The value of medicine in improving the quality of care

Carapinha JL, BPharm (Wits), Dip MD, MM P&DM (Wits)
Part-time Lecturer, Department of Pharmacy and Pharmacology, University of the Witwatersrand

Correspondence to: e-mail: joao@carapinha.com

Abstract

Patients expect the provision of quality care from the healthcare system, whether they are in the public sector or the private sector. One method amongst many of ensuring the provision of quality care is through the use of medicine. This paper aims to answer the question: what is the value of medicine and how is this related to the quality of the care that patients receive? To this end, the paper explores these concepts through a structured approach, firstly discussing the value and quality of care. By drawing on debates that have taken place in the international literature and applying these to the South African environment, an approach is provided to discuss the quality of care patients receive within the context of medicine consumption. Numerous tools are provided, including the three dimensions of quality and the different perspectives on quality. To improve the quality of care, consideration should be given to the regulatory framework, continuous quality improvement models, market competition and payment incentives. The paper has not aimed to provide readymade solutions for quality gaps in the healthcare system, nor does it pretend that a solution is easily achievable without concerted effort from all healthcare stakeholders. The paper makes a contribution to the growing body of knowledge accessible to healthcare stakeholders with which to discuss the value of medicine in improving quality of care.

SA Fam Pract 2006;48(10): 6-11)

Introduction

Patients expect the provision of quality care by the healthcare system, whether they are in the public sector or the private sector. One method amongst many of ensuring the provision of quality care is through the use of medicine. The consumption of medicine therefore is a valuable tool in the armamentarium of the healthcare system with an impact on the quality of care of patients.

These assertions may at first glance seem elementary and unworthy of further discussion. On the contrary, the contribution that medicine makes to the health of our nation is of national importance, especially when provincial public health spending on medicines (other current expenses) is expected to grow above personnel expenditure in the foreseeable future. (See Table I below.[1])

In the private sector, medicine contributed 22.27% towards the total benefits paid to privately insured patients in 2003.[2] In addition, medicine benefits paid have consistently featured as the second highest contributor towards total benefits paid since 1997, exceeded only by private hospital benefits.[3]

Numerous questions immediately arise from this scenario. One of primary concerns in this paper is, if medicine contributes substantially to total healthcare expenditure, what is its value and how is this related to the quality of care? To answer this question it is necessary to provide a clear explanation of what we mean by value and quality in the context of health care. This explanation will then aid in discussing the link between the value of medicine and improving quality of care.

What is value?

In the eighteenth century, Adam Smith was the first to propound the concept of value in classical economic terms. He explained that value is determined not only by usefulness to man, but also by scarcity.[4] Value was thus derived from the benefits an object provided to man and from its availability. In the early twentieth century, Mill was also concerned with the concept of value. He noted that "the use of a thing … means its capacity to satisfy a desire or serve a purpose … value in use".[5] When applied to the central question in this paper, value is concerned primarily with the usefulness of medicine from the perspective of the patient. It is also concerned with whether a medicine has satisfied the healthcare need of the patient, i.e. whether it has achieved the desired therapeutic outcomes and restored the patient to good health. The value of medicine therefore lies in its ability to achieve desired therapeutic outcomes that are not available through other methods or at costs significantly lower than those of other interven-

Table I: Provincial health spending trends by economic classification

Expenses	2000/1	2001/2	2002/3	2003/4	2004/5	2005/6	Annual change
Personnel	20287	20614	20402	21226	21556	21810	0.9 %
Other current	8011	9128	9888	10002	10801	11073	6.5 %

tions.[6] This notion of value – the cost of medicine to the patient – introduces an element that is beyond the scope of this paper. Suffice it to say that, for the purposes of this paper, value is predominantly concerned with the consumption of medicine.

The value of a medicine is directly related to the usefulness of the medicine – its utility. Furthermore, the benefits accrued to the patients in consuming the medicine, the need for the medicine derived from the health status of the patient, and alternatives available to reach the same or similar outcomes are all directly related to the utility of medicine.[6] "Utility is indicative of the total needs satisfaction which a consumer derives from the use of a product/service within a given period."[4] It stands to reason that a patient would want to maximise the utility of a medicine by ensuring that the greatest benefit is obtained from the use of the medicine, and by matching his/her healthcare need with the best medicine available. This process is not undertaken single-handedly by the patient, but is done with the assistance of healthcare providers.

What is quality?

