

Specialist physician productivity: An effective measure for NHS

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Abstract: The founding principles of the NHS England, NHS Scotland, NHS Wales and the affiliated Health and Social Care in Northern Ireland were the provision of comprehensive, universal healthcare which is free at the point of delivery without based on the ability to pay. The NHS systems are 98.8% funded from general taxation and National Insurance contributions, plus small amounts from patient charges for some services. About 10% of GDP is spent on health and most is spent in the public sector. The 2008/9 budget roughly equates to a contribution of £1,980 per person in the UK. The 2018/2018 NHS England budget was about £ 114.6 Billion.

Fundamentally, productivity represents the level of output produced for a given level of inputs. Some scholars define productivity as the effective output or quality output produced by the allocated amount of inputs. Theoretically, the productivity could be enhanced by the reducing the wastes, maximizing the output of the existing inputs, reducing the inputs for the current level of output or improving the output of given level of inputs. However, healthcare productivity is assessed in various terms as physician productivity, healthcare institution productivity and health system productivity.

Physician productivity is the level of healthcare output produced by the physicians for a given level of inputs such as staff, infrastructure, medical equipment and infrastructure. This basic definition implies that the validity of a productivity assessment will depend on the corresponding validity of one's specification and measurement of all relevant inputs and output(s). Conceptually, physician "productivity" is the result of a physician's labor. It is a measure of the physician's work or output.

Physician productivity measured in different health systems depends on the objective of the measurement. For example, in United States Medicare health system physician productivity is measured to remunerate the physicians while NHS implements various performance targets and indicators to improve the financial efficiency of the Trust hospitals hence enhanced productivity. In NHS Trust hospitals, the physicians are being paid a fixed salary with variable component for on-call and emergency services provided. On the other hand, they must follow the standards and guidelines provided by the NHS England, National Institute for Health and Care Excellence (NICE), Care Quality Commission and other relevant organizations. Some of these targets include referral to treatment target (RTT), a maximum four-hour wait in A&E from arrival to admission, transfer or discharge, Ambulance response times, New cancer waiting time standard and waiting time standards for mental health services. Therefore, the physicians employed in the Trust hospitals have a limited capacity to cater the services as they are bound to provide services according to the set standards.

It is seen that various treatment targets have been set by the NHS organizations in order to cover the financial target and improving the Trust hospital productivity. But this managerial decision should be considered in a broad perspective as the ultimate objective should be to improve the productivity of the NHS. Some management decisions implemented January 2011 has shown that the decision taken in-favour of increasing hospital income by altering the "new to follow-up ratio" has resulted in reducing the health outcome of the patients while increasing the burden on the NHS health system. Some studies have shown that improving number of patients seen (efficiency) could hinder the quality of care and measuring productivity without regard to quality or value is a risky foundation for wise policy. The NHS faces major hurdles and is engaged in innovations such as foundation trusts; the new, performance-based contract for general practitioners; a massive investment in information technology; and some dabbling in health care imported from offshore organizations. These innovations are far

more consequential than changes in the type of productivity reported by the Office of National Statistics (ONS), and they need to be carefully managed, treated as social experiments, adjusted as time passes, and assessed objectively. Their proper assessment requires that policy makers rely not on simple, potentially misleading metrics of numerical throughput but rather seek answers to the tougher and far more important question of value for money. The people of the UK should be not asking, “How many events for the pound?” but rather, “How much health for the pound?”.

Therefore, the NHS organizations should carefully apply the physician productivity concept in the hospitals as it could lead to the negative productivity in wider sense even though it shows that it would improve the performance of the Trust hospitals.

Keywords: Physician Productivity, Patient Satisfaction, Staff Satisfaction, New to Follow-up Ratio.

