

# Rheumatology One Stop Mass Clinic Initiative

## Final Evaluation Report

In partnership with the North West  
London Integrated Care Board, Imperial  
College Healthcare NHS Trust and  
HealthShare Group

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## List of abbreviations

Abbreviation	Definition
APP	Advanced Physiotherapy Practitioner
BAU	'Business as usual'
CFS	Chronic Fatigue Syndrome
CTD	Connective Tissue Disease
DNA	Did not attend
GPwER	GP with Extended Role
HG	HealthShare Group
ICB	Integrated Care Board
ICHP	Imperial College Health Partners
ICHT	Imperial College Healthcare NHS Trust
IMD	Indices of multiple deprivation
MRI	Magnetic resonance imaging
ONS	Office for National Statistics
ROSMaC	Rheumatology One Stop Mass Clinic
SLE	Systematic Lupus Erythematosus
TIROC	Traditional Imperial Rheumatology Outpatient Clinic

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# 1. Executive Summary

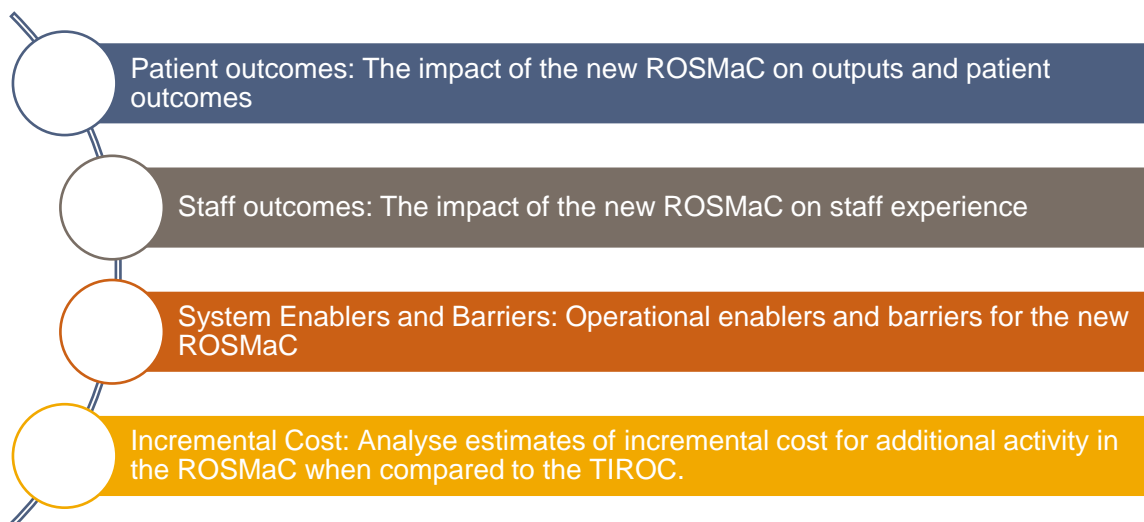
The Rheumatology One Stop Mass Clinic (ROSMaC) was a collaborative pilot program co-designed and jointly delivered by Imperial College Healthcare NHS Trust (ICHT) and Healthshare Group (HG). Its main objective was to reduce waiting times for Musculoskeletal (MSK) Rheumatology outpatients in the North West London (NWL) region, specifically at ICHT. This initiative aimed to support the NWL Integrated Care System (ICS) by shortening wait times for secondary care rheumatology outpatients.

The core concept of the ROSMaC is the idea of a one-stop clinic where a patient has access to the right clinicians and diagnostics. By implementing this approach, the initiative sought to improve patient experience by making the patient journey more efficient with fewer steps and waits, reduced administrative burdens, and provide a more comprehensive and timely experience for rheumatology patients.

This evaluation to assess the impact of the ROSMaC initiative was conducted by Imperial College Health Partners (ICHP), the designated Academic Health Science Network (AHSN) for North West London. ICHP is also the innovation arm of NWL Integrated Care Board (ICB) and is a non-profit partnership organisation focused on improving healthcare outcomes and reducing inequalities in NWL through research and innovation.

The evaluation involved comparative analysis between the Traditional Imperial Rheumatology Outpatient Clinic (TIROC) and the ROSMaC.

The initiative was evaluated using a mixed methods approach of qualitative and quantitative analysis to understand the following:



## Key findings

The evaluation of the ROSMaC revealed positive outcomes in reducing waiting times and improving patient experience. The key insights gained are as follows:

1. **Reduction in patient waiting times:** The ROSMaC initiative was effective in reducing waiting times for rheumatology appointments in the NWL region. The average waiting time from referral to appointment decreased by approximately two months (10.83 months for TIROC patients to 8.63 months for ROSMaC patients), and time from first appointment to diagnosis was drastically reduced for ROSMaC patients who on average received their diagnosis within the same month (1.25 months for TIROC patients, zero months for ROSMaC patients).
2. **Improved diagnostic efficiency:** In comparison to the traditional model, the ROSMaC model demonstrated higher diagnostic efficiency. On average, patients required one appointment in the ROSMaC, resulting in a definitive diagnosis for 81% of patients, compared to 75% of patients in the TIROC who required an average of three appointments to receive a diagnosis.
3. **Incremental cost difference:** This evaluation showed that there is some suggestive evidence for the ROSMaC having lower incremental costs for service delivery when compared to the TIROC. For this evaluation several different costing perspectives have been accounted for and it is important to consider these in any decision making.

The incremental cost difference between the TIROC and ROSMaC (ROSMaC costs – TIROC costs) was:

- -£0.28 (from a provider perspective using raw unit costs for diagnostics and hourly staff wages and only includes costing for ultrasounds and ultrasound-guided injections),
  - -£57.17 (from a provider perspective using raw unit costs for diagnostics and hourly staff wages and including all diagnostic tests delivered at both clinics) and
  - -£245.11 (from a commissioner's perspective, using NHS national tariffs 22/23 and including those costs for ROSMaC patients who have been referred back to the TIROC for further investigations).
4. **Equally distributed access to services across patient demographics:** The implementation of the ROSMaC did not lead to an exacerbation of existing inequalities in access to services across age, sex, ethnicity and socio-economic status.
  5. **Patient experience:** While reports from staff interviews indicated that the ROSMaC initiative enhanced patient experience and improved staff outcomes, no patient feedback was available for direct comparison at the time of writing.
  6. **Staff experience:** Interviews with staff working in the ROSMaC service indicate a positive experience with consistent feedback that the service enabled them to provide a better patient experience through better utilisation of consultant time and skills, and an increased likelihood of being able to complete the patient journey from assessment, treatment and discharge in one clinic. Staff also report the service having a positive impact on learning opportunities through multidisciplinary working.

7. **Administration:**

- a. **Administration processes:** Administration was frequently cited as an area for improvement which will enhance the service as well as the experience of clinicians, administrators and patients.
  - b. **Patient ‘work-ups’ and referral process:** Clinicians reported occasions when patients were not fully “worked up” before their appointments. This may have been due to the short notice some patients were given for an appointment at the ROSMaC clinic. This was also partly due to not always being able to access relevant patient records to understand if they had undergone any previous diagnostics. Additionally, there have been some difficulties in making community referrals, potentially contributing to a disjointed care experience for a few patients.
8. **IT systems and care coordination:** The evaluation found that there is an opportunity for better coordination of care through more effective use of data and connection of IT systems. There were significant challenges regarding system integration, compatibility, and accessibility, with Cerner and SystemOne identified specifically. These challenges led to difficulties in data sharing, making referrals, and accessing necessary information. IT issues also hindered clinicians' ability to perform certain tasks, such as viewing patient records, which affected the overall smooth functioning of the clinic. Some patients may have been lost in the follow-up process, which in some cases was related to delay in receiving imaging results, however the evidence from this evaluation is the majority were found and followed up. Going forward, it is crucial to enhance the tracking mechanisms to ensure continuity of care for all patients.
9. **Improved collection and coding of data for future evaluations:** Throughout this evaluation it became apparent that the ROSMaC service can improve in more standardised collection and coding of their patient data; for example, by using a standardised data collection mask, and using more standardised data categories such as the Office for National Statistics (ONS) ethnicity categories. This will ensure a more streamlined evaluation process in the future and ensure quality outputs.
10. **Enablers:** Through stakeholder interviews, several themes emerged as key enablers to the service, and will be instrumental if the service is to be extended in the future. These include:
  - **Effective collaboration and trusted relationships:** The collaboration and established trust between all partners involved (ICS, ICHT and HG) were critical to mobilising the ROSMaC initiative.
  - **Access to suitable estate and infrastructure:** Accessible and well-equipped spaces provided the necessary environment to deliver the ROSMaC service effectively. Suitable estate and infrastructure contributed to streamlining patient flow, optimising resources, and enhancing overall service delivery.
  - **Strong clinical and strategic leadership:** The presence of strong clinical and strategic leadership played a pivotal role in driving the ROSMaC service forward.
  - **Structured training programme:** The pre-existing training infrastructure and investment in training for APP and Physiotherapy staff by HG through the MSK community services made this model possible. There are opportunities to



improve it even further through additional training, especially around secondary care treatment pathways.

## **Recommendations**

Based on the insights gained from this evaluation, the following recommendations are made to improve the ROSMaC:

1. The success of the ROSMaC model has been largely due to the structured training already in place for HG staff. We recommend amplifying this success by supplementing additional training, particularly focused on secondary care treatment pathways.
2. Provide specialised training on inflammatory diseases, triage processes, and service-specific procedures to enhance staff knowledge and competency, and to further reduce the number of patients referred to secondary rheumatology care.
3. Improve administrative processes, scheduling, and IT systems to optimise resource allocation and ensure seamless data sharing. Patients should be given clear information about the clinic (this should include being clear on the geographical boundary of the mass clinic to prevent patient travel fatigue. This may include a criterion of a postcode in NWL).
4. Strengthen patient follow-up mechanisms and tracking systems.
5. Improve data collection and coding using automated processes and standardised coding guidelines to improve data quality, and streamline the data collection and analysis process for future evaluations and insight reports.
6. Ensure and enable all relevant clinicians to have access to appropriate IT systems that give access to relevant patient information and subsequently clinical decision-making, that results in improved patient experience and improved care coordination between secondary and community services.
7. Proactive and regular collection of Patient Reported Outcome Metrics (PROMs) and Patient Reported Experience Measures (PREMs) for continued evaluation.
8. Consider future, more comprehensive and advanced evaluations of the service including inferential statistics to investigate inequalities in access of care across certain population groups, including patient benefit in a more advanced economic analysis of the service and by including PROMs and PREMs.

## **Conclusion**

The conclusions drawn from the quantitative and qualitative findings of this evaluation show the ROSMaC as a successful pilot of a new model of care. It demonstrated potential in decreasing patient waiting times, enhancing staff experience, and offering value for money. Importantly, the ROSMaC model highlighted greater efficacy in completing the patient treatment cycle compared to conventional models by lessening the number of appointments required for diagnosis. This outcome, in combination with its lower incremental costs compared to the TIROC model (e.g. when transitioning the ROSMaC to 'business as usual'

(BAU) during the week, thus reducing staff costs), suggests that this model may offer cost benefits. A more comprehensive cost-effectiveness evaluation may be necessary to validate this.

## 2. Introduction

### 2.1. Context and background

Rheumatology is a medical specialty that encompasses the diagnosis and treatment of conditions affecting joints, bones, muscles, and connective tissues. Musculoskeletal health is at the core of rheumatology, as it involves addressing various musculoskeletal disorders and diseases, such as arthritis, lupus, fibromyalgia, and vasculitis.

MSK conditions are the leading cause of disability in the UK and poor musculoskeletal (MSK) health has a significant impact on individuals, families, employers, the NHS, and the wider economy. It is estimated that over 30 million working days are lost due to MSK conditions each year in the UK, and they account for up to 30% of GP consultations in England ([NHS England](#), 2019).

Outpatient activity has steadily increased year on year, with a growth of 3.5% between 2017/18 (93.5 million) and 2018/19 (96.8 million), followed by a further 1.0% increase in the 12 months leading up to February 2020 (97.8 million) ([Office for Health Improvement & Disparities](#), 2022).

In North West London (NWL), long wait times for rheumatology services are observed across trusts, mainly due to variations in service delivery linked to an imbalance between capacity and demand, as highlighted in the Get It Right First Time (GIRFT) for Rheumatology ([GIRFT](#), 2021) report. Referral-to-treatment (RTT) timeframes for rheumatology outpatients exhibit significant variation, ranging from less than five weeks in the best-performing trusts, to over 30 weeks in others. Waiting times for rheumatology outpatients in the NWL ICS were further impacted by the COVID-19 pandemic.

In the context of rheumatology, long wait times are important due to the direct impact on outcomes for patients. Early detection and evaluation of diseases such as early inflammatory arthritis, giant cell arteritis (GCA), and vasculitis can reduce the risks of long-term complications.

In response to these challenges, an innovative model of care was developed to reduce the backlog of outpatient rheumatology patients. The initiative was led by Imperial College Healthcare NHS Trust (ICHT) in collaboration with the Healthshare Group, supported and funded by NWL ICS.

This new model, known as the Rheumatology One-Stop Mass Clinic (ROSMaC), is a one-stop mass clinic supported by a multidisciplinary team (MDT). It was designed to operate on weekends, involving clinical staff from ICHT, Healthshare Group, and the NWL ICS. Initially, the focus was patients on ICHT's waiting list, before expanding to the Hillingdon Hospitals Trust (THH). This evaluation is specific to the ICHT pilot.

The evaluation of this new model of care presents an opportunity to reflect, learn, and share insights that can inform future decisions and recommendations. Imperial College Health Partners (ICHP) was commissioned to support this evaluation, leveraging expertise, independence, and knowledge in evaluating healthcare initiatives, to provide insights as to the impact and potential improvements of the ROSMaC model for MSK patients. This evaluation aims to contribute to ongoing learning and knowledge-sharing, ultimately enhancing the delivery of rheumatology services and improving patient outcomes.

Additionally, the study aims to explore the potential for cost savings and value for money by understanding the incremental cost differences.

## 2.2. Introduction to Imperial College Health Partners

Imperial College Health Partners (ICHP) is a not-for-profit partnership organisation that brings together NHS providers of healthcare services, across our local Integrated Care System (ICS) and universities across NWL.

ICHP is the designated Academic Health Science Network (AHSN) for North West London and host of the Discover-NOW health data research hub for real world evidence. ICHP was created by the NHS to support complex change across the health and care sector – innovating and collaborating for a healthier population.

With a focus on the North West London population, ICHP works closely with healthcare providers, clinicians, researchers, and policymakers to identify areas where innovative approaches can have a positive impact. By facilitating the adoption of evidence-based practices, technologies, and processes, ICHP aims to enhance the quality of care, improve patient outcomes, and drive efficiency in healthcare delivery.

## 2.3. Policy context

The musculoskeletal (MSK) outpatients waiting list initiative, launched in NWL, is situated within a challenging National Health Service (NHS) policy landscape, characterised by escalating waiting lists over the past decade. These circumstances have persisted despite national efforts to address wait times.

In March 2010, the NHS Constitution was revised and granted patients the right to receive consultant-led treatment for non-urgent conditions within 18 weeks of a GP or primary care referral. By 2012, a mandatory target was set for 92% of patients to receive treatment within this 18-week timeframe. However, despite these measures, waiting lists remained a national concern.

NHS England responded by establishing a maximum 52-week wait for treatment performance target in 2013/14. This initiative underscored the critical nature of prompt care provision.

Unfortunately, the outbreak of the COVID-19 pandemic in 2020 had a substantial impact on the ability of Trusts to achieve these targets. In an effort to manage the surge in COVID-19 cases and ensure adequate hospital capacity, non-urgent elective activity was suspended in March 2020. While guidance was issued in July 2020 to restore normal levels of elective activity by autumn, subsequent disruptions caused by the pandemic and winter pressures in 2020/21 led to further delays. This situation, compounded by rising demand, low staff morale, limited finances, and other workforce challenges, further strained the system's ability to meet waiting time targets.

To tackle these challenges and enhance elective care, NHS England revised its 2022/23 priorities and operation planning guidance in February 2022. Emphasised in this update was the transformation of elective activity and the reduction of waiting lists. Specific goals were set to eliminate waits of over 104 weeks by July 2022, waits of over 78 weeks by April

2023, and to completely eradicate 52-week waits by March 2025. These targets signify a commitment to better patient care access and timely treatment for those on waiting lists.

In May 2022, NHS England announced efforts to expand workforce capacity as a crucial part of their elective recovery delivery plan. Reviewing consultant job plans, including the removal of capping on Programmed Activities (PA) sessions threshold and workforce redesign, were some of the high impact enablers.

Given these policy developments and ongoing challenges, the MSK outpatients waiting list initiative was introduced. This initiative aimed to enhance the management of rheumatology outpatient waiting lists at ICHT, ensuring patients receive necessary care within reasonable timeframes. In addition, the ROSMaC is new pathway that aligns with the rheumatology GIRFT (2021) recommendations.

#### 2.4. The Traditional Imperial Rheumatology Outpatient Clinic and the new Rheumatology One Stop Mass Clinic

The Traditional Imperial Rheumatology Outpatient Clinic (TIROC) offers one-to-one appointments between a patient and a rheumatologist. An initial assessment comprises a detailed clinical examination leading to a working diagnosis and management plan through a shared decision-making conversation with the patient. In some cases, additional investigations are requested to achieve a working diagnosis and subsequent management plan. Further investigations may include a combination or in isolation of blood tests, magnetic resonance imaging (MRI), ultrasound scan and x-rays. Some patients may require more than one follow-up appointment to achieve a definitive diagnosis and management plan.

The new model, ROSMaC, was an experience-based, tested and trialled design from Healthshare Group MSK services comprising a consultant-led mass rheumatology clinic with MDT. As part of the orthopaedic and rheumatological pathway in the community, Healthshare Group has been implementing consultant-led one-stop-shop mass clinics backed by point-of-care ultrasound to reduce and maintain waiting time.

In contrast to the traditional model, patients seen under the ROSMaC were assessed by an Advanced Physiotherapy Practitioner (APP) with specialist rheumatology training or by a GP with Extended Role (GpwER) in rheumatology. Following a clinical assessment and a case discussion with a Consultant Rheumatologist on the same day, the APP/GpwER organised necessary investigations towards a working diagnosis. This makes it possible for all patients to have a review with the Consultant Rheumatologist and make shared, informed decisions together.

