What is the best way for healthcare systems to charge sick patients?

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INTRODUCTION

What is the best way for healthcare systems to charge sick patients? Although everyone might like all health care to be free, this is increasingly becoming an unrealistic aspiration. Healthcare is getting more expensive and a major challenge facing both the developed and developing world is how to make it affordable and available to everyone. Putting aside concerns about charging patients, what method of levying fees would be the most economically efficient and ethically acceptable?

The purpose of this paper is to add to the debate on how sick poor patients should be charged for their care in low resource settings. We believe that the appropriate use of information technology (IT) can provide a partial solution to this troubling issue. We really would like this to be an addition to an ongoing debate, and really hope that your readers will engage us with constructive argument and suggestions.

THE CHALLENGES

Faith-based hospitals are significant providers of healthcare to the poor in sub-Saharan Africa, and they are facing many challenges and threats.[1] Paradoxically as African countries become richer medical staff are being lured away from poorly paying rural mission hospitals not just by opportunities in the developed world [2] but by the lucrative salaries now paid by private hospitals that cater to a growing wealthy African urban elite. In addition there are now almost no expatriate missionary doctors and nurses, foreign donors are becoming less generous, the population of poor and sick people is rising rapidly, and the cost of medical care is rising. The result is that the poor are getting worse care and there is little prospect of it improving in the future.[3] Hospitals that used to be able to provide a reasonable standard of care can no longer do so because there are not enough doctors, nurses, laboratory tests, diagnostic imaging or drugs.

The Financial Dilemma

Prior to the introduction of government or insurance funded healthcare many doctors charged rich patients far more than poor ones, never charged colleagues or their dependents, or members of the clergy, and frequently waived their fees to the destitute. As worldwide medicine transforms from a vocation to a business such professional courtesies are frequently no longer observed, and in truth are seldom required in countries with well-funded healthcare.

This, however, is not the case in low income countries, where many extremely sick patients are incapable of paying for their care. After the introduction of structural adjustment programmes in the 1980s, the World Bank recommended that low income countries reduce public spending for health and social programmes. Cost recovery mechanisms such as user fees for basic health services were introduced, and governments were expected to establish mechanisms to assure access to health care for people with no means to pay.

These innovations have not worked: the amount of money generated by user fees has been less than anticipated and few insurance schemes have been successful. [4] As a result many hospitals in sub-Saharan Africa either withhold treatment until payment is made[5], or imprison patients in hospital after their treatment until they have paid for it.[4] Even though it seems self-evident that these practices

contravene internationally agreed ethical guidelines[6] and a fundamental human right enshrined in the Alma-Ata Declaration[7], the sad truth is no one so far has come up with a practical solution to the problem. However, the use of information technology may be part of the answer by providing systems that can:

- determine the severity of illness of patients and the quality of care that is delivered to them and

- ensure destitute patients receive prompt life-saving treatment regardless of their ability to pay.

Low Risk versus High Risk Patients

Even in Africa most patients who are acutely ill will get better whether they are treated or not. It could be argued that insisting on payment prior to treatment is only unacceptable for those patients who have a life threatening illness, and for whom any delay in delivering care risks death or severe disability. Indeed, why should patients at no risk of death or severe morbidity get treated for free, especially if they can afford to pay? If they could be quickly, reliably and cheaply identified, low risk patients could be charged in such a way that their fees would subsidise the immediate free treatment of high risk patients.

Vital Clinical Signs on Admission

Vital signs measured on admission to hospital are strongly associated with mortality, and patients with normal or near normal vital signs have the lowest mortality. Yet these patients with normal vital signs make up the majority of those admitted to hospital in the western world: vital signs identify 65% of patients as "low risk" with only a 0.02% and 0.8% chance of dying within 48 h and 30 days of admission, respectively.[8] In 2016 we started collecting bedside data from medical patients admitted to Kitovu Hospital, Masaka, Uganda using the Rapid Electronic Assessment Data System (READS), a novel electronic patient care and decision support system available from Tapa Healthcare DAC, Dundalk – figure 1. We found that on admission approximately one third of patients have normal or near normal vital signs, and that only 1% of these patients died in hospital. In contrast around 20% of patients had severely deranged vital signs, and around 20% of these patients died.[9]

Therefore, vital signs alone could be used to quickly distinguish between the sickest of the sick who should be treated immediately at no charge, and those who are less sick who would first have to pay before treatment was given.