1. INTRODUCTION

The NHS in England, NHS Scotland, NHS Wales, and the affiliated Health and Social Care (HSC) in Northern Ireland were established together in 1948 as one of the major social reforms following the Second World War. The founding principles were that services should be comprehensive, universal and free at the point of delivery without based on the ability to pay.[1] Each service provides a comprehensive range of health services, free at the point of use for people ordinarily resident in the United Kingdom, apart from dental treatment and optical care.[2]

The systems are 98.8% funded from general taxation and National Insurance contributions, plus small amounts from patient charges for some services.[3][4] About 10% of GDP is spent on health and most is spent in the public sector.[5] The money to pay for the NHS comes directly from taxation. The 2008/9 budget roughly equates to a contribution of £1,980 per person in the UK.[6] The 2018/2018 NHS England budget was £ 114.6 Billion.

Some 60% of the NHS budget is used to pay staff. A further 20% pays for drugs and other supplies, with the remaining 20% split between buildings, equipment, training costs, medical equipment, catering and cleaning. Nearly 80% of the total budget is distributed by local trusts in line with the health priorities in their areas.[7]

A study by the King's Fund, Health Foundation, Nuffield Trust and the Institute for Fiscal Studies to mark the NHS 70th anniversary concluded that the main weakness of the NHS was health care outcomes. Mortality for cancer, heart attacks and stroke, was higher than average among comparable countries. The NHS does well at protecting people from heavy financial costs when they are ill. Waiting times are about the same and the management of long-term illness is better than in other comparable countries. Efficiency is good, with low administrative costs and high use of cheaper generic medicines.[8] Twenty-nine hospital trusts and boards out of 157 have not hit any waiting time target in the year 2017-2018.[9]

What is healthcare productivity?

Fundamentally, productivity represents the level of output produced for a given level of inputs. Some scholars define productivity as the effective output or quality output produced by the allocated amount of inputs. Theoretically, the productivity could be enhanced by the reducing the wastes, maximizing the output of the existing inputs, reducing the inputs for the current level of output or improving the output of given level of inputs. However, healthcare productivity is assessed in various terms as physician productivity, healthcare institution productivity and health system productivity.

The job of the health service is to produce health—to relieve suffering. In the words of National Academy of Sciences in the United States, “The purpose of the health care system is to reduce continually the burden of illness, injury, and disability, and to improve the health status and function of the people . . .”. [10] Ideally, the term productivity, as applied to the NHS, ought to refer to the ratio of inputs (such as labour, capital, and supplies) to that output, not just counts of activities.

What is Physician Productivity and how it is measured in different Health Systems?

Physician productivity is the level of healthcare output produced by the physicians for a given level of inputs such as staff, infrastructure, medical equipment and infrastructure. This basic definition implies that the validity of a productivity assessment will depend on the corresponding validity of one’s specification and measurement of all relevant inputs and output(s). Conceptually, physician “productivity” is the result of a physician’s labor. It is a measure of the physician’s

work or output. A physician is more productive when he or she generates greater results according to the measure used. For example, a physician who sees ten patients is more productive than a physician who sees five patients, if patients seen is the chosen measure of productivity.[11]

Productivity also becomes a measure of efficiency when it includes a common unit of input, such as time. Thus, using the example above, if the physician who sees ten patients does so in two hours and the physician who sees five patients does so in an hour, they are equally efficient, since they see the same number of patients per hour.

Productivity and efficiency are closely related. However, productivity and efficiency are distinct from quality and service. A physician may be very productive and very efficient, but the quality of his or her work may be very low.[12] Continuing with our example, if the physician who sees ten patients in two hours does so in such a way that none of the patients' concerns are addressed and the patients leave the office feeling like none of their concerns were addressed, then the quality of the physician's work may be low, even though his productivity and efficiency are high. Economic literature has long advocated for a diverse approach to the concept of physician productivity.[13]

Physician productivity had been assessed in various terms using different measures in different health systems. However, the best modal of physician productivity suitable to a health system depends on number of factors including funding agency, service provider and political norms for the service provision.

Physician productivity is an integral part of many compensation systems for both employed physicians and physician owners in group practices. This concept is widely discussed in health systems where the insurance systems or fee for service systems apply. In United States Medicare system, the physician productivity has been used to assess the productivity of Doctors hence to decide their remuneration plan. In the not-too-distant past, most physicians were paid by one of two ways: a fixed salary or by collecting fee-for-service charges.

