

Expert Report for the UK Covid-19 Public Inquiry

Module 3: The impact of the Covid-19 pandemic on healthcare systems in the UK

Hip Replacement

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Author statement

We confirm that this is our own work and that the facts stated in the report are within our own knowledge. We understand our duty to provide independent evidence and have complied with that duty. We confirm that we have made clear which facts and matters referred to in this report are within our own knowledge and which are not. Those that are within our own knowledge we confirm to be true. The opinions we have expressed represent our true and complete professional opinions on the matters to which they refer.

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23rd July 2024 [as amended 22nd October 2024 at paragraph 68]

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About the authors and conflicts of interest

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Professor Metcalfe has no direct conflicts with the Inquiry. His clinical work is in the NHS and he does not have a private practice. He leads two studies (START:REACTS, about a shoulder device, and RACER-Knee, about robotic-assisted knee replacement) and is co-investigator on another (RACER-Hip, about robotic-assisted hip replacement) that are funded by NIHR, but for which Stryker, an orthopaedic implant company, have funded treatment costs and some imaging and training costs. For all of these studies, the full independence of the study team, himself included, are fully protected by legal agreements.

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Ms Chloe Scott is a Consultant Hip, Knee and Trauma surgeon at the Royal Infirmary of Edinburgh (NHS Lothian), an NHS Scotland Research Clinician (Chief Scientists Office) and an Honorary Senior Clinical Lecturer at the University of Edinburgh. She has been in this role since 2017. In addition to a BSc in Anatomical Sciences in 2001, she gained her MBChB from the University of Edinburgh in 2004. Thereafter she completed Higher Surgical Training in Orthopaedics in Edinburgh and South-East Scotland, and Fellowship training in Edinburgh and in various centres across the United States. During her training she obtained Masters in Orthopaedic Engineering from Cardiff University and an MD at the University of Edinburgh for work on knee implant engineering. Her clinical practice consists of elective hip and knee arthroplasty and Major Trauma Center Trauma, focusing on complex cases, revision arthroplasty and "traumaplasty" cases. She is a research active consultant receiving funding for one day per week from the Chief Scientists Office to undertake clinical research which includes being co-applicant on the NIHR funded MOTION study (outcomes of osteotomy around the knee). Her research interests include arthroplasty outcomes, periprosthetic fractures, robotic assisted surgery, finite element analysis and knee biomechanics. She served on the executive committee of the British Association for Surgery of the Knee from 2018-2023 and on the British Orthopaedic Association Research Committee 2019-2021. She is currently on the editorial board of the Bone and Joint Journal where she is associate editor for Knowledge Translation; is a member of the Royal College of Surgeons Robotic and Digital Surgery Subgroup. She is a member of the British Hip Society in addition to the American Association of Hip and Knee Surgeons and the American Academy of Orthopaedic Surgeons. She has received awards from the Scottish Committee in Orthopaedics and Trauma, the Institute of Mechanical Engineers and in 2020 was awarded the Hunter Doig medal from the Royal College of Surgeons of Edinburgh.

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During the pandemic, Chetan was a founding member of the COVIDSurg Collaborative, based in the NIHR Global Health Research Unit on Global Surgery. This was an international, surgical collaborative, composed of healthcare professionals across 1677 centres, representing 122 countries. The collaborative conducted a platform of studies aiming to explore the impact of Covid-19 in surgical patients and services including emergency, elective and cancer care. Chetan was the orthopaedic lead for the collaborative and sits on the steering committee of the collaborative. This work was not paid for, and Chetan has received no benefit in kind for the publication or dissemination of this work.

Chetan has no direct conflict of interest related to the enquiry. Chetan received a salary as a clinical research fellow as a part of the RACER Knee randomised trial. The trial was primarily funded by the NIHR. As a part of the RACER Knee trial, Stryker, a medical device company, fund some treatment costs. The independence of the study team, including Chetan, is protected by legal agreements.

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Fatema has no direct conflict of interest related to the inquiry. Fatema receives a salary funded by NIHR. The independence of the study team, including Fatema, is protected by legal agreements.

Acknowledgements and notes

In preparing this report, we have reviewed the available literature, examined publicly available datasets, spoken to numerous members of NHS staff across multiple professions and reviewed witness statements submitted to the Inquiry, some of which were in draft.

We would like to express our thanks to the many people who helped us prepare this report, including those who provided informal advice, guidance, expertise or directed us to sources that could help us. Specifically, we are grateful for the assistance with data requests from the National Joint Registry,

the Scottish Arthroplasty Project, NHS England Hospital Episode Statistics, Northern Ireland Statistics and Research Agency and Digital Health and Care Wales. We gained recollections and advice from multiple experts and clinical staff across the United Kingdom, and met formally with Mr Jonathan Howell, Mr Anil Gambhir, Mr Stephen Jones and Professor David Beverland. We are grateful to the authors of French et al. (2024) for allowing us to include data from their paper before publication and for their advice generally. We are also very grateful for the advice and assistance from the Covid-19 Inquiry team.

We have, where possible, used the term United Kingdom to encompass the four nations, and have sought to reference individual nations specifically where data or issues applied to one nation only. We were not able to source equivalent data and information for each point on each nation individually, where this data would be reasonably expected to apply across all four nations we have made this clear but we have attempted to provide nation-specific data where possible and available.

The organisation of healthcare is different between nations, where appropriate to each nation we have tried to use the terms 'trust' (used in England and Northern Ireland), 'health board' (used in Scotland) and 'local health board' (used in Wales), but in most cases, when we are referring generically to these entities across the four nations of the UK, we have used the more widely used term 'trust'. Within this context we also refer to the 'NHS' to mean government-funded healthcare systems across the four nations, including Health and Social Care in Northern Ireland, unless a specific nation is being referred to.

Executive summary

1. Severe hip osteoarthritis is a painful and disabling condition which disrupts even simple daily activities including walking and sleep. It restricts quality of life markedly. Hip replacement is a very effective treatment, transforming the lives of the vast majority of people who undergo the procedure.
2. Prior to the pandemic, around 100,000 people had a hip replacement in the United Kingdom each year. Timely surgery reduces the amount people suffer and prevents people deteriorating, which can happen gradually, but can occur suddenly and be debilitating. Waiting longer leads to unnecessary deterioration and worse outcomes following surgery.
3. Elective surgery was paused across the UK in the first wave, when surgical risk was poorly understood and hospital capacity was at risk of being overwhelmed. It was also paused in most places during the second wave. This was unavoidable in the circumstances. However, elective surgery was slow to restart with wide variation around the UK, and many hospitals had not returned to normal capacity even by the end of the Inquiry reference period. By international comparison, the UK was much worse at restoring elective surgery compared to other healthcare systems in Europe.
4. The delay in restarting led to a major backlog and very long waits for surgery. This has resulted in a silent, unseen group of people suffering with severe pain and disability, and much reduced quality of life. Waiting times for surgery of well over a year were typical across much of England, over two years in many parts of Scotland and consistently over two years across Wales and Northern Ireland.
5. There was already a lack of capacity in the NHS prior to the pandemic, with the system running close to capacity, even in summer months. If the system lacks capacity, non-life-threatening conditions will typically be de-prioritised, but this resilience is heavily influenced by local leadership and the organisation of elective care.
6. NHS leaders and professional bodies collaborated and released extensive guidance throughout, but this was not always well disseminated or communicated. Guidelines on recovery of elective surgery in Scotland, Wales and Northern Ireland came later (in some cases much later) and lacked specific or incentivised targets or plans for elective recovery when compared to guidance in England.
7. Green pathways were developed to allow hospitals to reduce risks to patients from Covid-19 and deliver surgical care safely. Units with the ability to establish green pathways, protect beds for elective care and retain staff resource were best able to deliver care for patients quickly and safely. Centres where elective services were physically separate from acute medical care were especially well equipped to respond quickly to the elective restart. Staff shortages and high attrition rates made recovery from the pandemic even more difficult. Redeployment to acute or critical care placed a large psychological burden on staff and was one of the reasons for difficulty in retaining staff in theatres. There was relatively little transfer of patient care between trusts or health boards to reduce surgical waiting time, despite patients' willingness to do so.

8. There were many examples of good practice which delivered high quality care to patients, increased local capacity and reduced waiting times. Clinical leadership aligned to good management led to successful services that benefited patients, two such examples are given later in the report but there were many throughout the country.
9. This report has identified 16 recommendations, covering Leadership and Guidance and System Changes that, if applied consistently across the four nations would improve the ability of the UK to respond to a future crisis.

1. Overview of Hip Osteoarthritis & Hip Replacement

1.1 Introduction to hip pathology and hip replacement

10. The hip is a ball and socket joint. A number of different conditions can lead to the hip joint wearing out or becoming otherwise diseased leading to pain and disability. When this occurs a total hip replacement (THR) may be indicated to relieve the symptom burden. A THR is an operation where both the ball and the socket are replaced with metal, plastic (polyethylene) or ceramic implants in order to relieve pain and restore mobility, see Figure 1.
11. The most common reason for a hip replacement is painful osteoarthritis, but there are other reasons someone might require hip replacement surgery including:
 - Inflammatory arthritis (which can attack multiple joints including in younger patients – an example is rheumatoid arthritis).
 - Premature arthritis in young adulthood secondary to childhood diseases of the hip which change the shape of the hip joint (such as Perthes disease and developmental dysplasia of the hip).
 - Damage to the blood supply of the hip ball (femoral head) which leads it to collapse in a process called avascular necrosis. The cause of this is typically unknown but it can result from alcohol use, steroid use, previous trauma and clotting disorders.
 - Some hip fractures in active patients are treated with THR and THR is sometimes needed after failed fixation of hip fractures.
12. Hip arthritis is very common. Approximately 8% of the UK population aged over 45 have sought treatment for osteoarthritis of the hip; and among those aged 75 and over, 16% of women, and 11% of men in the UK have sought treatment for hip osteoarthritis. (1) Prior to the pandemic, just over 100,000 THRs were being performed annually across England, Scotland, Northern Ireland and Wales (Public Health Scotland, 2023b; National Joint Registry, 2022).(2)
13. People who have hip pain are typically managed at first in primary care by their GP who would typically refer the patient for an x-ray to confirm the diagnosis and would commence a trial of supportive non-operative treatment including pain killers, exercise, weight control, walking aids and physiotherapy with advice on the benefits of ongoing physical activity. If supportive treatment fails to improve pain and the individual is accepting of surgery, they will be referred to orthopaedic services – either a local musculoskeletal hub or a hospital orthopaedic department – where they will be reviewed by an orthopaedic practitioner (an orthopaedic surgeon or other health professional, such as a physiotherapist or nurse who has had special training in orthopaedic conditions).
14. Based on history, clinical examination and investigations such as radiographs, they may be offered advice only, a hip joint injection (with steroid), and/or hip replacement surgery.
15. Sometimes, someone who has had a hip replacement will need a re-do operation for various reasons, such as infection, fracture around the replacement, or coming loose. This is called a

revision hip replacement. We have primarily focused the report on primary (ie first time) hip replacements but many of the same impacts apply in revision hip replacement.

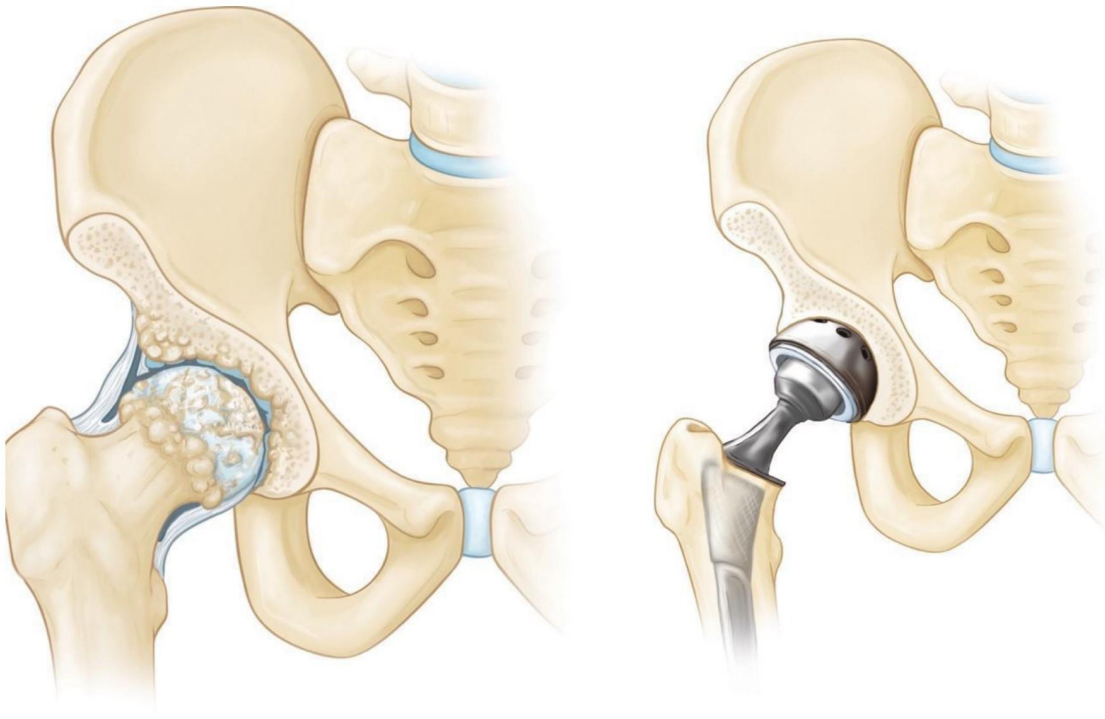


Figure 1: Arthritic hip and hip which has undergone total hip replacement

1.2 Symptoms and disability associated with hip pathology

16. People with hip osteoarthritis have symptoms which may include:
 - Pain in the groin or around the hip
 - Stiffness in the hip joint making activities of daily living difficult (for example: walking, bending down, or tying shoelaces).
17. The pain and disability caused by advanced hip osteoarthritis can be severe and is often very restricting. It is common for people with severe hip osteoarthritis (i.e. bad enough to require surgery) to have limited sleep due to pain. People with severe hip arthritis can often only walk very restricted distances and may find stairs very difficult, and typically cannot do activities where their hip is bent such as putting on shoes and socks. They may not be able to socialise or do normal activities such as routine shopping or cleaning. Many need to walk with a stick or crutch and some are housebound as a result or are wheelchair bound. Their chronic pain can interfere with work and normal activities of daily living and this pain typically responds poorly to even very strong painkillers. The painkillers themselves can make people drowsy and have numerous side-effects that range from stomach problems to issues of addiction.

18. The symptom burden of hip arthritis is measured using patient reported outcome measures (PROMs). These scores give a single score that can be used to assess treatment success. In the United Kingdom the Oxford Hip Score is commonly used to measure patient reported hip pain and function, it has a maximum score of 48. Health related quality of life is measured using the Euroqol-5D (EQ-5D) score. These scores are routinely collected in England and are reported as part of the national PROMs database. (NHS England, 2023b) The EQ-5D is an index score, with a maximum of 1. The EQ-5D score allows comparison with other conditions and treatments for other body regions as this score is used across all areas of medicine.
19. It has been demonstrated that patients with hip arthritis severe enough to require THR experience worse health-related quality of life than many other chronic health conditions including asthma and type 2 diabetes (Figure 2). A study from the Netherlands found that across 13 common elective procedures, the highest loss in quality of life due to delayed surgery is found for THR (utility loss of 0.27, ie, 99 days lost in perfect health over 1 year). (Rovers et al, 2022)
20. Prior to the Covid-19 pandemic when waiting lists were shorter (13-16 weeks for THR in the unit running the referenced study), one in five (19%) of those awaiting THR were in the worst possible health-related quality of life (HRQoL) states, termed "worse than death". These negative value "worse than death" EQ-5D scores are a hypothetical value statement made by the UK public based on their beliefs of health-related quality of life (NHS England, 2023b); the less time in the health state that could be endured, the lower the EQ-5D score (Scott, MacDonald, and Howie, 2019).

Mean EQ-5D by condition

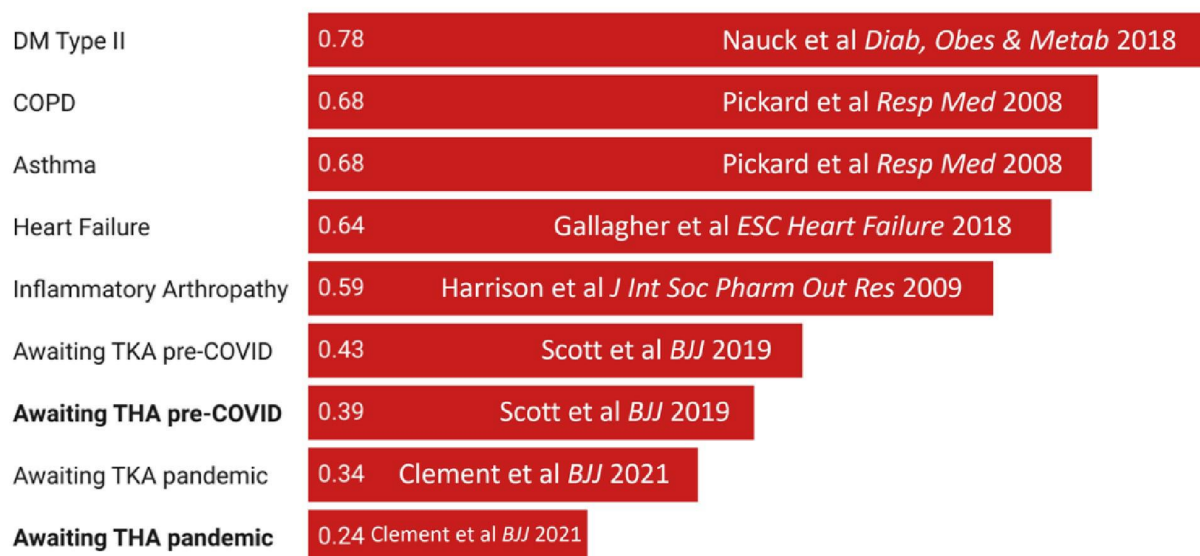


Figure 2: Mean EQ5D scores (a measure of health-related quality of life) for different pathologies, demonstrating the impact of hip pathology on people awaiting hip replacement (THA=Total Hip Arthroplasty, TKA=Total Knee Arthroplasty)

1.3 Treatment pathway

1.3.1 First line treatments and second line treatments

21. The National Institute for Health and Care Excellence (NICE) recommends (i) non-pharmacological, (ii) pharmacological and (ii) surgical management of hip osteoarthritis. (NICE, 2022)
22. In non-pharmacological management, NICE recommends therapeutic exercise, weight management and consideration of walking aids. Pharmacological management includes use of a non-steroidal anti-inflammatory medication (such as ibuprofen or naproxen). Injection of steroids into the joint can be offered when other pharmacological treatments have been ineffective, or to support therapeutic exercise. These often provide short-term pain relief (between 2 to 10 weeks).
23. NICE guidance goes on to say that consideration for joint replacement surgery should be given if:
 - a. symptoms (pain, stiffness, or reduced function) from arthritis of the hip joint substantially impact the individual's quality of life, and
 - b. non-surgical management is ineffective or unsuitable.
24. Both prior to, during and after the pandemic, some Clinical Commissioning Groups (CCGs, regional bodies that pay for NHS care, replaced in 2022 by Integrated Care Boards, ICBs)

throughout England employed arbitrary limits on referral to secondary care for consideration for hip replacement surgery based on body mass index or Oxford hip score. These decisions are made by individual CCGs/ICBs and have poor or no evidence base. These limits have been widely contested, are contrary to NICE guidelines, and clearly disadvantage those with obesity and multi-morbidity and therefore are likely to also disadvantage those of lower-socioeconomic status (NICE, 2022; Dakin et al, 2020; Price et al, 2020). Individual Health Boards and Trusts in Scotland, Wales and Northern Ireland have different referral criteria as well, many of which include restrictions on BMI, but CCGs and ICBs do not exist in the same way in these nations.

