



RESEARCH ARTICLE

The skills, knowledge and attributes needed as a first-contact physiotherapist in musculoskeletal healthcare

Neil Langridge 

Lymington Hospital, Lymington, UK

CorrespondenceNeil Langridge, Lymington Hospital,
Wellworthy Road, Lymington, Hants,
SO418QD, UK.

Email: neil.langridge@nhs.net

Abstract

Objectives: The provision of musculoskeletal assessment and pathway management by physiotherapists in primary care is an expanding innovation within the UK National Health Service. This new model of care is challenging physiotherapists to work in new ways, and so an understanding of these roles is timely and will contribute to the growing knowledge regarding these practitioners and their impact.

Methods: This qualitative study aimed to improve the understanding of the clinical practice of first-contact clinicians in musculoskeletal healthcare. The study used a think-aloud method to explore eight clinicians' views via a stage 1 semi-structured interview process. This was followed by a stage 2 focus group involving physiotherapists and a general practitioner trainer. A thematic analysis then followed, which involved the researcher and a research colleague coding the data and subsequently developing themes.

Results: 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.

Conclusions: 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.

KEYWORDS

clinical reasoning, physiotherapy, primary care

1 | INTRODUCTION

Musculoskeletal (MSK) disorders have a global effect on pain and disability, and are the second most common reason for disability behind mental health and substance abuse (Global Burden Disease, 2016). MSK disorders account for 40% of self-reported illness and are reported to be the second most common condition requiring a general practitioner (GP) consultation (Jordan, Holden, Mason, & Masor, 2010; Rasker, 1995). In terms of costs, MSK pain and

disability have been reported to lead to 8.8 million working days lost per year in the UK, with a 16-day average recovery time (Health and Safety Executive, 2016). Forty-one per cent of all work-related disorders are MSK in origin, and at any one time in the USA 30% of individuals will be reporting joint pain, disability and swelling (Woolf & Pfleger, 2003).

These figures lead to pressures within the health and social care systems, and also, critically, within primary care, as the percentage of patients with MSK disorders presenting to their GP ranges from 12%

to 33% (Goodwin & Hendrick, 2016; Jordan et al., 2010). GP practice is under pressure: Between 2010 and 2015, UK GP practice lists grew by 15%; face to face contacts rose by 13%; telephone consultations increased by 63%; while the GP workforce grew only at 4.75% (King's Fund, 2016). General practice is generally acknowledged as the "gate keeper" for patient pathways, based around the GP skills in identifying serious pathology, the management of complexity and multimorbidity and the cost-effective use of patient pathways (Foster, Hartvigsen, & Croft, 2012). However, the need to provide new models of care and transform services is also now well documented, and the clinical offer of allied health professionals (AHPs) has been highlighted as an area of practice in the UK which could help to solve challenges within primary care (NHS England, 2014, 2016a,b).

MSK physiotherapy is one such offer, and for a number of years first-contact physiotherapy (which is the access to a clinician without the need for a GP referral, sometimes also known as "direct access") has been able to demonstrate safe, economic practice that offers high user satisfaction in community and primary care services (Goodwin & Hendrick, 2016; Holdsworth, Webster, & McFadyen, 2007). Direct access physiotherapy on a global scale was evaluated, and it was found through a survey design (68% response rate) that 58% of World Congress of Physiotherapy member countries enable direct access to physiotherapy (Bury & Stokes, 2013). First-contact physiotherapists (FCPs) have now been described in the UK as providing a first point of contact service for patients presenting to primary care with a MSK problem, thereby offering an alternative assessment from their normal GP (Chartered Society of Physiotherapy, 2018). These services differ from standard direct access as they are firmly embedded as part of the primary care team rather than within a physiotherapy department, and their role is to triage and signpost rather than supply standard physiotherapy treatment. Patients in the UK can now present either directly to community rehabilitation physiotherapy services under "self-referral/direct access" schemes or as part a new model of care within a GP practice for a first-contact assessment within primary care. This is a relatively new service that is designed to support GP practice but also improve the experience for the patient and be economically viable upon the MSK pathway (Goodwin & Hendrick, 2016).

