Skills for Health Working Paper:

# Understanding the contribution of Skills to productivity in the UK Health Sector

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Better **skills** | Better **jobs** | Better **health**

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# Executive Summary

The formation of the coalition government in 2010 has reinforced the need for the health sector to find new ways of providing high quality health care a stricter financial environment. At the same time a range of longer term trends look set to increase the demand for health care over the decades to come. Doing more of the same is therefore simply not an option.

With workforce accounting for over 70% of spending within the sector, developing and utilising the skills of all that work in the sector within excellent teams will be a critical ambition of employers in the sector.

This working paper is designed to help employers, stakeholders and the interested layperson gain an over view of the complexity of the issue of productivity in the health sector. As a working paper it is not intended to be the final word on the debate which will undoubtedly continue. But we hope the reader will appreciate the range of issues involved in this debate which most people in the UK are from time to time asked to think about. We are always seeking the views of others in all our debates and if you have any comments you wish to make, please contact Ian Wheeler on ian.wheeler@skillsforhealth.org.uk

This working paper highlights, measuring productivity within the health sector continues to be problematic and complex. Classic measures of productivity, such as a simple ratio of inputs versus outputs, are not easily applicable in the health sector since outputs can be varied and not easily reduced to a single outcome or indicator. How one factors in quality is also a key feature and again these are not easily reduced to a single indicator that can be replicated across the sector. Work is ongoing amongst several agencies; however, there remains little consensus on a single measure of productivity in the sector. Indeed, such a measure may never be arrived at. Also, given the variety of work undertaken by the sector, one might not even be desirable.

This working paper outlines in some detail the issues of understanding how skills can enhance productivity and performance in the sector. It is clear that skills and skills utilisation are an important factor in achieving a productive workforce, but the precise connection is also difficult to quantify. Skills for Health will continue to monitor the debate and will link in with key commentators, academics and institutions to develop insights into the broad measures of performance and productivity in the sector.

Perhaps one of the most important messages to highlight from this working paper is that in practical terms employers and service providers whenever they are seeking to make improvements need to use high quality evaluation techniques which use measures that are meaningful for patients and employers.

For its part Skills for Health will continue to work with employers to help improve services through the adoption of innovative ways of redesigning teams and working practices. And, where ever possible to make examples of good practice available to all employers in the sector. Skills for Health will also seek to measure the impact of a wide range of activities on the productive performance of the sector such as, exploring the impact of the take up apprenticeships, achievement of qualifications, addressing welfare to work and the development of functional/employability skills.

# Summary

## About Skills for Health

Skills for Health, the sector skills council for the health sector across the UK, is charged with helping the sector develop a skilled, flexible and productive workforce to improve the quality of health and healthcare. Within the sector a wide range of social, technological, economic, political and environmental changes are currently taking place, and so it is likely that the workforce will change significantly over the next five to ten years, as the demands placed upon it transform.

To understand how these forces will influence the shape of skills and employment in the sector, Skills for Health conducts a range of skills research and labour market intelligence gathering exercises.

## Assessments of current and future skills needs

Skills for Health develops a range of regular assessments of the current and future skills needs of the health sector. These are developed using key national sources including, amongst others, the Labour Force Survey, Annual Business Inquiry, National Employer Skills Survey, Higher Education Statistics Agency as well as a whole range of industry intelligence and bespoke surveys, consultation activities and industry sources. Skills for Health also have an online tool where many of these sources can be drawn upon on an ongoing basis.

Alongside these more historical looking forms of skills and labour market intelligence, Skills for Health seeks to develop insights that can help employers anticipate future skills and employment needs.

## Future oriented Labour Market Intelligence

Alongside econometric modelling and input from specialist commentators Skills for Health has an ongoing programme strand of scenario planning, development and application. In 2009 Skills for Health commissioned the Institute for Employment Studies (IES) to develop a Scenario Planning exercise to help them to explore what the possible futures might look like, how the sector might respond to the challenges presented by these scenarios and, potentially, how the sector, and Skills for Health in particular, can influence the emerging future and plan effectively for future skills requirements.

## Research themes and working papers

Skills for Health undertakes research into a range of themes which are designed to address gaps in our knowledge of the sector, encourage employers to raise the level of skills in the sector and adopt new ways of delivering healthcare. This working paper is one of a suite of three exploring a range of areas, including

- Understanding 'turnover and wastage' in the health sector
- Understanding productivity and performance
- Third sector and the volunteer workforce

## Aim of the study

This study was conducted to enhance Skills for Health's understanding of the role of skills in enhancing the productivity in the UK's health sector. It sought to identify a variety of definitions of productivity that could be applied to the health sector, the factors affecting the measurement of productivity and potential examples of good practice which can be replicated.

The study aimed to give Skills for Health a broad overview of productivity definitions, and current debates and challenges faced in attempting to measure what has become an important Government priority. Throughout, the study was firmly placed within public sector approaches to productivity and specifically the health sector. There are undoubtedly a range of other factors affecting the productivity of organisations in the health sector. However, as the Sector Skills Council for the health sector we have sought to focus on the links between skills and productivity. This link is not always an easy one to make.[1]

1 *Keep E., MAYHEW, K., PAYNE, J. (2006 from Skills Revolution To Productivity Miracle—Not As Easy As It Sounds? Oxford Review Of Economic Policy Vol. 22 No. 4 2006 Pp 539 -559*

# Summary of key findings

## The skills and productivity debate in the United Kingdom

- A high skills economy is regarded as being more innovative and specialised but the UK in comparison with other European countries is often seen to have significant areas of 'low skills'
- HM Treasury identified skills as one of several key drivers of productivity. However, links between skills and productivity have been the subject of a considerable body of research, but predominantly in the manufacturing sector
- Although there is agreement that investment in a high skills workforce will benefit the UK economy, significant doubt remains as to the link between investment in lower level vocational skills and productivity.

## The challenge of measuring productivity in the health sector

- A simple ratio of inputs versus outputs is less easily applicable to the health sector since health outputs are varied and cannot be reduced to a single outcome or indicator. For this reason qualitative indicators have broadly been considered to be more appropriate and relevant for the health sector
- Measurement of quality of outputs in health sector terms is problematic. There is a lack of uniform sources of data and a shared definition and measures of quality in the health service
- As there is no general consensus on agreeing and measuring the large number of factors cited as affecting quality, top down, easily measured targets have been used instead
- The quality of patient experiences in the health service is affected by a range of factors including appropriately skilled people being in the right place at the right time and doing the right thing
- Data on levels of productivity in the health service, and whether they are rising, falling or remaining constant is mixed. This in part reflects a limited understanding of how productivity can be effectively raised, and the complexity around the impact of the different factors that contribute to overall productivity levels, including skills levels and training
- There are difficulties in applying macro and micro economics approaches such as welfare economics to the health sector. The core issue in addressing skills and productivity linkage is very much one of data and measurement. The importance of obtaining sound measures of NHS productivity is a crucial factor in determining resource requirements.

## Establishing the link between skills and productivity in the NHS

- Individual workers may be less productive because they do not focus on their core competencies and activities, and health teams may be less productive with a less than optimal skills mix
- Getting training right was also found to be crucial in making skills count, and ensuring that investing in skills is most effective in terms of productivity gains
- Limited evidence exists on the extent to which modernisation and innovation in the health service in recent years, including the changing roles of nurse practitioners, have impacted on productivity.

## Comparisons of productivity across the UK

- Aims in relation to approaches to skills mix and the role of skills in raising productivity is shared by England, Scotland, Wales and Northern Ireland, being driven within each country or devolved region by strategic and policy initiatives.
- For many, NHS productivity in England is higher than productivity in other countries of the UK

## International comparisons of skills and productivity

- The international organisations OECD and Eurostat have acknowledged that there is a weak knowledge base in a large proportion of the health workforce, and a lack of evidence for policy and decision-making at European level. Much of Europe lags behind the UK on this debate
- There is also great variation in the ways of measuring health service productivity which makes direct comparison almost impossible. OECD and Eurostat identify a need to develop a method for measuring productivity at EU level, specifically to increase the comparability of data
- In this scoping study, no international reviews of the literature on productivity and skills in the health sector were identified and overall there was a lack of published documents and information relating to this area of investigation. OECD and Eurostat are in the process of agreeing a strategy for the joint collection of health statistics
- Key workforce issues impacting on the European region include a shortage of healthcare workers (and the increasing age profile of this group), and the increasing demand for healthcare services as a result of demographic changes. This shortage of healthcare skills is seen as a key challenge for the region and internationally
- Both Australia and Norway face these challenges in the health workforce, and have sought to raise the efficiency (and productivity) of their existing pool of workers and to ensure that foreign healthcare workers have the correct skills and professional competencies to avoid a potentially negative impact on productivity levels.

# 1.0. Introduction

## 1.1. Background

This report presents the findings of a scoping study conducted between March and December 2009 by Ecotec Consulting in partnership with Skills for Health's Labour Market Intelligence team.

## 1.2. Aims and objectives

This scoping study aimed to facilitate learning around how the UK's health skills sector may develop. This included identifying potential examples of good practice, where skills development had impacted on productivity levels. The objectives of the study were to:

- identify which countries and occupational groups could most usefully be compared in the health sector in terms of skills and productivity
- explore which measures of productivity could most usefully and appropriately be applied to the health sector
- determine whether useful 'internal' comparisons can be made between the four home countries of the UK and with the Republic of Ireland
- identify possible examples of good practice that could exist, and could be learned from, by Skills for Health
- produce evidence to suggest the extent to which international data could be used to facilitate comparisons.

### 1.2.1. Scope and parameters of the study

The scope of the study was to explore the key issues around defining productivity in the health sector, provide an overview of definitions, and identify links between productivity and skills. Throughout, the study was firmly placed within public sector approaches to productivity and specifically within that, health sector approaches. It retained a focus on the links between skills and productivity within the much wider debate around the factors affecting productivity (for example this excluded a focus on debates around innovation or technology, and employee issues such as motivation and self-efficiency).

The study covered the UK as a whole, including the four composite countries. Data was sourced at both European and international levels. This was limited to English language only documents and to countries that had been identified in stakeholder interviews as the most comparable with the UK, including northern European countries, Australia and Canada. These parameters determined the scope of this study from the outset.

## 1.3. Outline of the report

Our report is structured as follows:

- **Section two** outlines definitions of productivity and associated issues
- **Section three** explores the links between productivity and skills
- **Section four** outlines the role of quality in the productivity debate
- **Section five** explores skills and productivity in the UK health sector
- **Section six** outlines the situation across Scotland, Wales and Northern Ireland
- **Section seven** explores international health sector skills and productivity issues
- **Section eight** considers econometric modelling of skills and productivity for the health sector
- **Section nine** offers suggestions to health sector employers in the light of the report's findings

# 2.0. Defining productivity and associated issues

- **Productivity is a measure of economic performance that applies across all sectors and that is usually defined at its broadest as a ratio of inputs to outputs**
- **Gaining a measure of productivity in the health sector can be problematic where the outputs are often hard to define and measure and the delivery of care to a patient may involve a whole team of healthcare workers**
- **Consideration of the quality of outputs makes the assessment of health sector productivity more complex**

## 2.1. Introduction

This chapter initially scopes out definitions of productivity in relation to the health sector. It also highlights the views of several stakeholders who were interviewed as part of this study, details of whom are outlined in Appendix 1.

## 2.2. Defining productivity in the health sector

Productivity is a measure of economic performance that applies across all sectors and that is usually defined at its broadest as output per unit of input. Input refers to labour and capital, while output is the value of goods and services produced. The most commonly used measure of productivity is Gross Domestic Product (GDP) or Gross Value Added (GVA). Health sector outputs are varied and cannot be reduced to a single outcome or indicator and for this reason qualitative indicators have been considered to be more appropriate for the health service.[2] Table 1 outlines some of the definitions of productivity used in relation to the health sector:

2 *NHS West Midlands (2009) Workforce Modelling and Productivity Literature Review*

## 1. Definitions of productivity

| Source | Definition |
|---|---|
| Organisation for Economic Co-operation and Development (OECD) (2009)[3] | "Labour productivity is defined as GDP per hour worked; where GDP for each country refers to its Gross Domestic Product, in national currency, at constant prices, OECD base year 2000, and output for country groups / zones GDP refers to the Gross Domestic Product, in US dollars, at constant prices, constant PPPs, OECD base year 2000. Labour input is defined as total hours worked of all persons employed." |
| ONS Public Service Productivity (Paper 1, 2004)<br><br>The Office of National Statistics uses two key data sources in its assessment of health sector productivity: the NHS Workforce Census and the Labour Force Survey | "NHS productivity is the ratio of NHS outputs to NHS inputs after separating out the impact of pay and price increases"<br><br>Inputs = what the health system uses in order to provide the output<br><br>Outputs = the quantity of healthcare received by patients, in terms of complete treatments, adjusted to allow for the qualities of services provided. |
| Productivity in the Social Care, Children's and Young People's Sector: Skills for Care and Development. Experian, March 2007. | "how efficiently inputs are converted to outputs" "productivity measures how efficiently goods and services or outputs are generated from inputs (labour and capital)" |
| About Economics<br><br>http://economics.about.com/od/economicsglossary | "Productivity is a measure relating a quantity or quality of output to the inputs required to produce it." |
| The Business Dictionary<br><br>www.businessdictionary.com | "Relative measure of the efficiency of a person, machine, factory, system, etc., in converting inputs into useful outputs. Computed by dividing average output per period by the total costs incurred or resources (capital, energy, material, personnel) consumed in that period; productivity is a critical determinant of cost efficiency." |
| Joint Learning Initiative, Harvard University, 2004 | "Outputs extracted from given inputs such as patients seen per worker or number of procedures per provider" |

The definitions included in Table 1 have in common the relationship between the *outputs* of the service as generated by the *inputs* to the service. The 'inputs' and 'outputs' tend to be quantitative measures, such as number of workers or the cost of a specific treatment or drug. Only the ONS definition addresses the issues of quality in relation to outputs obtained from the inputs and the impact of this on productivity. Consideration of the quality of *outputs* makes the assessment of productivity more complex. However, without consideration of quality it is harder to gain a true measure

3 *OECD (accessed 2009) Statistics Directorate. Labour Productivity Growth. http://www.oecd.org/LongAbstract/0,3425,en_2649_33715_39048703_1_1_1_1,00.html*

of productivity in the health sector[4] where the outputs are often hard to define and measure, and the delivery of care to a patient may involve a whole team of healthcare workers. Buchan (2005), in his review of the literature, suggests that there are five different factors that play a role in raising productivity among health workers as follows:

1. *Being there*: Addressing staff absence and leave entitlements
2. *In the Right Place*: Issues of geographical location
3. *At the Right Time*: Matching staffing with workload
4. *Doing the Right Thing*: Being more responsive to patient needs and making the best use of skills and competencies
5. *Doing things different/doing different things*: Improved training, management, enhanced roles etc

With regards to number 4, Buchan suggests that individual workers may be less productive because they are not focussing on their core competencies and activities, and that health teams may be less productive if their mix of skills is less than optimum.

