The Impact of Long Wait Times on Patient Health Outcomes: The Growing NHS Crisis

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ABSTRACT

Long wait times remain a persistent problem experienced by universal healthcare systems such as the National Health Service (NHS). Despite the various measures to address the issue, it persists, resulting in longer wait times for accident, emergency, and elective non-urgent care. Long wait times in the NHS are attributed to several factors, including staffing shortages, limited resources, insufficient health and social care budgets, and interdependencies in care. Addressing these challenges can be difficult because of their complexities. However, it is necessary to address them because of the negative impact long wait times have on care. Apart from contributing to gaps in care delivery, they also affect the timeliness of care, leading to clinical deterioration and poor health outcomes. Long wait times also affect the patient's willingness to seek care and follow-up on treatment. Measures such as prioritization of care and NHS restructuring can help to minimize the problem. Open-access scheduling can also help. This review aims to explore factors that are contributing to these delays and the impact they are having on care. This review also explores some measures that can be put in place to address the problem.

Keywords: NHS, Long wait times, Staffing shortages, Open access scheduling, Socioeconomic disparities

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Introduction

Research has shown that long wait times increase the likelihood of poor health outcomes.[1,2] Patients experiencing delays often report a considerable decline in their health, higher mortality rates, poor satisfaction with care, and poor clinical outcomes. Long wait times persist as healthcare systems globally struggle to balance the demand for care with limited resources. The growing number of patients with chronic illnesses and multiple comorbidities, inadequate staffing, low healthcare budgets, and underinvestment in healthcare are some of the factors that are putting a strain on healthcare systems and contributing to long wait times.[3] The UK is one of the countries significantly impacted by long wait times. Salisbury et al. showed that the wait times in the National Health Service (NHS) have gone up significantly over the last few years, leaving millions of patients waiting for critical procedures for weeks.[3] The wait times have increased in the accident and emergency (A&E) departments.

Long waiting times contribute to gaps in care delivery and affect the timeliness of care. Timely access to care is essential due to its correlation with good care outcomes. Timely access to care refers to providing essential treatment and ensuring care interventions are executed within optimal timeframes.[4] This is significant as it enhances the efficacy of care. Research has shown that delays in care at different stages, such as diagnosis or treatment, lead to poor clinical outcomes.[5] For chronic conditions, timely access to care prevents disease progression and improves the quality of life. For acute conditions, timely access can distinguish between complete recovery and permanent disability.[6] For time-sensitive medical conditions such as cardiovascular disease, neurological diseases, or cancer is correlated with a good prognosis.[7] With the rising demand for care, it is imperative to implement strategies that address long wait times and reduce the growing burden on the NHS.

This review explores the impact of long waiting times in the NHS and the factors contributing to these delays. It also explores the impact of these delays on outcomes of care and measures that can be implemented to address the issue. The review will include past studies and institutional reports published within the last two decades exploring wait times in healthcare. Seminal studies that present foundational contributions to the field, regardless of the publication date, are also included. To ensure methodological quality, the review will encompass studies with explicit research objectives and reported results.

Wait Times in the Context of NHS

Long wait times have always been a concern for NHS. According to Salisbury et al., these times in the NHS have reached a crisis level, with millions of patients waiting for critical services such as accident and emergency care (A&E).[3] According to A&E standards, 95% of people who arrive in the A&E department should be admitted, transferred, or discharged within four hours.[8] However, current data shows that this standard has been missed every month since July 2015 in type 1 A& E. In 2013/14, for example, about 6.9% of patients in A&E waited more than 4 hours to be attended.[9] This number has risen steadily over the years, reaching its peak in December 2022 at 50.4%. Between 2023 and 2024, this number was about 42.2%, meaning only 58% of patients who visited A&E were seen within 4 hours.[9] The increasing wait times in A&E can be attributed to an increasing need for care. The NHS reports that about 45,500 people visit major hospital (type 1) A&E departments daily. An additional 27,000 visited minor A&E facilities. This translates to an average of 15.5 million for type 1 visits and 8.8 million for minor visits yearly.[9] Without adequate healthcare workers, these numbers can overwhelm any healthcare system.

