BMA

Effective use of NHS funding: case studies

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Introduction

Free universal healthcare has been the promise of the NHS since its creation back in 1948. To deliver it the only thing that will suffice is sufficient funding for health and social care services. Funding must rise in line with the needs of the population and the need for high quality of care. To get there governments across the UK need a long term plan, securing the future of the NHS.

Unfortunately we're many miles away from here. Across the UK the NHS is now facing unprecedented pressures, due not just to increasing demand for services, but as a result of significant financial constraints.

As is so often the case, this difficult job is now being delegated. As financial pressures have grown the responsibility of who has to address these challenges have shifted from the centre to decisions at a local level. In England, for example a large chunk of the £14.9 billion out of the £21.6 billion of efficiency savings still to be delivered are to be met locally.[1]

Cuts can have a direct and detrimental impact on clinical work, making it less efficient and productive as well as reducing the quality of care.[2] Poorly designed services will compromise the quality of care delivered within the NHS, lead to poor patient outcomes, unnecessary costs and wasted resources.[3]

It is important therefore that the most effective use of existing NHS funds is being achieved through innovative changes to service delivery and planning, rather than making cuts. Introducing new ways of working, redesigning job roles and applying 'lean' thinking to regular processes, for example, may allow hospitals to reduce their costs and/or absorb additional patient demand within their current resources.[4] In primary care general practice working at scale may reduce back-office costs.

Clinicians and health professionals are crucial here. It is them, not Whitehall officials, who have valuable knowledge and experience on the ground to understand what is needed at a local level to deliver improvements for patients – and which of these may as a result maximise the value of the NHS investment in them. Their efforts will need to be supported by system-wide change and adequate resourcing however.

This report presents the results of a literature review that identifies examples of successful initiatives that have sought to improve value for money in the NHS within the UK and internationally. The report was produced as a background report for a BMA cross branch of practice roundtable on the issue, to help spread good practice and support doctors working in an increasingly underfunded NHS.

It draws out three areas, which were identified as areas where existing NHS funds may be used more effectively: preventative measures through investment in public health; improvements to services through changes in clinical and systems and management practices.[a] The examples provided in the report are illustrative, not exhaustive.[b]

a Please note that this report looks at improvements within the current NHS structures. It therefore does not include an examination of the costs of the internal market within the English NHS, which is part of other BMA work.

b Many of the case studies are from the English NHS. However, their principles are applicable more widely. Excellent work by clinicians using NHS resources prudently is happening across the UK.

Investment in Public Health

A preventative approach to healthcare is essential for ensuring a healthy and productive population. Our research also found it can be a cost-effective approach and some interventions can even provide a return on the investment. For example, Public Health Wales estimated that £1.32 would be returned for every £1 spent on targeted flu vaccinations, and this would increase to £12 per vaccination when healthcare workers were included.[5] Public health prevention only makes up a small proportion of the NHS budget however, a trend that is reflected across Europe.[6] In England for example it is estimated that only 4% of the NHS budget is spent on prevention programmes.[7]

It is important to be able to demonstrate the cost effectiveness and quantify the return of public health investment. Case study 1 shows the longer term benefits of health prevention for the effective use of NHS funds and the wider economy. Our research however highlighted that data is not always available, and quantifying the effects of public health investment over the medium to long-term can be difficult.

CASE STUDY 1: SMOKING INTERVENTION, BURY METROPOLITAN BOROUGH COUNCIL, ENGLAND[8]

NICE developed a model to help local decision making on tobacco control. The model illustrates the cost of smoking within an area. NICE used the model with Bury Metropolitan Borough Council to assess smoking interventions.

Smoking rates in the area were slightly above the national average, roughly 23% of people smoked and 33% were ex-smokers. The model estimated the total annual cost of smoking at £10.7 million.

The model found that investing in smoking cessation interventions would be cost effective in the long term. It was estimated that for each pound spent on interventions a return of 63p, £1.46, £2.82 and £9.35 over 2 years, 5 years, 10 years and a lifetime respectively. This takes account of both NHS savings and the value of health gains. These savings would be gained from business days lost from smoking, passive smoking related treatments as well as medical appointments and prescriptions.

Another theme from our research was the impact of local intervention on public health. Local intervention can have a significant impact on both the population's health and on the effective use of NHS funds. It means that action can be tailored to a specific population. Case study 2 demonstrated the positive impact a local scheme can have on the population. Local intervention however also needs to be balanced with national investment and action for public health programmes, such as laws to limit access to tobacco products.

CASE STUDY 2: BE ACTIVE, BIRMINGHAM CITY COUNCIL, ENGLAND[9]

Be Active is a Birmingham City Council scheme launched in 2008 to provide free leisure services to residents.

Participants can register and are given a card which allows them to use a range of facilities from swimming pools and gyms to exercise classes and badminton courts for free during certain times.

A third of the local population have got involved since the project was launched. Research by Birmingham University showed that three quarters of users were not previously members of a leisure centre, gym or swimming pool and half were overweight or obese. It also had a knock-on effect in other areas with rises seen in the numbers seeking help over smoking and alcohol. Overall, for every £1 spent on the scheme £23 is estimated to have been recouped in health benefits.