### 2.2.1. Defining productivity – general stakeholder views

It is widely recognised that general definitions of productivity such as GVA per worker per hour do not readily fit with the healthcare sector, failing to capture the impact of service quality or efficiency. In healthcare, improving quality often entails healthcare workers spending more time with a patient administering more supportive care. This can impact negatively on productivity but can improve health outcomes for the patient.

Defining productivity was seen as a key problem with some of the traditional definitions; it is too simplistic to reflect the health sector. The speed of moving a patient from referral to treatment can be increased so that the numbers passing through are higher, but if they are not better when they leave the healthcare system, and consequently return to hospital again, then overall productivity will be lower. Thus the quality of the service provided cannot be overlooked. Quality is discussed in more detail in a later section.

A further problem relates to difficulties around defining and measuring quality. Training of staff (i.e. student nurses and doctors) is costly and will tend to impact negatively on productivity, although in the long term it contributes to better quality outcomes for patients. Similarly, it was argued that investing in the training of healthcare assistants can bring productivity gains as, once trained, they can offer higher quality care and in service terms can deliver more for the same costs. The importance of not focusing solely on skills deployed but to look at the wider skills mix and how they are deployed alongside other resources to assist team functioning was noted. With respect to the *skills mix* a balance between more experienced staff and 'learner' staff was also stressed.

The lack of uniform sources of data and a shared definition and measures of quality were seen to make the process of agreeing a definition more complex. The use of indicators and proxy indicators in productivity was also discussed (research in this area mainly originates from the US). Examples of proxy indicators mentioned included: rates of bed sores, failure to rescue (unanticipated event after surgery that is not adequately dealt with), patient falls and infection

4 *Buchan, James (2005) Scaling up health and education workers: increasing the performance and productivity of an existing stock of health workers. Literature Review. DFID Health Systems Resource Centre, London.*

rates. It was noted that higher quality does not necessarily equate with higher output, and that improved efficiency has to be factored in as well.

In conclusion, while there is agreement across the identified definitions that productivity should be determined by the relationship between inputs and outputs, the characteristics and measurement of these will depend upon the sector and the type of inputs and outputs being measured. Thus in the manufacturing sector inputs and outputs are often clear and quantitative in nature e.g. costs and goods produced, and as such are easier to measure. However, in the case of the services sector the picture is more complex and the outputs and outcomes in particular are harder to define. Both quality and efficiency are important considerations for assessing health sector productivity and there is a need for agreement on measures and definitions specific to the service sector and/or health.

### 2.2.2. Measuring the quality of health sector outputs

In order to improve the level of accuracy of assessments of health sector performance it is important to develop measures of the quality of outputs. Since the publication of the Atkinson Review the Department of Health, along with the Office for National Statistics, has undertaken to develop measures of health outputs that make adjustments for quality. In a recent paper[5] the authors outline a model that details two key aspects of healthcare quality – health benefits and patient experience. Quality considerations can help to make output measurement more accurate and as such can provide a more accurate assessment of productivity. The following approaches to improved measurement of output quality are identified:

- Measurement of the number of GP consultations has generally been gained from the General Household Survey but greater accuracy can be gained from the **QRESEARCH data** based on GP records of consultations (this data indicates that GP consultations have grown by 4.9% since 2000/2001 while GHS data indicates 2.6% growth).
- The Centre for Health Economics (University of York) and the National Institute for Economic and Social Research proposed a **value weighted output index** that offers a method for a quality adjusted index of NHS output. This approach uses cost-weighted indices that adjust for quality based on key factors such as health effects, survival rates, and waiting times (these mainly apply to hospital inpatients). Without these adjustments NHS output growth for 2000/01 – 2005/06 was 4.2% but with these adjustments would be around 4.5%.
- One improvement to the quality adjustments when measuring outputs has been the use of **avoidable mortality rates** rather than survival rates. Avoidable mortality rates account for deaths attributed to the healthcare system, but survival rates do not distinguish between natural end of life and medical failure. Data in relation to this shows that mortality from amenable causes has decreased substantially since 1993 implying an increase in NHS output equal to around £2.9 billion for 2000-2005 (although there may be some double counting within this calculation).
- Taking into account patient experience can lead to output adjustments. **National Patient Survey Programmes** can provide estimates of improvements to patient experience and the figures can be weighted to take into account the relative importance of each domain of patient experience and the degree to which patients value experience in each service area. However this has only a small impact on output – on average 0.04% increase per annum from 2000/01 to 2006/06.

5 *Derbyshire, K; Zerdevas, P; Unsworth, R and Haslam, M (2007) Further developments in measuring quality adjusted healthcare output. Department of Health*

- Derbyshire et al (2007) report that when all their quality adjustments are taken into account (including all of those listed above) NHS output growth rises to 6.8% per annum. However, this is an estimate that only provides an illustration of how adjustments can be made for the measurement of quality. In addition to the above, proposals to look at **Patient Reported Outcome Measurement** (PROMS) have been made by the Department of Health, as they offer a means to measure changes in health status arising from NHS intervention. The Department has also outlined proposals for the identification of metrics of quality and outcome taken from the new **NHS performance framework and Departmental Strategic Objectives**.

# 3.0. Exploring the link between productivity and skills

- **Although there is a widely held belief in a positive association between skills and productivity, cause and effect is harder to demonstrate**
- **There are many causal factors affecting productivity; skills and training is just one element**
- **Developing robust HR practices and improving the health and well-being of health sector employees will also have a significant impact on productivity**

## 3.1. Introduction

This chapter explores the link between *skills* and productivity within the parameters of this study.

## 3.2. The link between skills and productivity

The skills mix constitutes one of the factors for determining productivity. This refers to the mix of professional skills within an organisation, or a sub-set of an organisation; the skills of one professional group; or the skills of an individual in the health sector. The links between skills and productivity have been the subject of a considerable body of research, where comparisons have been made between the levels of workforce skills and qualifications, and output and productivity measures[6] (although many of these relate to skills and productivity in the manufacturing sector and as such are limited in their generalisation to the health sector). These studies have demonstrated that there is a positive association, but that the causal link between skills and productivity is harder to demonstrate[7]. In spite of the research, controversy exists among employers as to the true effect of training on productivity[8].

Skills can raise productivity in a direct manner via the link between an individual's own skills and personal productivity, and indirectly through links to innovation and enterprise (thus higher levels of skills enable workers to generate new ideas and to respond to, and adapt to, changes). The evidence, however, indicates a weaker link between lower level skills (e.g. vocational qualifications) and productivity[9].

6 *Tamkin, P., Giles, L., Campbell, M. and Hillage, J. (2004) Skills Pay: The Contribution of Skills to Business Success, Wath upon Dearne, SSDA.*
7 *Galindo-Rueda, F and Haskel, J. (2005) Skills, workforce characteristics and firm-level productivity in England, DTI, DfES, ONS*
8 *Guest, D. (2001) Voices in the Boardroom London: Chartered Institute of personnel and Development*
9 *Galindo-Rueda, F and Haskel, J. (2005) Skills, workforce characteristics and firm-level productivity in England, DTI, DfES, ONS*

The role of skills in raising labour productivity and total productivity includes the following:

- skills enable the workforce to undertake more complex tasks more effectively, helping to produce higher value products and services
- the right skills make investment in innovation and technology more profitable
- skills contribute to improving adaptability and responsiveness to change, including implementing new technology and processes
- skilled staff facilitate the learning of other co-workers.

Research conducted by McKinsey in 1998 highlighted a series of core factors that accounted for the UK's productivity gap[10]. These included on a primary level intensity of competition, regulation and managerial practice, and at a secondary level, investment, skills and market scale. Further to this, work by HM Treasury identified the following factors as the key drivers of productivity: investment, skills, innovation, entrepreneurship and competition. With reference to 'investment in human capital' the quality of the labour force was seen to include skills, education and training, all of which will contribute to the overall quality of the labour force. A high skills economy is regarded as being more innovative and specialised but the UK, in comparison with other European countries, was seen to have a 'low skills' economy.

As a key driver of productivity human capital, and skills in particular, are key elements of quality. As such, a more highly trained workforce should have the potential to offer greater efficiency and effectiveness[11].

Dawson et al (2005)[12] note that the productivity of highly skilled workers is greater than that of less skilled workers, but that with reference to labour, input skills are the most important dimension. The authors suggest that the impact of skills on aggregate labour input growth can be assessed:

"*The standard growth accounting formula for adjusting for skills divides labour hours by skill type and then weights the growth in hours of each type by their wage bill shares. This captures the fact that more highly skilled workers get paid more than the unskilled, and under competitive market conditions, the wage paid reflects the marginal productivity of workers of different types. Merely calculating growth in total hours worked is equivalent to weighting worker types by their share in employment. Hence if there is general upskilling of the workforce so that growth in hours is greater for skilled relative to unskilled workers, weighting by wage bill shares leads to higher aggregate labour input growth*." [13]

The difference between this calculation and the growth in total hours worked provides a measure of the impact of skill on aggregate labour input growth. The authors' analysis of trends in the use of labour input in the NHS shows a recent rapid rise in labour input growth which has been due to a higher number of workers being employed, but is also due to the upskilling of the workforce. This upskilling, they suggest, has been one reason for the increased expenditure on the NHS.

10 *McKinsey (1998), "Driving productivity and growth in the UK economy", McKinsey Quarterly*
11 *Experian (2007) Productivity in the social care, children's and young people's sector: Skills for care and development.*
12 *Dawson, D et al (2005) Developing new approaches to measuring NHS outputs and productivity. www.niesr.ac.uk/pdf/nhsoutputsprod.pdf*
13 *Dawson, D et al (2005) Developing new approaches to measuring NHS outputs and productivity. www.niesr.ac.uk/pdf/nhsoutputsprod.pdf*

Further evidence (Griffin et al, 2008)[14] demonstrates the benefits of effective training, but that 'getting learning right' is crucial in maximising these benefits. This learning programme, delivered in Northern Ireland and based around the core competencies of the Knowledge and Skills Framework, offers an example of how learning can support improved NHS productivity. The reasons for the success of this particular programme included:

- a supportive organisational culture
- the learner's view being actively sought
- assessment and evaluation of the impact of learning
- learning was related to real work experiences
- learning was aligned with other HR interventions
- learning was based on the Knowledge and Skills Framework's six core competencies
- the needs of non-traditional learners were taken into account.

The authors argue that these criteria could be applied to training more generally and as such would help learning to be an effective lever for improved productivity.

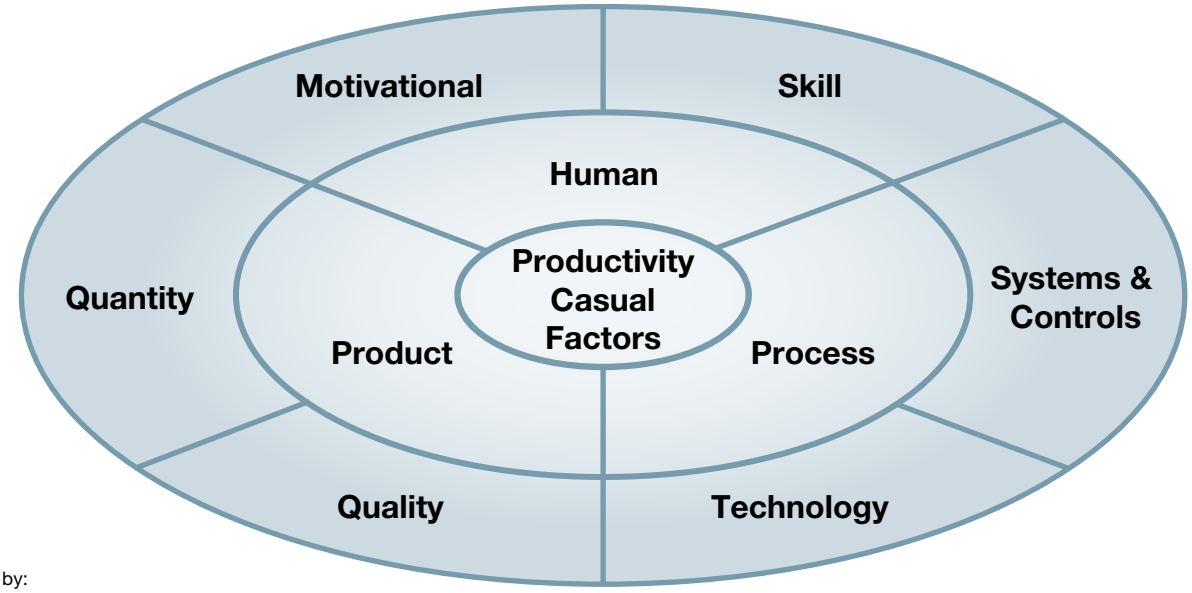
### The workplace environment, staff, skills and productivity

The wider workplace environmental and policy context is important in achieving greater efficiency and productivity alongside skills-based initiatives. The "skills-productivity" link does not operate in isolation, but broader contextual factors are influential in terms of the impact of adjustments to skills levels and training and, as such, should be taken into consideration. Although it is beyond the scope of this paper to deal comprehensively with all factors affecting productivity, key issues are depicted in the diagram below[15]. The following section concentrates on briefly outlining some factors relevant to the uptake of training opportunities and skills development.

14 *Griffin, R et al (2008) Better NHS training, improved NHS productivity. Health Service Journal. www.hsj.co.uk/better-nhs-training-improved-nhs-productivity/1920800.article*

15 *http://andromeda.rutgers.edu/~ncpp/resource_center/English/Entries_English/causal_factors.html*

## Casual Factors Affecting Producivity Change

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Productivity Trends FY 1967-1973. Joint Principa
Management Improvement Programe. June, 1974

Increasing worker motivation and satisfaction can promote better productivity, produce effective, efficient and loyal workers, boost higher quality of work and improve resources. Research by the Industrial Systems Research[16] cited factors affecting employee productivity including:

- *physical-organic, location, and technological factors*
- *cultural belief-value and individual attitudinal, motivational and behavioural factors*
- *international influences – e.g. levels of innovativeness and efficiency on the part of the owners and managers of inward investing foreign companies*
- *managerial-organizational and wider economic and political-legal environments*
- *levels of flexibility in internal labour markets and the organization of work activities – e.g. the presence or absence of traditional craft demarcation lines and barriers to occupational entry*
- *individual rewards and payment systems, and the effectiveness of personnel managers and others in recruiting, training, communicating with, and performance-motivating employees on the basis of pay and other incentives*.

