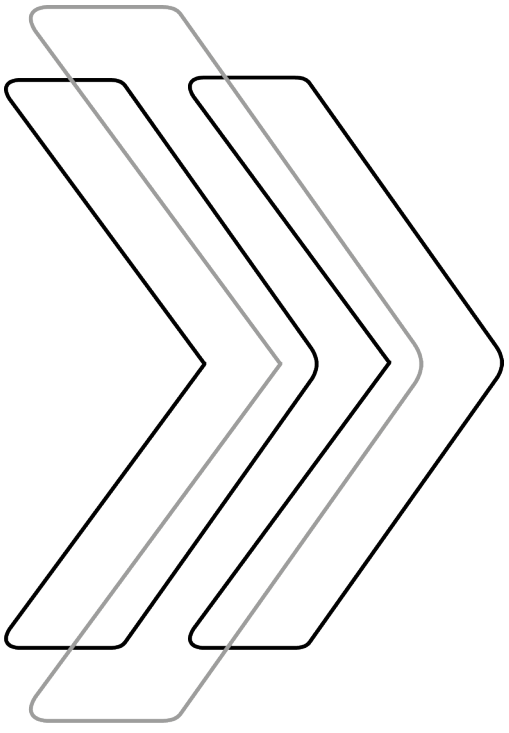
The King's Fund

Ideas that change health and care

# Strategies to reduce waiting times for elective care

## Full literature review findings



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# Contents

# 1 Introduction and purpose of this document

As at August 2022, elective care waiting lists in England stood at 7 million open patient pathways (NHS England 2022). This figure represents a record number of people[1] waiting for diagnosis of an illness, planned surgery or another type of treatment (Nuffield Trust 2022). The length of waiting lists and waiting times has been attributed to numerous factors, including a sustained slowdown in the growth of NHS expenditure, growing demand for health care and a chronic shortage in the workforce (The King's Fund 2022b). These factors pre-date the Covid-19 pandemic which, admittedly, has made the challenge of reducing waiting times all the more challenging.

Within this context, the Department of Health and Social Care commissioned The King's Fund to undertake research on the approaches that have been implemented to reduce waiting lists and waiting times, including their impacts and costs.

The study aimed to explore the following.

- What approaches have been used in England and elsewhere to reduce waits for elective care?
- What were the short and longer-term impacts of these approaches?
- What learning has there been from those approaches about how to maximise impact and value for money?

Our methodology included a non-systematic literature review and interviews with 14 key experts who have been very closely involved in setting the policy direction, supporting or implementing approaches to reduce waiting lists and waiting times in the NHS in England as well as those who have academic expertise in waiting lists and waiting times data.

This document is the home for the full set of findings and references from our literature review. It provides more granular and specific detail about each of the activities identified in the literature than we were able to include in the report. To read our full analysis and discussion of the findings from the literature review and interviews with experts, you can access the report here: **www.kingsfund.org.uk/publications/strategies-reduce-waiting-times-elective-care**.

# Literature review methodology

The purpose of the literature review was to identify approaches that have been used in the past 20 years in England and elsewhere to reduce waiting lists and waiting times. We sought information about the short- and long-term impacts of those approaches as well as cost-effectiveness or value for money. The search focused on published research, policy documents and grey literature mostly related to approaches implemented in England. We limited the search from 2002–2022 to cover a 20-year period. We searched seven databases (CINAHL, Embase, Ovid Emcare, HMIC, The King's Fund library database, Ovid Medline and PubMed).

In our initial search (carried out by The King's Fund library service), 1,638 references were identified and combined with 10 additional references from other sources as at 25 February 2022. After removing duplicates, we screened 1,222 references and excluded 983 as irrelevant to the study's aims. We then identified 139 references for full review. Three researchers used a red, amber, green (RAG) method to judge the relevance, quality and impact of all of the studies. We then 'snowballed' 141 other references based on themes that appeared important, for example the role of workforce engagement in approaches to tackling waiting lists and waiting times.

# Literature review – overview of the key findings

Our exploration of the approaches that have been used in England and elsewhere to reduce waits for elective care began with an extensive review of published literature. Spanning the past 20 years across 15 countries, the literature afforded us an enhanced understanding of the underlying features and overarching principles of waiting-list and waiting-time management as well as the specific approaches that have been used to reduce waiting times in a wide range of contexts.

# Some fundamental principles of waiting list and waiting time management

Very simply, elective care waiting lists and times are a product of the fluctuations in and disparities between the demand for, and available supply of, health care services (van Ginneken *et al* 2022; Ballini *et al* 2015; Kreindler 2008; Silvester *et al* 2004). Understanding and getting to the root of the cause of these disparities and taking corrective action to restore balance between demand and supply is therefore considered to be key to any strategy to reduce waiting times and sustain them at that level.

The forces affecting both supply and demand are numerous and broad and change over time; they extend beyond the confines of elective care – perhaps

even beyond the health and care system itself. Through our analysis of the literature, we found that these factors fall into three overarching categories.

## *1 Supply-side factors*

Factors within this category are mainly affected by funding and investment in health and social care services to ensure there is sufficient capacity to meet demand. This capacity takes account of the size and composition of the health and care workforce as well as the number of available beds, equipment, facilities and technology to deliver health care.

## *2 Demand-side factors*

Demand for health care is influenced and mediated by a range of factors: on the one hand, the health care needs of a population and their propensity to seek treatment to meet these needs; on the other hand, the availability of treatments for patients, the thresholds/criteria for administering these treatments, and attitudes and approaches of health care professionals to make referrals for onward treatment.

## *3 Factors impacting the management of waiting lists and waiting times*

Within this third category, we have organised the factors documented in the published literature into two subcategories.

### Cultural and environmental factors

This subcategory includes factors such as the political desire and drive to reduce waiting times; central and local leadership of the health care system; the financial mechanisms in place to incentivise and pay for activity undertaken by health care providers; the level of competition and choice within a health care system; and the engagement and buy-in of the health and care workforce to reduce waiting times.

### Operational and practical factors

The factors in this subcategory are those that help or hamper the smooth running of the processes in place to deliver health care. This includes: the arrangement and composition of patient treatment pathways, including the interconnections and 'hand-off' points between different services and parts of the system; the collection and use of waiting times data to understand potential 'pinch-points' and minimise waste; the processes in place to process referrals, book appointments, prioritise patients and issue reminders; and the allocation of roles and responsibilities across different members in the health care workforce.

As these categories demonstrate, waiting lists and waiting times are very dynamic and interact constantly with the context of a given place and time. Effective and sustainable management of waiting lists and waiting times therefore necessitates a system-wide perspective: to understand the interplay between – and forecast – the forces of supply and demand, and to identify where action is needed to increase supply, manage demand, or address the cultural/environmental or operational/practical factors to ensure that any action taken is effective (Siciliani and Hurst 2005).

The literature did notpoint to any one 'intervention' known to reduce waiting lists and/or waiting times; nor are activities targeting 'supply' or 'demand' in isolation likely to be effective or sustainable over the long term (Siciliani and Hurst 2005). Initiatives that only target supply run the risk of ever-growing investment beyond the point of efficiency or effectiveness, particularly in a health care system that is state funded and where trade-offs are likely to be needed about how and where to allocate resources (Siciliani and Hurst 2005). Meanwhile, demand for health care services is likely to increase over time due to an ageing population and advancements in the technology and treatments available. Initiatives that focus solely on demand are likely to increase the thresholds or criteria for treatment, thus 'rationing' health care further and further with potentially harmful consequences for patients (Siciliani 2008).

What the literature did indicate was that a combination of activities (combining supply-side, demand-side and other activities) would most likely yield effective and sustainable reductions in waiting times.

