

# Evidence Brief: Orthotics and prosthetics

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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.

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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

[BAPO Strategic Plan \(2022-2024\)](#), The British Association of Prosthetists and Orthotists

The British Association of Prosthetists and Orthotists' (BAPO) purpose is to advance the profession, support the interests of its members and ensure the UK population benefit from prosthetic and orthotic care, which is effective, safe and timely.

[The Allied Health Professions \(AHPs\) Strategy for England](#), NHS England, 2022

This strategy is a catalyst for change. Wherever you work, every member of our AHP community has a part in realising our collective ambitions through its delivery. I therefore encourage you to take a moment to consider how the AHP community can enable the change required to deliver future care today.

[How has the COVID-19 pandemic affected orthotic services in the United Kingdom?](#), 2021 Prosthetics and Orthotics International

The pandemic has had a significant impact on orthotic services with face-to-face appointments largely reserved for urgent patients and inpatients, and services going through stages of closing and reopening, alongside the introduction of telehealth to ensure less urgent patients could continue to access orthotic care.

[Global perspectives on assistive technology Proceedings of the GReAT Consultation 2019](#), World Health Organisation

One billion people are known to need assistive products worldwide. The World Health Organization (WHO) estimates that by the year 2050, this number will grow to two billion people.

[The Future of the Prosthetic and Orthotic Workforce in England: One year on](#), Health Education England, 2018

In 2017, the report 'The Future of the Orthotic and Prosthetic Workforce in England' was published by Health Education England (HEE). The report was written following an HEE education summit, which looked at the current issues facing the Prosthetic and Orthotic (P and O) workforce.

[WHO standards for prosthetics and orthotics](#), 2017

WHO estimates that, today, only 1 in 10 people in need has access to assistive products, including prostheses and orthoses, because of their high cost and because of lack of awareness, availability, trained personnel, policy and financing.

[The Future of the Orthotic and Prosthetic Workforce in England](#), 2017. Health Education England

Response to the NHS England report 'Improving the Quality of Orthotic Services in England'

[New guidelines to drive improvement in orthotic services](#), 2015, NHS England

NHS England's [new guidance, Improving the Quality of Orthotics Services in England](#), aims to help local Clinical Commissioning Groups address this variation. It has been produced in cooperation with local commissioners, providers and patient groups, and draws on the findings of a recent review of services by NHS Quality Observatory triggered by concerns raised by Healthwatch England.

### Case Studies

[Understanding the induction and settling-in process for students on prosthetic and orthotic practice placements](#), 2021

Greater knowledge of differing perspectives of both the 'student' and the practice educator about the first day experience, has helped to inform practice educator training sessions, and pre-placement briefings for students provided by the University. It has also aided in understanding some of the challenges faced by practice educators during the Covid Pandemic in relation to the student experience.

[Job Satisfaction and Compassion Satisfaction Among Orthotic and Prosthetic Practitioners: A Descriptive-Multiple Case Study](#), 2019

The O&P practitioners in this research study believed that job satisfaction and compassion satisfaction are complementary when working with individuals who have lost one or more limbs—both needs must be met in the workplace.

## HEE Star

More resources and tools are available in the AHP Quick Reference Guides Upskilling section of the [HEE Star](#). Alternatively, search for 'Allied Health' in the search bar.

## Statistics

[HCPC Diversity Data Report 2021: prosthetists / orthotists](#)

[Prosthetist / orthotist CPD audit 2017-2019](#), HCPC

## 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

### Leadership, coaching and education

[Determining educational assessment criteria for patellar-tendon-bearing impressions for transtibial prosthetic sockets: A Delphi study](#), 2022 *Abstract only*\*

A high level of consensus was achieved in two survey rounds. Lower levels of consensus were reached on specific objective criteria, such as use of measurement thresholds when evaluating student impressions. Standardized assessment of student performance on PTB impression-taking instead relies primarily on qualitative assessments based on instructor expertise.