16 *Manufacturing In Britain: A Survey Of Factors Affecting Growth & Performance, ISR/Google Books, revised 3rd edition. 2003, pg 58. ISBN 978-0-906321-30-0*

The Chartered Institute of Personnel and Development (CIPD) addressed the issue of productivity in their paper SMARTWORK[17] which states that responsiveness to customer demand, innovation and organisations preparedness for change are key to raising productivity. The contribution of people, it is argued, is a vital part of this challenge, and with this in mind investment in skills and the harnessing and development of skills in order to achieve maximum effects is essential. The concept of **'high performance working'** involves the management of people to enable staff to work smarter rather than working longer hours or working harder in each hour. This approach, it is argued, requires a combination of on-going work-based learning; self-managed team working; job design; job quality; flexible working and good staff communication; and profit or performance related pay systems that are tailored to individual organisational needs resulting in high levels of employee commitment and performance, and in turn driving higher levels of productivity.

This CIPD research highlights that the provision of training and other people-management practices are not sufficient alone, but when they are accompanied by a highly motivated workforce higher levels of efficiency and productivity can be achieved. In addition, the authors note that while improved education and training provision to increase the supply of skills should constitute a major part of productivity policy in the UK, they should be implemented alongside other people management practices in order to effectively raise productivity levels.

A Department of Trade and Industry (DTI) report[18] provides ten case studies of '**high performance work practices'** (HPWPs) that demonstrate good practice in relation to change management and the effects of implementation of high performance work practices on skills policies. HPWPs are defined as organisations that have the following work practices: high levels of employee involvement, human resource practices (that include performance appraisals, work re-design, and mentoring), and reward and commitment practices. Evidence from these case studies indicates that training and continuous development was 'built in' to the organisations and that training linked to performance requirements was more important than the quantity of the training. In the HPWPs, learning was an on-going process and part of the normal working environment, supporting more innovation and higher performance.

Human Resource (HR) practices are also a significant factor in raising productivity and there is some evidence of a link between HR practices and patient mortality in acute hospitals. West et al (2002)[19] researched the practices of Human Resources Managers in acute hospitals, including the extent and sophistication of employee training. The results indicated that strong HR practices (including staff training) were associated with a 16.9% decrease in general patient mortality. They also found that an improvement in appraisal processes was associated with a reduction of 12.3% in the number of deaths after hip fracture.

Levels of job satisfaction can influence the 'health' of the workplace with factors such as wage inequality, a lack of involvement in decision making, job insecurity and overqualified employees (where workers' levels of formal qualifications have risen faster than employers' rising skills requirements) all contributing to low levels of job satisfaction[20] and impacting negatively on productivity.

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17 *Chartered Institute of Personnel Development: Public policy perspectives, People, productivity and performances – SMARTWORK. www.cipd.co.uk*

18 *Chartered Institute of Personnel and Development: High performance work practices: linking strategy and skills to performance outcomes. DTI.*

19 *West, MA; Borrill,C; Dawson J et al (2002) Int J of Human Resource Management Vol 13 (18) pp1299-1310 (12) The link between the management of employees and patient mortality in acute hospitals.*

20 *Coats, D and Max C (2005) Healthy Work: productive workplaces – why the UK needs more good jobs. The Work Foundation*

In his final report to the Department of Health on the Health and well being of NHS staff[21], Dr Boorman (2009) highlighted the need for a 'healthy workplace' to co-exist with productivity-based changes such as skills initiatives. Also highlighted were the significant costs to the NHS as a result of poor staff health and well being:

- The average days lost per employee were 9.7 in the public sector and 6.4 in the private sector. The NHS figure was 10.7 - the equivalent of 45,000 whole time equivalents (WTEs) lost, or 4.5% of workforce
- A total of 10.3 million lost working days per year due to staff absenteeism. A move from average to good staff health well-being would save 840,000 staff days per year (£13.7 million)
- A one-third reduction in absentee figures equates to 3.4 million working days, and a saving of £555 million.

In summary, the wider workplace environmental and policy context is important in achieving greater efficiency and productivity alongside skills-based initiatives. The wider working environment, levels of job satisfaction, and HR practices are important factors that operate alongside skills and training and as such should not be overlooked as part of productivity programmes and initiatives.

### 3.2.1. Skills and productivity – general stakeholder views

The discussion around the links between skills and productivity in the healthcare sector highlighted that the utilisation of skills was important; once skills have been gained there needs to be the right working environment for those skills to be effectively utilised. Thus it is vital that work practices and wider organisational issues are taken into account.

The skills of non-medical healthcare professionals can be raised allowing them to take on some of the tasks normally performed by their more senior colleagues. The *Nurse Consultant* role involves tasks that have traditionally been undertaken by junior doctors, and nurses taking on this role have now developed specialist knowledge and they generally spend longer periods of time with the patient. As such the *Nurse Consultant* potentially provides a high quality service and is more cost effective. The upskilling of non-medical healthcare workers has, it was suggested, been driven by the EU Working Time Directive that limits the working hours of doctors.

21 *Health and Well Being Report, Boorman, S. Work Foundation, RAND, Aston Business School 2009*

# 4.0. The Role of Quality in the productivity debate

- **Any measure of productivity in the health service must factor-in the quality of the service being provided**
- **In order to incorporate the quality of medical care or treatment, outputs must be adjusted to take into account qualitative factors such as survival rates and the patient experience**
- **A number of methods are currently used to take account of quality within productivity measures**

## 4.1. Introduction

This chapter looks at quality; a key factor affecting productivity.

## 4.2. The role of quality in measuring productivity

Quality is a key factor affecting the measurement of productivity in a public sector setting. This section explores issues around quality in relation to skills and productivity.

As described previously, it is much harder to measure productivity in the public sector as services are provided free on demand. With no market prices it is harder to place a value on outputs. With reference to health, public sector outputs have included the provision of treatments; GP services, dentists and opticians are included as quantitative measures. However, as noted by the Atkinson Review (2005), any improvements in the quality of public sector outputs is not captured, and the true benefits of public services are thus not recognised. Thus, in the absence of any adjustments for quality, the ONS statistics indicate that despite increased levels of investment in the NHS there has not been the anticipated increase in productivity.[22] So in order to incorporate the quality of medical care or treatment, outputs must be adjusted to take into account qualitative factors such as survival rates and the patient experience. Economic performance is also considered when measuring productivity, and this means taking into account costs to the economy. A rise in earning means that the cost of ill-health will be higher and this can also be factored into the measurement.

As such, taking into account quality factors can change the national picture regarding health sector productivity. For example, the standard comparison of NHS outputs to inputs for the period 1995-2004 suggests a fall of 0.6% to 1.3% in productivity, however, when the quality of the treatment provided is factored in, productivity has been shown to range from a 0.2% increase to a 0.5% decrease between 1999 and 2004. Furthermore, if the economic situation is also

22 *Experian (2007) Productivity in the social care, children's and young people's sector: Skills for care and development.*

accounted for (that is the rise in earnings) then NHS productivity shows a rise of on average 0.9% to 1.6% per year[23]. This demonstrates how established general measures of productivity (usually derived from the manufacturing sector) do not always reflect the impact of quality or the wider economic situation.

In comparison with the national workforce, the NHS employs more workers at the high end of the skills distribution, and this is particularly pronounced when the NHS is compared with private market services. In recent years there has been growth in the number of workers employed in the NHS accompanied by a significant *upskilling* of the workforce. This accounts for the recent increased expenditure in the NHS with around 20% of payments for labour being due to payments for higher-skilled workers[24].

The Office for National Statistics and the UK Centre for the Management of Government Activity (UKCeMGA) published a comprehensive article exploring labour inputs in public sector productivity making specific reference to the measurement of skills and the impact of skills on productivity[25]. Labour represents a significant input and expenditure accounting for a large proportion of the total expenditure on public services. In its most basic form labour can be measured in terms of the total number of hours worked[26]. However, this does not reflect the range of skills within a given sector workforce. Any changes in the level of skills and the accuracy with which these are measured, it is suggested, will affect productivity estimates.

Labour is the most important input used in producing health services, accounting for 75% of total hospital expenditures. Labour input may be calculated by using **direct** (e.g. number of persons engaged or Full Time Equivalents) or **indirect** (expenditure on labour deflated by a wage index) measures, but productivity analysts generally prefer to use direct measures as data for these are more widely available. The productivity of highly skilled individuals, it is argued, is greater than that of less-skilled workers[27]. This is illustrated by the OECD productivity manual in the following quote:

*"Because a worker's contribution to the production process consists of his/her 'raw' labour (or physical presence) and services from his/her human capital, one hour worked by one person does not constitute the same amount of labour input as one hour worked by another person."*

ONS and UKCeMGA (2009) note that there are many difficulties and challenges associated with measuring the variations in skills within a given workforce. Recommendations from the Atkinson Review (2005)[28] outlined the principle that input measurement should be comprehensive and should include capital services, and labour inputs should be compiled using both direct and indirect approaches. With respect to labour inputs they recommend that:

*"For the direct approach, ONS should expand the analysis by function, introduce a public/private split and incorporate information on skills mix."*

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23 *BBC News ( ) NHS productivity is stagnant or falling by most measures, although experts say methods of measuring need refining. http://news.bbc.co.uk/1/hi/health/4655384.stm*

24 *Dawson D et al (2005) Developing new approaches to measuring NHS outputs and productivity. www.niesr.ac.uk/pdf/nhsoutputsprod.pdf*

25 *ONS and UK Centre for the Measurement of Government Activity (February, 2009) Labour Inputs in Public Sector Productivity: Methods, Issues and Data. www.statistics.gov.uk/artilces/nojournal/Labout-Inputs-Artilce.pdf*

26 *The current Health direct labour input measure splits employees into different professions, that is consultants, nurses, ambulance staff, and support staff, with FTE numbers for each category for the period 1995–2006 (ONS 2008d:29)*

27 *Dawson D et al (2005) Developing new approaches to measuring NHS outputs and productivity. www.niesr.ac.uk/pdf/nhsoutputsprod.pdf*

28 *Atkinson, T (2005) Atkinson Review: Final Report (Basingstoke: Palgrave Macmillan).*

### 4.2.1. Measuring direct labour input

The options outlined for measuring direct labour input include the employment count, Full Time Equivalent (FTE) posts, hours paid, actual hours worked and quality adjusted hours. The authors (ONS and UKCeMGA, 2009) then go on to suggest that in terms of **direct labour input,** the measure **quality adjusted hours worked** offers the most accurate measure of the volume of hours. This quality adjustment takes into account the differences between workers and involves a calculation of the hours worked by health sector workers at different skills levels, these are then weighted together by using expenditure on each skills level category. As such this measure fully takes into account difference in labour quality and can draw on data from the NHS Earnings Survey to calculate the average wages of employees.

ONS and UKCeMGA (2009) observe that:

*"Accounting for skill is important even in an indirect measure; otherwise during deflation, it is automatically assumed that all year-on-year changes in price are due to inflation only."*

Over time there are likely to be many changes in the health sector labour force, changes which could result in more highly-qualified workers being employed, or the existing workforce composition altering with employees gaining new skills and qualifications. The actual number of FTE hours worked would not reflect such changes but where skills levels have increased the volume of labour inputs would have shown an increase. Therefore this would mean that an increase in the quality of labour over a given period of time would result in a factor rise in the **Quality Adjusted Labour Input** offering an adjusted measure of overall labour input. As such, healthcare staff would be *weighted* by their respective relative pay in order to take into account skills differences.

One important element of this **Quality Adjusted Labour** is how workforce skills are measured. Approaches to measurement of skills have included:

- A focus on differentiating characteristics such as: age, gender, education, occupation or social class.
- Labour input being cross-classified by education and work experience.
- A direct relationship between skills and occupation (ranking occupations by skills intensity and then deriving differentiated measures of labour output).

The third approach listed above has been adopted by UKCeMGA whereby a direct relationship between skills and occupation is assumed and occupations are ranked according to their *skills intensity*. The weighting that is used accounts for the *quality* of labour inputs and is based on the assumption that highly skilled workers are paid more than unskilled workers. One consideration regarding this assumption, and with specific reference to the NHS, is that in the UK the NHS does not operate a full competitive jobs market (in the NHS budgets are constrained by government decisions regarding public sector spending and NHS workforce salary scales are set by Pay Review Bodies)[29].

29 *Further detailed information regarding the contribution of skills to direct labour measures are included in the published paper (ONS and UKCeMGA, 2009)*

Achieving clear definitions regarding skills and the means for measuring them as part of productivity assessments has been the subject of some debate. ONS and UKCeMGA (2009) have defined the parameters for skills as follows:

- The level of education: for example highest qualifications attained.
- Occupation: the use of labour force and structural earning surveys.
- Salary: based on the assumption that those with greater skills command higher salaries.
- Grade: this can be applied where there is an established career structure (e.g. in the NHS).
- Age Groups: this is based on the assumption that older workers are more productive due to having higher levels of experience.
- Gender: this relates to the gender pay gap and the differences that remain between men and women in the workplace.

The ONS and UKCeMGA (2009) paper provides a detailed review of key issues relating to labour inputs in public sector productivity and in conclusion outlines future work in the development of core labour inputs. The suggested focus for the health sector is on increasing the number of categories of labour, quality adjusting the categories of labour as well as increasing the overall coverage of the UK by obtaining data from both Scotland and Northern Ireland (the current index is based on England only, with proxies for the other countries of the UK). Key data sources that will inform skills measurement as part of productivity calculations are the NHS Staff Earnings Survey, the NHS Staff Census, and the Labour Force Survey.

### 4.2.2. Quality – the views of stakeholders

The measurement of productivity in the healthcare sector was recognised as complex, but it was generally agreed that measurement needs to take account of both quality and efficiency. Measurement is hampered by the complexity of the health service (which includes a large number of activities and staff roles) and as such would require a range of different indicators that take account of outcomes in the short, medium and longer term. The health sector inputs include: labour, capital and the procurement of goods and services, and the output measures are all the different NHS activities. Measurement of efficiency includes 'length of stay' and this, it is argued, is driven by both skills and process. Process involves consideration of roles and in particular if a more junior staff member can undertake the task.

### 4.2.3. Raising productivity in the private healthcare sector

In the UK, private sector companies delivering a healthcare service are expected to demonstrate that they can provide a given service for the same cost as the NHS. For this reason the private sector seeks to deliver more, but at the same cost, in order to win contracts. For this reason it has been suggested[30] that there is a drive to raise productivity in the sector. One area that has been investigated relates to the delivery of healthcare services in the community. Here the focus has been (and will be) on the upskilling of non-registered frontline staff (e.g. healthcare assistants) to take on some of the nursing tasks. Another issue under consideration is that of non-registered staff offering a generic service by providing some of the basic tasks normally delivered by other professionals (e.g. physiotherapists). Both of these initiatives would result in lowered costs overall as non-registered staff are more cost-effective to employ and the need for several visits by different professions to one patient would be reduced.