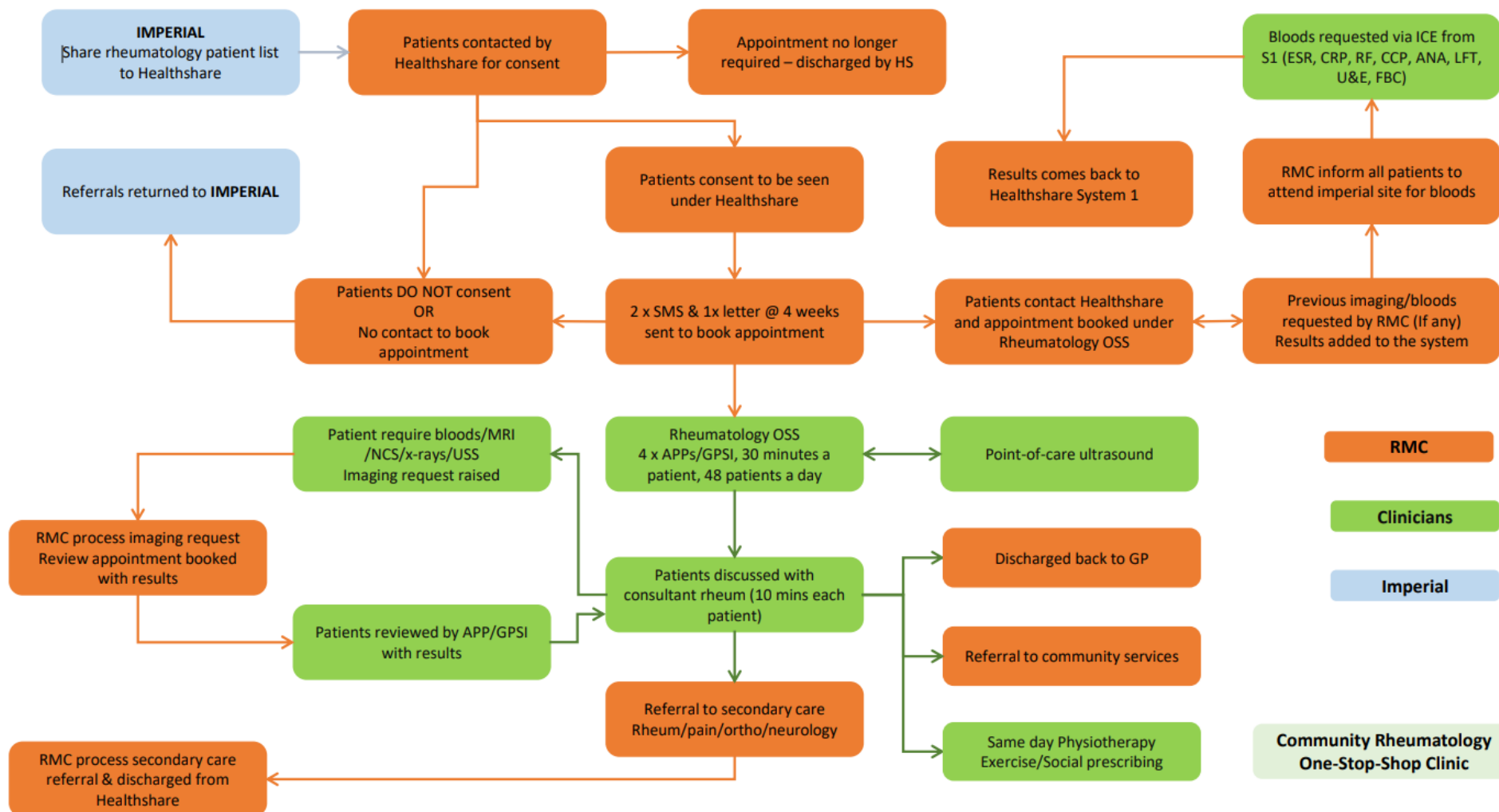
Patients who had a working diagnosis were involved in a shared decision-making process to agree a care and support plan, and were discharged back to General Practitioners (GPs). One of the APPs offered a point-of-care scan to patients who would benefit from MSK diagnostic ultrasound. All patients who could benefit from a steroid injection were offered one on same day as part of their care and support plan. All appropriate patients received self-management guidance and specific advice from a physiotherapist.

Patients who required additional testing were thereafter assessed by an APP or at a joint clinic with a Consultant Rheumatologist. Referrals to secondary rheumatology teams close to the patient's address were made for those who needed continuing rheumatology support

or to begin therapy under hospital rheumatology. Patients who needed secondary care services for other specialties or community services were referred appropriately.

Overall, 612 patients were referred from the TIROC to the ROSMaC since the establishment of the ROSMaC. Of these, 525 patients were seen in clinic and 87 patients did not attend. It has been proposed that the ROSMaC has a number of advantages over the traditional approach. It is firstly more effective and comprehensive. The patient spends less time waiting at the clinic because of the MDT approach, which enables them to see several healthcare providers during one appointment. Third, it puts the patient first. The patient can contribute more to their care thanks to the team approach, which may increase patient and staff satisfaction.

Figure 1 Complete service pathway of the codesigned Rheumatology One Stop Mass Clinic (ROSMaC)



### 3. Evaluation scope and aims.

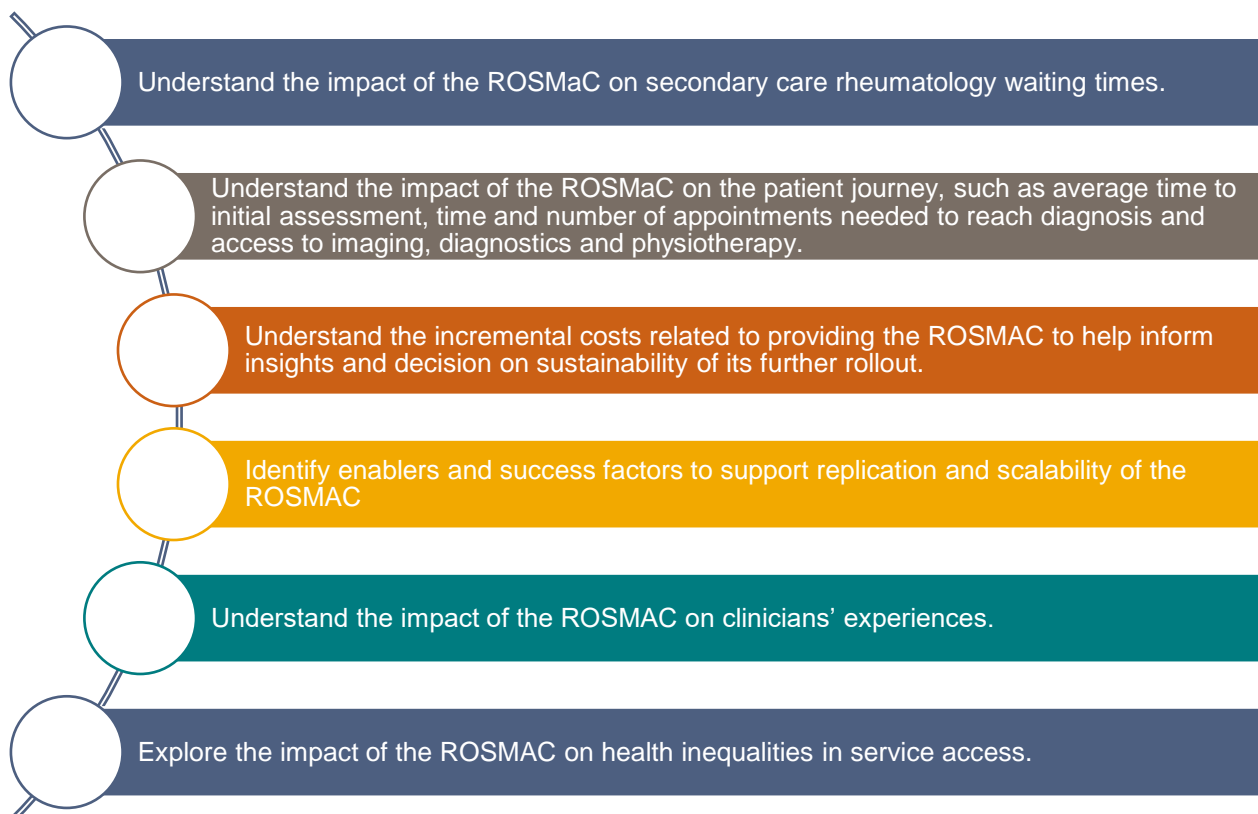
#### 3.1. Evaluation aim

The primary goal of this evaluation is to inform the strategic decision-making processes of the NWL ICB with respect to the Rheumatology One Stop Mass Clinic (ROSMaC).

Specifically, this evaluation seeks to determine if the ROSMaC can enhance patient outcomes, shorten waiting times, improve staff satisfaction, and provide better value for money. In addition, this evaluation will provide insights into the successes, challenges, and opportunities related to implementing ROSMaC beyond the initial pilot sites. It will also offer data on the incremental costs associated with the service model, and the feasibility of extending ROSMaC beyond the current pilot for rheumatology services.

#### 3.2. Evaluation objectives

The evaluation objectives relate to gaining an understanding of the ROSMaC's impact on several key areas, including secondary care rheumatology waiting times, patient journey parameters, the incremental costs associated with ROSMaC, its effect on clinicians' experiences, and health inequalities in service access. The following were agreed by the evaluation steering group:





## 4. Evaluation methods

The evaluation approach used a mixed-methods design, which allowed for a comprehensive assessment of the ROSMaC service. The quantitative analysis provided objective data on the outputs, outcomes, and incremental costs of the service. The qualitative analysis provided insights into the process, outcomes, and sustainability of the service from the perspectives of key stakeholders. The cost analysis provided a financial estimate of the incremental costs of the service.

### 4.1 Qualitative analysis

Semi-structured interviews were conducted with key stakeholders, including clinicians, commissioners, and administrative staff from ICHT, HG and the ICS. The interviews were used to assess the ROSMaC service. The stakeholders were identified by the evaluation steering group which met every two weeks and consisted of the Lead Clinicians in both services, and ICB commissioner, and a member of the ICHT Transformation Team. An attempt was made to interview all clinicians involved in the ROSMaC clinics. However, some were unavailable (3) and some had moved on to other roles (3). In total 12 stakeholder interviews were completed. This consisted of:

- 1 x Transformation Director
- 3 x Rheumatology Consultants
- 1 x administrative staff (HealthShare Group)
- 8 x APP clinicians working in the service.

The semi-structured interviews were conducted and analysed by a single interviewer (Larry Koyama) to ensure consistency. The interviews were analysed using thematic analysis, a qualitative method that involves identifying patterns or themes in the data. The themes have been triangulated with the quantitative data to provide key insights of the ROSMaC service. The interviews focussed on five key areas, agreed by the evaluation steering group:

1. Views on the model
2. Staff experience
3. Enablers for success
4. Barriers and challenges
5. Recommendations for improvement

Figure 2 Staff interview outputs

## Views on the model

- What are the main barriers to reducing MSK rheumatology waiting list and how is this service addressing these barriers?
- What are your thoughts on the current Rheumatology mass clinic waiting list initiative?
- What training and development opportunities would you like to see available for staff working in the new MSK service?
- How effective is the new model in getting patients discharged / closing clinical pathways?
- How satisfied are with this service model?

## Staff experience

- How does this service compare to the previous model?
- What is the impact of the service on the quality of care you can provide?
- Do you feel confident that you have the right skills for this type of service?
- Has there been a difference in the type and complexity of patient seen?
- What impact has this model had on your professional development?

## Enablers for success

- In your view and experience, what are the enablers for the new service model?

## Barriers and challenges

- In your view and experience, have there been any key barriers and/or challenges?
- What is not working well currently and is therefore an area for improvement?

## Recommendations for improvement

- Do you have any recommendations for improvements? what would you do differently?
- Anything else?

### 4.2 Quantitative analysis

This involved collecting data on the outputs, outcomes, and incremental costs of the ROSMaC and TIROC services. The data was collected from random sample of 100 patients from each service. The quantitative analysis was conducted using Microsoft Excel and statistical tests were used to determine the statistical significance of the differences between the two services.

The analysis was performed in Microsoft Excel and has looked at a randomised and retrospectively selected cohort of 100 patients within the TIROC and ROSMaC respectively at a specified point in time.

#### 4.2.1 Inclusion criteria

##### **Inclusion criteria patient cohort – ICHT TIROC**

- Data from 100 ICHT patients, randomly selected between 1 April and 30 June 2022
- Patients who have been referred to ICHT by their GP, consultant triaged as low-risk, and who have waited to be seen for more than six months

##### **Inclusion criteria patient cohort – HealthShare Group ROSMaC**

- Data from 100 patients randomly selected from the ROSMaC site (referrals received in August 2022, and patients cleared from the ICHT waiting list in September and October 2022)
- Patients who have been referred to ICHT by their GP, consultant triaged as low-risk, and who have waited to be seen for more than six months

### 4.3 Cost analysis

The incremental costs of the ROSMaC service were calculated using two different approaches:

1) Costing Approach 1, from a provider perspective and 2) Costing Approach 2, from a commissioner perspective. The provider perspective approach included all costs incurred by the HealthShare Group and ICHT, while the commissioner perspective approach included all costs incurred by the NWL ICB.

To interrogate quantitative outputs, outcomes and incremental costs of running the ROSMaC, data from both the TIROC and ROSMaC were extracted by ICHT and HealthShare Group staff and analysed by ICHP staff.

Incremental costs were obtained by calculating the mean costs per patient and per service for initial and follow-up patient appointments, the staff costs involved with these activities, and the mean costs for diagnostics, imaging and injections per patient. Costs used for diagnostics, imaging and injections include the staff costs involved to perform these activities.

Unit costs for diagnostic tests were provided to ICHP by the finance and service managers at both TIROC and the ROSMaC. Hourly staff wages were largely taken from the Unit Costs of Health and Social Care 2022<sup>1</sup> as these figures include on-costs and overhead costs, costs covering staff pensions, training and estate costs. Staff wages for Band 2 and Band 3 Administrative Staff were not available and thus hourly staff wages provided by TIROC and ROSMaC were used instead (more information in Appendix 2).

Incremental costs were established via two different approaches to meet the needs of different stakeholders and their costing perspective (service commissioners, providers, clinicians). These can be described as two different approaches:

#### **Costing Approach 1 (provider perspective):**

Mean costs per patient for each service provider were calculated by multiplying staff activity and number of diagnostics, imaging and injections per patient with the respective unit costs and hourly staff wage per staff banding. There were no bundles included, and each activity item was costed individually.

While both the TIROC and ROSMaC have many similarities in respect to service delivery, there are some differences between both services e.g. in regard to the MDT versus 'consultant only' approach, and the differing volumes per patient of diagnostic tests ordered. While TIROC patients can get a full range of diagnostics and imaging done at the ICHT outpatient clinic (including blood and urine tests, NCS, ultrasounds, x-rays and MRIs), ROSMaC patients are offered ultrasounds and

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<sup>1</sup> Unit Costs of Health and Social Care 2022. University of Kent. [Unit Costs of health and Social Care 2022 \(amended\).pdf \(kent.ac.uk\)](https://www.kent.ac.uk/health-social-care/unit-costs-of-health-and-social-care-2022/).

ultrasound-guided injections only and are referred to secondary care or community services for further diagnostics and imaging such as blood tests, x-rays and MRIs.

Due to the two service models offering different diagnostics services this costing approach has been further divided into two 'sub approaches':

**Costing Approach 1.1:** Includes all diagnostic tests ordered and delivered at the TIROC (urine tests, dexta scans, echocardiography, X-Rays, MRIs and ultrasound-guided injections) (see more detail in Appendix 2) , and includes all in-house diagnostic tests delivered at the ROSMaC (incl. ultrasounds and ultrasound-guided injections).

**Costing Approach 1.2:** Only includes those diagnostic tests at the TIROC which are also delivered in-house at the ROSMaC, namely ultrasounds and ultrasound-guided injections.

More detailed unit costs and hourly staff wages per banding are included in Appendix 2.

**Costing Approach 2 (commissioner perspective):**

Mean costs per patient were calculated by multiplying staff activity and number of diagnostics, imaging and injections per patient with the standardised tariff for the ICHT TIROC and HG ROSMaC.

Table 1 Service related TIROC and ROSMaC tariffs

TIROC tariff	ROSMaC tariff
<ul style="list-style-type: none"> <li>• Initial patient appointment = £344.81<sup>2</sup></li> <li>• Follow-up patient appointment = £116.52<sup>1</sup></li> <li>• Costs for diagnostics, imaging or injections were not included in these tariffs, and were thus costed separately and individually.</li> </ul> <p>NWL ICB is the final payer for all costs incurred per patient.</p>	<ul style="list-style-type: none"> <li>• Initial patient appointment = £324.26<sup>1</sup>, including on-site ultrasound and ultrasound guided steroid injection if needed as well as same-day consultation with a Physiotherapist</li> <li>• Follow-up patient appointments = included in the tariff and are not reimbursed separately</li> <li>• MRIs, x-rays and blood tests are provided by other providers, and patients are referred to secondary care or community to carry these out</li> </ul> <p>NWL ICB is the final payer for all costs incurred per patient.</p>

As this costing method was to capture all costs per patient incurred for the NWL ICB, all costs for diagnostics, imaging and injections outside the tariffs, and, for the ROSMaC, provided by other providers, was included in the costing. Furthermore, this evaluation found that 18 ROSMaC patients were referred onwards to the TIROC for further investigations and consultation. While the ROSMaC will not be billed for these patients, costs incurred by these 18 patients have been added to the overall ROSMaC costs per patients as incurred on the ROSMaC patient pathway and reimbursed

<sup>2</sup> National tariff workbook 22-23 with Imperial MFF. [2022-23 National Tariff Payment System \(england.nhs.uk\)](https://www.england.nhs.uk). Accessed 05/07/23.

by the NWL ICB. This provides further insights on costs incurred on the whole patient pathway and how this impacts overall cost and cost difference when paid in tariffs by the NWL ICB.

Any costs for blood tests and Nerve Conduction Studies (NCS) were excluded from this costing exercise, as these will have required further analysis on specific blood tests for each patient which was out of scope for this evaluation. NCS are not provided by the ROSMaC which is why they have also been excluded from this costing exercise.

Patients who had no interactions with the service, due to not having attended (DNA) or having declined their ROSMaC appointment were excluded from both the ICHT (N=9) and HG (N=21) cohorts for the incremental costing exercise as they did not have any touchpoints with the services and thus did not incur any costs.