1.3.2 Healthcare professionals and services involved in the treatment pathway

25. Several different health care professionals are involved in both primary and secondary care in diagnosing and entering patients into the pathway for hip replacement surgery. The majority of people with hip osteoarthritis are managed in community or primary care, only a proportion of people with more severe problems are referred for secondary care. In the community and primary care, general practitioners, physiotherapists, physician associates, specialist nurses, and (outside of the NHS) chiropractors and osteopaths, may all see patients with hip arthritis.
26. Referrals for hip replacement surgery mostly come from general practice or occasionally from emergency departments. They may also come from physiotherapists and other allied health practitioners (such as specialist nurses, although this may include other professions as well). In some regions, referrals to secondary care are made by musculoskeletal treatment centres or intermediate care centres, who see patients either at the patient request or as a middle step in the process after primary care but before they are sent for hospital care.
27. In secondary care, a patient is typically assessed either by an orthopaedic consultant or by a member of their team (which may include surgeons in training, physiotherapists or extended scope practitioners), where a decision is made about non-surgical care or placing on a waiting list for hip replacement. Many staff members are involved in the patients' care when having a hip replacement, including nursing staff in clinics and wards, theatre staff (nurses, healthcare assistants, anaesthetists, operating department practitioners, cleaners and facilities staff).
28. After hip replacement surgery, patients receive input from the medical team and the surgical team as an inpatient, and then as an outpatient.
29. Physiotherapists routinely offer an assessment after the operation, whilst the patient is still in hospital. This may start on the day of surgery, in the late afternoon or evening. It involves an assessment of their ability to care for themselves at their intended discharge destination (e.g., their home, or a care facility). Subsequent outpatient appointments may be arranged to facilitate ongoing rehabilitation. The medical team (surgeons) review people as inpatients and then surgeons may review people at two-weeks, six-weeks, and then when clinically indicated.
30. It is important to recognise that, as well as staff in acute medical and critical care settings, orthopaedic staff were also at risk in the pandemic. In our hospital one of the first staff members to pass away in the pandemic worked on our orthopaedic surgery wards.

1.4 Impact of delayed diagnosis on symptoms and overall health

31. Delaying diagnosis means that people spend longer living with pain and disability. Delays impact access to both non operative treatment (education, weight loss, pain killers, physiotherapy) and eventually referral to secondary care for steroid injection into the hip joint (which helps some people, but often temporarily) and/or hip replacement surgery.
32. Hip arthritis varies in severity. Overall people with hip arthritis deteriorate in pain and function over time, though this is not uniform or predictable. People often experience good and bad spells in terms of symptom severity. (ARGON-OPTIMA study group et al., 2018) An individual with hip arthritis will typically see their physical activity duration, intensity and frequency reduce yearly. (Bitar, 2020) When patients reach a symptom burden severe enough to warrant THR, pain typically increases with time and hip function and health related quality of life decrease as their disease progresses. This is reflected by worsening Oxford Hip and EQ-5D scores with prolonged waits for THR (Scott et al, 2024).
33. The longer patients wait the worse they get, and this deterioration is proportional to the time waited (Scott et al BJJ 2024, Clement et al BJJ 2022). Pain worsens and immobility increases with some patients becoming housebound as a result. In some cases of advanced arthritis or avascular necrosis (death of the femoral head/ hip ball bone) the ball part of the hip joint can collapse completely resulting in a relatively quick worsening of pain, reduction in mobility and shortening of the leg.
34. The longer people wait for diagnosis or treatment, their day-to-day mobility becomes worse as well. (Scott et al 2024, Bayram et al BJO 2023) This will result in weakening of muscles both around the hip and more generally. In an older age population, this is often called sarcopenia. Frailty has been demonstrated to be reversed by THR. (Kappenschneider et al, 2024) People with weaker muscles and reduced mobility can find it difficult to recover, may be more frail and more prone to falls and may have fewer social interactions. Some patients may become too frail to be considered suitable candidates to THR as the risks of surgery are deemed too high and the restoration of mobility less reliable. (Cook, 2023)
35. Prolonged hip pain has a negative effect on mental health (Scott BJJ 2024) and a systematic review has demonstrated that patients with worse objective measures of preoperative depression and anxiety report increased postoperative pain, decreased functionality and greater complications following THR (O'Connor, Holden and Gagnier, 2022a). Neglected hip arthritis can lead to patients becoming housebound with profound effects on general physical and mental health and a requirement for carers. In older people it has been shown that housebound status is associated with both depression and cognitive decline (Meng et al, 2018).
36. Despite not being an effective treatment for arthritis pain (Krebs et al, 2018), many patients are prescribed opiate medication to manage their pain (Karayiannis et al, 2023) which can lead to significant side effects and addiction. Opiate prescriptions before hip replacement are associated with worse outcomes after surgery.

1.5 Impact of delays and disease severity on outcomes after hip replacement

37. Where patients have worse hip pain and function and worse health related quality of life prior to their hip replacement, they achieve worse patient-reported outcomes after surgery (WTD 1 Scott et al 2019). Worse Oxford Hip Scores prior to THR surgery (reflecting worse pain and worse function) also increase the cost of THR surgery. (Eibich et al, 2018)
38. If hip arthritis is advanced, or neglected, it can lead to collapse of the ball of the hip joint Figure 3. This requires a more complex hip replacement and can require complex revision surgery implants or extra implants to restore the anatomy of the hip joint (Figure 5). This increases the cost of the procedure as well as its risks to the patient, and worsens the patient reported outcome. (Dong et al, 2016) In addition, the long-term survival of hip replacement is reduced (ie it is more likely to need to be re-done in the future), which is associated with increased disability for the individual, and increased cost to society. Where this affects both hips at the same time it can necessitate both hips being replaced simultaneously in a single operation (Figure 4). Simultaneous bilateral THR increases the risk of blood clots to the lungs (pulmonary embolism) and fracture around the THR (periprosthetic fracture). (Ramezani et al, 2022)
39. The pandemic has altered patients' health seeking behaviours and multiple experts report an increased phenomenon of patients attending orthopaedic clinics for the first time in wheelchairs who have already lost their mobility and independence. Some people, who missed the opportunity to have a hip replacement in a timely fashion, are now not suitable for a hip replacement due to their frailty. These patients have missed an opportunity to maintain their independence and mobility.



Figure 3: Collapse of the left hip over 7 months resulting in bone loss on both sides of the hip joint requiring use of a revision type socket (i.e. a larger more complex hip cup) in a working age patient.

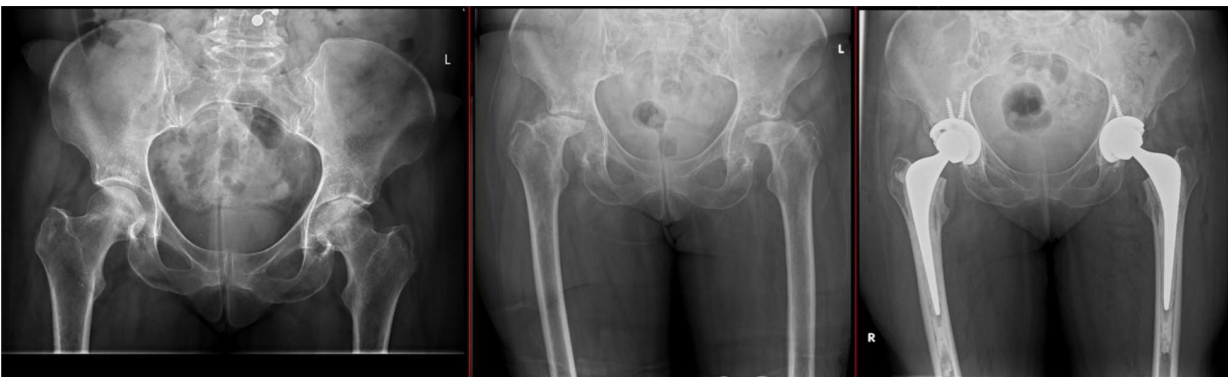


Figure 4: Collapse of both hips over 6 months requiring bilateral simultaneous THR to relieve pain and restore leg lengths and function in a working age patient.



Figure 5: Collapse and bone loss while waiting for THR in Wales (delayed due to the pandemic). The bone defect on the socket requires an augment (typically used in revision operations, the extra piece of metal above the cup, with screws in it) in addition to the THR socket, which increases the risk to the patient

2. Hip Replacement during the pandemic

2.1 Decisions to suspend elective surgery

40. Prior to March 2020 there were no unified guidelines on stopping elective surgery, including hip replacements. Informal communications from other countries with earlier waves than the UK suggested high levels of mortality for elective surgical cases. Some orthopaedic surgeons decided to cancel some cases including high risk cases but for the most part, surgery continued until formally recommended to stop, either at trust level or following government advice.
41. On the 17th of March 2020, the NHS England Chief Executive and NHS England Chief Operating Officer wrote to all NHS England institutions recommending suspension of elective surgery stating “you will need to postpone all non-urgent elective operations from 15th April at the latest, for a period of at least three months” [INQ000087317]. However, you also have full local discretion to wind down elective activity over the next 30 days as you see best”. Similar instructions were delivered in all four nations between 11th and 17th March, see section 2.3. At that point, most elective operations were cancelled.
42. In anticipation of the levels of disruption seen in Italy and other countries affected early in the pandemic, many orthopaedic departments restructured their surgeons into teams that would rotate and could accommodate high rates of staff absence. Most junior doctors were redeployed to intensive care units or the Covid-19 wards, therefore in orthopaedics the care was mostly consultant-led. Teams contained members that could cover emergencies from all subspecialties (for example trauma surgery team, elective surgery team, clinic team, at home team) as well as support for other acute hospital services, such as teams to help prone patients in intensive care.
43. During the first wave, there was a very high mortality of people undergoing surgery, including planned elective surgery, with SARS-CoV-2 infection. This was demonstrated by the international CovidSurg collaborative paper, published in The Lancet on the 29th of May 2020. In that paper, people who were positive for SARS-CoV-2 who underwent an operation were reported to have a 25% risk of death at 30 days after surgery. Fifty-one percent suffered pulmonary complications (defined as pneumonia, acute respiratory distress syndrome or unexpected post-operative ventilation) and 38% of these people died, accounting for 82% of the observed deaths in the study. Identified risk factors included male sex, age greater than 70 years old, emergency and major surgery.(COVIDSurg, 2020) Even in planned surgery, which would normally be considered very low risk (typical risk of mortality between 1 and 3 per 1000 cases) the risk was 19.1% at 30 days after surgery. In orthopaedic surgery, for hip fractures (some of who will have received a total hip replacement), the risk of mortality was 30% at 30 days after surgery.(COVIDSurg, 2021)

44. A small number of total hip replacements are performed each year for hip fractures, these are usually performed in the first 48 hours after injury as without surgery patients can be in severe pain and are bed-ridden, and therefore at risk of dying because of immobility. Fragility fractures continued at their usual rate during the pandemic (Scott, 2020) and THR for hip fracture continued to be performed but with precautions such as testing for patients where possible and available, and increased personal protective equipment for theatre staff.
45. Most Trusts also suspended elective surgery during the second wave in December 2020 (see 2.3 Summary of guidance and prioritisation). This decision was, to our knowledge, made at the level of individual hospitals (though was mandated by the Chief Medical Officer in Scotland) but occurred in most if not all NHS units and most private facilities across the four nations.

2.2 Impact on patients

46. The suspension of elective surgery had an immediate impact on those who were expecting to undergo surgery, who had operations cancelled, some at very short notice. Those people lived with pain and disability throughout the first wave and if they remained well, hoped to subsequently undergo surgery. If they needed pain management or treatments to help support them during this time, it was typically delivered by their general practitioners or community-based health services. The restoration of elective activity was highly variable throughout the United Kingdom, both between the four nations but also even between different hospitals in the same region. These issues are addressed in later parts of this report. As most patients did not move between hospitals or regions for care, this could mean some patients waited two or three months whilst others waited years. For example, some hospitals did not restart any routine elective care by the end of the reporting period for this Inquiry.
47. The delays also meant that a large waiting list built up, which could not be addressed by hospitals operating below their usual capacity, resulting in rapidly growing waiting lists for surgery, described in detail in later sections covering all four nations. (Yapp et al, 2021; Oussedik et al, 2021; National Joint Registry, 2022) This again resulted in people living in severe pain and with marked disability, often for very prolonged periods of time.
48. Given both the anticipated impact of the pandemic on the healthcare service, and the uncertain risks for patients undergoing surgery, the decision to suspend elective surgery in March 2020 and in many Trusts in December 2020 or January 2021 was unavoidable in the circumstances. However, the delays in many hospitals and regions in restarting elective surgery, and the variation around the country, reflected a variability in both resource and decision making that had a major negative impact on the lives of hundreds of thousands of people across the country, and continues to do so. The details of this are described in later parts of this document.

2.3 Summary of guidance and prioritisation

2.3.1 Pre-pandemic targets

England

49. In England, the key target for elective care such as Hip Replacement was a referral to treatment time of 18 weeks. It was expected that all care would be completed by 52 weeks.

Wales

50. Prior to the pandemic, referral to treatment targets in Wales were that 95% of patients should be treated within 26 weeks, and no patients should wait longer than 36 weeks for treatment.

Scotland

51. Public Health Scotland has recommended that 90% of people should not wait longer than four weeks from referral by a general practitioner to be seen by an allied health professional (including nurse practitioners, physiotherapists and doctors) in a dedicated musculoskeletal (MSK) clinic. (Public health Scotland, 2023a) In Scotland, there is treatment time guarantee (TTG) that states “following the decision to treat, all eligible patients should wait no longer than 12 weeks for treatment as an inpatient or daycase”. (Public health Scotland, 2023b)

Northern Ireland

52. The Department of Health does not have specific targets for the length of wait for assessment for hip replacement or the length of wait between assessment and surgery. However, the pre-pandemic and current ministerial waiting time targets state that 50% of patients should wait no longer than nine weeks for a first outpatient appointment; with no patient waiting longer than 52 weeks. The guidance also provides that 55% of patients should wait no longer than 13 weeks for inpatient/day case treatment; with no patient waiting longer than 52 weeks.

2.3.2 Guidance during the Covid 19 Pandemic

53. Pre-pandemic targets were impossible to meet in 2020 as elective surgery ceased on March 17th 2020 following the ‘Phase 1 Letter’ from NHS England and was allowed to restart after the ‘Phase 2 Letter’ on 29th April 2020. In Wales, the equivalent letter was sent on the 11th March and in Scotland on 13th March.
54. From May onwards, elective surgery restarted variably across nations and regions. Outpatient targets were also not met due to multiple factors including lockdowns, reduced outpatient clinic capacity secondary to social distancing guidelines, staff redeployment, clinical space given to acute services to expand emergency department care, and a reluctance in some regions to expose patients to the risk of Covid-19, or to be added to a waiting list for surgery that was not being performed.
55. Alongside formal instruction from NHS leaders of the four nations (either listed below or in evidence from each organisation submitted to the Inquiry), numerous guidelines were produced from various sources in order to manage the recovery of elective care including THR, some from professional medical organisations like the Royal Colleges or the British Orthopaedic Association and their subspecialty groups, and some from senior NHS leadership and associated organisations (such as Getting it Right First Time, GIRFT, described in detail in the NHS England Tranche 3 statement [INQ000485652]). We are not able to comment, either from our own knowledge or from review of Inquiry documents about the involvement of patient bodies or representation in developing or implementing these guidelines. The most important guidelines relevant to THR provision and other key events are summarised in Table 1.

General Covid-19 events		Elective surgery key events	
30/01/2020	Level 4 national incident declared		
11/03/2020	WHO declares pandemic		
		11/03/2020 to 17/03/2020	Elective surgery suspended across UK
24/03/20	LOCKDOWN 1		
		11/04/2020	Prioritisation document from combined Surgical Royal Colleges
		29/04/2020	Urgent elective operating re-started in England (Phase 2 Letter)
		01/05/2020	Anaesthetic Colleges guidance on restarting elective surgery based on space, staff, equipment and systems
10/05/2020	LOCKDOWN 1 ends		
		19/06/2020	NHS Scotland Remobilise, recover, redesign, recommencing Trauma & Orthopaedic outpatients and elective operating
		28/07/2020	Blueprint document "Rebuilding, Transition and Transformation of Elective Orthopaedic Care" published (Northern Ireland)
		31/07/2020	NHS England 'Phase 3 Letter'; issues principles for the next stage of the Covid response including targets for elective surgery capacity

		21/12/2020	CMO instructs all Scottish health boards to stop non-urgent elective surgery
04/01/21	LOCKDOWN 2		
16/01/21	Mass vaccination of healthcare workers begins		
02/04/2021	LOCKDOWN 2 eased. Regional restrictions remain		
		15/06/2021	Northern Ireland Elective Care Framework: restart, recovery, redesign (Department of Health, 2021)
		13/08/2021	4 Scottish health boards stop elective surgery (Lothian, A&A, Borders, Highland)
		01/08/2021	NHS Scotland “NHS Recovery plan 2021-2026”
		08/02/2022	NHS England “Delivery plan for tackling the Covid-19 backlog of elective care” (NHS England, 2023a)
		31/03/2022 and 26/04/2022	National Clinical Strategy for Orthopaedics published in Wales, and “Our programme for transforming and modernising planned care and reducing waiting lists in Wales” (NHS Wales, 2022)
		01/04/2022	NHSE “Elective recovery planning supporting guidance”

Table 1: Timeline of guidelines and key events in the delivering elective surgery including THR in the UK 2020-2022

England

56. In England a letter from the CEO and COO of NHS England on 31/07/2020 detailed the Phase 3 response to covid-19 which included new targets for the restoration of elective surgery.

[INQ000051407] Specifically, there was a mandate to “Recover the maximum elective activity possible between now and winter” with the following targets:

- To perform at least 80% of 2019 activity for both overnight electives and for outpatient/daycase procedures in September 2020, rising to 90% in October 2020
- To return to 90% of 2019 activity for MRI/CT with an ambition to reach 100% by October.
- To return to 100% of 2019 activity for first outpatient attendances and follow-ups (face to face or virtually) from September 2020 through the balance of the year
- The 31/07/2020 letter also mandated clear communication with patients while they waited for care and that elective waiting lists and performance should be managed at system in addition to trust level. To help support this in England, a national contract with the independent sector was in place until March 2021. [INQ000113282]

57. NHS England produced yearly “Priorities and operational planning” guidance documents (NHS England, 2021) that highlighted the importance of system-based thinking to reduce regional variation and health inequalities and clear communication with patients. A number of additional communications were made to trusts relevant to elective care delivery; these are discussed in detail in the NHS England Tranche 3 submission to the Inquiry. In the 2021/2022 Priorities and operational planning document, first published in October 2021, patients who had waited >104 weeks were first mentioned and targets to manage them were defined. The ambition was for systems to:

- Eliminate waits of over 104 weeks by March 2022 except where patients choose to wait longer (these were referred to as P5 or P6; ‘P5’ described people who wanted to wait due to concerns about Covid-19, although since January 2022 this category is no longer in use, and ‘P6’ described patients who wanted to wait for other reasons, this category remains in use)
- Hold or where possible reduce the number of patients waiting over 52 weeks. Work with systems and providers to agree individual trajectories through the planning process
- Stabilise waiting lists around the level seen at the end of September 2021.

