

# Evidence Brief: Musculoskeletal

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Produced by the HEE Knowledge Management team Evidence Briefs offer a quick overview of the published reports, research, and evidence on a workforce-related topic.

**Date of publication:** July 2021

**Please acknowledge this work in any resulting paper or presentation as:**

Evidence Brief: Musculoskeletal. Jo McCrossan. (July 2021). UK: Health Education England Knowledge Management Team

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- [Complete Evidence Brief list – link for HEE staff](#)
- [Complete Evidence Brief list – link for External staff](#)

### Key publications – the big picture

[Transforming musculoskeletal and orthopaedic elective care services](#) December 2017, NHS Improvement

This handbook has been created to support the improvement of local health and care systems for musculoskeletal and orthopaedic elective care services.

[Elective Care Transformation Programme: Best practice solutions – musculoskeletal](#) n.d. NHS England

The Elective Care Transformation Programme developed a specification for MSK clinical triage services. These provide specialist clinical review of GP referrals for MSK conditions. They can involve a review of the referral or a face-to-face appointment with the patient in a community setting. This review by an MSK specialist ensures that patients are seen in the most appropriate setting across the primary, secondary and voluntary sectors.

[Expanding our workforce: First contact physiotherapists](#) n.d. NHS England

By making it easier for patients to access physiotherapist, patients will have quicker access to diagnosis and treatment, helping them to manage their conditions more effectively and recover faster, so they can get back to normal life quickly. They will help GPs to manage their workload more effectively, and reduce the need for onward referrals.

[Musculoskeletal health: applying All Our Health](#) March 2021, Public Health England

This guide will help frontline health and care professionals use their trusted relationships with patients, families and communities to lower the risk of developing musculoskeletal health (MSK) conditions. It also recommends important actions that managers and staff holding strategic roles can take.

[Blog post: Solving the puzzle of Musculoskeletal Service transformation](#) June 2016, NHS England

The National Clinical Lead for Musculoskeletal Services looks at how current programmes of work can offer solutions to the challenges faced by commissioners and providers seeking to improve outcomes for patients.

[Return on Investment of Interventions for the Prevention and Treatment of Musculoskeletal Conditions](#) October 2017, Public Health England

Public Health England (PHE) commissioned York Health Economics Consortium (YHEC) to develop an economic tool to compare the return on investment of interventions for the prevention of musculoskeletal (MSK) conditions. There were two key objectives for the work:

- To conduct a literature review to identify which interventions are cost-effective in reducing the complications associated with osteoarthritis of the hip or knee, neck pain or back pain;
- To develop an ROI tool that allows the resource and financial consequences of implementing these cost-effective interventions nationally and at local levels.

### Case Studies

[Transforming musculoskeletal and orthopaedic elective care services: Case studies](#) December 2017, NHS Improvement

These case studies have been published to complement the [musculoskeletal and orthopaedic elective care services handbook](#).

### [Musculoskeletal \(MSK\) First Contact Practitioners: The Deepings Practice, Lincolnshire](#) March 2019, NHS

Improvement

GP Dr Majid Akram and physiotherapist Phil Richards discuss how the successful implementation of a new musculoskeletal (MSK) first contact practitioner role at The Deepings Practice in South Lincolnshire has resulted in better outcomes for patients and helped to reduce GP workload.

### [Implementation of nice guidelines for osteoarthritis in primary care: Feasibility study of jigsaw-e in Scotland](#) June 2020,

Annals of the Rheumatic Diseases *Athens log in required\**

The Joint Implementation of Guidelines for Osteoarthritis in Western Europe (JIGSAW-E) model of care was developed and evaluated in England and implemented in Europe with an aim to optimise quality primary care for OA, support self-management and promote use of NICE guidelines. The intervention includes:

1. An OA guidebook for patients
2. A model OA consultation for primary care
3. Training for practitioners to deliver the model consultation
4. Measures of quality care using an e-template

### [Developing an evidence-based Making Every Contact Count \(MECC\) model of practice within MSK physiotherapy services](#)

January 2019, Physiotherapy *Abstract only\**

The Physiotherapy MSK services within the Bury Care Organisation, have successfully developed a MECC model of practice into their service pathways. This quality improvement, uses evidence based behaviour change principles to support patients in making positive lifestyle changes which can impact on their physical and mental health and wellbeing. It also aims to support Trust staff to become more active and promotes health and wellbeing within the wider communities.