[Developing a paediatric healthcare research network: key learnings from the 'starworks' child prosthetics project](#), 2022

Since 2016, the Starworks Child Prosthetics Research Network has been exploring this space, bringing children and their families together with key opinion leaders from the NHS, clinical Academia and leading National Research Centres with capabilities in child prosthetics with the aim of increasing research across the system.

## Evidence Brief: Orthotics and Prosthetics

### [Professional diversity in leadership – Inclusion of the smaller professions.](#), 2022

There are 14 Allied Health Professions (AHPs) in England with approximately 170,000 AHPs working within the NHS. Physiotherapists represent the largest group of AHPs with approximately 61,000 registered with the Health and Care Professions Council, whilst Prosthetics and Orthotics represent the smallest profession with approximately 1000 registrants.

### [A qualitative study exploring experiences and challenges of combining clinical academic training with family life](#), 2021

Although people manage to find ways to successfully combine clinical academic roles with family life, findings highlight a need to identify ways of supporting and encouraging trainees with caring responsibilities to ensure that they remain on the clinical academic pathway.

### [Who Coaches the Coaches? The Development of a Coaching Model for Experiential Learning](#), 2021

We recommend practices for coaching that can support gains for students and faculty in experiential, project-based, interdisciplinary courses.

### [A systematic review in prosthetics and orthotics education research](#), 2020 *Abstract only*\*

This systematic review suggests that prosthetic/orthotic education research is only being conducted at a limited level. There is a strong need for high quality, collaborative education research to be conducted and published in peer-reviewed journals to improve prosthetic/orthotic education and build a global conversation.

### [Education in prosthetic and orthotic training: Looking back 50 years and moving forward](#), 2020 *Abstract only*\*

Three areas of change in prosthetics and orthotics education over the past 50 years: (1) prosthetic/orthotic curriculum content, (2) pedagogy and course delivery, and (3) internships/residencies.

### [Entrustment trends in orthotic and prosthetic residencies](#), 2020

This study presents information which can inform clinical preceptors and residents on what factors contribute to the decision to progress a resident from observation to independent patient care. These findings may influence clinical education standards which aim to promote both resident training and patient access to quality care.

### [The difference between troublesome knowledge and threshold concepts](#), 2019 *Abstract only*\*

This article explores this difference through the context of students' difficulties in learning prosthetics and two models of describing threshold concepts. Students and staff at two UK universities teaching prosthetics and orthotics participated in interviews and questionnaires.

### [The Components of Strategic Leadership of Prosthetic and Orthotic Practitioners in Thailand](#), 2019

From the research findings, 7 components of strategic leadership should be developed among prosthetic and orthotic practitioners, particularly the first three components i.e., relating the part to the whole, corporate spirit, and strategic thinking and planning.

## **Community, primary, secondary and tertiary care**

### [The challenge of service planning and development without adequate data: The case for orthotic services](#), 2022

The work within this paper has taken the first step to address this gap, presenting a summary of the information relating to

appointments and costs, and provides a discussion on the implications of variations across the NHS orthotic services within England in terms of spend, staffing and skill mix for orthotic services and service users and the need for further data on service users and the UK prosthetic and orthotic workforce.

[Comparison of patient-reported and functional outcomes after transition from traditional upper limb prosthetics to multiarticulating hands in the user with a unilateral transradial amputation](#), 2022

This study aimed to compare patient-reported and functional measures in unilateral transradial prosthetic users transitioning from a body-powered or traditional myoelectric prosthesis to a MAH.

[Regulation of the global orthotist/prosthetist workforce, and what we might learn from allied health professions with international-level regulatory support: a narrative review](#), 2021

We recommend the establishment of an international professional body with the express purpose to support national-level regulation of orthotist/prosthetists, and thereby build the regulatory capacity of national orthotic/prosthetic associations.