## Specific actions to reduce waiting times

Before we turn to the specific actions used to reduce waiting times in the past 20 years in England and elsewhere as documented in the literature, we make the following observations about the published evidence and the conclusions that might be drawn from it.

- The evidence base overall is very weak, that is we did not find strong examples of evaluated pilots, randomised controlled trials (RCTs) or cost benefit analyses of strategies to reduce waiting times.
- Where improvement activities were researched, they were often investigated as individual initiatives (eg, the role of the private sector in delivering elective care). Commonly it was not possible for studies to make any causal links or claims between design/implementation and outcomes – only to draw associations.
- The bulk of the evidence focused on initiatives to reduce waiting times rather than waiting lists – as waiting times are deemed to be the more reliable measure of the size of excess demand in relation to the available supply (Siciliani 2008).

The table below lists all the actions identified in the published literature we reviewed. We have organised these into three broad categories in recognition of the range of different factors that conspire to cause long waits in the first place: actions to increase supply, actions to manage demand and actions that relate directly to the management of waiting lists and waiting times (either via cultural/environmental change or operational/practical measures).

# 2 Increasing supply

## Additional funding

Absolute increases in investment in health care services (including elective care specifically) to increase capacity in one or more of the following areas:

- workforce
- equipment
- beds
- facilities and estate
- IT.

**Dates and locations covered in the literature:**

England 2000s, Canada 2001, Spain 1998–2000

### *Impact on/relationship to waiting times*

- We found no studies that conclusively establish cause and effect between additional funding and reduced waiting times. Additional funding tends to be accompanied by other policy initiatives (for example, waiting time targets), making it difficult to disentangle its effects from those of other activities (Siciliani *et al* 2015; Willcox 2007). The primary cause of queueing for health care is understood to be the variation and disparity between demand and supply. Investment in additional supply/capacity may be effective (indeed, necessary) to a degree but only where efforts have been made to understand where exactly additional capacity is needed ( Siciliani *et al* 2014; Kreindler 2008; Silvester *et al* 2004).
- Waiting time targets in England in the 2000s (which, ultimately, hit the 18-week waiting time standard by 2008) were accompanied by increases in funding – an additional £2 billion (as at 2000/01) with a commitment to a 6.1 per cent average annual real terms growth over four years compared to an average of 3.3 per cent annual real growth since the foundation of the NHS (HM Treasury 2000).
    - Overall, a combination of policies are believed to have been successful in reducing waiting times in England in the 2000s. Significant boosts in funding were part of this package alongside policies such as ambitious waiting-time targets and a rigorous performance management system,

patient choice, and independent sector provision (Siciliani *et al* 2015); (Willcox 2007)

- Squeezed funding was believed to be one of the main reasons why the 18-week standard has not been met since 2017 – with further ramifications for workforce shortages and a lack of resource and equipment, particularly in diagnostic services (The King's Fund 2021).

- Health systems with the longest waits are those associated with lower levels of health expenditure per capita (Ballini *et al* 2015). As part of a review undertaken by the National Audit Office, 27 out of 43 trusts whose board papers were reviewed in 2019 cited constraints on capacity, finance, staff and beds (with particular 'bottlenecks' in diagnostic services and among radiography due to lack of staff) as contributing to delays in treatment. The review resulted in the recommendation that 'significant additional investment [in staffing and infrastructure] will be required to meet the existing waiting times standards again' (National Audit Office 2019).
- In Manitoba, Canada, the ophthalmology community lobbied the regional health authority for additional resource (an additional operating theatre) to tackle 'unacceptably long waits'; the increased rate of surgery that followed was associated with a fall in the length of wait from 30.25 weeks in March 2002 to 25.4 weeks by June 2003 (Bellan 2004).

### *Other impacts/consequences/limitations*

- Temporary increases in capacity may be helpful in addressing a backlog of care but can become wasteful in the longer term – hence other measures (including effective planning for variations in supply and demand, review and improvement of processes and pathways, engagement and active support of staff) are deemed crucial for sustainable reductions in waiting lists and waiting times ( Naiker *et al* 2018; Appleby and Thorlby 2008; Appleby and Harrison 2003).

# Use of the private/independent sector

- Payment of private providers for treatment of NHS patients
- Private sector investment in independent sector treatment centres
- Encouragement of the take up of private health insurance

**Dates and locations covered in the literature**

England 2000s, Australia 2000–01

## *Impact on/relationship to waiting times*

- We found little empirical evidence that the additional capacity provided or activity undertaken by the private sector in England from 2003 to 2008 contributed to the rate at which waiting times were reduced (Naylor and Gregory 2009). Capacity bought from the private sector in England 2003–2008 via independent sector treatment centres accounted for less than 1 per cent of elective operations (Kreindler 2010). By 2008, 2 per cent of elective activity was being provided in independent sector treatment centres. Analysis by The King's Fund, comparing areas with independent sector treatment centres to those without, found no difference in the rate at which waiting times were reduced (Naylor and Gregory 2009).
- The Health Committee of the House of Commons concluded in 2006 that independent sector treatment centres had not made a major contribution to increasing capacity but that they had made a significant impact on patient choice and competition. This, in turn, was felt to incentivise and increase activity levels among NHS providers (House of Commons Health Committee 2006). No analysis was undertaken to determine the value for money of independent sector treatment centres and there was little evidence that independent sector treatment centres were more efficient than NHS facilities: indeed, one of the sites visited by the House of Commons Health Committee was operating at 50 per cent capacity owing to a reluctance on the part of patients and GPs to refer in. Having said that, there were no apparent concerns about the quality of care provided (House of Commons Health Committee 2006).
- Australia's encouragement that citizens take up private health insurance (leading to private sector activity accounting for 56.2 per cent elective activity 2000–2001) has not been associated with a reduction in waiting times overall (mainly because of difficulties accessing and analysing waiting times data). Having said that, evidence from some States indicated reductions in median waits – for example, a fall from 7.5 months to 5.75 months in Western Australia (Siciliani and Hurst 2005).

## *Other impacts/consequences/limitations*

- Private sector care provision has been found to cause longer waiting times in settings where clinicians divide their time across public and private sector settings (Kreindler 2010). Independent sector treatment centres in England were prohibited from recruiting staff who had worked for the NHS in the previous six months. Staff, therefore, tended to come from overseas (House of Commons Health Committee 2006).

# Expanding the workforce

- Investment in the training of increased numbers of health care staff in under-resourced or new roles/disciplines
- Asking staff approaching retirement to delay retirement/staff in retirement to return to work
- Recruiting volunteers to support the delivery of services

**Dates and locations covered in the literature:**

England 2000s and 2022

## *Impact on/relationship to waiting times*

- Waiting time targets in England in the 2000s (which achieved the 18-week waiting time standard by 2008) were accompanied by increases in funding which was invested heavily in more staff (Department of Health 2000; HM Treasury 2000).
- Asking staff approaching retirement to delay retirement/staff in retirement to return to work was one of the activities cited in NHS England and NHS Improvement's letter to NHS trusts as part of elective recovery following the Covid-19 pandemic (NHS England and NHS Improvement 2022).

# Treating patients overseas

- Paying to send patients abroad for treatment
- Deployed either where patients have had an exceedingly long wait and/or where domestic capacity (both public and private) to provide timely treatment has been reached

**Dates and locations covered in the literature:**

Denmark, England, Ireland, Netherlands, Norway

## *Impact on/relationship to waiting times*

- There has been very limited research into this approach, its effectiveness in reducing waiting lists or waiting times, or its cost-effectiveness (Kreindler 2010; Siciliani and Hurst 2005).
    - With the exception of one paper from the Netherlands, which stated thatpatients who received treatment abroad in Belgium, Germany and Spain (as mediated by their health insurer) waited an average 1–2 months less than those who did not go abroad (Schut and Varkevisser 2013).