In Canada, it is not a simple measure as there is an increasingly complex health care system. More traditional measures of measurement include simple statistics related to number and types of patient encounters, income generated, or total hours spent in direct patient care. [14]

Individuals and organizations have historically used a variety of productivity measures, some of which are still in use today. One traditional measure of productivity is the number and types of patient encounters (e.g., office visits).[14]

These traditional measures of productivity have limitations that inhibit cross-physician comparison. For example, In Medicare health system although collections may accurately reflect the money generated to the practice, they are highly dependent on the type of insurance a given patient has. Thus, two physicians providing the same services may generate entirely different collections for the practice, depending on the payer mix represented by their patients.

Similarly, measures of time and patient encounters suffer from the limitation that, conceptually, not every office visit or block of time spent with a patient is the same. For example, an office visit for treating tinea pedis with topical therapy is not the same as an office visit evaluating and managing a patient's complaint of chest pains. Likewise, an hour spent providing critical care in the hospital is not the same as an hour spent counseling a patient in the office.

A measure of physician productivity that seems to circumvent these limitations is work relative value units (RVUs). A work RVU is a number assigned to a service that establishes its work relative to the number assigned to another service. The most widely used of these productivity measurements was the relative value unit (RVU) system, which attempted to assign units of productivity based on "relative values" of specific activities.

There are gaps in simple RVU-based systems: some physicians (eg, anesthesiologists, obstetricians) need to be paid while covering an in-house call whether or not they perform any billable activities, some physicians work in settings where patient volumes (and measurements of productivity) are inherently low but physician services are needed, and productivity in outpatient and inpatient settings has been recognized as not being the same thing. Further, RVUs, like traditional productivity measures, are geared toward a fee-for-service model of healthcare. Thus, in capitated and other environments where the emphasis is not on generating patient encounters and current procedural terminology (CPT) codes, RVUs may not work as well.

Panel size in turn is a very important factor which affects the physician productivity. Typically, a physician's panel is the number of patients who have either chosen or been assigned to the physician as their primary care physician or general

practitioner. To the extent panel size depends on patient choice or assignment by a managed care employee, the physician does not control his or her panel size to the same extent he or she controls the number of patients seen, hours spent in direct patient care, etc. Another limitation is that two panels of the same size may represent very different workloads for the physicians assigned to them. Thus, a panel of 2,000 elderly patients probably represents a much different challenge than a panel of 2,000 young adults. When we apply the same principle to the NHS Trust physician it shows the different demand for healthcare in different hospitals and different geographical areas. Consequently, risk adjustment is important if panel size is a primary measure of physician productivity.

Among the patient factors to be considered in actuarially risk adjusting panel size are: age, gender, diagnoses, geographic residence and etc.

Other than the above factors, a broad array of variables such as clinical outcomes and, more recently, quality, patient satisfaction [15], and other productivity related indicators [16] are widely used in assessing physician productivity.

Teaching activity of Physicians introduces delays to the treatment process as part of a consultant's role is to train medical students. Furthermore, teaching hospitals tend to treat more complex and/or more severe patients. Consequently, they are thought to have higher costs and thus appear less productive than non-teaching hospitals.

Physician productivity and quality of hospital care

In terms of quality of care, we consider survival rates at Trust level. Mortality or, its mirror, survival rate is a simple measure of quality with the advantages of being clearly defined and straightforward to observe. As such, mortality remains a key measure of hospital performance. Preventing people from dying prematurely, Enhancing quality of life for people with long term conditions, Helping people to recover from episodes of ill health or following injury, Ensuring that people have a positive experience of care and Treating and caring for people in a safe environment and protecting them from avoidable harm are the five overarching measures used in the NHS Outcomes Framework 2011/12 [17] and one of the areas of assessment in the recent Keogh Review [18] of 14 specific Trusts.

We expect Trusts' survival rates to be negatively related to Trusts' productivity, both in terms of Labour and Total Factor, because providing better care to patients should require the use of more resources, for any given level of activity, and hence result in lower productivity.

