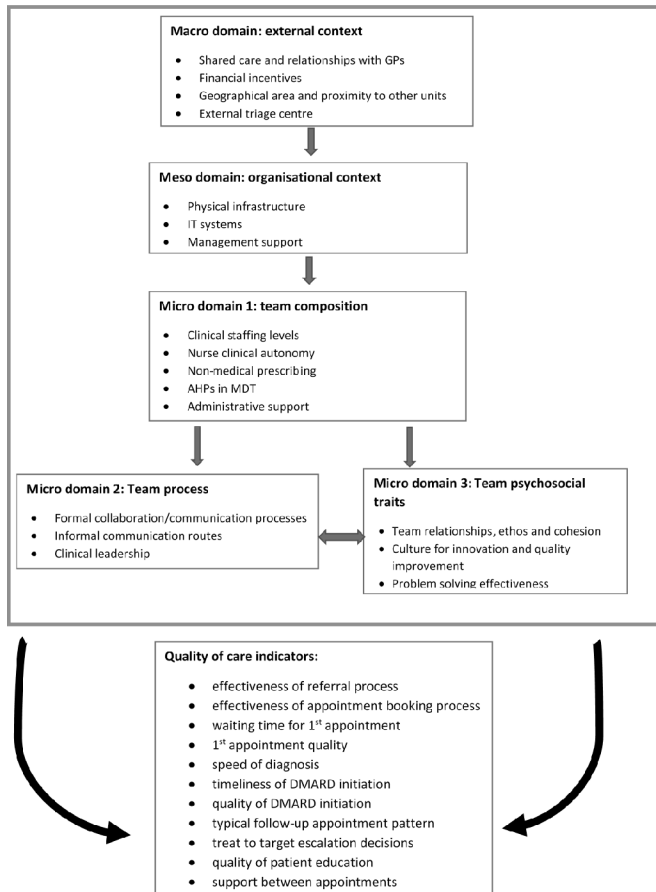


Figure 1 Diagrammatic representation of the key macro, meso and micro factors influencing quality in EIA care. AHP, allied health professional; DMARD, disease-modifying antirheumatic drug; EIA, early inflammatory arthritis; GP, general practitioner; MDT, multidisciplinary team.

the higher scoring units scored 2. The indicators with less variability across units included ‘appointment booking’ and ‘speed of diagnosis’, where at least half of the units scored 1 regardless of their quality categorisation.

Key factors influencing quality of EIA service

The variation in quality of EIA service was explained by inter-relationships between five key domains (figure 1). The macro and meso factors acted as crucial enablers of micro-level features associated with higher quality service provision. Where barriers were reported at either the macro or meso level, for example, the centralisation of triage, and/or having unsupportive management, this impacted directly and adversely on micro-level structure and processes, and thereby on quality of care. The inter-relationships between the domains and impact on service quality is illustrated in table 4 where three variable quality units are presented.

The macro ‘external context’ and relationship with quality

The key macro influence on EIA quality concerned the relationship between the unit and local GPs and the shared care arrangements. Units that reported having

good shared care arrangements and where GPs were engaged and keen to improve diagnosis, referral and management of patients with EIA, stated that these factors reduced inappropriate referrals to the EIA service, and improved patient flow later in the pathway by reducing need for hospital-based follow-up for treatment adjustment and monitoring. In units rated as lower quality, shared care was either not working well, or units had other difficulties in their relationship with GPs, for example, challenges engaging GPs in EIA training, which in one unit was related to misuse of the EIA pathway:

The GPs just appear to lie and tick all the boxes for everybody. And so, our number of new urgent referrals has gone from 250 per annum to 750 per annum (Juniper 4, consultant)

In some units, rheumatology referrals were directed through external musculoskeletal (MSK) triage centres, which was felt to cause pathway delays for some patients (due to inappropriate referrals to other services initially). One unit (Poplar) addressed this by enabling EIA referrals to bypass the MSK triage hub, but this resulted in increased numbers of inappropriate EIA referrals by GPs. One exception was Elder, where the triage centre was reported to reduce both the volume of referrals and the relative number of inappropriate referrals, thus improving pathway times.