Quality of care is defined by the Institute of Medicine in the United States of America as "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge".[7] In this definition, ***health services*** include all forms of health-related interventions available to patients to improve their health status, including medicines provided by their healthcare providers. There also is a link between the provision of medicine to a patient and its ability to achieve ***desired health outcomes***. Improving quality is thus predominantly concerned with realising the value of a medicine for a patient.

Quality of care is often associated with a gap that exists between how medical care should be provided and how it actually is being provided. There are three elements associated with this gap – the overuse, underuse and misuse of medical care.[8] The overuse of medicine refers to instances where the potential harm of the medicine outweighs the potential benefits.[8] The underuse of medicine refers to the failure to provide medicine when needed, whereas the misuse of medicine refers to a case when a patient has been selected for an appropriate medicine but a preventable complication occurs.[8,9]

The failure to immunise all children who are eligible for a vaccine is an example of the underuse of medicine. Van Turennout et al. surveyed 207 children between the ages of 12 and 23 months and found that 13% who commenced with the polio 1 vaccine did not receive the measles vaccine. They also found that although 85% of the sampled children received the measles vaccine, this was still below the herd immunity level of 92-95%.[10] All of the above represent missed opportunities of reaching all children. Had all the necessary children been immunised for measles, far fewer cases of measles would have been seen and there consequently would have been less use of palliative care, hospital resources and medicines. In addition, had more children been immunised for measles, the full benefits of herd immunity could have been achieved, with as yet unquantified benefits for the healthcare system. The reasons provided by the parents of the children who were not immunised included a) a lack of information, b) fear of complications, c) distance to the clinic, d) negative attitude of nurses, e) no vaccines available at the clinic, f) no time to go for immunisation, and g) lack of care from the caregiver.[10]

Antibiotic prescribing patterns for childhood illnesses provide some examples of the overuse of medicine. For instance, Huebner et al. surveyed 112 paediatricians to assess the patterns of antibiotic use in an attempt to explain increases in resistance levels. They found that 70% of paediatricians would have treated pneumococcal pneumonia and otitis media for longer (10 days).[11] They also found that, although oral cephalosporins cost roughly twice as much as amoxicillin, they remain the preferred treatment for many infections. The paediatricians indicated that confirming the aetiology of the disease was less important than concerns about antibiotic resistance and repeated episodes of the same disease when deciding to use antibiotic treatment. The overuse of antibiotics is related to increases in resistance levels. The harm of overusing antibiotics in this case may negate the benefits of appropriate antibiotic use.

Steyn brings the misuse of medicine to the fore in his discussion of the misdiagnosis and negligent therapy that occurs in psychiatry. He argues that prescribing medicine that falls short of the accepted standard of therapy results in negligent therapy.[12] He reports that studies have found that ten to fifteen percent of patients treated with psychotropic medicines develop akathisia and dystonia, which are reversible. However, ten to twenty percent of patients develop tardive dyskinesia, which sometimes is irreversible. Often these effects are outside the prescriber's control, but it does not negate the importance of prescribers practising within the accepted standards of therapy. A prescriber is not required "to be omniscient and immune to error; he or she is merely expected to adhere to such a standard of practice as can reasonably be expected".

The quality problems discussed in the above cases are often referred to as errors – "failure of a planned action to be carried out as intended".[9] Shine explains that a medical error that results in the overuse, underuse or misuse of a medicine is the result of a doctor determining to do something where the systems for making it happen fail. The same can be said for all healthcare professionals. This explanation creates a separation between the healthcare provider and the healthcare system. The healthcare provider often is responsible for delivering health care directly to the patient, but it is the structure of the healthcare system and how it supports or impedes the provision of healthcare services that determines the overall quality of the healthcare service. Moreover, the healthcare provider does not often have an opportunity to design the healthcare system; it is rather the regulator who creates incentives in a legislative framework that aims to encourage specific behaviours. This begs the question of who is responsible for providing healthcare and who should be accountable for the outcomes achieved or not achieved.

Dimensions and perspectives of quality

It is useful to consider quality problems in the context of three dimensions comprising quality and of differing perspectives on quality. (See Tables II and III below.[7])

The questions associated with each of the dimensions of quality can be applied to each of the quality problems discussed above. For example, an initiative to address the overuse of antibiotics may result in the following questions: a) do cephalosporins result in proportionally more cases of antibiotic resistance? or b) would a rapid confirmation of the aetiology of the disease (causative organism) result in lower resistance levels? or c) how do the perceptions of caregivers influence the level of antibiotic use amongst children? There are clearly no easy answers to these questions and further research is needed to fully understand the complete array of variables that influence the quality of care associated with antibiotic use in children.

