

Review Article

Value Based Healthcare– An Approach to Improve Services in Pakistan

Danial Saeed¹ , Mahmood Adil²

¹**Danial Saeed** is a final year medical student at the Hull York Medical School, UK with a bachelor's degree in Clinical Anatomy from the University of Leeds. He has intentions to pursue a career in surgery following completion of his medical studies; ²**Mahmood Adil** is currently Medical Director at NHS National Services Scotland, with a demonstrable record of improving quality, efficiency and health intelligence at national and international levels. Having graduated from KEMC in 1987 and then completed his higher qualifications in paediatrics, public health, economics, management and health informatics fields in the UK. He is an alumnus of the Harvard Kennedy School, Institute of Healthcare Improvement (USA), Yale School of Public Health and European Hospital & Healthcare Federation. Most recently, he was National Quality & Efficiency Advisor at the Department of Health (England), World Bank advisor to Turkey, visiting professor of value-based healthcare at the Manchester Business School and professor of health intelligence at the Glasgow University.

Abstract

Any healthcare system in the world requires the same basic components to function: a proper governance / management system with sufficient financing, an appropriately tiered service infrastructure (primary to tertiary care), sufficient human resources (including healthcare professionals), a suitable inventory (including medication) and technology, and finally, an appropriate information and data collection system – especially vital for healthcare systems in the 21st century. In order to meet the health needs of the population, the principle challenge faced by the majority of healthcare systems in the world, including Pakistan, is the growing disparity between needs and resources. This is due to the ever-increasing burden of chronic diseases, ageing populations, costs of new technologies/drugs and health inequalities. Consequently, healthcare organisations must make key decisions about resource allocation to deal with the challenge, with an opportunity cost incurred with every decision made– one method of tackling this situation is through the application of value based healthcare.

Keywords | Value based, health reforms, health outcomes

Introduction

Value based healthcare provides an approach by which health outcomes can be maximised for every unit of money spent. ‘Value’ is derived from organisational, patient and professional perspectives in this approach.¹ This approach aims to allocate available resources in a transparent way to achieve better outcomes and experiences of care for every person.² Using this model, providers (including hospitals and physicians) spend / are paid for their services based on patient health outcomes (quality). The “value” in value-based healthcare is derived

from measuring health outcomes against the resources utilised of delivering the outcomes.³ This can be expressed as follows:

$$\frac{\text{Useful Outcomes}}{\text{Resources Utilised}} = \frac{\text{Quality}}{\text{Direct Cost+Waste+Variation}}$$

Note: when discussing resources, we are not simply referring to the direct costs (i.e. the cost of an operation, drugs etc.) but are also taking into account, waste and variation in that organisation / clinical

speciality. Healthcare quality refers to its safety (avoidance of adverse outcomes), effectiveness (ensuring the practise of evidence-based medicine) and the patient experience (including both the experience of hospital services (e.g. cleanliness, being treated with respect/ dignity) and quality of life before and after treatment). Waste occurs at many levels and involves both patients and healthcare professionals – this includes inefficiencies such as unnecessary repetition of examinations, investigations etc., excess admission time, chasing down of medical records causing delay to clinical activity and repetitive documenting by nurses with excess time away from the bedside.

The essential components of Value Based Healthcare

The components required for the implementation of a value-based healthcare approach will be discussed in detail in the following section:

1. Transforming Health Service Delivery models

A range of paradigm shifts spanning the whole system is required to optimise the delivery of care – from: service quality to clinical quality, patient-based care to population-based care, curative services to preventative services, hospital based to community based services and from focusing on healthcare to considering health overall – to include physical health as well as mental and social wellbeing). There are a currently a number of such shifts taking place in the UK's National Health Service (NHS), which was established in 1948 and is currently undergoing a transformation in order to be fit for purpose to deliver value-based healthcare in the 21st century.