The geographical location of units was a key influencing factor because GPs in urban areas could often choose between more than one unit. Choice was influenced by waiting times, which disadvantaged units with short waiting times as they received increasing numbers of referrals from outside their immediate catchment area, making it hard to anticipate or meet demand and increased workload due to challenges managing out of area patients, described by a consultant from one unit as ‘like opening up a black hole and it just gets filled’ (Birch 2, consultant).

Respondents from Pine, Elm, Birch and Oak indicated that having a payment-by-results contract enabled them to increase workforce capacity in their units to meet increases in demand and maintain quality of service (due to receiving extra funds when meeting specified targets). In two of these units (Elm and Birch), the commissioning model had changed to a flat rate block contract, which they felt had significantly disadvantaged their service as the financial incentive was removed; and three units (Birch, Elm and Larch) reported that this also meant that hospital management were less motivated to prioritise and support the EIA service (linking to a key meso factor).

The meso ‘organisational factors’ and relationship with quality

Three key meso factors related to quality of EIA service: IT systems, departmental infrastructure and management support. Many organisational level barriers were equally common in the higher and lower quality units, for example, many respondents highlighted that inefficient

Table 4 Illustrating the inter-relationships between domains and quality of EIA care with three case study unit exemplars

Domain	<p>Case study 1 – Hawthorn – overall score: 22/22 <i>“I think it [teamwork] is kind of our bread and butter (...) because I think the patients come out getting a good deal, I think other people kind of buy into that. (...) we’re all quite proud of the way it works and so I think that rubs off”.</i> (Hawthorn 1, consultant)</p>	<p>Case study 2 – Pine – overall score: 16/22 <i>“Most of the things that stop us providing a really perfect service is logistics, so there aren’t any slots, there aren’t enough nurses necessarily, the patient lives 50 miles away because it’s a rural community and they don’t want to drive back again in a week’s time”.</i> (Pine 5, nurse)</p>	<p>Case study 3 – Willow – overall score: 5/22 <i>“It would be helpful if we could get patients in quicker, if we had a sort of more regular staff base, I still think we’d benefit from a further Consultant and a further Nurse again capacity wise”.</i> (Willow 2, consultant)</p>
Background	<ul style="list-style-type: none"> ▶ Large university hospital department with high volume of clinical research. 	<ul style="list-style-type: none"> ▶ Serves large rural area, providing EIA clinics at main hospital site and in two community locations. 	<ul style="list-style-type: none"> ▶ Small urban District General Hospital serving a socioeconomically deprived population with high prevalence of obesity and fibromyalgia.
Macro	<ul style="list-style-type: none"> ▶ Good shared care with most GPs: able to offer a community DMARD monitoring service based in GP practices and have local guidelines on shared care. ▶ Covers a large geographical area and because of its efficiency, GPs used it for inappropriate referrals (especially as waiting times for routine appointments have increased). 	<ul style="list-style-type: none"> ▶ Has benefited significantly from top up payments associated with the Best Practice Tariff. ▶ Has a ‘good connection’ with GPs who initiate DMARD treatment and a shared care agreement for them to take on all responsibility for blood monitoring. ▶ Some GPs are not available for ongoing support, and refer inappropriately: <i>“anyone that they think needs to be seen urgently irrespective of whether its EIA”.</i> (Pine 1, consultant) ▶ Covers a large geographical area, some patients travel long distances to access the unit. 	<ul style="list-style-type: none"> ▶ Has a shared care agreement with GPs but finds that the referrals received are either completed incorrectly/have missing information or are inappropriate. ▶ Have provided some GP training and this has helped a bit, but overall find the GPs to be unsupportive. ▶ GPs initiate DMARD treatment for some of the patients.
Meso	<ul style="list-style-type: none"> ▶ Good IT infrastructure; has gone ‘paper light’. ▶ The team has helpful access to rooms for offices and clinical space. ▶ Patients have good access to ultrasound and other diagnostic services. 	<ul style="list-style-type: none"> ▶ Has good supportive manager whose business case for two new consultants and increasing the nursing team was successful. ▶ Patients have good access to ultrasound and other diagnostic services. ▶ Has their own patient database but are using paper notes and analogue tapes. One unit member commented: <i>“we are living in the dark ages”.</i> (Pine 4, secretary) ▶ Shortage of clinical space which is unable to accommodate joint consultant-nurse clinics and is preventing the service from running more clinics. 	<ul style="list-style-type: none"> ▶ The staff expressed feeling unsupported by hospital management; recently lost their hydrotherapy pool and have decreased day care unit capacity. ▶ Has problems with their IT, using multiple systems that often crash which leads to staff still using paper notes. ▶ Previously had a manager they felt could rely on if needed, but not meeting as frequently with current one.
Team composition	<ul style="list-style-type: none"> ▶ Broad team structure with experienced nurses, a prescribing pharmacist and multidisciplinary support for patients with EIA. ▶ AHPs are part of the team and accessed following a referral from the specialist nurse. ▶ The team is supported by good administrative support including a database manager. 	<ul style="list-style-type: none"> ▶ Broad team structure with an experienced nurse and good AHP support if referral for services are required. ▶ Staffing has increased in recent years due to payment-by-results. ▶ The complexity of the booking clerk’s role was not considered by management when recruiting, therefore patients with EIA are not always booked appropriately. 	<ul style="list-style-type: none"> ▶ Understaffed: seen as a key barrier for patients accessing the EIA service. ▶ Has a lack of AHP support, with no occupational therapist and is losing its physiotherapy support. ▶ The team has a pharmacist and a very skilled sonographer who understands EIA well. The secretaries support the service by trying to fit patients into slots.