The different perspectives of quality are another useful tool to apply to quality problems. Describing the quality problem from the perspective of a patient may be completely different to that of the healthcare provider.

Each perspective is associated with high-priority elements. For example, medical schemes are interested in whether they have appropriately allocated healthcare resources, and healthcare providers are conscious of whether their freedom to act in the full interest of the patient is preserved. The perspectives may often be conflicting; however, they are necessary to accurately describe the quality problem under consideration. During this process a decision may be made of whose perspective should be considered under what circumstances.

Thus far it has been argued that the value of a medicine is directly related to the usefulness of the medicine for the patient. Likewise, it has been argued that quality of care is related to the individual and to desired health outcomes. Table III presents various perspectives of quality, one of which is the perspective of the patient. It is the perspective of the patient that is of critical importance, especially if we are aiming to improve quality of care by realising the value of a medicine. Each of the high-priority elements of quality associated with the patient – responsiveness to perceived care needs, degree of symptom relief, and level of functional improvement – is related to the need to achieve desired health outcomes.

Table II: Three dimensions of quality

1. Effectiveness/efficacy/ appropriateness/safety	**Appropriate and safe**
Whether the service actually delivers in the way it is claimed (either under ideal conditions (efficacy) or in practice (effectiveness))	Can it work? (efficacy) Does it work? Does it do more good than harm? (effectiveness)
2. Cost/efficiency	**Cost**
Are there more efficient ways to deliver this service or are there other services that would be a better use of the resources? (eliminating waste and improving efficiency are integral to quality)	Is it worth it? (efficiency, e.g. cost benefit) Is it wasteful?
3. Equity/acceptability/access/ ownership/relevance/legitimacy/ responsiveness	**Ownership**
How is the service received by those who (might) receive it? Is it relevant, fair, flexible, and responsive to demand? Is it what patients want? Is it what professionals judge what the public need?	Is the system fair? (equity) Can people use it? (accessible) Is it what individuals/society wants, and if not, can the system be changed accordingly? (acceptability, legitimacy, and responsiveness)

Table III: Differing perspectives of quality

Interested party	**High priority elements of quality**
Patients (i.e. those who demand and receive the care)	Responsiveness to perceived care needs Degree of symptom relief Level of functional improvement
Healthcare providers (i.e. those who actually deliver the care)	Degree to which care meets the current technical state of the art Freedom to act in the full interest of the patient Accountability to "professional standards"
Medical schemes (i.e. those who actually fund the care)	Efficient use of funds available for health care Appropriate use of healthcare resources Maximum possible contribution of health care Reduction of lost productivity Accountability to politically set philosophy, objectives, targets, goals

Improving quality of care

Quality improvement processes must aim to reduce the underuse, overuse and misuse of medicine. Generally, reducing the overuse and misuse of medicine results in cost decreases and more efficient utilisation of a medicine budget. However, reducing the underuse of medicine may result in an increase in expenditure on medicine. A scenario may arise whereby the increased expenditure of addressing the underuse of medicine is offset by the savings obtained from reducing its misuse and overuse. Achieving this balance would be cost-neutral to the overall medicine budget, but would significantly improve the overall quality of the healthcare system. The relationships among all the factors identified in the above process provide effective ways of improving the value of medicine, which may be defined as the health benefit per rand spent.[8]

There are four broad areas that are likely to result in an improvement in quality of care, namely regulation, continuous quality improvement, market competition and payment incentives.[8]

Regulation

To depend on professional autonomy, paper-based transactions and confidential methods of clinical practice and not implement multidisciplinary healthcare teams, systems thinking and modern