58. The 25th March operational planning guidance also included details of a £1Bn Elective Recovery Fund, available to NHS Trusts who had recovered 70% of 2019/20 baseline activity by April 2021 [INQ000485652]. Based on the DHSC submission to the Inquiry, the September 2021 DHSC document ‘Build Back Better: Our Plan for Health and Social Care’ included a commitment to £8Bn additional NHS funding for 2022/2023 and 2023/2024, including investments to help recover elective care. The Budget/Spending review 2021 included £1.5Bn capital investment to expand capacity of elective surgical hubs [INQ000469724]. The allocation of all of these funds and whether they were used effectively is beyond the expertise or knowledge of the authors of this report.

59. In February 2022, NHS England published “Delivery plan for tackling the covid-19 backlog of elective care”. This 48-page document includes increasing capacity including staff capacity and the use of the private sector, systems of prioritisation, better community diagnostics, and surgical hubs.

60. Specific targets in this document that relate to THR patients detailed include:

- That the waits of longer than a year for elective care are eliminated by March 2025.
- Within this, by July 2022, no one will wait longer than two years, we will aim to eliminate waits of over 18 months by April 2023, and of over 65 weeks by March 2024.
- Long-waiting patients will be offered further choice about their care, and over time, as the NHS brings down the longest waits from over two years to under one year, this will be offered sooner.
- Diagnostic tests are a key part of many elective care pathways. Our ambition is that 95% of patients needing a diagnostic test receive it within six weeks by March 2025.

The document specifies clear accountability for delivery of the plan by NHSE Trusts with instruction to work on national, regional and local fronts to deliver. (NHS England, 2021)

Scotland

61. In Scotland no such mandate of accountability was made to restore elective surgery capacity. NHSE set out very detailed planning for elective delays before March 2020. Whereas in Scotland a remobilisation plan was made in July 2020 in collaboration with individual health boards, suggesting clinical prioritisation of elective care but with flexibility to reflect local circumstances. This left the decision to restore elective surgery capacity to individual health boards who could decide to prioritise other services in preference to restoring elective surgery [INQ000485984]. Targets for delivery of care remained unchanged and some health boards continued to tell patients that they would be treated within 12 weeks of being placed on the waiting list for surgery despite this target being undeliverable. In August 2021 NHS Scotland published “NHS Recovery plan 2021-2026”. (NHS Scotland, 2021) which detailed plans to increase staffing capacity and to complete the National Treatment Centre (NTC) project that would increase elective surgery capacity. The NTC project had been planned prior to the pandemic in response to the ageing population. None of these centres were scheduled to open before June 2022 when the period covered by this report ends. The NHS Inform website was established to communicate waiting times to patients based on health board and specialty (NHS Scotland, 2024), but was misleading as the calculation of waiting time was the median waiting time of those treated over the preceding 3 months when only urgent patients were undergoing surgery, this was an underestimate for the majority of patients on the waiting list.

Wales

62. In Wales, hip replacement surgery was considered non-urgent and the decision about whether to deliver hip replacement surgery was left to individual Local Health Boards [INQ000486014]. In May 2021 the Chief Executive of NHS Wales and the Chief Medical Officer for Wales met the Welsh Orthopaedic Board, which eventually led to a National Clinical Strategy for Orthopaedics on the 31st March 2022. Additional guidance on elective care in Wales published in April 2022 (NHS Wales, 2022) identified the importance of equitable patient prioritisation and communication with patients while they wait and of eliminating long waiters. Specific detail of how to prioritise and incentivise or specific targets for this were minimal. The treatment targets in the 2022 elective care document were:

- No patient waiting more than a year for their first outpatient appointment by the end of 2022
- No patients waiting longer than two years in most specialities by March 2023 (we do not know if orthopaedics was included in 'most specialities'),
- No patients waiting longer than one year in most specialities (again, it is unclear how 'most specialities' is defined) by Spring 2025.

Northern Ireland

63. In Northern Ireland, a Blueprint for Orthopaedic Care was published in July 2020, recommending elective care in dedicated delivery centres. A report detailing the elective restart was published in June 2021. It included the following targets:

- By March 2026, no-one should wait more than 52 weeks for a first outpatient appointment and inpatient/day case treatment; or, 26 weeks for a diagnostics appointment.
- Increasing the use of existing bank and on-call arrangements, including the introduction, by July 2021, of temporary, enhanced rates for targeted shifts and priority activities to deliver elective care
- Use of independent providers to deliver care within an agreed cost framework, or to lease NHS theatres when not in use.
- Commissioning an orthopaedic day case surgery unit
- Amendments to clinics to improve numbers of patients being seen and assessed for surgery.

Though numerous and positive these targets were subject to a commitment from the NI Executive that the necessary backlog funding would be made available.

64. A review of the Northern Ireland Orthopaedic service was commissioned by the Getting it Right First Time (GIRFT) programme in February 2022 and completed in June 2022. Based on their statement to the Inquiry, the Department of Health of Northern Ireland accepted all 21 recommendations and work was underway to implement them at the time of the statement. (June 2024) [INQ000421800; INQ000485167].

2.3.3 Patient Prioritisation

65. As the pandemic subsided and evidence of the safety of green pathways began to emerge, plans were made to gradually re-introduce elective operations, according to urgency. It became clear that a method of prioritisation for all surgical patients across all specialties was required as overall surgical theatre capacity was markedly reduced due to redeployment of staff to emergency areas and the availability of PPE and other consumables. To ensure that patients with more urgent conditions were treated in priority order, the Royal College of Surgeons issued guidance to triage patients as P1-P4 in April 2020 (Table 2). Note that this was not performed to determine what pathways were used (ie green or amber) but to ensure that, in the setting of severely limited theatre capacity, cases were prioritised in order of clinical urgency. However, the system was flawed as it assumed relatively short waiting times, without an awareness of

the long-term challenges the NHS would face. P4 cases were defined by being able to wait >3 months, and it was considered that when P4 cases have been waiting 6 months in total, they should be reviewed, and priority reassessed after 6-months and moved to a higher priority level if appropriate.

66. This review process was applied variably around the UK and ultimately could not get beyond the challenge of a large volume of very long waiting patients. There were no obvious criteria to determine when someone who has waited a long time should have priority over a more urgent case that has waited less. This was exacerbated in the setting when very few cases were being performed. The variation in review of patients on waiting lists was problematic because patients who had deteriorated substantially while waiting may not have been reviewed and prioritised, depending on whether their region applied the review process or not.

Priority	Definition	Relevant examples
P1a	Emergency procedures to be performed in <24 hours	Septic arthritis; Open fractures with nerve or vessel compromise
P1b	Procedures to be performed in <72 hours.	Hip fractures; Fractures due to bone cancer; Unstable fractures that will result in disability without surgery
P2	Procedures to be performed in < 1 months.	Surgery for a solitary cancer metastasis surgery
P3	Procedures to be performed in < 3 months.	Hip Avascular Necrosis (collapse of the joint); Revision surgery (re-do surgery) where there is a risk of rapid deterioration such as impending fracture.
P4	Procedures to be performed in >3 months.	Joint replacement - not otherwise specified

Table 2: Federation of Surgical Specialty Associations Clinical Guide to Surgical Prioritisation during the Coronavirus Pandemic. Priority categories, their definition and examples of orthopaedic conditions which fall into each category. NB this is not an exhaustive list.

67. The P1-4 guidance was applied to all surgical specialities and was used across all four nations of the United Kingdom to prioritise care. Expert opinion among orthopaedic surgeons at the time and since, was that the P1-4 system applied very poorly to orthopaedic conditions as they are rarely life threatening and infrequently limb threatening. Orthopaedic surgeons were often left to prioritise based upon their personal judgement. Factors that surgeons typically consider when making these decisions include pain severity, disease severity and likely progression (for example whether the hip ball could collapse or whether bone loss that might compromise the patient further was present or imminent), ability to work, severe loss of mobility (being

housebound or requiring a wheelchair for example) and concerns for mental health. (Farrow et al 2022) P5 and P6 categories were added later (see paragraph 44).

68. As the majority of patients awaiting hip replacement suffer with primary osteoarthritis, most patients were categorised as P4, the lowest priority level. NHS England in their Tranche 3 submission (paragraphs 1436 and 1440) [INQ000485652] confirms this. Based on later British Hip Society advice (Table 3) some of those with more severe disability could be prioritised as P3 but this was not to our knowledge formally incorporated into official guidance, or changes were not widely communicated (Farrow et al, 2022).
69. The European Hip Society guidelines published in October 2021, based on a Delphi study of expert opinion of 439 joint replacement surgeons from 44 countries, concluded that hip fractures, fractures around hip replacement (periprosthetic fractures), and acute infections of hip replacements should be prioritised but did not make recommendations about prioritisation amongst other hip replacement patients. (Thaler et al, 2021)
70. The British Hip Society performed a similar Delphi study involving 28 UK based expert hip surgeons (see Table 3) and sent recommendations for prioritisation to members using the P1-4 system in August 2020. The tables below demonstrate the recommended prioritisation for patients requiring THR or revision THR. Where expert participants considered that the intervention should be delivered early in the assigned timeframe there was an option to add a “*” to each category. The 28 experts who took part in the Delphi study considered that the following patient factors could affect priority and should also be considered during prioritisation: significant co-morbidities; healthy patient and the operation is simple and could be done as a day case without exposing the patient to additional risks; increasing pain; threat to employment/career, or capacity to compete at elite level sport.
71. With a lack of early guidance beyond P1-4, scheduled orthopaedic surgery was deprioritised. As delaying orthopaedic operations does not directly result in an increased risk of death or another serious medical event, this seems superficially reasonable. However, the large population burden of pain and disability, mostly felt by people at home and away from immediate attention, was less obvious. A subsequent study from the Netherlands found that across 13 common elective procedures from four specialties the highest loss in quality of life due to delayed surgery was found for total hip replacement (utility loss of 0.27, ie, 99 days lost in perfect health over 1 year). (Rovers BMJ Open 2022) Of all surgical specialties, the reduction in capacity for scheduled orthopaedic surgery in 2020 compared to 2019 was only exceeded by dental surgery where significant concerns regarding aerosol generation limited delivery (Scottish Government, 2020a; British Orthopaedic Association, 2020a).

Indication	70% consensus level
Surgical management of intracapsular hip fracture	1b*/1b
Acute Total Hip Replacement associated with pelvic trauma +/- fixation of pelvic trauma (fix and replace)	1b
Fracture / major bone destruction around the hip joint due to metastasis	1b
Bone tumour associated with a fracture	1b
Malignant bone tumour associated with impending fracture	2*/2
Subacute failure of fracture fixation, proximal femoral fracture or hemiarthroplasty	2*/2
Severe pain/disability where loss of independent living is imminent or has occurred	2
Primary benign tumour without impending fracture	3*/3
Collapse of the femoral head secondary to Avascular necrosis	3*/3
Total Hip Replacement where delay will prejudice outcome (function and/or increasing risk of complications)	3*/3
Significant deterioration in pain / function now requiring opiates	3
Primary osteoarthritis	4
Secondary osteoarthritis (secondary to Developmental Dysplasia of the Hip, Slipped Capital Femoral Epiphysis, Perthes)	4

Table 3: Surgical prioritisation recommendations by BHS for primary hip replacement (>70% Delphi consensus).

2.3.3 Infection prevention and control

2.3.3a Perceived aerosol risk

72. As the pandemic arrived, it was known that anaesthetic procedures such as endotracheal intubation resulted in a six-fold increase in transmission of viral diseases, such as severe acute

respiratory syndrome (a virus of the same family as SARS-CoV-2) (Tran et al, 2012). As such, there were concerns that orthopaedic procedures may also result in aerosol generation. A number of surgical instruments used in orthopaedics produce aerosols, this include bone saws, bone drills as well as pulse-lavage irrigation systems (used to wash bones). (Nogler et al, 2003) During experimental setups in real life, these instruments have found to aerosolise human immuno-deficiency (HIV) virus. (Johnson and Robinson, 1991) The contamination from this aerosolisation can be up to 8 metres, which includes all members of the surgical team. (Prada et al, 2020)

73. Initial reports from China suggested that 30% to 40% of people admitted with severe SARS-CoV-2 infection had virus detectable in the blood (Yu and Liang, 2020; Chen et al, 2020). It was therefore plausible that orthopaedic instruments may aerosolise these viral particles, leading to risk of infection to healthcare staff. A systematic review found that common instruments used in hip surgery led to inhalable aerosolisation of blood products, which can be subsequently deposited in the lungs (Tran et al, 2012).
74. In early phases of the pandemic, this led to only essential surgery being performed, for either life- or limb-threatening conditions. Diagnosis using polymerase chain reaction (PCR) testing was limited, and where available may have been available in a time frame suitable before surgery was performed. There was further doubt on the accuracy of the test results which may have increased caution, although it is hard to know how much confidence in the tests impacted decision making in practice. (Ai et al, 2020) To reduce the risk of infection from orthopaedic procedures, which were regarded as Aerosol Generating Procedures, the British Orthopaedic Association (BOA) recommended strategies to reduce risk.
75. Subsequent research has shown orthopaedic surgery and surgical tools to be at low risk of generating aerosols that would transmit Covid-19 (British Orthopaedic Association, 2020; Sharma et al, 2021). For elective cases in a green pathway, routine surgical gowns and face protection including masks and eye protection was therefore used. In someone with known Covid-19 (for example, a hip replacement for fracture), full personal protective equipment (PPE) was required for surgical staff as they were working on a ventilated patient. However, the greater risk was for anaesthetic and recovery staff who were involved in airway and respiratory management, and so the need for full and appropriate infection prevention procedures for these staff were part of the longer times needed between cases, which reduced the number of cases that could be performed in a day. We understand that the issue of aerosol generation is being addressed in the expert reports from Professor Beggs on the physical sciences aspects of IPC, and Dr Shin, Professor Gould and Dr Warne on clinical aspects of IPC.

2.3.3.b Personal Protective Equipment

76. In response to the pandemic, the UK Health Security Agency (formerly known as Public Health England) disseminated guidelines specific to Covid-19 on 'donning' and 'doffing' of PPE (UK Health Security Agency, no date). These guidelines were limited in providing what type of PPE should be worn in which scenario. This may have stemmed from initial lack of understanding of spread of SARS-CoV-2. In response to this, and a subsequent shortage of PPE, procurement occurred from multiple locations, resulting in products from multiple

manufacturers in practice daily. This also included equipment donated from other public sectors (e.g., eye visors from schools). (Jessop et al, 2020)

77. Early data assessing the effectiveness of different equipment available (such as medical masks, surgical face masks (with visors), FFP2/3 masks and face shields) showed variable protection by different methods, further adding to uncertainty of which PPE equipment were required for different tasks (Fitzgerald, McCabe and Murthy, 2020). In Italy, over 100 physicians died of Covid-19 until April 2020, suggesting a high mortality for health care staff (FNOMCeO, 2024).

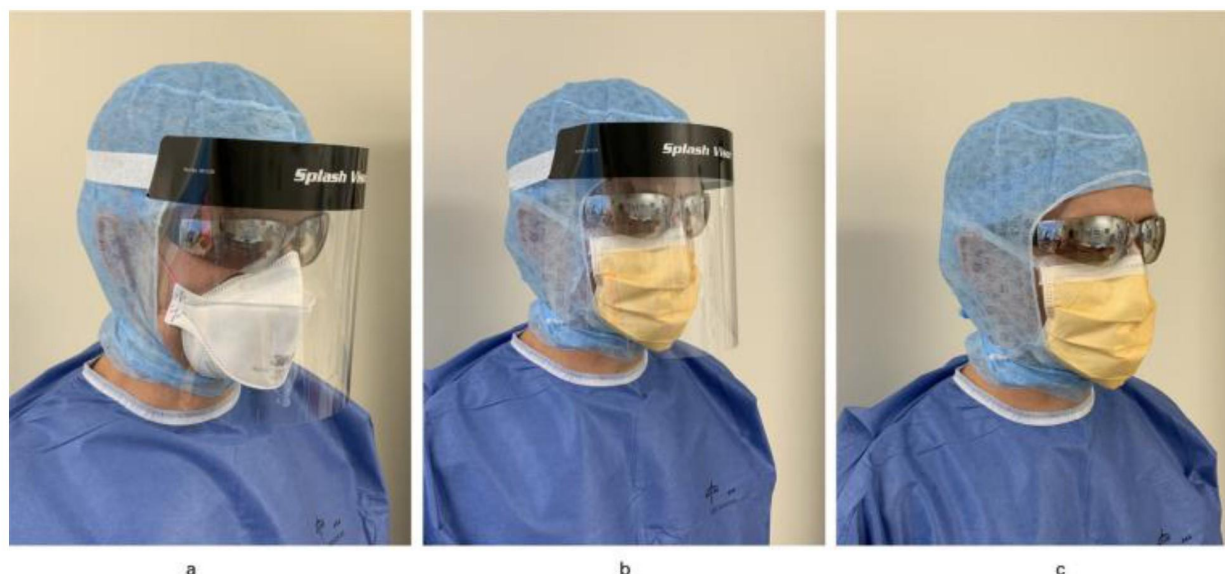


Figure 6 Picture of three different PPE equipment recommended in the early phase (April 2020). This picture demonstrates different PPE equipment for a) SARS-CoV-2 positive cases requiring a N95 respirator, surgical balaclava, face shield, gown and double gloves, (b) Non-SARS-CoV-2 cases with a high risk of aerosolisation, requiring a taped surgical mask, goggles, surgical hood, face shield, gown and double gloves and (c) non-SARS-CoV-2 case with low risk of aerosolisation requiring taped surgical mask, goggles, surgical hood, gown and double gloves.)(Baldock et al. 2020)

78. As understanding of the pandemic improved, the WHO produced guidelines to rationalise the use of PPE, including considerations during severe shortages.(WHO, 2020) This helped to understand the nature of PPE required for different tasks in inpatient, outpatient and community settings. However, the operating theatre was omitted as an inpatient area, even though it presents unique challenges, both with anaesthetic procedures (intubation) and use of specialised equipment (described in 2.3.3 Infection prevention and control). The WHO guidelines did provide instruction on what PPE equipment was required in inpatient areas where direct care was provided to SARS-CoV-2 positive patients and SARS-CoV-2 negative patients, which provided some direction to clinicians.
79. In reality, with challenges in procurement, the practical use of PPE was determined more by availability of masks, gloves, gowns and face protection rather than evidence or guidelines. (Hirschmann et al, 2020)

80. A further challenge was training staff on effective donning and doffing of PPE. Hannum and colleagues compared three groups of hospital employees who underwent a variety of PPE donning and doffing training. The three groups consisted of individuals with (1) one-to-one training, (2) classroom training, and (3) no formal training. They found that groups (1) and (2) had higher pass rates of effective donning (94% vs 91% vs 79% respectively). (Hannum et al, 1996)

2.3.4 Ability of the healthcare system to resume elective surgery

2.3.4.a. *Surgical, ward and outpatient space*

81. Surgical space was repurposed for intensive care use in many hospitals during the most acute periods of the pandemic, in particular the first and second waves. This included theatre recovery areas and in some cases theatres themselves. (Oussedik et al, 2020) There were many examples of these spaces being used for critical care management of patients with Covid-19, suggesting this was an appropriate decision to manage capacity. Delays in full return of theatre recovery space may have slowed delivery of elective surgery in some units and there were certainly delays in critical care bed availability for patients with high medical risk who needed hip replacement. The reallocation of theatre space and the rate at which they were returned for elective surgical care varied by trust, with decisions made at individual hospital level according to local policies, staffing and other local stresses.
82. Ward beds normally used for elective orthopaedics were also re-purposed for acute medical care. The rate at which these were returned to use again varied widely by trust and had a much more lasting effect on elective recovery around the UK. In many units, large numbers of patients awaiting social care placed a major burden on acute hospital beds which in turn delayed the return of ward beds for elective care.
83. Those units where elective orthopaedic surgery was undertaken in the same hospital as acute medical units were inevitably more influenced by the availability of ward beds, as well as recovery and critical care space, than units where elective care was geographically distant from acute care.
84. Reallocation of outpatient department space to house emergency medicine, acute medicine or minor injuries units occurred in many hospitals early in the pandemic to increase the capacity of acute medical departments. In many cases these footprints have still not been returned which has impacted the ability of orthopaedics to deliver outpatient appointments and has therefore increased the time taken for referrals to be seen.
85. Although this was not widely performed, an example is given in section 4.1 of a Nightingale Hospital being re-purposed to deliver elective surgical care at scale. This increase in surgical capacity has greatly benefited patients in the South West of England.

