

BJR



■ INFOGRAPHIC

Predicted waiting times for orthopaedic surgery

AN URGENT NEED TO ADDRESS THE DEFICIT IN CAPACITY

**L. Farrow,
P. J. Jenkins,
E. Dunstan,
A. Murray,
M. J. G. Blyth,
A. H. R. W. Simpson,
N. D. Clement**

From University of
Aberdeen, Aberdeen, UK

Cite this article: *Bone Joint Res* 2022;11(12):890–892.

Keywords: Orthopaedics, Elective, Waiting

Cessation of routine surgical activity during the COVID-19 pandemic has led to a substantial backlog of patients waiting for orthopaedic surgery, with an associated substantial deterioration in surgical waiting times.^{1,2}

Prolonged waits for certain orthopaedic procedures can have a major negative impact on patient health.³ This occurs in terms of deterioration in quality of life while awaiting surgery, as well as potential negative connotations for postoperative recovery and longer-term health in addition to reduced independence and increased social care needs.^{4,5}

Predicted waiting times for routine orthopaedic surgery in a public healthcare system have been calculated using routinely available data.⁶ This includes assessment of potential changes in future operative activity (for example, additional capacity provided through the proposed launch of National Treatment Centres (NTCs) in 2023) and ability to achieve current national targets.

Key findings include a notable current annual case deficit that will not be resolved even with a return to pre-COVID-19 activity coupled with a 22% uplift in capacity (i.e. the full additional planned NTCs' capacity). This is even before consideration of increased future demand for hip and knee arthroplasty services, predicted to rise from pre-COVID-19 levels by up to 28% and 34% in 2038, respectively.⁷

As the rate at which patients are being added to the waiting list exceeds the rate they are being taken off it, any delay results in a subsequent rise in waiting times (i.e. based on current activity for every month

of delay in providing this necessary surgical capacity, there is an over one-month increase in a new patient's waiting time), which further highlights the urgency of a return to pre-COVID-19 orthopaedic activity, as well as the realization of the 22% uplift from the full additional NTC capacity.

However, even in the best-case scenario the average wait across Scotland would be 1.3 years for a patient listed in July 2022, compared to 2.3 years for the worst-case scenario. Given that current admissions for routine treatment are only 52.2% of 2019 activity, a return to a pre-COVID-19 level of operative output will require a substantial change from current practice.

The study highlights the great challenges facing recovery of planned orthopaedic surgery following the pandemic. If the barriers to notable expansion of current activity are not addressed urgently, then waiting lists will continue to deteriorate and patients will continue to come to harm as a result.

Further work is now warranted to provide more granular understanding of waiting times for individual procedures, particularly given previous evidence that has highlighted large disparities between available day-case and inpatient capacity that were analyzed collectively in this study.⁸

Twitter

Follow P. J. Jenkins @pjenkins80
Follow E. Dunstan @balhousie
Follow M. J. G. Blyth @GriOrtho

Correspondence should be sent to
Luke Farrow; email:
luke.farrow@abdn.ac.uk

doi: 10.1302/2046-3758.1112.
BJR-2022-0404

Bone Joint Res 2022;11(12):890–
892.

Supplementary material



Further details on the study methodology, as well as individual health board calculations regarding predicted waiting times for surgery and associated case deficits (including sensitivity estimates).

References

1. **COVIDSurg Collaborative.** Elective surgery cancellations due to the COVID-19 pandemic: global predictive modelling to inform surgical recovery plans. *Br J Surg.* 2020;107(11):1440–1449.
2. **Carr A, Smith JA, Camaradou J, Prieto-Alhambra D.** Growing backlog of planned surgery due to covid-19. *BMJ.* 2021;372:n339.
3. **Clement ND, Scott CEH, Murray JRD, Howie CR, Deehan DJ, IMPACT-Restart Collaboration.** The number of patients “worse than death” while waiting for a hip or knee arthroplasty has nearly doubled during the COVID-19 pandemic. *Bone Joint J.* 2021;103-B(4):672–680.
4. **Ostendorf M, Buskens E, van Stel H, et al.** Waiting for total hip arthroplasty: avoidable loss in quality time and preventable deterioration. *J Arthroplasty.* 2004;19(3):302–309.
5. **Nikolova S, Harrison M, Sutton M.** The impact of waiting time on health gains from surgery: Evidence from a national patient-reported outcome dataset. *Health Econ.* 2016;25(8):955–968.
6. **No authors listed.** NHS waiting times - stage of treatment. Public Health Scotland. 2022. <https://publichealthscotland.scot/publications/nhs-waiting-times-stage-of-treatment/stage-of-treatment-waiting-times-inpatients-day-cases-and-new-outpatients-30-june-2022/clinical-prioritisation-dashboard/> (date last accessed 18 November 2022).
7. **Farrow L, McLoughlin J, Gaba S, Ashcroft GP.** Future demand for primary hip and knee arthroplasty in Scotland. *Musculoskeletal Care.* 2022; Epub ahead of print.
8. **Hampton M, Riley E, Garneti N, Anderson A, Wembridge K.** The orthopaedic waiting list crisis: two sides of the story. *Bone Jt Open.* 2021;2(7):530–534.

