BMJ Open Sport & Exercise Medicine

Musculoskeletal risk stratification tool to inform a discussion about face-to-face assessment during the COVID-19 pandemic

Andrea Ravindra,[1] Andrew Cuff,[1] Ian A Bernstein,[1,2] Marwan Al-Dawoud[1]

To cite: Ravindra A, Cuff A, Bernstein IA, *et al*. Musculoskeletal risk stratification tool to inform a discussion about face-to-face assessment during the COVID-19 pandemic. *BMJ Open Sport & Exercise Medicine* 2020;**0**:e000916. doi:10.1136/bmjsem-2020-000916

► Supplemental material is published online only. To view please visit the journal online (http://dx.doi.org/10.1136/bmjsem-2020-000916).

Accepted 13 September 2020

[1]NHS Musculoskeletal Services, Connect Health Ltd, Newcastle upon Tyne, UK
[2]Medical Directorate, Central London Community Healthcare NHS Trust, London, UK

Correspondence to
Marwan Al-Dawoud; marwanal-dawoud@connecthealth.co.uk

ABSTRACT

The COVID-19 pandemic and lockdown caused clinicians in the UK to switch to delivering musculoskeletal care using telephone or video consultations. NHS England (an executive non-departmental public body of the Department of Health and Social Care, England) recommended prioritisation of more urgent conditions, including those people whose condition has deteriorated and those waiting the longest as part of a phased return to pre-COVID-19 service provision. Clinicians will need to assess an individual's risk factors for complications from COVID-19 alongside their clinical priority to inform a shared decision-making discussion about appropriate face-to-face care delivery. This paper outlines a risk stratification tool that informs that discussion and aims to reduce the subjectivity in the risk assessment between clinicians.

Key points

- ► The NHS in England is prioritising hospital treatment for more urgent MSK conditions during the restitution of normal services following the COVID-19 outbreak.
- ► Clinicians need to discuss an individual's risk of complications from nosocomial COVID-19 infection and the benefits of face-to-face assessment and treatment.
- ► The COVID-19 MSK Risk Stratification score informs a shared decision-making discussion with the patient about the balance of risks and benefits of face-to-face care and aims to reduce the subjectivity in the risk assessment between clinicians.

The COVID-19 pandemic and lockdown caused clinicians in the UK to switch to delivering musculoskeletal (MSK) care using telephone or video consultations. The prioritisation of treatment for COVID-19 deferred treatment for many people with MSK conditions. The UK government asked the NHS to plan the restoration of urgent and routine non-COVID-19 hospital and community services from April 2020. MSK disorders are the most common cause of long-term morbidity in the UK and the safe restitution of MSK services remains a challenge while COVID-19 is still prevalent. NHS England recommended prioritisation of more urgent conditions, including those people whose condition has deteriorated and those waiting the longest as part of a phased return to pre-COVID-19 service provision.[1]

We developed an MSK risk stratification tool to assist UK-based MSK clinicians considering face-to-face assessment by combining the clinical prioritisation of the person's MSK disorder with risk factors for complications from COVID-19. The tool was integrated into the electronic patient records system and staff training provided. The aim of the stratification tool is to reduce subjectivity in risk assessment between clinicians, thereby reducing variability in the restitution of MSK care.

The COVID-19 MSK Risk Stratification score informs a shared decision-making discussion with the patient about the balance of risks and benefits of face-to-face care. Other factors such as site safety and separation from people with suspected COVID-19, clinicians' COVID-19 risk factors, personal protective equipment availability and current community transmission rates will need to be considered alongside this tool. However, the greatest risk to patients will be nosocomial infection acquired from asymptomatic healthcare professionals as the prevalence of COVID-19 falls in the population. For this reason, some patients may still prefer to avoid face-to-face assessment.

CLINICAL PRIORITISATION SCORE

The tool rates the impact of an MSK condition on quality of life and the urgency of onward referral for assessment or treatment where clinically appropriate (online supplemental material 1). It could be used where conservative management options have been exhausted or face-to-face assessment may alter clinical management, for example, neurological assessment in a person with worsening radiculopathy. The categorisation of MSK conditions is based on

national prioritisation frameworks.[2] For example, stage one frozen shoulder is classified as a high priority condition due to high pain and disability rates[3] coupled with a good response to early corticosteroid injection. The tool also incorporates prognostic factors associated with poor outcomes for MSK conditions including high pain intensity, high functional disability, severe psychological distress and movement restriction.[4]