The development of the FCP role has been driven by the physiotherapy profession's advanced practice skills that have been previously described as extended (Langridge, Roberts, & Pope 2015). These extended roles have been researched across secondary and community care (McPherson et al., 2006), and the role of FCPs within GP practices, in an attempt to support the challenges currently experienced by primary care, has now gained interest (Chartered Society of Physiotherapy, 2017; NHS England, 2016a,b). AHPs, including physiotherapists, are utilized to manage a particular cohort in primary care, co-located within a GP practice and seeing patients. One of the key components to providing this practice is assurance of competency, capability and training, as physiotherapists co-located within a GP practice and taking the burden off them by seeing their patients is a new form of clinical work that needs a deeper understanding and analysis. It is therefore important to have a clearer understanding of the influences affecting FCPs' decision-making, as working within a

GP setting requires similar skills and attributes to those of GPs, to ensure safe, appropriate clinical practice.

There are challenges to working in an environment where the patient has not been screened by a GP, and this would commonly relate to safety concerns and the danger of missing "red flags" (Ferguson, Holdsworth, & Rafferty, 2010; Henschke et al., 2009). Therefore, building an understanding of the skills and knowledge that will influence clinical reasoning and safe practice is felt to be timely in these new primary care environments, as accountability and safety are known components in advanced practice clinical reasoning (Langridge, Roberts, & Pope, 2015).

Clinical reasoning has been described by Weiss (2011) as analytical and non-analytical processes and skills undertaken by GPs when assessing patients, which are the processes of either developing hypotheses or an automatic retrieval process described as pattern recognition. Elstein and Schwartz (2002) suggest that the novice GP will tend to use the analytical model, while Norman and Eva (2010) identify the use of heuristics (rules of thumb) in the more experienced clinician. This has also been replicated in physiotherapy, where novice physiotherapists require the use of hypothesis testing in a standard outpatient setting (Doody & McAteer, 2002) and when they reflect on the decisions they make surrounding low back pain (Karvonen, Paatelma, Laitinen-Vaananen, & Piirainen, 2017), while more expert physiotherapists will also utilize a range of processes, including pattern recognition skills (May, Greasley, Reeve, & Withers, 2008). These more experienced physiotherapists will be delivering clinical practice in a primary care environment as first-contact physiotherapy expands (NHS England, 2016a), and, as such, will need to combat the pressures of time limitations, first-contact assessments and being safe in the practice of not missing serious pathology. There is an identified gap in the literature surrounding the clinical acumen needed in primary care FCP practice, and the present research looked to build upon the advanced practice knowledge in clinical reasoning and decision-making for physiotherapists.

The research presented here therefore sought to understand some of the key skills, knowledge and attributes used by advanced practice MSK physiotherapists working within a GP setting as a first-contact practitioner. It adopted an interpretative approach in aiming to understand the contextual and professional components of the first-contact role, in order to support the future development of competency frameworks.

2 | METHODS

Ethical approval was granted by the Health Research Authority in Southampton, UK (16/HRA/5385). A qualitative design was chosen to answer the research question "What key skills, knowledge and attributes are needed to work as a first-contact MSK physiotherapist in primary care?" The study engaged a two-stage process. Stage 1 utilized semi-structured interviews from advanced practice physiotherapists who either were about to embark in first-contact primary care or were currently working in the environment. These interviews

were conducted through Skype. The topic guide was built from an initial development interview with a trainee FCP and through clinical observations via a training programme prior to the study, and was piloted with the initial trainee. The “think-aloud” process (MacNeela et al., 2010aa; MacNeela, Gibbons, McGuire, & Murphy, 2010bb) was utilized to try to understand the processes surrounding this model of care. The physiotherapists recollected cases of note where they had had to use particular primary care skills and knowledge to manage the patient. Using this method allowed for the participants to talk through their reasoning for clinical decisions that were needed in the primary care environment. Stage 2 utilized a focus group involving four clinicians. The aim of this group was to discuss the initial findings from stage 1, to deepen the understanding.