Castelli et al. [19] in their national productivity measure of the English NHS use waiting times and survival rates adjusted by life years gained to quality adjust Trust inpatient output. We find that the same measures at the Trust level introduce too much noise in our productivity estimates. Furthermore, they are indicative of factors outside the Trusts' direct control, and not necessarily reflecting the quality of care provided [20]. For example, life years gained, measured in terms of life expectancy, at the Trust level are more an indication of the socio-economic characteristics of the patient population served by a Trust than of the quality of care provided.

There are differences in productivity among Hospital Trusts and Foundation Trusts (FTs) to be less productive than non-Foundation Trusts (NFTs). Castelli et al. [19] also noted that the difference between FTs and non-FTs disappeared if Labour Productivity was considered, concluding that the capacity for FTs to make capital investments may be reflected in lower productivity in the short term and that the additional capital investment had not yet yielded a proportionate increase in output. [19]

The relation between Trusts' size and productivity seems to support the idea that diseconomies of scale faced by larger Trusts, due to their more complex organizational structure, dominate the economies of scale enjoyed by these providers of higher throughput and reduced procurement costs. [21] Our finding of higher productivity among smaller Trusts concurs with that of the Health Foundation Report [22].

The positive association between the proportion of medical workforce (over total work force) and Labour productivity may indicate that medical staff is an important component of the skill mix of more productive Trusts.

The negative association found between survival rate and Trusts productivity might be an indication that higher quality requires greater resources, in terms of increased use of inputs per patient. [19]

There are new drivers of potential variation in Trusts' productivity have been identified by controlling for a measure of skill-mix of hospital staff (a similar measure was included in the analysis by Lafond et al. [21], unavoidable geographic

differences in production costs through the use of the market forces factors (MFF), controlling for the proportion of patients treated who are in their last year of life and finally, controlling for the proportion of elective activity carried out as day cases.

What factors should be considered when setting targets and performance indicators to improve physician productivity in NHS?

Physician productivity measured in different health systems depends on the objective of the measurement. For example, in United States Medicare health system physician productivity is measured to remunerate the physicians while NHS implements various performance targets and indicators to improve the financial efficiency of the Trust hospitals hence enhanced productivity. In NHS Trust hospitals, the physicians are being paid a fixed salary with variable component for on-call and emergency services provided. On the other hand, they must follow the standards and guidelines provided by the NHS England, National Institute for Health and Care Excellence (NICE), Care Quality Commission and other relevant organizations. Some of these targets include referral to treatment target (RTT), a maximum four-hour wait in A&E from arrival to admission, transfer or discharge, Ambulance response times (all ambulance trusts to respond to 75 per cent of Category A calls within eight minutes and to respond to 95 per cent of Category A calls within 19 minutes of a request being made for a fully equipped ambulance vehicle), New cancer waiting time standard and waiting time standards for mental health services. Therefore, the physicians employed in the Trust hospitals have a limited capacity to cater the services as they are bound to provide services according to the set standards.[23]

It is seen that various treatment targets have been set by the Trust administration in order to cover the financial target and improving the Trust hospital productivity. But this managerial decision should be considered in a broad perspective as the ultimate objective should be to improve the productivity of the NHS. An article published in January 2011 has shown the managerial decisions taken in-favour of increasing hospital income by altering the “new to follow-up ratio” has resulted in reducing the health outcome of the patients while increasing the burden on the NHS health system. [24] Some studies have shown that improving number of patients seen (efficiency) could hinder the quality of care and measuring productivity without regard to quality or value is a risky foundation for wise policy. The NHS faces major hurdles and is engaged in innovations such as foundation trusts; the new, performance-based contract for general practitioners; a massive investment in information technology; and some dabbling in health care imported from offshore organizations. These innovations are far more consequential than changes in the type of productivity reported by the Office of National Statistics (ONS), and they need to be carefully managed, treated as social experiments, adjusted as time passes, and assessed objectively. Their proper assessment requires that policy makers rely not on simple, potentially misleading metrics of numerical throughput but rather seek answers to the tougher and far more important question of value for money. The people of the UK should be not asking, “How many events for the pound?” but rather, “How much health for the pound?”. [25]

Therefore, the Trusts should carefully apply the physician productivity concept in the hospitals as it could lead to the negative productivity in wider sense even though it shows that it would improve the performance of the Trust hospitals.

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