

Backlog in Elective Surgery

A step change in productivity?

February 2022

Context

The backlog of diagnostic and surgical procedures caused by the Covid-19 pandemic is severe, with around 6 million patients now on the waiting list, up from 4.4 million before the pandemic. Quality and effectiveness of care for millions of patients is being seriously compromised because they are waiting longer than the expected target time of 18 weeks before receiving treatment. Patients will suffer unacceptably now and in the coming years if this is not addressed.

NHS England measured waiting times are now at record levels¹, and even these official statistics probably understate the size of the problem for specific procedures such as knee or hip replacements because the published averages include many simpler procedures. In addition, all delays over a year are aggregated into a single category with no indication of how much longer than a year the wait has so far been.

How bad is it? And how long will it take to improve? In this analysis we answer these questions with a clear call to action to improve.

Summary

We estimated the size of the pandemic-related backlog for three common and significant elective procedures: Knee replacement, hip replacement, and cholecystectomy. We estimate these three procedures account for 11 percent of the total backlog in terms of cases, but as hip and knee surgery involves several bed days recovery time (whereas most of the backlog is day cases), a greater share of the overall backlog in terms of workload. We found that the backlog was between 7 and 10 months of average activity, and it is still growing. This makes average waiting times even longer than they were at the start of the pandemic.

We then looked at what kind of productivity improvement (specifically the number of bed days required per case) would enable NHS providers to catch up, and how quickly that might work.

We found that a conventional marginal approach to productivity improvement (for example to the best quartile performance nationally) would take up to 9 years to clear the backlog.

The Government's recently published delivery plan for tackling the backlog² specifies increasing surgical capacity through surgical hubs, but it isn't clear what proportion of these will be new resources. If it is that some of the new surgical hubs promised will be resourced from existing NHS resources (staffing and estate), then productivity improvements, not quantified in the Government's paper, must also be part of the solution. We think it highly significant that one trust appears to outperform the rest in all 3 procedures. It appears this trust may already hold the key to improving productivity. A step-change now, by all, to the level of the best would clear the current backlog in less than a year. Thereafter patients would get back the timely access to surgery they have missed for over a decade.



¹ NHS England Consultant-led Referral to Treatment Waiting Time Data:

<https://www.england.nhs.uk/statistics/statistical-work-areas/rtt-waiting-times/rtt-data-2021-22/>

² <https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2022/02/C1466-delivery-plan-for-tackling-the-covid-19-backlog-of-elective-care.pdf>

Introduction

Waiting lists have been steadily rising since 2010. In 2020 the Covid-19 pandemic caused the delivery of elective surgery to slow down. It almost stopped altogether in April and May 2020. By June 2021, rates of elective surgery were still well below pre-2020 levels and consequently the number of patients waiting reached an all-time high.

We set out to measure the size of the additional backlog caused by the pandemic slow down. We focussed on 3 common and significant elective procedures:

- Knee replacement (OPCS W40, W41, W42, O18).
- Hip replacement (OPCS W37,38,39,93,94,95).
- Cholecystectomy [gall bladder removal] (OPCS J18).

These are useful procedures to examine because each one is a commonly required treatment, is known to be highly effective in terms of outcome, requires significant NHS resources and clinical expertise, yet adversely affect patients' lives if treatment is delayed.

We calculate how long it would take to eliminate the backlog under different scenarios. We conclude that a step change in productivity is needed. Evidence suggests that one NHS trust may already hold the key to the implementation of such a change.



The National Waiting List was High, even before The Pandemic Hit

In 2019 over 4 million people³ were waiting for treatments in England, the worst figure for over a decade. At the end of 2010 there were approximately 2.4 million people waiting for treatment⁴. In early 2020 the covid-19 pandemic struck. We don't know why there was an initial small drop in the number of people waiting for treatments. However, as large volumes of elective investigations and therapies were put on hold due to the pandemic, the number waiting then accelerated rapidly. The waiting list has broken records each month since May 2020 and currently stands at 5.8 million people.