Investment in public health has the potential to positively impact on the health of a population as well as the cost effective use of NHS funds. Our research showed that public health has not been prioritised within budgets, medium to long-term impacts of interventions are not always well documented and a balance between local and national action is needed. BMA members are in a good position to influence the public health agenda. In particular they may want to consider:

- Lobbying at a local level to prioritise public health within budgets
- How they can support the collection of evidence on the medium and long term impact of public health interventions within their medical speciality

Clinical practices

Improving clinical practices can help to ensure NHS resources are used effectively. This section looks at four different areas of clinical practice – patient care pathways; the integration of care; the way clinicians interact with patients and the use of medicines. It explores how implementing methods that help patients move effectively through the health and social care setting can reduce time spent in hospital; how multidisciplinary teams can avoid duplication, deliver more patient centred-care and save money at the same time; and at how activating and involving patients can reduce the burden on the NHS and make more effective use of medicines.

Patient care pathway

How a patient moves through care settings and the length of stay in care settings can have a considerable impact on the resources used. It is important that the flow of patients through hospitals and between care settings is managed well to ensure effective use of tight resources.

Despite the UK's low length of stay in hospital, there is often significant variation in length of stay between hospitals, suggesting that improvements could be made. Research also suggests that up to 50% of the reasons for patients not needing to remain in the hospital are under the direct control of the hospital itself and often relate to internal processes, decision-making and organisation.[10] This indicates that improvements to how services are run could help to improve the flow of patients through the hospital and between settings. However, resources will need to be provided to other service areas to enable patients to be transferred to the most appropriate care.

Patient flow within care settings

Designing services to improve patient flow has been the focus of some organisations in order to help use the capacity available effectively and reduce costs. Mapping of how patients flow through the hospital is a good way of understanding the operational processes and staffing mix that underpin clinical pathways. As a result this can help to reduce length of stay and make more effective use of NHS resources. The Health Foundation's Flow Cost Quality Programme[11] for example found that by managing flow more effectively there were improvements to patient safety and reductions in costs.

Our research suggests that alongside good quality data to effectively map patient flow, clinical engagement is a key component of the success of any subsequent changes made – helping to get buy in and also ensuring any changes made are effective. The case study below of the measures South Warwickshire's NHS Foundation Trust took to smooth patient flow highlight this. In South Warwickshire Consultants are now actively engaged in all changes to programmes within the trust. The benefits of workforce engagement are discussed later in this document.

CASE STUDY 3: UNBLOCKING A HOSPITAL IN GRIDLOCK – SOUTH WARWICKSHIRE NHS FOUNDATION TRUST[12]

South Warwickshire NHS Foundation Trust was not achieving the four hour A&E target, length of stay and mortality rates were increasing, and patients were undergoing multiple bed moves.

The flow cost quality team identified a number of bottlenecks. These included a mismatch between peaks in patient arrivals and staffing numbers (for example a lack of senior clinical decision makers after 6pm when most patients arrived); delays in assessing patients as peaks in demand for phlebotomy services and infrequent portering of samples led to delays; as well as other bottlenecks as a result of ward based processes.

It then focused on testing and implementing changes. These included small alterations to working practices. Physicians and surgeons now see patients on the same day as arrival to prevent them from being kept on the MAU (Medical Assessment Unit) overnight; phlebotomists start half an hour earlier and portering routines have been altered to ensure blood tests are not out of date.

Ward-based processes and discharge have also been improved through:
- *Introducing a 'consultant of the week'* – responsible for all the patients on the ward, providing increased continuity, senior decision making and communication.
- *Daily ward or board rounds* – The clinical team meet in front of a visual management board highlighting key information about the patient.
- *An electronic work management system* – flagging the key investigations that need to be done, which get added to a specific work list and is constantly updated.
- *E-prescribing* – to ensure scripts are immediately available to the pharmacy department. Porters also now make four deliveries of TTOs (take-home medications) from pharmacy onto the wards, instead of a single 'batched' delivery.

As a result of these changes, improvements were seen in same-day blood test results (an increase from 15% to 80%); prescribing errors were reduced (from 35% to 10%); and quicker turnaround times for patient leaving with their TTOs achieved (from 6 to 2 hours). Despite an 11.5% growth in emergency admissions in 2013, the trust has managed to maintain A&E performance, and reduce average length of stay and bed occupancy. This resulted in a more efficient, higher quality system.

Patient flow between care settings

The ways in which patients move between care settings can also have an impact on the use of NHS resources. Inappropriate or unavailable options for patients to move to care settings beyond hospital can cause huge financial strain on the NHS.

Delayed transfers of care are consistently one of the top three concerns expressed by the English NHS finance directors surveyed in The King's Fund's quarterly monitoring report.[13] The Carter Report also highlighted the problem caused by delays in transfer of care and warned that a significant proportion of its identified £5 billion efficiency savings will not be achieved if these delays are not managed more effectively.[14]

Our research suggests that good quality data is equally important in improving patient flow between care settings and organisational boundaries. Engaging staff in all parts of the patient journey and partnership working has also been found to be an effective method of improving the transfer of care of people from hospital to outside settings.

Working across organisational boundaries can help hospital staff discharging patients become aware of what other services are potentially available in their local community to help them. For example, working with housing associations has been seen to help ease the pressure on acute services by providing solutions to help meet a range of particular needs.[15]

However, methods such as these need to be applied in parallel to services such as social care being resourced appropriately. An inadequately funded and under resourced social care system will lead to negative impacts on an already stretched, overworked and underfunded NHS. Cuts to local authority budgets have led to care home places being frozen or reduced, destabilising the sector.