2.3.4.b. *Healthcare staff*

86. Redeployment of staff needed to deliver elective care, especially theatre staff, had a major impact on delivery of elective surgery. Many staff members were redeployed to provide critical care support during the acute phases of the pandemic, again mostly in the first and second waves. Theatre staff and especially those with transferable or critical care skills such as

Operating Department Practitioners (ODPs), theatre and recovery nurses and healthcare assistants, were redeployed early in the pandemic and in many cases were continuing to provide critical care support well after the main waves. Anaesthetists were also readily deployed to critical care to assist in the management of patients. This included redeployment across different trusts in some cases, for example anaesthetic and theatre staff at the specialist Royal Orthopaedic Hospital in Birmingham were redeployed to the nearby Queen Elizabeth Hospital to support critical care.

87. Orthopaedic surgeons were redeployed to various roles, and this varied across trusts, including supporting emergency departments, medical or critical care teams. This included a spectrum of orthopaedic surgeons, both consultants and junior doctors as well as allied healthcare professions, such as surgical care practitioners. (Hourston et al, 2020) A restriction in availability of orthopaedic staff may have led to a reduction in availability to perform hip replacement surgery in some centres, however, in general orthopaedic consultant redeployment was much shorter lived than for other staff groups and therefore in most cases this was not the limiting factor in resumption of elective care.
88. The gradual return of staff to theatres was one of the key causes of delays in restoration of elective care in NHS hospitals, which was already compromised by staff sickness and shielding. It also impacted efficiency of those theatres that could run, for example with a reduction in theatre recovery nurses or recovery space, patients had to be recovered by anaesthetists in theatre which dramatically increased the time in theatre for each case and reduced efficiency.
89. Theatre nurses and experts across the devolved nations have also told us that the widespread redeployment of theatre staff to critical care, and the length of time that redeployment persisted for, meant that many theatre staff looked for jobs elsewhere (ie independent sector or out of theatres) and theatre posts became much harder to appoint to. Staff had not taken up theatre roles expecting to work in critical care and many found it emotionally distressing, often with difficult hours and skill requirements that were beyond their usual practice. This reduction in key theatre staff, and difficulties in attracting people to such roles, further compounded staff shortages.
90. We are not aware of publicly available data to ratify this, but based on our personal experiences those we have interviewed, staff shortages either from redeployment, pre-existing understaffing, staff losses (retirements or staff moving to other work) and the difficulties in replacing posts are likely to have been one of the major causes of delays in resuming elective care or returning to normal levels of elective care delivery in NHS hospitals.

2.3.4.c Availability of testing for patients and staff

91. We have been unable to identify any objective data on the impact on elective surgery of testing availability or time to receive a SARS-CoV-2 test result.

2.3.5 Resumption of surgery and green pathways

92. From May 2020, some trusts started re-opening elective care including hip replacements, this was decided at individual trust level depending on pathways, staff resource and available facilities and based on an assessment of risk. Whilst it was difficult to clearly estimate patient

risk from Covid-19 at the time, it became clear that with individual testing and careful management of pathways, peri-operative risk could be minimised. (Parvizi et al, 2020; Asopa et al, 2022).

93. 'Green pathways' were a method for reducing the risk of peri-operative complications or death from Covid-19 for elective treatment and were used in all four nations. These pathways typically included ringfenced wards, theatres, recovery spaces and passages through hospital (ie entrances, waiting spaces and between the ward and theatre) for people receiving elective care, with care delivered by staff who were only delivering green pathway care. Patients on green pathways were required to undergo Covid-19 testing prior to admission (typically 48 or 72 hours before).
94. Many sites also had areas and pathways for people where these requirements couldn't be met, but where risk was reduced as much as possible, for example emergency cases for hip fracture without known Covid-19 infection, these were often termed 'Amber pathways' or 'Managed risk pathways'. The safety of these latter pathways was, and remains, less well understood.
95. There are numerous successful examples of where 'green' surgical pathways were used to provide elective orthopaedic surgery even in the first few months after the onset of the pandemic. The coordination of development of these pathways was done through local planning and negotiation. In some scenarios, this leveraged use of separate hospital sites within the same trust to create separate 'green zones' or 'green pathways' and in others, whole sites were designated green sites. Green pathways were relatively intensive in terms of staff resource and were easier to deliver where elective care was already physically separate from acute care and often very difficult to deliver at acute hospital sites. Data reported from many of the early green sites showed low or very low rates of Covid-19 related complications, and death from Covid-19 on a green pathway was very rare. However, data from each centre was relatively low-volume and was mostly under-powered to evaluate risk. A coordinated multi-site programme of data collection (which would have required funding such as NIHR) would have provided valuable safety data much sooner and with much more detail (for example, differences in pathway design, amber pathways).
96. On the 26th March 2020, NHS England provided a statement to outline the arrangements for contracting and payments during the Covid-19 pandemic. (NHS England and NHS Improvement, 2020; NHS England, 2020) Similar arrangements were made across all four nations, covered in their respective statements. This provided the financial means for local negotiations to take place to use private sector hospital capacity. There are numerous reported examples of this being implemented. (Dixon et al, 2022) In regions where no green pathway site was identified, private sector hospitals were used for this purpose in multiple parts of the UK, although only small numbers of orthopaedic cases were delivered as part of this arrangement (including in Scotland, Wales and Northern Ireland).
97. A key component of the green pathways was providing staff who had limited, or no contact with patients with SARS-CoV-2 infection. This may have involved regular, routine testing of staff. In addition, patients were advised to isolate for 14 days and required a negative SARS-CoV-2 test before the day of admission or surgery. These recommendations were adapted from recommendations issued by the British Orthopaedic Association and the National Health Service. (British Orthopaedic Association, 2020b; NHS Wales, 2020)

98. An example of a locally created pathway is below in Figure 7.

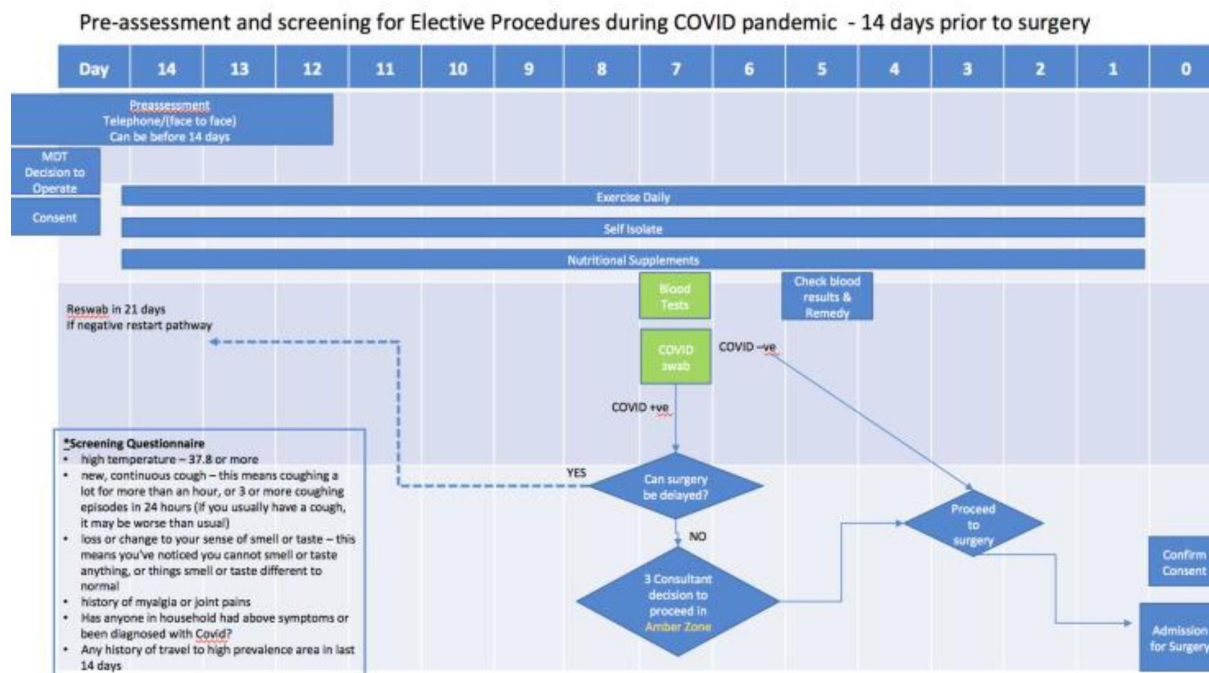


Figure 7: Local 'green' surgical pathway Local 'green' surgical pathway

99. Only one purely elective NHS green site was present in Scotland at the beginning of the pandemic: the Golden Jubilee National Hospital. They restarted elective surgery in June 2020 commencing first with fit and well day case patients and commencing hip replacements after determining this was safe 4 weeks later. This restart was firstly in patients with no Covid-19 risk factors and then to all patients at week 10. The Golden Jubilee Hospital treats patients from all across Scotland. The number treated from each health board depends on the contract in place for that board and is not determined by a national waiting list time nor is the proportion of patients across all health boards equal. Many patients do not wish to, or cannot, travel the distance from their home to the Golden Jubilee Hospital. It also employs restrictions for medical comorbidities and BMI limits and so cannot be accessed by all patients requiring arthroplasty. This may, in part, explain some of the substantial regional variation in Scotland (see section 2.3.7 Variation in resumption of elective procedures) (Chuntamongkol et al, 2021).

100. In other hospitals that receive acute patient admissions, setting up green pathways was more challenging and depended on front door pressures (acute medical care through accident and emergency) and the priorities determined by individual Trusts or Health Boards. This varied according to the local NHS estate available, private sector availability and staffing. In many hospitals the difficulties of providing a green pathway and staff protected and separated from acute patients led to significant delays in re-establishing hip replacement surgery as reflected by the variation in activity across health boards. A lack of data on the safety of individual pathways also contributed to delays in establishing elective care, especially in units having to compromise one a 'silver' or 'bronze' pathway (see below) due to local facilities, as lessons could not be learned quickly using combined data across multiple units, so each unit had to

self-audit and gradually introduce patients into the pathways. Early national data would have allowed units to progress the delivery of pathways much sooner and with more confidence.

101. The British Orthopaedic Association (BOA) issued UK-wide guidance on the 15th of May 2020 on restarting elective activity. (British Orthopaedic Association, 2020a) Within this, the BOA identified challenges with NHS infrastructure in delivering true green pathways. They classified sites as ‘gold’, ‘silver’ or ‘bronze’ (Table 4). This involved the separation of physical buildings, diagnostics, staff and co-dependant treatments facilities (such as renal replacement therapy).

	Gold	Silver	Bronze
Buildings	Single point of access with COVID checkpoint	Single point of access with COVID checkpoint	Single point of access with COVID checkpoint
	Separate site	Building that can be physically separated into distinct areas with completely separate entrance and no contact with blue staff/patients	Department that can be physically separated from other areas, but unable to achieve complete separation eg walk through common area en route to department
Diagnostics	Separate facilities	Separate entrances and rooms	Separate time slots/ strict cleaning
Staff (in work considerations, out of work also needed)	Robust screening/ testing Separate teams	Robust screening/ testing Separate teams for defined time periods	Robust screening/ testing COVID checkpoint and full change/shower
Co-dependencies (eg renal replacement)	Co-dependencies available on same green site	Co-dependencies available on same site but with green/blue split	Co-dependencies available on different site but with green/blue split

Table 4: Categorisation of sites as gold, silver or bronze, by the British Orthopaedic Association.

102. An example of a ‘gold’ site is at University Hospitals Coventry and Warwickshire NHS trust, which functions at two sites: the first is University Hospital Coventry, which serves as a large, major trauma centre in Coventry and has a busy acute and emergency service. The second is the Hospital of St Cross in Rugby, part of the same trust but at a different site. In July 2020, Hospital of St Cross was converted as a green hospital. (University Hospitals Coventry and Warwickshire, 2020) This meant that people booked for surgery were asked to self-isolate for 14 days prior to admission and were screened for SARS-CoV-2 infection before admission. It included a separate entrance to the hospital. Staff in the hospital did not work in clinical areas where people with SARS-CoV-2 infection were, minimising spread from healthcare workers. This was not always practically possible, as theatre staff and ward nurses were requested to be redeployed to assist in emergency theatres, intensive care or wards at University Hospital Coventry, resulting in possible contact with patients with SARS-CoV-2 infection. Movement of staff between pathways was a common problem across many of the hospitals in the UK.

2.3.6 Recovery of hip replacement surgery in the National Joint Registry of England, Wales, & Northern Ireland

103. The recovery of elective surgery, as documented in the National Joint Registry for England, Wales and Northern Ireland (Scottish data is provided separately, collected from the Scottish Arthroplasty Project, SAP), is given below, from French et al 2024 in Figure 8, Figure 9, Figure

10 and Figure 11. The National Joint Registry (NJR) is the largest orthopaedic registry in the world and collects data about hip, knee, shoulder, elbow and ankle replacements covering England, Wales, Northern Ireland, the Isle of Man and Guernsey. This registry has been collecting data since April 2003. Submission to this database is mandatory for the NHS as well as the independent sector with a compliance rate of approximately 95%, the registry is therefore a reliable data source on THR usage. The majority of the charts in this section are based on data from NJR and SAP.

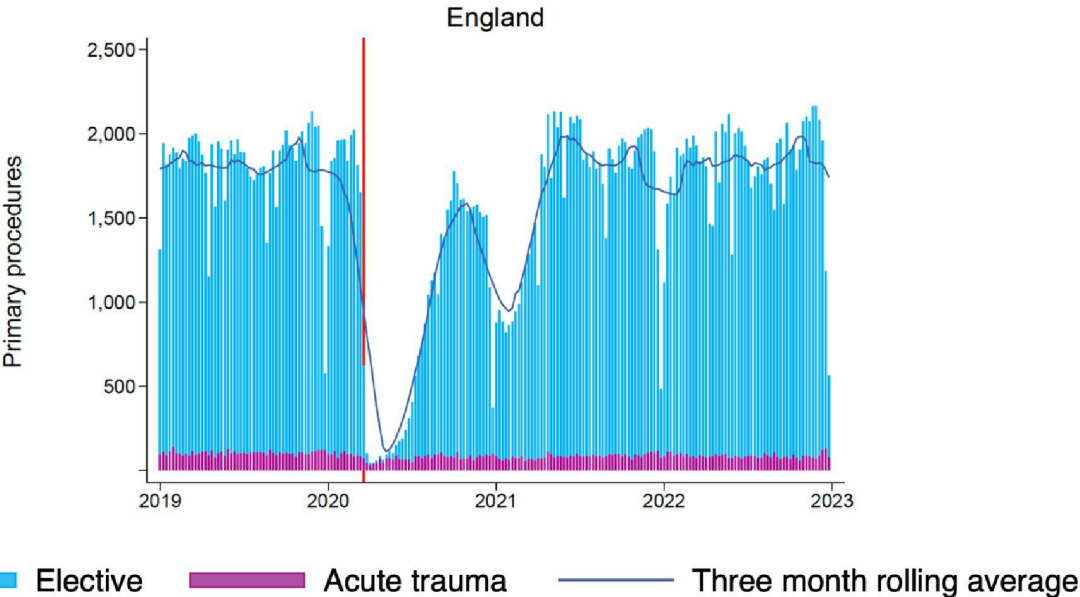
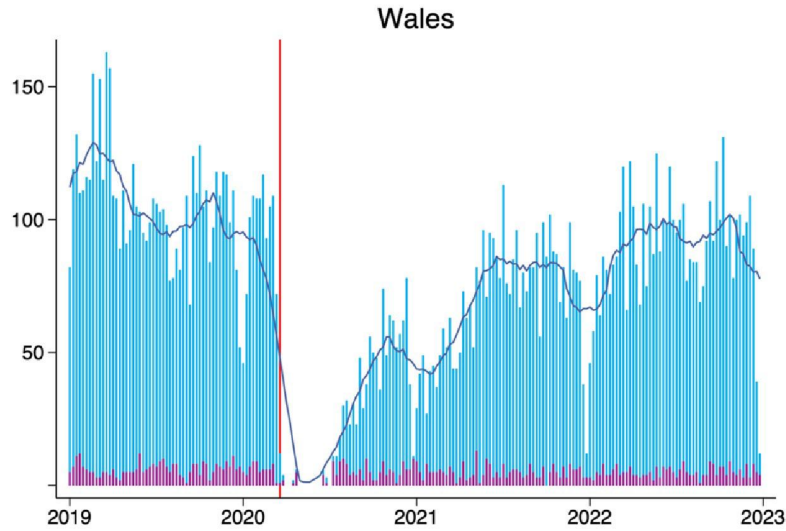
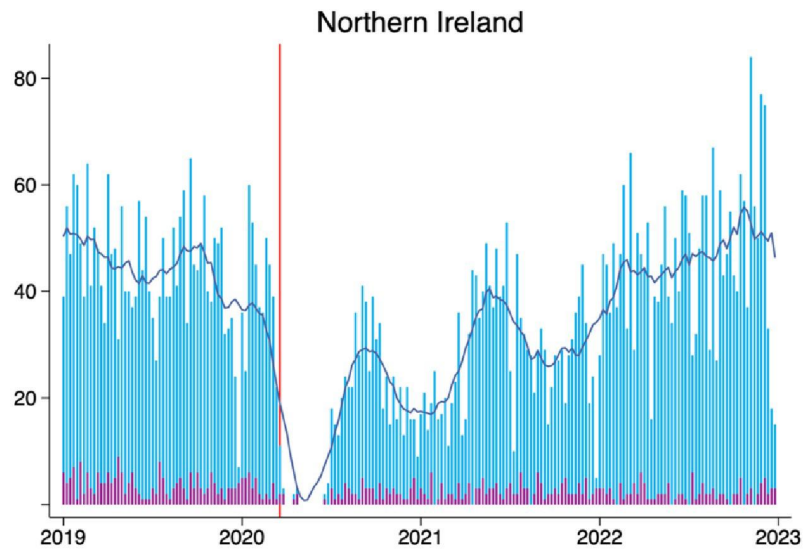


Figure 8: Number of total hip replacements performed per week in England. Data from National Joint Registry. Figure from French et al. The red vertical line depicts lockdown.



█ Elective
 █ Acute trauma
 — Three month rolling average

Figure 9: Number of total hip replacements performed per week in Wales. Data from National Joint Registry. Figure from French et al . The red vertical line depicts lockdown.



█ Elective
 █ Acute trauma
 — Three month rolling average

Figure 10: Number of total hip replacements performed per week in Northern Ireland. Data from National Joint Registry. Figure from French et al . The red vertical line depicts lockdown.