Lastly, a scenario analysis was carried out to test the model outputs for variation by inputting alternative variables, giving more information on how changing certain inputs such as hourly staff wages (from weekend to week rates) could impact the overall incremental cost difference.

#### 4.4 Tests for statistical significance

Histograms of the ROSMaC and TIROC populations showed abnormal distribution for both populations which is why a Mann–Whitney U test was carried out to test for any statistical significance of differences observed in incremental costs.

## 5. Limitations

Despite the efforts of carrying out a comprehensive evaluation of the TIROC and ROSMaC, certain limitations need to be highlighted. Final outputs and outcomes should be interpreted considering these limitations.

- **Lack of patient insights:** It was out of scope of this evaluation to include patient interviews. Patient Reported Outcome Measures (PROMs) and Patient Reported Experience Measures (PREMs) of those patients seen by the HG were only available at London level and across all specialty clinics provided by HG. Furthermore, ICHT only had PROMs and PREMs available from their routinely collected 'Friends and Family Survey' which does not hold specific information on the TIROC. As a result, patient insights were not included in this evaluation.
- **Differences in population samples:** No matching of patient cohorts against patient characteristics was carried out as this was out of scope and budget for this evaluation. This means that patients in the services' population samples may substantially differentiate, and any differences observed in the outputs and costing exercise stem from these differences rather than from any differences between the services (e.g. ICHT patient cohort was included based on timeframe Apr-Jun 2022, HG patient cohort was included based on timeframe Sep-Oct 2022).
- **Inconsistencies in the coding of the data:** For example, HG did not use the 16 standardised Ethnicity Groups provided by the Office for National Statistics (ONS) which restricted direct comparison to ICHT data.
- **Risk of human error** in the manually extracted data: The manual extraction of data carries an inherent risk of human error. Despite efforts to ensure accuracy, the possibility of errors in the

extraction process cannot be entirely eliminated. These errors, if present, can introduce inaccuracies and impact the validity of the evaluation's findings.

- **Potential modelling inaccuracies:** For example, this evaluation assumed all staff time spent in the patient appointments. Accurate measuring of staff time on site would have led to more accurate modelling inputs but this was out of scope and budget for this evaluation.
- **Lack of estate costs for both services to be included in the costing exercise:** As costs for the TIROC in the ICHT outpatient estates were unavailable, it was impossible to compare monthly rent spent on estates for TIROC and ROSMaC. This may have led to an inaccurate picture of the incremental cost difference between both services.
- **Limitations of the qualitative approach:** Whilst there are strengths to the mixed-method approach used for this evaluation, it is important to acknowledge the limitations of the qualitative approach employed in this evaluation. Firstly, the sample for qualitative interviews was identified by the evaluation steering group, which may introduce bias and limit the diversity of perspectives included. Additionally, the absence of patient interviews in this qualitative analysis limits the depth of understanding of patient experience and viewpoints. Furthermore, the thematic analysis, being based on the interpretation of a single interviewer and analyser, introduces subjectivity in the identification and interpretation of themes. These limitations underscore the need for caution when generalising the qualitative findings, however these qualitative findings are supported by the quantitative as well as the cost analysis that was completed as part of this evaluation.

## 6. Logic model of the new ROSMaC model

The below logic models outlines aims of implementing the ROSMaC as well as necessary inputs and activities to run this service, and anticipated outputs and outcomes. This logic model has formed the base for data collection and analysis for both the TIROC and ROSMaC.

Table 2 Logic model outlining the ROSMaC

<b>Aims</b>	<ul style="list-style-type: none"> <li>• To reduce size of waiting list for Hospital Rheumatology</li> <li>• To achieve with effective use of taxpayer funds</li> <li>• To reduce, or at least not exacerbate, health inequalities.</li> <li>• To deliver a good patient experience</li> <li>• To maintain or improve on high levels of staff satisfaction</li> </ul>
<b>Primary Outcomes</b>	<ul style="list-style-type: none"> <li>• Shorter patient waiting times to diagnosis, discharge or start of treatment.</li> <li>• Attendance is improved among underserved groups, including those from minority ethnic groups, older people, and people experiencing deprivation.</li> <li>• Overall DNA rates are lower in Waiting List clinic.</li> <li>• Increased numbers of patients in Waiting List Clinic treated and discharged at first appointment.</li> <li>• Low proportion of patients in Waiting List Clinic referred to Hospital Rheumatology</li> <li>• Patients referred back to Hospital Rheumatology are receive a timely appointment</li> <li>• Patients are satisfied with the care they receive</li> <li>• Staff find this an acceptable way to work</li> </ul>

<b>Outputs</b>	<ul style="list-style-type: none"> <li>• Patients accept offer to be seen in Waiting List clinic</li> <li>• Patients have attended appointment Waiting List clinic</li> <li>• Patients discharged by Waiting List Clinic after single appointment</li> <li>• Patients referred on to Hospital Rheumatology for ongoing care</li> <li>• Patients referred for further investigations</li> </ul>
<b>Activities</b>	<ul style="list-style-type: none"> <li>• Referrals passed on to service by Hospital Rheumatology</li> <li>• Referrals received by service and contacted to offer Waiting List Clinic</li> <li>• Patients declining passed back to Hospital Trust to resume place on waiting list</li> <li>• Patients accepting Waiting List Clinic offered an appointment</li> <li>• At clinic, patient seen by APP/ GPwER, and reviewed by consultant</li> <li>• Patients can also have US, US-guided injection, see band 7 physio</li> <li>• Further tests can be arranged as needed and f/up in clinic arranged</li> </ul>
<b>Inputs</b>	<ul style="list-style-type: none"> <li>• Premises accessible to staff and patients</li> <li>• Allied health professionals and GPwERs to assess patients</li> <li>• Consultant supervision and review of all patients</li> <li>• On-the-day diagnostic ultrasound, and ultrasound guided injections</li> <li>• Physical therapists to deliver self-care education</li> <li>• Administrators and managers</li> <li>• Staff briefing, training and induction</li> </ul>

## 7. Results

The evaluation aimed to compare the TIROC and the new ROSMaC, focusing on outputs, outcomes, processes, and marginal costs. The results of the evaluation are presented in this section.

### 7.1 Measuring outputs – what is the impact of the ROSMaC on referral to appointment and diagnosis time as well as diagnostics

The evaluation aim was to determine the impact of the new ROSMaC in terms of diagnosing and discharging patients with fewer investigations, appointments, and shorter waiting times.

The median has been chosen as the reporting metric over the mean due to the wide range across all output metrics to account for outliers, providing a more representative measure.

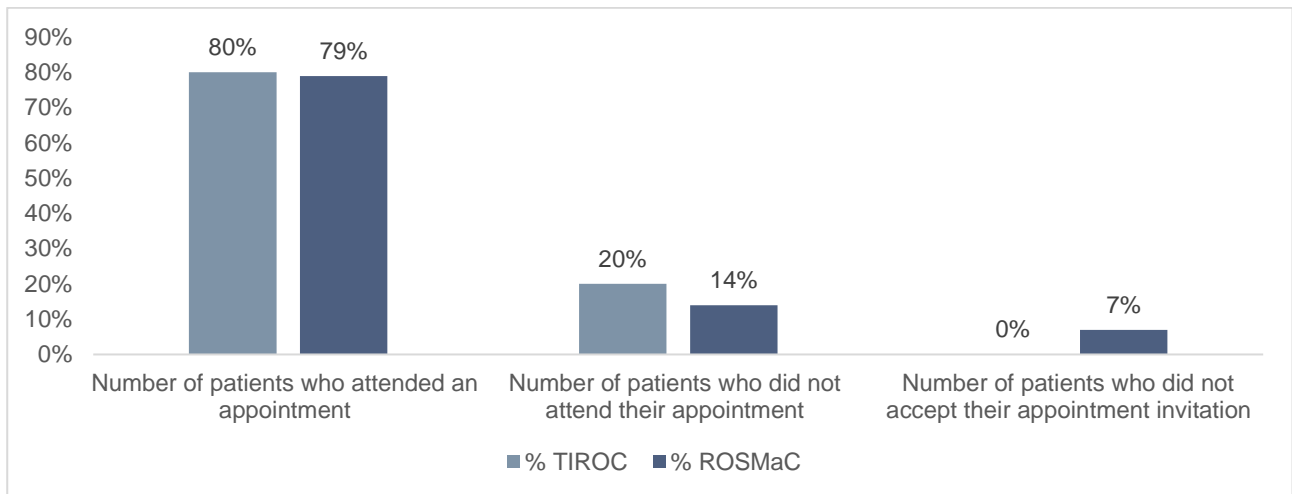
The results indicate the ROSMaC streamlines the patient journey and optimises resources utilisation including consultant time.

#### **Attendance and DNA rates at both clinics**

The large majority of patients attended their initial appointment, both at the TIROC and ROSMaC (80% and 79% respectively). There was a slightly higher proportion of TIROC patients who did not attend their initial appointment at the service (20%).

Seven patient referrals were also returned to ICHT as those patients declined their ROSMaC appointment.

Figure 3 Attendance and DNA rates at both clinics

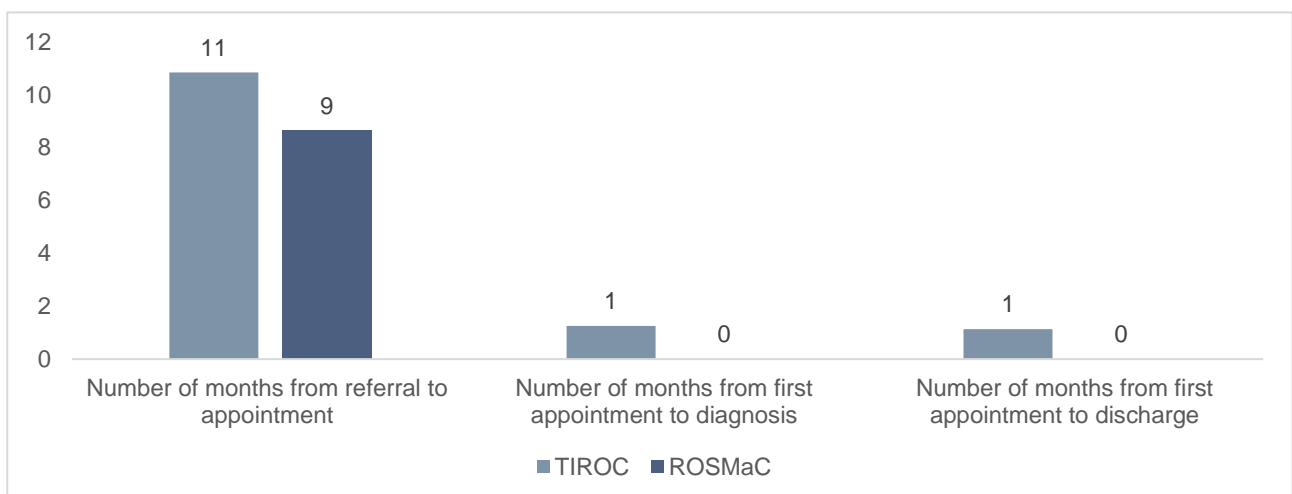


### Referral to treatment/ diagnosis

The median waiting time from GP referral to initial patient appointment was 10.83 months (range 5.43 to 15.37 months) for TIROC patients and 8.63 months (range 1.53 to 13.73 months) for ROSMaC patients. While TIROC patients waited a median of 1.25 months from their first appointment to diagnosis (range 0 to 9.73 months), ROSMaC patients received their diagnosis mostly within the same month as their initial appointment (range 0 to 7.63). Lastly, time from initial appointment to discharge was similar: TIROC patients were discharged after a median of 1.13 months (range 0 to 10.93) while ROSMaC patients were discharged within the same month as their initial appointment and receipt of their diagnosis (range 0 to 7.63).

These findings highlight the improved efficiency of the ROSMaC in terms of reduced waiting times for appointments and faster diagnostic outcomes compared to the TIROC. However, further exploration of bounce back rates and the integration of IT systems are essential for a comprehensive evaluation of the ROSMaC's impact on patient care and follow-up.

Figure 4 Median months of patient waiting time

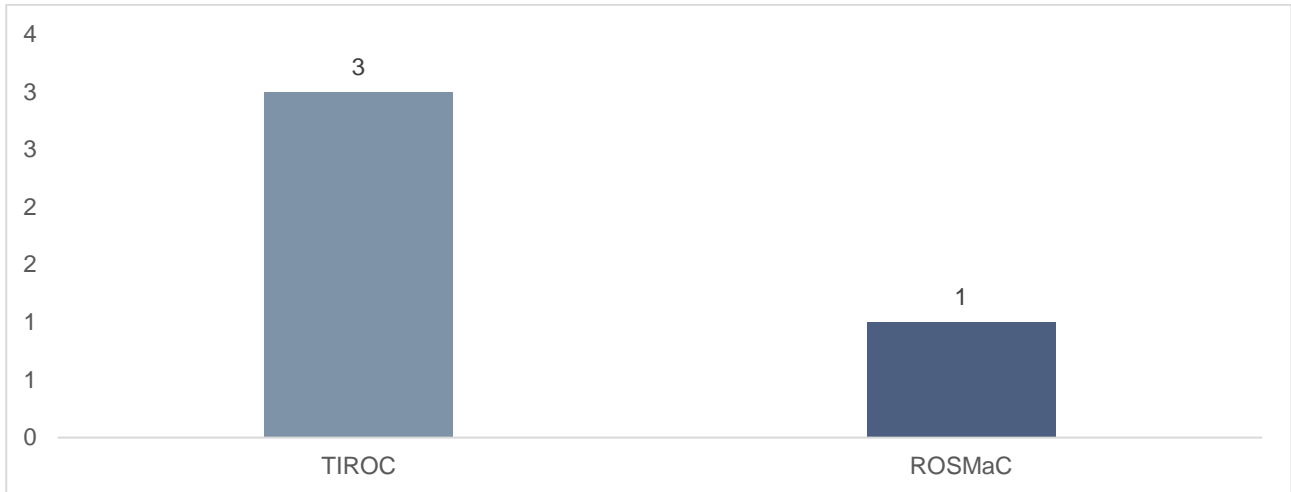




### Number of appointments to diagnosis

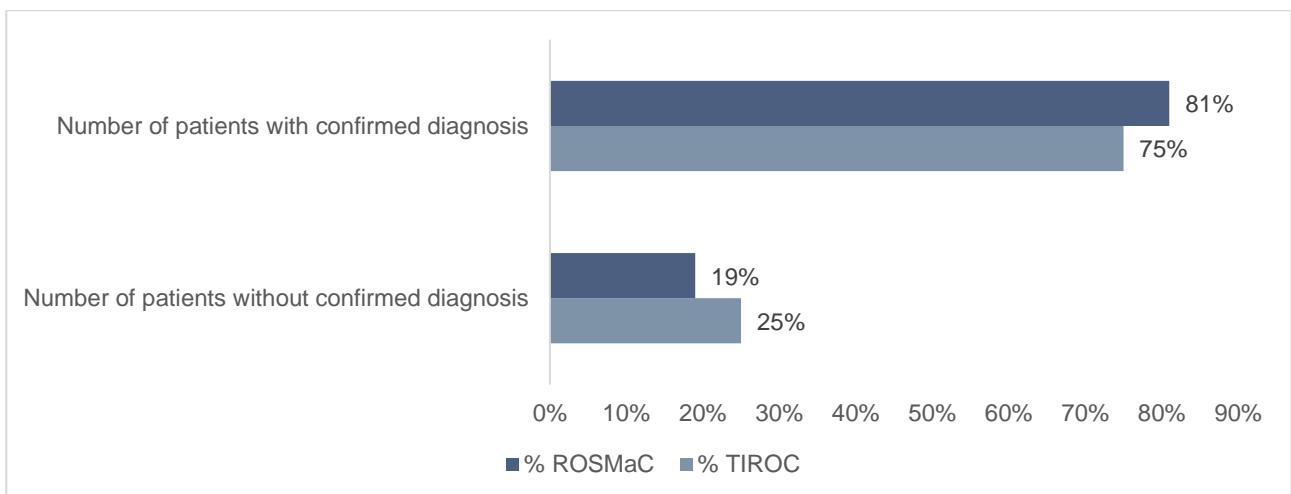
The evaluation results indicate a significant difference in the number of appointments required to reach a diagnosis between TIROC and ROSMaC patients. TIROC patients had a median of three appointments (ranging from 1 to 7 appointments) before receiving a diagnosis, while ROSMaC patients achieved a diagnosis after just one appointment (ranging from 0 to 2 appointments).

Figure 5 Median number of patient appointments to reach diagnosis



For the patient cohort included in this evaluation, there was also a slightly higher overall proportion of ROSMaC patients who received a diagnosis compared to the TIROC patients. 81% of ROSMaC patients received a diagnosis, while 75% of TIROC patients received a diagnosis in the timeframe included in this evaluation.

Figure 6 Proportion of patients with diagnosis at both services

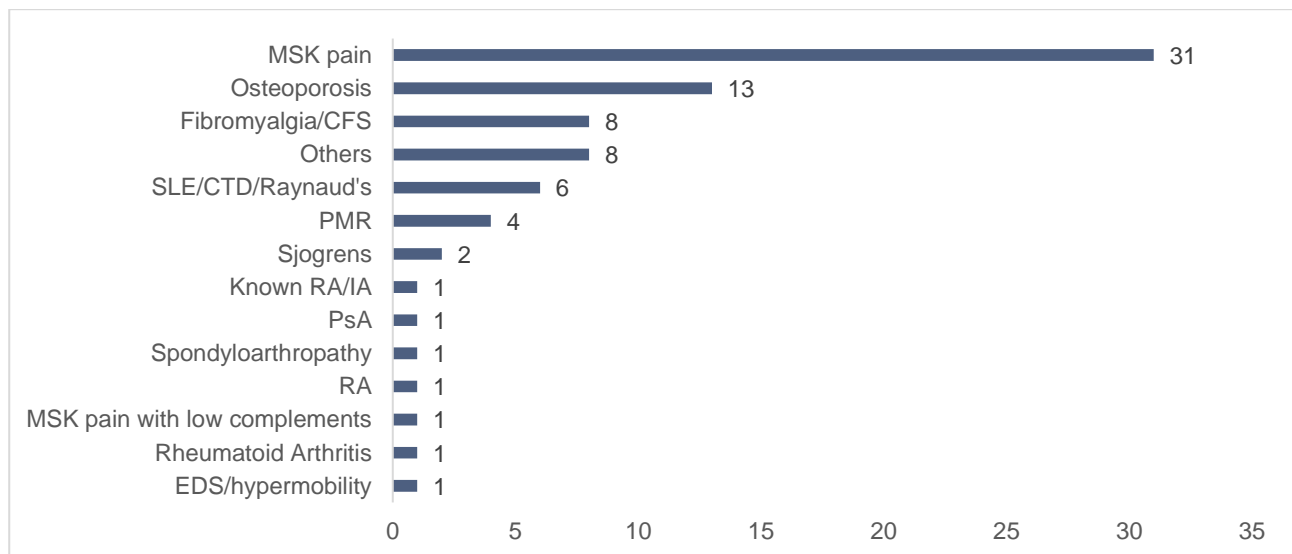


## Diagnosis pathways at ROSMaC

While TIROC diagnoses codes were not available for this evaluation, ROSMaC diagnoses were available to understand the most common diagnoses made at the clinic.