30 *Interview with representative of the private sector, May 2009*

# 5.0. Skills and productivity: the UK health sector

- **Data on levels of productivity in the health service, and whether they are rising, falling or remaining constant, is inconclusive**
- **Limited evidence exists on the extent to which modernisation and innovation in the health service in recent years, including the changing roles of nurse practitioners, have impacted on productivity**

## 5.1. Introduction

This section looks at skills and productivity issues and the factors affecting productivity in the UK heath sector, with a focus on England. It looks at UK data around health service productivity (Section 5.2) and briefly reviews policies relating to skills that may impact on productivity (Section 5.3) and other innovations that may impact (Section 5.4). Finally it looks at interventions that are in place as examples of skills and productivity (Section 5.5).

## 5.2. The UK health sector productivity

The UK health sector employs around two million people, mainly though the NHS which employs 1.3 million people and is the biggest employer in Europe. Among NHS staff in England, around 679,157 have professional qualifications including nurses, doctors, midwives, scientific, technical and ambulance staff. Since 1997 there have been increases in the number of doctors and dentists, qualified nurses and qualified Allied Health Professionals (AHPs). In addition, since 1997 the number of support staff and ambulance staff has also shown a substantial increase[31]. Table 2 provides details of changes in staff number since 1998.

**2. NHS Staff 1998-2008**

| | 1998 | 2008 | Change 1998-2008 |
|---|---|---|---|
| Total NHS Staff | 855,129 | 1,125,131 | 270,002 |
| Professionally qualified clinical staff | 442,868 | 593,636 | 150,768 |

*Source: NHS Information Centre, 2009*

In 2008 public spending on the NHS totalled £90.7 billion (up from £46 billion in 2000/01), and is now close to the average for the European Union in England. Since 1997/98 NHS net expenditure has increased from £34.66 billion to £89.57 billion in 2007/08.[32] Despite this huge increase in funding the NHS still struggles to afford all the treatment and services for which there is a demand and funding gaps persist. The per capita spend in the NHS on cancer care is

31 *The NHS Information Centre (2005) Staff in the NHS 2005: an overview of staff numbers within the NHS in England by 2005.*
32 *The NHS Confederation (2009) Key statistics on the NHS: NHS funding http://www.nhsconfed.org/OurWork/Parliamentarycentre/Pages/KeyStatisticsOnTheNHS.aspx#funding*

among the highest in Europe, but the quality and level of care has not improved. Results from the Audit Commission showed that nearly one third of NHS bodies failed to meet minimum requirements on the use of resources, and 27 failed every single test of good management (despite up to 15% of trust income being spent on management). The main achievements have been in relation to reducing waiting times and the average length of stay in hospital (more day cases and better discharge practices)[33].

Recent data published in the Health Service Journal (May 2009) indicates that the productivity of the NHS has improved. Between 2003-04 and 2007-08 ONS data shows health sector productivity to be stable or increasing, with the greatest improvements taking place between 2004 and 2006. This improvement has been attributed to stability in NHS staff numbers, a reduced dependence on agency staff, and improvements in care quality and the number of patients treated[34]. Other reports, however, suggest that NHS productivity is stagnant[35] but at the same time tend to acknowledge that if the rise in real earnings is factored in, then NHS productivity would be seen to have risen by 0.9% to 1.6% a year.

The recent UK Centre for the Measurement of Government Activity report (June 2009) outlines trends in public service productivity[36]. The largest falls in public sector productivity occurred in 2002 and 2003 with productivity falling by 1.3 per cent and 1.5 per cent respectively. However, in 2006 and 2007 productivity growth in total public services became positive at 0.8 per cent in 2006 and 0.6 per cent in 2007 (output growth was faster than input growth).

For the period 1997 to 2007 healthcare productivity fell by 4.3 per cent with an annual average fall of 0.4 per cent. The report notes that healthcare is the major contributor to the overall fall in productivity across the public services, contributing 1.2 percentage points (or 37.5 per cent of the 3.2 percentage point total fall). Healthcare accounts for the largest portion of government spending with both *inputs* and *outputs* rising over the ten-year period. The main factors accounting for the rise in output were:

- more patient treatments in hospital and community healthcare services
- an increase in general practitioner (GP) and practice nurse consultations
- a large increase in drugs prescribed by GPs
- a small rise in the quality of healthcare (based on short-term survival, health gain, waiting times and patient experience) from when it was first measured in 2001.

The increase in *inputs* was due to:

- increases in the volume of labour, with especially high growth between 2000 and 2004
- high growth in the volume of goods and services, particularly in GP prescribed drugs, healthcare purchased from outside the NHS and other purchased goods and services (UKCeMGA, June 2009)

33 *Gubb, James (February 2008) Why the NHS is the sick man of Europe. CIVITAS review (5) Issue 1.*
34 *Gainsbury, S (May, 2009) NHS Productivity on the rise. Health Service Journal. www.hsj.co.uk/5001013.article*
35 *BBC News http://news.bbc.co.uk/1/hi/health/4755384.stm*
36 *UK Centre for the Measurement of Government Activity (June 2009) Total Public Service Output and Productivity. ONS. http://www.statistics.gov.uk/articles/nojournal/TotalPublicServiceFinalv5.pdf*

What this data highlights are the difficulties around agreeing on approaches to measuring productivity in the health sector, our limited understanding of how productivity can be effectively raised, and the complexity around the impact of the different factors that contribute to overall productivity levels as illustrated by a recent National Audit Office report.[37] It found that, although the Department of Health expected that Agenda for Change would result in a 1.1 – 1.5 per cent year-on-year rise in productivity and associated net savings of at least £1.3 billion over the first five years of Agenda for Change, the Department had not carried out an evaluation of productivity savings resulting from Agenda for Change, nor had trusts attempted to measure the resulting efficiency or productivity gains. In the absence of such evaluation, any productivity savings achieved have been unidentifiable.

The report acknowledges that more general measures of NHS productivity and efficiency that are available do not take account of changes in quality of services and cannot easily be disaggregated to show the specific impact of the programme. It highlights that ONS productivity measures need to be considered alongside other corroborative data which suggest that productivity has declined a little less steeply than the crude measure indicates. However, a Health Foundation report [38] argues that:

*"We have to accept that there is currently no definitive measurement of NHS productivity and that, with various figures available, commentators may choose to cite the measure that supports their argument and ignore the others. The appropriate way forward is to have a well-informed and wide-ranging debate on the topic in order to identify the main priorities for methodological clarification."*

## 5.3. The UK health sector skill set

According to a 2006 report [39], over half a million NHS staff were qualified below NVQ level three, a level of qualification increasingly regarded as the "level essential for the British workforce to secure future economic prosperity, business advantage and success, international competitiveness and social inclusion".

Almost one third of all NHS staff had no opportunities for taught learning in the previous year and 70% said they had received no supervised on-the-job training in the previous year. Numbers receiving NHS training opportunities in job-related learning varied with grade:

- 57% of senior managers and professionals
- 34% of workers in semi-routine jobs
- 12% in routine jobs.

37 *National Audit Office: Value for Money Report. NHS Pay Modernisation in England: Agenda for Change. www.nao.org.uk/0809/nhs_pay_modernisation.aspx*
38 *Martin, S., Smith, P., and Leatherman, S. (2006) Value for Money in the English NHS: summary of the evidence*
39 *Learning for a Change in Healthcare, Fryer, B Dept of Health 2006*

A recent evaluation that investigated NHS training and productivity[40] found that while in England the NHS spends around £5 billion a year on the training of staff, around 40 percent of employees feel that the learning they received did not help them to do their job better. The authors considered that getting learning right is crucial if it is to effectively contribute to higher levels of productivity. The standard and quality of the learning provided is more important than just the fact that it has been completed.

The Government Discussion Document (HM Treasury, 2003)[41] highlights the importance of offering tax payers value for money by increasing public sector productivity. While it is acknowledged that in certain areas UK public sector performance has improved, there is still scope for further progress and the challenge of raising productivity levels should be addressed. Key focal areas identified in this document include the performance outcomes of public sector services (judgement by results), and devolving delivery responsibilities to local providers alongside better governance.

Although the impending financial cuts required as a result of the recession provide the impetus needed to make difficult workforce and service decisions to affect change and raise productivity, there is still the danger that the NHS will fail to make the most of the opportunities the cutbacks offer. A recent report by University of Leeds' Centre for Innovation in Health Management [42] (CIHM) highlighted that:

*"Policy makers have learnt that in order to get the NHS to change, they need to create a short-term crisis. All our participants responded that they worked best when having to battle against the odds in the face of an external threat. This does not lead to NHS Trusts being able to perform well in the day-to-day business, nor to develop deeply-embedded quality services with adaptive capacity. In the face of that length of time to sort out what to do, the danger is that the NHS won't know how to respond, as its traditional short-termism won't work." (CIHM, 2009[43])*

There is a risk, therefore, that the NHS might respond to cash restraints by taking short-term fixing measures. This is despite the need for changes that deliver the long-term, sustainable change to deal with the increased demand in the sector.

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*40 Griffin, R; Donaghy, P and Ellis, H (November, 2008) Health Service Journal www.hsj.co.uk/better-nhs-training-improved-nhs-productivity/1920800.article*

*41 HM Treasury (April, 2003) Public Services: Meeting the productivity challenge. www.hm-treasury.gov.uk*

*42 National Enquiry into fit for purpose governance in the NHS, CIHM 2009*

*43 National Inquiry into Fit for Purpose Governance in the NHS CIHM 2009 http://www.cihm.leeds.ac.uk/new/wp-content/uploads/2009/07/gov-inq-short-report-final1.pdf*

## 5.4. The UK policy context

While it was not the focus of this study to review current health sector policy, a number of policy interventions have potentially impacted on efforts to raise productivity and also have relevance when considering skills in particular. Only a sample of policies relating to skills have been identified here as being of relevance directly to productivity[44].

Key recent policies and the implications of these for productivity and skills are listed below:

- **Agenda For change**: This has resulted in a single pay system operating in the NHS. A key element of this is the **Knowledge and Skills Framework** for staff training and development. This framework describes and defines both the knowledge and skills that NHS staff need to enable them to deliver a quality service and in turn contribute to higher levels of productivity[45].
- **The Skills Escalator**: This NHS Strategy to grow and change the NHS workforce through 'lifelong learning' encourages staff to constantly renew and extend their knowledge and skills[46].
- **The European Working Time Directive**: This limits junior doctor's hours to 48 per week and will become law in August 2009. While doctors have concerns about the impact of this legislation on the training of doctors in-training,[47] it has served to drive the upskilling of nurses, to enable them to take on some of the duties previously reserved for doctors[48]. The impact of this on productivity is that nurses can provide the same medical services but at a lower cost.
- **The new consultant contract**: This aims to help NHS organisations to collaborate with the profession, supporting improvements to services and improving doctors' working conditions. From October 2003 NHS employers have been required to advertise all new posts based on this new consultant contract. The contract aims to reward consultants properly and to ensure that the NHS can fully benefit from their time and skills[49].
- **General Medical Services (GMS) Contract**: The GP contract creates a higher level of flexibility for GPs and "*represents an unprecedented level of investment in primary care"*[50].
- **NHS Funding**: Since 1997, under the Labour Government, spending in the NHS has more than doubled. Although this rate of growth was never intended to continue in the long-term, the current economic crisis has the NHS now facing significant savings targets of £15 billion over the next 3 years. It is unlikely that there will be additional funding for the NHS in the immediate future[51] as the Government recently announced that future spending on public services will depend upon economic recovery[52].

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*44 For current policy updates in relation to skills, Skills for health produce a regular policy briefing document.*
*45 Source: Department of Health: www.dh.gov.uk*
*46 Ibid*
*47 BBC News (May, 2009) EU Working Time Directive. http://news.bbc.co.uk/1/hi/programmes/politics_show/8035747.stm*
*48 Fletcher, R (June 2007) Advancing nursing skills on the medical admission unit. Nursing Times. http://www.nursingtimes.net/nursing-practice-clinical-research/advancing-nursing-skills-on-the-medical-admissions-unit/199256.article*
*49 Department of Health (2009) www.dh.gov.uk*
*50 Department of Health (2009) www.dh.gov.uk*
*51 Health Service Journal (2008) NHS spending what does the future hold? http://www.hsj.co.uk/nhs-spending-what-does-the-future-hold/1897072.article*
*52 The Guardian (29 June 2009) No new spending plans before election, Mandelson confirms. http://www.guardian.co.uk/politics/2009/jun/29/mandelson-spending-plans*

## 5.5. Policy Response - Modernisation and innovation in the UK health sector

Modernisation and innovation in the UK health sector have both been factors affecting productivity. While these factors are less closely linked to skills and productivity a brief summary is provided below.

The drive for improved productivity levels in the health sector has been effected through a range of factors including specific targets for higher productivity set as part of the Gershon review[53], and the Payment by Results initiative introduced by the Department of Health in 2002. Sir Peter Gershon's review (2004) considered the scope for efficiency savings in the public sector that could feed into the Government's 2004 spending review. The agreed target for the Department of Health was to realise annual efficiency gains of around £6.5 billion by 2007-08 with a view to realising resources for front-line activities.

Other drivers for focusing on workforce productivity include the impact of demographic trends (a reduction in the overall working-age population compared to older generations), which will mean that it will become increasingly difficult to support continued growth in the workforce. Therefore, in order to meet the anticipated rising demand for healthcare services, the workforce group will need to be more productive. In addition, NHS improvements have meant that there is now a higher emphasis on patient choice which has also driven efforts for greater productivity levels[54]. The approach to skills development for staff within the health service will need to respond to these demands.

Since the 1990s there have been many innovations in the UK health sector which do have some linkage to skills, including the introduction of nurse practitioners and other innovations since introduced by the NHS Modernisation Agency (2001-2005). Key workforce reforms have often involved the delegation of tasks from consultants to practitioners, doctors to nurses and allied health professionals (AHPs) and from nurses and AHPs to other support staff. This has also happened in relation to transfer of services from the secondary level to the primary care sector with a consequent impact on general practitioners. These innovations in the workforce have been accompanied by the establishment of new roles or an alteration of existing ones.

The NHS Modernisation Agency (2004)[55] identified ten high-impact changes for service improvement and delivery. The tenth of these changes focuses on workforce roles and skills as follows: "Redesigning and extending roles in line with efficient patient pathways to attract and retain an effective workforce could free up more than 1,500 WTEs of GP/ consultant time creating 80,000 extra patient interactions per week." This involves redesigning work roles and matching them against skills and competencies to improve patient care and working lives, and to reduce waste, errors and mistakes. In addition, these different ways of working can raise staff retention, reduce spending on recruitment and agency staff, and can play an important role in achieving compliance with the Working Time Directive. This re-designing of role can be achieved in a number of areas including emergency services, primary care, mental health and acute services, and can focus on both administrative and practitioner staff. Benefits have been identified in relation to service delivery, clinical outcomes and the patient and staff experience. Some examples of health sector initiatives implemented in order to raise productivity, and that involve the extension or redesigning of workforce roles, have been included in Appendix 2.