## *Other impacts/consequences/limitations*

- Associated with higher rates of complications and increased need for follow-up treatment (Kreindler 2010; Siciliani and Hurst 2005).
- Inconclusive findings regarding cost-effectiveness (Kreindler 2010; Siciliani and Hurst 2005).

# 3 Managing demand

## Changing the categories/thresholds for adding patients to a waiting list for elective care

- The use of clinical and/or non-clinical criteria to determine eligibility for, the order in, and urgency with which patients are treated

**Dates and locations covered in the literature:**

Canada, New Zealand 1990s, England 2020-2021 (Covid-19)

### *Impact on/relationship to waiting times*

- We did not find a compelling body of evidence indicating that this approach is effective in reducing waiting times. Prioritisation tools have been associated with shorter waits for patients with greatest clinical need, however, these differences in waiting times compared to other categories of patients are fairly modest (a matter of days) (Gutacker *et al* 2016; Harding *et al* 2012).
- The most notable implementation of this approach took place in New Zealand in the 1990s. Patients were issued a score out of 100 on the basis of their clinical need for treatment and the anticipated benefit of treatment and booked in for treatment on this basis. Only those patients classified as 'urgent' were booked in for treatment guaranteed within six months; those 'semi-urgent' were reviewed again after six months; and 'non-urgent' cases were returned to the care of their GP for 'active care and review'. The number of patients waiting for treatment longer than six months decreased from 35,500 to 16,900 between 1999 and 2002 (Kreindler 2010; Siciliani and Hurst 2005; Gauld and Derrett 2000).
- One paper offered a very high-level commentary about the use of telephone triage and virtual appointments in a gynaecology service during the Covid-19 pandemic. The service adopted a 2 or 3-stage validation process – updating the list, the clinician then establishing the level of clinical priority and any further course of action). Prompted by Covid, the Royal College of Obstetricians and Gynaecologists (drawing on the Royal College of Surgeons guidance) developed a framework outlining how patients should be prioritised for outpatient assessment and for surgery depending on their level of need: treatment within 72 hours if an emergency, up to 4 weeks, 3 months and beyond if less urgent. The authors argued this framework may be applied variably across the country due to different constraints, eg, Covid-19

workload in intensive care units, staffing levels due to sickness or redeployment, infrastructure and IT capability (Sairally and Clark 2021).

### *Other impacts/consequences/limitations*

- Raises questions of fairness and equitability as to who should be prioritised and on what basis (eg length waited to date, severity of health complaint, socio-economic factors), all of which are a matter of judgement for clinicians (Rathnayake and Clarke 2021; Siciliani *et al* 2014).
- Patient prioritisation tools have been found to be implemented inconsistently, eg, in New Zealand, clinicians' scores could vary by as many as 27 points. Clinicians also reported a lack of clarity about the purpose of prioritisation: some were suspicious that the initiative was a 'cost-cutting' exercise, potentially jarring with their perceived ability to deliver good quality care. These challenges highlighted the importance of engaging with clinicians in the design and implementation of these tools (Déry *et al* 2020; Gutacker *et al* 2016;; Kreindler 2010; Siciliani and Hurst 2005; Gauld and Derrett 2000 ).

# Review/standardisation of referral criteria

- Re-evaluating the thresholds for referring onward for assessment or treatment
- Dialogue/feedback between referrer and recipient about the suitability of referrals

**Dates and locations covered in the literature:**

Canada

## *Impact on/relationship to waiting times*

- We found no studies evidencing a link between this activity and reduced waiting times. Indicative findings included an association between this activity and fewer inappropriate referrals, (resulting in reduced numbers of patients on waiting lists), freeing up an estimated 10 per cent volume of capacity (Rathnayake and Clarke 2021).
- In Ontario, Canada, it was estimated that the development of appropriateness guidelines for referrals for diagnostic imaging tests and the resulting fall in suitable referrals freed up an additional 10 per cent volume of activity (Collins-Nakai *et al* 2006).

# Active waiting

- Engagement with patients on the waiting list for the duration of their wait
- To promote self-management of their health condition
- To check/review whether further treatment remains necessary

**Dates and locations covered in the literature:**

No studies of the use of this activity in practice.

## *Impact on/relationship to waiting times*

- We found no studies assessing the effectiveness of this activity in respect of reducing waiting lists/waiting times although some sources highlighted the potential benefits of this approach to support patients to manage their health in the community and via primary care and the voluntary and community sector National Voices 2020; Rosen 2021; Wyatt *et al* 2021).

## *Other impacts/consequences/limitations*

- Principles of 'good waiting list management' include:
    - using digital tools to monitor patients whilst they wait (and understand the impact of waiting on their condition)
    - supporting patients via primary care and the voluntary and community sector instead of or while being referred for elective treatment.
- Enabling patients to check the status of their wait and access advice using a digital platform (Rosen 2021; National Voices 2020).

# 4 Activities affecting the culture and environment of a health system

## Maximum waiting time guarantee for patients/targets for providers

May incorporate one or more of the following features:

- **conditional guarantee:** applied to a subset of patients waiting, either a proportion of those waiting for a stipulated period; patients rated/prioritised according to urgency; patients waiting for a specific specialty/treatment/part of their care journey, eg, diagnostics, treatment, outpatient follow-up
- **unconditional guarantee:** applied across all patients waiting; the total time from referral to treatment or the completion of care
- **with performance management:** monitoring of performance against key waiting time metrics with formal interventions/sanctions applied for failing to meet targets
- **without performance management:** no interventions/sanctions applied for failing to meet targets
- **linked to payment/incentives:** awarded to providers who meet targets and demonstrate additional activity to reduce waiting times
- **not linked to payment/incentives:** no reward for providers who meet targets and demonstrate additional activity to reduce waiting times.

**Dates and locations covered in the literature:**

Denmark 2001 onwards, Canada 2004, England 2000 onwards, Finland 2005, Italy, Netherlands, New Zealand, Norway, Portugal, Scotland 2000 onwards, Spain, Sweden 1992-1998 and 2005, Wales 2000 onwards

### *Impact on/relationship to waiting times*

- There is some evidence indicating that waiting time guarantees for patients and/or targets for providers have been associated with reduced waiting times (Kreindler 2010; Propper *et al* 2008a; Siciliani and Hurst 2005).

  - 'Targets [in England in the 2000s] met their goals of reducing waiting times without diverting activity from other less well monitored aspects of health care and without decreasing patient health on exit from hospital.' There was also 'little evidence that quality, as measured by mortality rates, fell as a result of targets.' (Propper *et al* 2008a).

- Targets have often been introduced alongside other policies (for example, additional funding, patient choice, patient prioritisation), meaning that direct cause and effect is impossible to establish (Kreindler 2010; Besley *et al* 2009; Propper *et al* 2008b).
- The most robust papers on this area suggest that targets are most effective where:
  - they are underpinned by accountability and sanctions/penalties via a performance management regime (eg, the 'naming and shaming' of the poorest-performing providers in England in the 2000s) (Jonsson et al 2013 in Siciliani et al 2013; Propper *et al* 2008b)
    - The 'natural experiment' proffered by devolution of health care policy decisions in England, Scotland and Wales indicated that centralised oversight and performance management in England (but not in Scotland or Wales) contributed to the achievement of the 18-week maximum waiting time guarantee. Insofar as other things were broadly equal – including increases in investment in the NHS – performance management was one major difference between the management of the health systems of the devolved nations and in the achievement of the target in in England relative to Scotland and Wales (Propper *et al* 2008a).
  - they are combined with payment mechanisms which incentivise activity (including activity specifically oriented towards reducing waiting times) among health care providers (Kreindler 2010; Siciliani and Hurst 2005)
- Over time, the NHS has been severely challenged in meeting the 18-week target (later standard) and has required significant financial investment when it looked like the target would not be met (eg, £250 million in June 2014) (Thompson and Murray 2014).
- The 18-week standard has not been met since 2017 and the main reasons were believed to be workforce shortages, funding squeeze, equipment/diagnostic/capacity shortages and rising demand for care (The King's Fund 2021).
- In Sweden in 1992, a three-month maximum waiting time guarantee was introduced for 12 procedures. This was described as 'the most important step Sweden took towards shortening its waiting lists' (Lofgren 2003). It was