### [Filling the gap - the implementation of a graduate development programme in the primary care musculoskeletal setting](#) January

2019, Physiotherapy *Abstract only\**

The aims of the programme were to build MSK knowledge, skills, values and behaviours to enable graduates to develop into safe, effective, confident Physiotherapists whilst reflecting service needs. Those completing the programme felt supported, valued and developed key clinical and reasoning skills. The process is ongoing with regular supervision and staff all progressing onto a further internal development programme to continue to upskill their MSK reasoning and practice.

## HEE Star

More resources and tools are available if you search for “**Musculoskeletal**” in the [HEE Star](#).

## Statistics

You can find relevant statistics on the [Health and Care Statistics Landscape](#) by searching for “**Musculoskeletal**”.

## HEE National Data Programme

HEE staff can look at the [National Data Warehouse \(NDL\)](#) SharePoint site to find out more about datasets and Tableau products.

# Published Peer Reviewed Research

## COVID-19

[COVID-19: Perspectives of musculoskeletal rehabilitation at low resource setting](#) October 2020, International Journal of Rheumatic Diseases *Athens log in required\** [p. 215] COVID-19 impacted the overall schedule of rehabilitation services including rheumatological rehabilitation clinics. Low resource settings have multiple challenges to accommodate and adjust rehabilitation team works for patients with MSK problems. Recruiting more manpower, expansion of spacious services and a planned accommodative working environment in the altered situation is warranted.

## Diversity, inclusion, and participation

[Academic musculoskeletal radiology: influences for gender disparity](#) March 2018, Skeletal Radiology *Athens log in required\**

The gender gap seen in the discipline of diagnostic radiology in general and MSK radiology in particular might be addressed with the following suggestions:

1. Expose medical students to radiology at earlier stages of their training.
2. Develop a structured mentoring process for all radiology residents, including women musculoskeletal radiologists.
3. Women radiology mentors might choose to provide personal insight and encouragement to women trainees.
4. All MSK radiologists with interests in achieving leadership positions should examine their strengths and weaknesses, and work towards their goals.

[Where Are the Women in Orthopaedic Surgery?](#) September 2016, Clinical Orthopaedics and Related Research *Athens log in required\**

Data suggest that the relatively few women currently practicing orthopaedics were attracted to the field because of their individual personal affinity for its nature despite the lack of role models and exposure. The latter factors may impact the continued paucity of women pursuing this field. Programs designed to improve mentorship and increase early exposure to orthopaedics and orthopaedic surgeons may increase personal interest in the field and will be important to attract a diverse group of trainees to our specialty in the future.

## Education and training

[Advanced musculoskeletal physiotherapy practice: Informing education curricula](#) August 2020, Musculoskeletal Science & Practice *Athens log in required\**

This study identifies the common themes relating to professional and clinical capabilities expected of MSK APPs internationally. Findings indicate that it would be feasible to adopt standardised MSK APP competencies and education standards using these common themes as a foundation. This would likely enhance workforce mobility, role legitimacy and service quality, and facilitate lobbying for recognition and remuneration.

[Musculoskeletal radiology training in the UK: a national survey by the British Society of Skeletal Radiologists](#) May 2021, Clinical Radiology *Abstract only\**

Core MSK radiology training remains widely variable across the UK. 50% of core and 86% subspecialty trainees are satisfied with current exposure. 95.5% core and all subspecialist trainees believe MSK training could be improved.