2.1 | Participants

For the semi-structured interviews, advanced practice physiotherapists (APPs) were purposively selected across three National Health Service (NHS) trusts located in England. These clinicians were either currently working within primary care as an FCP, or about to embark on a training programme for primary care FCP work. The NHS trusts were approached as they had FCPs working within their services. Eight participants were involved in stage 1, and no drop-outs were recorded. The following focus group involved three APPs (two were initially involved in stage 1), one APP who had not been involved and a GP trainer. The reason to include a GP trainer (a GP who has completed a period of study and has been approved by Health Education England) within the focus group was to gain a nonphysiotherapist perspective, thereby deepening the discussion.

2.2 | Consent

Managers of MSK services were approached for both studies via email, and were asked to deliver information sheets and consent forms to potential participants. Participants contacted the lead author, and the interviews and focus groups were then subsequently arranged. Written consent was obtained prior to both stages of data collection. Participants for stage 1 were included if they were Health and Care Professions Council registered and working clinically in the NHS. The GP was registered with the General Medical Council and had experience of MSK assessment and the training of GPs. The GP was approached to give depth to the focus group, as it was felt that their experience of first-contact work and experience of training GPs and working with APPs would be contextually useful in discussing and interrogating the findings of the interviews.

2.3 | Data collection

2.3.1 | Stage 1

The semi-structured interviews were facilitated by the author. These were supported by a topic guide, developed by the author, comprising open questions exploring some patient examples that the clinicians

were asked to recall, and questions thematically covering the competency, challenges and relevance of their skills and attained prior knowledge. The interviews were audio-recorded and transcribed verbatim. Each interview lasted approximately 35–40 min.

2.3.2 | Stage 2

The focus group was facilitated by the author, supported by a topic guide that was underpinned by the analysis from the stage 1. The focus group was audio-recorded and transcribed verbatim.

2.4 | Analysis

Analysis of the data was completed via an inductive thematic approach based on the process advocated by Braun & Clarke (2006). The transcripts were read for an initial overview followed by two individuals coding the data independently. The codes were then selected and further grouped into themes that were then further revised and named by the author. The initial work was underpinned by the coding processes being separate from each other, and a process of reflexivity that considered the impact of the researcher upon the data collection and analysis. After the initial coding, the author re-evaluated the data, to develop further the initial codes that were to inform stage 2 of the data collection. Reflections after each interview and a diary were kept during the interviews and during coding. The coding process after stage 2 was completed independently by the author, and a final group of themes was identified and is described below. Each piece of data presented below identifies a source as either a single transcript (T) or coming from the focus group (FG).

3 | RESULTS

3.1 | Demographics

3.1.1 | Themes

Each theme described has been linked to either skills, knowledge or attributes, allowing the reader to see the dimensions that are proposed required elements for practice. The themes are set out below:

- Medical assessment and systems knowledge.
- Speed of thought in an uncertain environment.
- Breadth of knowledge.
- People and communication skills.
- Common sense/simplify.
- Responsibility and experience.

The *Medical assessment and systems knowledge* theme was developed from codes that linked the physiological, neurological and

TABLE 1 Demographic data

Number of participants in phase 1	Range of FCP experience (years)	Range of advanced practice experience (years)	GP
8	0–6	2–15	0
Number of participants phase 2	Phase 2	Phase 2	
3	6 months	10–15	1

FCP: first-contact physiotherapist; GP: general practitioner

biological mechanisms for MSK presentations, namely described as systems as well as an understanding of the medical system for the management of patients within primary care.

