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British Journal of Surgery
2021, Pages 1-8

SARS-CoV-2 vaccination modelling for safe surgery to save lives: Data from an international prospective cohort study (Article) [\(Open Access\)](#)

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Abstract

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Background: Preoperative SARS-CoV-2 vaccination could support safer elective surgery. Vaccine numbers are limited so this study aimed to inform their prioritization by modelling. Methods: The primary outcome was the number needed to vaccinate (NNV) to prevent one COVID-19-related death in 1 year. NNVs were based on postoperative SARS-CoV-2 rates and mortality in an international cohort study (surgical patients), and community SARS-CoV-2 incidence and case fatality data (general population). NNV estimates were stratified by age (18-49, 50-69, 70 or more years) and type of surgery. Best- and worst-case scenarios were used to describe uncertainty. Results: NNVs were more favourable in surgical patients than the general population. The most favourable NNVs were in patients aged 70 years or more needing cancer surgery (351; best case 196, worst case 816) or non-cancer surgery (733; best case 407, worst case 1664). Both exceeded the NNV in the general population (1840; best case 1196, worst case 3066). NNVs for surgical patients remained favourable at a range of SARS-CoV-2 incidence rates in sensitivity analysis modelling. Globally, prioritizing preoperative vaccination of patients needing elective surgery ahead of the general population could prevent an additional 58 687 (best case 115 007, worst case 20 177) COVID-19-related deaths in 1 year. Conclusion: As global roll out of SARS-CoV-2 vaccination proceeds, patients needing elective surgery should be prioritized ahead of the general population. © The Author(s) 2021. Published by Oxford University Press on behalf of BJS Society Ltd. All rights reserved.

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Funding details

Funding sponsor	Funding number	Acronym
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Funding text

This study was funded by a National Institute for Health Research (NIHR) Global Health Research Unit grant (NIHR 16.136.79) using UK aid from the UK government to support global health research, Association of Coloproctology of Great Britain and Ireland, Bowel & Cancer Research, Bowel Disease Research Foundation, Association of Upper Gastrointestinal Surgeons, British Association of Surgical Oncology, British Gynaecological Cancer Society, European Society of Coloproctology, NIHR Academy, Sarcoma UK, The Urology Foundation, Vascular Society for Great Britain and Ireland, and Yorkshire Cancer Research. The views expressed are those of the authors and not necessarily those of the National Health Service, NIHR, or UK Department of Health and Social Care.

ISSN: 00071323	DOI: 10.1093/bjs/znab101
CODEN: BJSUA	PubMed ID: 33761533
Source Type: Journal	Document Type: Article
Original language: English	Publisher: Oxford University Press

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