

Review of Operational
Productivity in NHS providers

Interim Report

June 2015

An independent report for the Department of Health by Lord Carter of Coles.

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Foreword

To: Jeremy Hunt, Secretary of State for Health

Since its creation almost 70 years ago, the NHS has consistently looked to the future and led the world in the delivery of innovative and cost effective healthcare that helps people to live longer healthier lives. The introduction of new drugs and technologies, the committed and highly skilled workforce that delivers our modern health service and the fact that people are living longer in this country than ever before are all testaments to the continued success of the NHS.

However, while we celebrate this great achievement we must also recognise that our advances put great pressure on our finances and therefore we need evermore focus to ensure that the precious resources of the NHS are utilised as effectively as possible. I therefore have pleasure in submitting to you an interim report of my review of operational productivity in NHS hospitals in England, which you asked me to undertake.

We should also celebrate that in England we have some of the best hospitals in the world both in terms of quality, innovation and operational efficiency. The great challenge we face is to lift hospital efficiency to a consistently high standard in every area of every NHS hospital and, where we already perform well, innovate to improve further.

Whilst I am reluctant to set detailed targets, I believe from the data so far available we could look to savings of up to £5bn per annum by 2019/20 provided there is political and managerial commitment to take the necessary steps and funding to achieve these efficiencies. I believe up to £2bn could be delivered by improving workflow and containing workforce costs. Amongst other things, this includes increased productivity through having a stronger management grip on non-productive time (for example annual leave, sickness and training), better management of rosters and improved guidance on appropriate staffing levels and skill range for certain types of wards. I think a further £3bn could be delivered from improved hospital pharmacy and medicines optimisation, estates and procurement management (£1bn from each) by adopting best practices and modern systems for

example, creating a tightly controlled single NHS electronic catalogue for products purchased by hospitals. I am confident that within the next few years NHS Hospitals will go further than this by truly focussing on workflow and new ways of working leading to a significant change across the service that will deliver even greater efficiencies.

From the evidence received so far, I do not think there is any one single action we can take but I do believe there are significant benefits to be gained by helping hospitals, using comparative data, to become more productive. We have based this on examining workforce, hospital pharmacy services and medicines optimisation, estates management and procurement and observing how improved workflow in hospitals enhances both quality and productivity. Workforce costs is a particular priority; just 1% improvement in workforce productivity could represent as much as £400m in savings.

In formulating my early thoughts, I have found two of the key obstacles to be lack of quality data and the absence of metrics to measure relative performance. Accordingly, my first recommendation at this point is for the NHS to adopt and use the 'Adjusted Treatment Index' (ATI) developed with the cohort of 22 hospitals we have been

working with. It is my belief that the ATI metric can serve as a barometer by which hospitals can compare themselves with their peers, taking account of complexity of care provided, and more importantly be a baseline for future improvement.

I have also concluded there is a need for a model to define what an efficient NHS hospital looks like. A 'model hospital' can show how good clinical practice, workforce management and careful spending lead to measurable efficiency improvements whilst retaining or improving quality. This is not a new concept, but coupled with the ATI metric, I believe we can bring it to life.

I am grateful to those who have worked on the project, particularly those 22 NHS hospitals who have engaged enthusiastically - and for the wise counsel of my NHS Procurement and Efficiency Board. I am now engaging in detailed conversations with the 22 to explore and confirm the opportunities outlined in this report and will provide a fuller update in the Autumn.

Yours sincerely



LORD CARTER OF COLES

The NHS Efficiency Challenge

The NHS Five Year Forward View, published by NHS England last year, laid bare the financial challenges faced by the NHS over the next five years. To sustain a comprehensive high-quality NHS, it concluded that action is needed on three fronts – demand, efficiency and funding. Less impact on any one of these fronts will require compensating action on the other two.

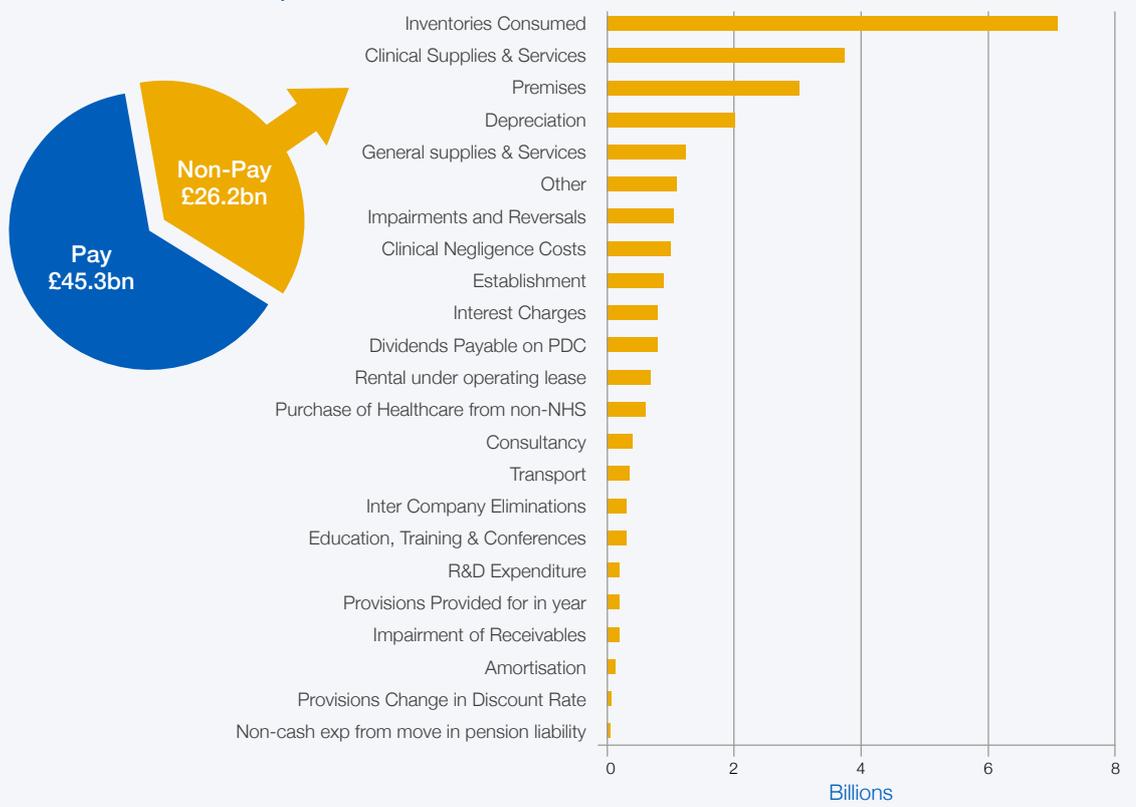
The report highlighted that the NHS' long run efficiency performance has been 0.8% annually. This has risen to 1.5-2% in recent years largely due to pay restraint, but the NHS needs to repeatedly achieve 2% net savings for the rest of the decade (perhaps rising to 3% by the end of the period). The

report identified the subsequent gap to be of the order of £22bn.