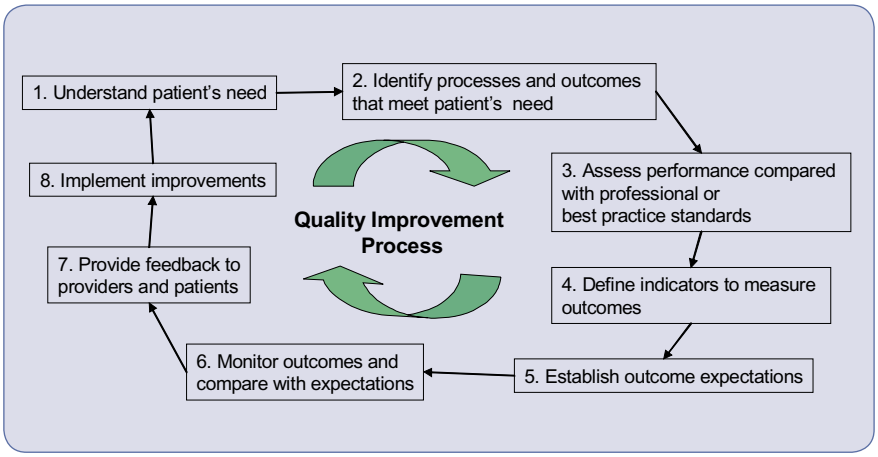
information technology will further exacerbate the quality differences that exist in the healthcare system.[13] The aim of regulation should be to create incentives and disincentives that result in specific actions that favour the improvement in the overall quality of care.

For instance, the National Health Act enables the Minister of Health to establish quality requirements and standards for all healthcare institutions (public and private). These quality requirements and standards may relate to health technology, equipment, human resources, hygiene, the delivery of healthcare services, and the safety and manner in which patients are accommodated and treated.[14] The Office of Standards Compliance established by the National Health Act will ensure the continuous monitoring and compliance of all healthcare institutions. The Office of Standards Compliance is also required to 1) provide suggestions for new systems and mechanisms to promote the quality of health services, 2) monitor the quality of the health services as measured against prescribed health standards, and 3) institute monitoring activities and processes for quality assurance in healthcare institutions.[14]

Continuous quality improvement

Improving the quality of care is about continuously doing the right things, to the right people, at the right time, and doing things right first time.[7] Organisations (healthcare providers, medical schemes, etc.) that implement a quality improvement process are better able to understand their patients' needs, measure how effectively those needs are met, and make improvements to processes to improve those needs. (See Figure 1 below.) In addition, a quality improvement process is an effective means of improving the quality of care of a patient. Moreover, it allows for the value of a medicine to be realised. "An organisation that embraces this philosophy as part of its strategic vision is well suited to address the needs of rising consumerism."[15]

Figure 1: A process model for quality improvement[15]



However, organisations are generally insufficiently incentivised to implement quality improvement processes. This may be due to complacency or lack of resources. To overcome such a problem, a system of comparing the ability of organisations to implement patient-oriented quality improvement processes is proposed. Such a system will generate information for patients to compare organisations based on their quality of care. A similar strategy is in use in the United States of America.

Market competition

Improved market competition will also result in an improvement in the quality of care. However, it requires that market players are encouraged to provide an abundance of information to enable patients to make better purchasing decisions. Unfortunately, this is not always possible and additional incentives are required to achieve this objective.

The foundation of the competitive market should change to one less concerned with how healthcare products are packaged and marketed. Rather, there should be greater emphasis on building competition based on standards of care. Medical schemes should be differentiated on the basis of their ability to improve a patient's quality of care. Likewise, healthcare providers will be distinguished on the basis of their ability to achieve desired health outcomes for their patients.

In the United States of America, the National Committee for Quality Assurance (NCQA) collects information and provides it to patients, thereby rewarding those organisations that provide excellent care and giving organisations a stronger incentive to focus on quality.[16] The activities of the NCQA are supported by a performance measurement tool, the Health Plan Employer Data and Information Set (HEDIS). "HEDIS is a set of standardised measures that look at plan performance across a variety of important dimensions, such as delivery of preventive health services, member satisfaction, and treatment efficacy for various illnesses".[16] HEDIS is applied to the private sector and the public sector. NCQA's HEDIS is a means of incentivising the implementation of a quality improvement process in all organisations to improve the quality of care provided to patients.

Payment incentives

Measuring the quality of care by creating an awareness of errors and documenting evidence associated with these is a step in the right direction. There is evidence that if an outcome of care is measured, healthcare providers will respond by improving their performance.[9]

Methods of measuring quality must include measures of the outcomes and

processes of care.[8] Numerous measures of outcomes exist, e.g. remission rates for breast cancer patients on chemotherapy, or incidence rates of invasive pneumococcal disease in children after vaccination. There are disproportionately fewer measures of the processes of care. For example, measuring the management of side effects experienced by breast cancer patients on chemotherapy before they reach remission, or measuring the ideal site of injection to minimise site reaction for a child vaccinated to prevent invasive pneumococcal disease. Measuring the both outcomes and processes of care gives a better understanding of what needs to be done to improve the quality of care.