[Interprofessional Musculoskeletal Education: A Review of National Initiatives from the Department of Veterans Affairs](#) February 2020, Rheumatic Diseases Clinics of North America *Abstract only\**

This article reviews several national programs in musculoskeletal education initiated by the Department of Veterans Affairs over the past decade. These programs have become sustained interprofessional opportunities for learners across disciplines and along the continuum of health professions education (HPE) and training pathways. This article also describes opportunities for leaders in rheumatology and other HPE programs to join these efforts and to collaborate in the scholarship that will be necessary in constructing educational programs fit for the purpose of ensuring a well-trained, competent workforce of health care providers.

[Women in Orthopaedics: How Understanding Implicit Bias Can Help Your Practice](#) 2020, Instructional Course Lectures *Abstract only\**

The purpose of this chapter is to provide an overview of the current status of women in orthopaedics, describe ways to improve diversity in the field, and make surgeons aware of how implicit bias can contribute to discrepancies seen in orthopaedic surgery, including pay scale inequities and women in leadership positions.

[Developing clinical expertise in musculoskeletal physiotherapy: Using observed practice to create a valued practice-based collaborative learning cycle](#) December 2020, Musculoskeletal Science & Practice *Abstract only\**

Regular observed clinical practice was found to facilitate the development of clinical expertise by enabling a valued practice-based collaborative learning cycle.

[Preparing pre-qualifying students for work and wellbeing competencies in the context of newly emerging physiotherapy roles: a national qualitative study](#) May 2020, Physiotherapy *Abstract only\**

Pre-qualifying education provides the foundations for physiotherapists having the necessary competencies to manage and assess the impact of acute and long-term conditions for patients' participation in, or return to work. Findings from the DA and focus groups could be examined further in greater depth in qualitative interviews with final year pre-registration physiotherapy students and university physiotherapy programme educators. This should be augmented with the views of practice educators, such as those in first contact primary care roles, who provide students with invaluable clinical experience of physiotherapy's essential contribution to work and wellbeing. Implications: The findings have implications for teaching the foundations of work and wellbeing at pre-qualifying level. Study recommendations will inform curriculum developments on the competencies required for the assessment and management of patients' conditions in the context of participation in work.

### Interprofessional collaboration

[Acceptance of primary practitioner physiotherapists in an emergency department: A qualitative study of interprofessional collaboration within workforce reform](#) March 2021, Journal of Interprofessional Care *Athens log in required\**

Acceptance of the PP service by ED staff was not automatic, unconditional, or implied and represented a continuum from PPs being tolerated as transient visitors to being subsumed as integrated members of the ED team. Acceptance of the service and its members was contingent upon the PPs demonstrating three interdependent qualities: being trustworthy, valuing learning, and complementing (not competing with) ED practices

to achieve ED goals. Given that staff acceptance was crucial for the successful integration and performance of the service, understanding and manipulating the factors that influence acceptance might increase the likelihood of successfully implementing PP services in EDs. The results might also be applied to facilitate workforce reform in other settings.

[Improving musculoskeletal health for children and young people - A 'call to action'](#) October 2020, Best Practice and Research: Clinical Rheumatology *Athens log in required*\*  
Inter-disciplinary and cross-sectional collaborative efforts, extending beyond the remit of individual healthcare providers and countries, is crucial. Using the tools and opportunities offered by the 'fourth industrial revolution', the effort to 'improve MSK health for all' can be energised through sharing of novel ideas and 'working better together'. By breaking out of silos, we can transfer skills, knowledge, models of care and education to engineer change in society and to optimise impact on a wider scale – 'stay local, think global'.

[Medical students' attitudes to non-medical clinical supervision in an interprofessional orthopaedic community of practice model](#) January 2019, Physiotherapy *Abstract only*\*  
At the University of Liverpool, a medical undergraduate practice placement is situated within an authentic interprofessional orthopaedic Community of Practice in the Royal Liverpool Hospital, where Extended Scope Physiotherapists (ESPs) deliver and lead the organisation of clinical supervision alongside a named orthopaedic consultant. Formal placement evaluation and anecdotal evidence indicate that students significantly value this experience but a more detailed exploration is important to generate an understanding of the real impact of non-medical supervision within the context of an ICP model and add to the clinical education evidence base.