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*53 Sir Peter Gershon (July, 2004) Releasing resources to the front line: Independent review of public sector efficiency.*
*54 NHS National Workforce Projects: Planners' Learning Events: Productive Time Overview*
*55 NMS Modernisation Agency (2004) 10 High Impact Changes for Service Improvement and Delivery. www.ogc.gov.uk/documents/Health_High_impact_Changes.pdf*

Over recent years reforms have had a significant impact on the NHS, resulting in particular in higher levels of local autonomy (e.g. Foundation Trusts), greater involvement of the independent sector, and greater competition between NHS organisations. The needs of the individual patient are increasingly central to the design of the health service and building both capacity and capability for innovation in the NHS are regarded as important in bringing benefits (including increased quality and value) for both patients and staff[56].

The NHS Institute for Innovation and Improvement has announced a series of productivity initiatives in the NHS. These are partnerships between the Institute and NHS providers some of which have already been launched with others planned or in development[57]. Using evidence-based approaches the Institute proposes to improve working practices, focusing in particular on areas for improvement and maximising the use of time and resources as well as improving patient care. The productive series includes the following:

- The productive ward (available)
- The productive operating theatre (Summer 2009)
- The productive community hospital (September 2008)
- Productive community services (Summer 2009)
- The NHS productive leader programme (October 2008)
- The productive improvement agent (in development)

All of the productive series have specific improvement aims and learning modules and resources accompany each area. For example, **The Productive Ward** focuses on improving the ward processes and environment in order to assist both nurses and therapists in spending more time on patient care and improving both safety and efficiency.

The Quality, Innovation, Productivity and Prevention (QIPP) is a framework introduced in early 2009 for adoption across the NHS. The framework's aim is to ensure that the changes required as a result of the economic downturn do not focus solely on cost cutting, but instead ensure that quality, innovation and productivity form the basis for service and workforce redesign and measurement. Many SHAs have now included QIPP as the basis for whole systems review[58]. With the associated appointment of an NHS National Director for Improvement and Efficiency in July 2009, and QIPP remaining a personal responsibility of the NHS Chief Executive, the drive to achieve major efficiency savings while improving the quality of service will remain a service priority.

### 5.5.1. Skills for Health: Sector Skills Agreement

Sector Skills Agreements (SSAs) are strategic action plans, brokered by Sector Skills Councils that outline areas of skills shortages and gaps. Stage three of the health SSA explored the strategic drivers affecting the healthcare workforce over future years and how these drivers could be combined to inform the 'Case for Change'. The key elements of a more flexible workforce were examined and the speed with which change could be achieved was examined.

56 *NHS Institute for Innovation and Improvement ( accessed May 2009) www.institute.nhs.uk/quality_and_value/*
57 *http://www.institute.nhs.uk/quality_and_value/productivity_series/productive_community_services.html*
58 *Mike Farrar on QIPP - quality, innovation, productivity and prevention, 10 Sept 2009, HSJ http://www.hsj.co.uk/comment/opinion/mike-farrar-on-qipp-quality-innovation-productivity-and-prevention/5005811.article*

The strategic drivers for all four countries of the UK were found to be similar and the convergence of these drivers led to the development of a key SSA theme – that a more flexible workforce is required by employers, along with a workforce planning approach that examines the competences that are required rather than relying on traditional job roles of the past. Skills for Health have since based their strategic direction and operational plans on a number of the themes generated by the Sector Skills Agreements, ensuring that alongside annual Skills Needs Assessment reports, the themes and drivers of the original SSA are kept up to date.

## 5.6. Programmes and Initiatives

Our review of literature and feedback from stakeholders identified a series of programmes and initiatives that have been implemented in the UK which have a focus on raising productivity in the health sector, with a specific focus on *skills*.[59] This includes government initiatives, regional and local programmes and examples of good practice.

All of the examples included in Table 3 are concerned with improving quality and efficiency within the healthcare sector and although not always explicit, do – directly or indirectly – aim to increase productivity levels. They all have a linkage, in some cases this is somewhat weak, to skills issues.

Evidence of the impact of these initiatives on productivity levels was not specifically identified, with the exception of *Unleashing Talent* that has been subject to evaluation. This makes it hard to draw any firm conclusions about the link between skills and productivity and the real impact of such initiatives. Nonetheless the examples do provide an indication of the types of initiatives that are in place and offer examples of useful practice. Five main approaches to raising productivity levels through skills based approaches are evident from the above case studies, programmes and initiatives. These have been listed in Appendix 2.

*59 Further initiatives exist that were identified in the literature review or by stakeholders that were not included in this review due to an unclear or less evident link to skills. For example: Direct therapy referrals from primary care have served to reduce the waiting times for patients.*

# 6.0. Skills and productivity: Scotland, Wales and Northern Ireland

- **Health is a devolved matter within the UK, and the four home countries have differed in their approach to skills and development**
- **Although spending in Scotland, Wales and Northern Ireland is higher than in England, NHS England had better key performance indicators.**

## 6.1. Introduction

The literature review and interviews identified limited information pertaining to health sector productivity in Scotland, Wales and Northern Ireland. However, particularly in Scotland, government action to raise health sector (NHS in particular) productivity has been outlined in policy initiatives. In Wales and Northern Ireland information was identified in relation to their links to UK wide activity. Initiatives intended to raise productivity levels have been identified for all three countries and these have been included in Table 3. Information specific to Scotland, Wales and Northern Ireland has been included in the sections below (Sections 6.2 to 6.4).

## 6.2. Scotland

The 2007 document **Better Health: Better Care – a discussion document** outlines Scotland's plans for continuous improvements in healthcare. This includes a range of actions and with reference to raising productivity levels involves cutting waiting times to 18 weeks (from GP referral to treatment), continued investment in staff skills, training and competencies in order to improve services, and support for collaborative improvement programmes to raise quality across NHS Scotland and to improve service quality[60].

In terms of workforce modernisation the Scottish Government has made pay modernisation a high priority, introducing new contractual arrangements for staff in NHS Scotland – the Consultants' Contract, the new General Medical Services (GMS) contract, and Agenda for Change.

Another key priority for Scotland is the improvement and demonstration of workforce productivity. The Scottish approach involves supporting improvements in productivity in line with best practice and government support for NHS institutions that drive higher productivity[61]. All of Scotland's NHS staff are required to have a Personal Development Plan (PDP) that aims to help individuals to develop their skills and performance. The PDP aims to improve organisational effectiveness by developing capabilities and individual potential to fulfil the defined job role and purpose. Organisations within NHS Scotland are expected to meet or exceed the best practice guidance (as outlined in the Personal Development Planning and Review document)[62].

60 *Healthier Scotland, Scottish Executive (2007) Better Health, Better Care: A Discussion Document. NHS Scotland. www.scotland.gov.uk*
61 *The Scottish Government (accessed 2009) NHS Workforce Modernisation. www.scotland.gov.uk*
62 *The Scottish Government (2004) Personal Development Planning and Review. http://www.scotland.gov.uk/Publications/2005/03/3083106/31072*

Scotland has seen significant growth in the size of its NHS workforce over the past 10 years. This has been accompanied by improvements in workforce planning. In 2007-2008 the Scottish Health Boards demonstrated that they had progressed in ensuring that through integrated Local Delivery Plans their workforce planning function links with financial and service planning.

The NHS Knowledge and Skills Framework part of the Agenda for Change informs Scotland's priorities for the education and training of its staff. Through close working between NHS Education for Scotland and local Health Boards a programme of work commenced in 2007 to support traditional and expanded roles. As such, Scotland's Health Workforce has been changing, and in particular there has been the creation of new health roles and new ways of working[63] (see Table 3, Appendix 2). The evolving workforce is key to Scotland achieving *Delivering for Health*. This document outlines action in Scotland to turn the vision for health into a reality[64].

## 6.3. Wales

Wales is involved in the UKCeMGA and ONS programme for measuring public sector output and productivity. This is with a view to improving Wales' measurement of public sector output and productivity. The Welsh Assembly Government acknowledges the need for consistent measures for both of these across the UK as a whole, but also for ensuring that there is accurate representation of Wales[65].

A key initiative in Wales is the Integrated Workforce Planning that has recently been implemented. A summary of this is provided in Table 3.

## 6.4. Northern Ireland

In Northern Ireland the public sector makes up a greater proportion of the local economy than for the UK as a whole, and as such is more important to regional economic growth. In relation to productivity Northern Ireland has underperformed compared to other European countries, and its GVA is 20% below the UK average. Low labour productivity is regarded as a key factor in this poor performance. The health and social care sector in Northern Ireland has been identified as having a specific productivity issue[66] [67]. Although still lagging behind the rest of the UK there has been some recent improvement in Northern Ireland's productivity[68].

In response to this productivity gap Northern Ireland's Finance Minister has established a Performance and Efficiency Delivery Unit that will examine the scope for further efficiencies and improvements in both performance and delivery by the public sector. Northern Ireland has a goal to halve the private sector productivity gap with the UK by 2015.

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*63 The Scottish Government (2008) NHSScotland Chief Executive's Annual Report (2007/2008). NHSScotland Workforce. www.scotland.gov.uk/publications/2008*

*64 The Scottish Government (2005) Delivering for Health. http://www.scotland.gov.uk/Publications/2005/11/02102635/26356*

*65 The Welsh Assembly Government (accessed 2009) Measuring Government Activity. Newsletter. http://new.wales.gov.uk/statsdocs/economy/sa23.pdf*

*66 ESRC (2008) Public sector productivity in Northern Ireland. www.esrc.ac.uk/ESRCInforCentre*

*67 ESRC (2008) Closing the productivity gap in Northern Ireland. www.esrcsocietytoday.ac.uk/ESRCInfoCentre*

*68 ESRC (2008) Sub-sectoral productivity in Northern Ireland. ESRC Seminar Series. http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/Images/ESRC-PP_Prod_NI_tcm6-26653.pdf*

The *Unleashing Talent Learning Programme* (see Table 3) offers an example of a Northern Ireland initiative to raise productivity in the public sector by increasing skills levels.

Productivity measurement in Northern Ireland is also linked with the UKCeMGA and ONS programme and work is currently underway to develop a complete measure of health productivity. Comparisons between Northern Ireland and England are being undertaken via the development of a set of indicators that will inform annual comparisons between them[69].

## 6.5. Productivity across the UK

A recent study by The Nuffield Trust[70] into the NHS found England performing better than Scotland, Wales and Northern Ireland, despite spending less. The study looked at pre- and post-devolution NHS performance across the four countries of the UK, and found significant variation in spending levels and performance indicators. When comparing expenditure, staffing levels, activity (outpatient appointments, inpatient admissions and day cases), staff productivity and waiting times, the study found:

- Scotland, Wales and Northern Ireland had had higher levels of funding per capita for NHS care than England.
- The NHS in England spent less and has fewer doctors, nurses and managers per head of population than the health services in the devolved countries, and had shorter waiting lists than in Wales and Northern Ireland.
- The NHS in England delivered higher levels of activity, staff productivity and lower waiting times.
- Scotland has the highest levels of poor health.

However, the reports that the statistics used were not wholly comparative. The Nuffield Trust report recommended that other factors, such as staff and patient experience and health outcomes, needed further investigation.

69 *www.dhsspsni.gov.uk/index/stats_research/stats-productivity.htm*
70 *Connolly, S., Bevan, G and Mays, N. (2010) Funding and Performance of Healthcare Systems in the Four Countries of the UK Before and After Devolution | Nuffield trust*

# 7.0. Skills and productivity: International

- **Little work has been done internationally on the link between productivity and skills development in the health sector**
- **The impact of demographic changes and of migration by healthcare workers has been indentified as a significant international challenge**
- **Several countries have set up initiatives to upskill existing staff and develop enhanced and extended roles**

## 7.1. Introduction

This section looks at the international, English language literature that was identified as part of the scoping study. This is by no means exhaustive but is intended to give Skills for Health an overview of some of the key issues in order to inform future discussions in line with the study's aims. The international literature review was confined to sources of international comparative work (Eurostat, OECD, WHO (Euro), the European Union and the World Bank) and literature from those countries identified by stakeholders as being the most comparable with England or the UK. This included Australia, France, Germany, Scandinavian countries and Canada.

## 7.2. Overview

The issue of raising productivity in the health sector is recognised at the international level by the European Commission, who produced a green paper on the European Workforce for Health in 2008. This examines the issue of workforce productivity emphasising the use of technology and telemedicine, but there is limited information on productivity specifically in relation to skills in this document. The issue of productivity in the healthcare system and the debate on how to increase it – specifically in relation to skills – did not appear to be high on the agenda of many European or international countries.

Our review yielded no reviews of international productivity and skills, but did identify reports on the health sector workforce issues faced by European countries. The *European Observatory on Health Systems and Policies* report explores the main challenges facing Europe's healthcare workforce and provides detailed examples for specific countries. The Norway case study provided below was drawn from this report.[71]

Below we present the evidence from the international literature review, specifically in relation to measuring productivity, issues that impact on productivity at the international level, initiatives from international organisations and particular countries to increase productivity in the health sector in relation to increase of skills, and examples from Australia and Norway.

71 *Rachel, B Dubois, C and McKee, M (2006) The healthcare workforce in Europe learning from experience. European Observatory on Health Systems and Policies. http://www.euro.who.int/Document/E89156.pdf*

## 7.3. Measuring productivity

Internationally, efforts have been undertaken by Eurostat and the OECD to develop methods for measuring productivity in order to increase the comparability of data. OECD developed A System of Health Accounts (SHA) in 2000 and since the publication of A System of Health Accounts (SHA) and the subsequent Producers Guide (WHO, World Bank and USAID, 2003), a number of OECD and non-OECD countries have undergone SHA implementation and produced SHA Tables.

In 2004 OECD, Eurostat and WHO agreed on the need for a common strategy for the joint collection of health statistics. Building on this general approach, the three organisations developed a framework for joint data collection in the area of health expenditure data. During 2007-8 one of the elements of the SHA's development work is incorporating input, output and productivity measurement into the SHA Framework.[72] The Eurostat Handbook of Price and Volume Measures of National Accounts (2001) provides explanations of inputs, activities, outputs and outcomes for individual services.

Canada is particularly relevant as it has a similar system to the UK. In general, the issues related to the measurement of productivity as identified in the Canadian report 'The Measurement of Output and Productivity in the Health Care Sector in Canada: An Overview' are the following:

- there are no market transactions where quantity and price can be observed
- what constitutes the output of the healthcare sector is not clearly defined
- the healthcare sector experienced significant quality improvements due to technological change that are difficult to capture in price and output estimates.