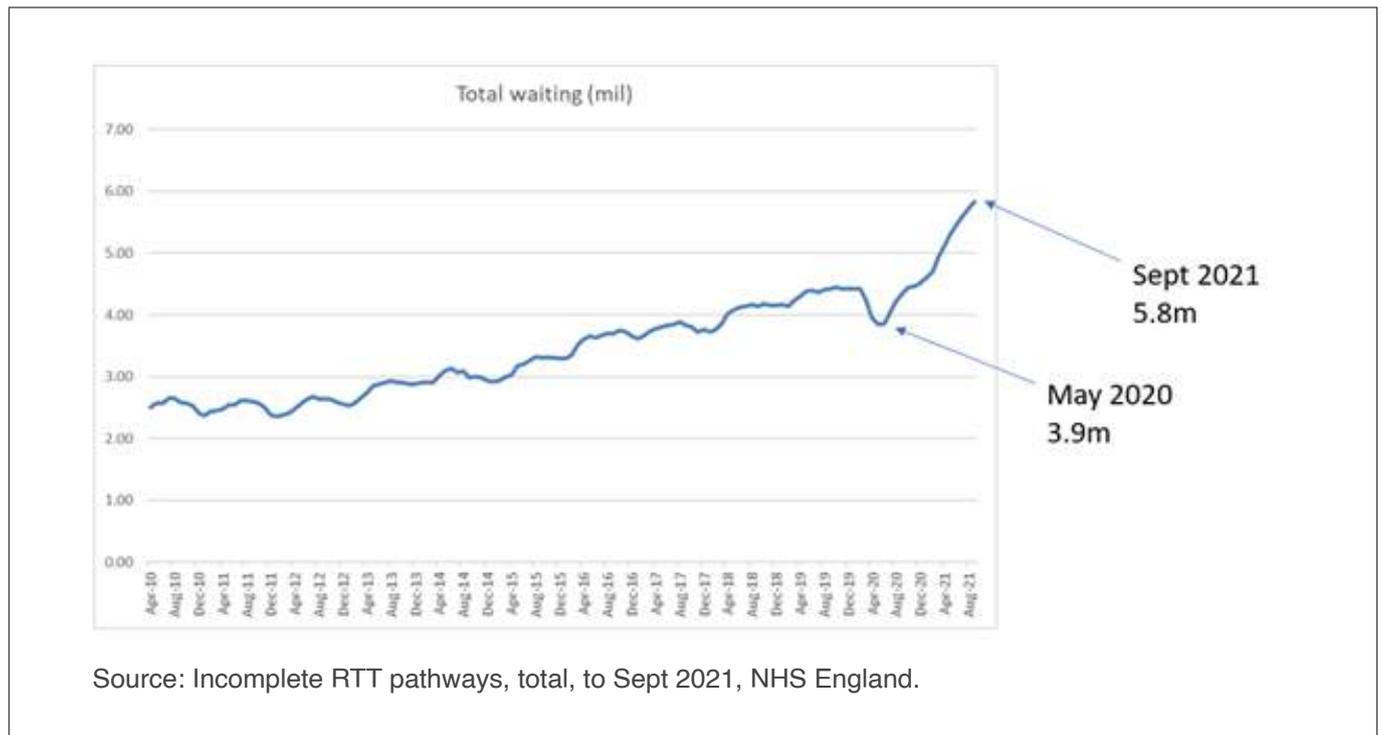


Exhibit 1: Patients waiting for an elective treatment in England.

Waiting times for specific procedures may be even worse. Firstly, the statistics are averages of all activity undertaken within a specialty, including even the simplest procedures or investigations, so waiting times for the more resource-intensive therapeutic procedures are likely to be longer. Secondly, the official figures aggregate all patients waiting over a year into a single category, so it is not clear how much longer than a year the average waiting time was.

³ <https://www.england.nhs.uk/statistics/statistical-work-areas/rtt-waiting-times/rtt-data-2019-20/>

⁴ <https://www.england.nhs.uk/statistics/statistical-work-areas/rtt-waiting-times/rtt-data-2021-22/>



The Rate of Elective Surgery Delivery all but Stopped in April 2020 and has Still not Returned to its pre-2020 Rate

The analysis below shows the national activity level of our selected 3 procedures by month since 2016. The blue line represents the average pre-2020 monthly figure. The gap beneath that line since March 2020 represents the shortfall (backlog) due to the pandemic. This backlog is all the people who would normally have been referred to hospital for treatment by their GP. In the cases of knee replacements, hip replacements, and cholecystectomies, we do not expect patients to make a recovery without an operation: untreated patients will still need treatment, even if they have yet to appear on the NHS waiting list.