Continued

Table 4 Continued

Team processes	<ul style="list-style-type: none"> ▶ Has an effective service due to its formal and informal processes of communication. ▶ Holds weekly meetings and has easy access to consultants in between meetings. ▶ Clear leadership structure with consultants taking the lead. ▶ Experienced nursing staff with nurse autonomy demonstrated by nurse-led clinics. 	<ul style="list-style-type: none"> ▶ Weekly multidisciplinary meetings where there is good collaboration and information sharing to support managing complex patients. ▶ Consultants take the lead and are very results focused. ▶ Administrative staff actively support the pathway and help patients with queries. 	<ul style="list-style-type: none"> ▶ Has 'good ad hoc' communication, facilitated by offices that are close together. ▶ Clear leadership structure. ▶ Has a good collaborative relationship with other departments. ▶ Does not hold regular multidisciplinary team meetings for formal communication and collaboration.
Team psychosocial traits	<ul style="list-style-type: none"> ▶ Has a strong team focus on providing good service and care: "<i>it's something that we've kind of worked hard to make work and to make work for patients and I guess for research as well</i>". (Hawthorn 1, consultant) ▶ Demonstrates innovative ways of using staff and attempts to support the patient in a holistic way, through collaboration and good communication formally and informally within the team. ▶ Issues can be raised at different meetings and can be brought to the attention of senior staff at their weekly meeting. ▶ Uses the National Audit as a tool for improvement. 	<ul style="list-style-type: none"> ▶ The team has a strong team ethos: "<i>I think it's the enthusiasm of the team, it's that face to face contact once a week that makes you feel as though you're part of the team and I think its valuing the input of each person within the team...</i>" (Pine 2, consultant) ▶ Is actively managing the patient clinic workload to accommodate rises and falls in demand. ▶ During multidisciplinary meetings the staff demonstrates innovative ways in supporting the patient journey: "<i>they are extremely innovative... they are constantly looking at how we do things better, the right patient in the right place at the right time and we're not perfect, but I would like to say that, you know, the team works really, really hard to get it right</i>". (Pine 3, manager) 	<ul style="list-style-type: none"> ▶ Good team relationships and enjoy working together. ▶ Have regular business meetings and education meetings where ideas are discussed. ▶ Does not have departmental meetings, so this impacts on ability to innovate but there is an expressed desire for this to take place.

AHP, allied health professional; DMARD, disease-modifying antirheumatic drug; EIA, early inflammatory arthritis; GP, general practitioner.