These are unprecedented challenges for the NHS. If they are to be achieved, we need to create a culture of relentless cost containment with a forensic examination of every pound spent in delivering healthcare. Everyone must play their part – from executive boards and managers to nurses and clinicians. No stone should be unturned and nothing sacred or exempt from examination.

In 2013-14 NHS hospitals spent £72bn to deliver healthcare to patients and £45bn of this was spent on workforce (63% of the cost).

NHS Provider Expenditure 2014-15



It is our view that unless workforce management and productivity are addressed, all other areas of opportunity pale into insignificance. Thus said, there

is no one single action that can be taken and all areas of expenditure require close scrutiny if the efficiency challenge is to be met.

Our Approach

The NHS does not have a consistent approach to measuring efficiency, and so our aim was to develop an appropriate metric for NHS hospitals to compare themselves with their peers and help them identify opportunities for productivity improvement. We call this metric the **Adjusted Treatment Index (ATI)**.

To develop the ATI and to learn from its application, we selected a cohort of 22 NHS hospitals to work with us. They are representative of different types and sizes of acute hospital ranging from large inner-city teaching hospitals to rural district general hospitals.



All 22 hospitals have been impressively helpful and supportive, providing detailed information to allow us to assess the variations we were finding from the ATI data. We have engaged with a wide range of professionals from Finance Directors and Directors of Nursing, through to Chief Pharmacists and Heads of Procurement and Estates, exploring and understanding the variances we are seeing between hospitals.

Each hospital in the cohort received a pack of information containing the ATI analysis along with observations on the variances. This helped them identify opportunities for improving productivity, and has served to confirm the plans and thoughts they have in place for meeting the efficiency challenge. We are now in the process of visiting and speaking to each of the 22 to determine whether they believe the efficiencies can be realised.

To provide governance, guidance, support and advice, we established a Procurement and Efficiency Board made up of senior executives from the Department of Health, the NHS, and other Government departments (including the Cabinet Office and Treasury), as well as leading subject matter experts directly relevant to hospital efficiency or experience from other sectors where the programme could learn and benefit. The board has provided valuable advice on ways to improve hospital efficiency including national and international best practice from healthcare and other sectors.

"We have hugely valued being engaged in the work Lord Carter is leading. It is helping us address the financial challenges we are facing. We particularly appreciate the assistance the programme is providing to help optimise workforce effectiveness."

Tony Chambers,
Chief Executive of the
Countess of Chester
NHS Foundation Trust

"Any opportunity to transform the way we deliver services to patients is invaluable. That's why the work being undertaken by Lord Carter and his team is so important to us and why we are so keen to realise the benefits that it can help us deliver"

Sir Ian Carruthers,
Chair of Portsmouth Hospital NHS Trust

The 'Adjusted Treatment Index' and early reflections

The Commonwealth Fund Report 'Mirror Mirror on the Wall' rates the NHS as the most cost-effective health system in the world in terms of value for money for the taxpayer¹, but are our hospitals as efficient as their overseas colleagues in the day-to-day delivery of healthcare? To answer this question we need a measure of hospital efficiency.

Hospitals and hospital chains all over the world have adopted a common set of metrics to monitor and improve the productivity of their operations. Other countries have long since adopted measures of efficiency such as cost per adjusted admission to provide a consistent and accepted currency with which they can compare the relative performance of their hospitals. There is clear evidence that by adopting such an approach productivity improves – and until now we have not had a suitable metric for the NHS, so we have no way of comparing NHS hospital efficiency. By adopting the ATI, the NHS will be able to measure hospital efficiency and will align with global best practice.

We therefore set out to develop an appropriate metric for the NHS to allow hospitals to compare themselves with their peers, and help them identify opportunities for productivity improvement. We also set out to develop a process that supports hospitals on the journey of self-improvement; identifying those areas where support mechanisms, be they local, regional or national, might be needed. And finally we have been exploring how we could industrialise and embed the approach so that hospitals are able to regularly monitor their productivity improvement month-on-month, year-on-year.

In developing productivity metrics for the

NHS, we have to account for hospitals of differing sizes, in differing geographies, and with varying degrees of complexity. Once we agree on a common method of measuring outputs, we can then apply it to the relevant inputs (for example, operating expenditure) to measure productivity. We have now developed such a metric – the **Adjusted Treatment Index**. Appendix 1 explains how the metric is derived, and an external technical assessment by subject matter experts has confirmed its appropriateness for use in the NHS. We believe the metric can be applied across the whole of the NHS and not just the acute sector.

Generating the ATI from nationally available data such as operating expenditure in hospitals' accounts has revealed variances between hospitals, and we need to determine whether these variances can be explained simply by differences in practices, or whether they are genuine opportunities for efficiency improvement. This is why we have spent considerable time gathering line level detail in key expenditure areas from the 22 hospitals and talked continuously to professionals in the NHS over the last six months to identify leading practices that appear to underpin better performance.

Our early findings are leading us to conclude that most NHS hospitals can demonstrate good practice in some areas, but all have room for improvement. One thing is clear; there is no silver bullet for delivering the efficiencies outlined by Five Year Forward View. Instead, it requires a relentless focus on a multitude of efficiency opportunities which when combined, have the potential to make a significant contribution to the £22bn.

