Health care organisation efficiency and the physician workforce:

Reducing physician requirements through improving practice and organisational efficiency

UK paper

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An analysis of the way in which the NHS in London has tackled workforce productivity

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Abstract

This paper examines steps taken by NHS London to facilitate the improvements in productivity required to achieve the vision set out in Healthcare for London – A Framework for Action (July 2007).

The first stage in the process was to identify the main drivers/areas affecting productivity and examine the variance between London and the rest of England in each of these areas. Through a series of interviews and workshops with a wide range of stakeholders, the following areas were identified: the stability of the workforce; teaching hospitals; the impact of education; the accuracy of the calculation used; the appropriateness of the calculation; patient demographics; other factors such as the size of hospitals, staff absenteeism, the impact of the private market, estates and their use and the significance of London being a capital city. The results were published in the Clinical Workforce Productivity in London report (March 2008).

The next step was to develop an appropriate means of measuring productivity. Following extensive consultation with stakeholders, a set of metrics was agreed which would capture an organisation's performance in each of three component dimensions, people, process and infrastructure, within each care setting. The second phase of this project was the development of a matrix dashboard to facilitate benchmarking and the subsequent sharing of best-practice between organisations. This matrix is currently populated with metrics that are already available on a national basis. However, a second version has been developed to use metrics that are currently only held at organisation level and a third version would require organisations to develop new data collections to calculate the metrics agreed.

The dashboard was piloted with a wide range of organisations between May and June 2009. Following the mainly positive feedback from the pilot, work is underway to produce a web-based version of the tool, due to complete in May 2010.

The third project undertaken by NHS London was a quantitative analysis of the workforce and activity factors impacting on the rate of normal deliveries in a labour ward. This piece of work focussed on the impact of different skill-mix on the rate of normal deliveries using nationally available data and the relationship between skill-mix, activity and the market forces factor from the service commissioner's perspective. The relationship between skill-mix and the cost of services in the labour ward is shown to be relevant to the debate on workforce productivity as the conclusions of the project support the idea that a consultant delivered service in the labour ward will have an impact on the rate of normal deliveries performed in a ward.

These three sequential pieces of work showed that there are many factors that affect workforce productivity in relation to delivery of healthcare services and that it is essential to have an effective and transparent means of measuring productivity and benchmarking to drive improvements in workforce productivity.

493 words

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1. Purpose of the paper

The purpose of this paper is to explore the work that NHS London has undertaken to understand the factors that affect the productivity of its workforce and the measures it has taken to support its organisations in improving their productivity.

This paper will focus on the issues London organisations face with workforce productivity from both a commissioner and provider perspective. This paper will be used as evidence in the discussions on medical productivity at a micro- and macro- economic level that will take place at the International Medical Workforce Conference (IMWC) in New York in May 2010.

Whilst this paper focuses on London, some of the factors identified are of UK-wide significance, with others being unique to London, which is

2. Context

2.1. Activity growth in the NHS

Demand for healthcare services is predicted to grow over the next ten years across the United Kingdom. This is especially true for London, where demand for certain areas of activity are expected to increase more sharply than for other parts of the country. Drivers for growing healthcare service demand include both the size and the demographic profile of the population of England.

Over the next ten years, the population of England is expected to continue to grow; however, the shape of the population will change significantly. In 2006, 11.3 million people drew the state pension compared to 11.5 million children under the age of 16 years[1]. By 2031, it is predicted that there will 15 million people drawing the state pension compared to 13 million children under the age of 16 years[2]. This will have significant implications for the healthcare service in England in relation to maternity and neo-natal services and care for the elderly. Demand for cancer and stroke services are also likely to increase as these diseases more commonly occur in older people.

[1] The Office of National Statistics, Population, 2010
[2] The Office of National Statistics, Population, 2010

Lifestyle changes will also have an effect on the type of services required in the healthcare service. The rise in obesity levels, as a result of lifestyle changes, has led to an increase in demand for services that treat illnesses related to this condition. Moreover, the growing diversity of the British population will also have an impact in shaping this demand, as different ethnic groups are prone to different types of diseases. For example, South Asians are more prone to diabetes and heart disease and the Japanese are more prone to stomach cancers.