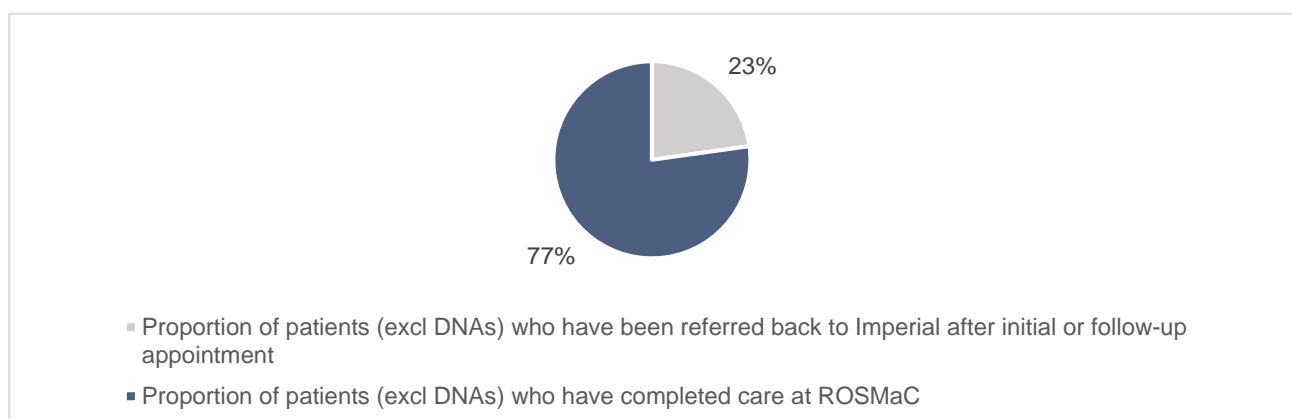
Out of the 100 patients included, most patients received a diagnosis of MSK pain (31%), Osteoporosis (13%), Fibromyalgia/ Chronic Fatigue Syndrome (CFS) (8%) and Systematic Lupus Erythematosus (SLE)/ Connective Tissue Disease (CTD)/ Raynaud's (6%). There was only one patient with known Rheumatoid Arthritis and two patients who received a Rheumatoid Arthritis diagnosis at the clinic.

Figure 7 Diagnoses made at the ROSMaC



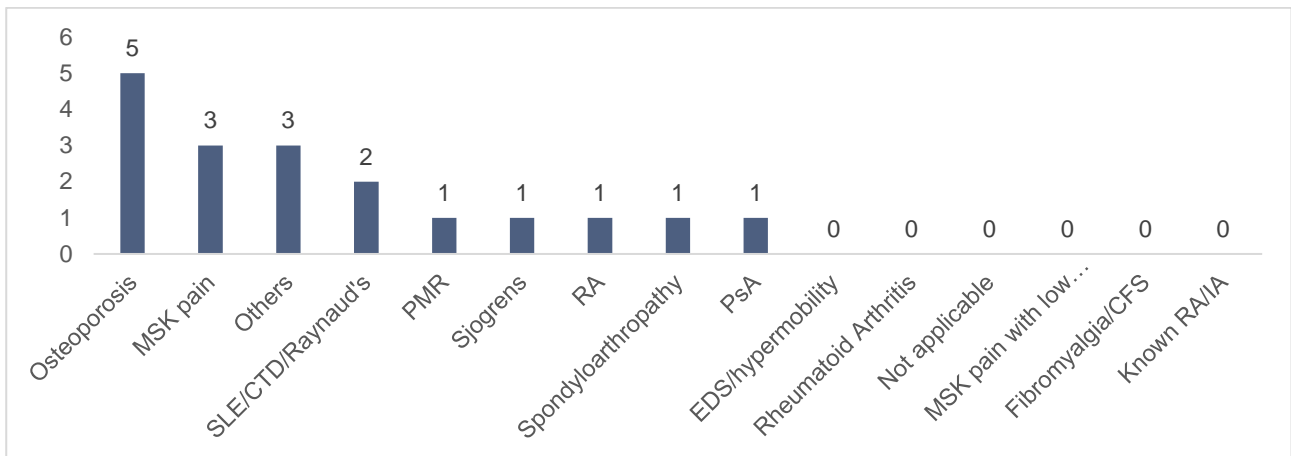
Of the 78 ROSMaC patients who attended their initial and/ or follow-up appointments, 18 (23%) were referred back to the ICHT TIROC for further investigations.

Figure 8 Proportion of ROSMaC patients referred back to Imperial



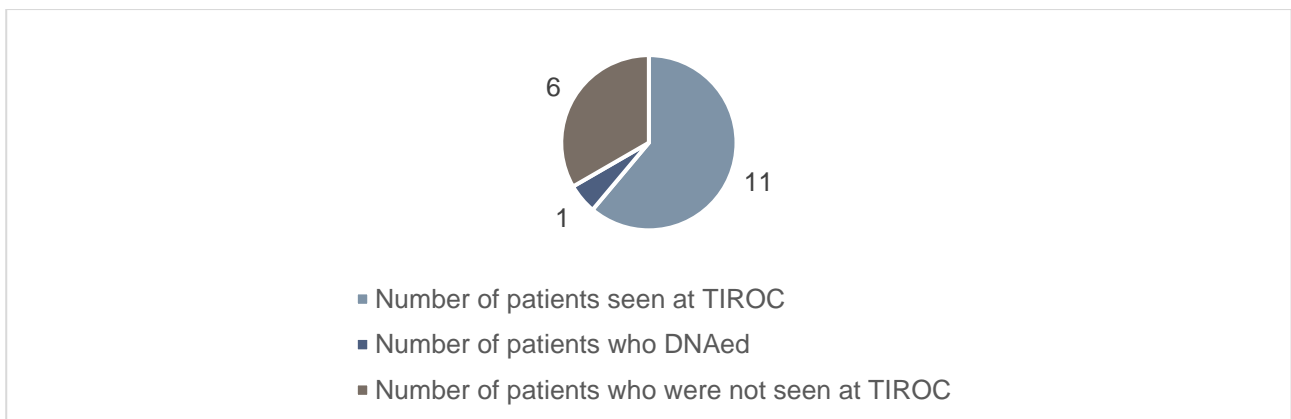
Amongst those 18 patients who were referred back to ICHT, the most common diagnoses were Osteoporosis (28%), MSK pain (17%), 'Other' (17%) and SLE/ CTD/ Raynaud's (11%).

Figure 9 Diagnoses of ROSMaC patients who were referred back to Imperial



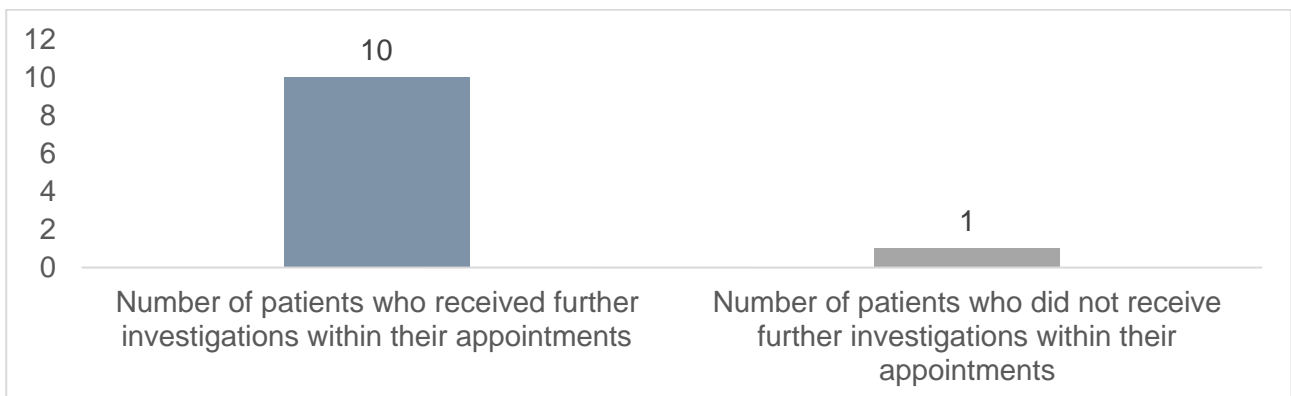
Of those 18 patients who were referred back to the TIROC, 11 patients were seen at the time of this evaluation, 1 patient DNAed and 6 patients weren't seen at the TIROC at the point of evaluation (Figure 9).

Figure 10 Number of patients seen at the TIROC after having been referred back from the ROSMaC



Of those 11 patients seen at the TIROC, 90% received further investigations within their appointments (Figure 10).

Figure 11 Number of TIROC patients referred back from the ROSMaC who received further investigations



Most patient were sent for Bloods while ultrasounds, MRIs and echocardiography were less common investigations (Figure 11). Most of those patients referred back to the TIROC had one appointment only at the point of this evaluation (Figure 12)

Figure 12 Investigations those TIROC patients referred back from ROSMaC received

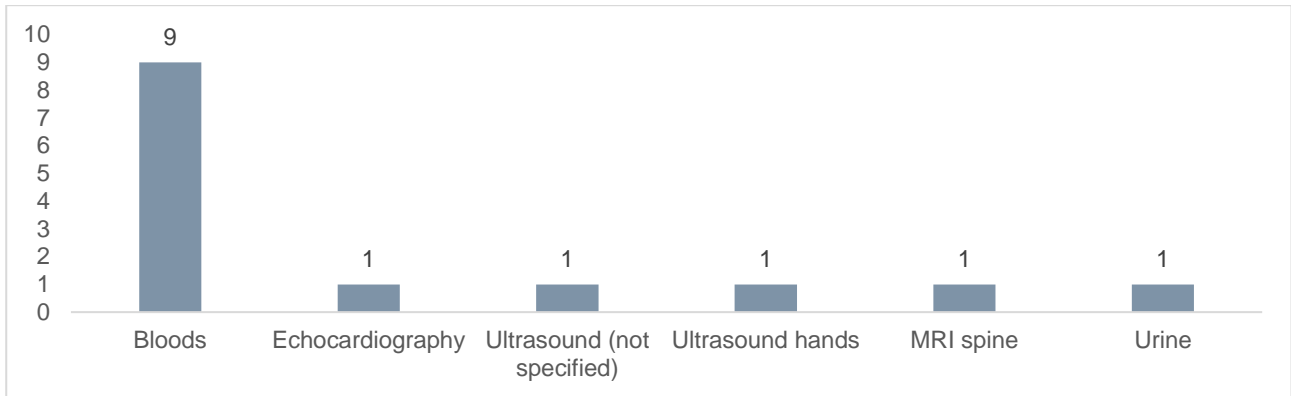
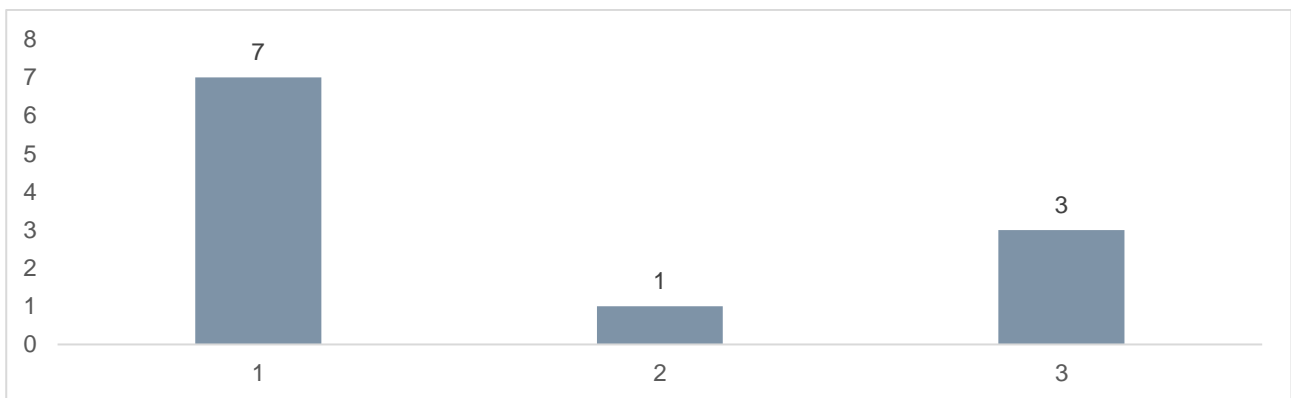


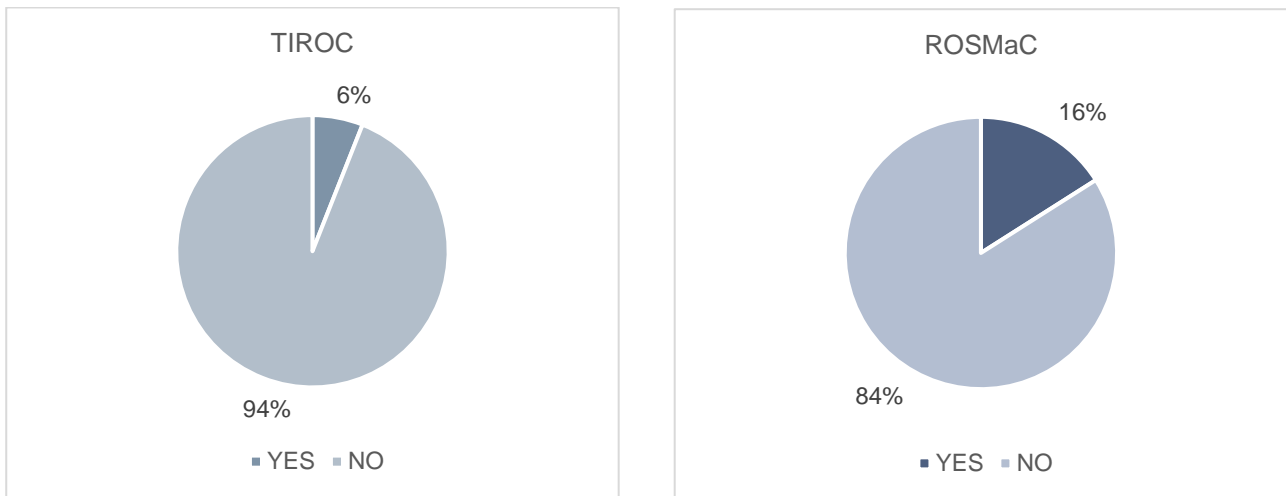
Figure 13 Number of appointments those ROSMac patients referred back to TIROC received, at time of evaluation



### Referrals to Physiotherapy

Referral rates to the Physiotherapist were notably low in both services. However, when comparing the two, TIROC patients had a referral rate of 6% to a physiotherapist (Figure 9), while ROSMaC patients had a higher referral rate of 16% (Figure 9). Notably, in addition to the increased frequency of referrals, ROSMaC patients received same-day referrals to the physiotherapist, indicating a more efficient and prompt access to this service.

**Figure 14:** Proportion of ICHT and HG patients who received a Physiotherapy appointment (same-day Physiotherapy appointment for HG patients)



### Qualitative insights from staff interviews

Clinicians generally hold a positive perception of the ROSMaC initiative, highlighting its effectiveness in reducing waiting times and providing comprehensive and efficient care. The initiative also presents valuable learning and skill-building opportunities for staff.

However, there are areas identified for improvement, particularly in triage and training, that could further enhance the service. This section provides a summary of the qualitative insights and recommendations expressed by participants.

**Patient Management and Care Delivery:** The Rheumatology One Stop Mass Clinic (ROSMaC) initiative received favourable feedback from clinicians regarding its impact on patient management and care delivery. Participants expressed the belief that the initiative would significantly reduce the waiting list and improve patient care by offering one-stop-shop services. The format of the clinic was seen as an effective model for delivering comprehensive care. The collaborative approach and the expertise brought by each team member were highlighted as strengths of the initiative. Furthermore, participants suggested that the ROSMaC could serve as a potential model for future delivery of care. The benefits of the MDT structure, combined with the streamlined processes and reduced waiting times, make it a promising approach worth considering in the ongoing efforts to improve patient care.

However, during staff interviews, some recommendations for improvement were also highlighted. For example, participants emphasised the importance of refining the triage system to ensure appropriate patient prioritisation and allocation of resources.

*“The big vision is to come up with a model of care that can become the new model of care which demonstrates improved patient access, improved outcome and cost effective for relatively low risk patients. - hopefully doing this at NWL will lead to reduce wait times for high volume low complexity patients.”*

*“This model also demonstrates that Advanced Physiotherapy Practitioners have a real value added.”*

*“I feel the format of the clinic works well. This model is something that should be considered for the future.”*

## 7.2 Measuring outcomes

7.2.1 What impact does the new service model have on staff and patient experience and satisfaction in comparison to the standard care model?

- How are staff experiencing the new service model?
- How satisfied are staff with the new service model?

### Qualitative insights from staff interviews

The multidisciplinary approach, collaboration between healthcare professionals, one-stop-shop model, and efficiency in service delivery were highlighted as strengths of the initiative.

Respondents viewed the MDT nature as a positive and critical to the success of the model. However, the success of the model was based on having a readily available pool of highly skilled Physiotherapists.

Participants suggested that better triage and referral criteria, including consultant-led triage, could improve patient selection and management. Some of the key emerging themes are discussed below:

#### Key themes:

**Multidisciplinary approach and efficiency:** The multidisciplinary nature of the clinic, incorporating collaboration between rheumatologists, GPs, and physiotherapists, was widely acknowledged as a strength of the initiative.

**Community-based service:** The initiative's community-based nature was seen as a significant advantage, providing increased accessibility for some patients – although this is predominantly from clinician experience rather than direct patient feedback. Staff expressed confidence in the ability of the initiative to handle high-volume, low-complexity referrals, effectively addressing the needs of the local community.