The measurement of productivity in the health sector in Canada is based on measuring input to the healthcare sector as a proxy for volume of outputs. The following weaknesses have been identified; the productivity growth is not captured using this method of measurement; and it is difficult to compare the data internationally as most EU countries have applied different methods for measuring outputs in the healthcare sector.

EU countries usually use output – rather than input – volume indicators for the healthcare sector in their national accounts figures. The need for improving measures of productivity in the healthcare sector comes from the need to include the improvement of health status in measuring productivity. Two alternative methods for measuring productivity were presented:

- a Utility-Based Approach to Measuring Health Care Output
- a quality Adjusting Health Output using a Production Approach.

72 *http://www.oecd.org/document/8/0,3343,en_2649_33929_2742536_1_1_1_1,00.html*

## 7.4. Issues that impact on productivity at international levels

The impact of demographic changes and of migration by healthcare workers has been identified as a significant challenge by a number of authors.[73,74,75]. A major study undertaken by the European Observatory on Health Systems and Policies[76] highlights workforce issues across Europe as a key barrier preventing health systems from improving their performance and bringing population-wide health benefits. Policy reform and changes to workforce management have in part been driven by the pressure for increased productivity and better quality European services. This study notes that across Europe demographic changes (the ageing population in particular) have resulted in increasing demand on health services in individual countries and a reduced pool of workers to meet this demand.

In addition, it is agued that with the increasing integration of EU countries and the removal of barriers to professional mobility it will become increasingly difficult to maintain an equitable workforce as some regions will fail to retain key staff who have been attracted elsewhere by better pay and conditions. As such, human resource planning in the health sector will be central to redressing imbalances. The transformation of skills and professional roles is highly relevant to planning the healthcare workforce.

The challenges of workforce shortages is also highlighted by the WHO (Europe)[77] who report that globally there is a shortage of healthcare workers that results in gaps in the infrastructure and services provided by health systems. This is estimated to be a total of 2.4 million physicians, nurses and midwives. The distribution and composition (including the skill mix, roles and education) of health workers is seen to vary considerably between different countries. Equally the regulatory structures and health systems vary due to the impact of reforms in the civil service and health sectors.

The main challenges faced by the World Health Organisation's (WHO) European region include:

- skills shortages – imbalances and poor distribution
- inadequate deployment
- increased worker mobility and migration
- a lack of connection between the objectives of education and health policies
- poor working environments
- shortcomings in regulatory arrangements
- a weak knowledge base on the health workforce, and a lack of evidence for policy and decision-making.

73 *Rachel, B; Dubois, C, and McKee, M (2006) The Health Care Workforce in Europe: Learning from experience. European Observatory on Health Systems and Policies. WHO http://www.euro.who.int/Document/E89156.pdf*
74 *WHO, Europe (2007) Investing in the Health Workforce Enables Stronger Health Systems. Fact Sheet 06/07*
75 *OECD (2008) The Looming Crisis In the Health Workforce. How Can OECD Countries Respond?*
76 *Rachel, B; Dubois, C, and McKee, M (2006) The Health Care Workforce in Europe: Learning from experience. European Observatory on Health Systems and Policies. WHO http://www.euro.who.int/Document/E89156.pdf*
77 *WHO, Europe (2007) Investing in the Health Workforce Enables Stronger Health Systems. Fact Sheet 06/07*

The WHO (Europe) also notes that in addition to the issue of migration across Europe, the ageing healthcare workforce poses a major challenge (in Denmark, France, Iceland, Norway and Sweden the average age of employed nurses is 41-45 years). The migration of significant numbers of health workers is also highlighted by the OECD[78] who reports that the migration flow is likely to be influenced by both human resource management policies and migration policies.

The adoption of a more efficient skill mix (for example developing the role of Advanced Practice Nurses and of Physicians' Assistants) and improvements in productivity (for example by linking pay and performance) are seen as central to informing national policies in the better use of the available health workforce. Better staff retention, enhanced integration, and a more efficient skills mix within the workforce, it is argued, can contribute to improved productivity, competence and responsiveness. This, it is suggested, would also assist countries in retaining their workforce.

With reference to changes to the skills mix and in particular nurses taking on the tasks traditionally completed by doctors, OECD states that this has at least in part been due to technological and economic changes that have added to the higher demand for 'doctor-specific' skills as opposed to 'nurse-specific' skills. An example is provided by the Physicians' Assistant role first introduced in the United States in 1967 and now introduced in Canada, England, Scotland, Australia, New Zealand, and the Netherlands. These countries have used this role to supplement physician services or to deliver tasks usually carried out by doctors; although some level of resistance regarding changes to professional boundaries has been observed, along with concerns about the 'blurring' of professional roles.

## 7.5. Initiatives from international organisations

Below are some examples of initiatives from international organisations and individual countries intended to increase productivity by focussing on skills in the healthcare sector:

- CEDEFOP: Skillsnet is the network of researchers and experts on early identification of skills needs. It aims to present and discuss methods and outcomes of research and analysis on new and changing skills needs, as well as medium to longer-term prospects of skills available in the labour market. OECD organised a workshop on future skill needs in the healthcare sector in 2008. The report of the workshop identified that in Europe there is a shortage of skills in positions like nurses, medical specialists and health technicians. It identified the following challenges for human resource policy: integrated workforce planning, improved recruitment and retention, improved skill mix and improved deployment.
- OECD commissioned a report to examine the scope for more efficient use of the health workforce through changing the skill mix. Most of the attention in the report is given to the analysis of the skill mix changes between physicians and nurses in primary care and in hospital settings.

78 *OECD (2008) The Looming Crisis In the Health Workforce. How Can OECD Countries Respond?*

## 7.6. Productivity in Australia's health workforce

Currently in Australia there are health workforce shortages and a high reliance on overseas health workers. However, with the demand for healthcare expected to rise due to higher public expectations of the service and an ageing population accompanied by growing expenditure on healthcare, raising productivity is regarded as essential[79]. The need to assess work roles and improve training and skills constitutes part of Australia's response to raising the efficiency of their health workforce and controlling costs. The Australian Government's Productivity Commission (2005) created a reform plan that included health workforce processes and arrangements in relation to:

- workplace change and job innovation,
- health worker education and training,
- accreditation and professional registration (ensuring that the workforce has appropriate qualifications, experience etc. to practice)
- funding and payment arrangements
- quantitative projections of future workforce requirements.

The Commission's Strategic Framework focuses on a range of issues including the achievement of an appropriately skilled and competent workforce; the optimal use of available skills; and workforce adaptability. The emphasis of the framework is on

*"…realignment of existing health workforce roles, or the creation of new roles, to make optimal use of skills and ensure best health outcomes."*

The consequence of this reform was seen to be raised job satisfaction and higher staff retention levels. However, Australia's Health Service Union has raised concerns that such 'efficiency measures' can have a negative impact on staff motivation[80].

Australia's Residential Aged Care Facilities (RACF) provides a useful example of the role of skills in boosting efficiency and productivity among Australian Nurses. Conway (2009)[81] reports on the significant challenges faced by this sector in Australia. These include the greater policy emphasis on increased efficiency in the RACF sector, the impact of a decreasing number of Registered Nurses working in this area, the aging workforce, and the changing roles and composition of the care team.

The role of Australia's Enrolled Nurses has undergone changes (e.g. since 2004 the administration of medication has been a new role) which then prompted further consideration of the roles and work practices of all of the health team members. Due to the decline in the number of nurses (enrolled and registered) seeking work in this sector, deficiencies in the skills mix, the changing profile and expectations of care recipients, and the changing economic and political climate, the author notes that an expansion in the numbers of unlicensed workers will be likely. In response to this situation a new Health Training Package has been developed offering a training and competence assessment framework. This

79 *Australian Government Productivity Commission (2005) Australia's Health Workforce: Productivity Commission Research Report.*
80 *Health Service Union (undated) Productivity Commission 'Australia's Health Workforce' Submission by the Health Services Union.*
81 *Conway, J (2009) The changing skill mix and scope of practice health care workers in New South Wales: implications of education and training reforms for registered nurse practice, performance and education. Contemporary Nurse pp221-224. http://www.contemporarynurse.com/archives/vol/26/issue/2/article/593*

package offers pathways into health careers for both regulated and unregulated health workers. It also offers a range of qualifications to support the on-going acquisition of skills.

## 7.7. Managing Norway's reliance on healthcare staff trained abroad

The Scandinavian healthcare system is characterised by a large public sector and involves substantial public expenditure on employment and training. In Norway the healthcare system is in the main financed by general taxation and its private sector is relatively small. Norway has many small and remote communities and it is quite sparsely populated posing particular challenges for healthcare services and the geographical distribution of health personnel. Norway's Directorate for Health and Social Affairs provides the main government mechanism for developing higher quality services, the development of quality indicators and guidelines, research, and the administration of medical databases.

The high number of healthcare workers with foreign education and training led to the establishment of the Registration Authority for Health Personnel, which provides comparisons between Norwegian, and non-Norwegian, health education programmes. Special courses for physicians to assess the medical proficiency and language skills of non-Norwegian workers have not been established. Applicants for work in Norway from the United States, Canada, Australia, and New Zealand qualify directly for work and are usually required to take language tests only. Compulsory education programmes are in place for dentists and physicians from non-European Union countries who are also required to pass tests in Norwegian language and medical terminology, practice under supervision and complete an internship. There are less stringent requirements for nurses, with those from outside the EU required to complete a three-week training course.

In Norway, ensuring that existing healthcare workers have the appropriate skills and training, coupled with the effective recruitment of skilled staff (with both the right professional and language skills) from non-Scandinavian countries, will be vital in ensuring that the workforce is able to meet the rising demand for health services. Without this, efforts to raise productivity will be hampered by the diminishing pool of workers. Raising the productivity of the existing workforce will also be crucial to ensuring that this increasing demand for the service will be met. These will be the key drivers for health sector workforce planning more widely across both Europe and Australia.

In response to the challenge of migrating health workers (that may be migrating from resource-poor countries and in so doing compound the problems already faced by developing countries) a recent OECD report[82] suggests that for OECD countries there are four main options for closing the supply and demand gap. These include:

- training more staff in the home country
- improving retention of existing staff and delaying retirement
- raising the productivity of existing health workers
- recruiting health workers internationally

Approaches to raising the productivity of health workers, it is suggested, could include: labour saving innovations and technologies, improving the skills mix in the health workforce, and improving the relationship between pay and performance. With regards to improving the skills mix this can be achieved through the increased expansion of the role of physician's assistants and nurse practitioners.

82 *OECD (2008) The Looming Crisis in the Health Workforce. How can OECD countries respond?*

# 8.0. Toward econometric modelling of skills and productivity for the health sector

- **Estimating productivity in the public sector and especially in the health sector is problematic**
- **Several models to measure productivity have been proposed, each with its own drawbacks within the specialist healthcare environment**

## 8.1. Introduction

This chapter looks at different approaches to measuring productivity including micro and macro approaches and welfare economics.

## 8.2. Toward econometric modelling of skills and productivity for the health sector: inputs

This section provides a discursive approach to the issues surrounding skills and productivity, learning the lessons from the identified literature, and examining issues around inputs that would be a precursor to constructing any econometric model. It is by no means exhaustive in content but provides food for further thought by considering the state of play in relation to inputs and measurement.

Productivity itself is a policy issue that has risen up the agenda as a means of benchmarking performance. The impact of differences between nations in the quality of skills and labour on productivity has helped to drive up investment in education and learning, skills and training in the United Kingdom. When considering this for the health sector, the ECOTEC review of literature on skills and productivity has found that estimating productivity in the public sector itself is inherently problematic, let alone for the health sector itself. The availability of information on the modelling of skills in connection with productivity in relation to the health sector was found to be sparse in the literature review and research process. In some cases the information that was found was extremely technical/academic and formulaic and in other cases too general, dated or most importantly for this study, not directly applicable to the health sector and skills. Whilst much of this material is sound in judgment and analysis, the absence of skill assessment to a significant degree in the available literature in connection with productivity in the health sector was found to be apparent.

One of the main challenges that has arisen surrounds the sector being significantly different and diverse within itself and when compared with sectors such as manufacturing, where units of output could more readily avail themselves to the measurement of productivity incorporating skill input. In other words, the health sector does not directly generate monetary outputs as it is a public goods provider, instead relying on input measures as a form of measurement.

***The Atkinson Review***

The Atkinson Review 2005[83], which looked at the Civil Service, can provide a few objective observations. It began a process of finding alternative output measures for the 'public sector'. What can we learn from this review to apply to the Health Service and skills and productivity? One of the solutions addressing measurement suggested in this review for the Civil Service was to 'develop a range of performance indicators that directly measure service delivery in a way that more directly reflects the experience of those using the service'. It all surrounds, the review states, '*the nature of service components that are more directly measurable than Civil Service delivery'*. Atkinson and the ONS[84] moved the debate on by focusing on concrete, measurable targets associated with delivery over time for departments within the Civil Service, without making direct inter-departmental comparisons.

The review concluded that, in the case of government skills and the Civil Service, 'measurement and performance is valuable in that it focuses on where improvements in performance need to be made'. It suggested that the Government Skills SSC could influence the debate regarding productivity and performance by continuing to survey changes in grade structure, qualifications and skills as well as develop a pan-civil service evaluation process around training and skills development. Perhaps this could form the base for inputs to any model?

### 8.2.1. How do we measure productivity?

***Total Factor Productivity***

Total Factor Productivity (TFP) was used by Jagger et al 2005[85] in their examination of sectoral productivity in 16 OECD[86] countries which, it is suggested, removes the distorting effects of hours worked and capital inputs and 'more accurately reflects the skills of those employed in the sector and how these skills are mobilised'.

***Alternative measures of output***

Pritchard[87] at the ONS, in an article in 2001, suggested that 'traditional approaches to valuing output have substantial shortcomings' and, as part of an international drive to improve understanding in this area, put forward a revised method for the UK. In 2003[88] he calculated a volume index of government output at constant prices using selected quantitative measures of public sector outputs. For the health sector, he included in this index the provision of treatments, GP services, dentists and opticians. Government inputs were then calculated from public expenditure estimates at current prices and deflated by a price index to give a resultant 'volume measure'. It is from this that a ratio of outputs to inputs provides a productivity index. What this does is give a measure closer to Total Factor Productivity defined above, as opposed to only labour productivity. This approach raised some concerns in Government and resulted in the Atkinson Review, also considered above, although it built on the Pritchard/ONS approach.