3.2.1 | Medical assessment and systems knowledge (Knowledge)

This initial theme was strongly supported in the data, whereby the FCPs were clear about the need to understand the medical elements of MSK practice in a first-contact physiotherapy environment and the associated factors that can influence the clinical presentation:

Well, comorbidities are massive, aren't they, like diabetes, cancers, neurological conditions, anything that's happened recently—falls, things that flag up frailty and things like that. (T1)

Adding to the knowledge surrounding medical pathology, the clinicians felt that an awareness of drug interaction was a relevant working requirement for the role which is an obvious element to advanced practice, and this would be especially relevant in primary care as opposed to orthopaedic surgery where much advanced MSK practice has been evaluated. The participant below discussed the importance of having a greater appreciation of the effects of drugs on the pain presentation of patients:

Are the patient's symptoms a drug side effect, are they a mechanical cause or are they a nonmechanical cause? So, it's brought in another string, in terms of reasoning through that patient story. (T2).

This participant below discussed the importance of multisystems thinking and knowledge (which identifies numerous biological, physiological and pathological systems) and considered this to be an important construct in clinical reasoning. In this context, the clinician recognized the multifactorial nature of the patient and how this affects decision-making. This really builds on the knowledge needed, not just in MSK conditions, but also across the medical presentations that the clinicians may see as an FCP:

So, I think you can talk about it from a multisystems point of view, in terms of those, kind of wider aspects of clinical reasoning. (T5).

3.2.2 | Speed of thought in an uncertain environment (Attribute)

The clinicians in the study generally reported having shorter appointment times in an FCP role than in their normal MSK physiotherapy roles. This meant that the pressure of time was a factor, and therefore the ability to recognize this as a challenge but to be able to make quick decisions was noted as a key theme within the data.

The quotes below identify the initial assessment of a presentation based on “gut-feeling”, which it seems then leads to how the clinical interview will take place. This process would be a fast decision aid, and in the environment of first-contact physiotherapy would be a vital attribute in managing multiple problems in a first-contact role, and, importantly, being safe in practice:

It's about making that initial kind of gut feeling as they perhaps come in the room, and then that kind of more organic process of interviewing them, trying to find out why they're there. (T3).

The quotes below gives further evidence for the need to have the attribute of being able to assimilate information quickly, make sense of it and then act under uncertain conditions:

The ability to analyse the information that is coming in quickly, making sense of it, facilitating a different conversation that might take them off on a different pathway. (T6).

Because one of the things about general practice is dealing with uncertainty. (FG, GP).

This is a where pressure in practice in this particular environment is likely to occur, and this would be a unique element of first-contact physiotherapy in primary care. Secondary care advanced MSK practice is historically linked to an orthopaedic pathway, and although safety is just as important here, patients do not normally self-refer to these services, and so are commonly screened beforehand by a GP. For patients who are not initially screened, it is likely that the levels of uncertainty will be higher in many cases presented to a clinician.

3.2.3 | Breadth of knowledge (Knowledge)

This theme was clearly identified, and linked closely to systems knowledge. It is differentiated by knowledge of not just medical systems, but also the scope of managing and delivering person-centred care. It involves utilizing wider elements of scope, to bring together a rounded field of knowledge:

I'd probably take musculoskeletal out of it now, and, having done it for a while, I would prefer not to call it musculoskeletal because it's not really about that, really. (T1)

These quotes highlight that the role, although identified as MSK, has a much broader element to it, as also supported by the data below:

I think your scope of knowledge has to be even broader than what it is. (T6)

Even in their thinking, the clinician here is recognizing the systems approach and thinking broadly around the presentation. The quote below further supports this.

But you also need that slight lateral thinking of, hang on, are we dealing with a urinary tract infection here or has this got a smell of rheumatology or whatever? (T4)

Lastly, the data did contain numerous references to public health and the need to build that awareness into FCPs' clinical practice. This perhaps is a clear need for all clinicians to be mindful of, but, particularly in first-contact physiotherapy, the patient needs that contact to be useful in as many ways as possible, not just in an orthopaedic pathway, but also across all relevant health domains:

It is just being aware of the bigger social healthcare economy. (T6)

3.2.4 | People and communication skills (Skill)

This theme was presented as a key element and linked closely to the ability of the clinician to make health and social links, to help make good clinical decisions and to ensure that care in these clinics is still seen as collaborative, and built around effective communication:

You've got to want to help people. (T1)

Relationship building and empathy were considered as key skills in gaining an understanding of the patient's needs:

I think it is so important to be a person that can develop a relationship with a patient, and to listen to them and to be empathetic towards their whole life. (T1)

The communicative skill of letting the patient tell their story and allowing all concerns to be heard and addressed was a further key finding, and, when the time constraints of working in primary care are considered, then the ability to do this in such an environment demonstrates an important skill of the role. Clearly, understanding the ideas, concerns and expectations is known to support simplifying the consultation of patients (Tate, 2005). The quote below highlighted this as a key approach to primary care practice:

So, you link up with what the patient understands and what they are concerned about. Because you may have listened to their story ... (FG participant 1).

3.2.5 | Common sense/simplify (Skill and attribute)

The role was well recognized to be time dependent, and so the ability to simplify and not overcomplicate was seen as core to clinical practice. The clinicians were clear that, in such an environment, the ability to reduce complexity and to improve speed of thought was key:

Getting to the heart of the matter is a key skill; therefore, I had to be quick and clear in my thinking. (T5)

When approaching the diagnosis, it was clear in the data that simple linkages and clinical reasoning modelling were important, and perhaps this was due to the time restrictions and potential multi-morbidities seen in the clinics:

I think they just use very simple models, which is why whenever I am dealing with anything, I tend to break it down to something very, very simple. So, not overcomplicating things (FG participant 2)

3.2.6 | Responsibility and experience (Attribute)

This theme demonstrated an inter-relationship whereby understanding scope and linking experience to confidence were very much attributes that meant that a clear understanding of responsibility could be understood. The quote below highlights the importance of recognition of scope and limits:

Mark the boundaries where that responsibility stops. (T3)

The quote below highlights a potentially vital component of the role. The relationship between experience and confidence was an area of interest, as all the clinicians were experienced practitioners who had several years of clinical experience to support their practice:

It's difficult because with experience comes confidence. (T4)

The clinical responsibility within their scope seemed to link closely with safe and vigilant practice, with use of reasoning processes such as "gut-feeling" to aid with the identification of serious conditions:

An awareness that you need to still maintain your constant vigilance for that gut feeling. (FG GP trainer)

Vigilance, confidence and experience are all attributes that give the practitioner and the patient the safety net that minimizes serious pathology being missed. This is balanced against knowing where the boundaries lie, thereby ensuring that patients for whom concern is a factor are always assessed by other clinicians with the skills and responsibility to evaluate the presentation further.

4 | DISCUSSION

The provision of MSK FCPs is not a new concept; however, the introduction of MSK physiotherapists with advanced skills, such as knowing when to request magnetic resonance imaging scans, independent prescribing and injection therapies within primary care, is certainly taking the profession into a new domain of practice. The understanding of this role is important as competency, capability and governance are key elements of providing the patient, primary care and MSK physiotherapy with the appropriate framework from which to provide safe, effective care.

The present study presents an important initial consideration surrounding these roles, as emergent services begin further to demonstrate economic efficacy (Goodwin & Hendrick, 2016; Holdsworth et al., 2007), and the clinical elements and challenges of the advanced role in primary care continue to be an important new proposal. Physiotherapy as a first point of contact has been recently evaluated, in terms of understanding the challenges to implementation (Moffatt, Goodwin, & Hendrick, 2017). The themes in the latter qualitative study highlighted cultural change, working practice and MSK expertise. That study links to the present piece of research, in that the challenges to implementation identified will need to be met with clinicians' expertise, ability to adapt to cultural change, and alterations in working practice. It would seem reasonable to assume that these challenges to implementation would have to be met with the particular skill sets of the first contact clinician which were identified in the current research.

Clinical reasoning processes in low back pain have been previously studied within advanced roles (Langridge et al., 2015), highlighting that patient interaction, time, "gut feeling", physical testing, safety, prior thinking and internal/external factors are integral to the process. In the present study, there were some parallels with the skills, knowledge and attributes that were presented within the themes.