The above examples illustrate how small changes to services and looking beyond organisational boundaries can help to improve the flow of patients within and between care settings. BMA members may want to consider:

- Identifying peak times in NHS settings and ensuring staffing levels and service times reflect these
- Ensuring there is clinical engagement in any changes to services
- Identifying bottlenecks where patients are being delayed
- Increasing awareness of where patients are moving to when leaving NHS care, to build up partnerships and manage transfers of care

Integrated care

Integrated care is crucial to ensuring patients move through health and social care services appropriately. It helps to address fragmentation in the NHS as at present silo working, poor communication and a lack of coordination between organisations prevent patients from moving round and through the system easily.

While evidence suggests that service reconfigurations, such as community-based models of care, will not deliver significant savings,[16] our research has shown that in some instances integrated care can help to make more effective use of NHS resources. Our research identified those areas in particular where integration could lead to more effective use of NHS budgets: teams working across disciplines and the integration of budgets.

Multi-disciplinary teams can help reduce duplications, allow doctors to take a more patient centred approach and reduce delays and re-referrals. As a result it has been found that a more co-ordinated approach between care teams is associated with reduced hospital admissions and emergency admissions.[17] For example, the below case study illustrates how the work of a multidisciplinary team led to an increased number of older patients being discharged rather than admitted to hospital.

CASE STUDY 4: RAPID ACCESS CLINIC IN LURGAN HOSPITAL, NORTHERN IREALND[18]

Within the Southern Health and Social Care Trust, Lurgan Hospital provides a consultant-led assessment clinic for rapid access for GP referral, and a community stroke rehabilitation service. The multidisciplinary team includes a consultant, an occupational therapist, a physiotherapist, a nurse and a social worker sharing information and unified assessments, to improve cost-effectiveness and efficiency.

The service was audited during 1 June 2010 and May 2011. During this period, 300 people were seen; of these, 221 were discharged. The remaining 79 patients were admitted to hospital directly from the clinic. Thus for 74% of service users, hospital admission was avoided on the day of the assessment. Of the discharged patients, just 8.6% required an unscheduled admission via the A&E department. In 59% of all service users, acute admission was completely avoided within 30 days – saving the need for and money spent on A&E attendances. Feedback on the service was also positive, as hospital admission was described as 'traumatic' for many older people.

Co-ordinating with care teams in the community can also help to reduce clinical time and NHS resources. For example, Staffordshire's Memory First Project[19] brought together consultant led clinics into the community and together with social care services, charity and end of life support to help cut dementia diagnosis times from three years to four weeks. This also helped to reduce clinical times, saving significant resources.

Pooling budgets has the potential to lead to better use of NHS funds, as it encourages system-wide planning and thinking, and ensures patients are cared for in the most effective place, which is increasingly within the community. As a result funds are used effectively and it can result in savings in other parts of the system, as the case study below about Alaska's Nuka System of Care illustrates. However this only works where funding is sufficient, as otherwise there is a risk of money being diverted between different services to plug gaps in funding.

CASE STUDY 5: NUKA SYSTEM OF CARE, ALASKA, UNITED STATES[20]

Nuka was developed in the late 1990s. It is a partnership between the non-profit healthcare organisation, Southcentral Foundation, and the Alaska Native community. Nuka aimed to achieve wellness through health and related services.

Health service integration is a core element of the Nuka system of care. It brought together services which resulted in significant improvements of care. It has transformed health care for Alaska Native people from among the worst in the United States to among the best in the world.

Pooling budgets between hospitals and primary care services was a central element of the approach, and encouraged system-wide planning. This is because it reduced incentives for one part of the system to increase or reduce activity purely because of the impact on revenue.

As a result of integration, Nuka achieved improvements under the same funding arrangements as the previous government run system and has sustained them. For example there has been a 23% decrease in accident and emergency attendance and urgent care visits between 2008 and 2015.

The primary aim of integration should be to deliver genuine patient centred care. As a result, this can lead to more effective use of funds across the system. However financial implications should be a by-product of integration not the focus.

To increase and improve integrated care, BMA members may want to consider:
- Whether there is scope to work more closely with professionals from other disciplines
- Whether partnerships with local charities and care organisations may help to improve patient care and reduce costs

Self-management

Patients who are involved in and empowered to manage their own health conditions are more likely to use less NHS resources. They are less likely to attend accident and emergency departments, to be hospitalised or to be re-admitted to hospital after being discharged, which is likely to lead to higher health care costs.[21]

As a result, self-management – or patient activation[c] – can ensure better use of NHS resources. This is particularly the case for those with long-term conditions. In England this group currently account for 50% of all GP appointments and 70% of all inpatient bed days,[22]

c 'Patient activation' describes the knowledge, skills and confidence a person has in managing their own health and health care.

albeit Department of Health estimates suggest that about 70-80% of this group may be able to be supported to manage their own condition.[23]

Our research suggests that three areas in particular can help use existing NHS resources more effectively. The first of these is supporting patients to better self-manage their health or longer-term conditions.