Demand for healthcare services in London is likely to grow in a very different way to the rest of the United Kingdom due to the demographics of the London population. The demographic profile of London is younger and more ethnically diverse than the rest of England. There is also significant social and economic deprivation across the capital and a significantly more transient population than other parts of the country. Indeed, research undertaken by the London Health Observatory in 2006 showed that by going seven stops eastbound on the Jubilee Line on the London Underground system between Westminster and Canning Town, life expectancy reduces by a year per stop.

Based on this, the demand for healthcare services may grow at a rate that might outstrip available funding. Workforce productivity will therefore be paramount to ensure that NHS activity remains affordable, especially in light of the economic climate in which the NHS is currently operating.

2.2. The changing economic climate in the NHS

Since 2007, the world has been hit by a global recession, which has also affected the NHS. In the current climate, the cost of workforce in relation to healthcare outcomes needs to be a serious consideration. A recent report by the King's Fund and the Institute of Fiscal Studies, How cold will it be?: Prospects for NHS Funding 2011-2017 (Appleby J et al, July 2009), put forward three likely funding scenarios for the NHS in the next two comprehensive spending reviews (CPR):

- Tepid: annual real increases in funding of 2% for the first CPR and 1% for the second CPR.
- Cold: no change for both CPRs, which is the lowest level of funding in line with the conservative manifesto
- Artic: annual real reductions in funding of 2% for the first CPR and 1% for the second CPR

In order to achieve these funding scenarios, workforce productivity would need to increase from 3.4% to 7.4% per year for the next six years. In monetary terms, a baseline of £3.6 billion to £7.8 billion would need to be saved annually. Workforce currently accounts for between 60% and 70% of all costs in the NHS. Therefore a significant proportion of these savings would need to be found through workforce reductions, or more efficient utilisation of workforce based on the assumption that there will be excess inflation in the tepid and cold scenarios. This attribution of costs is

derived from the information on all NHS costs fed through the Finance Information Systems database, which all NHS organisations are required to report on.

In light of this economic situation, there would need to be a very strong business case to increase workforce numbers in any area of care provision in the near future. As a result, there has been a growing emphasis on productivity in the NHS over the last year and this has culminated into a national initiative that has been championed by the Department of Health: Quality, Innovation, Productivity and Prevention (QIPP)[3]. The QIPP initiative was commissioned by the NHS Institute for Innovation and Improvement as part of the 'Better Care Better Value' initiative[4], in order to combat the future budget constraints and increasing demand for quality healthcare within the UK. Better Care Better Value highlighted ten areas for NHS organisations to focus on in relation to supporting improved quality of care for service uses of the NHS. One of the priority areas highlighted by this initiative is the role of workforce productivity in releasing resources to re-invest in the NHS, as appropriate, to meet the growing needs of the population. This is beginning to be recognised by both NHS service commissioners and service providers.

2.3. The role of service commissioners and providers in the NHS

A NHS service commissioner is responsible for negotiating and appointing healthcare service providers who will deliver a wider choice of more personalised, high quality healthcare services for the population they are acting on behalf of. This remit includes both access to primary care services, such as the local GP service, and secondary care services, such as major trauma services and stroke care. The commissioner must ensure that the healthcare services contracted for their local population meet the national tier one, two and three priorities set out in the annual National Operating Framework for the NHS, in such a way that provides best value for money to nationally set standards of quality and acceptable levels of patient experience. The price for the activity is set nationally, so the commissioner cannot use price as a lever to demand that the provider adheres to the contract agreed. However, in relation to productivity, the service commissioner is assisted by the Department for Health (DH), which sets the price for each activity within a national tariff price set for each activity; a reduction to account for productivity gains is applied to the tariff price each year. At the current time, the price reduction for all types of productivity is set at 3.5% per year, with 35% of this productivity gain expected to be achieved through workforce productivity[5]. Therefore, it is important for the service commissioner to have a good understanding of their providers' workforce and their plans to ensure that their workforce meets the efficiency

[3] The National Institute for Innovation and Improvement, Quality Innovation, Productivity and Prevention, 2009
[4] The National Institute for Innovation and Improvement, Better Care Better Value, 2009
[5] Department of Health, National Operating Framework 2010/2011, December 2009

target set, in order to be able to assess effectively the viability of the provider to delivery the contract agreed.