Apart from increasing wait times in A&E, wait times for emergency admissions have also increased over the years, with people having to wait up to 12 hours to be admitted, even after the decision to admit has been

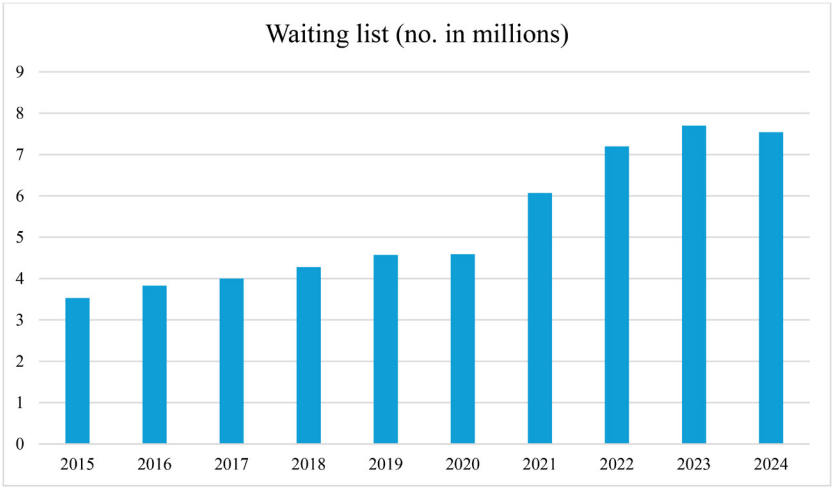

Fig 1 | NHS waiting list from 2015 to 2024

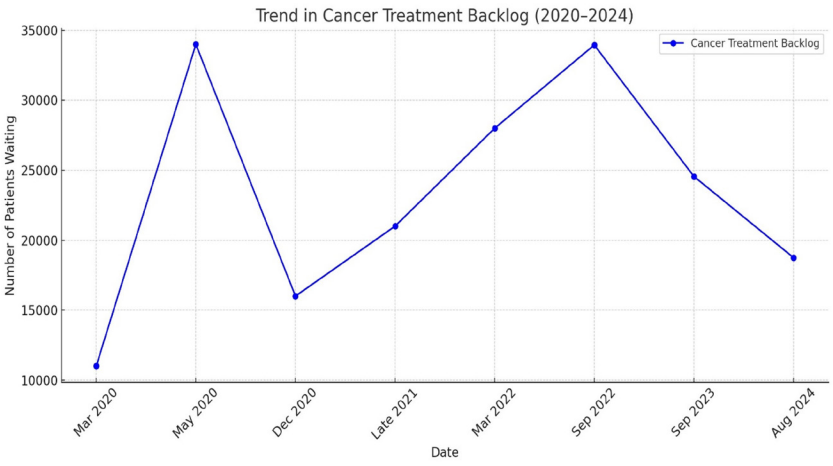

Fig 2 | Trends in cancer backlog since 2020

made.[8] Factors such as high bed occupancy, high number of emergency admissions, admission-to-discharge ratio, and long-inpatient stays contribute to long wait times in emergency departments.[10] For instance, in September 2024, there were an average of 13,314 admissions through A&E every day and another 4381 that were not through A&E.[9] The number of admissions has been rising steadily over the years, which could explain the long wait to be admitted. December 2022 marked the highest number of these admissions, with 54,532 people waiting over 12 hours to be admitted.[9] In September 2024, 38,880 such cases were reported.