Self-management programmes help individuals to learn and practice skills to help them manage their health condition on a day-to-day basis. For example, practicing and adopting specific behaviours which are central to managing their condition or engaging in healthy behaviours to reduce the physical and emotional impact of their illness.[24]

These programmes will require an up-front investment, but can also be cost effective and save the NHS significant costs. Research has shown an average saving of £452 per patient per year by reducing healthcare professional visits; outpatient appointments; A&E attendances; hospital inpatient bed days and medication costs.[24] Such small savings per person can add up to significant amounts, with self-management programmes in England estimated to potentially deliver savings of 7% for clinical commissioning groups, over £21 million per average clinical commissioning group, or £4.4 billion across England.[25]

The case study below illustrates how Hillingdon Trust's breathlessness clinic has reduced A&E admissions and hospital bed days through supporting COPD (chronic obstructive pulmonary disease) patients to better deal with their condition.

CASE STUDY 6: HILLINGDON HOSPITAL NHS TRUST – BREATHLESSNESS CLINIC[26]

The experience of breathlessness can be distressing, and anxiety, panic and depression are common in COPD patients. Psychological co-morbidities in turn are related to more frequent A&E admissions and longer stays, as well as less effective self-management and poor quality of life.

Participants attended a breathlessness group for two hours a week over four weeks delivered by members of the multidisciplinary respiratory team, including a health psychologist, respiratory nurse specialist, physiotherapist and occupational therapist. The clinic used Cognitive Behavioural Therapy techniques and psycho-education to address anxiety, panic attacks and depression, understanding and self-management of COPD and medication, activity pacing, relaxation, breathing retraining and goal-setting.

As a result the clinic did not just lead to improvements in health status and perceived impact of COPD and a reduction in anxiety and depression. It also over the course of six months saved £4,600 on A&E admissions and £58,800 in hospital bed days, compared to COPD patients of similar age.

The second area that our research identified as having potential to use existing NHS resources more effectively is the involvement of patients in decisions about their care. Shared decision making involves collaboration between clinicians and patients, their families and carers to decide the best course of treatment for an individual. However, it can also help make the most of NHS resources, by reducing the likelihood of patients choosing invasive surgery, high cost treatments and unnecessary tests.[27] The case study below highlights how the care transitions intervention in Colorado, USA saved money by involving patients and caregivers in decisions about their care when leaving hospital.

CASE STUDY 7: CARE TRANSITIONS INTERVENTION – COLORADO, USA[28]

The Care Transitions Intervention aims to improve care transitions by providing patients and their loved ones with tools and support that promote knowledge and self-management of their condition as they move from hospital to home.

This includes: a structured checklist of critical activities designed to empower patients before discharge from the hospital or nursing facility; a patient self-activation and management session with a Transitions Coach in the hospital; follow-up visits and phone calls by the Transitions Coach after transition to support patients and their carers in decisions about their care and provide continuity across the transition.

Hospital cost data suggest an annual saving of just under $300,000. These savings represent the difference in hospital costs at 180 days post discharge between those who took part in the intervention and the control group and deducting the cost of the intervention.

The case studies above illustrate that supporting patients to better manage their health or making decisions jointly with them can help doctors make effective use of tight NHS resources. BMA members may want to consider:

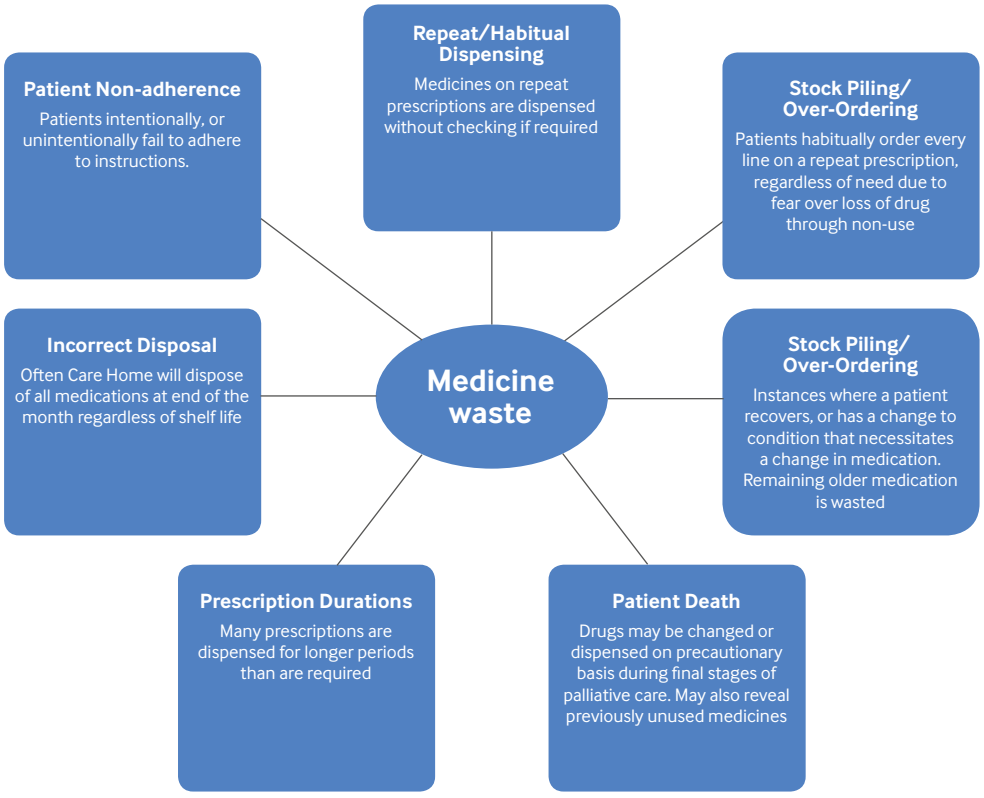
- What their practice or hospital is doing to support patients to self-manage
- Whether there are particular health conditions where self-management support could help reduce pressures on doctors and reduce costs
- Whether there is further scope to involve patients and their carers in decisions about care