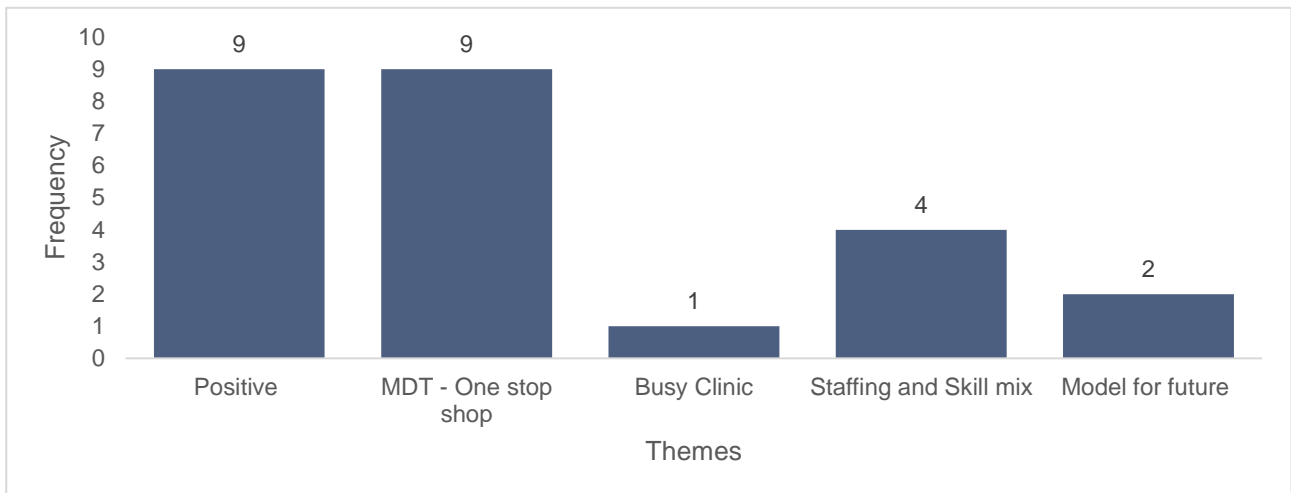
**Busy clinic:** The interviews revealed that the clinic experienced a high demand and was very busy on some days which may give some indication of the popularity of the initiative for those it was offered to.

**Staffing and skills:** The flexibility of staffing and the ability to quickly mobilise and demobilise resource, were highlighted as key factors contributing to the initiative's success. Based on prior experiences, staff could rapidly adapt and allocate resources, optimising the efficiency and impact of the clinic.

**Model for the future:** The ROSMaC was also suggested as a possible model for the future that should be considered.

Figure 15 provides insights on themes that emerged from the qualitative interviews.

Figure 15 Interviewees' views on the ROSMaC



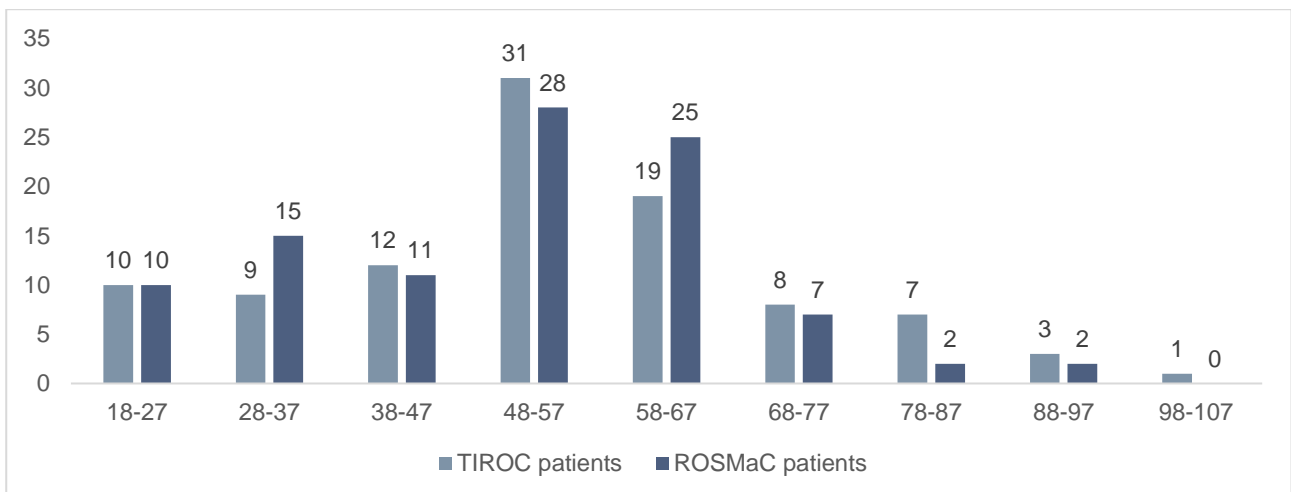
### 7.2.2 What impact does the new service model have on access and uptake of services across different patient groups?

This section looks at whether there are any demographic differences (ethnicity, sex, socioeconomic status) in those patients attending the services and those who 'do not attend' (DNA).

#### Age distribution

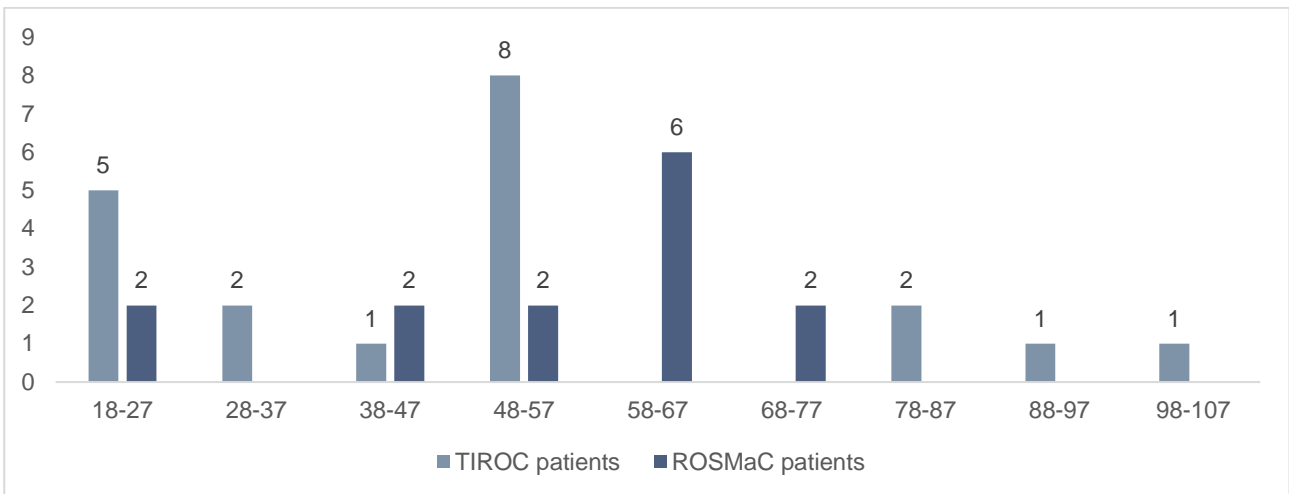
There was no major difference in age distribution between both services. Both services had most patients in the age groups 48-57 and 58-67.

Figure 16 Age distribution of patients at both services



Looking at DNAs, the TIROC had six more DNAs than the ROSMaC (20 vs 14 DNAs). The TIROC had most DNAs in the age groups 18-27 and 48-57 while the ROSMaC had most DNAs in the age group 58-67 (Figure 11).

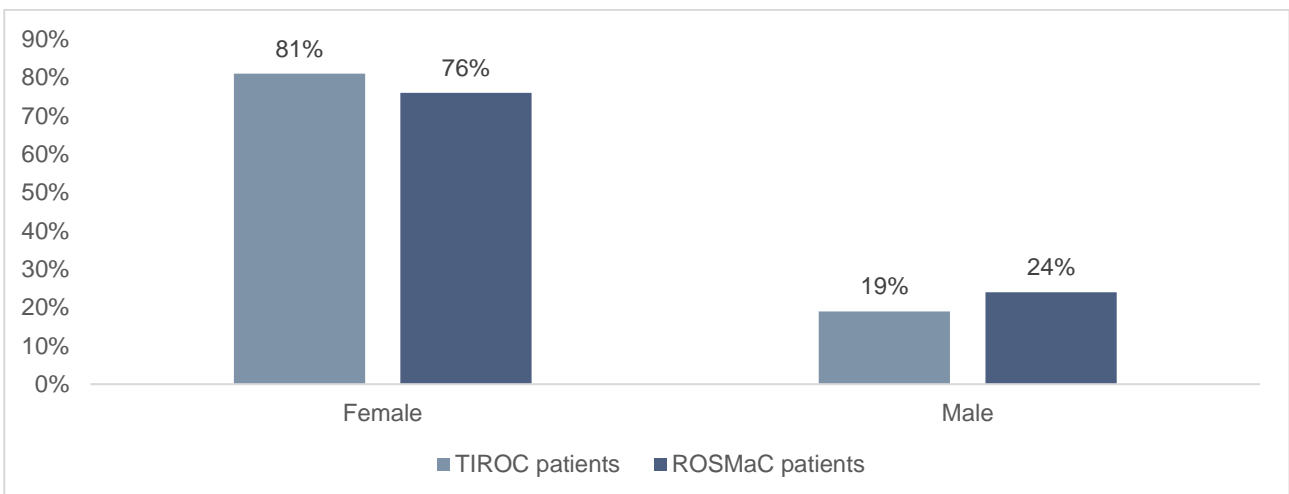
Figure 17 Age distribution of DNAs at both services



### Sex distribution

Gender was relatively equally distributed at both services, with females making up the majority of patients at both services. The proportion of male patients was slightly higher at the ROSMaC (Figure 12). There were no other gender categories coded in either the ICHT or the HG datasets.

Figure 18 Sex distribution of patients at both services



While DNAs were higher in women at both services (Figure 13), looking at the proportion of DNAs per sex at both services, it is noticeable that DNAs were higher amongst men at the ROSMaC (Figure 14).



Figure 19 Sex distribution of DNAs at both services

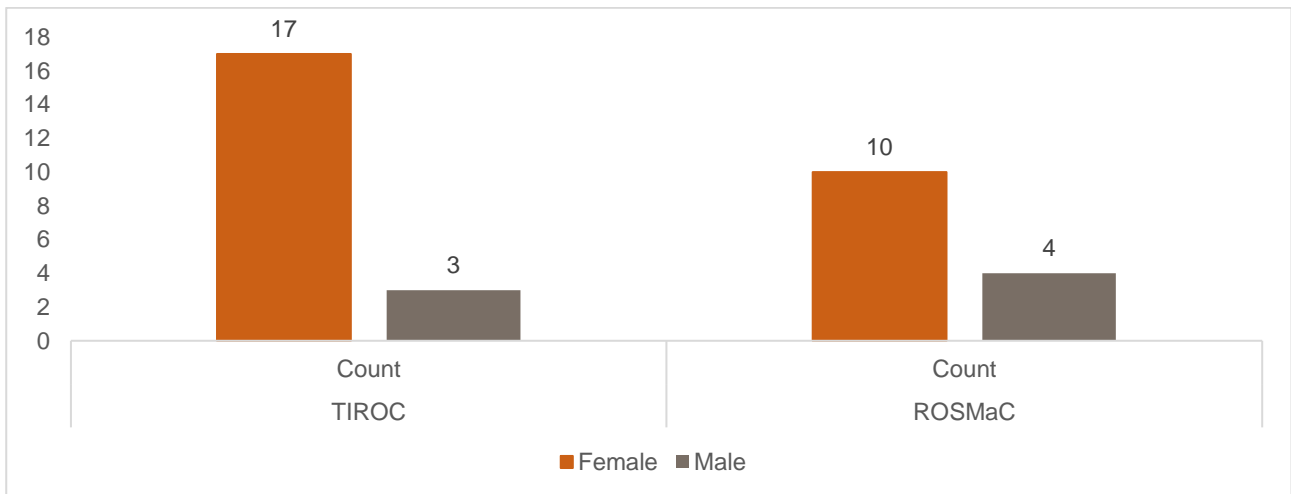
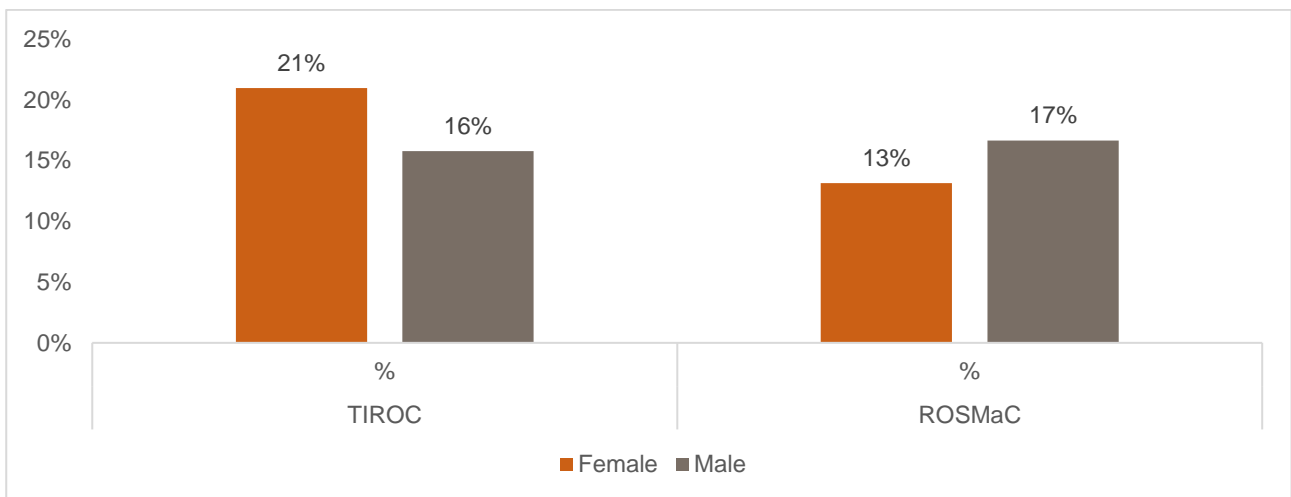


Figure 20 Proportion of DNAs in females and males in both services

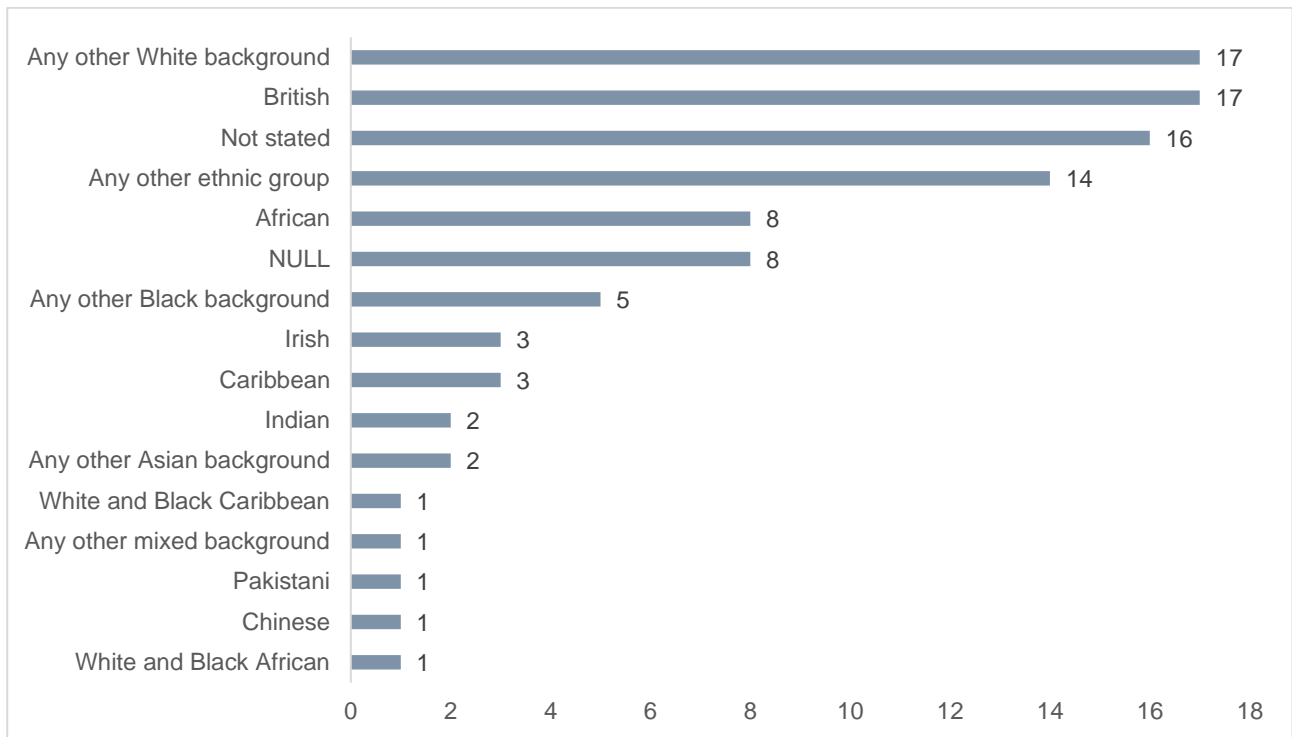


### Ethnic distribution

Due to differences in ethnicity coding between both services, it is not possible to directly compare the distribution of ethnicity at both services.