Waiting times have also increased in elective care and non-urgent care. According to the King's Fund, the elective waiting list grew significantly during COVID-19, with September 2023 reaching 7.8 million.[11] Although these numbers have decreased, the elective waiting list remains high (7.5 million) in March 2024, which is a reflection of the problems being experienced by the NHS.[11] Figure 1 below shows how the waiting list has grown since 2015, indicating the growing problem in the NHS. As the NHS constitution recommends, patients wait longer than 18 weeks for elective and non-urgent care. The long wait times in A&E and elective care indicate the deterioration of the NHS.

For cancer treatment, waiting times have also increased, with patients experiencing longer waits to consult a GP for the first time and to get treatment after referral. Although the wait times were long before the pandemic, they have deteriorated further. The worsening could be attributed to the number of patients seeking cancer treatment. For instance, between January and September 2023, about 2.2 million patients were waiting for treatment after GP referral.[12] The number of patients waiting more than 2 weeks for treatment after an urgent GP referral has risen from 4% in 2009 to 8% in 2019 and 26% in 2023.[12] The NHS has three standards and targets for cancer waiting times. For an urgent referral when cancer is suspected, the NHS recommends 28 days or less wait times for a diagnosis or cancer to be ruled out.[9] The target is to treat 75% of patients based on this standard. The second treatment standard is for patients to be treated within 31 days after making a decision. The NHS aims to treat 96% of patients within this standard. The third standard recommends that patients should be treated within 62 days after GP referral, with the target being 85%.[9] Data shows less than 70% of patients are treated within 62 days, below the 85% target.[9] For instance, about 11,000 patients were waiting more than 62 days for treatment in March 2020. This number went up to 34,000 in May 2020 before falling to 16,000 in December 2020.[9] In September 2022, this number increased to 33,950, subsequently going down to 24,555 in September 2023.[9] At the end of August 2024, these numbers were about 18,751.[9] Figure 2 illustrates the numbers.

Although statistics on wait times are limited, a 2020 OECD report indicated considerable variation in wait times across countries.[13] For instance, wait times for GP and specialist consultations were low in Switzerland (12%) but highest in the United States (28%) and Canada (33%).[13] The results were based on 2013 and 2016 surveys. The wait times for specialist care also varied significantly across countries. The share of people waiting 1 month or more for specialist care In 2016, the proportion of people waiting for specialist care for 1 month or longer was lowest in Switzerland at 23% compared to Canada (61%).[13] Other countries such as Norway (61%), Sweden (52%), New Zealand (48%), and the United Kingdom (48%) had the highest number of people waiting longer.[13]

The report also showed a great variation regarding wait times for elective surgery, with some countries having longer wait times than others. The report indicated that the average wait time for minor surgeries, such as cataracts, was 95 days in 2019, while major surgeries, such as hip replacement and knee replacement, were 110 and 140 days, respectively.[13] Italy, Denmark, Netherlands, and Hungary had the least wait times, while Poland, Estonia, and Chile had the highest.[13] Regarding cataract surgery, Italy, Denmark, and Hungary had the least wait times, less than 40 days.

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Estonia had a wait time of 180 days, whereas Poland had 250 days.[13] England had an average wait time of 50 days. For major surgeries such as hip replacement and knee surgery, countries such as Italy, Denmark, and the Netherlands had the lowest wait times, while Chile, Estonia, and Poland had the highest. The United Kingdom had average median wait times of 100 days or less.[13] Italy, Denmark, and Netherlands had the lowest wait times of 50 days or less, while Estonia and Chile had average wait times of about 240 days.[13]

Factors Contributing to Long Wait Times in the NHS

Although universal healthcare coverage is often linked to long waiting times, several factors are attributed to the current deteriorating problem at the NHS. Limited resources, specifically staff shortages, commonly contribute to long wait times. The increasing demand for services, coupled with severe staff shortages, is limiting the capacity of the NHS to provide timely care to patients, exacerbating the issue of long wait times. According to the recent NHS statistics, the vacancy rate as of 30th September 2024 was 7.5%, representing about 31,773 vacancies within the nursing staff group.[14] Mallorie also documents 121,000 full-time equivalent staff shortages in the NHS.[15] Figure 3 depicts the overall NHS vacancies from 2018 to 2024. The numbers indicate a variation in these figures over the years, with the highest number of vacancies recorded in 2022. Different factors contribute to the rising number of staff shortages in the NHS. They include burnout, low pay, and lack of work-life balance. Staff shortages contribute to a backlog in care, which can explain the long waiting times.