accompanied by an initial $70 million investment and was associated with reduced waiting times (down from a median 147 days to 89), increased productivity and throughput of patients (a 43 per cent increase for cataract surgery) and improved access for patients with the greatest need. The approach also incorporated an element of patient choice, which meant that some hospitals made strides to reduce their waiting times as the initiative was announced and prior to its implementation, in order that they did not have to pay to send their longest-waiting patients elsewhere. The guarantee was applied only to patients deemed to be 'clinically urgent' (around half of all patients waiting) in the hope that this would mitigate the risk of prioritisation of patients approaching the three-month deadline over those with greatest need. There were no direct financial penalties for providers if they did not meet the target and a rise in waiting times was detected as early as 1993 (at which point 91 per cent of patients received treatment within 13-weeks compared with 95 per cent the previous year), leading to the conclusion that 'stronger incentives' were needed to underpin efforts to meet the maximum waiting time guarantee (Hanning 1996; Hanning and Lundström 2007).

- Sweden's next three-month maximum wait time guarantee in 2005 was based on a patient prioritisation tool (NIKE) developed by surgeons, nurses, opticians, managerial and support staff and reduced the waits for those in the highest urgency category from 3.4 to 2.5 months 2009–2011 and from 4.5 to 2.9 months in the lowest urgency category (Ng and Lundström 2014).
- The National Health Care Guarantee introduced in Finland in 2005 was followed by a reduction in the number long waiters. This reduction was associated with the threat of penalty fines for hospitals that missed the target (although no fines were actually issued in the end because providers improved their performance sufficiently). Reductions in the number of long waiters were accompanied by greater patient choice, increased national attention on the issue, transparency and accountability of providers who were subject to data reporting and performance management (Siciliani *et al* 2013).
- Targets were felt to offer a concerted focus/goal for all within the Canadian health and care system to work towards: 'transformation is based on attitude, understanding and behaviour' with 'a common vision, shared values, discipline and courage' of all within the system to do something differently' – coupled with a sense of urgency and accountability via Hospital Accountability Agreements. The introduction of the maximum waiting time guarantee took place against the backdrop of a move towards Local Health Integration Networks and a guiding principle of the strategy was to place freedom, ownership and accountability for devising and implementing ideas to reduce waits in the field with clinicians. After five years waiting times had fallen by 256 days for knee replacement surgery (productivity +51 per cent), 198 days

for hip replacement surgery (productivity +51%), and 204 days less for cataract surgery (productivity +32%) (MacLeod *et al* 2009)

  - The maximum wait time guarantee was described as the 'roof on the house', which also required a foundation and walls – eg, targeted investment to relieve bottlenecks and efficient scheduling systems (Joshi *et al* 2006).

- The effectiveness of targets has been associated with a comprehensive and accurate data capture and management system to identify patients waiting and offer hospitals incentives to increase their activity to meet demand – as in Portugal where the SIGIC (Integrated Management System for the Surgery Waiting List) system was associated with a 35 per cent reduction in the waiting list and a 'significant reduction' in the median waiting time (Siciliani *et al* 2013).

### *Other impacts/consequences/limitations*

- Careful and realistic design and implementation of targets in partnership with clinicians and the public is deemed to be congruent with a health and care agenda of transformation, integration and localisation of decision-making (Berry *et al* 2015).

  - Clinicians in Sweden did not feel that the rationale for the maximum waiting time guarantee aligned with their professional values (believing that the motivation was an economic rather than a clinical one), hence the guarantee was abandoned in 1998; in addition, some clinicians did not accept that long waiters were placed at significant medical risk whilst waiting, which resulted in variable levels of engagement with efforts to reduce waiting times ( Hanning and Spångberg 2000).

- This activity risks the oversimplification of the management of waiting lists to that of a 'performance' issue rather than a dynamic and complex interplay between the forces of supply and demand; where targets have been met successfully, they have been underpinned by a number of different initiatives at a local level to deliver care more effectively (Harrison and Appleby 2009; Appleby and Harrison 2003; Devlin *et al* 2002).

- Numerous adverse outcomes have been reported under the targets regime in England in the 2000s. These include:

  - providers focusing on targets/areas of measured performance to the detriment of other non-measured areas

  - 'hitting the target but missing the point' – prioritising patients on the basis of whether or not the 'deadline' for their treatment is looming rather than on clinical grounds

  - manipulating waiting list/waiting times data to demonstrate compliance with the target – nine NHS trusts were found to have 'inappropriately adjusted' their waiting lists with three others found to have deliberately misreported waiting list information while 20 per cent of specialists told the National Audit Office in 2001 that they frequently treated patients in a non-clinical order in order to avoid exceeding the 18 month target (Mannion and Braithwaite 2012; Kreindler 2010; Dimakou *et al* 2009; Bevan and Hood 2006; Siciliani and Hurst 2005; National Audit Office 2001)
  - a culture of 'bullying', impacting on staff morale and productivity (Mannion and Braithwaite 2012) whereas sustained reductions in waiting lists and waiting times have been associated with the engagement and active support of staff (Harrison and Appleby 2009; Appleby and Harrison 2003).
- Consequently, some have argued for more thorough and diligent verification of performance data (Bevan and Hood 2006). Similar concerns have been raised in respect of maximum wait time guarantee efforts elsewhere, including Canada (Carruthers 2006).

# Remuneration of providers and/or staff for activity to reduce waiting lists/waiting times

- Offering incentives to providers and clinicians for activity geared towards reducing waiting lists/waiting times
- Activity-based funding/Payment by Results
- As opposed to block contracts and 'lump-sum budgeting'
- Offering bonuses to health care staff where they have demonstrated additional activity to reduce patient waiting times

**Dates and locations covered in the literature:**

Australia, England 2002 onwards, Netherlands, Spain 1998–2000

## *Impact on/relationship to waiting times*

- The evidence of the one national evaluation of Payment by Results (PbR) in England for PbR boosting volumes of activity and reducing waiting times was not conclusive. It is arguable that the extra activity evidenced in this period would have resulted in any case as a result of the combination of additional funding and targets (Farrar *et al* 2010). There is no data linking this activity to reduced waiting times performance.
- Some studies from Australia and the Netherlands found an association between the payment of providers for activity – both on the basis of *volume* and *mix* of activity – to mitigate the 'perverse incentive' for providers to prioritise patient groups that would bring in greatest revenue ( Schut and Varkevisser 2013; Rachlis 2005); (Street and Duckett 1996).
    - In Victoria, Australia payment was based on the volume and mix of patients treated within specified time periods depending on their level of clinical urgency to dissuade disproportionate prioritisation of any one patient group. The number of patients classified as 'urgent' fell from 1,298 to 195 and semi-urgent from 12,115 to 8,506. This arrangement was introduced in the context of a 15 per cent reduction in hospital expenditure over a three year period (Street and Duckett 1996).
    - 'Cash on the nail' introduced in the Netherlands in 2000 was associated with a rapid increase in hospital activity and a substantial (around 50 per cent) reduction in waiting times 2000–2006 (Schut and Varkevisser 2013).
- In addition, reductions in waiting times in Spain accelerated following the introduction of financial incentives to providers that undertook additional activity and 2–3 per cent bonuses for staff in recognition of their efforts to

reduce waiting times. Average waiting times fell from 210 days to 67 (Siciliani and Hurst 2005).