¹ <http://www.commonwealthfund.org/publications/fund-reports/2014/jun/mirror-mirror>

The Efficiency Opportunity

We have generated the ATI metric in a number of ways from nationally available data. Our main approach is to follow the money focusing our efforts on four major areas of spend:

- Workforce
- Hospital Pharmacy and Medicines Optimisation
- Estates Management
- Procurement

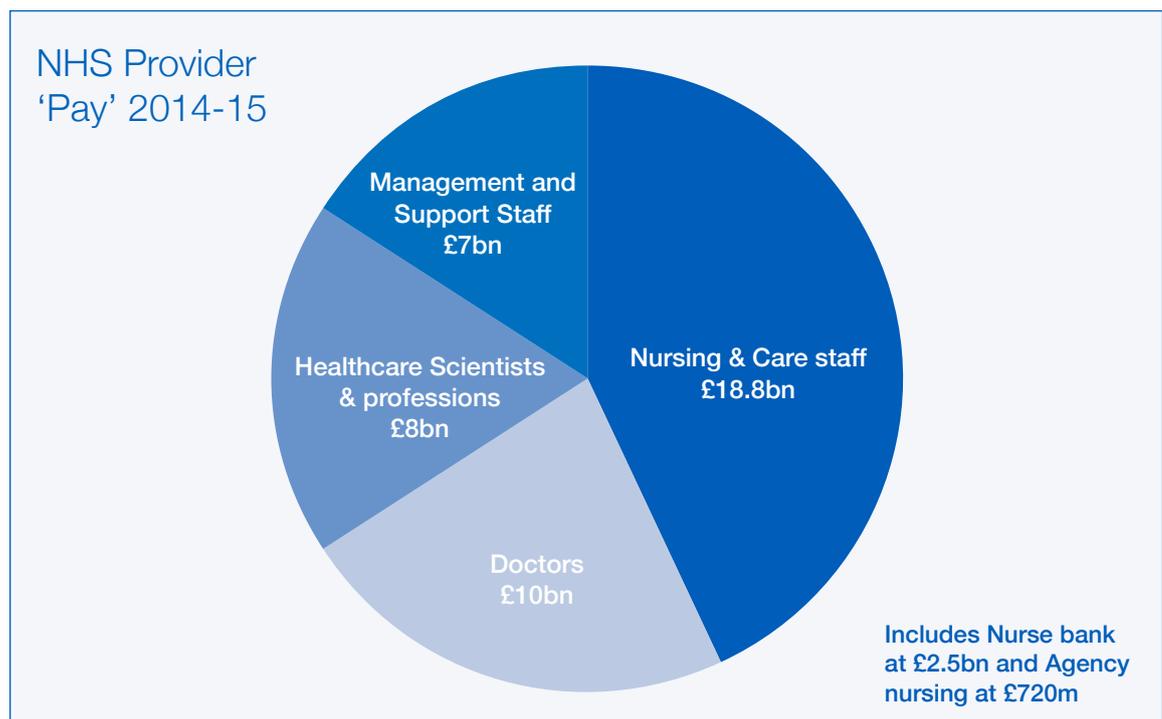
For each of these areas, we have collected detailed data and information from the 22 hospitals to understand variances and good practice. Early indications for each area are below.

Workforce

The NHS employs 1.3 million staff performing over 300 different types of jobs across more than a 1000 different

employers. These staff are the primary asset, heart and soul of the NHS. We know that most work extremely hard, often going above and beyond the call of duty, and are truly dedicated to the NHS to ensure the delivery of high quality care.

However, the pay bill for the NHS in 2013/14 was £45.3bn – the largest area of spend, so the sheer size of this necessitates scrutiny. Our early findings with the 22 hospitals have established significant differences between them in terms of the management of productive time, workforce rostering, effective utilisation of clinical time and management costs. Tight management of annual leave, sickness and use of appropriate training can account for differences of up to 4% in productive time and when you consider just 1% improvement in workforce productivity could represent around £400m in savings, it is easy to see why a stronger grip on workforce management can make a significant difference to costs.



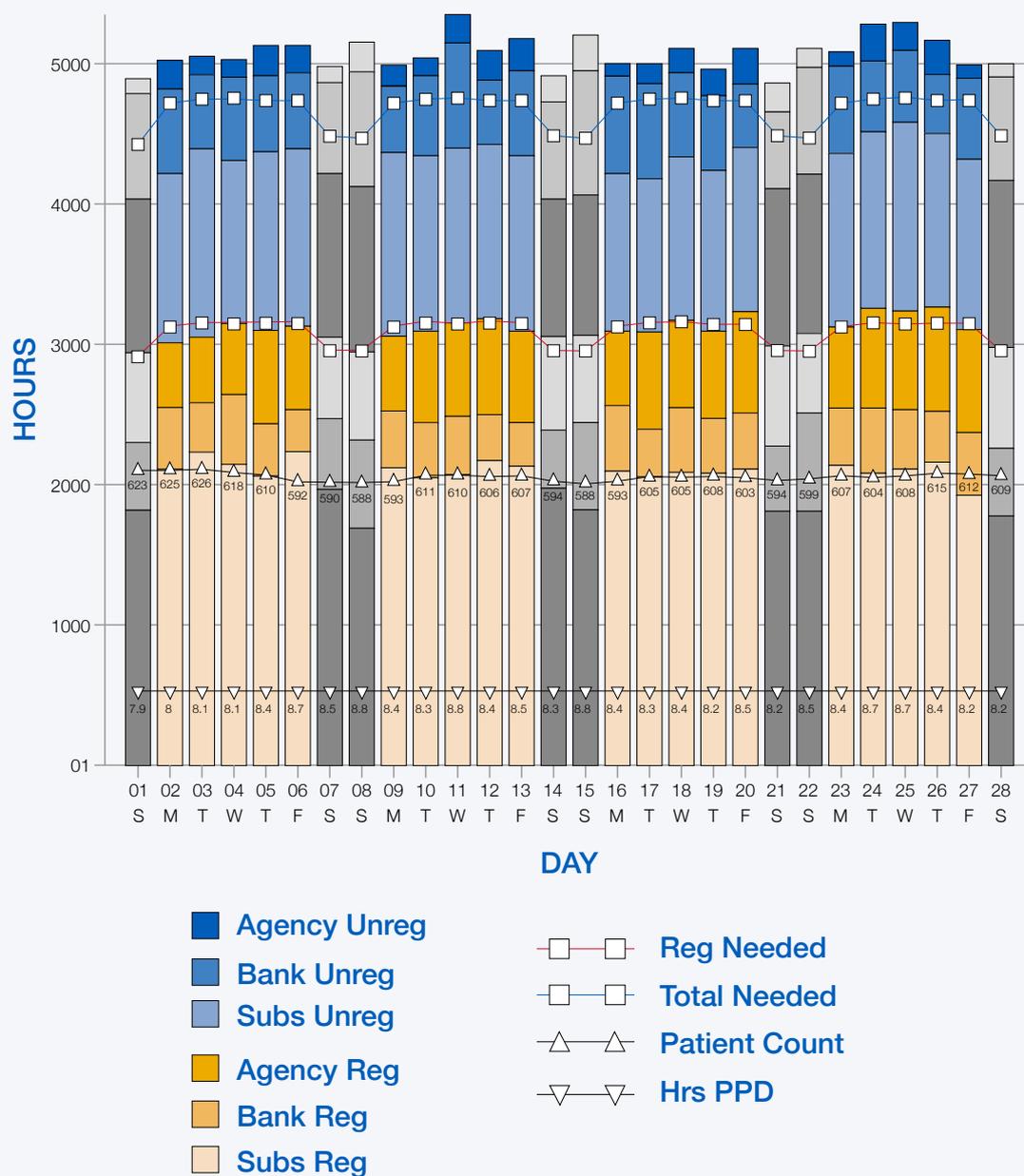
In 2013-14, the cost of nurses in the NHS was £19bn. With the increased focus on safer staffing and a 29% increase in the rate of nurses leaving the profession in the last two years, the dependency on agency nurses has risen significantly, doubling between 2012-2014².