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*83 Atkinson Review Full Report Measurement of Government Output and Productivity for National Accounts HMSO Atkinson T 2005*
*84 Douglas, J. (2006) Measurement of Public Sector Output and Productivity. New Zealand Treasury*
*85 Jagger, N., Nesta,L Gerova, V. And Patel, P (2005) Sectors Matter: An international study of sector skills and productivity. SSDA*
*86 OECD Office of Economic Cooperation and Development*
*87 Pritchard A. (2001) Measuring Productivity in the Provision of Public Services. ONS Economic Trends no 570*
*88 Pritchard A. (2003) Understanding Government Output and Productivity. ONS Economic Trends no.596*

### 8.2.2. Macro level approaches

***Establishing skills productivity linkage***

The ECOTEC literature review identifies a number of studies at the macro level which incorporate skills and productivity. In the UK these include, for example, a range of research by Mason et al (2003)[89], Jagger (2005)[90] and Bassanini and Scarpetta (2001)[91]. These all show a strong relationship between education and productivity and in the case of Jagger, a particularly significant positive impact on Total Factor Productivity (TFP) for health and social work.

***Wage and skills linkage***

Of significant interest is further research on individual benefits accruing to skill attainment, especially in the context of skills and wages where there is a strong positive link. (Dickerson and Vignoles, 2007; McIntosh, 2003; Campbell, 2002)[92]. Is it the returns on skills attainment that could be inputs to any model in relation to skills and productivity? Certainly the evidence suggests a clear positive relationship between skills and productivity, but in terms of the acquisition of vocational qualifications at lower levels there was a lack of return. The issue here then is to establish the causal effects of skills attainment through to wages and then to productive capability, as well as differentiate between levels of attainment.

### 8.2.3. Micro level approaches

***An NHS Production Function?***

Applying a 'Production Function' for the Health sector in the UK would need to incorporate a measure of activities which combine flows of factor services per unit of time in a particular proportion, and getting a rate of flow of output from doing so. If we were to apply a constant returns-to-scale approach, whereby a quantity of input in any particular activity would also double output, then clearly we could seek to measure productivity. But in the case of the health sector this approach cannot easily be applied. If an NHS production function exhibited the property of diminishing marginal returns to individual inputs, measuring productivity growth could be the result of two factors working in opposite directions or a multiplicity of factors. There is evidence that technological change would influence the performance of the function, which, if upward, would be seen as having an effect on productivity. If the former outweigh the latter then we can measure productivity growth as negative and vice versa. Clearly, this simplistic approach is often seen as tenuous if we were to apply it to the health sector, especially if we were also to consider the relationships between productivity, efficiency and welfare. More importantly, measuring productivity does not tell us anything about efficiency or welfare. We are also faced with the need to consider the substitution of one factor for another and its effect on productivity. Direct causal effects or outcomes are not easy to identify or measure in the Health sector.

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*89 Geoff Mason NIESR*
*90 Jagger,N (2005) Sectors Matter: An international Study of Sector Skills and Productivity SSDA research series.*
*91 Bassanini, A. And Scarpetta, S (2001) The Driving Forces of Economic Growth: Panel Data Evidence for OECD Countries, OECD Economic Studies no 33*
*92 Dickerson. A and Vignoles. A (2007) The Distribution and Returns to Qualifications in the Sector Skills Council, SSDA Research series.*

***Applying general Welfare Economics and Pareto optimality?***

The application of Pareto optimality to issues of allocative efficiency is a way of considering an equilibrium position in terms of allocating resources. If the price of one input increases is it possible to measure the marginal rate of substitution of one factor over that of the one affected by the price change? Obviously compensation criteria would need to be applied: if substitution of one input for another is made, someone would lose out. Furthermore, the application of this Pareto principle would necessitate a two-person and two-output model or a batch of inputs/outputs for general equilibrium to be applied. A reallocation of resources would move or shift the utility possibility curve i.e. where the utility of a person or persons' position is improved. Clearly there would be problems identifying the gainers and losers.

### 8.2.4. Measuring productivity/output in the Health Sector: Skill inputs? Outputs?

It appears that the core issue in addressing skills and productivity linkage is very much one of data and measurement. The importance of obtaining sound measures of NHS productivity is a crucial factor in determining resource requirements. Dawson and Gravelle et al (July 2004)[93] included in their methodology the importance of distinguishing between activities (operative procedures etc.) and outcomes (the characteristics of output which are of value to individuals, such as health changes etc.). Also, they distinguished between the public and the private sector as far as productivity growth was concerned, with the latter 'focussing on outputs rather than the characteristics they produce because of the assumption that the market price of the output measures the consumers' marginal valuation of the bundle of characteristics from consuming the output'. Furthermore, in measuring private sector productivity the authors did not need to concern themselves with counting activities because 'they are embodied in the outputs which are produced and sold'.

To construct a model to measure the outcome of any activity to improve productivity it is essential not only to have the right data, but also to properly align the causal effects of changing inputs with associated outputs, and also to consider public and private sectors.

In the case of causal linkage, a major element in any impact model, establishing attribution from intervention needs to be measured against what would have happened without intervention. Dawson and Gravelle considered this health gain aspect using data from published sources that include 'estimates of changes in health state following medical intervention, providing examples of how information on outputs, unit costs, health gain, waiting time' etc. can be combined in indices of outputs. They also considered the extent to which estimates of productivity change are 'sensitive to whether activities are weighted by unit cost or by health gain, ideally adjusted for other outcomes such as patient satisfaction and waiting time'. What needs to be considered, however, is the role of skill in inputting into the output experience.

An OPI-ESRC Seminar Series on Health Services Productivity also addressed some of the issues around data and measurement[94]. In reviewing the theoretical and practical revisions to NHS productivity issues involved, it outlined the relationships between productivity, efficiency and welfare, models for analysing costs and output data, measurement difficulties of service quality, for example, and the specific problems posed by the measurement of productivity in primary care. In so doing it concluded that measurement was the key issue. Another report in this series considered skill mix

93 *Dawson, D., Gravelle, G., Kind, P., O'Mahony, M., Street, A., and Weale, M., et al Developing new approaches to measuring NHS outputs and productivity 2004*

94 *Developing new approaches to measuring NHS outputs and productivity Prof Hugh Gravelle, University of York 2004*

and productivity[95]. It was argued that attempts to improve workforce productivity by adjustments in skill mix had been hampered by weak association between skill levels and levels of patient care, and by a lack of evidence for what works best.

## 8.3. Overview

There appears to be a lack of baseline evidence with regards to the issue of productivity and skills for the health sector identified through our literature review. There does, however, appear to be a number of lessons learned from existing research such as that provided in the Atkinson Review 2005, which articulates the issues surrounding inputs for government departments in the public sector.

The key challenge concerns how to measure skills and productivity in the health sector as part of the process of generating an econometric model given its diverse nature. There have been attempts to consider attribution but little material on skills driven activity in relation to productivity. There also appears to be from the research the need to treat private and public sectors differentially, with the former being considered in relation to market price availability. Perhaps the way forward could be to research performance in the sector by wage premium and skills attainment as a proxy measure for productivity? This appears to suggest that higher wages and skill attainment are linked with greater efficiency and resultant productivity.

95 *Case studies in incentives Prof Roy Carr-Hill, York; Prof Carol Propper, CMPO Bristol & Prof Alan Maynard, York 2004*

# 9.0. Overview and next steps

- **Estimating productivity in the public sector and especially in the health sector is problematic**
- **Several models to measure productivity have been proposed, each with its own drawbacks within the specialist healthcare environment**

This final section presents an overview of the above findings and presents a number of issues that the health sector may wish to take forward based on the findings described above.

## 9.1. Overview

Overall, our literature review and interviews identified a lack of baseline evidence on the issue of productivity linked explicitly to skills for the health sector. There do not appear to be quantifiable measures in place that take adequate account of skills issues or of quality issues. This meant that 'internal' comparisons could not be readily made between the four home countries of the UK or internationally. There does, however, appear to be a number of lessons learned from existing research, such as that provided in the Atkinson Review 2005, which articulates the issues surrounding inputs for government departments in the public sector. The key challenge concerns how to measure skills and productivity in the health sector as part of the process of generating an econometric model given its diverse nature. There have been attempts to consider attribution but little material on skills-driven activity in relation to productivity. There also appears to be from the research the need to treat private and public sectors differentially with the former being considered in relation to market price availability.

Within the UK and its composite countries a number of policies and initiatives are in place that affect productivity in relation to skills including the Integrated Workforce Planning that has recently been implemented in Wales; it is evidence based and links to future needs. Internationally, much of Europe lags on this debate. For many governments it is not yet a priority. There is also great variation in the ways of measuring health service productivity which makes direct comparison almost impossible. Case studies in two countries highlight how skills shortages are being tackled in a bid to improve efficiency. Initiatives have included linking pay more closely to performance and improving the skills mix in the workforce to better meet need.

## 9.2. Next steps

The following are a series of suggestions and issues for the health sector to consider in taking forward this area of work based on the above scoping stage.

1. Working with Stakeholder Agencies

    a. The health sector should seek to engage directly with key partner agencies on the issues scoped out in this report. This would most usefully include the Office for National Statistics, Skills for Health, other SSCs tackling similar issues such as Skills for Care and the NHS Institute.

2. Keeping up to date with the latest studies

    a. Employers should monitor key academics and institutions in the UK that are investigating productivity in the health sector. The dissemination of new innovations is often poor and due to this, vital learning and good practice often fail to be communicated effectively. Well-managed dissemination will help to ensure that new and successful skills initiatives are widely implemented and become mainstreamed, thus optimising impact on productivity. Much of this research will be summarised on the Skills for Health website.

    b. Further learning from the private healthcare sector was also offered as a useful comparator and working with the private sector to share intelligence may lead to gains on both sides.

3. Further suggestions for employers

    a. Further work might be done in exploring measurable indicators that link to skills. Useful data sources for developing indicators might include Hospital Episode data; General Practice Research Database; Quality and Outcomes Framework (QOF) (GPs get paid for various things included in this database which in turn drive performance); Standard Mortality Ratios (SMRs); and Dr Foster data sources. Further exploration of these data sources may be worthwhile.

    b. Exploration of how skills issues play out in rural areas may be worthwhile. There are particular challenges for rural areas due to the challenge of offering health services to smaller populations across larger geographical boundaries. As such, services are likely to be more costly and this will impact on productivity. Give consideration to regional and sub-regional variances in health sector productivity and skills needs.

    c. The physical infrastructure within which health services are provided (i.e. hospital and health centre) are factors that need to be taken into account when assessing productivity. Infrastructure can reduce the efficiency of service delivery and as such impact on productivity. In England, the Private Finance Initiative (PFI) has helped to improve the physical infrastructure of NHS buildings (although this can mean higher costs in the longer term due to the on-going private sector contracts). In Wales and Northern Ireland there has not been the same level of investment in physical infrastructure and it is argued this can hamper efforts to raise productivity levels.

# 10.0. Appendix 1 Methodology

The study used a range of research methods to scope out a picture of what data is available, establish what sorts of definitions of productivity would be appropriate, and look at the extent to which comparisons can be made. The methodology included the following:

- Development of a literature review framework, which was used to assess the documents collected and assess them in terms of relevance and utility to the above research aims and objectives.
- Structured desk review, using key search terms and search functions to locate documents via routes such as Idox, Google, Google Scholar, academic studies, research studies, national government data sources including the national survey data from the four countries and European and International level data. We also took account of grey literature and internet literature.
- A series of twelve in-depth interviews with key stakeholders identified by Skills for Health both inside and outside the organisation. Contacts were supplied by Skills for Health[96].

*Literature review*

The review of recent literature included a review of English language only, hard-copy documents, literature published online and other web-based information. The review was conducted in May-June 2009 and addressed the following key research areas:

- A brief review of key policy documents that relate to the Skills for Health research aims.
- Scoping a range of definitions of productivity and identifying those that relate to the health sector and skills in particular.
- An exploration of the links between skills and productivity.
- A review of the measurement of skills as a key factor that contributes to productivity in the health sector.
- A review of programmes, initiatives and examples of good practice that address the role of skills in raising productivity levels in the health sector.
- A review of the literature pertaining to skills in health sector productivity across Scotland, Wales and Northern Ireland.

Documents included in the literature review were sourced from Skills for Health, other key stakeholders and from searches of key websites and online literature databases.

96 *Originally 8 interviews were planned but the balance between the focus on literature review and interviews was adjusted after the inception meeting to put emphasis on doing more interviews.*

For the UK literature search the following resources were searched:

- Searches of key websites for online publications:
- Dr Foster intelligence
- The Health Economics Research Centre (University of York)
- The Kings Fund
- The NHS Institute
- The Office of National Statistics
- The NHS Institute for Innovation and Improvement
- Health Service Journal
- UK Workforce Hub

Other website based information including:

- Press releases (BBC news; Daily Telegraph)
- NHS and Health Management News Blog (Health Service Journal)

Searches of online databases including:

- The Idox library database
- The NHS Centre for Reviews and Dissemination – databases
- Google Scholar – a search engine.

For the International literature search the following were included:

- WHO (Euro)
- OECD
- CEDEFOP
- Government websites for selected countries (health departments)
- The European Observatory on Health Systems and Policies
- Eurostat website
- The European Union website

The countries explored in more detail were:

- Australia
- France
- Germany
- Norway
- Canada

These countries were selected further to interviews with key stakeholders and on the basis of information available from the literature review. Stakeholders recommended specific countries that they considered to be most similar to the UK in terms of their health service model, or that had demonstrated success in the area of health sector productivity.

***Scope***

The focus of all searches and interviews was on productivity in the health sector, with specific reference to skills.

For database searches the search terms were: 'productivity', 'skills', 'health sector', 'health service', 'review', 'England', 'Scotland', 'Wales', and 'Northern Ireland'. Wherever possible, completed reviews of the literature and/or the evidence base were identified rather than individual studies.

The literature collected was inputted into a literature review framework which was used to assess the relevance and appropriateness of all materials to the research objectives. For each item it also assessed:

- Date, title and author
- Type of publication (article, journal, press, think-tank paper, grey literature)
- Geographic level (regional, national, international)
- Source quality (e.g. peer reviewed, quality of methodology, sample size etc.).

Overall the search highlighted the large volume of literature relating to productivity in general, but the literature relating specifically to the health sector and skills was much more limited. Of the literature identified most does not specifically relate to England or other UK countries, but rather to the UK as a whole. Information specific to UK countries other then England was mainly found on the websites of the Scottish Government and the Northern Ireland and Welsh Assemblies.

*In-depth interviews*

The following people were included in the in-depth interviews from a list supplied by Skills for Health. Other organisations and institutions were contacted but could not take part due to their having limited time available.

| Name | Organisation |
|---|---|
| John Rogers | Chief Executive, Skills for Health |
| Brian Payne | Director of UK networks, Skills for Health |
| Karen Walker | Policy lead, Skills for Health |
| Dorothy Elsey | Scotland Skills for Health contact, Skills for Health |
| Andrea Miles | Workforce Solutions, Skills for Health |
| Mark Chandler | ONS |
| Sue Cromack | NLIAH, Wales |
| Mark Spilsbury | UKCES |
| Sally Walters | ASSC |
| David Highton | Independent healthcare sector provider representative body |
| Karen Taylor | NAO |
| Jim Buchan | Queen Margaret University |

*Source: ECOTEC*

The interviews were conducted using a topic guide, provided below. Notes were taken and written up and incorporated with the literature review findings during the analysis stage to provide the information for the report.