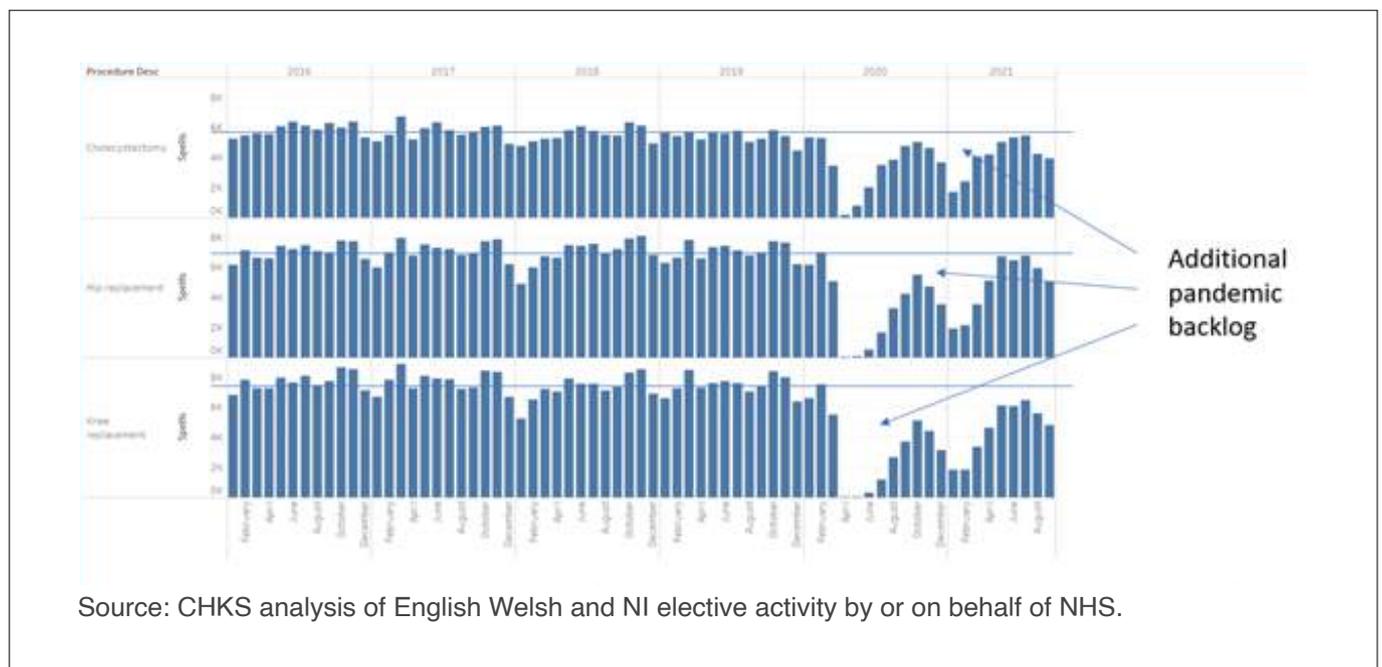
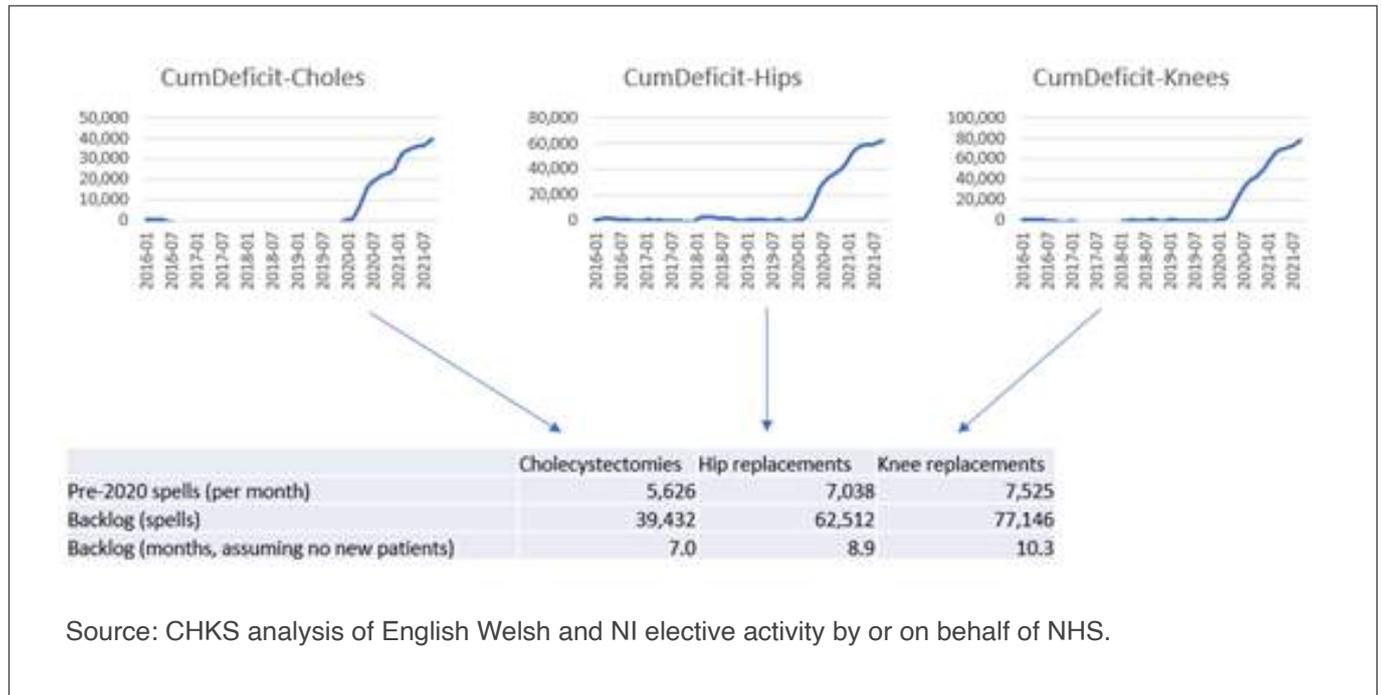