- NHS England, Monitor and the Trust Development Authority wrote to acute trusts offering financial incentives to boost activity: they would pay providers 115 per cent of the normal tariff rate for procedures carried out on top of those previously agreed with commissioners in their annual contracts. This followed the announcement of a 'managed breach' of the 18-week standard while the NHS carried out additional activity, including focusing on treating patients that had been on waiting lists for more than 18 weeks (Renaud-Komiya 2014).

### *Other impacts/consequences/limitations*

- In the Netherlands, increased hospital activity (associated with 'cash on the nail') was associated with increased demand for care but also increased life expectancy overall (Schut and Varkevisser 2013).
- Being paid for extra activity to clear a backlog of patients can create a perverse incentive to maintain long waiting lists without safeguards to ensure a mix of patients are treated (Rachlis 2005).

# Patient choice of provider (for long waiters)

- Offering patients a choice of provider where their wait for treatment exceeds a stipulated time – ideally with waiting times data readily available to support patients to make an informed choice
- The purchaser of services in the patient's 'home' catchment area will pay for treatment at another provider/in another area OR providers will be incentivised financially to undertake additional activity which results in the treatment of patients with long waits on lists elsewhere
- Also offering patients choice between public and private health care insurance fund(s) and of first contact provider, eg, walk-in primary care

**Dates and locations covered in the literature:**

Canada, Denmark 1993, England 2002 onwards, Germany 1996 onwards, Netherlands 1993 onwards, Norway, Portugal, Spain, Sweden 1992–1998 and 2003 onwards

## *Impact on/relationship to waiting times*

- Overall, 'the impact of choice on waits is not linear' (Siciliani 2007).
    - There is some evidence that increases in patient choice can increase demand and, in turn, waiting times (Siciliani 2007).
    - While take-up of choice has been relatively low in some countries (around 10 per cent of patients took up choice in Sweden in 2003), it has been suggested that the choice agenda has played a role in reducing waiting times by introducing a competitive dynamic to the health care market – incentivising activity among providers who would otherwise 'lose' patients (and money) to other providers (Thomson and Dixon 2006; Hanning 1996).
- All other things being equal, the introduction of the Patient Choice Project in London in 2002 was associated with waiting times around three weeks shorter than the rest of England in 2006 (Dawson 2007). The project in 2002 offered a choice to patients approaching a six-month wait for a select number and type of elective treatments. Hospitals with long waits could subscribe to the project and send longer-waiting patients to hospitals with shorter waits with no penalty or cost attached. Receiving hospitals received additional funding via the Department of Health to treat these additional patients. The project was accompanied by capacity building, chiefly via diagnostic and treatment centres. By June 2004, 22,500 patients had been offered choice and 15,000 accepted treatment at another hospital. There was a marked reduced variability in waiting times across London (Dawson 2007; Dawson *et*

*al* 2004). The additional funding available for this project stopped in 2004, with suspected impact on the activity levels/performance of hospitals who would now be expected to pay for the care received by their patients elsewhere (Dawson 2007).

- Patient choice became a core part of the strategy for the NHS in 2010 although no evidence found in the literature regarding take up or impact on waiting times (Department of Health and Social Care 2010).
- The choice agenda was believed to boost activity to reduce waiting times in Sweden as providers feared losing patients and having to pay for their care elsewhere (Hanning 1996). In Sweden, 10 per cent of patients took up choice on the basis of waiting time; 76 per cent relied on their doctor's recommendation. Even after the maximum waiting time guarantee ceased, patient choice of hospital for treatment remained although the impact on waiting times was not reported (Thomson and Dixon 2006).
- Choice was introduced in Denmark in 1993 in line with the value of 'easy and equal access for all' to health care. Patients with specified health problems (cataracts and heart problems) were offered a choice of hospital (later including private providers). It was believed to impact on the level of activity undertaken in the private sector (Christiansen and Beck 2013 in Siciliani *et al* 2013). In one study, choice was associated with lower waiting times at five hospitals, albeit by a matter of days (a 1 to 2 per cent reduction in waiting) (Siciliani 2007).

### *Other impacts/consequences/limitations*

- Patient take-up of choice found to be fairly low in some cases (less than 5 per cent in Denmark) and depends in part on the availability and accessibility of information about waiting times in order for patients to make an informed decision (Kreindler 2010; Siciliani and Hurst 2005). Typically, patient choice has been found to be informed by expert opinion, the provision of support to make choice by trained advisors, previous experience at a provider, price, location and subsidised transport (Fotaki *et al* 2008; Thomson and Dixon 2006).
- Conduits, enablers and confounders of choice include the overarching culture/norms associated with accessing health care, level of knowledge and attitudes of the referrer, proximity to an alternative treatment site, accessibility of an alternative treatment site (ie, via public transport) and the age of the person requiring treatment. This means some patients are perhaps more likely and able to take up choice than others, raising questions about fairness and equitability and potentially exacerbating existing health inequalities (Dixon *et al* 2010; Thomson and Dixon 2006).

- In England, patient choice of where to receive their treatment was ranked 11th out of 16 factors patients said were important to them in terms of their health care (Fotaki *et al* 2008).
- Patient choice of provider has been associated with efforts to improve access to health care, reduce waiting times and maximise the use of spare capacity. Policies which reduce or curb choice tend to be associated with continuity of care, reduced duplication and inefficiency, enhancing care quality and enabling tighter financial control/certainty over service delivery. Providers participating in systems promoting patient choice have reported increased economic uncertainty, depleted ability to plan capacity and difficulties coordinating efforts around patient choice with other policy priorities or initiatives (Thomson and Dixon 2006).
- Patients in Ontario, Canada requested clear and thorough waiting times data to enable them to make an informed choice about where they receive care but were also liable to be sceptical about the reliability of the information available (Bruni 2010).

# Workforce engagement

- A process of communicating with and actively involving staff resulting in a more passionate, motivated, satisfied, focused and committed workforce prepared to 'go the extra mile' (Mailley 2011)
- Engagement tends to be driven by having clear purpose, meaning and fulfilment at work, feeling challenged/being exposed to opportunities to learn and grow, variety and creativity, equal opportunities and personal development, recognition and reward (not only in the form of salary), relationships with managers (feeling listened to), a sense of contributing to something bigger than oneself, involved in decision making, clear goals and accountability (Mailley 2011)

**Dates and locations covered in the literature:**

England

## *Impact on/relationship to waiting times*

- Engagement of the workforce was cited in respect of a range of other initiatives and was deemed to be core to their success – eg, in the design and successful implementation of targets and of patient prioritisation tools Déry *et al* 2020; Berry *et al* 2015; Kreindler 2010; Gauld and Derrett 2000).
- We found a wealth of literature associating an engaged workforce with a 'self-improving' health care system, sparking creativity and innovation with the potential to unlock an approach to reducing waiting times – although this claim was prospective rather than proven (Mailley 2011; Ellins and Ham 2009).
- A blog published by the Health Foundation about a Q Network workshop on tackling the elective care backlog offered five reflections, some of which were directly relevant to the engagement of the health care workforce:
    - reframe the issue, using language that helps understand what is at the heart of demand and capacity issues and what change needs to happen
    - address the deep-seated nature of the deep-rooted issues that cause waits; focus on prevention and early intervention
    - prioritise staff health, wellbeing and support, particularly in the wake of the toll of the pandemic on staff
    - data should help not hinder: tendency to measure performance against targets but data should guide improvement too.
- Improvement has an important role to play in the solutions (Scott and Cann 2021).