Number of total hip replacements done per year in Scotland

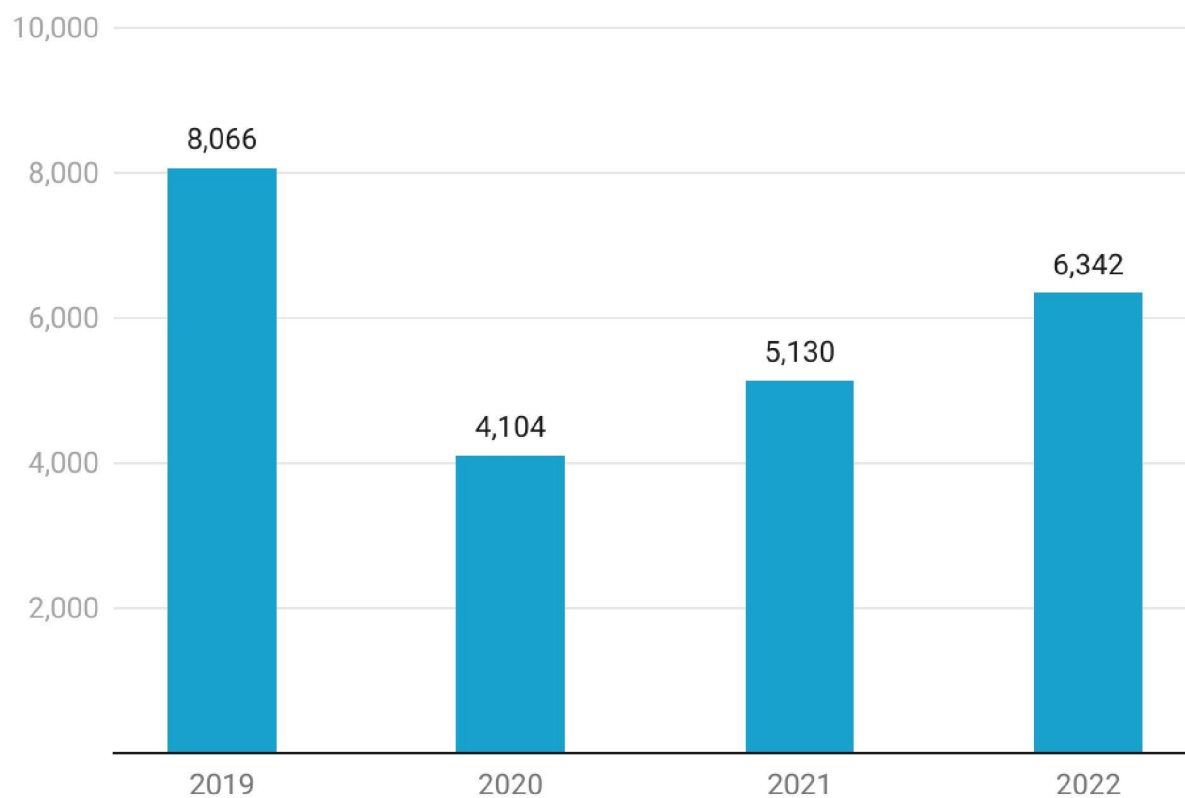


Figure 11: Number of total hip replacements done in Scotland (SAP). Monthly data not available.

2.3.7 Variation in resumption of elective procedures

104. There was a large geographical variation in the resumption of elective procedures. The heat maps below were generated using data from the NJR and Scottish Arthroplasty Project, they illustrate regional variation at the NHS trust level, and this is further described in the bar chart Figure 16. The maps in Figure 12 and Figure 13 describe the proportion of pre-pandemic volume of total hip replacements performed in 2020 and 2021 illustrating the recovery in volume of total hip replacements by region across the United Kingdom. Recovery was measured using proportion of hip replacements performed in 2019 as the benchmark and we compared how many total hip replacements were performed in 2021 and 2020 as a percentage. The red colours represent trusts that were performing only a small proportion of the hip replacements they were performing in 2019, while blue coloured regions were performing at or above their 2019 volume. In 2020, Scotland and Wales THR volume was affected most, with most of these devolved nations performing <80% of their usual volume. England was relatively less affected in 2020 (Figure 13).
105. In 2021, hospital trusts varied from delivering 25.9% of usual activity to 161.8% of usual activity. Most regions were performing less than 80% of their usual THR volume, but London and the surrounding regions were more likely to be performing >80% of usual THR volume (Figure 12). This is further illustrated in Figure 14, where London figures had the smallest deficit when compared to other regions in England.
106. In Scotland, NHS Forth Valley was an outlier in increasing its elective capacity by protecting elective surgery capacity throughout the pandemic and as such has one of the highest volumes of total hip replacement compared with pre-pandemic activity.(Public Health Scotland, 2023a)
107. In addition to geographical variation, there was also variation in resumption of THR capacity by levels of deprivation, with areas of greater deprivation having a larger THR deficit than areas of less deprivation (Figure 15). The areas with the lowest deprivation had a deficit of 47% while the areas with the highest deprivation had an average deficit of 50%.

Heat map of proportion of pre-pandemic total hip replacements performed in 2020

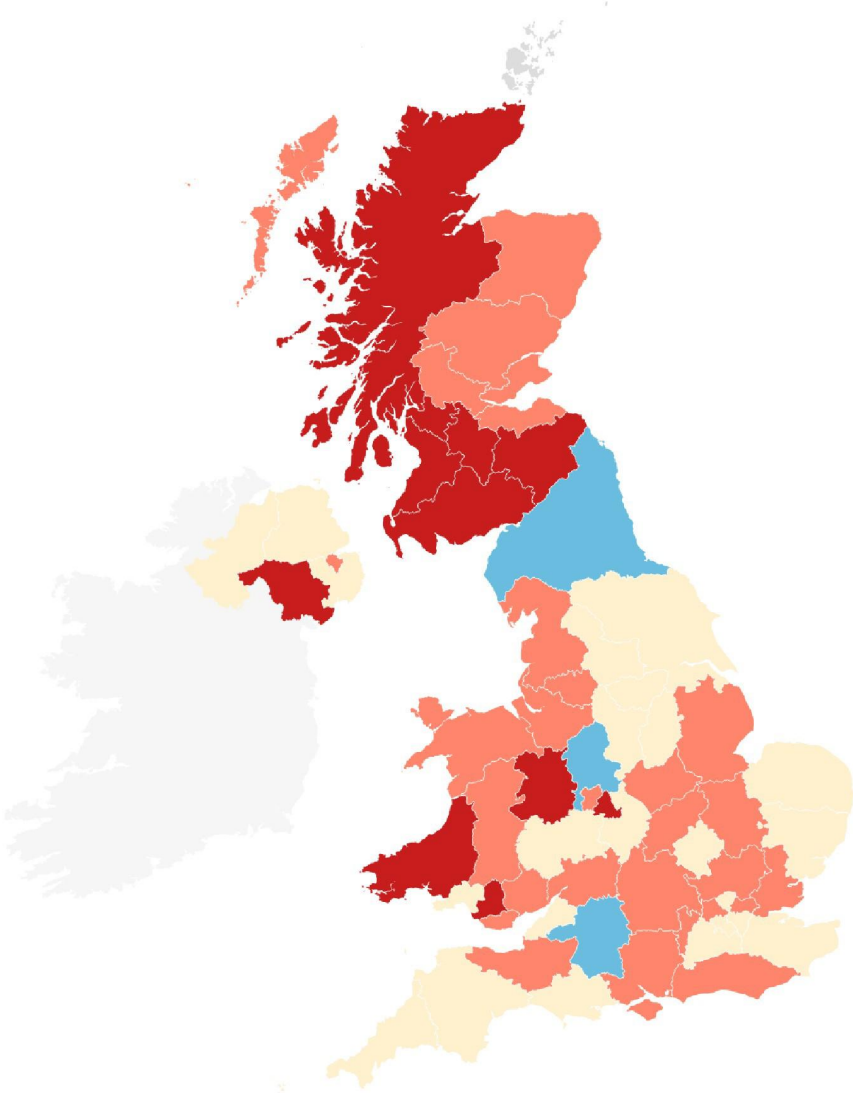
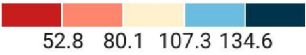


Figure 12: Heat map showing proportion of pre-pandemic total hip replacements were performed in 2020

Heat map of proportion of pre-pandemic total hip replacements performed in 2021

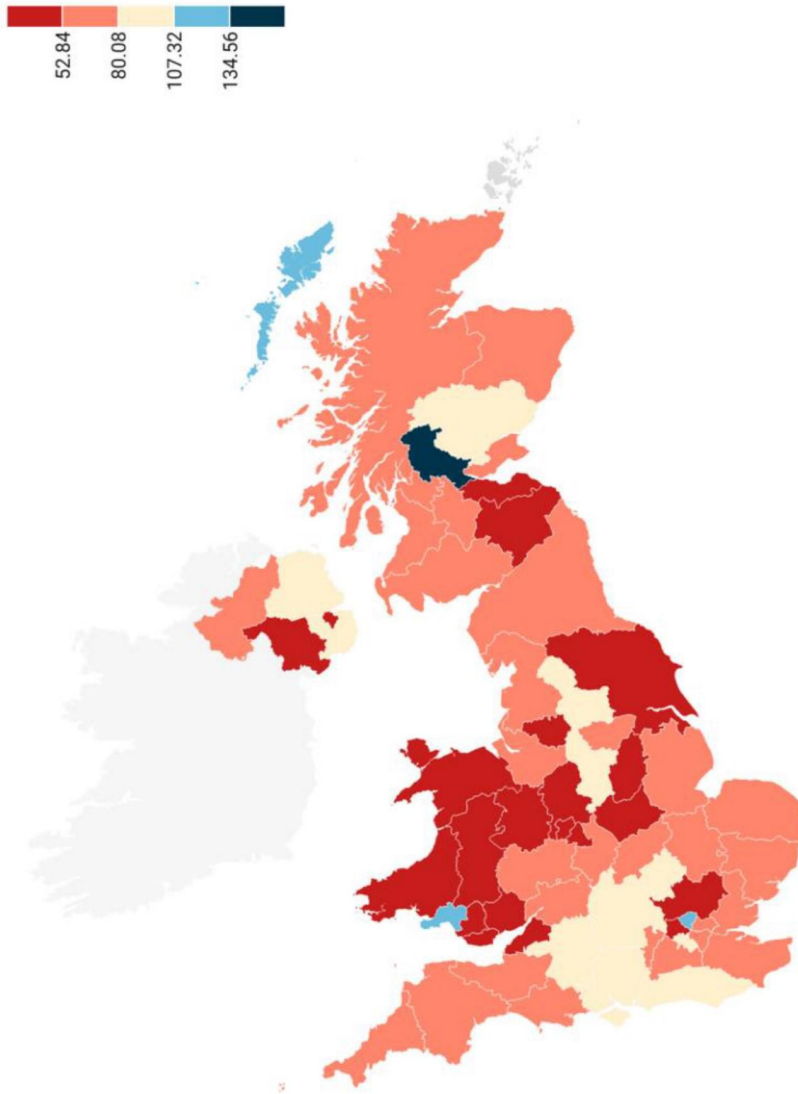
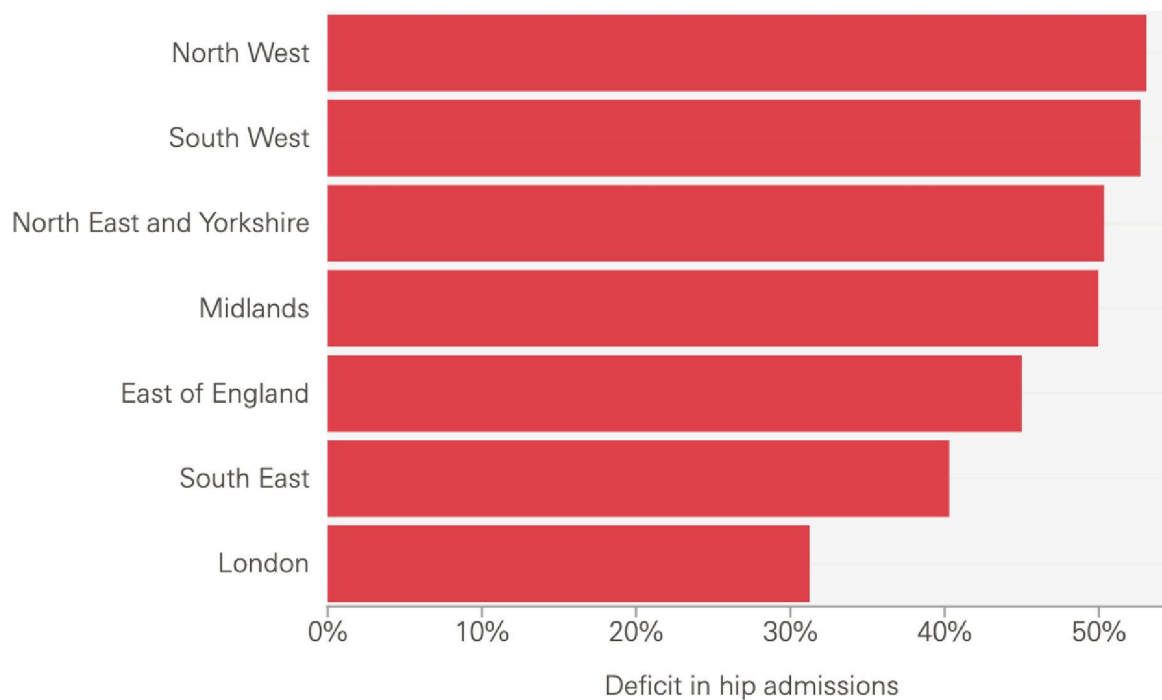


Figure 13: Map reflecting proportion of pre-pandemic volume of total hip replacements performed in 2021

Deficit in hip admissions in 2020 due to COVID-19 pandemic by region



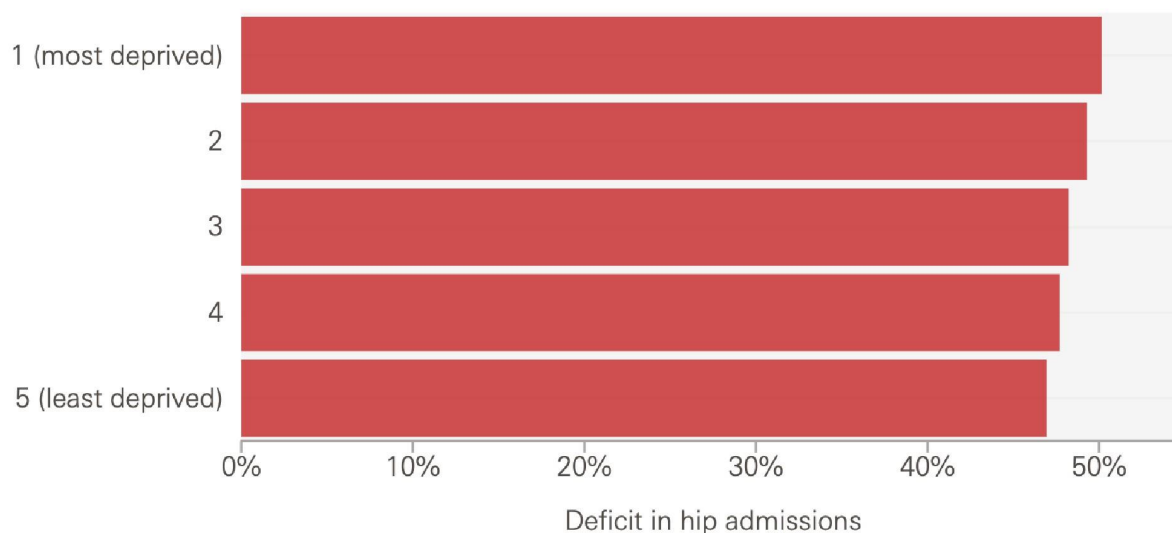
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Source: Secondary Uses Service (SUS) • Note: Deficit is presented as a proportion of total admissions seen in 2018/19.

Figure 14: Deficit in hip admissions in 2020 due to COVID-19 pandemic by region in England (Krelle, Tallack, and Barclay, 2021)

Deficit in hip admissions in 2020 due to COVID-19 pandemic by deprivation



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Source: Secondary Uses Service (SUS) • Note: Deficit is presented as a proportion of total admissions seen in 2018/19.

Figure 15: Deficit in hip admissions in 2020 due to COVID-19 pandemic by deprivation (Krelle, Tallack, and Barclay, 2021)

108. Wales and Northern Ireland have not recovered as well as most regions in England as illustrated in Figure 16 Bar chart showing percentage of pre-pandemic total hip replacements performed in Wales (shaded red), Northern Ireland (shaded green), England (shaded white) and Scotland (shaded Blue). below, with no Welsh or Northern Irish regions achieving greater than 60% of pre-pandemic volume of total hip replacements.

Percentage of pre-pandemic total hip replacements performed in 2020 and 2021

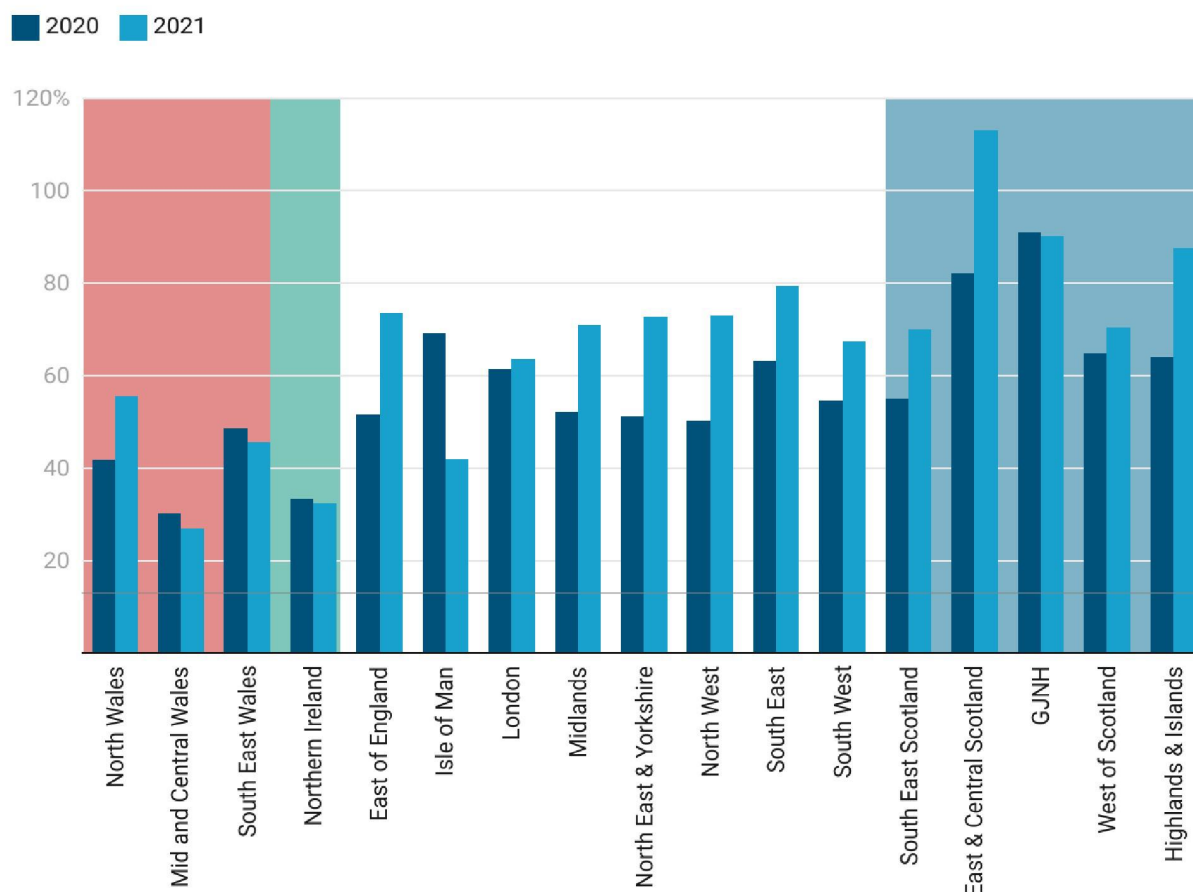


Figure 16: Bar chart showing percentage of pre-pandemic total hip replacements performed in Wales (shaded red), Northern Ireland (shaded green), England (shaded white) and Scotland (shaded Blue), from National Joint Registry data.