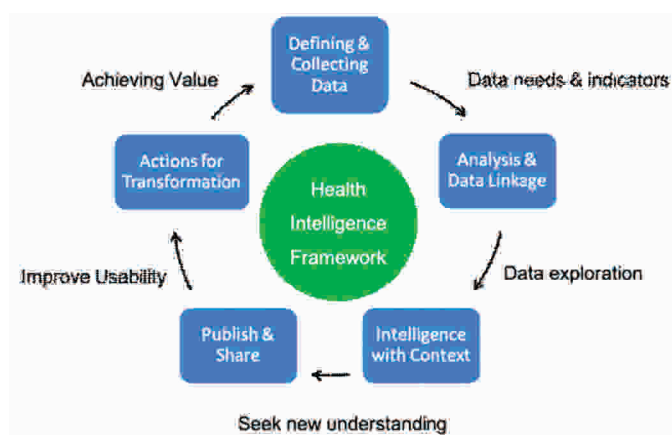
Firstly, the shift from considering service quality (the physical setup of the system) towards assessing clinical quality, including safety, effectiveness and patient experience: when the Care Quality Commission (CQC), which governs the quality of healthcare in the UK, was being developed in 2009⁴, it was considered that hospitals ought to be assessed not only for service provision, but also for quality of outcomes – consequently, as well as publishing its financial accounts each year, every hospital is required to publish its Annual Quality Account for assessment by the CQC⁵. This information is also

made public on the My NHS website, allowing patients to view the quality of their local care provider and make informed decisions about their care. Similarly, Turkey, which has undergone hugely successful healthcare reform over the past decade, has adopted an accreditation system known as the Turkish Clinical Quality Indicator⁶; having set clinical quality standards for certain chronic diseases, this system has facilitated the collection of data about outcomes for said diseases for the 81 Turkish provinces and has been crucial in Turkey's healthcare reform success story⁷. There is no reason why a similar system could not be implemented in the 36 Districts of Punjab to improve quality of care. With a new approach to healthcare being discussed by the Punjab government, it is vital that power is devolved to local government level, allowing accountability and sufficient authority to implement a similar model to Turkey and the UK with care quality indicators.

2. Reliable & comprehensive National Health Intelligence System

The second essential component of value-based healthcare is the application of data to applied intelligence, to improve the standards of care via the implementation of a National Health Intelligence System. Figure 1 below illustrates the cycle by which data can be used to improve standards of care. It must be noted, that it is not the data per se which is of use – rather, it is the applied intelligence of the data, which requires sufficient understanding of the data by healthcare professionals.

Figure 1: Health Intelligence Framework Cycle



Up until the stage of 'Data exploration' in the above cycle, this is completed via the use of technology; after this, human factors come into play – if health-

care professionals and those people in management, including politicians do not have a good understanding of how the data is collected, it is impossible to implement appropriate actions for transformation. An excellent example of the use of data in a health-care system is the Scottish NHS, where around 200 national data sets are collected about the whole population from birth to death. The use of the Community Health Index (CHI) number, assigned to every living person in Scotland since 1968 also allows for data linkage and better insight about the delivery of healthcare. For instance, it can be used to calculate the total amount of money spent on any given patient within the Scottish NHS⁸. There are many uses of such data collection systems – it is possible to analyse the data from all available data sets from every hospital (e.g. cancer admissions /100,000 population, complication rates) in the country and benchmark them against each other.

With a comprehensive data collection system, data about clinical outcomes for a range of diseases can be easily represented graphically, to benchmark and compare performance between hospitals (an example is represented in Figure 2 below)

The data may also be used to compare the performance of all the clinicians in a particular field (with due consideration given to the differences in patient case-mix), or to assess the variation in availability and quality of services between regions in the same country, for any given disease; visualisation of quality variation on a map facilitates the opening of conversations about the cause of such variation and

about how to approach quality improvement by spreading best practise.