A NHS service provider is responsible for the delivery of healthcare services that it has been commissioned to deliver, whilst meeting the standards set for quality and clinical governance by Care Quality Commission, the Department of Health, professional bodies and the royal colleges. The challenge for the service provider is to deliver the required activity to these standards within the national tariff price set. A service provider's ability to achieve this, is dependent on balancing activity levels and the price it is paid for the activity against the levels of workforce, technology and other overheads it must invest in to deliver the required activity. Foundation trusts can seek to make a profit from the activity commissioned and the price paid so it can invest in other areas of the business. Accident and Emergency (A&E) services provide a good example of how workforce productivity is essential to the provider's capability of delivering the contract agreed. The standard set is 98% of all patients must be seen, treated and either discharged or admitted within four hours of arriving at A&E. There are different prices for treating activity that is inappropriately presented at A&E and activity that is considered either minor or major. Depending on the level and type of activity that is agreed with the commissioner, the provider must put in place a workforce whose costs do not exceed the overall income generated by the activity levels in A&E and which has the right skills to deal with the patients who present within the target treatment time required. Some providers may choose to have a consultant delivered service if the majority of the work is major; consultants diagnose more accurately and earlier, do not request as much testing and there is less likelihood of re-admissions, making the A&E more productive.

2.4. Measuring productivity in the NHS

One of the main issues in driving workforce productivity in the NHS is the debate on how it should be measured.

This is important as workforce productivity is used by the Department of Health to assess and benchmark the performance of organisations in the NHS. The lack of a uniform understanding and interpretation means that services are still discussing the right way to measure workforce productivity rather than focussing on how to improve productivity. Currently, the Department of Health defines workforce productivity as:

$$\frac{\textbf{Case-mixed adjusted finished consultant episodes}}{\textbf{Consultant full time equivalent}}$$

2.5. Finished Consultant Episodes

All inpatient activity that is part of the national tariff system, also know as payment by results (PbR) can be assigned to a Health Resource Group, which describes a group of related procedures that require a similar amount of resource to deliver. The unit for counting this activity is finished consultant episodes (FCE). To calculate workforce productivity, it is recognised that there will be different levels of acuity and complexity that each organisation will deal with dependent on its location and the local population the organisation serves, and so the number of FCE for each organisation is adjusted using a formula agreed nationally to account for these differences.

2.6. Consultant Full Time Equivalents

Consultants in the NHS are considered to be working full time if they work 10 programmed activities per week, which is equivalent to working forty hours per week.

2.7. Issues with this formula being used to calculate workforce productivity

There are a number of issues with using this formula to calculate workforce productivity:

- This unit of measurement is applicable to acute and inpatient services only.
- This unit of measurement focuses on the contribution made by medical staffing, but does not cover other workforce who contribute to the delivery of healthcare services.

3. Methodology

This paper will draw together the many streams of work that have already been undertaken by NHS London to understand the workforce productivity issue in London's health service.

A summary of each piece of work will be given and a description of the main findings from each project will also be provided. The three projects which will be summarised within this paper are:

- Reasons for variance in workforce productivity
- Workforce Metrics and Benchmarking
- Workforce Productivity in the Labour Ward

4. Background

Healthcare for London - A Framework for Action[6] is a 10 year strategy that describes the service vision for London, developed by clinicians and through consultation with the public and patients over the course of 2006. This work was led by Professor Lord Ara Darzi, a prominent surgeon working in the region at the time, who was later appointed Junior Minister for Health in 2007.

This work identified eight reasons[7] the healthcare service in London needed to change:

- The need to improve Londoners' health
- Failure to meet Londoners' expectations
- One city, but big inequalities in health and healthcare
- The hospital is not always the answer
- The need for more specialised care
- London should be at the cutting edge of medicine
- Ineffective use of its workforce and buildings
- Making the best use of taxpayers' money

This service vision was created based on five guiding principles[8]:

[6] NHS London, Healthcare for London- A Framework for Action, July 2007
[7] NHS London, Healthcare for London- A Framework for Action, July 2007

- Services should be focussed on individual needs and choices;
- Services should be localised where possible and regionalised where that improves the quality of care;
- There should be joined-up care and partnership working, maximising the contribution of the entire workforce;
- Prevention is better than cure;
- There must be a focus on reducing differences in health and healthcare.

Workforce was identified as one of the key enablers to deliver this service.