## 10.1. Topic guide

### Introduction

Thank you for your time today. ECOTEC have been commissioned by Skills for Health to undertake a scoping study on international comparisons of skills and productivity in the health sector. The aims of the study are to provide Skills for Health with:

- An understanding of which countries and occupational groups could most usefully be compared in the health sector in terms of skills and productivity
- An exploration of which measures of productivity could most usefully and appropriately be applied to the health sector
- Whether useful 'internal' comparisons can be made between the four home countries of the UK and with the Republic of Ireland
- An identification of possible examples of good practice that could exist and could be learned from by Skills for Health
- And evidence to suggest the extent to which international data could be used to facilitate comparisons (for example Eurostat, the OECD, and Cedefop).

The interview will last approximately 45 minutes. Is it okay if we digitally record your comments so we can make more detailed notes afterwards? Do you have any questions before we begin?

### Questions

1. Could you briefly describe to me your role and responsibilities at your organisation? What involvement have you had regarding the areas of productivity and skills? This will help me to tailor the questions appropriately.
2. What definitions of productivity are you aware of that have been used in relation to defining the health sector? How do they differ? What are they based on (e.g. target/health outcomes)?
3. Which definition of productivity would you consider to be most appropriate in relation to the health sector? *Why do you consider that approach/method in comparison with others?*
4. We are hoping to provide Skills for Health with a sense of the issues around defining productivity in relation to skills levels. What issues do you consider need to be taken into consideration when defining and measuring productivity in the health sector?
   *Probe on NHS targets (e.g. 18 weeks), occupational definitions, training and skills levels, accessibility and comparability of data, basic skills needs, workplace learning culture etc.*
5. What data sets are you aware of that could be helpful in defining or measuring productivity in the health sector?

6. What systems or indicators are already in place, and being measured, that you are aware of that measure productivity or factors relating to it?
7. What role do you see in terms of quality and efficiency in relation to improving productivity? What other factors may improve productivity?
8. What drawbacks and challenges are you aware of in terms of measuring productivity in the UK?
9. Are you aware of what other countries within the UK have used as definitions of productivity in the health sector? *What are the pros and cons of these?*
10. Are you aware of what other countries in Europe/internationally have used as definitions of productivity in the health sector? *For Welsh/Irish/Scottish respondents probe about specific country*. *What are the pros and cons of these?*
11. What factors need to be taken into consideration when making international comparisons of productivity in the health sector? *Probe on accessibility and comparability of data, data scope, data age, frequency of collection, definitions used*, *e.g. occupational definitions, training and skills levels, etc.*
12. Which countries might work as effective comparators for productivity with England and why? *For Welsh/Irish/ Scottish respondents probe about specific country*.
13. Which occupation areas might work as effective comparators for productivity with England and why?
14. What drawbacks and challenges are you aware of in terms of measuring productivity internationally?
15. Are you aware of any examples of good practice in this area? *If so, please describe or provide details of how we can access further details.*
16. Are you aware of any literature we should be looking at as part of this study? *Collect details.*
17. Do you feel there are any gaps in knowledge in this area that Skills for Heath should take forwards?
18. What do you feel Skills for Health's role or priorities should be in relation to skills and productivity going forwards?

Thank and Close

# 11.0. Appendix 2 Details of Programmes and Initiatives identified

**3. Programmes and Initiatives – selected examples linked to skills and productivity**

| Title of programme or initiative | Summary |
|---|---|
| Rapid Improvement Programme – rapidly transforming care[97] | The ***Rapid Improvement Programme*** aims to quickly improve the quality and value of care for seven high-volume pathways across the NHS. This will be achieved by providing expertise and skills direct to NHS organisations to make improvements; at a regional and national level by extending knowledge across networks; and in the longer term by identifying and developing suitable strategies to enhance the implementation of seven high-volume pathways (e.g. caesarean section and fractured neck or femur). |
| NHS Institute for Innovation and Improvement[98] | The ***NHS Institute for Innovation and Improvement*** has been established to improve the NHS, making it more adaptable and more effective in meeting the needs of individual patients. The aims with regards to building capability include:<br>• inspiring the NHS workforce and encouraging staff to adopt the knowledge and skills required to improve services and care<br>• encouraging and developing talented people to lead their teams through innovation and improvement<br>• the provision of learning opportunities and practical resources and advice to enable staff to achieve goals.<br><br>This is intended to bring benefits for patients and staff and better quality and value to the health sector. |

97 *www.institute.nhs.uk/quality_and_value/high_volume_care/rapid_improvement_programme.html*
98 *www.institute.nhs.uk/building_capability/general/building_capacbility.html*

| | |
|---|---|
| Integrated Workforce Planning (Welsh Assembly Government) [99,100] | Emerging from the *Review of Health and Social Care* in Wales in 2003, there was a further review in 2006 of workforce development arrangements and education commissioning in Wales. As a result of this review work a recommendation was made that both financial and workforce planning must be brought together into one planning process. The resulting action by the Welsh Assembly Government required organisations to develop workforce plans with key partners in their Health Economy area. For 2008/09 each Health Economy was expected to:<br>• implement an approach to workforce planning that is more evidence-based and more soundly based on a view of the changing pattern of services<br>• identify clearly the view of service changes and developments known or anticipated over the next five years<br>• describe service changes over the longer term (5-10 years) which may affect configuration of the workforce<br>• identify the workforce configuration to support these changes from 2008 to 2015 to feed into the annual training commissioning process, wider educational development and recruitment and retention strategies<br>• include the whole workforce, not just those who have centrally commissioned training, including medical and dental. (WAG, 2008)<br><br>During 2008 Welsh NHS organisations were required to submit an action plan in-line with the issues set out above and setting out the way in which health communities' workforce plans will be developed and implemented. The workforce planning timetable was altered in order to align workforce planning with both the financial and service planning cycles.<br><br>Support for this process included: Health Economy workshops (to raise understanding of the approach and help with completing integrated workforce plans); a range of workforce planning tools; and work planning and development training.<br><br>The ***Integrated Workforce Plans*** have two key purposes:<br><br>At the local level to support the creation of an NHS workforce with the right skills, competencies, qualifications and motivation to provide modern and flexible services. This will involve a move towards planning in terms of pathways and away from traditional professional silos.<br><br>At the national (Wales) level to support the development and commissioning of new education programmes in order to meet the needs of the health and social care sectors.<br><br>There are additional resources to support the implementation of Integrated Workforce Planning in Wales initiative including:<br>1. A Process Flowchart (Appendix B)<br>2. Roles and Responsibilities guidance (Appendix C) |

99 *Welsh Assembly Government (2008) Welsh Health Circular (2008) 050. http://howis.wales.nhs.uk/whcirculars.cfm*

100 *National Leadership and Innovation Agency for Health Care and Workforce Development (June 2008) Integrated Workforce Planning Guidance 2008-2010. NHS Wales*

| | |
|---|---|
| | 3. The Integrated Workforce Planning Submission (Appendix D)<br>4. Workforce Configuration Tool: User Manual Version 2.1. National Leadership and Innovation Agency for Healthcare and Workforce Development[101]. |
| Unleashing Talent: A Learning and Productivity demonstrator [102]<br><br>(A partnership by the Beeches Widening Participation Unit in 2006)<br><br>Focus on Health and Social Care Support Staff | This programme aims to widen participation in learning for Health and Social Care support staff, and to improve organisational efficiency and productivity to demonstrate that learning can improve health outcomes and organisational performance.<br><br>The ***Unleashing Talent Learning Programme*** has two elements:<br><br>1. ***Realise Your Potential*** a two day workshop that also included follow-up learner interviews, and<br>2. the ***Health and Social Care Progression Certificate*** which involved a taught programme based on the six core competencies of the Knowledge and Skills Framework.<br><br>Evaluation research showed that the programme transformed workers' attitudes to learning and resulted in participants' enthusiasm for greater levels of learning to rise significantly. The Western Health and Social Care Trust (Belfast, Northern Ireland) was, via this programme, able to develop its staff and to increase capacity. Tangible improvements in overall organisational performance and a reduced sickness absence rate have been observed. Improvements in client care and greater awareness levels among care workers have also been noted. Other improvements attributed to the programme include improved employee morale and motivation, better team working and a lower staff turnover. |
| The Evolving Workforce (NHS Scotland)[103] | In Scotland the *Evolving Workforce* includes new roles and new ways of working to meet healthcare demands. This includes:<br><br>• *Anaesthesia Practitioners*: highly skilled practitioners working in Theatre. A new diploma has been developed for this role and this was introduced in 2006.<br>• *Physician Assistants:* The Physician Assistant role have been piloted by bringing Physicians Assistants over from the USA to work in Scotland. These practitioners compare favourably with doctors and nurses in relation to productivity, quality of care, patient satisfaction and cost effectiveness.<br>• *Operating Department Practitioners:* ODPs provide care for patients as they undergo anaesthesia. The ODPs work as part of the team to provide skilled and complex patient care and support.<br>• *Expanded roles for nurses and allied health professionals:* In particular these practitioners have been undertaking tasks traditionally carried out by doctors.<br>• *Adoption of a Career Framework*: In Scotland *Personal Development Plans* are compulsory for every NHS worker. |

*101 Electronic copies of all these supporting resources are available*
*102 Western Health and Social Care Trust (2009) Unleashing Talent – A learning and Productivity Demonstrator: delivering High Quality Care Through Effective Widening Participation. Beeches Widening Participation Unit, Belfast*
*103 The Scottish Government (2006) The NHSScotland Workforce www.scotland.gov.uk/Publications*

| | |
|---|---|
| Primary Care NHS Treatment Centres[104] - North Hampshire PCT | In North Hampshire PCT a vascular clinic led by nurses has prevented unnecessary hospital admissions and the establishment of pre-operative assessment in the primary care setting has meant that patients do not need to make hospital visits. |
| Working Time Directive case studies (Department of Health)[105] | **Case study 1: Guy's and St Thomas' NHS Foundation Trust**<br><br>Guy's and St Thomas' NHS Foundation Trust set up the 'Taking Care 24/7' project to look at how it needed to change in order to comply with the European Working Time Directive (EWTD). New non-complex planned and unplanned care pathways with rapid access to diagnostics and therapies were introduced in order to prevent hospital admissions. Prior to implementing these changes the trust audited and analysed the working patterns and core activities of doctors in 25 specialities. This indicated that a significant minority of the doctors' time was spent on administrative tasks and the undertaking of minor procedures. In response to this clinical assistant practitioners were used to free up the doctors' time; better training opportunities were offered to junior doctors; better use was made of doctors' clinical skills for health; and surgical assistants were trained to carry out medical procedures and to assist the surgeons. As a result of this initiative the trust is now compliant with the EWTD.<br><br>**Case study 2: Avon and Wiltshire Mental Health Partnership NHS Trust**<br><br>Avon and Wiltshire Mental Health Partnership NHS Trust sought to change ways of working in order to identify the tasks that could be undertaken by others in order to reduce the workload of Senior House Officers, helping them to use doctors' time more efficiently. The purpose of the trust's audit was to reduce junior doctor call-outs and to improve the quality and timeliness of the service provided to patients. As a result of this exercise greater responsibility was given to nurses. This included, for example, the administration of specific medications (further to training), which meant that the doctors did not have to be called out for prescribing and the signing off of drugs. This change has helped to improve the efficiency of the use of doctors' time. |

104 *Department of Health (accessed August 2009) Some examples from primary care NHS Treatment Centres. www.dh.gov.uk/en/Healthcare/Primarycare/Treatmentcentres/DH_4097256*

105 *Department of Health (accessed August 2009) Working Time Directive Case Studies. www.healthcareworkforce.nhs.uk/wtdcasestudies.html*

| | |
|---|---|
| Skills for Health (2009)[106]<br><br>Productivity case studies | **Case Study 1: Breast screening services**<br><br>The expansion of breast screening services (as part of the National Cancer Plan) required an increase in skilled staff for effective delivery. Radiographers providing a breast screening service had trained for 4 years, but when the age range for screening was widened they were spending 90% of their time conducting basic mammograms. The solution was to delegate some of this task to assistant practitioners, reducing unit costs. A new model of staffing was therefore proposed to increase the capacity of radiologists. Two new roles were created: Assistant Practitioner and Advanced Practitioner. The competencies for these new roles were tested by Skills for Health. In a pilot site in the West Midlands the new roles were successfully introduced and tangible benefits from the new structure have been recorded. They have contributed to greater efficiency and an extension of breast screening services.<br><br>**Case Study 2: Emergency Care Practitioners**<br><br>Emergency care services require both paramedics and nurses. Raising the skills levels of paramedics by providing specific training means that paramedics can make decisions without involving nurses raising the productivity levels of both roles. Improvements aimed at raising the effectiveness of the emergency care services involved breaking down traditional barriers and developing a new role. Skills for Health worked with pilot sites to develop a competence framework for Emergency, Urgent and Scheduled care and this in turn informed a new Emergency Care Practitioner (ECP) role. The ECP role was subsequently piloted in a number of health communities and has brought a range of benefits including: an increase in workforce capacity, a lower level of admissions to Accident and Emergency Units, reduced patient waiting times, and high levels of satisfaction. Roll out of ECPs could reduce Accident and Emergency attendance by around 1 million patients per year.<br><br>**Case Study 3: Pathway Work**<br><br>A key consideration for the health sector relates to a need to obtain the right balance of skills to address and alleviate any blockage in the **Lean** process (this aims to reduce waste in the system by adapting work processes and as such making more appropriate use of skills). Although it is difficult to measure the costs of raising qualifications (e.g. from one NVQ level to another) it is suggested that the wage increase could provide a primary measure for assessing productivity. |

*106 (April 2009) Interview conducted by ECOTEC with Skills for Health*

## 5. The Key Features of Good Practice and Approaches to Raising Productivity via Skills-based Initiatives

| | |
|---|---|
| 1. The improved management of NHS care pathways | • NHS Rapid Improvement Programme |
| 2. At the strategic level encouraging and supporting the health sector to develop a skilled, flexible and knowledgeable workforce able to adapt to change | • NHS Institute for Innovation and Improvement |
| 3. Encouraging positive attitudes towards learning and raising motivation among the workforce to raise their skills levels | • Unleashing Talent (Northern Ireland) |
| 4. New roles and ways of working for health sector staff | • The Evolving Workforce (Scotland)<br>• Initiatives implemented to support compliance with the European Working Team Directive<br>• Initiative implemented in Primary Care NHS Treatment Centres<br>• Skills for Health case studies (England) |
| 5. Integrated workforce and financial planning | • Welsh Assembly Government |

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