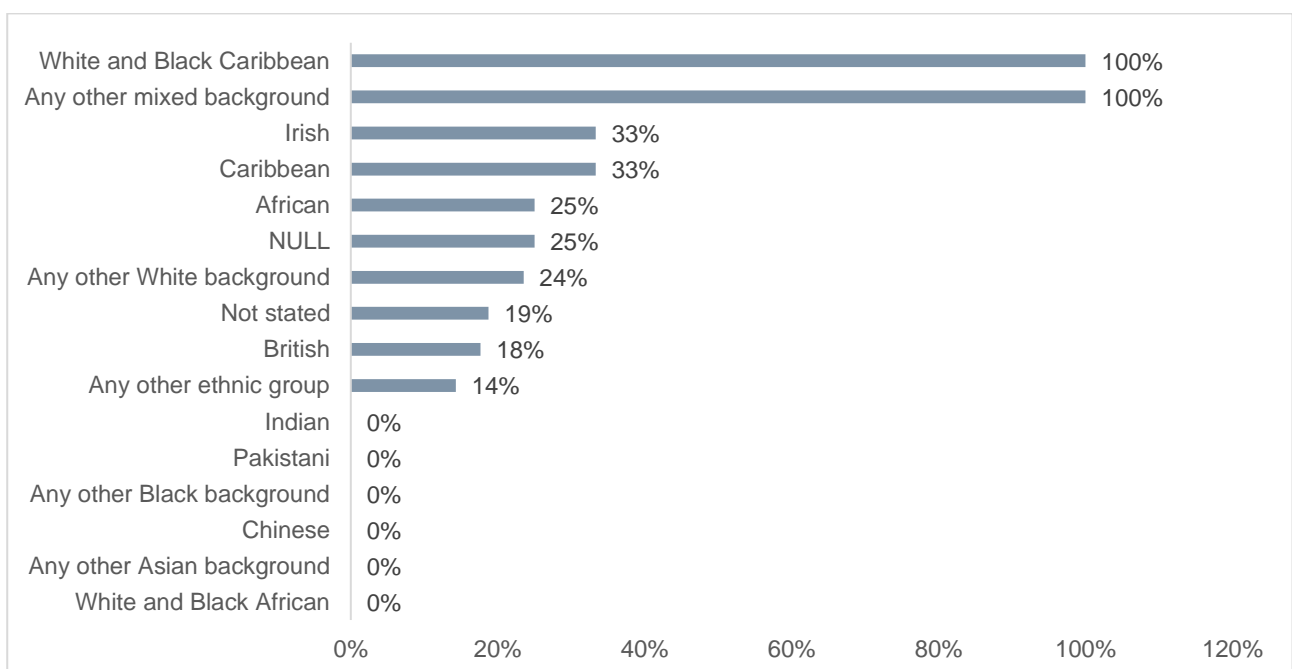
Most of the TIROC patients were from 'any other White' or 'British' background (17%), followed by those 'not stated' (16%), 'any other ethnic group' (14%) or 'African' background (8%) (Figure 15).

Figure 21 Ethnic distribution of TIROC patient cohort



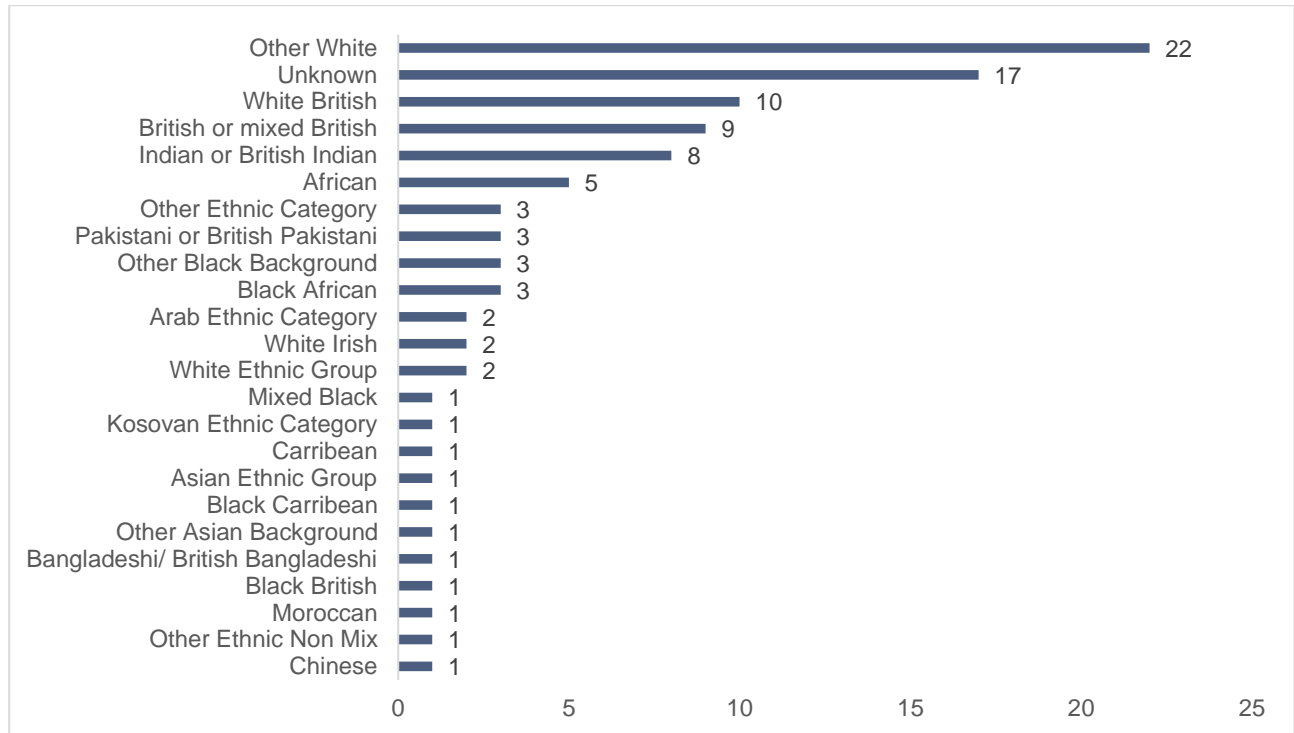
There were 20 DNAs within the included TIROC patient cohort. While most DNAs were found among those patients from 'any other White' background (4 DNAs), 'British' background (3 DNAs) and those 'not stated' (3 DNAs), compared to the total number of patients within each ethnic group, the highest proportion in DNA rates were found in 'White and Black Caribbean', 'any other mixed background', Irish, Caribbean and African patients (Figure 16).

Figure 22 Proportion of DNAs across ethnic backgrounds compared to overall attendance, TIROC patient cohort



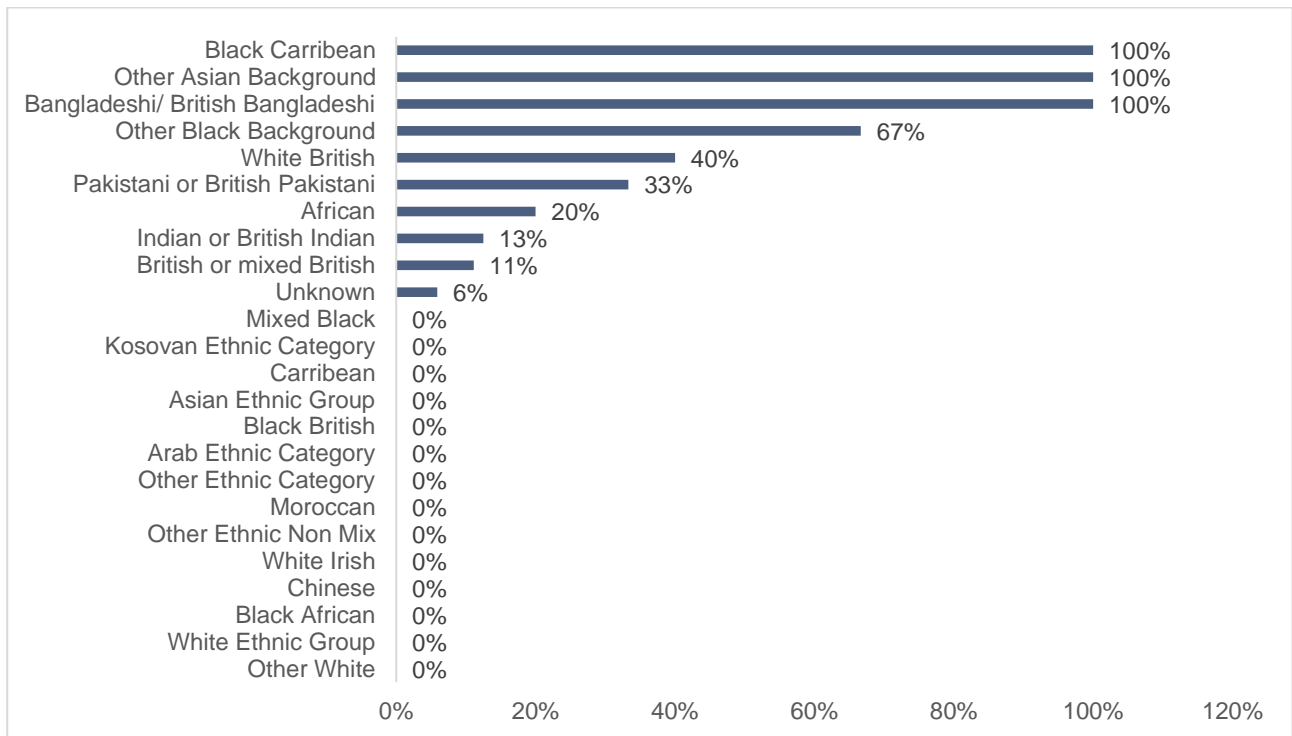
Most ROSMaC patients were from 'other White' (22%), 'White British' or 'British or mixed British' (19%) or 'unknown' background (17%), followed by patients with 'Indian or British Indian' background (8%) or 'African' background (5%) (Figure 17).

Figure 23 Ethnic distribution of ROSMaC patient cohort



There were 14 DNAs within the included ROSMaC patient cohort. While most DNAs were found among 'White British' (4 DNAs) and 'Other Black background' (2 DNAs), compared to the total number of patients within each ethnic group, the highest proportion in DNA rates were found in 'Black Caribbean', 'Other Asian background', 'Bangladeshi/ British Bangladeshi' and 'Other Black background'. (Figure 18).

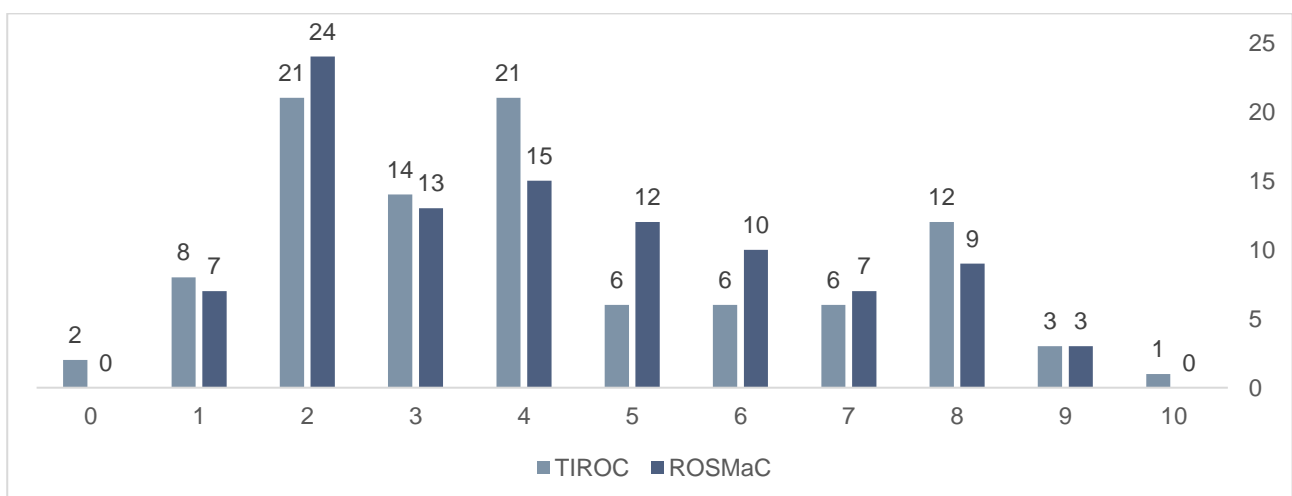
Figure 24 Proportion of DNAs across ethnic backgrounds compared to overall attendance, ROSMaC patient cohort



### Socioeconomic status distribution

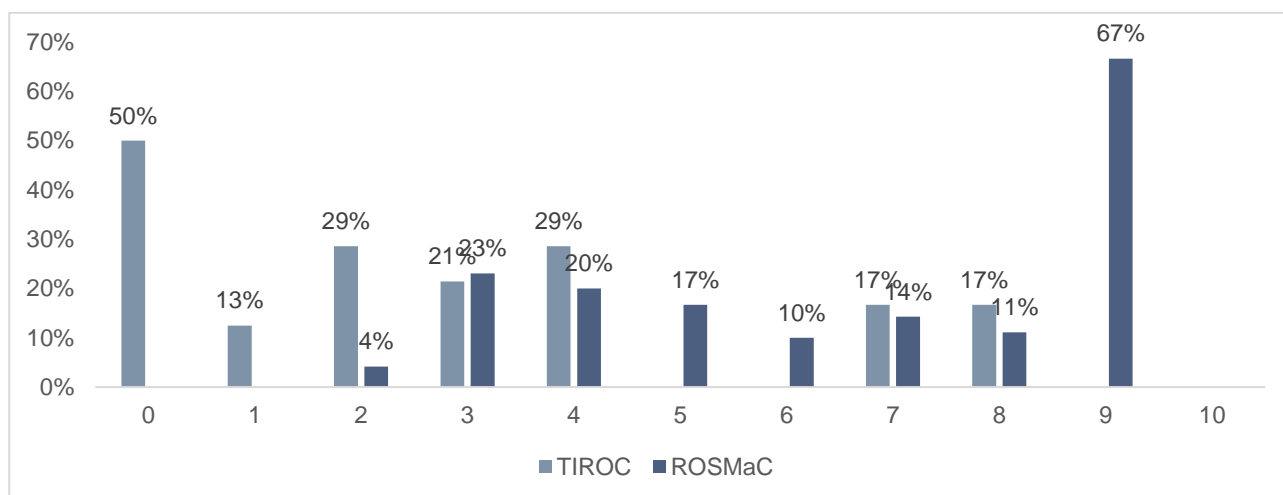
There were no obvious differences in the distribution of patients' socioeconomic status comparing the TIROC and ROSMaC patient cohorts. There were slightly more ROSMaC patients from IMD (indices of multiple deprivation) deciles 2, 5, 6 and 7 and slightly more TIROC patients in IMD deciles 0, 1, 3, 4 and 8 (Figure 19).

Figure 25 Distribution of socioeconomic status among TIROC and ROSMaC patients



Looking at the DNAs within the TIROC (20 DNAs) and ROSMaC (14 DNAs) patient cohorts in comparison to patients attending the services overall, it is noticeable that the majority of TIROC patients who did not attend were from lower IMD deciles (more deprived) and the majority of ROSMaC patients who did not attend were from higher IMD deciles (least deprived) (Figure 20).

Figure 26 Distribution of DNAs per IMD decile



In addition to the quantitative insights above, the qualitative interviews explored the impact of the ROSMaC initiative on the quality of care provided (Q7 under staff experience - What is the impact of the service on the quality of care you can provide?).

The responses highlighted the following key themes:

**Clarity of referral criteria:** There was a consensus that the initiative primarily focused on low-risk patients. They emphasised the importance of well-defined referral criteria to ensure appropriate patient selection and optimal care.

**Discharge rates and training Opportunities:** Staff reported that the initiative positively impacted the quality of care provided. The ability to discharge a significant number of patients during their first visit was viewed as an improvement. There was also a suggestion that with further APP training specific to the ROSMaC clinic, consultants could potentially discharge an even higher number of patients. This efficiency in patient management allowed for improved care delivery and reduced waiting times.

**Patient care and follow-up:** For straightforward pathologies, the one-stop-shop model was deemed excellent by all clinicians interviewed, providing closure in the diagnostic and treatment process. However, some challenges were noted for more complex patients or those patients requiring follow-up. Initially, the lack of a dedicated follow-up clinic created difficulties, resulting in some patients needing to be sent to secondary care due to capacity limitations, however this was resolved. Despite this, some patients appear to have waited was identified as an area affecting both patient and staff experiences.

**Access to Consultants and input:** The mass clinic setting was perceived to enhance the quality of care compared to regular clinics. Participants emphasised the value of having access to consultants for input, which improved patient care and reduced waiting times. In contrast, in regular clinics, patients often had to wait for consultant input, leading to delays in receiving appropriate care.

*“I feel I was able to discharge a large number of patients in the first visit. With more training I wonder if some consultant be able to discharge a higher number of patients.”*

*Rheumatology Consultant*

### 7.3 Understanding processes – what are current enablers and barriers for the new service and therefore how might we spread it?

- What are current enablers for the new service model?
- What are current barriers for the new service model?
- What works well?
- What could be improved?

#### **Enablers**

As part of the qualitative interviews, participants were asked about the key enablers for the ROSMaC service. The purpose of this question is to identify the enablers that have contributed to the success of the new ROSMaC model. The qualitative interviews sought insights into the factors that have facilitated the functioning and effectiveness of the model. The responses highlighted several key enablers, emphasising the importance of collaboration and trust, leadership, resources and infrastructure, IT and data management, and workforce availability and skills.

**Collaboration and trust:** The most prominent theme that emerged from the interviews was the significance of collaboration and trust among the different organisations involved in the initiative. Respondents emphasised that the willingness to work together, existing relationships, and mutual trust were critical enablers for the smooth operation of the new service model. The collaborative approach allowed for effective inter-organisational cooperation and seamless delivery of care to patients.

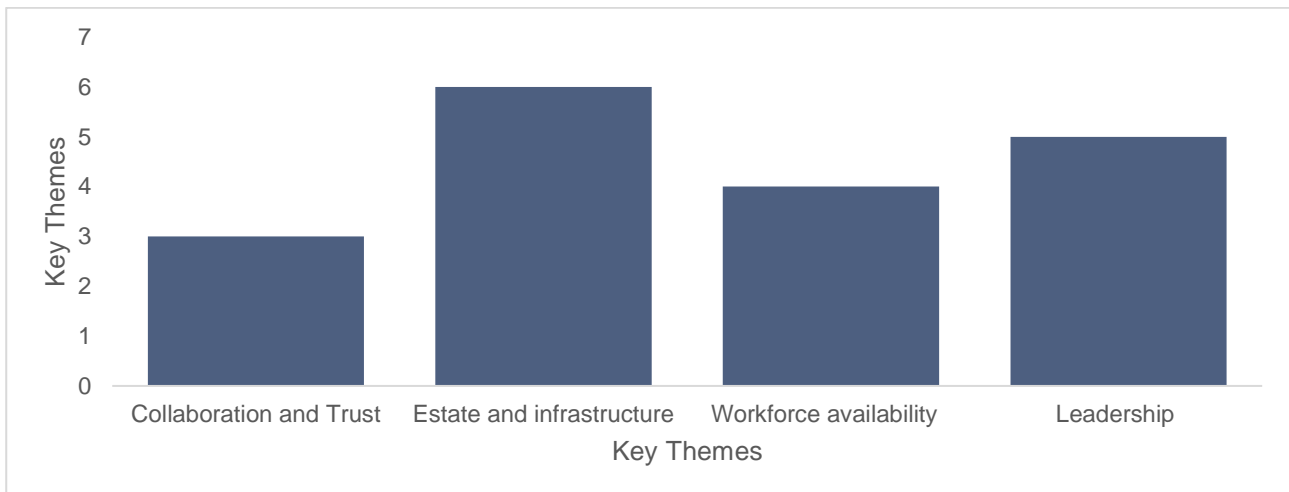
**Leadership:** Strong and open-minded leadership (strategic and clinical) was identified as a critical enabler for the success of the new service model. Leaders who prioritised patient care and were willing to break traditional barriers played an instrumental role in driving the initiative forward. Their vision, guidance, and ability to foster a culture of innovation, collaboration and willingness to experiment with a new model of care was a key factor in the model's effectiveness. It was however, also highlighted that there was a burning platform that created an impetus to try something different.