[8] NHS London, Healthcare for London- A Framework for Action, July 2007

5. Workforce to deliver the Healthcare for London vision

As a result of workforce being identified as one of the key enablers to deliver this service vision, Workforce for London - A Strategic Framework[9] was developed and published in 2008. This piece of work identified the workforce that would be needed to deliver Healthcare for London as a service. It also described the importance of a seamless workforce planning and education commissioning system that was sufficiently flexible to react to changes in the healthcare service it was delivering to and recognise the importance of both clinical and non-clinical leadership in the transformation of services. As part of this work, workforce productivity was identified as key in the ability of the NHS in London to deliver the Healthcare for London service vision.

Achievement of this vision is dependent on London's ability to increase its workforce productivity. To meet the activity growth projections highlighted in Healthcare for London - A Framework for Action would require the workforce to grow by 4% - 23% by 2017/2018[10]. Based on forecast future funding levels, London cannot afford to grow its workforce by 23%.

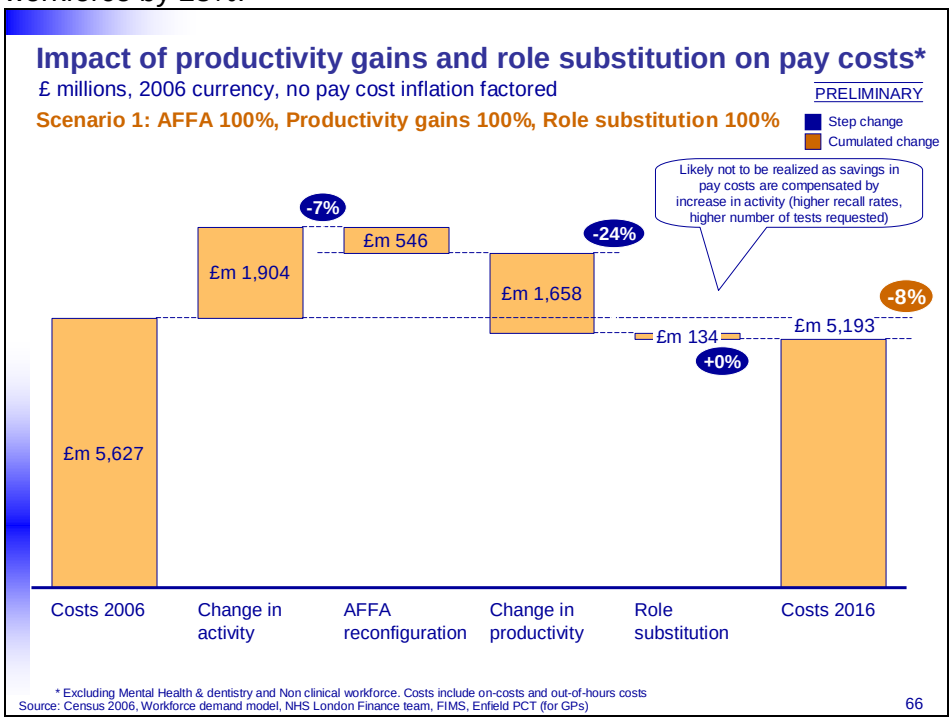


Figure 1: The role of workforce productivity in ensuring that the healthcare service in London will be affordable

[9] NHS London, Workforce for London- A Strategic Framework, September 2008
[10] NHS London, Workforce for London Scenario Modelling, November 2007

The issue of workforce productivity in London was first highlighted in the workforce planning modelling work[11] that was undertaken as part of the research to develop Workforce for London - A Strategic Framework. This work highlighted that workforce productivity in London was about 30% lower compared to the rest of England, both by service and by type of workforce.