Author information:

- L. Farrow, BSc (Intercalated), MBChB (Honours), MRCS, Clinical Research Fellow, Orthopaedic Registrar, Institute of Applied Health Sciences, University of Aberdeen, Aberdeen, UK; Grampian Orthopaedics, Woodend Hospital, Aberdeen, UK.
- P. J. Jenkins, MBChB, MD, FRCS, Consultant Orthopaedic Surgeon
- M. J. G. Blyth, MB ChB FRCS (TR&Orth), Consultant Orthopaedic Surgeon Glasgow Royal Infirmary, Glasgow, UK.
- E. Dunstan, MBBS, BSc, FRCS, Consultant Orthopaedic Surgeon, Kirkcaldy Hospital, Fife, UK.
- A. Murray, BSc, MD, FRCS, Consultant Orthopaedic Surgeon, University Hospital Wishaw, Wishaw, UK.
- A. H. R. W. Simpson, MA(Cantab), BM, BCh (Oxon), DM(Oxon), FRCS(England & Edinburgh), FIORs, Professor of Trauma and Orthopaedics, University of Edinburgh, Edinburgh, UK.
- N. D. Clement, MD, PhD, FRCS(Ed), Consultant Orthopaedic Surgeon, Royal Infirmary of Edinburgh, Edinburgh, UK.

Author contributions:

- L. Farrow: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Visualization, Writing – original draft, Writing – review & editing.
- P. J. Jenkins: Supervision, Writing – review & editing.
- E. Dunstan: Supervision, Writing – review & editing.
- A. Murray: Supervision, Writing – review & editing.
- M. J. G. Blyth: Supervision, Writing – review & editing.
- A. H. R. W. Simpson: Writing – review & editing.
- N. D. Clement: Methodology, Validation, Writing – review & editing.

Funding statement:

- The authors received no financial or material support for the research, authorship, and/or publication of this article.

ICMJE COI statement:

- L. Farrow reports that this study will be included in a PhD submission as part of the Chief Scientist Office Clinical Academic Fellowship, and that no funding was provided specifically for this study.

Acknowledgements:

- We are grateful to the team at Public Health Scotland behind the clinical prioritization dashboard for open provision of the data utilized in this study.

© 2022 Author(s) et al. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial No Derivatives (CC BY-NC-ND 4.0) licence, which permits the copying and redistribution of the work only, and provided the original author and source are credited. See <https://creativecommons.org/licenses/by-nc-nd/4.0/>

Predicted Waiting Times for Orthopaedic Surgery: An Urgent Need to Address the Deficit in Capacity

Luke Farrow¹, Paul Jenkins², Edward Dunstan³, Alastair Murray⁴, Mark Blyth², Hamish Simpson⁵, Nick Clement⁵

¹University of Aberdeen, Aberdeen ²Glasgow Royal Infirmary, Glasgow ³Kirkcaldy Hospital, Fife ⁴University Hospitals Wishaw, Lanarkshire ⁵Royal Infirmary of Edinburgh, Edinburgh

Aims

1.  Examine predicted waiting times for orthopaedic surgery
2.  Assess how this may change in the future, including impact of additional capacity
3.  Determine the feasibility of achieving the current government targets of a 1 year wait for surgery by September 2024