Speed of thought in an uncertain environment, *People and communication skills* and *Responsibility and experience* have close associations with the study regarding low back pain. Both studies concluded that patient interaction and communication (*People and communication skills*) are central to practice, while speed of thought (*Speed of thought in an uncertain environment*) has similarities to time restrictions, and *Responsibility and experience* resembled the accountability theme from 2015.

Goodwin and Hendrick (2016) found through an analysis of incidents that first-contact physiotherapy is a safe model; however, it was clear that the participants in the present study were acutely aware of the need to assess medical, physiological "systems" to ensure safe practice through the benefit of experience and the awareness of responsibility, which would in essence be a supportive "net" underpinning the care provided.

Holdsworth et al. (2007) noted in their study that GP referrals into specialist services were for an opinion on nonresolving conditions and injection therapies, and interestingly concluded that they supported the notion of local access to competent practitioners with advanced skills. The present study highlighted the *Breadth of knowledge* and the ability to have *Speed of thought in an uncertain environment*, which demonstrates that the expert component was very much a theme. Expertise in the traditional medical model of teaching, as discussed by Weiss (2011), is proposed to be a mastery of basic science followed by an assessment of the clinical signs, leading to experience which ultimately provides the confidence of expertise. The present study acknowledges experience as well as *Medical assessment and systems knowledge* as being important, and all of the clinicians, being relatively experienced MSK practitioners, seemed clear that this gave them the ability to provide a *Common sense/simplify* approach to their clinical assessments.

Atkinson, Ajjawi, and Cooling (2011) proposed that GP training develops certain attributes to support their practice. The ability to

deal with uncertainty was clearly identified in their research, and this was replicated in the current study. Their study also proposed themes of time restrictions and "knowing" patients. In the present study, *People and communication skills*, *Speed of thought in an uncertain environment* and applying *Common sense/simplify* were similar skills and attributes to the study from Atkinson et al. (2011), and this would have been expected as MSK first-contact physiotherapy involves working in a similar way to a GP in determining the appropriate management plans for patients within primary care.

The role of the advanced AHP practitioner in first-contact physiotherapy requires a more formal process of evaluation and in line with this new frameworks and competencies that are particular to the environment have been developed and published, but need evaluation (Skills for Health, 2018). The role of the APP has developed in line with the responsibility applied to it, and this attribute, coupled with experience, was clearly demonstrated in the current study. With the advancement of the profession in numerous areas of practice (McPherson et al., 2006), this theme would be expected to be developed with any expansion of scope of practice.

The present study was grounded in practice and therefore supplements expert consensus and opinion, which is a vital component in any development of mentorship, training and ongoing professional development. Saxon, Gray, and Oprescu (2014), in a systematic review, commented that the evidence base for these roles had not progressed, and clearly noted that training needs were a major focus, and a national programme of credentialing a required future development. The present work supports the evidence for enabling a programme of education and training for advanced practitioners and will therefore support any local or national programmes in the future.

There were some limitations to the study. Firstly, the participants being interviewed may have felt somewhat "judged" and so may have altered their views in relation to this. In addition, the researcher in the study was a clinician in the same environment, which was acknowledged but may have influenced the data. The fact that the researcher was a clinician may have biased the interpretation of the data; however, the study data were also initially coded by an independent, non-MSK physiotherapist, in an attempt to mitigate this potential bias.

An awareness of the skills, knowledge and attributes of FCPs is a key component in aiding the development of competency, capability and governance within the physiotherapy profession, and is transferable across any other AHP first-contact clinical practice. The present study identified themes that can supplement and support frameworks and developments in training, either locally or nationally, especially in first-contact physiotherapy within primary care. The six themes identified highlighted a broad spectrum of understanding that gives clinicians, trainers, educators and managers some constructs that can support and identify learning needs for this new area of practice.

More research needs to be carried out in order truly to understand the realities of this work across different demographics and with specific populations. In addition, a wide knowledge base needs to be developed, in regard to the multifactorial nature of this work, which

is rapidly moving away from what might be regarded as “standard” MSK physiotherapy practice.

ACKNOWLEDGEMENTS

The author would like to thank Dr Kate Morton, at the University of Southampton, UK.