The Secretary of State has already announced measures for addressing agency contract spend, including placing a cap on agency rates, and we need to

place more focus on the root causes of the increased demand for such services.

Working with the cohort of 22, we collected data from nursing rosters from every ward for the whole month of February this year. This included hours worked (split by registered and unregistered nurses) and staff type – for example substantive, bank and agency staff. An example of the data from one hospital is below.

Example NHS Hospital Nurse Roster Analysis



² RCN – Frontline First (February 2015) - http://www.rcn.org.uk/_data/assets/pdf_file/0005/608684/FF-report-Agency-spending_final_2.pdf

This shows the hours worked by staff group plotted against the patient count highlighting the nursing hours per patient day. It identifies that on many days, there are not enough registered nurses and that there are also more staff than required against the patient count.

We also collected information and policies from each hospital and this has revealed differences between them. For example, non-productive time for nurses can vary from 22% to 26%, and there is considerable variation in how hospitals manage 'specialling' patients (one on one care), roster practice and flexible working policies.

We also identified that in some hospitals bank nurses are not remunerated in a way to attract them from going to or moving from agencies.

One provider examining their non-productive time found that sickness had crept up over recent years and was now 1.5% over the national average.

One provider established that it had 27 more nurses than it needed by examining their policies, comparing themselves to their peers and undertaking a skill mix review.

All of this leads us to assume there may not be enough nurses to meet the post-Francis demands of the NHS, and there are inequalities in how nurses are utilised with many nurses working longer hours than they are contracted for. Also, over and under-rostering suggests an over-flexibility in management practices. We are also aware of nurses being over-burdened with administrative duties for example in dealing with supplies issues that should be taken care of through better procurement and logistics management.

Over a 5 month period, across five NHS providers in a major conurbation, between them they used over 24,000 Agency workers- 25% of these also work in substantive posts, with over 4% working as agency workers in their own organisation.

One provider has identified that delays in the 'time to fill a vacancy' increased the need for agency staffing in order to meet safe staffing levels. A review of the recruitment process including pre-employment checks and health screening has resulted in the identification of provider 'hotspots'. A monitored action plan now tracks progress on resolving the delays.

One provider identified 20 cases of counter fraud when they reviewed and strengthened their sickness and annual leave reporting. Annual leave overpayments totalled £10,500 in one month alone. By tightening up on excess annual leave, sickness, flexible working practices, underutilisation of hours worked and rostering practice, the provider aims to deliver £750,000 savings this year.

Detailed examination of 2 of the 22 hospitals has identified there are clear opportunities in managing annual leave – the largest part of non-productive time is not systematically managed. Operational measures are not always visible across different wards and is not up to the Board which leads to weak management of the workforce.

Having said this, we have found some excellent examples of good practice where utilisation of substantive staff is optimised thus reducing reliance on bank and agency staff.

Workforce management good practices

- Regular review on appropriate headroom levels.
- Regular review of flexible working arrangements.
- Reviewing the incentives to ensure substantive staff work substantive shifts.
- Assisting workforce planning and rostering by promoting the use of eRostering systems and the adoption of best practice roster policies.
- Improving guidance on appropriate staffing levels and skill mix for particular ward types in collaboration with RCN and NICE.
- Reviewing the demand and supply of additional nursing hours, particularly with respect to specialising care.

Salford Royal NHS Foundation Trust used a '90 day innovation cycle' to test radically different approaches to delivering specialising with the aim of improving one-to-one care whilst reducing costs. From the start of this patient centred project a reductions in the cost of 1:1 care was seen. Salford Royal are anticipating a trust-wide saving of over £1m per year based on the results of the first few months.

We have also been looking at clinical productive time and management costs. At the highest level we are finding significant variances between hospitals in these areas.

Reviewing the management costs using the ATI metric across all NHS Hospitals has revealed a ten-fold difference; this requires further investigation over the coming months. One such area to explore will be

the use of shared services for back and mid-office functions.

We need to gather more detailed data to understand these differences and will report further later in the year.

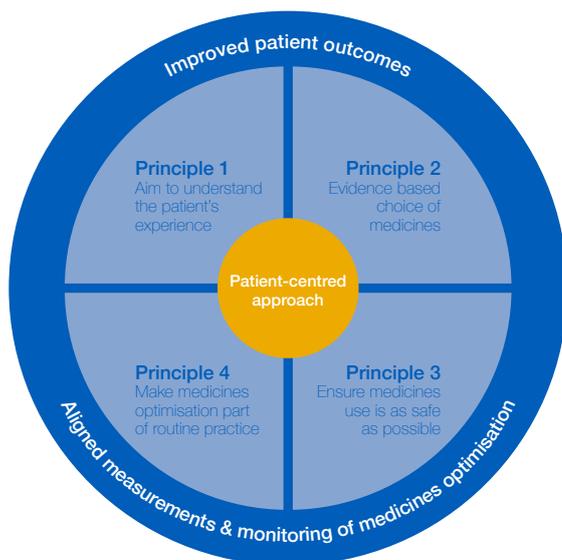
Hospital Pharmacy & Medicines Optimisation

Medicines are the most frequently used intervention in healthcare. In 2012/13, expenditure on hospital medicines was over £6.5 billion, accounting for 36.5% of total NHS medicines expenditure. Showing a rise of 11.1% over the previous year. Medicines use is increasing due to advances in medical technology and an ageing population. Medicines optimisation is a new and patient-centred approach to getting best outcomes and value from medicines.

The average cost of soluble Prednisolone is over £1.50 per tablet. The insoluble version of Prednisolone costs less than £0.02 per tablet. In reserving the use of soluble Prednisolone for paediatric patients and adults with swallowing difficulties as much as £40,000 a year is being saved by Bolton NHS Foundation Trust. We are now working with other providers to see if similar savings can be made.

There is large variation in the cost of inhaled anaesthetic gasses. By ensuring longer acting gasses are used for inpatients and shorter acting gasses are reserved for day-patient and more complex cases, early findings suggest that the cohort of 22 providers working with us may make a combined saving of as much as £1 million annually. When extended to the rest of the NHS, this approach could save many millions.