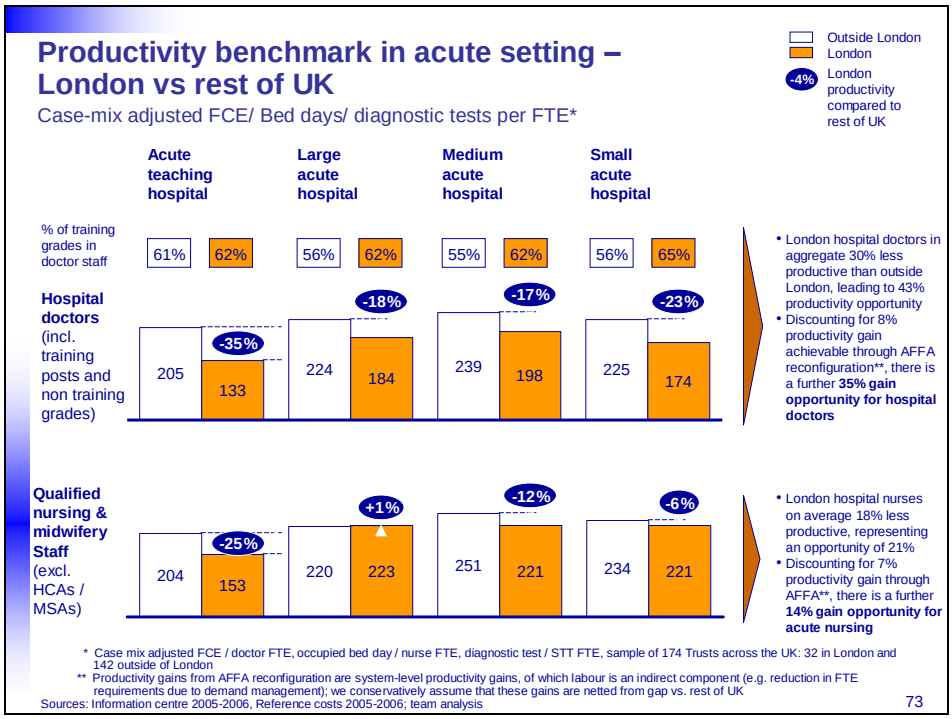


Figure 2: The variation in workforce productivity in London and the rest of London by type of workforce and type of hospital

[11] NHS London, Workforce for London Scenario Modelling, November 2007

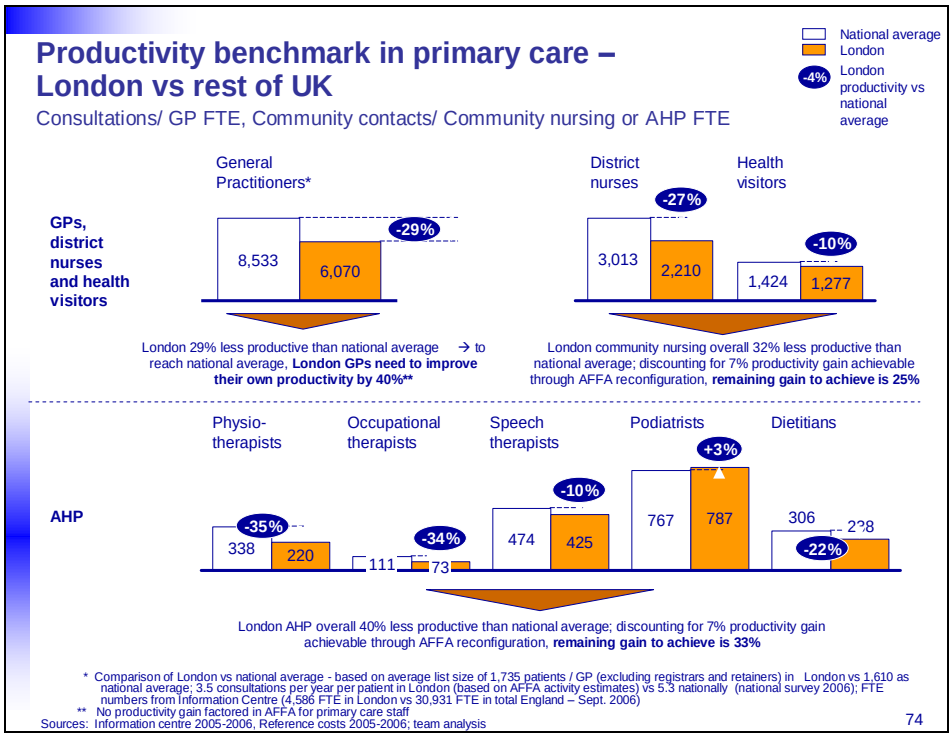


Figure 3: The difference in workforce productivity for staff in the primary care setting in London compared to the rest of England

6. Reasons for variance in workforce productivity

As a result, a further piece of work, Clinical Workforce Productivity in London[12], was commissioned by NHS London to understand the reasons for the variance in workforce productivity in London and the rest of England, classifying the reasons into two groups:

- Factors outside the control of organisations in London
- Factors within the control of organisations in London to change

This piece of work also explored the opportunities for improving workforce productivity in London.