Insufficient health and social care budgets are worsening the wait time issue at the NHS and contributing to backlogs. Robertson observed that the NHS has experienced an unprecedented slowdown in funding growth since 2010, which could explain the insufficient health and social care budgets.[16] One of the consequences of insufficient budgets is a delay in care. Individuals have to wait longer for treatment and diagnosis, such as waiting longer in accidents and emergencies, referral to treatment, and transfer. Moreover, limited funding impacts the quality of service received and contributes to unmet care needs. This is particularly the case when it comes to social care, making it difficult to provide the care older adults need, which puts a lot of strain on the healthcare system.[17] People have to choose what they can afford rather than what they need, negatively affecting their health, quality of life, and overall well-being. It also affects care providers because retaining staff with limited funding becomes difficult.

Interdependencies between different care pathways can also be attributed to the deterioration of waiting times in the NHS. For instance, when the accident and emergency care is full, patients will likely wait longer in an ambulance before being handed over to care.[8] Similarly, patients will likely wait longer in accidents and emergencies if bed capacity is full. This flows down to discharges, where limitations in social care make patients wait longer to be discharged.

A recent analysis by Nuffield Trust indicates that wait times are not experienced equally across patient populations, with some populations experiencing longer wait times than others.[18] Racial and ethnic minorities, vulnerable populations, individuals in the low-income quintiles, and individuals living in underserved areas tend to experience longer wait times than other patient populations.[18] The study indicates that patients of Black ethnicities experienced longer wait times than their White counterparts. On average, Black patients aged 19 years and below waited for an average of 3 hours and 41 minutes compared to White patients who waited 3 hours and 20 minutes.[18] Disparities in waiting times were also reported by age. Older adults waited longer in accidents and emergencies compared to other patient populations.[18] The long wait times in older adults in A&E were attributed to the higher likelihood of this population group being admitted.

The results of this analysis are supported by other studies that have linked socioeconomic inequalities and disparities in wait times. Laudicella et al. found that the most income-deprived patients waited for an average of 7% longer than other patients.[19] Furthermore, McIntyre and Chow showed that waiting time was not equally distributed based on socioeconomic status, with most of the reviewed studies showing that socioeconomic deprivation was associated with longer waiting times.[20] The disparities in waiting times across these populations are mostly attributed to barriers that limit timely access to care. Such barriers include lower availability of healthcare facilities, financial difficulties, health inequity, and transportation difficulties. For elderly populations, longer wait times can be attributed to multi-morbidity. In most cases, these patients require admission, which explains the longer wait times of older patients in A&E.

Other factors contributing to wait times longer are the worsening health of underserved populations, a spike in demand for services, especially during pandemics such as COVID-19, and an aging population with multiple comorbidities requiring more services. Addressing long waiting times is crucial because of its impact on care outcomes.