Summary of the Four Principles of Medicines Optimisation³



Optimising the use of medicines is recognised as a key role undertaken well by pharmacy teams which can lead to better outcomes, including improved safety whilst reducing waste and getting consistent, best clinical practice, thereby reducing variance and improving patient care. A wide range of approaches are already employed to deliver best value for money for medicines but there is a considerable amount of variation in the provision of hospital pharmacy services across the country.

We have gathered data from a number of sources to explore the difference between hospitals, and early evidence is showing us that there are variations in prescribing of medicines and variation in pharmacy staffing numbers, skills mix and deployment. A range of opportunities are starting to emerge for greater productivity whilst maintaining or improving outcomes.

The greater uptake of the use of electronic systems for medicines procurement may reduce the variation in stock holding levels between providers. Wider use of the national summary care record (SCR) will improve the quality and safety of medicines reconciliations. Use of the SCR could also save up to 50% of the time taken to confirm an accurate drug history for each patient.

Evidence is also emerging of the opportunities of innovative practices in individual hospitals where changes to traditional practices including prescribing, administration of medicines and logistic systems have delivered system wide efficiencies and supported:

- Urgent and Emergency Care pressures (pharmacists in the Emergency Department)
- Healthcare Professional shortages (Changes in Junior Doctor commissions being managed by increased use of pharmacist prescribers & alternative models for medicines administration where nursing staff cannot be recruited)

Opportunities to drive greater safety are also being identified as part of our work in areas such as the safe use of non-steroidal medicines by improving compliance with current NICE best practice recommendations to reduce the incidence of adverse cardiac events. One thing has become clear, there is

By changing behaviours and moving to less expensive dry powder inhalers for respiratory conditions instead of higher use higher cost CFC free inhalers, an estimated £1 million can be saved across NHS hospitals.

no single initiative that will deliver major efficiency savings in the pharmacy and medicines area. Rather, system wide changes, including the use of a series of decisions and smaller initiatives such as those listed that when combined can make a significant contribution to the efficiency challenge when effectively shared across the wider NHS.

Estates Management

The NHS operates over 1,200 hospitals as well as nearly 3,000 other treatment facilities, many of which operate 24/7 every day of the year. The occupied floor area of the NHS is nearly 25million m² which is the equivalent of nearly 3,500 football pitches and costs over £7 billion per annum to run including the labour cost of over 88,000 staff.

The NHS estate has to be maintained to high standards to ensure a safe, clean patient environment for the delivery of health care whether part of our older estate, or new facilities such as the state of the art Proton Beam Therapy Treatment Centres being built in Manchester and London. The bill for cleaning alone costs the NHS over £900 million per annum.

The £50m NHS Estates Efficiency Fund is on track to deliver savings of 100.6 Mkg of carbon dioxide per year and some 2.4 % of the entire 2012 NHS building energy related carbon footprint. Savings for this project will add up to £69.8m in the first five years of operation.

With such diverse estates spread across cities and rural locations, the cost drivers vary widely and include size, age, condition, space utilisation, energy efficiency, availability and cost of labour. A detailed understanding of estates operations based on their local situation is required if hospitals are going to deliver greater productivity in this area. We are developing a diagnostic tool to help hospitals obtain a more detailed view of their estate and facilities so they can identify productivity opportunities.

The big picture is that the cohort of 22 spends £1 billion annually on Estates & Facilities. Early indications are that approximately 14.5% potential savings could be made from these costs if the cohort moved to the average efficiency of their NHS peers, which in terms of the overall running costs of the estate and its services, represents a £150 million annual saving. Set

out below are some examples of the savings that could be made within the £150 million:

- Cleaning: £10 million;
- Energy £12 million;
- Building & Engineering £12 million;
- Laundry £4 million;
- Waste £3 million, and;
- Water & Sewage £1.7 million.

During a recent merger between two NHS providers, it became apparent that one provider's energy costs were much greater than the other's. Further investigation revealed that this was down to the excessive use of oil because of the age and condition of the boiler, and they were not aware it was out of kilter in its energy until the merger. Year on year budget setting had topped up the estates budget to meet the rising costs of the demand for oil. This demonstrates the power the ATI metric can have in helping providers recognise where they become outliers, and encourage them to act to bring their costs back in line.

By generating the ATI metric and reviewing the data all hospitals submit as part of their ERIC⁴ returns, we believe there is potential for improvement. For example, in terms of total running costs if all hospitals reduced costs to match the average of their peers, the NHS could save several hundred million pounds. We need to do more to understand this opportunity. Accepting there will always be differences between hospitals in this area, simple comparisons do reveal opportunities.

Procurement

After considering workforce, medicines and estates, the remainder of operating expenditure in the NHS is traditionally viewed as 'procurement' – some £9bn each year which can be broken down to three main areas:

- **Everyday consumables – dressings, syringes and so on (around £2bn)**
- **Hi-value medical devices – hip joints, cardio devices and so on (around £3bn)**
- **Common goods and services – transport, stationery and so on (around £4bn)**

The values above are estimates because data on volumes and prices paid for products and services is patchy. We know this because we collected all accounts payable and purchase order data from the 22 hospitals for the last two years and only 18% could be matched.

We also know inventory management practices and the adoption of electronic catalogue systems vary significantly across hospitals, with both good and bad practice. This makes it difficult to obtain reliable information on volumes of products used by hospitals thereby negating meaningful comparisons using the ATI metric. However, we do believe there are greater savings to be had by managing the demand for products through better inventory management rather than price reductions. And we do think a target of £500m – 1bn savings on the £9bn procurement spend is realistic.

Every day Consumables

In the procurement of supplies we know that global best practice for everyday consumables is a catalogue of around 6,000 – 9,000 product lines with price variances of 1-2%. In the NHS it is as much as 500,000 lines with price differences sometimes over 35%.

We also know that hospital systems around the world have strong adherence to a 'core list' of products with compliance levels of over 90%. Furthermore, if any product is changed on the list, compliance levels of over 80% are achieved within a month of implementation. In a devolved NHS we do not have this level of compliance with hospitals making their own decisions about what they want to use – thus reducing the opportunity to use NHS purchasing muscle with suppliers.

The NHS Supply Chain contract was not set up to deliver this kind of approach. Instead we have pursued a retail type model without commitment from hospitals which has led to the proliferation of products used across the NHS. We have already taken steps to address and will explore how we can align with global best practice. We have been working with Chief Nursing staff across the NHS and the Royal College of Nursing to see if we can agree a radically reduced range of products to be channelled through NHS Supply Chain. Early indications are that such an approach will deliver 10-20% savings on the NHS everyday consumables bill.