**Estate and infrastructure:** Having the necessary resources and infrastructure was highlighted as another important enabler. The availability of estates, efficient administration support, and the ability to quickly set up contracts and manage information governance were essential. Additionally, access to diagnostics and skilled staff played a vital role in ensuring the smooth functioning of the new service model.

**Workforce availability and skills:** The availability of a skilled and adaptable workforce was recognised as a critical enabler. The ability of staff to see a large volume of patients and provide comprehensive care packages was facilitated by their skillset and expertise. Having a workforce that was happy to be part of the new model and committed to delivering high-quality care was essential to the success of the initiative.

**IT and data management:** Efficient IT systems, data sharing possibilities, and timely delivery of information were identified as enablers for the new service model and also highlighted as important areas for improvement for any future expansion of this model. The ability to access and share comprehensive clinical history across different care providers and ensure timely availability of results and information is crucial for seamless patient care.

Figure 27 Interviewees' views on key enablers of the ROSMaC



### Barriers

The evaluation also sought to understand barriers and challenges with the aim of informing learning and future leadership and strategic decisions.

The qualitative interviews identified several barriers and challenges in the implementation of the ROSMaC. These included administrative processes and scheduling issues, challenges with IT systems and data sharing, patient work-ups and referral processes, patient follow-up, and geographical limitations. Whilst these challenges are unlikely to be unique to this service, addressing these barriers will be important for improving the effectiveness and efficiency of the new service model. It is suggested that by streamlining administrative processes, enhancing IT systems and data sharing capabilities, optimising patient work-up and referral processes, improving patient follow-up mechanisms, and addressing geographical limitations, the barriers and challenges can be overcome, leading to a more seamless and patient-centred care experience.

The key themes are discussed below:

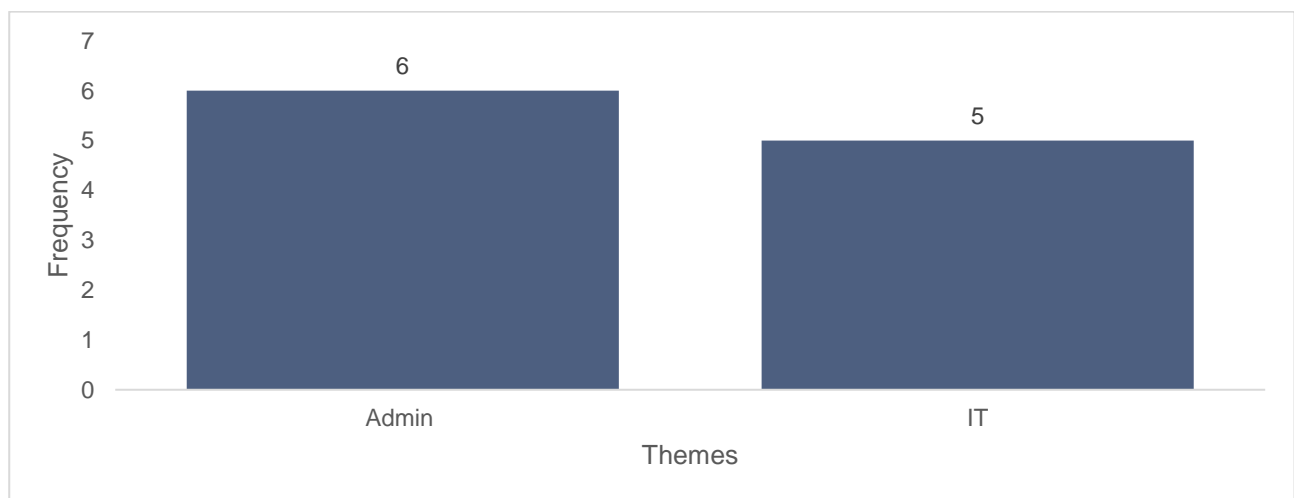
**Administrative processes and scheduling:** The most common barrier identified in the responses was related to administrative processes and scheduling. Participants expressed a need for improvements in administrative efficiency, appointment scheduling, and coordination. In some instances, there were weeks with fewer attendees than required, indicating potential inefficiencies in scheduling and resource allocation. Issues with room suitability also emerged, highlighting the importance of better planning and resource allocation to optimise the utilisation of available spaces.

Some challenges were noted in the patient work-up and referral process. Not all patients were fully worked up before their appointments due to the short and tight timescale, potentially impacting the comprehensiveness of their care. Difficulties in making community referrals were also reported, leading to a potentially disjointed care experience for patients. Streamlining the patient workup process and improving referral mechanisms are important to ensure a more coordinated and comprehensive approach to care. The interviews also revealed challenges in the follow-up process for patients. Some patients may have been lost in the follow-up journey, highlighting the need for enhanced tracking mechanisms to ensure continuity of care for all patients. The volume of patients is likely to be very low, however improving follow-up processes and implementing robust tracking systems are essential to optimise patient outcomes and satisfaction.

**IT systems and data sharing:** Significant challenges were reported regarding IT systems and data sharing. Specific mention was made of challenges with system integration, compatibility, and accessibility, particularly with Cerner and System One. These challenges hindered data sharing, referral processes, and access to necessary information. Addressing these IT challenges is crucial to ensure seamless information flow and efficient care delivery.

Linked to IT systems and data sharing, some interviewees highlighted difficulties in accessing certain information for patients referred from outside the catchment area. This suggests geographical limitations in data access and sharing. Refining patient eligibility criteria and improving data access and sharing across regions can help address these challenges and ensure comprehensive and coordinated care for all patients.

Figure 28 Interviewees' view on the ROSMaC's barriers and challenges



#### 7.4 Understanding the incremental cost of the ROSMaC – what incremental costs are associated with providing care via ROSMaC in comparison to the TIROC?

To understand the costs associated with each service, and the incremental difference between them, costs per patient at both the TIROC and ROSMaC service were calculated for:

1. Staff costs (the costs of all staff involved in an initial and follow-up patient appointment)
2. Diagnostics/ injections costs (the costs incurred by patients needing diagnostic testing or injections in their initial or follow-up patient appointments).

As outlined in section 4. Evaluation Methods, the incremental cost difference between the TIROC and ROSMaC, was calculated using two different costing approaches.

While Costing Approach 1 followed a provider perspective and summarised all direct costs (direct staff costs for each patient appointment and individual costs for diagnostics, imaging and injections) for each provider (ICHT and HG), incurred with delivering care for each patient, Costing Approach 2 took a commissioner perspective, and calculated costs inside and outside agreed tariffs for both the TIROC and ROSMaC.

The aim with both approaches was to understand differences in costs of providing both services (incremental cost difference) and thus understand value for money delivered by each service.



**Results of Costing Approach 1.1 (provider perspective, incl. costs for all diagnostic tests ordered):**

A comparison of the overall average costs per patient at both the TIROC and ROSMaC showed that there is suggestive evidence for a statistically significant incremental cost difference of -£57.17 (p = 0.06) (ROSMaC costs per patient – TIROC costs per patient (Table 3)).

Table 3 Mean patient costs and incremental cost difference between TIROC and ROSMaC patients for overall, staff, and diagnostics/ injections costs

Metric	TIROC	Standard Deviation (STD)	Minimum	Maximum	ROSMaC	Standard Deviation (STD)	Minimum	Maximum	Mean/incremental difference	p-value (Mann-Whitney U test)
Mean total costs per patient	£215.27	119.22	£78.23	£531.98	£158.10	56.77	£132.99	£412.74	-£57.17	0.055
Mean costs per patient for staff costs	£129.00	41.67	£78.23	£292.73	£143.70	15.98	£132.99	£175.34	£14.40	0.000
Mean costs per patient for diagnostics, imaging & injections	£85.98	113.18	£0	£418	£14.41	51.88	£0	£244	-£71.57	0.000

It is important to highlight that while the overall incremental cost difference between both services is negative, the differences for staff costs is positive, meaning that staff costs per patient were higher for ROSMaC patients than for TIROC patients. An extensive difference in costs can be observed for costs for diagnostics, imaging and injections per patient with average costs of £85.98 for TIROC patients and £14.41 for ROSMaC patients. This is due to the two models offering very different services in regard to diagnostics, imaging and injections regarding their comprehensiveness. While TIROC patients can get a full range of diagnostics and imaging done at the ICHT outpatient clinic (including blood and urine tests, NCS, ultrasounds, x-rays and MRIs), ROSMaC patients are offered ultrasounds and ultrasound-guided injections only and are referred to secondary care or community services for further diagnostics and imaging such as blood tests, x-rays and MRIs.

The difference in availability of diagnostics and imaging is visible across both services. Whilst almost half of TIROC patients received further diagnostics and imaging (48 patients, Figure 21), only around 20% of ROSMaC patients received further diagnostics and imaging (14 patients, Figure 22) (incl. those procedures not offered at ROSMaC).

Figure 29 Access to diagnostics and imaging, TIROC patients

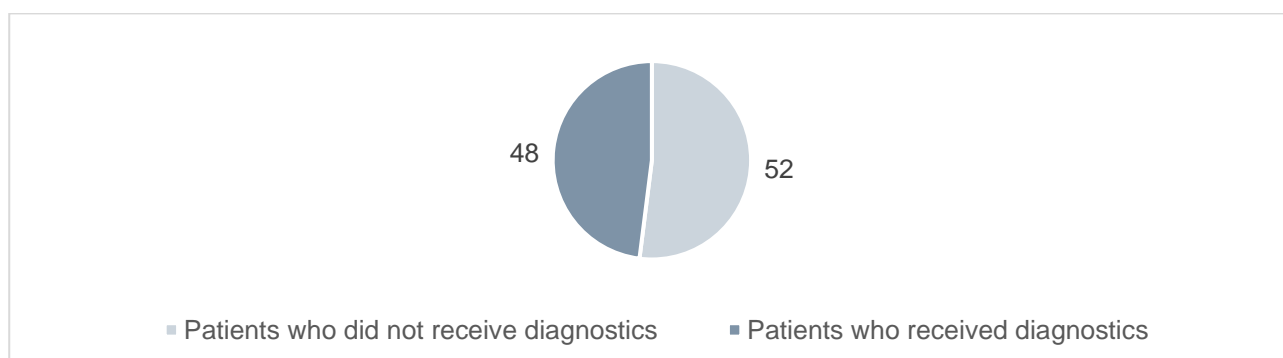
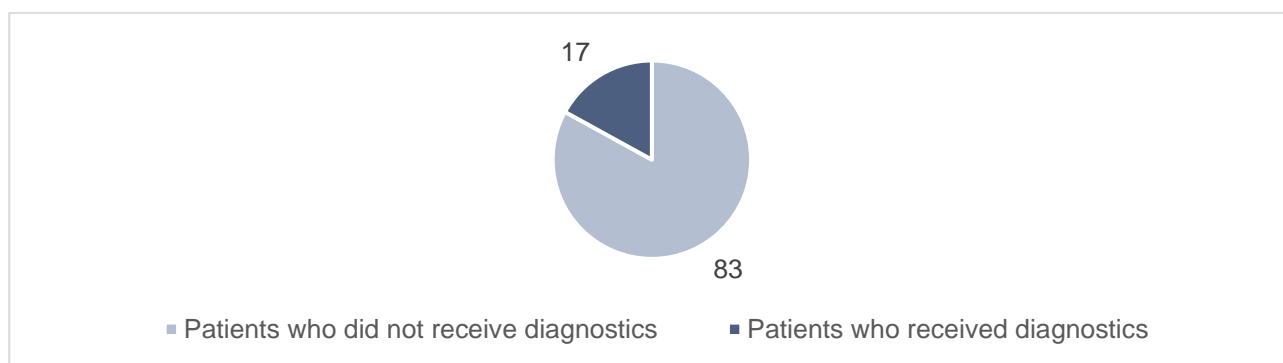


Figure 30 Access to diagnostics and imaging, ROSMaC patients



Most TIROC patients who received further diagnostics, imaging or injections, received blood tests and labs, ultrasound of hands, and x-ray of hands and knees (Table 3).

Most ROSMaC patients who received further diagnostics, imaging or injections, were referred onwards for blood tests, and received in-house ultrasounds, external MRIs or x-rays (Table 4). The reason for this may be related to the additional assessment by Advance Physiotherapy Practitioners who were able to deliver point of care ultrasound which has the potential to improve differential diagnosis and diagnostic accuracy.

Table 4 Most accessed diagnostics, imaging & injections, TIROC patients

Ordered count, diagnostics & imaging TIROC patients	
Bloods	44
Labs	18
Ultrasound hands	15
X-Ray hands	13
X-Ray knees	8
Full serology	6
X-Ray feet	6
X-Rays (not specified)	6
Ultrasound (not specified)	5

Table 5 Most accessed diagnostics, imaging & injections, ROSMaC patients

Ordered count, diagnostics & imaging ROSMaC patients	
Bloods	20
Ultrasound (not specified)	10
MRI (not specified)	6
X-Rays (not specified)	4
Injections	4

A scenario analysis, testing the Excel costing model and model outputs with using HG hourly staff wages during the week rather the weekend, showed a larger statistically significant incremental cost difference of -£100.17 ( $p < 0.01$ ) between the TIROC and ROSMaC by decreasing average staff costs per ROSMaC patient to be -£28.60 lower than per TIROC patient. It is again important to emphasise, that as previously outlined, the biggest difference in costs between both services stems from the very different offer of diagnostics, imaging and injections for TIROC and ROSMaC patients.

Table 6 Mean patient costs and incremental cost difference between TIROC and ROSMaC patients for overall, staff, and diagnostics/ injections costs using HG weekly hourly staff wages over weekend rates

Metric	TIROC	Standard Deviation (STD)	Minimum	Maximum	ROSMaC	Standard Deviation (STD)	Minimum	Maximum	Mean/ incremental difference	p-value (Mann-Whitney U test)
Mean total costs per patient	£215.27	119.22	£78.23	£531.98	£115.11	56.81	£89.83	£369.58	-£100.17	0.000
Mean costs per patient for staff costs	£129.00	41.67	£78.23	£292.73	£100.70	15.99	£89.83	£133.58	-£28.60	0.000
Mean costs per patient for diagnostics, imaging & injections	£85.98	113.18	£0	£418	£14.41	51.88	£0	£244	-£71.57	0.000

**Results of Costing Approach 1.2 (provider perspective, incl. costs for ultrasounds and ultrasound-guided injections only):**

A comparison of the overall average costs per patient at both the TIROC and ROSMaC, including ultrasounds and ultrasound-guided injections only, showed an incremental cost difference of -£0.28 ( $p = 0.3$ ) (ROSMaC costs per patient – TIROC costs per patient (Table 3)). The Mann-Whitney U test did not show any evidence for a statistically significant cost difference for these outputs.

Table 7 Mean patient costs and incremental cost difference between TIROC and ROSMaC patients for overall, staff, and diagnostics/ injections costs (incl. ultrasounds and ultrasound-guided injections only)

Metric	TIROC	Standard Deviation (STD)	Minimum	Maximum	ROSMaC	Standard Deviation (STD)	Minimum	Maximum	Mean/ incremental difference	p-value (Mann-Whitney U test)
Mean total costs per patient	£158.39	66.12	£78.23	£367.73	£158.10	56.77	£132.99	£412.74	-£0.28	0.300
Mean costs per patient for staff costs	£129.00	41.67	£78.23	£292.73	£143.70	15.98	£132.99	£175.34	£14.40	0.000
Mean costs per patient for diagnostics, imaging & injections	£29.09	51.88	£0	£218	£14.41	51.88	£0	£244	-£14.69	0.003

A scenario analysis, testing the Excel costing model and model outputs with using HG hourly staff wages during the week rather the weekend, showed a larger statistically significant incremental cost difference of -£100.17 ( $p < 0.01$ ) between the TIROC and ROSMaC by decreasing average staff costs per ROSMaC patient to be -£28.60 lower than per TIROC patient.

Table 8 Mean patient costs and incremental cost difference between TIROC and ROSMaC patients for overall, staff, and diagnostics/ injections costs (ultrasounds and ultrasound-guided injections only) using HG weekly hourly staff wages over weekend rates

Metric	TIROC	Standard Deviation (STD)	Minimum	Maximum	ROSMaC	Standard Deviation (STD)	Minimum	Maximum	Mean/ incremental difference	p-value (Mann-Whitney U test)
Mean total costs per patient	£158.39	66.12	£78.23	£367.73	£115.11	56.81	£89.83	£369.58	-£43.28	0.000
Mean costs per patient for staff costs	£129.00	41.67	£78.23	£292.73	£100.70	15.99	£89.83	£133.58	-£28.60	0.000
Mean costs per patient for diagnostics, imaging & injections	£29.09	51.88	£0	£218	£14.41	51.88	£0	£244	-£14.69	0.003

### **Results of Costing Approach 2 (commissioner perspective)**

A comparison of the overall average costs per patient at both the TIROC and ROSMaC showed a strong statistically significant incremental cost difference of -£245.11 ( $p < 0.01$ ) (ROSMaC costs per patient – TIROC costs per patient) thus indicating that running the additional ROSMaC on the weekend did not lead to higher additional costs (Table 3).