109. Table 5 below provides descriptive statistics of the variation in recovery of total hip replacement volume in hospitals across England, Wales and Northern Ireland, and Table 6 shows the figures for Scotland. Most regions showed an upward trend in total hip replacement volume over time since the pandemic, with the median value increasing each year. Despite this, only 35% of hospital trusts were achieving >90% of pre-pandemic volume of total hip replacements in 2022.

Descriptive statistics of volume of total hip replacements performed per year compared with pre-pandemic volume by hospital trusts (England, Wales, Northern Ireland)

	2020	2021	2022
Median proportion of pre-pandemic volume	53	71	82
proportion of trusts achieving >90% of pre-pandemic volume	9	25	36
Proportion of trusts achieving <50% of pre-pandemic volume	43	24	12

Table 5: Descriptive statistics of recovery in total hip replacement volume from 2020-2022.

Descriptive statistics of volume of total hip replacements performed per year compared with pre-pandemic volume by hospital trusts in Scotland

	2020	2021	2022
Median proportion of pre-pandemic volume	49	53	75
proportion of trusts achieving >90% of pre-pandemic volume	0	19	19
Proportion of trusts achieving <50% of pre-pandemic volume	50	38	6

Table 6: Descriptive statistics of regional variation in Scotland.

2.3.8 Use of the independent sector

110. Whilst independent sector hospitals were used to deliver NHS elective care during the pandemic through a block contract across England which started in April 2020, this was more typically used to deliver care that was considered more urgent, such as cancer care, and was less widely used for elective orthopaedic surgery including hip replacements (although there were some exceptions to this around the country). (Freibel et al, 2022; IHPN, 2021).
111. The Northern Ireland Health and Social Care Board (HSCB) agreed the use of three independent sector hospitals in a similar arrangement to that made by NHS England. The services provided by independent sector hospitals included diagnostics, operating theatres and preassessment. Independent sector capacity was used primarily for cancer diagnosis and treatment, but included the following specialities: general surgery, breast surgery, maxillofacial surgery, ophthalmology and urology, but notably not orthopaedics. [INQ000485167] Some NHS-funded hip replacements were performed in private hospitals in Scotland and Wales but in very small volumes, insufficient to make any major changes to overall waiting lists.
112. Orthopaedic surgery saw the greatest decrease of all major specialities between April-July 2019 to April-July 2020 in NHS funded care delivered in private hospitals, a decrease of almost 90%, although it is likely that changed in the following months as cancer care returned to NHS hospitals. National Joint Registry data for hip replacements also showed that THR was not widely performed in the independent sector during this time, as hip replacement numbers delivered in the independent sector only recovered to pre-pandemic numbers late in 2020,

although they did not suffer an equivalent drop in the second wave of January 2021, where a mixed economy of NHS and independently funded cases was being performed (Figure 17).

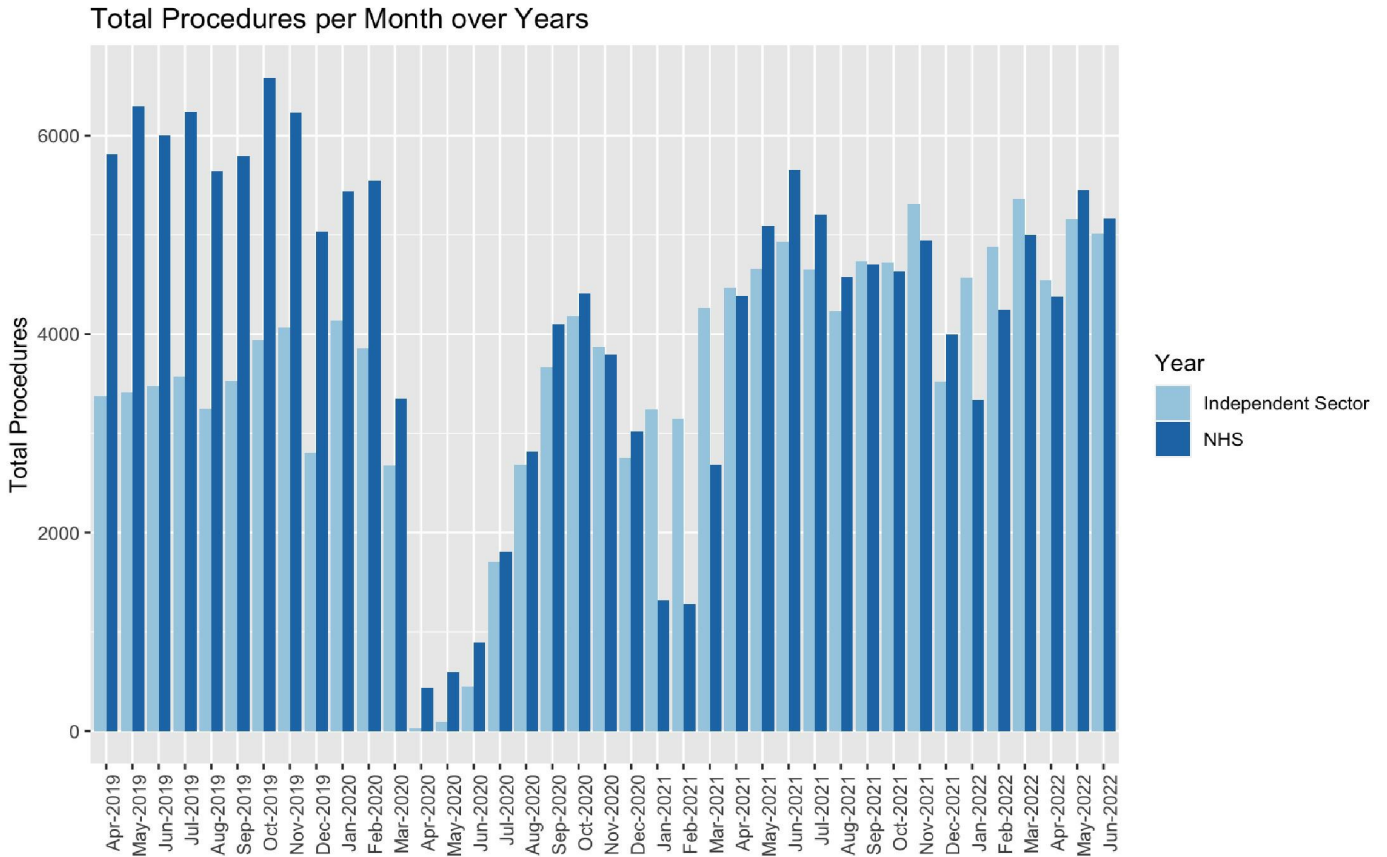


Figure 17: Total number of total hip replacements performed in the NHS and the independent sector per year between 2019-2022 for England, Wales and Northern Ireland.

113. It is difficult to interpret from the data whether the contract with the independent sector was well utilised. It was used to deliver more time-critical care such as cancer surgery, which is important and dealt with in a separate report. However, many people requiring surgery to treat pain and disability did not have a place to treat them, reflecting the overall challenge that non-life-threatening surgery was de-prioritised widely. It should also be noted that private sector capacity was, at least in part, also limited by some of the theatre staffing problems experienced in NHS hospitals, such as staff sickness and shielding, early retirements, or changes of profession.
114. Ongoing or future use of the independent sector to support the recovery of NHS elective surgery is a potential mitigation in the future but has challenges that would need to be overcome. Private hospital care, whether self-pay or insurance, has grown since the pandemic, reducing capacity for NHS care in that sector. There are also impacts on surgeon training, NHS hospital finances and equity of access, as simple, profitable cases that are also good for training are more likely to be transferred out of the NHS whilst complex cases and people with multiple co-morbidities are left on long waiting lists.

3. Impact of the pandemic

3.1 The number of people presenting with hip arthritis

115. We do not have data from primary care on presentation or referral patterns for hip replacement across the UK. In terms of outpatients seen by AHPs in Scotland, approximately half were seen within the 4-week target for the time period set by the Inquiry (Figure 18).

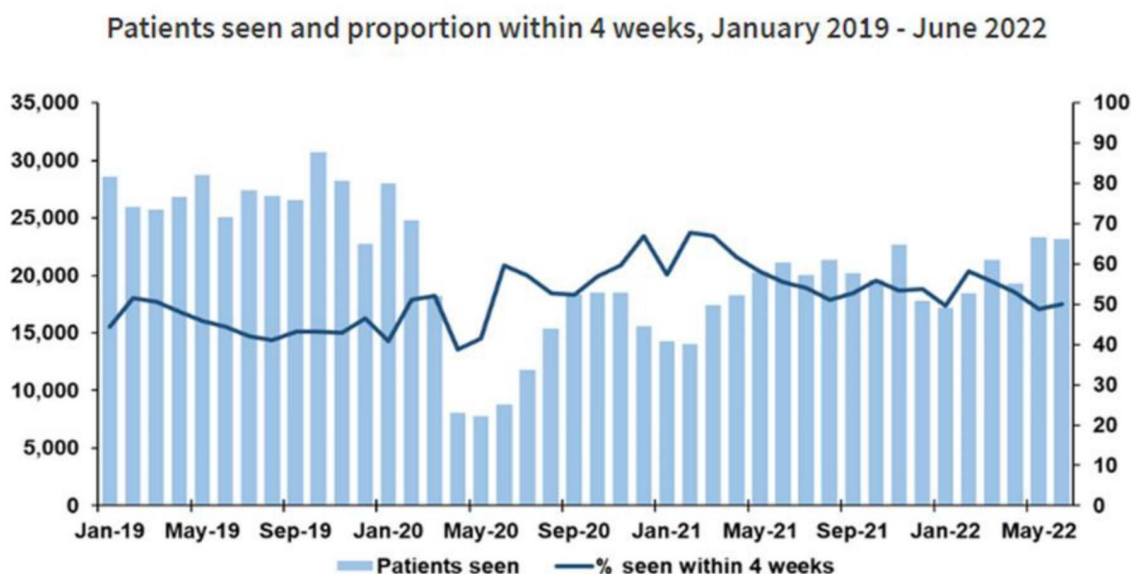
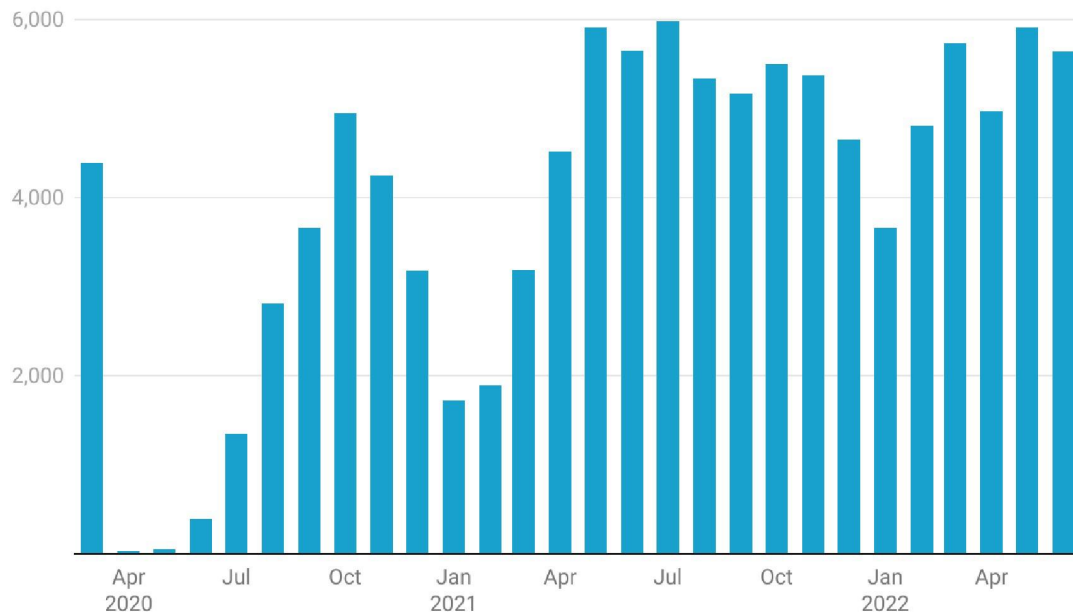


Figure 18: Patients seen and proportion within 4 weeks (Scottish data)

116. It would be expected that the demand in the community (ie the number of patients with or developing symptomatic hip arthritis) would occur at the same rate as prior to the pandemic. However, access to primary care was markedly reduced, especially during periods of lockdown. Patients were reluctant to attend healthcare facilities during the early pandemic prior to vaccines due to fears of contracting Covid-19, especially older adults more at risk from Covid-19 consequences (the median age of patients undergoing hip replacement is 69 (National Joint Registry, 2022)). We do not have specific data about whether this reduced access to conservative treatments (such as access to assistive devices) although this is likely, given that people had challenges accessing primary care and secondary care was heavily affected. A multicentre study across 10 centres spanning England, Scotland and Wales performed in August to October 2020 identified that 11% of patients waiting for hip replacement were reluctant to undergo surgery during the pandemic. (Clement et al, 2020)
117. Based on HES data (England only) and Scottish data, the number of new patients listed for hip replacement decreased early in the pandemic but those numbers increased again after each wave, especially in 2021 and beyond (Figure 19, Figure 20) Ongoing demand for surgery and a lack of provision for surgery meant that waiting list numbers rose substantially. No equivalent data is available for Wales and Northern Ireland.

Number of patients booked onto the waiting list for total hip replacement per month



Source: Hospital Episode Statistics • Created with Datawrapper

Figure 19: Number of patients booked onto the waiting list for total hip replacement per month in England. No equivalent data for Wales and Northern Ireland.

Waiting list changes - patients removed, seen, referred and waiting by month
October 2020 to December 2023

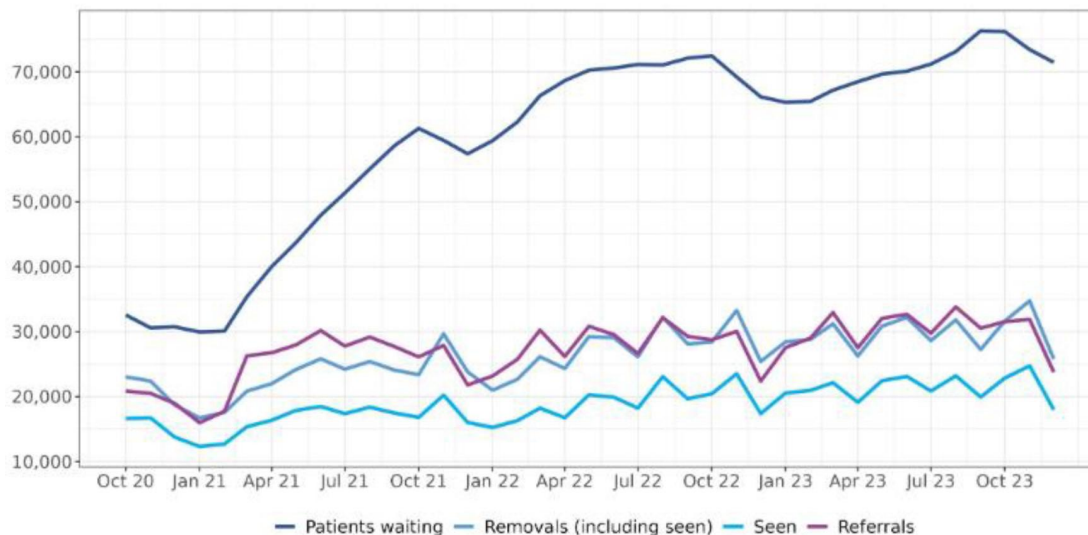


Figure 20: Scottish data on outpatient waiting lists

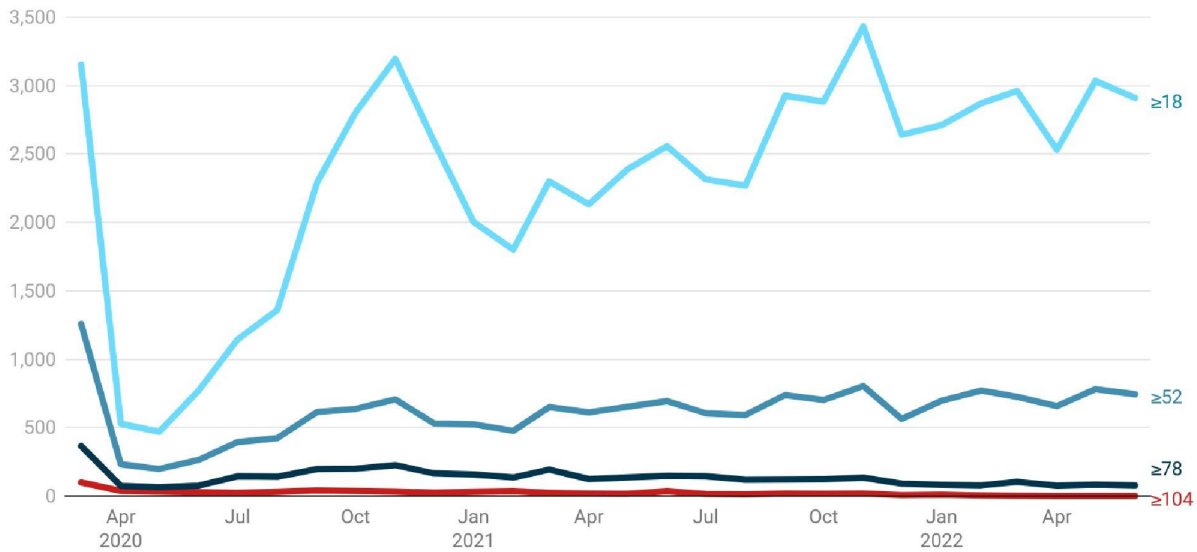
3.2 Waiting times and backlog of cases

118. Using the National Joint Registry, French et al (2024) estimated the deficit in joint replacement procedures which have not been performed due to the Covid-19 pandemic in England, Wales and Northern Ireland. There was a calculated deficit of 43,845 THRs in 2020 compared to the number of THRs performed in 2019. This corresponds to a reduction in THR volume of 42.9%. (French et al, 2024) When considering all elective orthopaedic operations, 212,000 fewer operations occurred in 2020 compared with the same period in 2019 showing that the deficit of THRs is only the tip of the iceberg of cancelled operations due to the Covid-19 pandemic [INQ000474203].
119. There is an absence of high-quality data to assess how long people waited for hip replacement. HES data provides high quality data for hip replacement but this is from the time of decision to admit (DTA) in hospital rather than the point of referral from General Practice. The time from DTA therefore cannot be compared to the 18-week target. However, it gives some indication of performance and is given here where relevant. The graph below (figure 21) illustrates the number of patients waiting 18 weeks or more, and 52 weeks or more for a hip replacement.
120. Referral-to-treatment (RTT) data is only available by speciality, in this case Trauma and Orthopaedics, and not by procedure (eg hip replacement). Whilst this gives some useful information, it overstates the performance of the NHS, as many cases in the speciality can be done under local anaesthetic (such as carpal tunnel decompression) or as daycase surgery which does not require and inpatient stay (such as knee or shoulder keyhole surgery). In the reference period, many trusts were able to perform local anaesthetic cases and daycase procedures whilst beds were unavailable, so those parts of the waiting list were effectively prioritised, meaning current RTT data for Trauma and Orthopaedics under-represents the

delays experienced by patients awaiting major joint surgery, such as hip replacement, who typically were amongst the longest waiting people for surgery.