Exhibit 2: Monthly delivery of cholecystectomy, knee, and hip replacements since 2016.

The Additional Backlog Represents 7-10 Months of Average Monthly Activity, and is Still Growing

The total backlog (including the waiting list) can be seen more clearly below. In this analysis we have calculated the cumulative value of the monthly shortfalls in procedure delivery. The backlog is currently standing at between 7 and 10 months and is still growing.



Source: CHKS analysis of English Welsh and NI elective activity by or on behalf of NHS.

Exhibit 3: Cumulative backlog of cases, based on pre-2020 average monthly activity.



Marginal improvement in productivity (for example, targeting upper quartile) is not good enough (it would take 9 years to clear the backlog for the 3 procedures). A step-change to the level of the best is required (it would eliminate the backlog in a year)

Three scenarios are presented below:

- If the rate of delivery reverts to pre-2020 levels, then the backlog would never be eliminated because if people join at a rate faster than people are treated, it will not reduce. The NHS will have at least: a 28 week wait for Cholecystectomy; a 36 week wait for Hip replacement; and a 41 week wait for knee replacements even assuming waiting lists do not deteriorate in line with previous years.
- The NHS historically targets best quartile performance as benchmark for improvement. Even if 75% of trust could change their performance to match the best 25% now, we calculate that the backlog in knee and hip replacements would still take 9 years to be cleared (note, because of greater dispersion in cholecystectomy lengths of stay, the backlog for this procedure would be cleared in around 2 years).
- However, if all trusts operated at the bed productivity of the best NHS trust, then the backlog for all three procedures would be eliminated within a single year.

Scenario	Time to clear backlog
No change in productivity	Never
Productivity change to best quartile	Up to 9 years (chole 25 months; hips 83 months; knees 104 months)
Productivity change to best performing NHS trust (see below for further details)	Less than 1 year (chole 6 months; hips 9 months; knees 11 months)

Exhibit 4: Times to clear backlog under different scenarios.

Notes:

The above estimates are just for clearing the additional backlog due to the pandemic slow down: waiting lists were high even before the pandemic and would continue to rise at the pre-2020 rate.

Our productivity measure for this analysis is bed days per spell: outcomes above would also require additional theatre and associated staff resources would be available. It will be important to also factor in the complexities of interfaces with Social Care.

One NHS Trust (Trust X) Appears to be Much More Efficient at Delivery than all other NHS Trusts.

The storyline so far paints an extremely challenging picture. However, there is some evidence from within the NHS itself that a large improvement in productivity is possible.

As the analysis below demonstrates, though improvement to the lower quartile would result in a relatively small improvement in performance, a single NHS trust is already operating consistently at the required productivity level, and a movement by all trusts to that level would yield the productivity improvement needed by the NHS to clear its backlog within a year.