# 5 Operational and practical actions

## Granular collection and analysis of waiting list/waiting times data

- The systematic and routine capture of data relating to patients, the treatment pathway, provider capacity at the level of specialty and staff in order to plan and allocate resource to meet demand/targets and report on performance
- Interrogation, compilation, reporting and communication of this data at different levels within an organisation

**Dates and locations covered in the literature:**

Canada, 2004, England, 2000s and present day

### *Impact on/relationship to waiting times*

- Hospitals demonstrating greatest success in reducing waiting times in England in the 2000s were those with most ready access to and understanding of waiting list data at the level of specialty and consultant. This data could then be used to detect and plan for variations in supply and demand (Taylor and Shouls 2008; Appleby and Harrison 2003).
- Tools (such as the No Delays Achiever developed by the NHS Institute in the 2000s) have been developed to support hospitals to improve capture and use of waiting list/waiting times data although there is no data relating to the take-up or effectiveness (Taylor and Shouls 2008).
- The capture and publication of waiting times data was deemed to be crucial in Canada as part of Ontario's maximum wait time strategy: facilitating accountability whereby hospitals were expected to meet various conditions to obtain funding and cultivating a culture of transparency, trust and collaboration amongst stakeholders to concentrate their energy in tackling waiting times (MacLeod *et al* 2009).

### *Other impacts/consequences/limitations*

- Detailed patient information (clinical need as well as socio-economic factors such as the shared care record and population health management tools utilised by Frimley Health and Care Integrated Care System) can inform prioritisation, communication and advice to patients to support with

management their condition(s) while they wait, and monitor rates of access among different patient groups (Foster 2021; Godden and Pollock 2009).

# Validation of waiting lists

- Audit and cleaning of waiting list data resulting in the removal of patients ineligible/no longer eligible for treatment, eg, patients who have moved out of the area

**Dates and locations covered in the literature:**

England

## *Impact on/relationship to waiting times*

- We found limited evidence that this approach has been used effectively to reduce waiting times.
- One study indicated a reduction in waiting time from an average of 76 days to 56 where 51 per cent of patients in a colonoscopy service in England were found to have been 'inappropriately referred' according to the Association of Coloproctology of Great Britain and Ireland and the British Society of Gastroenterology 2002 guidelines and were subsequently removed from the waiting list (Chivers *et al* 2010).

# Quality improvement and pathway/ process efficiencies

- Initiatives to eliminate 'waste' within the health care system ('waste' defined as the utilisation of resources for any goal other than the creation of value)
- Incorporating LEAN health care and/or the Six Sigma framework (Define, Measure, Analyse, Improve, Control), taking a system-wide perspective of the relationship between supply and demand and 'flow' at all stages of the patient pathway (intake, diagnosis, treatment, discharge, follow up)

**Dates and locations covered in the literature:**

New Zealand, 2019, England, 2000s and 2010s

## *Impact on/relationship to waiting times*

- A growing number of case studies indicate that the root cause of long waits is usually a poorly designed system comprising complex booking processes, unnecessary steps and 'traffic jams' rather than an absolute lack of capacity (Hallam and Contreras 2018). Analysis of demand and supply/capacity at each stage of the patient journey can identify the most effective measures/target areas for investment to align demand and supply adequately (Kreindler 2010; Kreindler 2008). Typically, 'waste' can be found in respect of deviations from protocol, duplication of roles, inefficient appointment booking systems, inadequate referral/pre-assessment information, poor use of equipment and/or space, inefficient allocation of tasks to health care professionals (Tlapa *et al* 2020; Amaratunga and Dobranowski 2016).
- Some studies have shown that quality improvement initiatives are associated with reduced waiting times and improved productivity (Amaratunga and Dobranowski 2016).
    - One study (capacity and demand time series) reviewed the application of Lean principles at an MRI facility in New Zealand (in the face of a national target that 85% scans should be completed within six weeks of referral and a growing waiting list). It found that there was sufficient capacity (indeed 2.5 times the amount needed) to meet demand but that existing resources were not being used effectively. Changes were introduced to make more efficient use of this resource:
        - more careful planning of resource to meet surges in demand at regular points in the week
        - co-locating machines and using 'floating' rather than static staff
        - creating a patient care assistant role to manage paperwork
        - Scheduling patients requiring sedation in one clinic slot to make best use of anaesthetists' time

    - lower complexity referrals were reviewed electronically by a lower grade technician rather than on paper by two senior grade medical officers.
  - Waiting times fell by an average of 73 days 2019-2020, with the number of 180+ day waiters falling from 204 to 0 (Bhullar *et al* 2021).
  - One hospital introduced pre-operative anaesthetic assessment of patients scheduled for urgent or 'expedited' surgery to increase productivity/efficiency in emergency surgery theatres. In addition, changes were made to trainee anaesthetists' working patterns. This enabled more surgeries to happen in a day and reduced median waiting times (Metcalfe and Cosgrove 2009).
  - One study researched the use of quality improvement methods at a community and mental health trust in London via a 'collaborative learning system' (the sharing of data, testing and scaling-up of ideas through quality improvement with access to coaching from skilled improvement advisors. Over 2 years, waiting time from referral to first face-to-face appointment reduced from an average of 60.6 days to 46.7 days (a 23 per cent reduction). Non-attendance at first face-to-face appointment reduced from an average of 31.7 per cent to an average of 20.5 per cent (a 36 per cent reduction). Referral volume increased from an average of 1,021 per month to an average of 1,280 per month (a 25 per cent increase) (Shah *et al* 2018).
- Advice was issued from the NHS Institute for Innovation and Improvement (NHS III) to support Trusts to achieve waiting time targets in the 2000s target by redesigning and streamlining patient pathways:
  - keep the flow, reduce unnecessary waits
  - plan ahead along all stages in a patient's journey
  - pool similar work and share staff resources
  - reduce things that do not add value to patients
  - keep things moving
  - focus on the whole patient journey – not just your team, unit or section (Nolan 2007).

### *Other impacts/consequences/limitations*

- Lean and Six Sigma methodologies require staff training and set up of mechanisms of data collection. Upfront investment is therefore needed and there are indications that the return on this investment could be up to 2.5

times as much in the first year alone with even greater savings predicted in subsequent years (Amaratunga and Dobranowski 2016).

# Changes to the referral process

- Set up of direct electronic referrals to the specified service
- Triage of referrals received by specially trained staff according to a tool/standardised criteria/review of attachments (eg, photographs) to the referral
- Guidance/feedback on the thresholds and conditions of a referral to ensure only appropriate referrals are made
- Text-based triage
- Open access/combined initial assessment and triage

**Dates and locations covered in the literature:**

Australia, Chile, Scotland, Northern Ireland

## *Impact on/relationship to waiting times*

- We found a mixed and inconclusive evidence base about the efficiency and reliability of in-person versus virtual triage and its impact on waiting times.
    - Text-based triage, for example, may only be effective in 10-50 per cent of cases and obviate the need for a face-to-face appointment in 34-92% of cases (Caffery *et al* 2016; Joseph *et al* 2014; Harding *et al* 2013; Harding *et al* 2011).
    - A systematic review found that a combination of these approaches was associated with reduced waits in the context of dermatology services (a 40-day wait where photographs accompanied the referral compared with a 55-day wait in the control group and a drop from 126 days to 29 where an e-referral screening process was applied) (Blank *et al* 2015). Conversely, some dermatology conditions were found to be less conducive to photographic referrals, with 27 per cent of one study group in a randomised controlled trial requiring a consultation in order to gain further clarity about the health complaint/diagnosis (Leggett *et al* 2004).
    - The pilot of a £6.6m electronic referral system for opthalmology in Fife, Scotland was associated with a reduction in the median waiting time from 14 to four weeks. Photographs attached to referral forms helped to triage and remove inappropriate referrals from the list. The earlier treatment of patients was associated with a reduced number of emergency appointments, saving an estimated £239,580 a year (Khan *et al* 2015).
    - In Australia, the inclusion of photography/images in referral documentation has been associated with a reduction in the number of

inappropriate referrals by 50-88 per cent in dermatology and ophthalmology services – with waiting times in the latter falling from 14 to four weeks (Caffery et al 2016).