High-value medical devices

We estimate the NHS spends around £3bn on products and consumables where clinicians make choices for their patients. Whilst we would always acknowledge that clinicians must retain the authority for making such decisions, we do believe that such choices could be better informed. Often times, such decisions are made between clinicians and sales representatives from the medical companies without proper recourse to all the facts and evidence.

⁴ ERIC - The ERIC (Estates Return Information Collection) is collected and published by the HSCIC on behalf of the Department of Health. It is the main central data collection for estates and facilities services from the NHS containing information dating back to 1999/2000

Our collaborative work with Professor Tim Briggs, Orthopaedic Surgeon at The Royal National Orthopaedic Hospital Stanmore and previous President of the British Orthopaedic Association, has identified huge variations in practice and outcomes in terms of device and procedure selection, clinical costs, infection rates, readmission rates, and litigation rates in the discipline of orthopaedics. There is scope to address many of these variations to drive short, medium and longer-term improvements in quality through adopting best practice and reducing costs to generate efficiency

savings across the NHS. The evidence and data surrounding this work is robust and compelling, and was verified by Professor Tim Briggs in his 'Getting it Right First Time' Report published 16th March 2015⁵.

We have been working with Professor Tim Briggs to look at the types used and review the prices paid for the most commonly used implants. A review of a sample of prices across a sample of hospitals established that there is significant variation as illustrated in the table below:

Prosthesis type	Lowest price	Highest price	% Variation
Primary cemented hip with an acetabulum, femoral stem, and metal femoral head.	£595	£854	44%
The cement restrictor and three mixes of antibiotic loaded cement (including the mixing system).	£123	£270	120%
Primary uncemented hip with an acetabulum, polyethylene liner, femoral stem and metal femoral head.	£1,266	£1,977	56%
Primary uncemented hip with an acetabulum, polyethylene liner, femoral stem and ceramic femoral head.	£1,457	£2,219	52%
Primary uncemented hip with an acetabulum, ceramic liner, femoral stem and ceramic femoral head.	£1,636	£2,420	48%
Hybrid primary hip with a cemented femoral stem, uncemented cup with a polyethylene liner, and a metal femoral head.	£1,097	£1,399	28%
Hybrid primary hip with a cemented femoral stem, uncemented cup with a polyethylene liner, and a ceramic femoral head.	£1,288	£1,641	27%
The cement restrictor and two mixes of antibiotic loaded cement (including the mixing system).	£82	£180	120%
Primary knee replacement.	£943	£1,674	78%
One mix of antibiotic loaded cement (with the mixing system).	£41	£90	120%

National Joint Registry Pilot, consisting of data from 35 NHS Providers and Local Health Boards across England and Wales, identified that in some instances, the prices paid do not always have any correlation to the volumes used.

One such compelling example is the fixation method chosen by clinicians for patients, with the average age of a hip replacement being 68 and evidence that using cemented prostheses in patients over 65 can have a direct correlation with reducing revision rates, infection rates and the cost of implants. The type of fixation method used

might also contribute towards a hospital making a surplus instead of a loss against tariffs for orthopaedic procedures.

Despite the evidence, we are still seeing the usage of uncemented in over 65s ranging between 0-100%. We took a sample of activity across ten providers and looked at their levels of cemented versus uncemented, and taking the median prices for prosthesis that we established, this identified the following potential savings in prosthesis cost by moving from uncemented to cemented:

⁵ A copy of the "Getting It Right First Time" report and recommendations published 16th March 2015 can be found here: <http://www.boa.ac.uk/latest-news/press-release-girt-report/>

*The price range variation illustrated is based upon the most widely used implants as identified from data within the National Joint Registry (2013), with pricing information provided by NHS Supply Chain from mini-competitions for the systems detailed. All mini-competitions included a standard supplier representative service, consigned implant and instrument stock provided by the manufacturer, and commitment to volume over 12 months.

Level of conversion from uncemented to cemented (based on the price ranges illustrated above, and the activity of the sample providers.)	Saving against existing practice based on median price (10 NHS Providers)
If you moved activity so that 90% was cemented at median price plus extra theatre time cost and the rest uncemented at median price, the impact would be:	£799,836
If you moved activity so that 90% was cemented at minimum price plus extra theatre time and the rest uncemented at minimum price, the impact would be:	£1,619,798
If you moved activity so that 70% was cemented at minimum price, 20% hybrid at minimum price both with extra theatre time cost and 10% uncemented at minimum price, the impact would be:	£1,233,372

If you were to implement this approach nationally, the savings based on the above could range between £11m and £17m. Additional savings would also be delivered (above and beyond the cost of prosthesis) by improving quality outcomes, and reducing revision and infection rates.

This is not to say that robust approaches to procurement at local level can also secure better prices for medical devices such as implants.

Two years ago North Bristol hospital reported dramatic cost savings and improvements in the quality of care for patients undergoing total hip replacement (THR). As the implants are about a third of the cost of a primary THR, an initiative to streamline the number of different types of prosthesis used by the provider was done to increase buying power. This process was also in conjunction with a policy change (agreed by all consultants involved) to perform cemented THRs in patients over the age of 70. As a result of these changes, a nominated lead consultant and management were able to achieve a 20 per cent reduction against previous spending on the implants used, which resulted in a year's saving of £277,000 to the provider. Within 12 months, hip replacement surgery was transformed from a loss of 22 per cent per primary THR, to a surplus of 8 per cent.

This case study was published in the Health Service Journal, see <http://m.hsj.co.uk/5078056.article>

One of the challenges we face in addressing the costs of high-value medical devices is the relationship between clinicians and representatives of the medical device companies. Whilst there will always be a need for companies to provide clinical support for NHS clinicians (particularly in the use of new and innovative products and procedures) this is often clouded by the need to make sales. The proliferation of sales representatives selling in the NHS is a huge cost which neither the NHS or its suppliers want or need if alternative models of doing business could be developed.

In one hospital, there were 650 sales reps targeting the hospital with 65 on site at any one time. Those sales forces not only have a big influence on choices made – they also have big costs that in the end we pay for.

We are keen to explore new models of doing business. This will require changes in behaviour on both sides. To start this process, we are exploring how we can change the decision-making for choosing medical devices taking learning from global

best practice. This may include the creation of decision-making groups – possibly above the level of individual hospitals – and the use of electronic catalogues. It will also require the creation of national specifications and standards for key product groups.

The Sunshine Act in the US requires manufacturers of drugs, medical devices, biological and medical supplies to collect and track all financial relationships with physicians and teaching hospitals and to report this centrally. The goal of the law is to increase the transparency of financial relationships between health care providers and pharmaceutical manufacturers and to uncover potential conflicts of interest.