Diabetes provides another example of how data has been used effectively in medicine. On a budgeting level, it has been possible to track exactly how many people have diabetes in Scotland and how much money is being spent to treat it, using a registration system. As of 2017, approximately 5.3% of the population in Scotland have diabetes⁹, while spending on the disease accounts for 10% of the health budget¹⁰ (the biggest proportion spent on any disease within in the NHS). In order to manage the expenditure on these patients, the vast majority of patients are managed in primary care, principally by diabetes specialist nurses – much more affordable than managing these huge group in secondary care. Patient involvement in care is also made possible using data; patients are able to log in to their My Diabetes My Way account to view their BMI, cholesterol, HbA1c and blood pressure on an easy to interpret graphic¹¹. This greater degree of involvement in one's own care without the need for a physician to access their clinical data allows motivated patients to track their own progress in terms of these parameters. As of 2019, the percentage of the population who have access to broadband internet in Pakistan is 33.14%, which translates into approximately 70 million citizens¹²; with this figure rising rapidly, the use of such websites to facilitate patient centred care represents a cost-effective opportunity for care quality improvement.

Finally, the data may be applied to yield meaningful

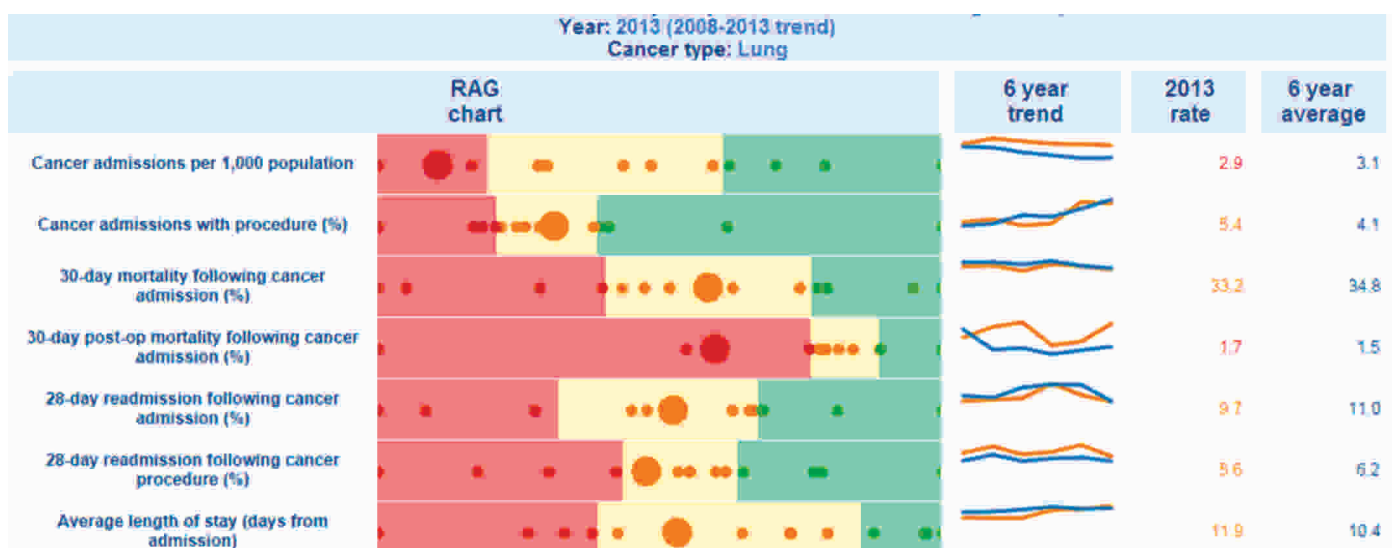


Figure 2: Clinical Outcome Indicators in Scotland for Lung Cancer in 2013

epidemiological information. One example is in the case of obesity; around 30% of children in the UK are overweight or obese, with 42 million children under 5 years of age, and 340 million aged 5-18 coming under the category of obese¹³ across the globe. One figure that can be used to predict obesity levels is the number of fast food outlets per 100,000 population by local authority¹⁴ – the UK government is able to work with local authorities to prevent the opening of new fast food outlets within a certain proximity to schools in an attempt to tackle this epidemic. Statistical analysis can also be used to model epidemiological patterns for many diseases, to predict prevalence and make informed spending decisions¹⁵.