Through a series of expert interviews and workshops held with a wide range of stakeholders, and clinical and non-clinical staff, this project identified nine potential areas which could affect workforce productivity. A regression analysis was performed on the data collated in these nine areas to confirm whether there was a relationship between the following areas and workforce productivity.

6.1. The stability of the workforce

The research showed that non-medical turnover has more of an impact on workforce productivity than medical turnover and non-medical turnover is higher in London than the rest of the country.

Further analysis of the evidence indicates that medical turnover does impact on workforce productivity, but the impact is less as it is planned for by service. Trainee doctors rotate at set times in the year and services are configured to ensure that these rotations impact as little on service as possible. In addition, the orientation of new trainee doctors into the organisation is designed to ensure they become productive as soon as possible. Non-medical turnover is not planned for and the induction of non-medical staff is focussed on mandatory training requirements to meet clinical governance needs.

[12] NHS London, Clinical Workforce Productivity in London, March 2008

6.2. Teaching hospitals

The research indicated that activity undertaken in a teaching hospital environment is less efficient than in other types of delivery unit. This research showed that workforce productivity in teaching hospitals was 18% to 22% lower than in other types of hospitals.

Moreover, the analysis found that the rest of England carries out only 20% of hospital activity in a teaching environment. In London, 40% of activity takes place in a teaching hospital.

Further research indicated that other activity provided by teaching hospitals, such as research and education, is not accounted for in the formula for calculating workforce productivity. The rarest cancers in England are mostly referred to the Royal Marsden, and Great Ormond Street is the only hospital in England to provide some specialist children's services. Both of these hospitals are based on London.

6.3. The impact of education

The research highlighted that London undertakes proportionately more education activity than the rest of England and as stated above, educational activity is not accounted for in the nationally agreed formula for calculating productivity.

London has five undergraduate medical schools, the highest concentration in any region across England. It also provides around seven hundred posts for higher level and specialist training to support the rest of England as the experience that post-graduate medical trainees are required to obtain would be difficult to gain in most hospital settings[13]. Moreover, there are 1,500 posts into which post-graduate medical trainees from surrounding regions rotate to provide the appropriate experience and for recruitment marketing purposes[14].

6.4. The accuracy of the calculation

A factor in explaining variances in workforce productivity was the number of 'did not attends' (DNAs) in London compared to the rest of England. This type of activity is again not accounted for within the formula for calculating productivity.

[13] Source: The London Deanery
[14] Source: The London Deanery

DNAs are outpatient appointments where the patients do not turn up and the attending doctor is unable to undertake alternative work. 17% of hospital appointments are DNAs in London. The rate of DNAs in the rest of England is 12%.

Research indicated that this was on account of the patient demographics of the London population, in particular, its transient population.

6.5. The appropriateness of the calculation

A number of issues with the national measure for workforce productivity have already been raised in an earlier section of this paper. However, the analysis of the calculation also highlighted that it is a throughput measure, rather than a productivity measure. This was highlighted by the correlation of the NHS Better Care, Better Value indicators, which are performance indicators for hospitals, and workforce productivity which showed that there was no correlation between quality and productivity

Stakeholders interviewed felt that the measure took no account of quality and felt that a workforce delivering more activity, but with higher rates of re-admissions, patient mortality during the hospital stay or complications could not be considered productive.

In addition, the measure was found to be insufficient at accounting for the acuity and complexity of services in London hospitals. The case-mix adjustment to account for the difference in complexity and acuity within the formula was found to portray highly specialised hospitals as less productive. London has a higher proportion of specialist hospitals than the rest of England.

6.6. Patient demographics

Ethnic diversity, social deprivation and unregistered patients were found to be significant factors in explaining the variance between London and the rest of England's productivity. These factors are inadequately accounted for in the current measure of productivity.

However, it is more significant for this research to understand the impact that they may have on workforce productivity, such as the requirement for interpreting services whilst carrying out appointments with patients.

6.7. Other factors

The size of the hospitals, staff absenteeism and the impact of the private market were factors where there was no evidence to explain why workforce productivity in London and the rest of England might be different.