Table 9 Mean patient costs and incremental cost difference between TIROC and ROSMaC patients for overall, staff, and diagnostics/ injections costs

Metric	TIROC	Standard Deviation (STD)	Minimum	Maximum	ROSMaC	Standard Deviation (STD)	Minimum	Maximum	Mean/ incremental difference	p-value (Mann-Whitney U test)
Mean total costs per patient	£597.23	173.71	£344.80	£1,043.92	£352.12	90.41	£324.26	£931.84	-£245.11	0.000
Mean costs per patient for staff costs	£511.26	135.82	£344.80	£1,043.92	£335.83	47.71	£324.26	£577.84	-£187.00	0.000
Mean costs per patient for diagnostics, imaging & injections	£85.98	113.18	£0	£418	£16.29	53.59	£0	£354.00	-£69.69	0.000

This incremental cost difference is mostly accountable to higher staff costs within the TIROC as patients needed, on average, more appointments to reach diagnosis than ROSMaC patients. Furthermore, ROSMaC follow-up appointments were included within the one-off tariff received by the ICS. In addition to this, ultrasounds and ultrasound-guided injections are further included in the ROSMaC one-off tariff of £324.26. The TIROC tariffs for the initial and follow-up appointments do not cover any costs for diagnostics, imaging or injections and have thus been costed individually.

## 8. Conclusion

In conclusion, the Rheumatology One Stop Mass Clinic initiative (ROSMaC) has proven to be a successful pilot program in the North West London region. The evaluation of the initiative revealed several positive outcomes, including a reduction in waiting times for rheumatology appointments and improved diagnostic efficiency. Furthermore, the ROSMaC model showed improved capability of closing the patient treatment loop when compared to the traditional model, by reducing the number of appointments needed for diagnosis.

The evaluation also highlighted the incremental cost difference between the ROSMaC and the TIROC (especially when switching the ROSMaC to 'business as usual') across both the provider and commissioner perspectives, indicating potential financial benefits associated with implementing the ROSMaC initiative. A more advanced cost effectiveness evaluation may be required in the future to confirm this.

Furthermore, the implementation of ROSMaC did not exacerbate existing inequalities in access to services across different patient demographics, ensuring equitable distribution of healthcare resources.

Staff experience of working in the ROSMaC service was positive, with feedback indicating that the initiative enabled better utilisation of consultant time, improved multidisciplinary working, and enhanced learning opportunities. However, there were identified areas for improvement, such as administrative processes, patient work-ups and referral processes, IT systems, and care coordination. Addressing these areas would further optimise resource allocation, improve data sharing, and ensure continuity of care for all patients.

Key enablers were highlighted from stakeholder interviews, such as effective collaboration, access to suitable infrastructure, clinical and strategic leadership, and a structured training programme. These components were critical to the success of the ROSMaC initiative and will be crucial for any future expansion.

Barriers and challenges centred on key themes of administration and IT systems, and the impact these had on patient work-ups and care coordination. Addressing these areas would further optimise resource allocation, improve data sharing, and ensure continuity of care for all patients.

The evaluation also highlighted opportunities for further improvement. To enhance the ROSMaC model, several recommendations are put forth based on the findings.

Overall, the evaluation report concludes that the ROSMaC initiative has shown great potential in reducing waiting times, and improving patient experience, and suggests that it has favourable marginal costs. The model's effectiveness in completing the patient treatment cycle with fewer appointments, coupled with its lower marginal costs, suggests that it may provide cost benefits when transitioning to 'business as usual.' However, a more comprehensive cost-effectiveness evaluation is necessary to validate these findings.

Based on the positive outcomes and the recommendations provided, the ROSMaC initiative can serve as a valuable framework for improving musculoskeletal rheumatology services in the North West London region. By implementing the recommendations, the initiative can further optimise

patient care, reduce waiting times, and ensure equitable access to services. The success of the ROSMaC program demonstrates the potential for similar initiatives to be implemented in other healthcare settings, contributing to improved healthcare outcomes and patient satisfaction.

## 9. Recommendations

Based on the evaluation findings and insights gained from the ROSMaC service, the following list of recommendations is proposed.

1. **Develop structured training pathways:** with named supervisors to ensure consistent and effective skill development for staff in the ROSMaC setting. The success of the ROSMaC model has been largely due to the structured training already in place for HG staff. The recommendation is to amplify this success by supplementing additional training, particularly focused on secondary care treatment pathways.
  - This is in addition to the training already in place which is recognised as excellent and a key enabler to the success of the current pilot.
  - This should include specialised training on inflammatory diseases, triage processes, and service-specific procedures to enhance staff knowledge and competency, and to further reduce the number of patients referred to secondary rheumatology care.
2. **Improve administrative processes:** scheduling, and IT systems to optimise resource allocation and ensure seamless data sharing. Patients should be given clear information about the clinic. This should include being clear on the geographical boundary of the mass clinic to prevent patient travel fatigue.
3. **Strengthen patient follow-up:** mechanisms and tracking systems to ensure continuity of care and reduce the risk of patients being lost in the follow-up process.
4. **Improve data collection and coding:** using automated processes and standardised coding guidelines to improve data quality and streamline the data collection and analysis process for future evaluations and insight reports.
5. **Access to IT systems:** Ensure and enable all relevant clinicians to have access to appropriate IT systems that give access to relevant patient information and subsequently clinical decision-making, that results in improved patient experience and improved care coordination between secondary and community services.
6. **Measure:** both TIROC and ROSMaC services should routinely and proactively collect and analyse Patient Reported Outcome Metrics (PROMs) and Patient Reported Experience Measures (PREMs) for continuous improvement and future service evaluation.
7. **Evaluate:** Consider future, more comprehensive and advanced evaluations of the service including inferential statistics to investigate inequalities in access of care across certain population groups, including patient benefit in a more advanced economic analysis of the service and by including PROMs and PREMs.

By implementing these recommendations, the ROSMaC service can further enhance the quality of care provided, optimise resource utilisation, and improve patient outcomes and experiences.

## Appendix

Appendix 1 – Assumptions included in this evaluation.

### Assumptions ICHT TIROC, Initial Patient Appointment

Staff group	Time spent in appointment	Source	Comments
Rheumatology Consultant	30 minutes	Service Manager ICHT (18/04/23)	
Nurse (various bands)	Nurse costs to carry out diagnostics/ injections included in total diagnostic/ injection costs	Nurse Manager - Outpatient Services HH & SCH, ICHT (03/05/23)	Administration of injections, medicines management
Healthcare Assistant	10 minutes	Nurse Manager - Outpatient Services HH & SCH, ICHT (03/05/23)	Variation depends on patient's mobility status, blood pressure reading, and whether urine sample is readily available for testing.
Receptionist/ FOH	10 minutes	Reception Supervisor, Outpatient Clinics, ICHT (03/05/23)	Depends on patient type: New patient 10 mins Transport patient 15 mins

### Assumptions ICHT TIROC, Follow-up Patient Appointment

Staff group	Time spent in appointment	Source	Comments
Rheumatology Consultant	15 minutes	Service Manager ICHT (18/04/23)	

### Assumptions HG ROSMaC, Initial Patient Appointment

Staff group	Time spent in appointment	Source	Comments
Rheumatology Consultant	10 minutes	HG, 24/05/23	Clinic days are planned to cover capacity for 48 patients. Consultant's working day is 8 hours. Based on this, Consultants are planned to see each patient for 10 minutes.
GP Consultant	30 minutes	HG, 24/05/23	Patients seen by APP OR GPSI
Advanced Physiotherapist Practitioner (APP)	30 minutes	HG, 24/05/23	Patients seen by APP OR GPSI
Physiotherapist	20 minutes	HG, 24/05/23	Physio will use time to prescribe exercise
Receptionist/ FOH	10 minutes	HG, 24/05/23	
Diagnostics	Approx. 30 minutes	HG, 24/05/23	The rest of the time(c. 30 mins.) the patient will spend getting further diagnostics or injections

### Assumptions HG ROSMaC, Follow-up Patient Appointment

Staff group	Time spent in appointment	Source	Comments
APP	30 minutes	HG, 24/05/23	Appointment is face-to-face or telephone consultation. Between first and FU, patient may be sent for tests to other services



## Appendix 2 – Costing inputs

### Costing Approach 1 (provider perspective)

#### TIROC inputs

Category	Metric	Unit	Costs	Source	Comment
<b>Flexible costs - Staff</b>	Rheumatology Consultant	Cost per hr	£ 143	PSSRU	Updated 12/07/23
	B3 Admin	Cost per hr	£ 21	Provision bi	Updated 16/05/23does include on-costs
	B2 Admin	Cost per hr	£ 19	Provision bi	Updated 16/05/23does include on-costs
<i>Note: Nursing and A&amp;C costs - based on 22/23 paycales, incs on-costs and includes effective working hours only</i>					
<i>Consultants based on M12 2022/23 substantive consultant costs @ working 43 wks in a year</i>					
<b>Flexible costs - Diagn</b>	Bloods	what blood tests used? (FBC?) (assumed ANA test) probably 5-6 tests Need to go back to Cerner to get full information	£ -		Excluded from analysis, updated 12/06/23, Excluded from analysis, updated 12/06/23,
	Full serology		£ -		
	Pre-biologic screening bloods	What tests are these?	£ -		Excluded from analysis, updated 12/06/23,
	Labs	to broad - what labs specifically?	£ -		Excluded from analysis, updated 12/06/23,
	Urine	Urine culture test	£ 3	Provision bi	Updated 16/05/23
	Dexa scan		£ 211	Provision bi	Updated 16/05/23
	Echocardiography	Simple Echocardiogram, 19 years an	£ 188		
	Dopplers		£ 60	Provision bi	Updated via email 06/06/23
	NCS	Nerve conduction studies	£ -		Excluded from this analysis, as not offered
	Ultrasound hands	per hand	£ 52	Provision bi	Updated 16/05/23
	Ultrasound wrists	per wrist	£ 57	Provision bi	Updated 16/05/23
	Ultrasound shoulder	per shoulder	£ 48	Provision bi	Updated 16/05/23
	Ultrasound ankles	per ankle	£ 52	Provision bi	Updated 16/05/23
	Ultrasound neck		£ 57	Provision bi	Updated 16/05/23
	Ultrasound salivary glands		£ 56	Provision bi	Updated 16/05/23
	Ultrasound foot	per foot	£ 52	Provision bi	Updated 16/05/23
	Ultrasound elbow	per elbow	£ 50	Provision bi	Updated 16/05/23
	Ultrasound abdomen		£ 57	Provision bi	Updated 16/05/23
	Ultrasound Doppler leg		£ 60	Provision bi	Updated via email 06/06/23
	Ultrasound w/ guided injection		£ 281	Provision bi	Updated 16/05/23
	Ultrasound (not specified)		£ 53	Provision bi	Updated via email 06/06/23
	X-Ray hands	same costs for one or both hands	£ 30	Provision bi	Updated 16/05/22
	X-Ray wrists	same costs for one or both wrists	£ 29	Provision bi	Updated 16/05/23
	X-Ray chest		£ 30	Provision bi	Updated 16/05/23
	X-Ray feet	same costs for one or both feet	£ 31	Provision bi	Updated 16/05/23
	X-Ray knees	same costs for one or both knees	£ 31	Provision bi	Updated 16/05/23
	X-Ray hip		£ 30	Provision bi	Updated 16/05/23
	X-Ray pelvis		£ 30	Provision bi	Updated 16/05/23
	X-Ray SIJ		£ 29	Provision bi	Updated via email 06/06/23
	X-Ray spine		£ 28	Provision bi	Updated 16/05/23
	X-Rays (not specified)		£ 30	Provision bi	Updated via email 06/06/23
	MRI knee		£ 204	Provision bi	Updated 16/05/23
	MRI shoulder		£ 147	Provision bi	Updated 16/05/23
	MRI spine		£ 250	Provision bi	Updated 16/05/23
	MRI SIJ		£ 169	Provision bi	Updated via email 06/06/23
	CT neck		£ 167	Provision bi	Updated 16/05/23
	Steroid injection		£ 11	Provision bi	Updated 16/05/23
	Depo_medrone injection		£ 13	Provision bi	Updated 16/05/23

## Costing Approach 1 (provider perspective)

### ROSMaC inputs

Category	Metric	Unit	Costs (week	Costs (week rates increase)	Source	Comment
<b>Flexible costs - Staff cost</b>	Rheumatology	Cost per	£215	£143	50% PSSRU, page 95	Updated 12/07/23
	B8C GP Consultant	Cost per	£141	£102	38% PSSRU, page 89	Updated 12/07/23
	B8B Advanced Physio	Cost per	£128	£86	48% PSSRU, page 89	Updated 12/07/23
	B7 Physiotherapist	Cost per	£75	£53	42% PSSRU, page 89	Updated 12/07/23
	B3 Receptionist/ FOH	Cost per	£25	£16	36% Senior Operations Ma	Updated 10/05/23/week rates updated 15/06/23
	B3 Admin	Cost per	£25	£16	36% Senior Operations Ma	Updated 10/05/23/week rates updated 15/06/23
<b>Flexible costs - Diagnostic</b>	Bloods		£ -		Senior Operations Ma	Updated 10/05/23, not offered at Healthshare
	Full serology		£ -		Senior Operations Ma	Updated 10/05/23, not offered at Healthshare
	Dexa scan		£ -		Senior Operations Ma	Updated 10/05/23, not offered at Healthshare
	Echocardiography		<b>£61</b>		Senior Operations Ma	Updated 10/05/23
	Ultrasound (not specified)		<b>£54</b>		Senior Operations Ma	Updated 10/05/23
	X-Rays (not specified)		<b>£31</b>		Senior Operations Ma	Updated 10/05/23
	MRI (not specified)		<b>£124</b>		Senior Operations Ma	Updated 10/05/23
	Injections		<b>£190</b>		Senior Operations Ma	Updated via email 30/06/23

## Costing Approach 2 (commissioner perspective)

### TIROC inputs

Category	Metric	Unit	Costs	Source	Comment
Flexible costs - Staff costs	Initial Patient Appointment	National Tariff	£ 344.80	22/23 National Tariff Wo	Updated 05/07/23do
	Follow-up Patient Appointment	National Tariff	£ 116.52	22/23 National Tariff Wo	Updated 05/07/23do
<i>Note: Nursing and AfC costs - based on 22/23 payscales, incs on-costs and includes effective working hours only</i>					
<i>Consultants based on M12 2022/23 substantive consultant costs &amp; working 43 wks in a year</i>					
Flexible costs - Diagnostics/ in	Bloods	what blood tests used? (FBC?)	£ -		Excluded from analys
	Full serology	(assumed ANA test) probably 5-6 tests Need to go back to Cerner to get full information	£ -		Excluded from analys
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	Urine	Urine culture test	£ 3	Provision by Senior Final	Updated 16/05/23
	Dexa scan		£ 211	Provision by Senior Final	Updated 16/05/23
	Echocardiography	Simple Echocardiogram, 19 years and over	£ 188		
	Dopplers		£ 60	Provision by Senior Final	Updated via email 06
	NCS	Nerve conduction studies	£ -		Excluded from this ar
	Ultrasound hands	per hand	£ 52	Provision by Senior Final	Updated 16/05/23
	Ultrasound wrists	per wrist	£ 57	Provision by Senior Final	Updated 16/05/23
	Ultrasound shoulder	per shoulder	£ 48	Provision by Senior Final	Updated 16/05/23
	Ultrasound ankles	per ankle	£ 52	Provision by Senior Final	Updated 16/05/23
	Ultrasound neck		£ 57	Provision by Senior Final	Updated 16/05/23
	Ultrasound salivary glands		£ 56	Provision by Senior Final	Updated 16/05/23
	Ultrasound foot	per foot	£ 52	Provision by Senior Final	Updated 16/05/23
	Ultrasound elbow	per elbow	£ 50	Provision by Senior Final	Updated 16/05/23
	Ultrasound abdomen		£ 57	Provision by Senior Final	Updated 16/05/23
	Ultrasound Doppler leg		£ 60	Provision by Senior Final	Updated via email 06
	Ultrasound w/ guided injection		£ 281	Provision by Senior Final	Updated 16/05/23
	Ultrasound (not specified)		£ 53	Provision by Senior Final	Updated via email 06
	X-Ray hands	same costs for one or both hands	£ 30	Provision by Senior Final	Updated 16/05/22
	X-Ray wrists	same costs for one or both wrists	£ 29	Provision by Senior Final	Updated 16/05/23
	X-Ray chest		£ 30	Provision by Senior Final	Updated 16/05/23
	X-Ray feet	same costs for one or both feet	£ 31	Provision by Senior Final	Updated 16/05/23
	X-Ray knees	same costs for one or both knees	£ 31	Provision by Senior Final	Updated 16/05/23
	X-Ray hip		£ 30	Provision by Senior Final	Updated 16/05/23
	X-Ray pelvis		£ 30	Provision by Senior Final	Updated 16/05/23
	X-Ray SIJ		£ 29	Provision by Senior Final	Updated via email 06
	X-Ray spine		£ 28	Provision by Senior Final	Updated 16/05/23
	X-Rays (not specified)		£ 30	Provision by Senior Final	Updated via email 06
	MRI knee		£ 204	Provision by Senior Final	Updated 16/05/23
	MRI shoulder		£ 147	Provision by Senior Final	Updated 16/05/23
	MRI spine		£ 250	Provision by Senior Final	Updated 16/05/23
	MRI SIJ		£ 169	Provision by Senior Final	Updated via email 06
	CT neck		£ 167	Provision by Senior Final	Updated 16/05/23
	Steroid injection		£ 11	Provision by Senior Final	Updated 16/05/23
	Depo_medrone injection		£ 13	Provision by Senior Final	Updated 16/05/23

## Costing Approach 2 (commissioner perspective)

### ROSMaC inputs

Category	Metric	Unit	Costs (wee	Costs (wee	Source	Comment
Flexible costs - Staff costs	Initial Patient Appointment	National Ta	£324.26	£0	22/23 National Tariff Wo	Updated 05/07/23
	Follow-up Patient Appointr	National Ta	£0	£0	22/23 National Tariff Wo	Updated 05/07/23
Flexible costs - Diagnostics/ investiga	Bloods		£ -		Senior Operations Mana	Updated 10/05/23,
	Full serology		£ -		Senior Operations Mana	Updated 10/05/23,
	Dexa scan		£ -		Senior Operations Mana	Updated 10/05/23,
	Echocardiography		£61		Senior Operations Mana	Updated 10/05/23
	Ultrasound (not specified)		£54		Senior Operations Mana	Updated 10/05/23
	X-Rays (not specified)		£31		Senior Operations Mana	Updated 10/05/23
	MRI (not specified)		£124		Senior Operations Mana	Updated 10/05/23
	Injections		£190		Senior Operations Mana	Updated via email :