Pharmacy review

Medication is a sizable proportion of the NHS budget. As demand for health services change, new drugs become available and technology advances, so does the cost of medicine in the NHS. While these advances provide great opportunities for patients and the quality of care they receive, our research has also identified a significant amount of poor use of medicines within the NHS. For example, in England it has been estimated that £300 million of NHS prescribed medicines are wasted each year.[29]

As illustrated in Figure 1, there are a range of reasons why medication wastage happens across the NHS. Our research found that the effective use of medication could be improved by regular reviews and through involving a range of people in these reviews, such as patients, their family and a range of healthcare professionals in a multi-disciplinary setting.

Figure 1: What are the causes of medication waste?[29]



Case study 8 demonstrates how undertaking regular reviews of medication with patients, their families and a multidisciplinary team of health professionals can result in better use of medication for the individual as well as more effective use of NHS funds.

CASE STUDY 8: MEDICATION REVIEWS IN NURSING HOMES, NORTHUMBRIA HEALTHCARE NHS FOUNDATION TRUST, ENGLAND[30]

The Northumbria Healthcare project aimed to reduce the amount of medicines prescribed to older patients in care homes unnecessarily, as well as to involve patients and their families or carers in decisions about prescribing.

422 medication reviews were carried out in 20 care homes, conducted by clinical pharmacists and involved examining primary care, care home and secondary care notes to answer four questions:

- Is the medication currently performing a function?
- Is the medication still appropriate when taking co-morbidities into consideration?
- Is the medication safe?
- Are there medicines missing that the patient should be taking?

The findings were discussed by multidisciplinary teams which included care home nurses and GPs as well as patients, families and carers where possible. 1,346 interventions were implemented, most of which involved stopping medicines where it was safe to do so. An average of 1.7 medicines were stopped for every resident reviewed, the main reasons for stopping medicines were 'no current indication' or 'resident requested to stop'.

This resulted in savings of £77,703 or £184 per person reviewed. For every £1 invested in the intervention, £2.38 could be released from the medicines budget.

Medication reviews should be performed by the most appropriate healthcare professional. Across the UK the role of pharmacists in prescription systems are being increasingly recognised in improving services for patients and using NHS funds effectively. This is demonstrated in GP federations in Northern Ireland where the health minister in December 2015 announced a five year initiative of up to £2.6 million additional investment to provide for pharmacists to work alongside GPs. Case study 9 is an example of where pharmacists are managing repeat prescriptions to improve the use of medication for patients and improve prescribing practice.

CASE STUDY 9: IMPROVING THE MANAGEMENT OF REPEAT PRESCRIPTIONS, WALSALL CCG (CLINICAL COMMISSIONING GROUP), ENGLAND[31]

It was estimated that GPs were authorising around 200 repeat prescriptions each week in Walsall CCG. Opportunities to improve prescribing practice were potentially being missed as GPs sought to fit repeat prescription reviews into their heavy workload.

Walsall CCG implemented a pharmacist-led service in general practice to manage repeat prescriptions. The initiative was designed to bring clinical, safety and financial benefits for patients, GP practices and commissioners. This was delivered by:

- Creating extra pharmacy capacity to allow pharmacists, including some working as independent prescribers, to generate repeat prescriptions, authorise those that are within their level of training and medical competence and pass the remainder on to GPs for authorisation.
- Giving pharmacists access to GP clinical systems. This allowed them to look up relevant information about the patient, reduce over-ordering of medicines, align patients' prescription renewals, address compliance issues and identify clinical monitoring requirements.

The system is managed by Walsall CCG, but pharmacist costs are taken from each practice's prescribing budget on an invest-to-save basis.

The initiative is likely to have had a positive effect on patient outcomes, as more patients will receive the right medicines at the right time. It is also likely to have reduced prescribing errors. The GP workforce is also likely to benefit as it removes one workforce pressure and improves patient access. During 2014/15 the system delivered a net saving of £807,203, which translates to a £3.54 return on every £1 invested in the service.

Our research has shown the positive impact regular medication reviews can have for both patients and the effective use of NHS funds. BMA members may want to consider how regular reviews could be used to improve the use of medication in their area. In particular they might want to consider the:

- process for reviewing prescriptions
- engagement level with patients, their families and carers
- use of healthcare professionals and multi-disciplinary teams in medication reviews

Systems and management practices

Changes to the ways health services are managed can also bring improvements to how NHS resources are used. Staff are the backbone of the NHS, so ensuring managers make the best use of their highly-qualified workforce is crucial to ensuring high quality care is delivered and health services run efficiently. This section also looks at how working at scale can reduce NHS costs whether it is through changes in organisational structures, such as the creation of GP federations or by using scale to gain better deals on procurement. Finally, technology and sharing data can be central to helping organisations work collaboratively as well as helping health services run more efficiently and providing effective care for patients.