Additional, but less in-depth analysis was undertaken on the impact of estates and how they are used, primary care services, the impact of London being a capital city, mental health services and A&E services. Further information on these areas can be found in Clinical Workforce Productivity in London (NHS London, March 2008).

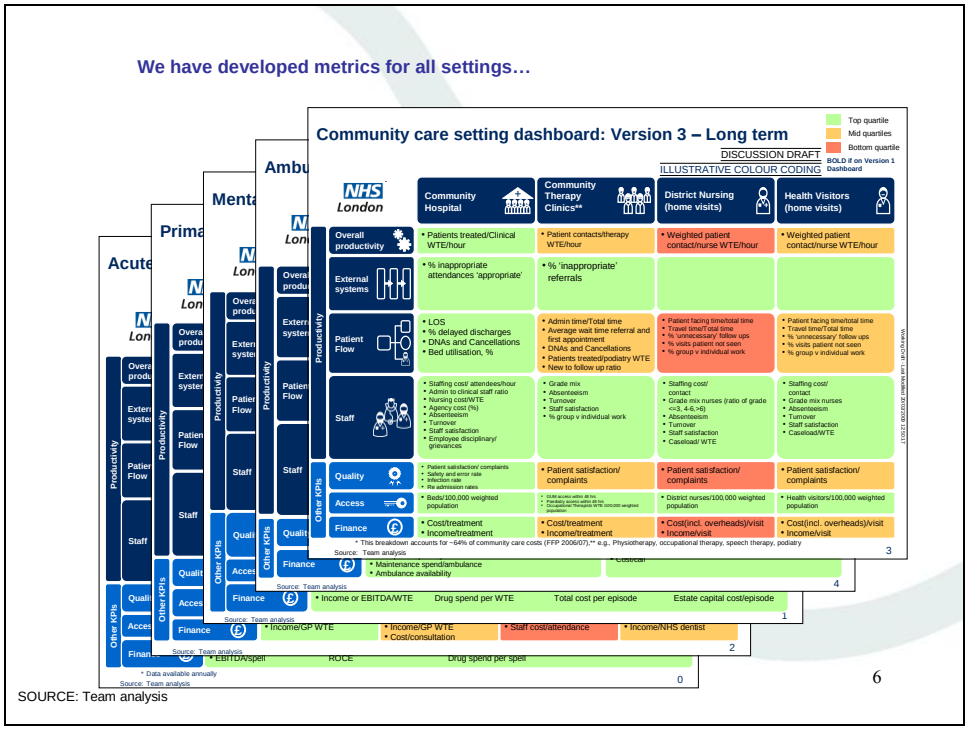
The conclusion of this project highlighted the priority for the next piece of work to focus on developing an appropriate measure for productivity and the ability of organisations to benchmark to facilitate best-practice sharing[15].

7. Workforce Metrics and Benchmarking

This project was undertaken between March 2009 and July 2009 and was developed with a wide range of stakeholders. The project was undertaken in two phases. The first phase focussed on developing a set of metrics to measure productivity in each care setting - primary care (general practitioners (GP) and practice-based staff), community care (health visiting, district nursing and other therapy services undertaken outside GP practices), acute care and mental health. The metrics were initially based on measuring workforce productivity, but consultation with stakeholders rapidly widened the remit of this work.

Stakeholders felt that productivity could not be measured through a single metric. Moreover, the focus of clinicians and management within the system was to understand what might drive productivity in the NHS, rather than measuring productivity itself. As a result, the concept of a matrix dashboard developed. Metrics developed captured the underlying factors that need to be in place for an organisation to be productive, focussing on access to services for patients, finances to support improvements and achievement of quality services. Productivity was viewed as being made up of three components; people, process and infrastructure. Metrics were agreed to capture an organisation's performance in each of these three dimensions by examining in each care setting the key services driving productivity, such as the A&E services in an acute hospital setting.

[15] NHS London, Report on the pilot phase of the workforce productivity project, July 2009



SOURCE: Team analysis

Figure 4: The metrics developed to measure productivity in London

The second phase of this project focussed on developing a dashboard on which the performance of organisations against these metrics could be viewed and shared with other organisations to facilitate best practice to improve trust level productivity.