- Also in Australia, a triage model (Specific and Timely Appointments for Triage) was used by clinicians consistently to create a specified number of protected appointments for new patients based on demand. Clinicians took responsibility for booking patients into their next available slot for initial assessment and triage. A randomised control trial reported that waiting times for an initial appointment at a community rehabilitation setting fell from 42 to 24 days (Harding *et al* 2013; Harding *et al* 2019).
- One paper focused on the effects of an email triage system on waiting times, cost of care and safety over five years. Since 2002, a referral system has been introduced in a small number of general practices in Northern Ireland which allowed some neurological referrals to be managed by advice and investigations (over email) rather than by a conventional hospital clinic appointment. The results (although based on modest data) have been promising as waiting times fell from 72 to 4 weeks, despite an increase in referrals (Patterson *et al* 2010).

### *Other impacts/consequences/limitations*

- Clinicians using the Specific and Timely Appointments for Triage model in Australia were generally supportive of the approach, however, the research highlighted the various factors that might affect clinician buy-in and support of the change including the perceived benefit for patients (ie, whether or not clinicians believed the reduced wait was genuinely of benefit for patients); their previous experience of managing waiting lists themselves; stability or not of the organisation (ie, whether or not it was possible to plan for fluctuations in staffing) (Harding *et al* 2019).
- The cost per patient of email referral was about £100, compared with £152 for conventional care. The data indicated that diagnoses were revised following screening of the e-referral in 3 out of 120 cases (Patterson *et al* 2010).
- Direct access for laparoscopic sterilisation was deemed to be more efficient (no data reported on waiting times), however, patients reported that they would prefer to have an additional appointment with the gynaecologist performing the procedure even if this would result in a longer waiting time (McKessock *et al* 2001).

# One stop shops/day surgery centres

- Specialist or dedicated facilities offering a number or all of the stages involved with administering treatment (including pre-assessment, pre-surgery tests and minor surgery) in one place on one day
- Includes the delivery of specialist care in a primary care setting

**Dates and locations covered in the literature:**

England, Scotland

## *Impact on/relationship to waiting times*

- By 2001, almost all NHS trusts had at least one unit dedicated to day surgery (following £15 million worth of investment). By 2013, day cases accounted for 78 per cent of elective activity. Day surgery units were associated with higher throughput of patients (186,000 more each year compared with inpatient treatment) (Dhillon *et al* 2021; Appleby 2015). Despite this, we found almost no robust research of their effectiveness in respect of waiting times.
- A pilot project for one-stop cataract procedures at NHS Grampian (whereby preassessment, biometry and surgery take place in one afternoon) saw a 30-week reduction in waiting times to a median wait time of 21.4 weeks (Dhillon *et al* 2021).
- Delivery of specialist care in a primary care setting was associated with shorter waiting times in six papers studied as part of a systematic review. For one dermatology service, waiting times were 69 days compared with 97 for treatment as usual (van Hoof *et al* 2019).
- A pilot practice-based specialist minor oral surgery unit was established in Doncaster in 2007 with a median wait time of 35 days which 85 per cent of practitioners believed were shorter than at the hospital. Access was also open to those without a regular dentist, accounting for 13.6 per cent of referrals (Dyer 2013).
- A small-scale observational study researched the impact of carrying out minor surgical procedures in a general practice. There were 133 procedures carried out (mostly removal of ingrown toenails, lesion excisions and punch biopsies). It argued that minor surgery can be carried out safely within general practice, therefore helping to divert activity away from secondary care and reduce waiting lists for some elective care (McCormack *et al* 2022).
- One study in Northern Ireland investigated a 'blitz clinic' approach to reducing high numbers of patients waiting for a pre-surgical assessment. Six specialist, multi-clinician, co-located, consultant-led 'megaclinics' were

opened for six consecutive weeks and the majority of patients were discharged without any onward referral (the rest were either discharged to the pain clinic, or to the care of the physiotherapy team for ongoing patient management) (Murphy *et al* 2018).

### *Other impacts/consequences/limitations*

- This approach is typically associated with lower costs (£698 per patient compared with £3,375 for inpatient treatment), hence it is estimated that day case surgery saved the NHS around £2 billion 1998–2013 (Dhillon *et al* 2021; Appleby 2015). Cost-effectiveness is dependent on whether or not facilities are used at full capacity, otherwise this option can prove a more expensive option per patient than treatment as usual (van Hoof *et al* 2019).
- Patient attendance rates, care outcomes and satisfaction levels have typically been found to be high at one-stop services. Patients themselves have cited shorter waiting times and convenience of the location as reasons for their satisfaction (Dhillon et al 2021; Dyer 2013; Murphy *et al* 2018; Salisbury *et al* 2005).
- In some cases, one stop shops are believed to improve access to health care, both from the point of view of their geographical location (often more centrally within communities) and, as in the case of a specialist minor oral surgery unit, offering care to unregistered dental patients (Dyer 2013). In other cases, only around one-quarter of all referrals to one stop shops were deemed sufficiently low risk/suitable for the service based on the information provided by referrers (Dhillon *et al* 2021).

# Single entry models/pooled waiting lists

- A centralised point of access to a service
- The sharing of a waiting list between health care practitioners so that patients are seen by the next available practitioner

**Dates and locations covered in the literature:**

England

## *Impact on/relationship to waiting times*

- We found a mixed and inconclusive evidence base for this approach: although some providers adopting a single entry model saw a reduction in waiting and, waiting lists, and generally positive impacts on patient satisfaction (Damani *et al* 2017; Leach *et al* 2004) others presented weak evidence about the impact on waiting times (Joseph *et al* 2014).
- Hernia patients at one NHS Trust were entered onto a pooled waiting list rather than waiting for a named consultant. Patients were assessed at a Day Surgery Unit with a 'duty surgeon' confirming diagnosis. Patients were then either streamed to outpatients or their GP, or onwards for surgery within 4 weeks. This group experienced 'significantly shorter' mean waiting times than the control group (who did not go through direct booking) (Sri-Ram *et al* 2006).

## *Other impacts/consequences/limitations*

- Some concern has been expressed by clinicians about the impact of this initiative on the 'doctor-patient' relationship given the uncertainty and potential lack of consistency in the clinician involved in patients' care over time (Damani *et al* 2017).

# Patient reminders

- Issuing patients with updates and reminders about the status of their appointment

**Dates and locations covered in the literature:**

No studies of the use of this activity in practice.

## *Impact on/relationship to waiting times*

- We found no evidence that this activity has effectively reduced waiting times; only that it has been proposed as a means of improving patient attendance of appointments and, therefore, more efficient throughput of patients on the waiting list (Rathnayake and Clarke 2021).

# Expanded/ extended use of existing facilities

- Including extended hours of use of operating theatres, evening and weekend appointment slots

**Dates and locations covered in the literature:**

England

## *Impact on/relationship to waiting times*

- We found just one study of extended operating theatre times (8.00am–6.00pm) in an NHS trust in England. The number of procedures undertaken on a daily basis increased from 2.8 patients per session to 3.2. This meant that the 18-week target for surgery was achieved in 93.7 per cent of cases compared with 88.3 per cent at the outset of the study (Herron *et al* 2018).

## *Other impacts/consequences/limitations*

- This same study projected that this approach would lead to potential cost savings of £2.4 million a year – of which £225,000 would be saved by reduced reliance on private sector operating theatre facilities and £63,000 from reduced use of locum staff (Herron *et al* 2018).
- Staff sickness and absence, however, increased from 19 a day to 29 a day, with particular dissatisfaction where staff faced childcare or early morning/late evening travel difficulties (Herron *et al* 2018).