Making the best use of the workforce

Staff are fundamental to the NHS and ensure a high quality service is provided. As a result, staff costs make up a significant amount of the healthcare budget. For example, hospitals in Scotland spent around 65% of their budgets on staff in 2014/15.[32] Poor use and management of the workforce can have a significant impact on expenditure. Our research identified two themes under workforce that contribute to the effective use of NHS funds planning and engagement.

Good workforce planning is essential. It is important that organisations are aware of the whereabouts of their staff and what they are doing in order to optimise resource. There are a range of tools available to help employers and staff achieve this, such as the ESR (electronic staff record)[d] and through e-rostering.[e] Case study 10 is an example of how an online rostering system can result in more effective use of NHS funds. Our research found however that across the NHS opportunities to facilitate good workforce planning are not being fully utilised. For example, the Carter report highlighted that trusts in England were not using the full functionality of e-rostering and therefore not receiving all the benefits.

CASE STUDY 10: ONLINE ROSTERING SYSTEM, BLACKPOOL TEACHING HOSPITALS NHS FOUNDATION TRUST, ENGLAND[33]

The Blackpool Teaching Hospital NHS Foundation Trust undertook a six month pilot of an online rostering system. The aim of the pilot was to devise a quicker, more transparent and efficient method of producing rotas for the junior doctors. The pilot was conducted with a small group of doctors to ensure that the system was fit for purpose and to open lines of communication with medical staff.

The six month pilot made substantial savings valued at £20,000. It did this by better workforce planning and as a result reducing the use of locums and administration costs. Doctors also benefited from the system as it was fair, transparent and allowed for advanced planning of leave.

Staff engagement is important and increasingly acknowledged by the NHS. For example, the NHS in Wales in partnership with Welsh government, NHS employers and trade unions, including BMA Cymru Wales, introduced a new set of core principles in 2016. These principles demonstrate the importance of staff within the NHS and captures the commitment of staff to deliver services.[34] Our research found that organisations that are good at engaging their staff had more satisfied staff, better clinical outcomes and are more efficient. We know for example that disengagement and high stress levels can lead to a fall in productivity. The NHS lost 15.7 million days to sickness absence in 2015.[35] Therefore, if the NHS could improve staff

d A system to support the delivery of workforce policy and strategy by providing employers with a range of tools that facilitate effective workforce management and planning. ESR is currently being used in England and Wales.
e An electronic staff management tool used to plan staffing requirements, report on enhanced hours, overtime, sickness, TOIL and annual leave.

engagement this could increase productivity and result in more effective use of NHS funds. Making the best use of the NHS workforce will be of high importance to BMA members. It will not only benefit doctors at a personal level, it will also ensure a high quality service and provide effective use of NHS funds. BMA members may wish to consider:

- what workforce planning challenges they face in their area of work, and what could be done to address these
- what is the best way to engage NHS staff to ensure productivity, and what can be done at a practical level in their area of work

Working at scale

The concept of 'working at scale' can be found in numerous industries and services. It can benefit the end user, be an effective way of managing finances and improve the quality of a service or product. Our research identified evidence that working at scale could also, in the right context, be successfully applied in the NHS across the UK.

Working at scale can be achieved both in the delivery of health services and through the improvement of back office functions. The 2016 Carter Review reflected that NHS England did not take advantage of working at scale within services. As a result this impacted on the ability of trusts to deliver high quality care and the opportunity to use funding more effectively.[36] Our research has highlighted that this theme, further potential within the NHS to work at scale, is relevant across the UK. For example, BMA Northern Ireland's GP Committee has been responsible for the creation, development, and implementation of a network of federations. Each federation comprises of around 20 general practices, delivering services to approximately 100,000 patients.[37] The model aims to use working at scale to improve the quality and sustainability of the service. It has also been recognised that this model could be expanded further to further improve the service delivery.

Healthcare delivery can achieve working at scale through pooling services. ACO (accountable care organisations) in the United States are an example of where a group of providers joined together to deliver care to a given population. Early evidence from the United States shows that ACO can deliver a service that is focused on the need of patients, use funds effectively and improves the quality of care across a number of standards. The success of ACO is closely linked to the context they are being used in.[38] While the United States spends more than the UK on healthcare, ACO are increasingly being used and considered within the NHS as an effective way of working at scale. For example, it has been indicated that multi-trust sites in England could more effectively use funding, in the order of savings between £3-5 million, by reducing the number of sites where emergency cover is required.[39]

Our research found working at scale in backroom functions had significant potential to deliver more effective use of NHS funds. Back office functions can include payroll, human resources, records maintenance, accounting and IT services. Back office costs are a considerable part of the NHS budget. Large scale organisations that already have multiple sites, often also have duplicated backroom functions. Working at scale can deliver effective use of NHS funds by bringing together these services within the organisation. Case study 11 is an example where working at scale in the payroll function benefited the user, the quality of service and was an effective way of using NHS finances.

CASE STUDY 11: PAY ROLL SERVICES, NORTHUMBRIA HEALTHCARE NHS FOUNDATION TRUST, ENGLAND[14]

NHS Payroll Service is a subsidiary payroll function set up by the Northumbria Healthcare NHS Foundation Trust. It has provides services to over 40 NHS organisations in the area, including acute, community and mental health trusts, as well as social enterprises, clinical commissioning groups and GP practices. Compared to the previous system, NHS Payroll Service can provide services at a lower cost and to a high quality.