We are also looking at incentives and levers for securing clinical engagement in these groups and their decisions. For example, we are exploring whether there is a need for a ‘Sunshine Act’ similar to that in place in the United States.

Developing a single NHS electronic catalogue

We believe the quickest way to solve the problem of poor procurement data on prices and volumes is to accelerate the implementation of a single NHS electronic catalogue, and so we have been working on a national solution. Our research around the world has told us that the best way to control expenditure on products used in the delivery of healthcare is to have a tightly controlled electronic catalogue in place supported by strict policies so that employees and suppliers know there are no alternatives. We will say more about this work later in the year.

Levels of Inventory held within the NHS are currently circa £800m with an additional estimated £500million of ‘consigned stock’. Some hospitals have invested in modern inventory management systems and processes in their theatres, allowing them

to manage their stocks more effectively and to allocate costs to surgeons and patients ensuring they have greater control of their costs of surgery. The introduction of GS1 and PEPPOL standards⁶ will allow every NHS hospital in England to save on average up to £3 million each year while improving patient care.

An investment by a London provider in an additional supply chain expert led to an immediate cost reduction. In the month before the change over, the Theatre team ordered approx. £75k of inventory – this was consistent with the average run rate. In the following month the ordered inventory reduced to less than £25k and this pattern was sustained over the next 4 months with over £200k (69%) of expenditure avoided (Jun-Sept14). This was achieved by simply knowing what was already in stock and the lead times of suppliers to replenish.

A South West provider invested in an Inventory management system & processes for its 23 theatres enabling inventory held and waste reduction and item level costing and traceability to patient.

The solution is now being used by theatre staff to capture the detail and cost of all items used for surgery, from anaesthetic through to surgical mesh.

All items used are recorded (with product specific codes) against the patient’s code and once the operation is over, all the recorded billing materials are checked for accuracy before being committed to the system. This generated an in-year saving of £230K for the first year.

³ NHS eProcurement strategy - https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/344574/NHS_eProcurement_Strategy.pdf

A model NHS hospital

Many hospitals have told us they would welcome more detailed guidance on what good looks like. We therefore believe it would be appropriate to publish, in stages, what a model NHS hospital could look like in terms of operational productivity and cost.

This would include such modules as Emergency Department, different types of wards, operating theatres, pathology, radiology and administration costs. We intend to develop such a model over the summer.

“The idea of creating a modular hospital and using metrics for pay and non-pay costs is a very exciting contribution to clinical teams taking better ownership to deliver better value and better care. There are real opportunities if more national contracts are in place for common use item and easier requesting systems/ processes resulting in more time to care. It is time for bold decisions on service configuration so we have a better balance between access to a substantive workforce and local access to services so patients receive similar if not better outcomes and the taxpayer gets better value”

Ann Farrar, Chief Executive
North Cumbria University Hospitals NHS Trust

Early recommendations and next steps

I was asked by Secretary of State in July last year to review the operational productivity of NHS hospitals to establish the opportunity for efficiency savings across the NHS. Ten months on, I have reached the preliminary conclusion that there are significant efficiencies to be made but there is no magic wand for delivering them. It will require systematic and sustained hard work, with commitment and dedication from staff across the whole of the service from top to bottom, and strong leadership and support from the centre.

I am encouraged that most of the cohort of 22 are already embracing the efficiency challenge. Indeed, some have said to me that our work has been valuable in validating plans they already have for delivering cost improvements in 2015/16.

I still have more work to do over the summer to validate the opportunity and to work with more hospitals to understand the barriers they face in delivering them, and I have already identified a number of issues that need to be addressed. I believe there are three major areas of opportunity:

- The first is about hospitals getting a stronger grip on the utilisation of their resources, particularly in the four categories I have focused on in this report: workforce, hospital pharmacy and medicines, estates management and procurement.
- The second is about achieving greater productivity in hospital workflow (how patients move through the system) and the subsequent use of assets such as theatres.

- The final area is about gaining a better understanding of the need for hospitals to develop sub-acute services- either on their own or in collaboration with others, to facilitate discharge of patients. Nearly all the hospitals I have spoken to highlighted the difficulties they face in discharging patients who were medically fit to leave expensive hospital beds but were unable to discharge them because they had nowhere to go.

Acting upon these areas will enable hospitals to treat more patients at lower cost, and more work is needed to understand how these opportunities can be realised. In the meantime, I have a number of interim recommendations which need to be started to ensure there is no loss of momentum in meeting the efficiency challenge outlined in *Five Year Forward View*.

Interim recommendations

1. Adopt the Adjusted Treatment Index (ATI) across the NHS Provider sector to enable them to review their performance against their peers and create a baseline for improvement.
2. Develop a 'model NHS hospital' to help providers aspire to best practice across all areas of productivity.
3. In workforce, establish standards and best practice policies on productive time, rostering, Specialising and skill range. Embed business process to manage and monitor staff productive time.
4. In hospital pharmacy and medicines optimisation, design a model approach to the delivery of hospital pharmacy services and the supporting infrastructure. The aim will be to deliver increased productivity and value from both hospital pharmacy and medicines, whilst maintaining or improving patient outcomes.
5. In estates, develop a package of support to help providers improve their efficiency to at least the average of their peers, including the creation of a capital programme focused on energy and operational efficiency.
6. In procurement, develop product specification and a single national electronic catalogue for products used in the delivery of healthcare. Explore the need for a 'Sunshine Act' and greater use of sales representative tracking systems.
7. Create national 'productivity collaboratives' around the four categories of workforce, hospital pharmacy and medicines optimisation, estates and procurement to identify and share best practice.
8. There are further areas that require investigation, such as diagnostics (radiology and pathology), IT, clinical IT and moving into primary care areas such as community pharmacy.

Next Steps

Whilst I am reluctant to set detailed targets, I believe from the data so far available we could look to make savings of up to £5bn per annum by 2019/20 providing there is political and managerial commitment to take the necessary steps. I am confident that by adopting the ATI metric, hospital boards will pay greater and more detailed focus to their costs, but I think they will need help and support in delivering the opportunities.

There is a delicate balance to be made between hospitals taking ownership and

accountability for their own costs, and the level of support, incentives and intervention provided by the Department of Health, NHS England, TDA and Monitor. It is not my place to decide how this should be taken forward but my own personal thoughts are that a regulatory approach will probably fail to capture the imagination and engagement of hospital boards. It is more important that boards take ownership themselves and collaborate with each other to identify and share best practice. That said, I do believe they need support, and this support needs to be seen as helpful and non-directive.