[Leader's behaviors for promoting innovation in a multidisciplinary musculoskeletal service](#) January 2019, Physiotherapy *Abstract only*\*  
Knowledge gained through Informal interaction, respectfulness, understanding each other professional strengths and weaknesses are implicit strengths of an MDT. When an MDT member perceived their skills as less valuable compared to a senior clinician or a medical consultant, they hold less power and influence, and this provides an obstacle for knowledge creation and translation. Therefore, a flat hierarchy provides a more effective structure for maximising the MDT productivity.

### New ways of working

[Innovations to improve access to musculoskeletal care](#) October 2021, Best Practice & Research Clinical Rheumatology *Abstract only*\*  
Includes real-world examples of innovative practices including capacity building in consumer and interprofessional musculoskeletal education and practice; recommendations to transform the access and delivery of integrated, person-centred care; and initiatives in musculoskeletal care and implementation of models of care, enabled by digital health solutions including telehealth, remote monitoring, artificial intelligence, blockchain technology and big data. Provides emerging evidence for how innovation can support systems' strengthening and build capacity to support improved access to 'right' musculoskeletal care, and explores some of the ways to best manage innovations.

[Measuring Advanced/Extended Practice Roles in Arthritis and Musculoskeletal Care in Canada](#) April 2020, ACR Open Rheumatology *Athens log in required*\*  
Of 141 respondents, 91 identified as practicing in extended role capacities. The mean age of ERP respondents was 48.7; 87%

were female, and 41% of ERPs planned to retire within 5 to 10 years. Respondents were largely physical or occupational therapists by profession and practiced in urban/academic (46%), community (39%), and rural settings (13%). Differences in practice patterns were noted between ERPs (64.5%) and non-ERPs (34.5%), with more ERPs working in extended role capacities while retaining activities reflective of their professional backgrounds. Most respondents (95%) agreed that formal training is necessary to work as an ERP, but only half perceived they had sufficient training opportunities. Barriers to pursuing training were varied, including personal barriers, geographic barriers, patient-care needs, and financial/remuneration concerns.

[Pelvic and acetabular fracture care in England: current workload and future directions](#) April 2021, *Annals of the Royal College of Surgeons Abstract only\**

This article describes the provision of PAF services since the reorganisation of trauma services in England. Future service development should take into account the current distribution of activity, future trends for increased volume and casemix, and the need for a PAF registry.

[A qualitative study to explore the experiences of first contact physiotherapy practitioners in the NHS and their experiences of their first contact role](#) December 2020, *Musculoskeletal Science and Practice Abstract only\**

First Contact Practitioner (FCP) roles have been developed for health professionals with advanced practice skills to take on many of the musculoskeletal responsibilities currently carried out by general practitioners. FCP roles are a new and exciting development for people with MSK conditions, the physiotherapy profession, primary care providers and MSK physiotherapists. Mentorship support, workload and standards of training and

practice are important when considering future expansion for the sustainability of these roles.

[Challenges and Learning Opportunities of Pre-Registration Physiotherapy Placements in First Contact Settings: The Perspectives of Musculoskeletal First Contact Physiotherapists](#)

June 2020, *Musculoskeletal Care Athens log in required\**

As musculoskeletal first contact physiotherapy is rolled out into primary healthcare in Britain, this could offer up new practice-based educational opportunities for pre-registration physiotherapy students. Operational challenges included: ensuring sufficient support from first contact physiotherapy practice educators; financial cost implications of placements; and lack of capacity within the existing first contact physiotherapy workforce to provide placements. Challenges for physiotherapy students involved: time pressures and stressors of a first contact physiotherapy placement; identifying red flags; and complexity of patient presentations.

[Development, spread and impact of primary care and musculoskeletal communities of practice to assist rapid translation of evidence into practice](#) March 2021,

*Musculoskeletal Care Abstract only\**

The CoP model encourages the rapid translation of evidence into practice by engaging staff to identify areas of clinical concern in their own context, thereby stimulating their interest and involvement. This creates a meaningful link between research and practice. Clinical leadership and the CoP model ensure that practice change is quick and efficient. This model can be replicated at scale. Consideration needs to be given to the key ingredients to achieve impact.