3. Modernising the curriculum & skill set of the clinical workforce

In order to implement value-based healthcare effectively, it is vital that the doctors of tomorrow are sufficiently equipped with an understanding of: resources and cost, data and applied intelligence, and quality improvement and innovation skills. In order to improve quality in the long run, these three skill sets

must be injected into the future medical work force training, starting from an undergraduate level. From a UK perspective, the state of medicine has changed drastically in the 70 years the NHS has been functioning since it's conception in 1948. When it came into being, the NHS was meant to deal mainly with acute illness, represented by the stethoscope – now, 70% of hospital beds are filled with patients with chronic diseases, with people living longer¹⁶. There is another paradigm shift taking place from the stethoscope to the datascope by the newest generation of medical workforce, in order to understand and manage the population's health and carry out appropriate interventions. Medical students of today must be sufficiently equipped with the knowledge to further progress this shift in the future – this is just as true of the internationally minded medical students studying across Pakistan at present.

The NHS' journey to Value Based Healthcare

The UK's National Health Service provides an exceptional example of the successful implementation of a public healthcare system – one almost as

EXHIBIT ES-1. OVERALL RANKING

AUS	CAN	FRA	GER	NETH	NZ	NOR	SWE	SWIZ	UK	US
4	10	9	6	5	7	7	3	2	1	11
2	9	8	7	5	4	11	10	3	1	6
4	7	9	6	5	2	11	10	8	1	3
3	10	2	6	7	9	11	5	4	1	7
4	8	9	10	5	2	7	11	3	1	6
5	8	10	7	3	6	11	9	2	1	4
5	9	11	2	4	7	6	4	2	1	9
9	5	10	4	8	6	3	1	7	1	11
6	11	10	4	2	7	8	9	1	3	5
4	10	8	9	7	3	4	2	8	1	11
5	9	7	4	8	10	6	1	2	2	11
4	8	1	7	5	9	6	2	3	10	11
\$3,800	\$4,522	\$4,118	\$4,495	\$5,099	\$3,182	\$5,669	\$3,925	\$5,643	\$3,405	\$8,508

Figure 3: Commonwealth Fund Data 2011

old as Pakistan itself. It was formed on 5th July 1948 by the post-war government, with the key principles of providing universal healthcare, free at the point of delivery, based on clinical needs, with every citizen registered with a general practitioner¹⁷. Its ultimate goal was to improve the health outcomes of the nation, which it has been profoundly successful in doing. Research from the Commonwealth Fund (Figure 3) illustrates that the UK performs extremely well in terms of both quality and access to healthcare as compared with other similarly developed (OECD) economies – all while having the second lowest per capita healthcare expenditure of comparable nations¹⁸.

All of this progress was made within 70 years of the NHS's conception – why can't Pakistan do the same? Of course, Pakistan's population offers challenges unique to those of the UK; there is a combination of communicable and chronic disease with a high infancy mortality rate and poorer resources¹⁹. While this presents a substantial challenge, healthcare reform in Punjab has the potential for massive impact, touching the lives of 100 million people.

Conclusion

Improvement of the healthcare system in Pakistan requires the input of a number of key contributors, namely: political figures, policy makers, healthcare professionals, patients / the public and the press / media. While it is easy for the media to focus on the negative stories about healthcare delivery in Pakistan, it is also essential to recognise the numerous success stories in order for these to be held up as examples to be replicated, encouraging an attitude of quality improvement.

In summary, the key requirements for quality improvement of healthcare in Pakistan through value-based healthcare include establishing the following:

- An applied health intelligence system – required at national, provincial and district levels.
- Quality standards – a system for maintaining quality standards such as the Hospitals Clinical Service Accreditation Program in the UK²⁰, as well as quality assurance of medical graduates to ensure that they are equipped to thrive in the

datascope future of medicine.

- An institution for service innovation and improvement – in the UK this is the National Institute of Service Innovation & Improvement²¹; acting as a national think tank, this body allows for knowledge to be translated to actions by producing guidelines. They identify examples of national and international best practice, before spreading them to universally improve healthcare. An axis of collaboration between academic institutions, industry and the health service, is essential for encouraging innovation and implementation.
- Modernisation of the undergraduate / postgraduate medical curriculum – to ensure doctors are “fit for the future”²¹, with new skills and competencies.
- Modern service delivery models – a move towards telemedicine, using virtual community hospitals or “hospitals without walls”²³ as well as adoption of pre-primary care digital services. Phone applications may be used for patients to better understand their health using technology before the need for access to a healthcare professional.