I am convinced that adopting the approaches I have outlined in this interim report will stand the NHS in good stead for whatever configurations ministers decide should become health policy over the coming months.

Given this, I intend to continue with the work and propose the following steps for the next six months to keep the momentum going:

- Continue to work with the 22 cohort hospitals over the next three months to further identify and begin delivery of the savings already identified.
- Conduct a series of 'learning workshops' over the summer with hospitals to further validate savings to feed in to 2016-17 business planning during the summer.
- Add a further 10 hospitals to the cohort over the summer and take them through the same approach.
- Build a series of 'productivity collaboratives' focused on workforce, pharmacy, estates and procurement.
- Develop the 'model NHS hospital' in readiness for 2016-17 business planning during the summer.
- Develop a plan for creating a 'productivity performance system' for the NHS by October 2015, including the supporting infrastructure needed to industrialise the use of the ATI metric across the whole of the NHS.
- Publish a fuller report on NHS productivity in the Autumn 2015.
- Target early 2016 for the first cut of hospital level productivity data to be published.
- Identify the scale of investment required to ensure the savings are realised.

Appendix A

Adjusted Treatment Index

Data sources and application

At this stage, we have produced annual productivity measures using audited, publicly available data from the NHS Reference Cost collection and from the published accounts of NHS hospitals. We are supplementing this with the data collected from our participating cohort of 22 Hospitals who we are working closely with as representative of a wide range of NHS hospitals with whom we are iteratively developing the NHS Efficiency

Calculation 1

Treatment		Trust 1		Trust 2		Trust 3	
Type	National av cost	Volume	CWO	Volume	CWO	Volume	CWO
A	£5,000	2	10,000	8	40,000	1	5,000
B	£2,000	5	10,000	1	2,000	2	4,000
C	£500	10	5,000	1	500	5	2,500
D	£100	50	5,000	1	100	100	10,000
cost weighted output		30,000		42,600		21,500	

Secondly, the actual costs of the hospital incurred in producing their cost weighted output is divided by the cost-weighted output. This generates an ATI to enable comparison between hospitals, as in the table below:

Calculation 2

	Trust 1	Trust 2	Trust 3
operating costs	£31,000	£38,000	£24,000
Cost weighted output	30,000	42,600	21,500
Adjusted treatment Index (x 100)	103	89	112

In this example, hospital 2 has the lowest cost per unit output or, conversely, it generates more valuable output per £ of input.

The above tables represent an illustrative example. For our actual calculations, the Cost Weighted Output is derived from the annual NHS Reference Cost Collection. The operating cost figures are taken from the published accounts of the hospital and adjusted for expenditure that is not included in the Reference Cost Collection for example,

Metrics. As we move forward, the DH is examining a set of in-year measures using the same outline methodology with improved alternative data sources to enable the tracking of performance within a financial year.

Adjusted Treatment Index – calculation

Calculation of the headline metric requires two steps. Firstly, the volume of each type of treatment delivered by each hospital is weighted by the average cost across all hospitals of each type of treatment. The total of each weighted treatment volume for each hospital represents the cost-weighted output of that hospital, as in the table below:

income for the provision of teaching and research.

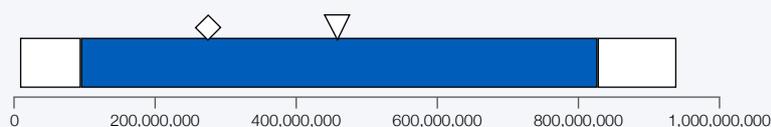
We then use progressively detailed financial breakdowns around pay and non-pay costs taking lines from the accounts to arrive at a hierarchy of efficiency metrics that enable NHS hospitals to compare themselves against their peers at a whole-hospital level and at the level of specific cost lines such as workforce, clinical supplies and services, with a line of sight from the headline metric to each of the more progressively detailed metrics.

Level 0 Output Indicator: Total Cost-Weighted Output

Indicator 1 – Cost-Weighted Output

Level 0 Output Measure

OUTPUT
459,674,561



The total cost-weighted output for this provider. This is a measure of total clinical output and not productivity. No adjustments have been made to this figure.

Level 1 Productivity Indicator: Total Operational Expenditure

Indicator 2 – Operational Expenditure / Cost-Weighted Output

Level 1 Productivity Metric

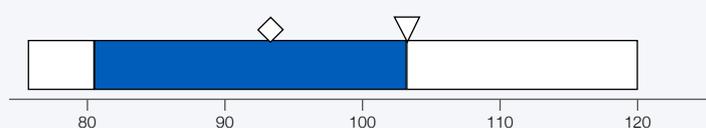
METRIC

POSITION

102.12

148

ADJ SPEND
£469,411



/158

Operational Expenditure divided by cost-weighted output to produce a measure of productivity. The Operational Expenditure figure has been adjusted for clinical and non-clinical outputs not covered in Reference Costs. The Market Forces Factor has also been applied. The metric value has been multiplied by 100 for presentation.

Level 2 Productivity Indicators: Operational Expenditure Breakdown

Indicator 3 – Pay Spend / Cost-Weighted Output

Level 2 Productivity Metric

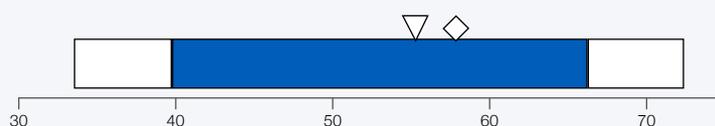
METRIC

POSITION

54.53

48

ADJ SPEND
£250,678



/158

Pay Spend divided by cost-weighted output to produce a measure of productivity. The spend figure has been adjusted for clinical and non-clinical outputs not covered in Reference Costs. The Market Forces Factor has also been applied. The metric value has been multiplied by 100 for presentation.

Indicator 4 – Non-Pay Spend / Cost-Weighted Output

Level 2 Productivity Metric

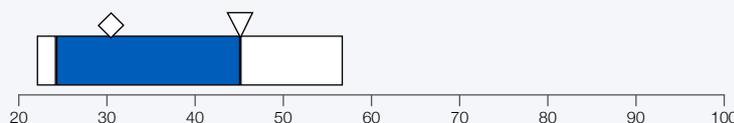
METRIC

POSITION

44.43

155

ADJ SPEND
£204,242



/158

Non-Pay Spend divided by cost-weighted output to produce a measure of productivity. The spend figure has been adjusted for clinical and non-clinical outputs not covered in Reference Costs. The Market Forces Factor has also been applied. The metric value has been multiplied by 100 for presentation.

All Acutes
 Cohort Trusts
 Your Trusts
 Acute Average

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