IT solutions impeded their work. However, those with poor IT systems felt that the consequence was staff frustration rather than poor quality EIA care, as workarounds were found to mitigate possible impact. On the contrary, units that had good IT systems in place felt this significantly contributed to EIA quality through improving efficiency and teamwork:

[new IT system] has just transformed how we interact with each other as a team... it's taken out a lot of admin out of certain processes... very empowering (Cedar 1, consultant)

In relation to departmental infrastructure, having insufficient clinical space was reported in both higher and lower quality services. However, higher quality units were more likely to have a good clinical infrastructure, for example, access to a dedicated clinical area, a day unit or hydrotherapy and/or office space that facilitated collaboration. Clinic capacity was restricted in some units by lack of clinic rooms, which affected waiting times and/or frequency of

follow-up. This was considered a limiting factor at seven units: Birch, Pine, Beech, Juniper, Cedar, Elm and Oak. Some units benefited from access to, or complained about the loss of, clinical facilities, such as Willow who had recently lost their hydrotherapy pool and had reduced capacity for their day unit, which limited treatment options for their patients. Layout and space in the working environment were a further key aspect of infrastructure. Having sufficient and shared (or nearby) office space for team members (clinical, and ideally non-clinical) impacted on communication and cohesion in teams. In contrast, lower quality units were more likely to have insufficient, dilapidated or disjointed office space (eg, hot desking in Elder; 10 min walk between team members at Larch).

Nevertheless, the most significant meso factor distinguishing higher and lower quality units was organisational managerial support. Of the lower scoring units, only Elder mentioned this as a strength, and respondents from three lower scoring units reported that management was detached and/or unsupportive.

I do think there is a gap between management and the department itself which I feel is a shame. (...) I'm not saying there's any disrespect or anything like that, but I do think sometimes managers are very theoretical and they don't actually see what happens in the department. (Poplar 1, EIA coordinator)

Lack of managerial support exacerbated existing problems regarding access to diagnostics and clinical facilities and in two units (Ash and Poplar) was explicitly linked with highly motivated nurses leaving to work elsewhere due to lack of support for role development.

In contrast, good managerial support was a clear facilitator of high-quality EIA care in 9 of the 10 high scoring units; only 1 unit had problems working with their managers (Ash). Close working relationships with managers who maintained oversight of the service was seen to improve clinical resource allocation, service planning, monitoring and problem solving which in turn improved service quality.

we just go straight to the departmental manager anyway, say look, we think, what do you think about this or could we try? (...) they're very responsive. (...) It might be no, but you know, they're very open (Elm 3, administrator)

The micro setting and relationship with quality

Micro 1—team composition

Unsurprisingly, having insufficient staffing was common to many units. Respondents reported that steadily increasing referrals while consultant and nurse staffing numbers remained static or reduced, put significant pressure on the service. For example, Juniper reported being unable to clear a 3-month backlog of new patients resulting from historical understaffing. Other sites reported struggling to offer timely follow-up due to insufficient workforce capacity. Many units were running 'at capacity' and thereby unable to cope with increased referrals, staff sickness or annual leave, commonly resulting in breaches in waiting times targets, even at higher quality-rated units such as Oak and Elm. The staffing situation, particularly where it had either improved or worsened was reported to directly impact on clinical quality, both in terms of timeliness of appointments and quality of patient drug counselling, education and support between appointments. Poplar, Willow and Ash relied on locum consultants and raised this as a barrier to cohesive team working and to adherence to departmental procedures and pathways:

although we give them [locums] induction packs with information about how the system works and what they need to do, their input and effort to comply with that are variable (...) there can be some problems with consistency of care (Poplar 3, consultant)

Despite staffing presenting challenges in all sites, higher quality units were more likely to have staffing models in

place that facilitated nurse/AHP autonomy, for example, through having higher banded staff that could prescribe and manage medications (eg, commencing DMARDs, titrating medication) and provide increased capacity for follow-up (eg, having nurse/AHP-led clinics). Nurses managed the patient pathway for the first 6 months of treatment at most of the higher scoring units which was felt to benefit patients:

I think they [nurses] have a little bit longer with the patients. I think they get a good rapport and relationship with the patients and I think that's important with chronic disease (Ash 4, consultant)

The exception was in Chestnut and Oak (both higher scoring units) where the role of nurses was limited. At Oak, due to lack of clinical space and nursing shortages, the team could not cover new EIA appointment clinics, which the team felt compromised patient care and led to 'very rushed' consultant appointments. There were similar reports of underdeveloped or unsupported nursing roles in three lower scoring units.