PATIENT RISK OF COVID-19 COMPLICATION SCORE

The lowest score for the patient risk of COVID-19 complications is based on a female gender under the age of 50 years with no comorbidities. The tool uses published risk factors for developing complications or dying from COVID-19 in the UK including age, sex, comorbidities and ethnicity to derive the weightings[5] (online supple mental material 1). We clustered some comorbidities because our tool is designed to inform a discussion on the risk and benefits of face-to-face care for an MSK condition. We did not include pregnancy as a patient risk factor following national guidance.[6] Other comorbidities and risk factors such as active rheumatological disease, a recent diagnosis of cancer, obesity, smoking status[7] and vitamin D levels were separated out as they are more relevant to planning MSK care, particularly investigation for serious underlying pathology, elective orthopaedic surgery or initiation of disease-modifying antirheumatic drugs. Vitamin D supplementation has a role in preventing the development of acute respiratory tract infection as well as MSK disorders, with those who are the most deficient experiencing the most benefit, while a potential relationship between vitamin D deficiency and COVID-19 complications has been widely discussed.[8]

OVERALL SCORE AND ADVICE

The overall risk categorisation matrix combines the clinical prioritisation score and COVID-19 complication risk score using colour coding of the final stratification (online supple mental materials 1 - blank template and 2 - worked tem plate). The colour coding is based on the risks to the patient with face-to-face care versus the risk of deterioration or impairment of quality of life for a particular MSK condition.

The tool allows alteration of risk factors and weightings in line with emerging evidence and consensus opinion. The tool can be used to inform a shared decision-making discussion with the patient and for collaboration between clinicians but should not replace clinical judgement. The reliability and validity of this tool will require further study. We will be auditing the scores and use of the tool across our own MSK services in England. The tool is available on request from the authors and we welcome the opportunity to collaborate with other sites to inform development, refinement and utility.

CONCLUSION

MSK clinicians must balance the health needs of patients while prioritising patient safety during the protracted COVID-19 outbreak. This requires innovative thinking to develop new models of care informed by public health guidance. This tool can serve to improve the consistency of clinical decision-making during restitution of face-to-face MSK services in England.

Contributors MA-D conceived the project. AR wrote the first draft. MA-D and AC developed the tool. IAB contributed to the development of the tool and article revisions. All were involved in the review of the final manuscript.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests AR, AC and MA-D have no competing interests. IAB is a member of the Clinical Reference Group advising on the restitution of NHS services (due to COVID-19) in the NHS North West London Health and Care Partnership (STP). This role arises in connection with his work as a GP in the area. He does not receive any payment for this work. IAB is the chair of the National Institute for Health and Care Excellence (NICE) Guideline Committee in an unrelated topic area (head injuries).

Patient consent for publication Not required.

Provenance and peer review Not commissioned; internally peer reviewed.

ORCID iDs
Andrea Ravindra http://orcid.org/0000-0001-8689-4954
Andrew Cuff http://orcid.org/0000-0002-1115-2013
Ian A Bernstein http://orcid.org/0000-0002-7668-5021
Marwan Al-Dawoud http://orcid.org/0000-0002-5530-4103

REFERENCES

1 NHS England. Second phase of NHS response to COVID-19 [Internet]. 2020 Available https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/04/second-phase-of-nhs-response-to-COVID-19-letter-to-chief-execs-29-april-2020.pdf (accessed 20 Jun 2020)
2 Royal College of Surgeons of England. Clinical guide to surgical prioritisation during the coronavirus pandemic. [Internet]. 2020. Available https://www.rcseng.ac.uk/coronavirus/surgical-prioritisation-guidance/ (accessed 20 Jun 2020)
3 Bagheri F, Ebrahimzadeh MH, Moradi A, *et al.* Factors associated with pain, disability and quality of life in patients suffering from frozen shoulder. *Arch Bone Jt Surg* 2016;4:243–7. PMID: 27517070; PMCID: PMC4969371.
4 Artus M, Campbell P, Mallen CD, *et al.* Generic prognostic factors for musculoskeletal pain in primary care: a systematic review. *BMJ Open* 2017;7:e012901.
5 Jankowski J, Davies A, English P, *et al.* Risk stratification tool for healthcare workers during the COVID-19 pandemic; using published data on demographics, co-morbid disease and clinical domain in order to assign biological risk [Preprint]. 2020. (accessed 20 Jun 2020).
6 Royal College of Obstetricians & Gynaecologists. Coronavirus infection and pregnancy [Internet]. 2020. Available https://www.rcog.org.uk/en/guidelines-research-services/guidelines/coronavirus-pregnancy/covid-19-virus-infection-and-pregnancy/ (accessed 23 Jun 2020)
7 Hopkinson NS, Rossi N, El-Sayed Moustafa J, *et al.* Current tobacco smoking and risk from COVID-19: results from a population symptom app in over 2.4 million people [Preprint]. 2020 (accessed 18 Jun 2020). Available http://medrxiv.org/lookup/doi/10.1101/2020.05.18.20105288
8 Lee J, van Hecke O, Roberts N. Vitamin D: a rapid review of the evidence for treatment or prevention in COVID-19. Centre for Evidence-Based Medicine, Nuffield Department of Primary Care Health Sciences, University of Oxford [Internet]. 2020. Available https://www.cebm.net/covid-19/vitamin-d-a-rapid-review-of-the-evidence-for-treatment-or-prevention-in-covid-19/ (accessed 23 Jun 2020)