As a result of working at scale, NHS Payroll Services has reduced the cost of this function by around 26%. In addition the function has delivered a high quality service, with an accuracy rate of 99.98% across 800,000 transactions a year. The success of the service is also demonstrated in their 100% client retention rate.

Working at scale in the NHS has the potential to deliver a more effective way of using NHS funds as demonstrated in our research. It must be acknowledged however that working at scale is not appropriate for all healthcare services or locations, it is also often an overtly political decision, for example hospital closures, and the wider context needs to be considered. BMA members have an important role in influencing discussions around working at scale in their local area. In particular they may want to consider:

- what potential their medical speciality and local geographical area have for working at scale and share ideas at a local level as appropriate
- look to build open and constructive conversations with local decision makers to ensure the medical profession's views are heard and accounted for in discussions on working at scale

Procurement

Our research identified procurement as an area that could be used to ensure better use of NHS funds. The NHS spends a significant amount on goods and services. For example, the Northern Ireland Procurement and Logistic Service influences appropriately £500 million of goods and services spend per annum on behalf of HSC (health and social care).[40] There is however great cost variation on specific items. For example, the NHS in England spends approximately £25 million on sterile surgeon□s gloves with one brand, the dominant market leader. However, the NHS atlas for variation showed that there are huge differences in what trusts in England pay for sterile surgeon gloves. In 2013/14 Oxleas NHS Trust paid £2.38 per pair of latex free surgeon's gloves, whereas Humber NHS Foundation Trust paid £1.09, a 118% difference.[41,42] This illustrates the potential of improving procurement practices could have a direct result on NHS finances.

Collaborative procurement was the key theme identified in our research. Collaborative procurement can improve the buying power of organisations because of the volume leverage it gains within the market and subsequently reduce the cost variation. Case study 12 is an example of where organisations worked together to make the best use of their combined buying power. As a result NHS funds were spent more effectively.

CASE STUDY 12: SUPPLY CHAIN MANAGEMENT AND COLLABORATION, AVON, GLOUCESTERSHIRE, WILTSHIRE AND SOMERSET CARDIAC & STROKE NETWORK, ENGLAND[43]

In 2009 a partnership agreement for cardiology products was established between 10 NHS acute trusts in the south west region of England. To set up the partnership an investment of £70,000 was required over two years. The partnership was formed because the procurement for cardiology products was fragmented and resulted in a range of prices for similar projects. The agreement aimed to deliver more effective use of NHS funds in procurement without compromising clinical choice or innovation.

As a result it is estimated that for 2015/16 £1.5 million was saved for a population of 2.35 million. This equates to £64,000 per 100,000 population.

Healthcare professionals have an important contribution to make on procurement discussions. BMA members therefore may want to consider:

- how they can be involved in procurement discussions within their role;
- how they can support a coordinated approach within their healthcare setting to encourage procurement decisions that result in more effective use of NHS funds.