121. The RTT data for England shows that Trauma & Orthopaedics has the largest number of incomplete pathways across any single speciality in the NHS, with 460,760 incomplete episodes recorded in April 2020, which rose to 766,259 incomplete episodes in June 2022, which included 56,655 episodes which have been waiting over 52 weeks (NHS England, n/d) We do not have equivalent data for the other three nations.

Number of patients per month in England who underwent total hip replacements who waited ≥ 18 , ≥ 52 , ≥ 78 or ≥ 104 weeks

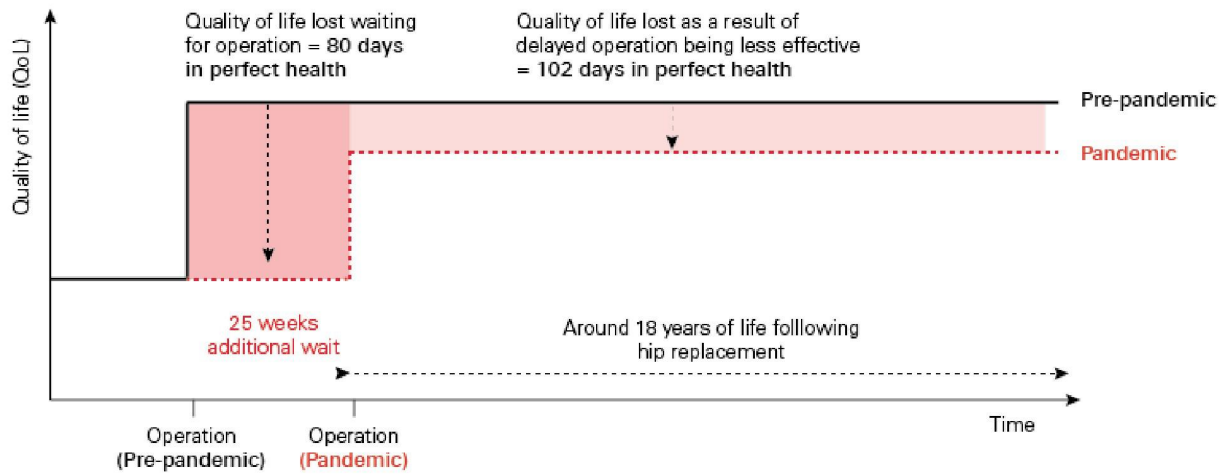


Created with Datawrapper

Figure 21: Number of patients per month in England who underwent total hip replacements who waited ≥ 18 weeks, ≥ 52 weeks, ≥ 78 weeks or ≥ 104 weeks. No equivalent data available for Wales and Northern Ireland.

122. According to a report by The Health Foundation, approximately 58,000 people waited an average of 25 additional weeks from their THR as of January 2021. This figure is now out of date and is likely to have increased since then and will continue to increase until waiting lists are reduced substantially (Krelle, Tallack, and Barclay, 2021). There are negative consequences of prolonged waiting times to the outcome of surgery, with those waiting longer achieving a worse postoperative outcome. It is estimated based on Hospital Episode Statistics data that if a wait is prolonged by 25 additional weeks this will result in a 1.4% reduction in quality of life postoperatively (Nikolova, Harrison and Sutton, 2016). Since 25 additional weeks is only an average there will be many patients who experience more severe impacts on their postoperative quality of life who have had to wait longer than 25 additional weeks (see Figure 22). For example, waits of over two years in Wales and Northern Ireland will mean those patients had much greater losses in quality of life than is estimated here.

Quality of life losses from a 25 week delay to a hip operation



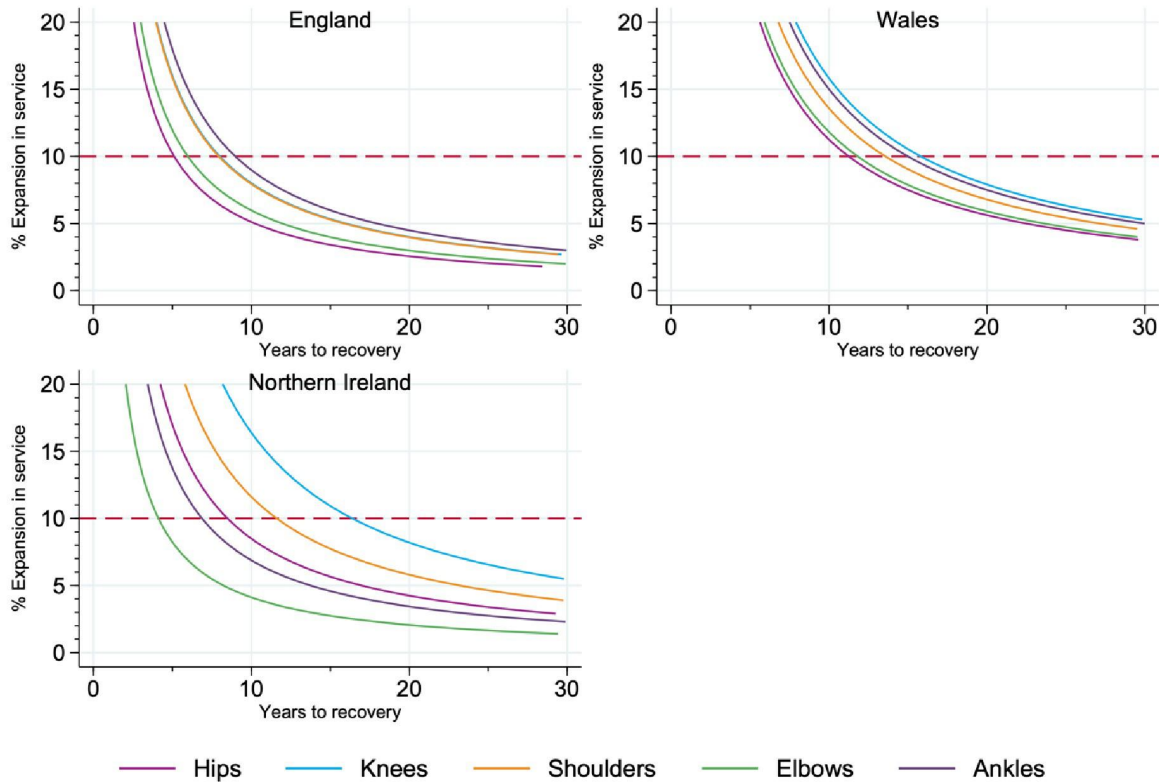
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Figure 22: Quality of life losses from a 25 week delay to a hip operation

123. It is difficult to put exact figures on the times people waited for hip replacement after the pandemic and the following comments are based on personal experience and discussions with colleagues. The figures would suggest that whilst some patients in England still received treatment at or around 18 weeks in the reference period (especially towards the end of the period), a large number waited substantially longer, often between one or two years and in some cases longer. Many patients still wait over a year for treatment in England. In Scotland, most regions were unable to deliver surgery for patients before 18 months to two years. In Wales, NHS waits are now over two years across all hospitals and in Northern Ireland waits of three or more years are considered typical.
124. In England, some regions that had especially long waiting lists received special attention and assistance from the NHS. An example of this is Devon, which had one of the longest waiting times in England and was therefore identified by NHS England and GIRFT and given support in reducing waiting list times by taking a systematic approach to target the longest waiters and bring waiting list times down. This has not occurred in Scotland, Wales, and Northern Ireland. Though devolved nation CMOs specified when elective operating must be stopped, there was no top-down mandate of how they were to be restarted. This left the decision to recommence total hip replacement surgery, and in what capacity to do so, up to individual health boards and Trusts. With no specific incentives, targets or penalties in the devolved nations many boards and Trusts delayed restarting routine elective surgery in general, and routine orthopaedic especially.
125. The funding model of how hospitals are paid for delivering total hip replacement may also have contributed to differences among devolved nations. In England prior to the pandemic, hospital payments were greater if they did more cases (payment by results), although during the pandemic block contracts (i.e. contracts that were not dependant on current case volumes)

were used to support trusts who could not deliver elective surgery at normal volumes. Block contracts have been more widely used across Scotland, Northern Ireland and Wales for a longer period, which means there is little financial incentive for trusts to optimise the number of cases performed.

126. The King's Fund investigated the impact of health inequalities on the elective backlog by comparing the waiting times for elective services using the index of multiple deprivation. This investigation found that people in the most deprived areas are more than twice as likely to experience a wait of greater than one year compared with people in the least deprived areas. This investigation explored waiting lists for all conditions, not specifically total hip replacement, but this trend is likely to be similar for this procedure.
127. The build-up of cases over the relevant period for Module 3 of the Inquiry has resulted in very large backlogs in the numbers of hip replacement needed in the UK, and for many other elective operations such as knee or shoulder replacements which were likely affected more. Elective care was already highly stretched and waiting lists were already rising prior to the pandemic. Figure 23 shows that even if services were to expand by 10% across the UK (a challenging target), modelling would suggest that it will still take 7 years for the backlog to return to 2019 levels in England, and over 10 years in Wales. (French et al, 2024) These data are based on estimates from England, Wales and Northern Ireland and do not include estimates from Scotland.



Red dashed line indicates 10% expansion in service compared to 2019

Figure 23: Years-to-recovery from 2020-2022 deficit following expansion of provision compared to 2019 stratified by country and joint type. (French et al 2024, in press)

3.3 Case severity on presentation

128. NHS England data reports the median pre-operative Oxford Hip Score (OHS) and EQ-5D, as shown in Table 7. We are not aware of equivalent data collection in the other three nations. The OHS is a measure of overall hip health, while the EQ-5D is a general measure of health utility. In both scores, a lower number indicates a worse health state. The table below shows that the median pre-operative OHS remained constant between 2018-2021, while the median EQ-5D was lower in 2020-21 than it was in previous years. This reflects that patients were likely to be in a worse health state prior to their total hip replacement operation if they received their operation in 2020-21. This is likely to be caused by the prolonged waiting times for total joint replacement leading to a deterioration in symptoms and quality of life.

Question	2018-19	2019-2020	2020-21	2021-22
Median preoperative OHS (IQR)	17 (11-23)	17(12-23)	16(11-23)	Not available
Median pre-operative EQ-5D index	0.516(0.055-0.656)	0.516(0.055-0.689)	0.312(0.024-0.62)	Not available
Median EQ5D-VAS	70(50-80)	70(50-80)	69(50-80)	Not available

Table 7: Preoperative outcome scores before total hip replacement. There is a worse median pre-operative quality of life score during the pandemic (highlighted in orange) (NHS England)

129. In a multicentre study across 10 sites spanning England, Scotland and Wales conducted in August-October 2020 it was demonstrated that the number of patients awaiting hip replacement who were in the very worst health states (with negative EQ-5D scores termed “worse than death”) had doubled during the pandemic compared to 2017 levels: 35% in 2020 Vs 19% in 2017.
130. During the pandemic, a number of surgeons reported increased numbers of cases of avascular necrosis (where the blood supply has been lost to the femoral head, which may then change shape, this can occur without prior arthritis) in people who had previously had SARS-Cov-2 infection. The cause of these increased numbers of presentations was not known but was thought to be either a direct consequence of infection with SARS-CoV-2 or the treatment thereof with steroids. This would be a very modest number of patients that would not have dramatically increased hip replacement demand overall. (Hassan et al, 2023)

3.4 Outcomes of surgery

131. The Scottish Arthroplasty Project records specific complications rates after THR which demonstrate, compared to 2018 and 2019 rates, increased rates of infection (within 1 year), 9-day mortality and stroke (within 30 days) in 2020 (Table 7) Expert opinion suggests that other complications such as preoperative femoral head collapse and intraoperative fracture were encountered more frequently in the pandemic after prolonged periods of isolation and immobility and increased frailty, but this data is not routinely collected.

Complication after THR	2018	2019	2020	2021	2022
90 day mortality	0.4	0.4	0.5	0.3	0.3

Infection	0.9	0.7	1.0	0.7	NA
Venous thromboembolism (90 days)	0.8	0.6	0.6	0.7	0.6
Dislocation	0.6	0.7	0.8	0.8	
Stroke (30 days)	0.3	0.3	0.5	0.4	0.1
Heart attack (30 days)	0.2	0.2	0.3	0.1	0.2
Acute renal failure (30 days)	1.6	2.2	2.2	2.3	2.7

Table 8: SAP data on complication rates after primary THR (SAP)

132. In England, data from NHS Digital in the table below describes the proportion of total hip replacement patients who experienced complications postoperatively and those who needed further surgery. According to these data, both of these measures improved after 2020.

	Year		
	April 2019 - March 2020	April 2020 - March 2021	April 2021 - March 2022
Number experiencing one or more post-surgical problems/total number (%)	10387/41854 (24.8)	2395/10668 (22.5)	6308/27,638 (22.8)
Number needing further surgery/total number (%)	796 (7.7)	180/10668 (1.7)	559/27,638 (2)

Table 9: Data from NHS Digital describing postoperative complications after total hip replacement in England. (NHS England, 2023b)

133. NHS Digital data reports finalised patient reported outcome measures in England between April and March the subsequent year. Below is a table detailing selected patient outcomes. The table below shows that there was a similar postoperative outcome as measured by patient satisfaction and OHS and EQ-5D scores. However these scores are submitted on a voluntary basis therefore are at risk of selection bias because not everybody who has a THR will submit their scores (the response rate is much less than would be achieved for research studies, for example), making it difficult to get an accurate assessment if postoperative outcomes changed during the pandemic.

	Year					
	April 2020	2019-March	April 2021	2020-March	April 2021-	March 2022
Percentage reporting "much better" success score	86.8		87.3		86.6	
Percentage reporting "excellent" satisfaction score	45.8		46.1		45	
Median OHS	43 (36-47)		43 (36-47)		Not available	
Median EQ-5D Index	0.848 (0.691-1.000)		0.848 (0.691-1.000)		Not available	

Table 10: Postoperative outcomes following total hip replacement in England by year (NHS England, 2023b)

134. The number of patients re-admitted following total hip replacement remained relatively constant between 2019-2022 as shown in Table 11.

	Year		
	April 2019-March 2020	April 2020-March 2021	April 2021-March 2022
Number re-admitted/total number (%)	2343/41,854 (5.6)	532/10,668 (5)	1567/27638 (5.7)

Table 11: Number of patients re-admitted after total hip replacement in England (NHS England, 2023b)

135. In summary, whilst patients waited longer for treatment (often much longer, especially in Scotland, Wales and Northern Ireland), there was no indication in NHS England data that the outcome was worse, although with the waits observed worse outcomes would be expected. In Scotland, where waits were longer, there were increased complications rates (90 day mortality, infection, venous thromboembolism, dislocation, stroke, and heart attack within 30 days) recorded in the Scottish Arthroplasty Project for 2020 compared to previous years. It is beyond the scope of this report to determine whether this increase is statistically significant within

Scotland or different from the rest of the UK. Much of this data is a coarse summary and does not reflect case mix, for example more simple cases may have been done in England as healthcare services were re-opened; more complex cases may have been prioritised in Scotland; or the differences may reflect differential waiting times. Equivalent data is not available for Wales or Northern Ireland. Furthermore, outcome data from England is provided on a voluntary basis and does not reflect the outcomes of all patients undergoing THR. These figures will be at risk of selection bias.

136. Health inequalities describe systematic differences in access to healthcare based on a group that an individual belongs to. Health inequalities are commonly described based on categories such as geography, socio-economic status, socially excluded groups and specific characteristics. There is a complicated interplay between these factors. The Covid-19 pandemic has highlighted the role of health inequalities, particularly ethnicity, in health outcomes (Keys et al, 2021). There is limited evidence specifically about how different groups access total hip replacement during and after the Covid-19 pandemic, but there is evidence that health inequalities impact health seeking behaviour as well as provision of total hip replacement prior to the pandemic, for example, a systematic review on health disparities showed that there is variation by ethnic group in utilisation of joint replacement and postoperative outcomes. Evidence from this systematic review showed that Black patients are more likely to have postoperative complications and have lower utilisation of total joint replacement.

3.5 Follow-up

137. During the pandemic, to limit face to face consultations and risk of nosocomial SARS-CoV-2 transmission, many services, including medical and physiotherapy appointments converted to virtual. This consisted of a phone conversation, with the provision of video services where the technology and hardware were available. At the time, (Clement et al, 2020), 50% of hip replacement patients stated a preference for virtual consultations either by telephone or video-call with their actual surgeon.
138. This was done to reduce potential exposure to Covid-19, but also to preserve the outpatient footprint which was considerably reduced due to social distancing and footprint reduction where elective departments had been converted to delivering acute care. Some centres altered routine practice to reduce the need for physical face-to-face appointments. For example, skin closure of the surgical wound was performed with dissolvable stitches under the skin (as opposed to skin staples), to reduce need for an appointment to remove skin clips.
139. The move to telemedicine with 'virtual' follow-up was observed in many other advanced health systems, it was a necessary adaptation to the restrictions of the pandemic but has not persisted in widespread use beyond that time, except for some rural populations or centres where a large amount of travel would be required. (Li et al, 2023) This may be because physical examination remains a core part of assessment and follow-up of patients undergoing hip replacement, for example to assess movement of the hip and wound healing (Wallis et al, 2021).
140. In a study of 105 patients (48 of whom underwent THR), compared to 415 patients who underwent hip or knee replacement in February and March 2020, nearly half of patients (47.6%, n=50/105) felt that the restrictions imposed by Covid-19 had limited their rehabilitation: 64%

felt they had been unable to exercise; 60% felt they had reduced access to physiotherapy; and 60% blamed a lack of face-to-face follow-up. (Macdonald et al, 2021) In this study patients undergoing THA in 2020 had a significantly worse postoperative health related quality of life (measured using the EQ-5D) compared to the 2019 cohort. (MacDonald et al, 2021)