Having AHP MDT members (eg, physiotherapists, occupational therapists, psychologists) and/or easy access to them was mostly found in the higher quality units. Respondents spoke of the benefits of having a broad skill mix within the unit, including patients being more likely to receive good patient education and psychological support. In particular, having a pharmacist in the team was associated with having better support for the treatment pathway, better care for patients with complex needs and more effective medication choices. The other key team member was the administrator: having effective administrators with good communication and organisational skills was felt to be fundamental to EIA service quality and was more commonly found in the higher quality units. Respondents acknowledged that managing EIA referrals and appointment bookings was a complex role; and recruiting an administrator who has the right skills and capacity to understand the complexities of the service was crucial for the smooth running of the service.

Micro 2—leadership and team processes

Good clinical leadership for the EIA pathway and team processes that supported collaboration and consistency in approach were identified as key facilitators of high-quality EIA service, and were more common in higher quality-rated units.

Leadership took variable forms across the units. It appeared equally effective in those that had formally defined leadership roles being actively fulfilled by doctors or by senior nurses, or as in Birch and Juniper, individual clinicians overseeing the EIA pathway informally. Strong leadership was associated with having and adhering to a clear EIA pathway and treatment protocol. In contrast, some units had unfilled leadership vacancies, and in these units staff often reported inconsistent descriptions of the EIA pathway and/or lacked a protocol.

Good leadership was also demonstrated in some units through active monitoring and innovation in relation to service provision and quality. Having formal communication channels by holding regular multidisciplinary team meetings (MDTMs) meant that team members could raise issues, propose changes and ask questions and provided the basis for effective problem-solving, learning and quality improvement:

everyone can bring their queries to that [weekly MDT meeting] and it's a very open and equitable forum, no matter what professional background you are, just to discuss patients in that kind of open forum and I think that works very well for patients (Maple 1, consultant)

However, there were no MDTMs held at Larch and Willow (lower quality units), and MDTMs were either not well used for patient discussion or poorly attended at Poplar (lower quality unit), Chestnut and Oak (higher quality units). Interviewees in both higher and lower quality units mentioned the importance of having ad hoc communication regarding clinical or administrative issues. Such communication was often via email but appeared especially effective when clinical and administrative staff either shared offices or were nearby (linking to the meso infrastructure theme). Administrators facilitated communication within the team and between patients and clinicians, ensured that patients were seen according to their clinical requirements, and that clinician requests for a particular course of action were accommodated. Having 'remote' appointment booking teams (Larch, Maple), with little or no face-to-face contact, meant lack of oversight of appointment bookings and significantly reduced the clinicians' ability to effectively manage their clinic lists. It was noted at Birch that moving from centralised administration system to a local administration team had reduced the time taken to see new patients and the DNA rate.

Micro 3—team psychosocial traits

Respondents' perceptions of the quality of team relationships varied considerably between units. In general, there was more evidence of cohesion and good working relationships in the higher quality-rated units. Interviewees from seven of the higher quality units described good team relationships as a facilitator to them providing high-quality EIA care, compared with only two of the lower quality-rated units. A positive team ethos and sense of cohesion was reported to provide respondents with high levels of work satisfaction and motivation to go above and beyond for patients:

there are many positives about the way we work here, and I think the most important is that we just work so well together as a team. (...) I really enjoy coming into work every day here. (Maple 1, consultant)

There was evidence of a culture of innovation and quality improvement in both higher and lower quality

units, for example, proactively seeking to improve ways of working, seeking patient involvement in service design. The units that collected and regularly reviewed their performance (usually on a monthly basis) were the ones that had strong operational support from EIA coordinators, a strong admin team and, apart from Poplar, had good organisational managerial support for change. These units had introduced innovative solutions for managing their clinical pathway: Hawthorn established a dedicated diagnosis clinic for suspected EIA, and Maple implemented an online patient portal for uploading blood test results and symptoms.

DISCUSSION

The wide variability in quality of EIA service provision in England was found to be associated with key organisational factors at macro, meso and micro levels, and the inter-relations between them. The key drivers of quality in relation to their influence on 11 indicators of EIA care were: (a) the availability of shared care with GPs and quality of collaboration with primary care (macro); (b) the physical infrastructure available (clinical and office space) and managerial support (meso) and (c) breadth and expertise in clinical and administrative roles within the team, and methods of informal and formal communication within the team (micro).