Stakeholder engagement was again key to the development of this dashboard tool. The current dashboard tool is populated with the metrics that are currently already collected on a national basis or that are available through the Electronic Staff Record. The reason for this was to provide proof of concept that organisations would find such a tool useful. Once the value of this tool has been proved, second and third versions have already been scoped. The second version would require the development of systems to collate metrics that are currently held at organisation level, but are not shared nationally, and the third version would require organisations to develop new data collections to calculate the metrics agreed.

The dashboard tool was piloted with organisations between May 2009 and June 2009. Both a commissioner and a provider pilot were run. From the service provider perspective, participating organisations were asked to attend three workshops. In the first workshop, participants were shown the tool and asked to take it back to their organisations to test for usability and to choose an area of productivity to focus on. In the second workshop, piloting trusts were asked to share their views on the tool and to share their area of focus. A discussion on action plans to improve their area of focus

was facilitated. In the last workshop, organisations were asked to report back on the success actions taken to improve workforce productivity. Areas of focus included projects to reduce DNA rates, improving radiographers' activity levels, improving district nursing sickness and absenteeism levels and reducing staff turnover[16].

The service commissioner pilot consisted of one workshop focussed on understanding how a service commissioner might use the dashboard to support commissioning decisions in the future.

A wide range of organisations participated in the pilot, including representatives from almost all care settings. Feedback on the tool was positive on the tool's usability and presentation of the data. Organisations found that it gave managers a rationale for target setting and provided a holistic framework for understanding productivity. The quality and timeliness of the data used in the tool and ability to drill down were areas where the tool was perceived as less successful.

Due to the mainly positive feedback from the pilots, there is an on-going project to web-enable this tool which is due to complete in May 2010.

8. Workforce Productivity in the Labour Ward

As part of the work undertaken by NHS London to support the improvement of maternity services in London, a quantitative analysis of workforce and activity factors that may impact on the rate of normal deliveries in a labour ward was carried out[17].

Maternity services are a priority for London as the Healthcare Commission rated only one organisation in London to be delivering services within the best performing category in 2008. In addition, with an annual birth rate of around 4% each year in London, the rate of activity growth in this area is significantly higher than for the rest of England (2% a year[18]).

This piece of work focussed on the impact of different skill-mix on the rate of normal deliveries using nationally available data and the relationship between skill-mix, activity and the market forces factor from the service commissioner's perspective. The driver for this piece of work was research undertaken by the Centre of Health Economics at the University of York that highlighted staffing as a factor in explaining the variation in the

[16] NHS London, Productivity NHS L Presentation, September 2009
[17] NHS London, A quantitative analysis of workforce and activity factors that may impact on the rate of normal deliveries in a labour ward, December 2009
[18] Klodawski E, Fitzpatrick J, Estimating future births in the capital: a discussion document, December 2008

costs of treating patients in the labour ward in England[19]. If the definition of productivity incorporates the concept of outcome, then the findings of this report will be relevant to how workforce productivity can be improved.

The analysis sought to show the relationship between skill-mix and the cost of services in the labour ward. This is relevant to the debate on workforce productivity as the conclusions of the paper support the idea that a consultant delivered service in the labour ward will have an impact on the rate of normal deliveries performed in a ward. Normal deliveries are beneficial to a service provider as it means a shorter length of stay, thus releasing the bed for other patients, and a reduction in the access to other maternity-related services in the hospital, such as anaesthetics services which a caesarean would require. From an outcome perspective, a higher rate of normal deliveries would mean improved patient satisfaction and less risk to the patient, both mother and child. The service commissioner would be interested in promoting normal births as the activity attracts a lower tariff.

9. Conclusion

There are many factors that affect workforce productivity in relation to delivery of healthcare services. From the summary of work presented in this report, the importance of effective measurement of factors contributing to workforce productivity is clearly highlighted. With effective metrics in place and transparent benchmarking of the performance of organisations against these metrics, improvements in workforce productivity will be delivered.

However, for progress to be made, it is important for organisations to accept that they are accountable for the productivity of their workforce; it is only at organisation level that the nuances affecting workforce productivity within an organisation can be fully understood, and appropriate action taken to improve productivity.

Currently, there is no convincing evidence to show that either service commissioners or providers recognise this. Until this is recognised, no real progress in improving workforce productivity will be made. Further research in this area would be greatly beneficial to the workforce productivity debate.

[19] Laudicella M, Olsen and Street A, What explains variation in the costs of treating patients in English Obstetric Specialties? Centre for Health Economics, University of York, July 2009

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