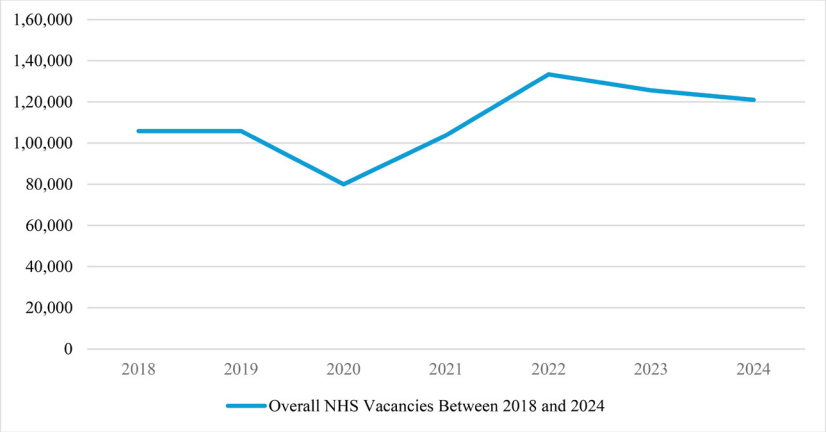

Fig 3 | Overall NHS vacancies since 2018

Impact of Long Wait Times on Health Outcomes

Prolonged wait times negatively impact care outcomes. Researchers showed the negative effects of long include high readmission rates, higher mortality rates, poor outcomes on care, and clinical deterioration, particularly for patients who have life-threatening conditions.[21–23] It also increases the complexity of care, leaving many patients needing more intensive interventions. Reichert and Jacobs found that long wait times for mental health services had a detrimental impact on patients with psychosis.[1] The study reported that patients experienced a moderate decline in outcomes 12 months after accepting treatment,[1] establishing that the risk of deterioration was higher with longer wait times, with patients who had to wait for 3–12 months experiencing poor patient outcomes.[1] Similar findings have been established in the case of coronary bypass. In those cases, long waiting lists and delays increase the risk of preoperative mortality in non-urgent patients.[24] Rexius et al. noted that the risk of death increases significantly as the waiting time increases.[25] Patients who had long waiting times had a significantly higher mortality rate, 5.8 deaths per 100 patient-years.[25] The highest death rates were experienced among the imperative group (15.1 deaths per 100) compared to the urgent and routine group.[25] The imperative group had the highest need. Their operation was planned for the urgent group within 2 weeks compared to 12 weeks.[25]

Similar findings have been established for other life-threatening conditions such as stroke, cancer, and myocardial infarction. For instance, delayed treatment for cancer care leads to poor health outcomes and increases the risk of cancer-related deaths.[26] Researchers showed that shorter times to diagnosis lead to favorable outcomes.[27,28] Delayed access to emergency care for stroke patients elevates morbidity and mortality rates.[29] The risk of developing preventable complications is also significantly higher for patients who experience a delay in treatment. Moser et al. noted that in most cases, patients with disability following a stroke do so because of infarct size, which is attributed to lack of or delayed treatment.[30] For myocardial infarction, delay in receiving treatment leads to worse cardiac outcomes, including risk of major cardiac adverse events.[31] Patients who receive delayed treatment for myocardial infarction are likely to be at a higher risk of arrhythmias and heart failure. In the UK, the ambulance waits for heart attacks and strokes remain significantly high (42 minutes) despite the NHS target being 30 minutes.[32] The number of people waiting months for cardiac care also remains high despite the negative impacts associated with delayed care for cardiac conditions and stroke.

Psychologically, long wait times negatively impact patients' well-being. Researchers observed that long wait times significantly induce stress, anxiety, loneliness, and boredom, which increases the likelihood of deterioration.[33] Patients also tend to report depression-like symptoms and poor quality of life as wait times increase.[34] Long wait times affect patients' psychological well-being because delayed procedures contribute to disease progression. This is particularly true for time-sensitive procedures such as cancer and heart treatments. Patients have to deal with the psychological burden of not knowing what will happen, leaving them feeling helpless. While it mostly begins with anxiety, the continued delay may worsen other aspects of mental health, leading to stress and depression. The studies have associated stress, depression, and anxiety with poor disease outcomes and elevated mortality risk.[35]

Researchers showed a link between long wait times and poor patient satisfaction.[36] Alrasheedi et al. established that long wait times for medication dispensation, dental consultations, and measurement of vital signs left many patients dissatisfied with their overall experience.[37] Patients perceive shorter wait times as having better quality of care and long wait times as having poor quality of care.[37] Patients will likely wait longer if healthcare systems lack adequate funding or enough staff. They will also likely wait longer if the few available resources are mismanaged. Patient satisfaction is the hallmark of quality of care.[38] The reason is that patient satisfaction is correlated with clinical outcomes, patient retention, and compliance with treatment plans. Patients will likely report good clinical outcomes if they are satisfied with care. For care to be satisfying, it needs to be timely and efficient.