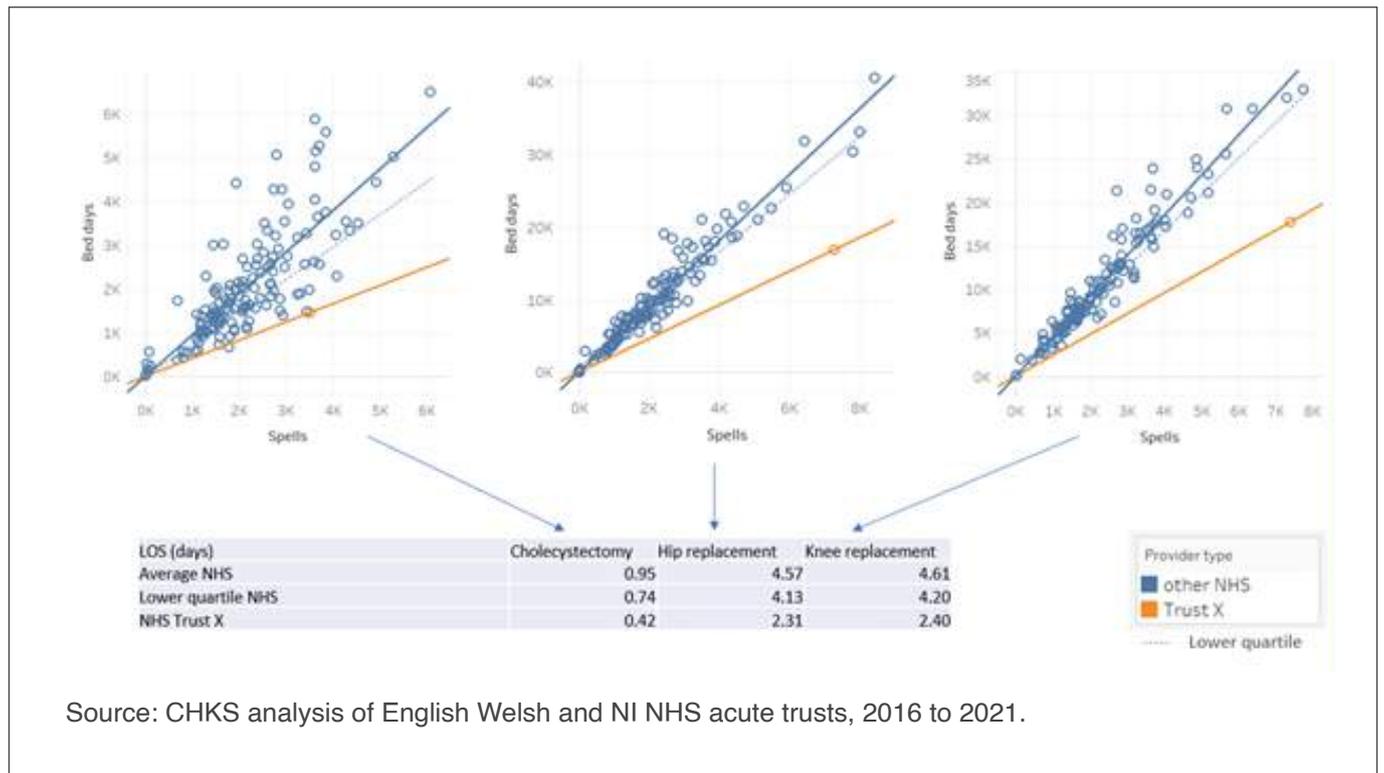


Exhibit 5: Bed day productivity analysis 2016 – 2021.

If all NHS trusts could bring their bed days down to the level of Trust X, the saving in bed days would be sufficient in a single year to cover the bed day requirement of the entire backlog from covid-19.

Key points about Trust X are that:

- It treated patients with an identical age profile to most other acute trusts.
- Located in the North of England, it serves a more deprived population than the English average.
- Its performance on readmissions for all three procedures is the same as the HES average.
- It has been performing consistently at ‘best in class’ on length of stay for at least the past 5 years (we do not have data from before 2016).