By using the additional "non-traditional" vital signs collected by READS, such as changes in mental status, symptoms like fatigue and breathlessness, mobility, nutritional status[10], ECG findings[11], and the patient's subjective feelings[10], it is possible to identify more

Figure 1. Teopista Namujwiga entering vital signs at the bedside at Kitovu Hospital (credit John Kellett)

precisely those patients most likely to die.[10] Currently we are introducing this risk adjustment process to select patients for immediate treatment at no charge.

A WAY FORWARD

Clearly this initiative is not the answer to all the funding problems facing healthcare in sub-Saharan Africa. However, in addition to providing more accurate risk stratification at a local level, it also provides information on the ongoing clinical activity in the hospital, and measures the quality of care delivered. Most healthcare information currently collected includes the number of admissions, their length of stay, their in-hospital mortality rates and their discharge diagnoses. Worldwide there is almost no easily extractable information recorded on what patients complained of and how sick they were on admission, or their complaints and condition at discharge. The discharge diagnoses recorded are nearly always a matter of whatever expert opinion is locally available and prone to distortion, especially in sub-Saharan Africa where the Global Fund supports the treatment of malaria, tuberculosis and HIV.[12]

The clinical information collected by READS is easily and cheaply available at the bedside, requires little training to collect and enter, and is automatically manipulated to recommend and prompt appropriate clinical actions. The system is password protected and all the information collected is encrypted, attributable, time and date

stamped, and cannot be changed after entry. Therefore, fraudulent entries are difficult to make and easily detected. The system can generate reports of the clinical activity in the hospital, which allow the prompt detection of any unusual change or aberration, such as might be seen in an epidemic illness.

Although it is true that Africa's healthcare problems can only be solved at a local level by national governments, the recent Ebola outbreaks eloquently demonstrated that the rest of the world should not be completely disinterested. In order for any epidemic (not just Ebola) to be contained expertise and other resources must be available to quickly recognise the illness, quarantine it and treat it. Therefore, it is in everyone's interest to ensure that a basic level of clinical expertise and skill is as widely available as possible, and a communication infrastructure is in place so that everyone knows what is going on, clinical findings can be quickly shared, and instructions given on the best actions to take. None of this can be achieved without information technology that is appropriate and available.

The Potential Advantages for Information Technology

The other advantages information technology can provide to hospitals in low resource settings are in financial accounting and the maintenance of viable and fair insurance schemes. COU Kisiizi Hospital and Innovation Streams Limited have developed an electronic medical record called Stre@mline that has been specifically designed for use by hospitals in resource poor settings, and supports the highly successful health insurance scheme at Kisiizi Hospital, Uganda.[13] The Ugandan Catholic Medical Bureau (UCMB) is also deploying an open source electronic medical record systems in its health facilities. The UCMB has been interested in electronic health records since the development of the Uganda Health Management Information Systems (HMIS) in the 1990's and their 1999 Mission and Policy on Catholic Health Services document.[14] The motivation for UCMB is to promote effective delivery of health services through fast access to information that supports patient management, planning, monitoring and evaluation of healthcare programmes while minimising operational costs.[15]

All these initiatives are a good start, but Africa needs a lot more. Funding agencies need to recognise the importance of applying information technology to health care in Africa. Firstly it is relatively cheap, and becoming cheaper as electronic communication and IT expertise is now widely available throughout the continent. Secondly, without it there is no way of knowing what healthcare outcomes are, to what extent interventions are being implemented, what interventions improve outcomes and, most importantly, there can be no evidence that donations are spent wisely or appropriately.

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