# Separating elective ('cold') and urgent/emergency ('hot') activity

- Ringfencing resource specifically for elective activity and urgent/emergency activity
- As opposed to sharing/borrowing resource/capacity

**Dates and locations covered in the literature:**

England

## *Impact on/relationship to waiting times*

- We found few research studies of the impact of this approach on waiting times. We found one study which indicated the worst-performing trusts for elective care waiting times in England were those where emergency and elective care resources were shared rather than separated and protected (National Audit Office 2019); and one review that suggested that separating planned and unplanned care increases activity in orthopaedic services – with potential benefits (although not empirically proven) for reducing waiting times (GIRFT 2020).

# Automated booking of appointments

- Systematic prioritisation and booking of patients into the next available treatment slot for urgent or routine treatment

**Dates and locations covered in the literature:**

Australia, England

## *Impact on/relationship to waiting times*

- We found very limited evidence for the effectiveness of this activity in reducing waiting times. The literature comments on the association between inefficient intake and scheduling processes and long waiting times (as well as patient safety).
    - Modelling of a computer programme booking system which filled all available urgent and routine appointment slots up to four weeks in advance and in strict date highlighted the value of efficiency in booking out clinician time and ordering bookings consistently and safely in contrast to a real-life non-automated booking system (Findlay 2012).
    - Inefficient intake and scheduling processes (amongst other things such as inappropriate referrals, insufficient capacity and staff attitudes to waiting times) are associated with long waiting times (Harding *et al* 2018). A controlled before and after trial in Australia found a 43 per cent decrease in waiting time (from 17.5 to 10 days) where clinicians allocated an appointment within their weekly schedule immediately at the point of referral with a target time of seven days. This impact on waiting times was also likely mediated by the balance between supply and demand and the stability of the waiting list (Harding *et al* 2013).

# Waiting list prioritisation: organisation of patients already on a waiting list

- An approach or framework for organising/ ordering the treatment of patients who are already on a waiting list according to a range of factors including their experience of pain, impact of their health problem on their functioning, social, economic and other 'moral' considerations as well as patient-reported outcomes and preferences.
- **Dates and locations covered in the literature:**

Canada, Italy, Sweden

## *Impact on/relationship to waiting times*

- We found very little evidence that this approach reduces waiting lists or waiting times – rather, this is a means of ensuring that resources are allocated in a timely fashion to those in most urgent need, concentrating the longest waits amongst those who are more likely to be able to endure them without significant adverse effects (Déry *et al* 2020; Siciliani *et al* 2014).
- Some studies included prioritisation tools considering equity, moral considerations and socio-economic parameters based on the accepted idea that longer waiting times have higher detrimental effects to people in lower socio-economic categories. Ideally, this classification of patients would involve the patient and draw on their own perspective/perception of their status. Some studies indicate that including more of these factors rather than less is associated with shorter waiting times for those in greatest clinical need and better post-surgical treatment outcomes (Rathnayake *et al* 2021).
- One prospective cohort study of patients waiting for rehabilitation indicated that those allocated to the highest priority category were treated, on average, within 4.8 days compared with 19.6 days, 26.6 days and 19.4 days in the second, third and fourth priority category groups respectively. Regression analysis indicated that approximately 11 per cent of the variance in waiting time was accounted for by the category/level of urgency to which a patient was allocated (Harding *et al* 2012).
- Another comparative study of the numbers of cataract procedures undertaken in Sweden 1993–1994 to 1998–1999 concluded that the combination of waiting list prioritisation with maximum waiting time guarantees for patients of different levels of priority and patient choice of provider for those waiting longer than three months was effective in improving access to treatment for those with the greatest need. Those with lowest acuity vision waited 68 days on average compared with 81 days for those with mid-acuity vision and 113 days for those with relatively high

acuity vision. When the maximum waiting time guarantee ceased in 1996, waiting times increased for all groups regardless of priority (Hanning and Lundström 2007).

- In Sweden in 2005, alongside another maximum waiting time guarantee of three months (after which patients could choose to receive their care elsewhere), a prioritisation tool – NIKE – was developed to organise patients on the list according to level of need, taking into account their symptoms, their ability to live independently and undertake activities of daily living. An evaluation concluded that waiting times for all patients (whether prioritised by NIKE or not) decreased in the period up to 2010:
    - for those in the highest category from an average of 3.4 months to 2.5
    - in category 2 from 3.7 months to 2.7
    - in category 3 from 4.5 months to 2.9
    - in category 4 from 4.5 months to 2.9
    - where NIKE was not used, from 3.4 months to 2.5 (Ng and Lundström 2014).

### *Other impacts/consequences/limitations*

- Held up as an initiative that may support efforts to tackle health inequalities by prioritising patient groups amongst which there are the greatest levels of unmet need (Holmes and Jefferies 2021).
- Ideally, prioritisation tools act as a systematic and transparent way of assigning priority and facilitating access to health care in an equitable manner – but prioritisation tools are often used inconsistently (or are subverted or disregarded altogether) by clinicians (Déry *et al* 2020).
    - Indicating the value of co-producing prioritisation tools with clinical staff and also the public (Rathnayake et al 2021; Déry *et al* 2020; Bruni 2010).

# Expanding roles/multidisciplinary treatment

- Redefining the remit and responsibility of existing health care staff and/or creating new roles to deliver health care, eg nurse-led clinics
- Sharing a waiting list amongst all staff within a multidisciplinary team where practitioners are upskilled/deemed qualified to deliver the necessary care

**Dates and locations covered in the literature:**

England, Scotland

## *Impact on/relationship to waiting times*

- We found very little compelling evidence in support of this approach to reduce waiting times – only associations between the two.
- Waiting times at a nurse-led respiratory care service fell by the equivalent of 17 weeks as patients were invited to the next available appointment with a nurse (as opposed to a consultant). Nurses would assess the patient, improve their awareness of their condition and make any onward referrals as appropriate (Annandale 2008).
- The waiting list at a nurse-led vascular service in Glasgow in 2000 was eliminated following the upskilling of nurses in installing tunnelled ventral venous catheters (Kelly 2009).
- At an integrated children's service in England, and without any additional investment or resource, the mean waiting time was reduced to under a quarter of the time at the start of the initiative to a mean of less than two months. Chiefly, this reduction was attributed to the role of non-consultant grade paediatricians including registrars and clinical medical officers in clinic sessions – although other associated changes included shorter consultation times, more streamlined documentation, removing patients from the waiting list for whom treatment was no longer necessary (Clow *et al* 2002).

## *Other impacts/consequences/limitations*

This approach requires consideration about the fairness and appropriateness of expectations of different staff groups such as nurses to lead on the delivery of treatment (Joseph *et al* 2014).

# Different models of care

- Offering remote consultations to patients via telephone or video conference
- Delivering treatment at home/in the community
- Co-ordination with social care to facilitate swift discharge from hospital

**Dates and locations covered in the literature:**

Canada, England, Sweden 1992–1998

## *Impact on/relationship to waiting times*

- There was very little published literature in respect of this activity and the potential impact on elective care waiting times. This is a shame, as there remains a gap in the evidence about the role of social care reform as a means of enhancing the care and support options available to patients and 'unblocking' care and discharge pathways from hospitals.
- Attempts to deliver computer-cognitive behavioural therapy have not yielded any promising results by way of reducing waiting times (Andrewes *et al* 2013).

## *Other impacts/consequences/limitations*

- Sweden's maximum wait time guarantee and the associated reduction in waiting times took place amidst broader reforms of social care to facilitate the swifter discharge of older people from hospital into the community, however, the specific impact of these reforms on waiting times is unknown (Hanning 1996).
- The implementation of digital modes of delivery in the context of the English NHS has faced numerous logistical challenges including poor technology, inadequate staffing and provider concerns about the costs of implementation which hamper take up (Andrewes *et al* 2013).

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