[New Models for the Delivery of Musculoskeletal Care in Rural Communities](#) January 2020, *The Journal for Nurse Practitioners Athens log in required\**

Rural communities have greater health comorbidities, poorer health outcomes, and difficulty recruiting and retaining physicians than their urban counterparts. Strengthening the health care workforce through postgraduate APP education can help provide highly trained clinicians as continuity providers in rural communities. Formal postgraduate education can strengthen relationships between urban and rural centers and improve care for underserved populations across multiple primary care and specialty services. Further evidence is needed to demonstrate how innovative programs enhance patient and provider satisfaction while reducing cost and improving patient outcomes.

[Current applications and future directions of deep learning in musculoskeletal radiology](#) February 2020, *Skeletal Radiology Athens log in required\**

Deep learning advancements in musculoskeletal radiology can be conceptually divided into the categories of lesion detection, classification, segmentation, and non-interpretive tasks. Numerous examples of deep learning achieving expert-level performance in specific tasks in all four categories have been demonstrated in the past few years, although comprehensive interpretation of imaging examinations has not yet been achieved. Interest in deep learning from researchers, radiology leadership, and industry continues to increase, and it is likely that these developments will impact the daily practice of musculoskeletal radiology in the near future.

[Advanced musculoskeletal physiotherapy: Barriers and enablers to multi-site implementation](#) August 2018, *Musculoskeletal Care, Abstract only\**

Advanced musculoskeletal physiotherapy (AMP) services are a safe, effective model of care, but without broad-scale healthcare implementation to date. Nine major themes emerged from the data regarding barriers and enablers to the implementation of the AMP services from the perspective of clinical staff. These were: demand/capacity; model of care; the organization; stakeholders; communication; planning and processes; evaluation; workforce; and learning and assessment framework. Important enablers included engagement and buy-in from key stakeholders and medical staff, and well-established AMP learning frameworks for training and operational frameworks. Barriers included competitive funding environment, and issues that hindered effective communication. The knowledge, skills, availability, motivation and experience of the advanced musculoskeletal physiotherapists had a large impact on the implementation.

[Advanced musculoskeletal physiotherapists in post arthroplasty review clinics: a state wide implementation program evaluation](#) March 2018, *Physiotherapy Athens log in required\**

PAR clinics increase capacity of orthopaedic specialists to see new and review orthopaedic patient appointments. Safe and high-quality care was maintained and the average costs per patient appointment were reduced. With excellent patient satisfaction and state-wide benchmarking of patient outcome measures in place across all 10 health services, our findings provide strong evidence to support this AMP model as an integral part of the solution to meeting public hospital demand. High workforce retention and continued operation of AMP roles in every health service demonstrates the model has been successful in creating a flexible and sustainable workforce.



### Supply

[Economic evaluation of patient direct access to NHS physiotherapy services](#) January 2021, *Physiotherapy Abstract only\**

Direct access to physiotherapy services would be cost-effective and benefit patients given current cost per QALY thresholds used in England. This is because physiotherapy itself is cost-effective, rather than through savings in GP time. Direct access without an increase in supply of physiotherapists would increase waiting times and would be unlikely to be cost saving for the NHS owing to the likely increase in the use of physiotherapy services.

[Disparities in Access to Musculoskeletal Care: Narrowing the Gap: AOA Critical Issues Symposium](#) November 2020, *Journal of Bone & Joint Surgery, American Athens log in required\**

Health-care disparities consist of severe, complex, and multifactorial inequities. These gaps in access to care result in inappropriate emergency room usage, lengthy hospitalizations, increased administrative loads, lost productivity, and avoidable complications and/or deaths. These needless burdens on our health-care system contribute heavily to our fiscally unsustainable health-care delivery system. Through advocacy, policy changes, workforce diversification, and practice changes, we can develop solutions that improve access, quality, and cost-effectiveness for all.