Shared care between secondary and primary care is a formalised model used for a range of other conditions; for example, stroke and some cancer diagnoses.^{9,10} Although previous studies have reported the value of this to quality care,^{11,12} this study has uniquely highlighted the variability in shared care models. Funding for shared care is decided locally (by Clinical Commissioning Groups) and this is likely to be the main factor driving the variability in models. Health professionals working in primary and secondary care have been argued to have different roles, perspectives and cultures and their 'separate medical realities' may diminish understanding and respect, and that good leadership bringing GPs and specialists together, education and empowering patients can help overcome this.¹³ In line with this, the units where shared care was not working well in this study reported challenges in relation to motivating GPs to attend EIA training.

Unsurprisingly, having suitable physical infrastructure and supportive management were found to relate to quality of care. Good management practices have been associated with better patient outcomes in other studies and is repeatedly included in reports regarding factors influencing quality of healthcare systems but rarely addressed at organisation level.¹⁴⁻¹⁷ A shared or proximal team office space was shown to support informal communication between members of the EIA team (clinical and administrative team members) and this was key to overcoming barriers to EIA care, for example, reorganising appointments, informal communication with consultants, discussing difficult cases. This corroborates previous research that has suggested that environmental

design which involves healthcare professionals and support staff is related to collaborative communication and efficient teamwork.¹⁸ The importance of team office space illustrates how macro/meso/micro elements are interlinked; and if not addressed can have a domino effect on quality of care.

Most units faced staffing shortages, reflecting known challenges in the National Health Service.¹⁹ Staff shortages were perceived to impact negatively on timing of treatment for patients with EIA, which in turn impacts on clinical outcomes.²⁰ In relation to the breadth and expertise of MDT members, although having autonomous nurses was part of the criteria for ‘treat to target’ quality indicators (and therefore not a surprise that this was a feature of higher quality units), this study explains how this was related to quality, predominantly through sharing responsibility for holistic care and having more team members available to provide care. The benefits of non-medical prescribing to patient experience and outcomes have been reported widely,^{21 22} with such roles being key to providing patient education,²³ ensuring patients receive holistic support²⁴; and providing more responsive prescribing.²⁵

Findings in this study are based on data collected from a wide range of units across most regions in England, and one unit in Wales, representing diversity in relation to population, unit-type and region. Furthermore, quality has been measured based on a range of indicators that were defined by reference to evidence, clinical opinion and patient views and these have been transparently reported to allow for critique and replication. A further strength of the use of these quality indicators is that they cover the whole EIA pathway. In some units, only a small number of staff were interviewed, and some interviews were short due to time pressures of those involved, which may have led to an inaccurate assessment of quality and interpretation of barriers and facilitators in some cases. However, the analysis triangulated interview data with survey and audit data to try to mitigate this. There were some facilitators or barriers to quality EIA care that emerged from interviews but were not collected in all units and thereby could not be used with any confidence in the main comparative analysis (such as funding models, regional agreements, biologics); and findings were predominantly based on subjective reports from interviewees: future work in this area could consider use of ethnographic methods, for example, non-participant observation and investigating the patient’s experience of the condition and their care.

CONCLUSION

Often the blame for underperforming services is directed at frontline clinical staff. This study has shown that the quality of EIA service is related to inter-relationships between key factors at macro, meso and micro levels; acting like dominos with the macro and meso appearing to have significant influence on the frontline micro

(team) factors and thereby on quality of care. Tackling macro and meso barriers is likely to have a significant impact on quality of EIA service, and ultimately patient experience and outcomes. While some of the barriers (such as staff shortages in relation to vacancies and/or skills/seniority gaps) are financially driven and therefore likely to be more challenging to resolve; others may be easier to implement, such as: providing mechanisms for sharing good practice regarding shared care arrangements and forming and sustaining good relationships with GPs; supporting team member co-location to improve interteam communication; ensuring clear EIA clinical leadership with adequate training and support for the role and supporting implementation of regular MDT meetings.

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