ORCID

Neil Langridge  <https://orcid.org/0000-0003-4085-197X>

REFERENCES

- Atkinson, K., Ajjawi, R., & Cooling, N. (2011). Promoting clinical reasoning in general practice trainees: Role of the clinical teacher. *The Clinical Teacher*, 8, 176–180. <https://doi.org/10.1111/j.1743-498X.2011.00447.x>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Bury, T. J., & Stokes, E. K. (2013). A global view of direct access and patient self-referral to physiotherapy: Implications for the profession. *Physical Therapy*, 93(4), 449–459. <https://doi.org/10.2522/ptj.20120060>
- Chartered Society of Physiotherapy. (2017). *Physiotherapy in primary care – Summary briefing*. Retrieved from <http://www.csp.org.uk/professional-union/practice/primary-care/physiotherapy-primary-care-summary-briefing>
- Chartered Society of Physiotherapy. (2018). *First contact physiotherapy posts in general practice. An implementation guide*. Retrieved from https://www.csp.org.uk/system/files/file=001404_fcp_guidance_england_2018.pdf
- Doody, C., & McAteer, M. (2002). Clinical reasoning of expert and novice physiotherapists in an outpatient orthopaedic setting. *Physiotherapy*, 88(5), 258–268. [https://doi.org/10.1016/S0031-9406\(05\)61417-4](https://doi.org/10.1016/S0031-9406(05)61417-4)
- Elstein, A. S., & Schwartz, A. (2002). Clinical problem solving and diagnostic decision making: Selective review of the cognitive literature. *BMJ*, 324(7339), 729–732. <https://doi.org/10.1136/bmj.324.7339.729>
- Ferguson, F., Holdsworth, L., & Rafferty, D. (2010). Low back pain and physiotherapy use of red flags. *Physiotherapy*, 96(4), 282–288.
- Foster, N. E., Hartvigsen, J., & Croft, P. R. (2012). Taking responsibility for the early assessment and treatment of patients with musculoskeletal pain: A review and critical analysis. *Arthritis Research & Therapy*, 14(1), 205. <https://doi.org/10.1186/ar3743>
- Global Burden Disease. (2016). Global, regional, and national incidence, prevalence, and years lived with disability for 328 diseases and injuries for 195 countries, 1990–2016: A systematic analysis for the global burden of disease study 2016. <http://ghdx.healthdata.org/gbd-2016>
- Goodwin, R. W., & Hendrick, P. A. (2016). Physiotherapy as a first point of contact in general practice: A solution to a growing problem? *Primary Health Care Research & Development*, 17(5), 489–502. <https://doi.org/10.1017/S1463423616000189>
- Health and Safety Executive (2016). *Summary statistics for Great Britain*. Retrieved from <http://www.hse.gov.uk/statistics/index.htm>
- Henschke, N., Maher, C., Refshauge, K., Herbert, R., Cumming, R., Bleazel, J., ... McAuley, J. (2009). Prevalence of and screening for serious spinal pathology in patients presenting to primary care settings with acute low back pain. *Arthritis and Rheumatism*, 60(10), 3072–3080. <https://doi.org/10.1002/art.24853>
- Holdsworth, L., Webster, V., & McFadyen, A. (2007). What are the costs to NHS Scotland of self-referral to physiotherapy. *Physiotherapy*, 93, 3–11. <https://doi.org/10.1016/j.physio.2006.05.005>
- Jordan, J. L., Holden, M. A., Mason, E. E., & Masor, E. E. J. (2010). Interventions to improve adherence to exercise for chronic musculoskeletal pain in adults. *Cochrane Database of Systematic Reviews*, 1, 5956.
- Karvonen, E., Paatelma, M., Laitinen-Vaananen, S., & Piirainen, A. (2017). Clinical reasoning and critical reflection in physiotherapists' examinations of patients with low back pain in its early phase: A qualitative study from physiotherapists' point of view. *European Journal of Physiotherapy*, 19(4), 185–193. <https://doi.org/10.1080/21679169.2017.1316311>