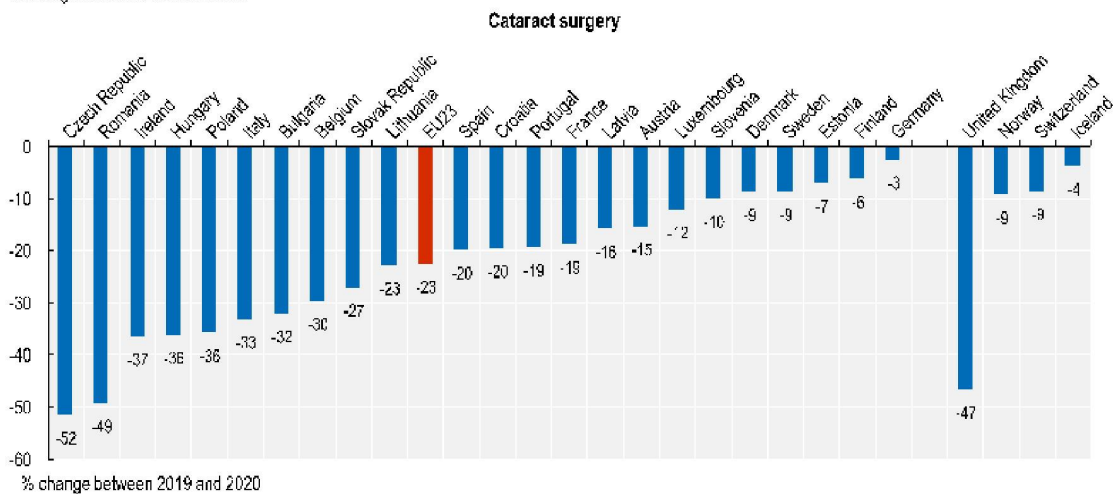
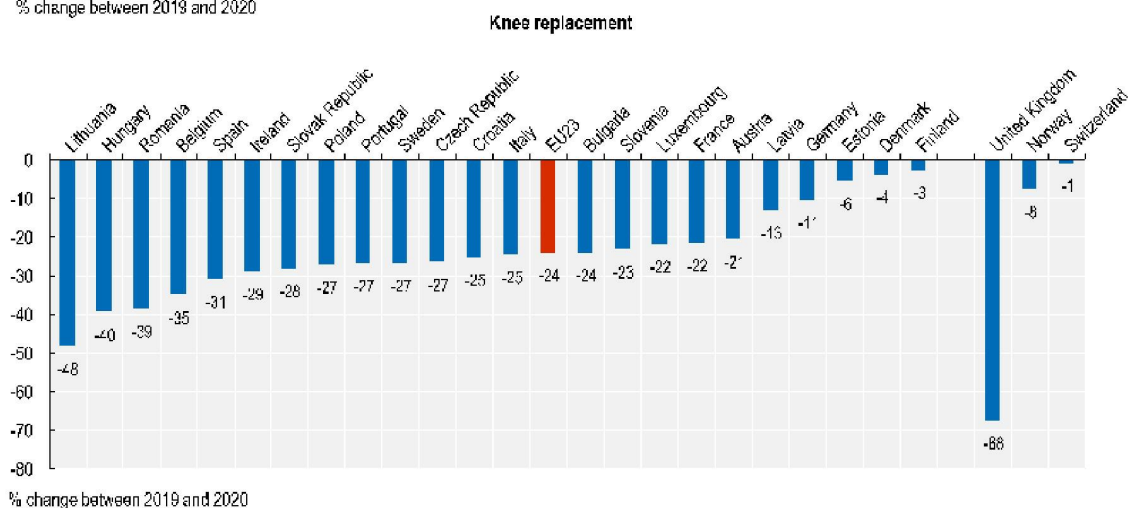
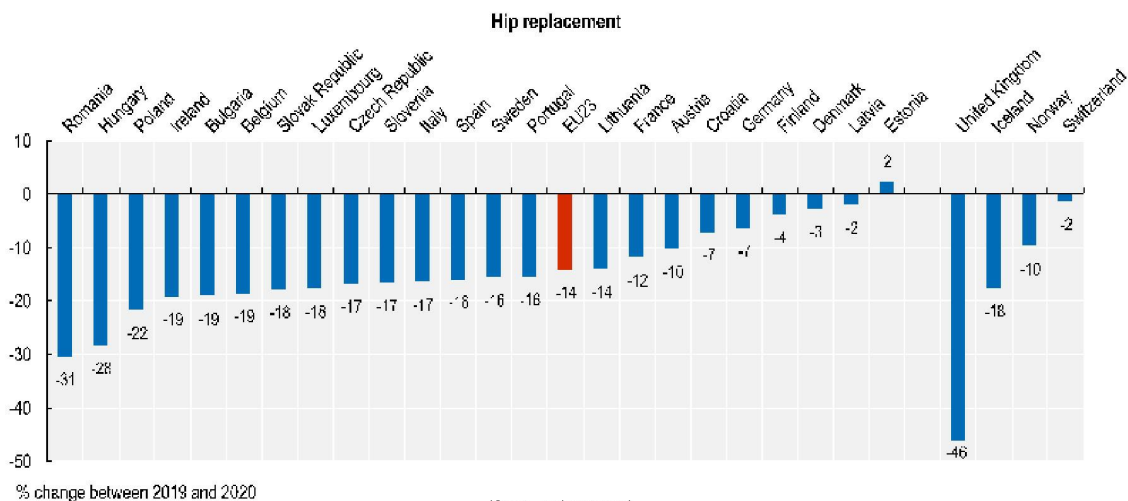
4. Healthcare systems and resilience

4.1 How resilient was the UK health system to the pandemic?

141. Prior to the pandemic, the NHS had already been incentivised by successive governments to maximise efficiency of the delivery of elective surgery. Even in those conditions, supply was not meeting demand, with a rise in waiting list numbers and a lower proportion of people meeting waiting list targets over many years prior to 2020 (NHS England, n/db). A lack of beds, resulting in widespread cancellations of elective surgery, occurred during the winter months. These capacity problems were seen across all four nations. The UK healthcare system was therefore exposed to marked pressure before the pandemic, with little if no capacity to cope with a major pandemic without some aspects of care being severely reduced. As it typically requires an inpatient stay and is not life threatening, it is easy for decision-makers to see hip replacement as lower priority. For many years hip replacements (along with other orthopaedic procedures) have been prone to widespread cancellation when capacity is limited. In this sense, hip replacement may be seen as the 'canary in the coal mine' of the health service, as one of the earliest services to be affected when the health service is unable to meet demand.
142. During an unprecedented global pandemic, when surgical risk was poorly understood and acute hospital capacity was at risk of being overwhelmed, stopping and/or de-prioritising elective surgical care for non-life-threatening conditions was a logical decision.
143. However, the time periods in which this was truly the case were relatively short, whereas the very slow, incomplete and highly variable restoration of elective care throughout the UK occurred over much longer time periods and had a major impact on patients who were less visible, with hundreds of thousands of people in the UK living with severe pain, disability and deterioration of their condition over many months if not years. In one town, someone might have completed treatment before a person in the next town was seen in clinic for the first time. If you were to cross a border to Scotland, Wales or Northern Ireland, the differences in waiting times were and remain dramatic.
144. Despite this variation, there were relatively few examples where capacity was mobilised between units across the UK. Half of hip replacement patients surveyed in August to October 2020 across 10 sites (Clement et al, 2021) stated that they would be happy to have surgery in another hospital. There was no capacity in many regions to transfer waiting lists, but in others the high variability even within close geographical areas suggests that closer working may have helped.
145. Whilst the report describes hip replacement, it should be noted that the same problems were seen across orthopaedic surgery and elective surgery more generally. For example, knee replacement is performed slightly more often than hip replacement, causes similar levels of pain and disability, and was as or more affected by the pandemic than hip replacement.
146. By international comparisons, the UK performed poorly in elective restoration. The decrease in elective activity in the UK was much greater than seen in other European countries (Figure 24). To illustrate this, the Organisation for Economic Co-operation and Development (OECD) produced the following chart for the decrease in numbers of hip replacement, knee replacement and cataract surgery comparing 2019 and 2020, (using data from OECD Health at a Glance:

Europe 2022), the EU average drop in number of hip replacement cases was 14% against a UK drop in number of cases (as described above) of 46%, also reported by the King's Fund. (OECD and European Union, 2022; Mallorie, 2023)

147. There are many potential reasons for the slow and variable resumption in elective activity, covering different healthcare models, different settings for elective care delivery and different staffing levels between countries.
148. The authors of this report, and experts we interviewed, agreed that the strongest factors determining the ability of the UK to restore elective surgery were availability of hospital beds, staff resource and co-location of elective and acute services in many UK hospitals.
149. Experts in Wales, Scotland and Northern Ireland also cited differences in government advice and local management between nations, with marked differences in guidance and strategy. For example, the decision in Wales to allow Health Boards to decide on elective care delivery meant there was very little central management of elective surgical care, this was only addressed by publication of a national plan for elective care in Wales in March/April 2022, almost two years after the first NHS England guidelines. The staff resource and political management has been addressed in more detail earlier in the report.
150. Co-location of acute and elective care also made delivery of elective care difficult, as green pathways were more difficult to deliver and outpatient space was temporarily or permanently reduced in sites with mixed elective and acute care. These issues can be overcome in many centres where acute and elective care are co-located, but require dedication and commitment across management and clinical communities that may be difficult to achieve when urgent care is also pressured. Physically separate sites will therefore always be more resilient to urgent care pressures, either in terms of a future pandemic or more routine pressures seen in winter times especially.



Note: The EU average is unweighted. For Ireland, data pertain only to publicly-funded hospitals; public patients treated in private hospitals are not included, which overestimates the decrease showed here. Iceland does not provide any data on knee replacement.
 Source: OECD Health Statistics 2022.

Figure 24: The percentage decrease in hip replacements, knee replacement and cataract surgery performed in EU countries comparing 2019 and 2020 (OECD, 2022)

151. Multiple reports have identified the potential for elective care hubs, with facilities that are physically separate from acute services, as a potential solution to improved elective recovery and resilience. Whilst it is hard to deliver strong objective research to demonstrate this, the model has been widely recommended by surgeons, independent bodies and policy makers (Blythe and Ross, 2022; NIHR et al. 2024). There are multiple examples of where elective care hubs made a major difference to elective recovery in regions around the UK (see 4.1 Examples of innovative or effective practice), as well as many examples of where overwhelmed acute services had a major and lasting impact of delivery of elective surgery where acute and elective services were co-located.
152. There were (and are) fewer elective hubs in Scotland, Wales and Northern Ireland, although there are some units where beds are usually considered ringfenced, they are mostly co-located with other acute care services. This may have contributed to delayed recovery of elective care in these nations.

4.1 Examples of innovative or effective practice

4.1.2 Case study 1: South West London Elective Orthopaedic Centre (SWLEOC)

153. SWLEOC is an elective orthopaedic hub which runs as a standalone unit, consisting of six operating theatres, and two wards with 25 beds each, as well as a 17 bed post-anaesthetic unit (PACU) with high dependency facilities. Surgeons and other staff from hospitals in the region contribute to the work of the unit, making effective use of the existing workforce in the region. It is one of the busiest orthopaedic units in the UK, performing around 5,000 operations including 3,000 joint replacements every year. It was established in 2004 as a partnership between four NHS trusts in South London to address long waiting lists for elective care.
154. During the Covid-19 pandemic, SWLEOC staff were re-deployed to help treat Covid-19 patients. Once it was safe to do so, SWLEOC resumed elective activities and have shown a consistently better recovery of total hip replacement volume compared to the national average (see Figure 25 Comparison between SWLEOC and the national average in recovery of total hip replacement volume after the pandemic.). SWLEOC has been highlighted by the NHS GIRFT programme as an example of an excellent model of care and have collaborated with GIRFT to produce an 'Elective Hub Toolkit' (GIRFT, n/d) to support the development of elective hubs elsewhere in the country. The centre employs the following strategies (among others) to maintain high elective care volume:
 - Ring-fenced staff and resources located at a separate site to the acute medical care.
 - Digital pre-assessment, which reduces the need for face-to-face appointments.
 - One-stop clinics which allow patients to complete their clinical contact in one go rather than attending multiple times.
 - Allocation of vulnerable staff who could not work in acute settings.

- Patient outcomes collected on all cases to support ongoing improvement.

Comparison between SWLEOC and national average in recovery of total hip replacement volume as proportion of 2019 activity

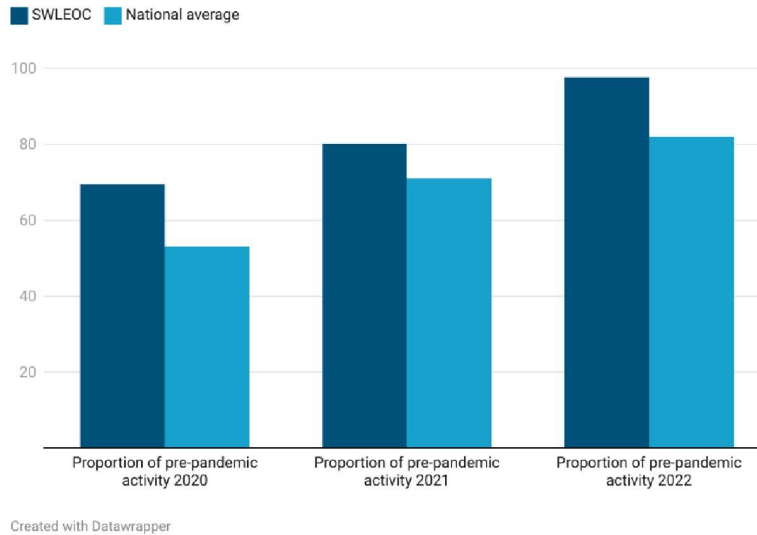


Figure 25: Comparison between SWLEOC and the national average in recovery of total hip replacement volume after the pandemic.

4.1.1 Case study 2: NHS Nightingale Hospital Exeter

155. The NHS Nightingale Hospital, housed in a former Homebase warehouse site in Exeter, was commissioned in April 2020 and opened 6 weeks later. It was used to provide various aspects of care for patients with Covid-19 until March 2021. In May 2021, funding was provided from the National Accelerator Systems Programme to convert it into a treatment centre for orthopaedic, ophthalmology, diagnostic and rheumatology services, including two dedicated orthopaedic theatres and a short stay ward. Its first hip replacement was performed in March 2022 and has won multiple awards for its work since. The unit is an excellent example of how Nightingale units can be used to increase NHS capacity to manage urgent non-Covid care.
156. Like SWLEOC, the Nightingale unit supports four trusts in the region, including surgeons from those trusts, making good use of the existing staff resource and ensuring more effective cross-unit working for the region. It has focused on developing and delivering daycase and short stay pathways, with 55% of patients discharged on the day of surgery and 99% discharged on day one, a major improvement on the typical two to four day stays at many NHS trusts prior to the pandemic. This has been achieved with a 95% rate of patients being satisfied or very satisfied with care. These achievements have also been highlighted by GIRFT (NHS England, 2023c). Also like SWLEOC, the successes of the unit have been credited to strong working between multi-disciplinary clinical teams and management to establish effective pathways for patients through the full process of their treatment.

5. Summary of lessons learned and future recommendations

5.1 Lessons learned

5.1.1 Overall picture

157. The elective surgery backlog following the pandemic has resulted in a silent, unseen group of people suffering with severe pain and disability while they wait for operations.
158. Delays in hip replacements are representative of problems seen across a large range of elective surgery with millions of people suffering pain and disability, as well as the impacts on society through reduced workforce and earnings.
159. Elective surgery was de-prioritised and considered as something that could wait. This was reasonable at the start, but re-starting services was slow, inconsistent, and led to marked harm to the UK population.
160. This was particularly pronounced in Scotland, Wales and Northern Ireland, and would need to be addressed in the future to prevent wide disparities. Guidelines on recovery of elective surgery in these nations came later and lacked specific or incentivised targets or plans for elective recovery when compared to guidance in England.
161. The underlying issues are related to organisation and overall capacity in the healthcare system. There was already a lack of capacity in the NHS prior to the pandemic, with the system running close to capacity even in summer months. If the system lacks capacity, non-life-threatening conditions will typically be de-prioritised. This was seen clearly in hip replacement, which may be considered a 'canary in the coal mine' of the wider healthcare system.
162. Both the evidence and expert consensus is that there is a substantial amount of harm done to patients caused by delays in operations such as hip replacement. The state of patients on the waiting list is often much worse than can be described using facts and figures.

5.1.3 Leadership and information

163. Central decision makers considered the needs of elective patients from the start, especially in England. Both the NHS and professional bodies collaborated and released extensive guidance throughout, but this was not always well disseminated or communicated with clinicians.
164. Information sharing was not good enough to cope with the challenges of a pandemic. Submissions from the Royal Colleges imply that clinical expertise was not well utilised at a national level.
165. Government guidance for elective recovery in England was more comprehensive and contained much clearer targets and incentives compared to in Scotland, Wales and Northern Ireland.

166. There was a varied approach and ability to respond to guidelines and advice on re-starting elective work, at both regional and individual trust level.
167. There was a lack of unified, multi-centre, rapidly disseminated data on Covid-19 risk from new pathways to support decision making. Rapid and coordinated data collection is needed on the safety of new elective pathways to ensure patients are protected,
168. Referral-to-treatment data should be available by procedure and for each nation in a consistent manner that is meaningful to patient care and experience.
169. There are many examples at local levels where strong clinical leadership aligned to good management led to successful services that benefited patients (see section 4.1 for two examples).

5.1.4 Organisation, systems and staff

170. Units with the ability to establish green pathways, protect beds for elective care and retain staff resource were best able to deliver care for patients quickly and safely. Centres where elective services were physically separate from acute medical care were especially well equipped to respond quickly to the elective restart and to protect patients with green pathways.
171. Staff shortages and high attrition rates made recovery from the pandemic even more difficult, redeployment to critical care places a large psychological burden on staff and was one of the reasons for difficulty in retaining staff in theatres.
172. Given the shortage of staff to deliver elective care, staff who were reluctant to work in acute sites due to being at higher risk from Covid-19 (for example due to age or comorbidities, or those considered clinically vulnerable outside of times when shielding was recommended) could have been utilised to help deliver green pathway work at elective hubs, where the risk was lower. This could also have helped staff retention more generally.

5.2 Recommendations

5.2.1 Leadership and guidance

173. In the event of a future pandemic requiring suspension of elective surgery, there should be a body committed to planning the prompt restoration of safe elective care, coordinated with devolved nations, including Government, healthcare leaders, Royal Colleges and specialist societies.
174. Such planning needs to include specific recovery targets, with incentives for regions or trusts to deliver them. They should include establishing higher than normal case volumes to prevent development of excessive waiting lists.
175. Surgical prioritisation guidance needs to be agreed by all partners, be consistent across the UK, and be widely disseminated to frontline clinicians and trusts. It should be maintained and kept under regular review so it is available at the point of need. It should account for pain and disability and have clear instructions for escalation for longer waiting patients.

176. Communicate recommendations widely to professionals and public through open access websites at the point of releasing guidelines.
177. Improve communication with patients regarding how long they will have to wait for their joint replacement surgery both before and whilst they are on a waiting list.
178. Ensure a more unified approach across the devolved nations, aiming to achieve more consistent waiting times throughout the United Kingdom.

5.2.3 System changes

179. Except where community prevalence of the pathogen (SARS-CoV-2 or otherwise) is very high, elective surgery could likely restart promptly with use of careful testing and segregated spaces to achieve green pathways.
180. Grow and further develop the network of elective care hubs across the UK, located separately from acute services. These could combine patients and staff from multiple trusts to facilitate continuity of care and collaboration of resources.
181. Embed day-case and short-stay protocols across all units delivering joint replacement in the UK, to ensure the UK can deliver joint replacement services with a reduced need for overnight hospital stays.
182. Use private sector capacity in the event of another major pandemic, the details of which should be led and decided in combination between local clinicians and managers. Ensure equity of access for patients, including specific planning and incentives to ensure that people from different regions or nations, those from lower socio-economic backgrounds and people with co-morbidities are not disadvantaged. Ensure private hospitals delivering NHS care allow training of future surgeons.
183. Where possible, investment in additional or new NHS capacity (such as Nightingale units) can be used to deliver effective elective surgical care.
184. Patients who need surgery (including those already on waiting lists) should have access to units with shorter waiting times, to prevent unnecessary regional variation. Clinical pathways between trusts, patient information and funding arrangements should be in place to facilitate this.
185. Establish research and data systems across multiple hospitals to monitor safety of elective surgery pathways (green or otherwise) during future pandemics, and to ensure safe re-opening of elective services.
186. Ensure staffing and facilities used for temporary acute care are either restored for elective use or replaced with facilities to deliver elective services elsewhere.
187. Consider prioritised vaccination for people due to undergo surgery.
188. Emphasis should be placed on retaining NHS staff by improving their working conditions, incentivising additional work, and optimising reallocation of staff to centres appropriate to their job roles and personal risk.

7. References

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