Implications of Long Wait Times on Health Care Systems

Long wait times also impact health care systems. Research has shown that long wait times indicate a healthcare system that is under strain.[20] Healthcare systems that are straining find it challenging to deliver quality care. Patients being served by such systems are also likely to report poor health outcomes and poor satisfaction.

Long wait times are also an indication of inefficiency and poor sustainability. In such systems, healthcare providers find it challenging to deliver care. There is also care fragmentation and an increased likelihood of burnout. Delays in care delivery also contribute to poor resource utilization. The limited resources become challenging to employ, resulting in increased expenses. These inefficiencies result in overwhelmed healthcare systems that struggle to provide care.

Addressing Long Wait Times Through Effective Strategies and Policies

Navigating the long wait times at the NHS should be prioritized because of its impact on care. Different strategies and policies can be put in place to address the problem. These strategies and policies have shown varying success rates in other publicly funded systems and can work for NHS if implemented properly. Salisbury et al. recommended increasing the privatization of the NHS, revising criteria on who is eligible for care, making long-term investments in the NHS and social care, and improving resourcing as some of the actions that can help address the waiting crisis.[3]

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Furthermore, prioritization can help to reduce wait times. Research has shown that prioritizing who is eligible for care has been instrumental in reducing wait times in different healthcare systems.[39] Prioritization banks rely on the fact that wait times are unavoidable, but they can be improved by providing care to those most in need. Prioritizing care is essential because it prevents clinical deterioration and improves wait time, and those who need care most receive timely care, improving overall outcomes.

Effective scheduling can also help to reduce long wait times. Open access scheduling is one of the scheduling techniques that has been found to reduce overall wait times. This type of scheduling allows patients to receive an appointment on the same day.[40] This model is achieved by leaving about half of the day open and unscheduled, which allows a physician to see a patient on the same day when calling in for appointments.[41] Researchers found that this model enhances access to care by eliminating delays that come with traditional scheduling, where a patient has to be scheduled to be seen on another day other than the day of calling because the schedule is full.[42,43] The scheduling reduces wait times and increases patient satisfaction. Currently, the NHS supports open access scheduling through patient-initiated follow-up (PIFU). PIFU was laid out as part of NHS operational planning guidance in 2021. Thus, PIFU aimed to reduce appointment waits by allowing patients to follow up on their appointments when needed.[44]

Staffing can also help to reduce wait times, particularly in the A&E.[45] As evidenced by research; understaffing is one of the factors contributing to long wait times in the NHS. Addressing the staffing challenges can help reduce wait times and improve outcomes. The NHS has a long-term workforce plan to address the staffing challenge. It seeks to address these through training, retaining, and reforms.[46] Training seeks to increase the number of professionals in the workforce, including designing new roles that can meet the changing needs of patients and facilitate the transformation of care. The goal of retaining employees is to reduce the turnover rate. The NHS aims to achieve this by enhancing flexibility and providing employees throughout their careers. The reform aims to improve productivity by training staff differently and delivering training in the most needed services.