[Exploring the perspectives of prosthetic and orthotic users: past and present experiences and insights for the future](#), 2021

Prosthetic and orthotic users identified that there had been vast changes in disability perception, disability rights, and their role in the health care system, along with the variety of technology and materials available. Key findings were that prosthetic and orthotic users want to be listened to, considered central to the health care team, and had a deep understanding of their own health care needs.

[Examining the Competency of Recent Graduates of an Orthotics and Prosthetics Training Program](#), 2019

Both graduates and supervisors agree on high levels of competency across all competency areas defined by certification bodies. Opportunities exist to enhance curricula related to implementation of treatment plan

[A conceptual framework for orthotic and prosthetic education](#), 2019 *Abstract only\**

Sorting of variables identified from the literature resulted in three thematic areas: (1) the state of functioning, disability, and health (International Classification of Functioning, Disability and Health); (2) orthotic and prosthetic technical properties, procedures, and appropriateness; and (3) professional service as part of orthotic and prosthetic interventions. The proposed orthotic and prosthetic education framework includes these three areas situated within the context of patient-centered care.

[Cross-sectional survey of orthotic service provision in the UK: does where you live affect the service you receive?](#) 2019

Results highlight the large discrepancies in service provision between Trusts/HBs, the gaps in data capture and the need for the UK NHS to establish appropriate processes to record the quantity and quality of orthotic service provision. In addition to standardising appointment times across the NHS, guidelines on product entitlements for patients and their lead times should be prescribed to promote equity.

[National profile of foot orthotic provision in the United Kingdom, part 2: podiatrist, orthotist and physiotherapy practices](#), 2018

Podiatrists, orthotists and physiotherapists provide foot orthoses to important clinical populations in both a prevention and treatment capacity. Their working context, scope of practice and mix of clinical caseload differs significantly, although there are areas of overlap.

[National profile of foot orthotic provision in the United Kingdom, part 1: practitioners and scope of practice](#), 2017

Foot orthoses in the United Kingdom are provided in areas of well recognised health and rehabilitation priorities. A wide range of orthotic devices and practices are employed and different professions provide foot orthoses in different ways.

[Enhancing quality of prosthetic services with process and outcome information](#), 2016

Quality improvement activities based on patient-reported outcomes require a high degree of organizational commitment and support. External facilitation can support clinics' quality improvement activities.

### Role progression and development

[Towards Co-Design in Delivering Assistive Technology Interventions: Reconsidering Roles for Consumers, Allied Health Practitioners, and the Support Workforce](#), 2022

This research aimed to develop and pilot an AT collaboration tool which enables AHPs, consumers, their support networks and the support workforce, to navigate policy redesign toward ethical consumer-directed implementation of AT interventions.

[Allied health professionals' perceptions of research in the United Kingdom national health service: a survey of research capacity and culture](#), 2022

In the UK, AHPs working in NHS health and social care perceive individual and organisational level research skill/success to be adequate. In contrast, inadequacies in research skill/support at team level were exposed, which may hinder successful integration of allied health research into everyday health and social care practice. Recommendations are made with reference to the HEE AHP research strategy.

[The emergence of telehealth in orthotic services across the United Kingdom](#), 2021 *Abstract only*\*

For telehealth to be effective orthotists must have access to appropriate technology and training on how to use telehealth platforms, be provided with appropriate guidance on which patients are appropriate for telehealth consultations and given appropriate appointment times to enable safe and effective care.

[Capitalising on the transformational opportunities of early clinical academic career training for nurses, midwives and allied health professionals](#), 2020

The findings suggest that individuals, funders, and organisations may need to relinquish the notion that training is purely or largely a transactional exchange in order to establish collaborative initiatives.

[Relationship between labour force satisfaction, wages and retention within the UK National Health Service: a systematic review of the literature](#), 2020

Pay was found to influence satisfaction, which in turn affected retention. An increase in wages alone is unlikely to be sufficient to ameliorate the concerns of NHS workers.