[The skills, knowledge and attributes needed as a first-contact physiotherapist in musculoskeletal healthcare](#) April 2019, *Musculoskeletal Care Abstract only\**

The themes identified were: medical assessment and systems knowledge; speed of thought in an uncertain environment; breadth of knowledge; people and communication skills; common sense/simplify; and responsibility and experience. The

identified themes should help to underpin the competence, capability and training requirements for these new roles, and should be considered when developing new services utilizing first-contact primary care physiotherapy practice.

[An audit of the utilization of physiotherapy assistants in the musculoskeletal outpatients setting within a primary care physiotherapy service](#) March 2018, *Musculoskeletal Care Abstract only\**

Using defined pathways in the treatment of musculoskeletal conditions of the peripheral joints provides the framework to standardize delegation of clinical tasks from qualified physiotherapists to physiotherapy assistants. However, the utilization of such pathways needs to be examined further, to clarify the clinical and cost effectiveness of delegating clinical work to physiotherapy assistants, and also the perceptions of qualified physiotherapists.

[Musculoskeletal Workforce Needs: Are Physician Assistants and Nurse Practitioners the Solution? AOA Critical Issues](#) June 2016, *Journal of Bone & Joint Surgery, American Abstract only\**

This American Orthopaedic Association (AOA) symposium report investigates models for advanced practice provider integration, considers key issues affecting PAs and NPs, and proposes guidelines to help to assess the logistical and educational possibilities of further incorporating NPs and PAs into the orthopaedic workforce in order to address future musculoskeletal care needs.

[Advanced musculoskeletal physiotherapy clinical education framework supporting an emerging new workforce](#) 2015, *Australian Health Review Athens log in required\**

Emerging new roles require an emerging new workforce and some upskilling is required. For example, a musculoskeletal physiotherapist in the ED orders and interprets plain film

imaging, manages simple fractures and open wounds, refers directly to specialists and facilitates admission to hospital. Consequently, there is a need to ensure that physiotherapists working in these roles are suitably educated, trained and competent to perform these expanded roles. Although there is broad acceptance of the need for this, there was no consistency in the approach applied across health services.

[Characteristics of physiotherapists working in advanced practice roles: descriptive UK survey](#) May 2020, Physiotherapy *Abstract only\**

APP roles across various clinical settings illustrates that physiotherapists and organisations are following recommendation to create a more patient-focused health system. Physiotherapists are acquiring new skills and capabilities incorporating procedures formerly fulfilled by other professionals. All physiotherapists in APP roles are involved in clinical duties alongside the other key elements of the role (leadership, research, education). Not all physiotherapists had completed a MSc qualification, and this may represent uncertainty about the minimal requirement for “entry level” into APP, or illustrate the transition of the physiotherapy profession into APP roles. These findings present current valuable information regarding the current APP workforce and roles; and provides a benchmark to support the future shaping of APP roles in the UK.

## Competency Frameworks

[Musculoskeletal Core Capabilities Framework](#) 2018, Health Education England and NHS England

The framework provides a focus on the workforce capability to support shared decision-making, person-centred care and fitness for work. As such, there are synergies with other

frameworks, such as the Person-Centred Approaches framework (Health Education England and Skills for Health 2017) and the need to make work a health outcome. For practitioners working in, or preparing for, a first contact practitioner role for adults presenting with MSK conditions, the framework can be used to demonstrate many of the clinical capabilities set out in the multi-professional framework for advanced clinical practice in England (Health Education England 2017).

[A Paediatric Musculoskeletal Competence Framework for Physiotherapists Working in the UK](#) April 2019, Association of Paediatric Chartered Physiotherapists

These documents were developed by a panel of expert paediatric physiotherapists to establish the basis by which to prepare the physiotherapy workforce to deliver safe care to children and young people requiring musculoskeletal assessment, advice and management.

## \*Help accessing articles or papers

Where a report/ journal article or resource is freely available the link has been provided. If an NHS OpenAthens account is required this has been indicated. It has also been highlighted if only the abstract is available. If you do not have an OpenAthens account you can self-register here.

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