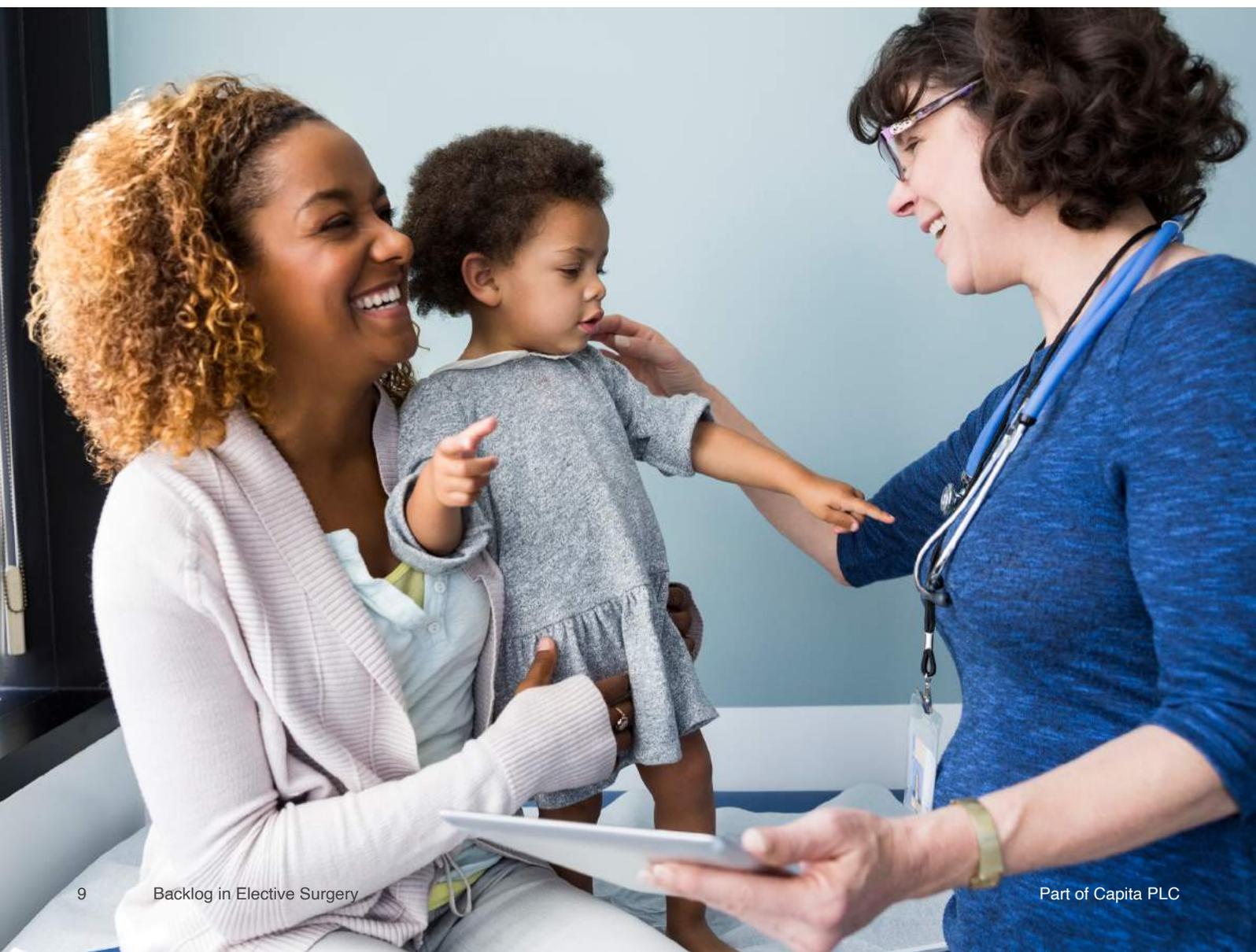
The Government's plan is to eliminate waits of longer than a year by March 2025.

Historically, the NHS responds to such targets by treating patients just before the target deadline is breached. Yet a wait for 12 months can hardly be seen as success.

For example, more patients will:

- Present as emergency cases: For example, gall stone disease requiring elective cholecystectomy is likely to result in acute pain at some point in the future requiring emergency surgery. But a planned approach is always better for everyone - patients, surgeons, and taxpayers.
- Go private: If they can afford to, many will do this. But this is contrary to the founding principles of the NHS.
- Deteriorate to the point they become too frail for surgery. But this too is contrary to the founding principles of the NHS.
- Die before receiving treatment.

We think the Government's plan for tackling the backlog needs to be accompanied by the type and scale of productivity improvement evidenced above if it is to be truly successful.





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