Emerging technologies can also be integrated into care to address the long wait times. Telemedicine, telehealth, and artificial intelligence (AI) are emerging technologies that can be integrated into care to address long wait times.[47,48] Caffery et al. observed that telehealth interventions such as electronic consultations and image-based triage can reduce wait times and lists for specialist outpatient services.[48] Special outpatient services include dermatology, ophthalmology, ear, nose, and throat (ENT). The study noted that the telehealth interventions that resulted in a decrease in waiting times used store-and-forward methods.[48] Store-and-forward interventions are telemedicine where the physician or the patient collects information such as medical history, images, and reports and sends them to a specialist for evaluation or diagnosis. Store-and-forward consultations provide convenience and efficiency and save time.[48] In another study examining the triaging and prioritizing model (TPM), the authors established that the model helped reduce wait times in a telemedicine system and improve the triaging process.[49] Apart from reducing wait times, the model improved the performance of the healthcare system by accommodating more patients.[49] Moreover, AI interventions show a lot of potential in helping to address long wait times. According to Li et al., an AI-assisted module named XIAO YI helped to significantly reduce outpatient wait times.[50] The median wait times in the intervention group was 0.38 (interquartile range: 0.20, 1.33) hours compared to 1.97 (0.76, 3.48) hours in the convention group.[50] The NHS is also considering AI to reduce the waiting list.[51] According to the NHS, AI integration will reduce the number of missed appointments, free up staff time, and help reduce the number of those on the waiting list for elective care.

Other strategies that can help NHS to reduce wait times are improving efficiency across the entire patient pathway, balancing demand and capacity, reducing unnecessary waits through actions such as reducing paperwork and ensuring efficient decision-making, and sharing staffing resources by pooling similar work together.[52]

Recommendations for Policy Makers

Implementing the proposed strategies will require a significant investment for the NHS. For instance, implementing innovative solutions such as telehealth, telemedicine, and AI requires significant initial investment despite the cost-benefit they provide. The initial costs for technology, equipment, and facility modification to accommodate telehealth interventions are high and costly. MacKinney et al. found the initial cost of telemedicine set-up ranges between $17,000 and $50,000.[53] Additional expenses, such as maintenance, range between $3000 and $8000, whereas the annual subscription fee is approximately $60,000.[53] Researchers have shown that telehealth has significant cost savings, and the initial investment cost can hinder adoption and implementation.[54] This is particularly the case for small hospitals that do not have adequate cash flow or do not see the financial benefits of telehealth integration.[55] For such hospitals, the return on investment may be low because of the small number of patients. Thus, the consultations may not be sufficient to cover the full operating expenses. Therefore, policymakers need to consider this before implementing these interventions to increase the likelihood of success.

Reducing wait times considerably depends on the healthcare workforce. However, additional staffing incurs an expense. Considering the NHS is already facing budget deficits, additional staffing is difficult. There are training requirements and associated costs that can be difficult to navigate with an already straining healthcare system. Besides, the NHS uses external agencies

to fill vacancies, estimated to cost 20% more than the NHS bank staff.[56] For instance, in 2020/21, the NHS spent an average of £2.44 billion on hiring new staff.[56] The extra cost of hiring new staff can affect the ability of NHS to increase the number of staff and wait times. Therefore, policymakers need to consider this before implementing this strategy.

Conclusion

In this review, we found that long wait times in the NHS should be prioritized as they are synonymous with poor quality of care. They also have a negative impact on the patient, including clinical deterioration and poor health outcomes. Psychologically, long wait times affect patients' well-being. They contribute to increased anxiety, stress, and depression, which exacerbates patient outcomes. Long wait times in the NHS can be attributed to several factors. Staffing shortages, insufficient budgets, limited resources, a spike in service demand, an aging population, and interdependencies in care pathways contribute to long wait times in the NHS. Considering these factors are diverse and complex, strategies and policies proven to work in other healthcare systems should be implemented to improve care outcomes. For instance, prioritization by quickly providing care to those in need can help reduce disease progression and clinical deterioration, leading to better health outcomes. Effective scheduling can also reduce wait times and increase access to care. Scheduling techniques such as open access scheduling can enhance resource utilization and reduce delays. Other strategies to reduce overall wait times in the NHS are hiring more workers, enhancing efficiency across the whole patient pathway, and pooling together to enhance resource optimization. All these strategies have varying success rates and can be implemented to reduce delays.

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