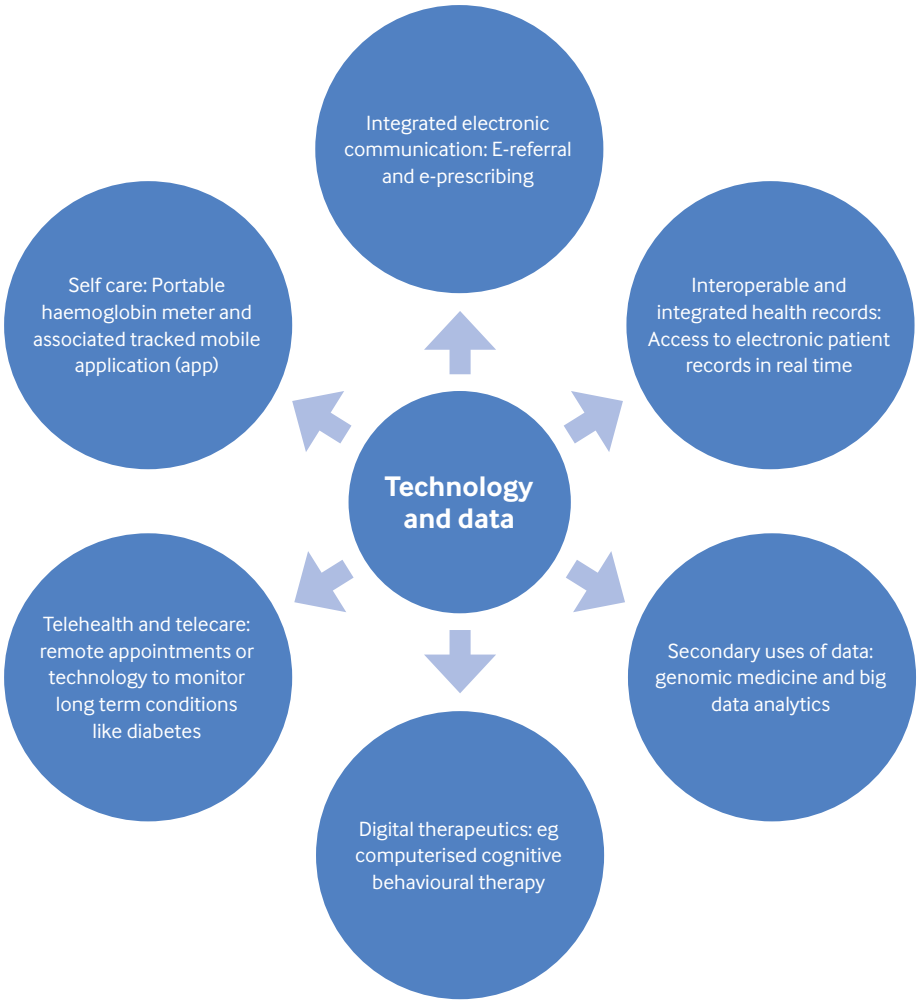
Technology and data

Implementing technology can be expensive and involve significant initial financial outlay. Over the longer term however technology has the potential to lead to better use of NHS funds. It can change how people engage with health services, manage quality and performance, drive improvements in efficiency, care coordination and medical advancement.

A recent study for one of the OECD countries even suggested that implementing existing technologies could reduce the country's current healthcare expenditure between 7 and 11.5%.[44] Despite this, current investment in data and technology remains relatively low, especially when compared to other areas of NHS spend. In 2015/16 for example investment into IT in general practice was only £238 million.[45]

Technology is constantly changing, so the range of ways in which technology and data can transform the way NHS services are delivered is vast. Figure 2 aims to provide an overview over the key areas.

Figure 2: Key areas of technology and data in the NHS



Our research suggests that investments in new technology or data – whether in the NHS or elsewhere – work best where they are accompanied by investments in changes to way people work, and training in the use of the new technology. It is also important that staff are given the time to engage with and adjust to the changes made and that there is buy-in at all levels of the organisation for the changes. In this respect investments in technology and data can be an enabler of more effective use of NHS funding in many of the areas described in this report.

Our case study on e-rostering in the section 'Making the best use of the workforce' for example, highlighted how technology can help us make better use of the NHS's existing workforce. Telehealth and telecare can help reduce travel times and costs as well as help doctors communicate with their patients more effectively – as long as the technology works. In addition, integrated electronic communication can reduce time spent on writing letters. The below case study also illustrates how successful telemedicine can lead to a reduction in unnecessary hospital admissions.

CASE STUDY 13: AIREDALE NHS FOUNDATION TRUST, ENGLAND[46]

In 2014, Airedale NHS Foundation Trust (ANHSFT) partnered with Involve to develop *Immedicare,*[47] a service that delivers clinical healthcare services via telemedicine. The service was introduced in a number of settings, including prisons, care homes and patients in their own homes.

Patients using *Immedicare* have a box installed on top of their television or software installed to mobile devices. If patients feel unwell or are concerned, they can access the nurse-led monitoring centre, based at Airedale Hospital, through a two-way secure video link. Their concern can be escalated to a doctor as required. It is also possible for a clinician to contact the patient through the same channel if they are concerned for any reason.

Immedicare measured the impact of the use of teleconsultation facilities across a group of 17 care homes. The results showed that:
- there were 45% fewer hospital admissions in the year after the teleconsultation service goes live at each location;
- the length of stay for hospital admissions has dropped by 30% – while total bed days used are 60% less than in the year prior to the introduction of teleconsultation services;
- residents' attendances at the hospital's emergency department are 60% less than they were in the pre-teleconsultation year.

This work has now become part of the Airedale & Partners vanguard project, which aims to develop a more proactive health and social care enabling model.

Secondary uses of data can help better target medical interventions, which should reduce unnecessary treatment and make the treatment given more effective. Big data analysis can help medical teams better understand and map bottlenecks, as our case study on improving patient flow in South Warwickshire NHS foundation trust in the 'Patient care pathway' section showed.

Technology can also help support self-care, for example by allowing patients to better monitor their own condition (e.g. with a potable haemoglobin meter) or adopt a more healthy lifestyle (through apps tracking exercise and movement).

While the level of involvement and influence clinicians have in the implementation of technology in health settings varies, in particular when it comes to high cost technologies for treatment and surgery, there are a number of areas BMA member may want to consider:
- The use of technology to support more integrated working;
- The use of technology and healthcare apps to support patients to better self-manage;
- How far the use of technology could improve patient flow or work processes, reducing burdens on doctors and making more effective use of NHS resources.

Conclusion

When looking at the effective use of NHS funds it is important that the focus is not on cutting costs and making unachievable efficiency savings, but increasing the value from the NHS budget and maintaining quality care for patients.

Improving patient care must be the main priority for the NHS. However, improving patient care can mean innovative solutions, which are also more cost effective.

Across the UK a lot is already happening within the NHS to make the best use of the tight funding available. The benefits of the changes described in this report can vary and the success of interventions can be dependent on many factors. For example, the demographics of a local area, the upfront investment available and the leadership and skills of clinicians as well as the time and support they have available.

With UK governments looking to make more savings within the NHS at a local level, it is important that clinicians and healthcare professionals are involved in leading changes to services that will generate sustainable improvements and help to steer governments away from resulting to unsustainable methods such as pay freezes and cuts to the tariff.

While many of the initiatives described in this paper required upfront investment in order to deliver long-term effective use of NHS funds, funding for the NHS in the aftermath of Brexit is likely to continue to be extremely tight. Local health teams therefore need to think creatively and collectively about how to provide services within budget, revising how services are provided.[48]

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