- King's Fund. (2016). *Understanding pressures in general practice*. Retrieved from <https://www.kingsfund.org.uk/topics/general-practice>
- Langridge, N., Roberts, L., & Pope, C. (2015). The clinical reasoning processes of extended scope physiotherapists assessing patients with low back pain. *Manual Therapy*, 20(6), 745–750. <https://doi.org/10.1016/j.math.2015.01.005>
- MacNeela, P., Clinton, G., Place, C., Scott, A., C Scott, A., Treacy, P., ... Dowd, H. (2010a). Psychosocial care in mental health nursing: A think aloud study. *Journal of Advanced Nursing*, 66(6), 1297–1307. <https://doi.org/10.1111/j.1365-2648.2009.05245.x>
- MacNeela, P., Gibbons, A., McGuire, B., & Murphy, A. (2010b). We need to get you focused: General practitioners' representations of chronic low back pain patients. *Qualitative Health Research*, 20(7), 977–986. <https://doi.org/10.1177/1049732310364219>
- May, S., Greasley, A., Reeve, S., & Withers, S. (2008). Expert therapists use specific clinical reasoning processes in the assessment and management of patients with shoulder pain: A qualitative study. *Australian Journal of Physiotherapy*, 54, 261–266. [https://doi.org/10.1016/S0004-9514\(08\)70005-9](https://doi.org/10.1016/S0004-9514(08)70005-9)
- McPherson, K., Kersten, P., George, S., Latimer, L., Breton, A., Ellis, B., ... Frampton, G. (2006). A systematic review of evidence about extended roles for allied health professionals. *Journal of Health Services Research & Policy*, 11(4), 240–247. <https://doi.org/10.1258/135581906778476544>
- Moffatt, F., Goodwin, R., & Hendrick, P. (2017). Physiotherapy-as-first-point-of-contact-service for patients with musculoskeletal complaints: Understanding the challenges of implementation. *Primary Health Care Research and Development*, 9(2), 1–10.
- NHS England. (2014). *Five year forward view*. Retrieved from <https://www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf>
- NHS England. (2016a). *Allied health professions into action*. Retrieved from <https://www.england.nhs.uk/wp-content/uploads/2017/01/ahp-action-transform-hlth.pdf>
- NHS England. (2016b). *GP practice forward view*. Retrieved from <https://www.england.nhs.uk/wp-content/uploads/2016/04/gpfv.pdf>
- Norman, G., & Eva, K. (2010). Diagnostic error and clinical reasoning. *Medical Education*, 44, 94–100. <https://doi.org/10.1111/j.1365-2923.2009.03507.x>
- Rasker, J. J. (1995). Rheumatology in general practice. *British Journal of Rheumatology*, 34(6), 494–497. <https://doi.org/10.1093/rheumatology/34.6.494>
- Saxon, R., Gray, M., & Oprea, F. (2014). Extending roles for allied health professionals: An updated systematic review of the evidence. *Journal of Multidisciplinary Healthcare*, 7, 479–488.
- Skills for Health 2018 *The musculoskeletal (MSK) core capabilities framework for first contact practitioners*. Retrieved from <http://www.>

skillsforhealth.org.uk/news/latest-news/item/689-new-musculoskeletal-core-capabilities-framework

Tate, P. (2005). Ideas, concerns and expectations. *Medicine*, 33(2), 26–27. <https://doi.org/10.1383/medc.33.2.26.58376>

Weiss, M. C. (2011). Diagnostic decision making: The last refuge for general practitioners. *Social Science & Medicine*, 73, 375–382. <https://doi.org/10.1016/j.socscimed.2011.05.038>

Woolf, A. D., & Pfleger, B. (2003). Burden of major musculoskeletal conditions. *Bulletin of the World Health Organization*, 81(9), 646–656.

How to cite this article: Langridge N. The skills, knowledge and attributes needed as a first-contact physiotherapist in musculoskeletal healthcare. *Musculoskeletal Care*. 2019;1–8. <https://doi.org/10.1002/msc.1401>