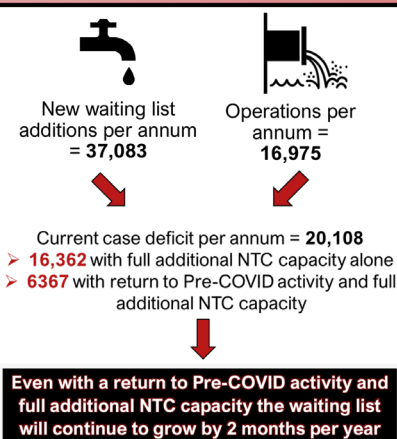
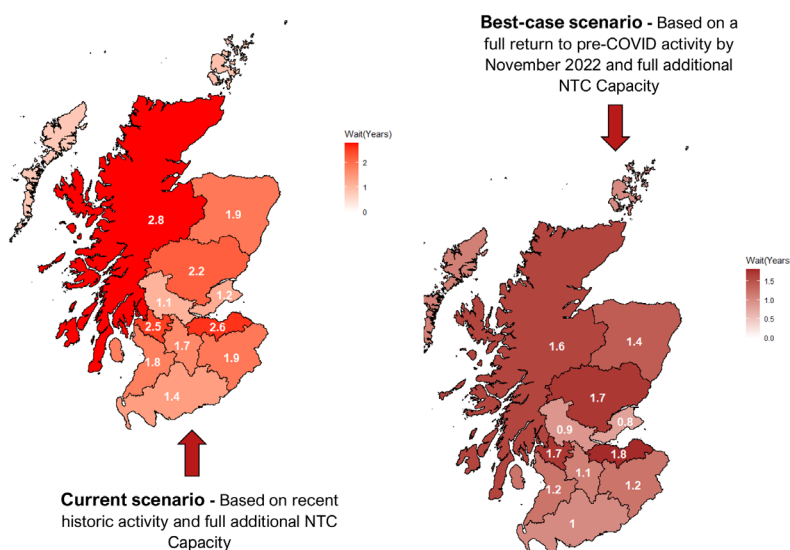
Methods

- Publicly available Public Health Scotland data from <https://bit.ly/3RWASs2> - September 2022
- Calculations based on:
 - previous 1 year surgical activity for routine (FSSA P3 & P4 patients).
 - currently waiting patients as of June 2022.
 - number of patients added to the waiting list over 1 year.
- Full details of the methodology (including adjustment for upcoming National Treatment Centre [NTC] capacity) are available in the attached supplementary material

Results

Predicted waiting time for a routine (P3/P4) patient listed July 2022 (average wait in years)

*Weighted distribution of NTC Capacity based on current predicted waiting time (waiting list size and recent historical operative activity)



Scotland-wide sensitivity estimates for wait-time of new routine patient July 2022

Best-case scenario	Current scenario	Cautious scenario	Worst-case scenario
Return to pre-COVID activity and full NTC capacity	Recent historic activity and full NTC capacity	Recent historic activity and half NTC capacity	Some extra NTC capacity but deterioration in other activity. No overall increase
1.3 years (longest individual Health board wait = 1.8 years)	2 years (longest individual Health Board wait = 2.8 years)	2.2 years (longest individual Health Board wait = 3.8 years)	2.3 years (longest individual Health board wait = 7 years)

Conclusions

-  Current predicted orthopaedic surgery waiting times for a patient listed in July 2022 are approximately 2 years. If full NTC capacity is not achieved waits in some health boards will exceed 3 years.
-  Wait list additions and admissions for treatment remain significantly below 2019 levels. Even with a prompt full return to pre-COVID activity and additional NTC capacity waiting times will continue to deteriorate.
-  Current targets of a 1-year maximum wait by September 2024 need urgent and intense action if they are to be achieved

Impact of future operative activity on ability to achieve Scottish Government target of 1 year wait by September 2024

Wait (years) for patient listed in September 2023 (to achieve 1 year wait by Sept 2024)

Current Activity	3.8
25% ↑ Activity	2.8
50% ↑ Activity	2.1
75% ↑ Activity	1.8
100% ↑ Activity	1.3
Pre-COVID Activity + Full NTC Capacity	1.4

Red denotes failure to meet target

% of 2019 routine (P3/P4) activity:

Wait list additions = **87%**

Admissions for treatment = **52.2%**