[Developing a consolidated research framework for clinical allied health professionals practising in the UK](#), 2020

The consolidated framework was entitled 'Shaping Better Practice Through Research: A Practitioner Framework' by stakeholders, thus emphasising its ambition to embed research activity into practice.

[The influence of staff training and education on prosthetic and orthotic service quality: A scoping review](#), 2017

There is very little evidence about the effects of training and education of prosthetists and orthotists on service quality. While

this is a somewhat negative finding, we feel that it is important to bring this to the attention of the prosthetics and orthotics community.

### Workforce perspectives and mental health

[Prosthetic and orthotic students' perceptions on online courses during the COVID-19 pandemic in Japan](#), 2022

The event of the COVID-19 pandemic has proved necessary to renew the traditional teaching and learning model in colleges worldwide. Most students have been affected by clinical placements and career preparation. Therefore, promoting telehealth in the existing rehabilitation facilities and P&O industries to provide services might be an alternative method to address students' clinical placements in similar life condition events.

[Joining the workforce during the COVID-19 pandemic: views of Allied Health Profession students](#), 2022 *Abstract only\**

Although the transition from student to practitioner continues to be a stressful period, only a minority of participants reported COVID-19 as an explicit stressor.

[Wellbeing and coping of UK nurses, midwives and allied health professionals during COVID-19-a cross-sectional study](#), 2022

*Abstract only\**

This workforce would benefit from additional support/services to prevent further deterioration in mental health and wellbeing and optimise workforce retention.

[Fostering integration among students with different backgrounds using an orthotic community service program](#),

2022 *Abstract only\**

This study demonstrated that an international community service program could initiate positive changes in students'

intercultural communication capability and interest to work with culturally different people.

[Prosthetic and orthotic students' attitudes toward addressing sexual health in their future profession](#), 2018

Prosthetic and orthotic students are unprepared to address sexual health issues with their future clients. There is a need to provide students with training related to sexual health issues.

### Diversity and inclusion

["Raising the curtain on the equality theatre": a study of recruitment to first healthcare job post-qualification in the UK National Health Service](#), 2022

The Healthcare Workforce Equity + Diversity Lens we have developed can help to 'raise the curtain on the equality theatre' and inform more inclusive approaches to recruitment such as contextualised recruitment or effective allyship between employers and universities.

[Prosthetic orthotic missions: Ethics and efficacy](#), 2022 *Abstract only\**

See link for abstract.\*

[Affirming LGBTQ+ identities in orthotics and prosthetics education, practice, and research](#), 2020

Results of the survey indicated that more than a quarter of transgender or gender non-conforming individuals have been subjected to harassment in a medical facility, including doctors' offices, emergency rooms, and other healthcare settings.<sup>6</sup> The report also indicated that 41% of transgender or gender non-conforming individuals had attempted suicide at least once.

[The challenge of diversity in the allied health professionals](#), 2020 *Abstract only\**

Although the Allied Health Professions (AHPs) are a diverse range of professions in terms of their skill set. The workforce which makes up the professions lacks diversity, having been shaped by a set of distinct social forces, relics of a post-industrial era.

## Competency Frameworks

[The standards of proficiency for prosthetists / orthotists](#), HCPC  
In August 2022, we updated our standards of proficiency for the first time since 2015. The changes, which will come into effect on 1 September 2023, have been made following an extensive period of engagement with a wide range of stakeholders.

[Development of a digital competency framework for UK Allied Health Professionals](#), 2020

This framework has been developed to support the enhancement of digital competence (knowledge and skills associated with digital technology in practice) for all allied health professions from band 3 to band 9. It is intended to be a developmental and supportive tool that can enable all staff to meet their digital potential.

[Competency standards for newly graduated prosthetist/orthotists in Sweden](#), 2018

There are currently no national competency standards upon which to develop educational objectives for prosthetist/orthotists in Sweden. While standards have been developed in other countries, they cannot be applied without confirming their relevance in a Swedish context.

## \*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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