Improving the quality of care is also concerned with structuring incentives and disincentives in the healthcare system to achieve desired health outcomes. For example, healthcare providers that achieve defined outcomes will be reimbursed by medical schemes, employers will choose a medical scheme based on its ability to have a meaningful impact on the quality of life of their patient population, and patients may have their co-payment waived if they choose a healthcare provider with proven superiority in their quality of care. The objective must be to align payment incentives with improvements in the quality of care and enable patients to identify quality differences and then to make decisions.[9]

Conclusion

This paper aimed to answer the question: what is the value of medicine and how is this related to the quality of care provided to patients. To this end, the paper has explored these concepts using a structured approach of first discussing the value and then the quality of care. By drawing on debates that have taken place in the international literature and applying these to the South African environment, an approach has been provided for discussing the quality of care received by patients within the context of medicine consumption.

A number of tools have been provided, including the three dimensions of quality and the different perspectives on quality. To improve the quality of care, consideration should be given to the regulatory framework, continuous quality improvement models, market competition and payment incentives. The paper has not aimed to provide readymade solutions for quality gaps in the healthcare system, nor does it pretend that a solution is easily achievable without concerted effort from all healthcare stakeholders. The paper makes a contribution to the growing body of knowledge accessible to healthcare stakeholders with which to discuss the value of medicine in improving quality of care.

Declaration

The author is currently employed at Wyeth South Africa (Pty) Ltd. The author's views are his own and should not be construed to represent the views of Wyeth nor of the pharmaceutical industry.

References

1. Blecher M, Thomas S. Health care financing. In: South African Health Review. Durban: Health Systems Trust; 2003. p. 269-90.
2. Council for Medical Schemes. 2002-3 Annual Report of the Registrar of Medical Schemes: http://www.medicalschemes.com/PDF_%20Downloads/CMS%20Annual%20Report%202002_3.pdf (24 May 2005)
3. Harrison S. Medical schemes. In: South African Health Review. Durban: Health Systems Trust; 2003. p. 291-8.
4. Smit PC, Dams DJ, Mostert JW, Oosthuizen AG, Van der Vyver TC, Van Gass W. Economics: a Southern African perspective. Landsdowne: Juta Publishers; 2003.
5. McQuire A, Henderson J, Mooney G. The economics of health care. London: Routledge and Kegan Paul; 1996.
6. Kolassa EM. Elements of pharmaceutical pricing. New York: Pharmaceutical Products Press; 1997.
7. Wareham N, Pencheon D, Melzer D. The meaning of quality in health care. In: Pencheon D, Guest C, Melzer D, Muir Gray JA, editors. Oxford Handbook of Public Health Practice. Oxford: Oxford University Press; 2001. p. 276-91.
8. Chassin MR, Galvin RW. The urgent need to improve health care quality. Institute of Medicine Roundtable on Health Care Quality. JAMA 1998;280(11):1000-5.
9. Shine KI. Health care quality and how to achieve it. *Academic Medicine* 2002;77(1):91-9.
10. Van Turennout C, Vandelanotte J, Van den Akker M, Depoorter A. A mass campaign too often? Results of a vaccination coverage survey in the Dikgale-Soekmekaar district. *S Afr Med J* 2003;93:65-8.
11. Huebner RE, Wasas AD, Klugman KP. Antibiotic prescribing practices for common childhood illnesses in South Africa. *S Afr Med J* 2003;93(7):505-7.
12. Steyn CR. Liability for misdiagnosis and negligent therapy in psychiatry. *Journal for Juridical Science* 2005;30(2):95-106.
13. The Academic Medical Centre Working Group of the Institute for HealthCare Improvement. The imperative for quality: a call for action to medical schools and teaching hospitals. *Academic Medicine* 2003;78(11):1085-9.
14. Department of Health. National Health Act (Act 61 of 2004). Pretoria: Government Printers; 2004. Available: www.doh.gov.za (11 June 2006)
15. Siren P. Quality management in managed care. In: Kongstveldt P, editor. The managed health care handbook. Maryland: Aspen Publishers; 2001. p. 539-55.
16. O'Kane ME. Accreditation and performance measurement programs for managed care organisations. In: Kongstveldt P, editor. The managed health care handbook. Maryland: Aspen Publishers; 2001. p. 849-70.