References

1. Easton, J., John Moxham, C. U., Partners, H. & James Mountford, L. Applying value for patient and population benefit-improving quality and resource use together International Forum, London: 23 April 2015.
2. A-m, B. Defining Value-based Healthcare in the NHS: CEBM report Defining Value-based Healthcare in the NHS Report Authors Attribution CC BY.
3. Government, H. M. Health and Social Care Act 2008 (CH 14). Office of Public Sector Information (2009).
4. Care Quality Commission. Care Quality Commission Results. (2016). Available at: <http://www.legislation.gov.uk/ukpga/2008/14/section/1>. (Accessed: 28th July 2019)
5. Care Quality Commission. Care Quality Commission Results. (2016). Available at: www.gov.uk/official-documents. (Accessed: 28th July 2019)
6. OECD. Turkey: health care indicators.
7. The World Bank. Turkish Health Transformation Program and Beyond. World Bank Result Briefs (2018). Available at: <https://www.worldbank.org>.

- org/en/results/2018/04/02/turkish-health-transformation-program-and-beyond. (Accessed: 28th July 2019)
8. Scotland, I. Isdscotland.org. ISD Scotland | Information Services Division. [online]. <http://www.isdscotland.org/> Available at: [https://www.ndc.scot.nhs.uk/Dictionary-A-Z/Definitions/index.asp?ID=128&Title=CHI Number](https://www.ndc.scot.nhs.uk/Dictionary-A-Z/Definitions/index.asp?ID=128&Title=CHI%20Number). (Accessed: 28th July 2019)
 9. Diabetes, S. & Group, D. Scottish Diabetes Survey 2017 Contents 2 Scottish Diabetes Data Group. (2017).
 10. Diabetes Scotland. Technology and Innovation in the NHS Diabetes Scotland. (2017).
 11. Cunningham, S. My Diabetes My Way. (2014).
 12. PTA. Telecom Indicators | PTA. Pakistan Telecommunication Authority (2019). Available at: <https://www.pta.gov.pk/en/telecom-indicators>. (Accessed: 28th July 2019)
 13. House of Commons. House of Commons - Obesity Statistics. House Commons Brief. Pap. 1–34 (2018). doi:10.1016/j.pop.2015.10.001
 14. Public Health England. Obesity and the environment briefing: regulating the growth of fast food outlets - Publications - GOV.UK. (2014).
 15. www.gov.uk. Diabetes Prevalence Model. (2016).
 16. Department of Health. Long Term Conditions Compendium of Information: Third Edition. (2012).
 17. www.gov.uk. The NHS Constitution for England - GOV.UK. 1–60 (2017).
 18. Fund, C. US Health System Ranks Last Among Eleven Countries on Measures of Access, Equity, Quality, Efficiency, and Healthy Lives. (2014). Available at: <https://www.commonwealth-fund.org/press-release/2014/us-health-system-ranks-last-among-eleven-countries-measures-access-equity>. (Accessed: 29th July 2019)
 19. World Health Organization (WHO). Key Country Indicators | Pakistan - key indicators. WHO (2018). Available at: <http://apps.who.int/gho/data/node.cco.ki-PAK?lang=en>. (Accessed: 30th July 2019)
 20. HQIP. Clinical Service Accreditation – HQIP. Available at: <https://www.hqip.org.uk/national-programmes/accreditation-of-clinical-services/>. (Accessed: 30th July 2019)
 21. Einstein, A. In the middle of difficulty lies opportunity. *Thinking Differently*.
 22. King, T., Trust, N. & Health Foundation, the. Budget 2018 What it means for health and social care What was announced in the Budget? (2018).
 23. Burt, J. M. Hospitals without walls. *Health Educ.* 7, 11–13 (1976).