## ISSUES IN MEDICINE

# When Best Practice is Bad Medicine: A new approach to rationing tertiary health services in South Africa

Chris Kenyon, Nathan Ford, Andrew Boulle

South Africa's democracy inherited a health system biased towards tertiary rather than primary health care. Attempts to reverse this imbalance in the Western Cape led to rancorous response from many sectors. We outline the debate and describe the international forces that push developing countries into spending excessive amounts on specialised services. An alternative way of rationing, utilising cost-effectiveness thresholds, is described.

The Western Cape's Health plan for the future (known as 'Healthcare 2010'[1]) included cutting back tertiary services to strengthen primary and secondary levels and to stay within budget. Tertiary hospital staff responded with indignation. A crisis committee was set up at Groote Schuur Hospital (GSH) and an often acrimonious debate ensued in the press and other forums. Bongani Mayosi, Professor of Medicine at GSH, explained the basis of the opposition in his submission to the Parliamentary Portfolio Committee on Health:[2] not only is 'health in the Western Cape massively underfunded', but this is 'in the face of rising demand'. Professional staff numbers in academic hospitals in the province had decreased by 39% from 1990 to 2000, and Healthcare 2010 plans to further decrease specialists at the province's three academic hospitals from 235 to 115 by 2010. The net result would be a deterioration in patient care, waiting times and registrar training at these facilities. He believes the country's budget surplus gives us 'options for increasing investment in health'. According to Del Khan, Professor of Surgery at GSH, the net effect would be that GSH 'will continue to function, but we won't be producing the goods'. The GSH action committee chair, Lydia Cairncross, was more critical, stating that cuts to tertiary services exhibited a 'callous disregard for the lives of the patients entrusted to our care and to the care of the administrators of the health system',

Chris Kenyon works as a Senior Registrar in the Division of Infectious Diseases and HIV Medicine at Groote Schuur Hospital, Cape Town. Nathan Ford is currently following a Masters in Public Health at the University of Cape Town, and has worked extensively on access to medicines issues with Médecins Sans Frontières. Andrew Boulle is a Senior Lecturer in the Infectious Diseases Epidemiology Unit of the School of Public Health and Family Medicine at the University of Cape Town.

Corresponding author: chriskenyon1@absamail.co.za

her submission to Parliament concluding 'I will give you one simple equation: health cuts equal death and suffering for our people'.

The Democratic Alliance, Treatment Action Committee, and Cosatu expressed similar opinions in the press. Cosatu regional secretary, Tony Ehrenreich, explained that the cutbacks amount to the 'worst betrayal of provincial government towards the poor communities' and 'infringe the human rights of people who depend on public health care'.

## What then was the basis for the cutbacks? The case for rationing

One of the reasons for South Africa's health care system being ranked 175th out of 191 countries in the World Health Organization (WHO)'s *World Health Report 2000* was that we get poor value for money from our health system.[3] Health care expenditure in South Africa is 8.8% of the gross domestic product (GDP), compared with a global average of 7.9% and an average of 5.1% for other middle-income countries.[4] However, our health outcomes are very poor and we do very poorly at doing the basics properly. Proper treatment of tuberculosis and infant vaccination are two of the most cost-effective interventions, but South Africa manages a TB cure rate of only 59% and vaccination coverage of 1-year-olds of 82%.[5] Socio-economic factors such as sanitation, employment and education are primary determinants of a population's health status. Evidence also demonstrates that health systems based on strong primary health care (PHC) are more cost effective at promoting the health of a population than systems biased towards strong secondary and tertiary care.[6] By prioritising the establishment of good PHC services and dealing with social and economic factors, China, Cuba, Costa Rica and Sri Lanka had, as of 2004, attained life expectancies of 71 - 78 years despite annual health expenditures of US$43 - $290 per capita.[7] South Africa spends $390 per capita, but our life expectancy is only 48 years.[7] Even before the HIV epidemic our life expectancy was 10 - 20 years adrift of these four countries.

This situation was partly caused by the buildup of sophisticated tertiary health care (THC) at the expense of decent PHC services. By the end of the apartheid era in 1993, acute hospital services consumed 75% of all South Africa's health care expenditure, of which tertiary and academic services made up 59%.[8] Tertiary services received an even larger slice of the cake in the Western Cape, with the net

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effect of crowding out PHC services. Despite cutbacks to this THC sector, and despite spending more on health care than any other province apart from Gauteng, the Western Cape Department of Health faced a budget deficit, projected to reach R1.1 billion by 2010.[9] Because treating patients at THC as opposed to district level is 2 - 5 times more expensive per bed-day,[10] Healthcare 2010 aimed to move 1 014 beds from THC to district level, and open another 24 level 1 beds and another 344 level 2 beds. This would cut costs by R502 million and increase the total number of acute beds available by 368.[9] It was conceived as the Western Cape's way to reorientate health care provision to a more PHC-based approach and enhance cost effectiveness by 'balancing health care needs with resources so as to produce the greatest common good'.[9]

## The best practice-affordability tension

What were the forces that led to THC receiving such a disproportionate slice of the cake in the apartheid era? Of increasing relevance is the contribution played by three factors – international global inequalities, drug pricing mechanisms, and doctors striving for best practice. These diminish PHC expenditure in developing countries as follows:

1. The major determinant of the vast differences in health expenditure per capita between different countries is their respective wealth – measured in units such as GDP per capita.[11] A rich country such as the USA spends $6 096/capita whereas a poor country such as Uganda spends only $19/capita.[7]

2. Prices of new therapeutic modalities are largely set in the developed countries since these countries comprise 80% of the pharmaceutical market.[12] Drug prices are determined not so much by the investment in their development but by how much pharmaceutical companies think that individuals and health care providers will pay for them.[12] This in turn is established by factors such as how effective the new drugs are at promoting life and well-being over competitors. For example, highly active antiretroviral therapy (HAART), priced at US$11 000 per patient per year when released, was accepted by most health care providers in developed countries.[13] However this price was unaffordable to most of the world's population, who live on under $2 per day.

3. Doctors are legally and ethically obliged to provide the best possible diagnostic and therapeutic modalities to each patient (the best practice imperative).

The net effect of these factors is demonstrated in Fig. 1, where we see the theoretical direction in which the best practice doctrine pushed Uganda's health care system in 2000, when HAART first emerged on the market. If Uganda had introduced HAART at these prices, it could have consumed 450% of their existent total health budget.

This dynamic continues to play itself out with the introduction of new therapeutic or diagnostic modalities. For example, ibritumomab tiuxetan is a newly released highly effective treatment for non-Hodgkin's lymphoma, costing
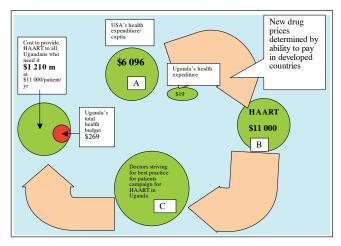


Fig. 1. The genesis of underfunding of PHC in developing countries. How international global inequalities (A), drug pricing mechanisms (B) and the activities of doctors striving for best practice (C) come together to swamp PHC expenditure in developing countries, with the example of the theoretical effect of the introduction, in the year 2000, into global markets of HAART at $11 000/patient/year on a high HIV prevalence, poor country such as Uganda in 2000.

$24 000 for a single dose. It is not difficult to see how the combined effect of the best practice imperative and the unaffordability of new similarly priced interventions, unless carefully managed, leads to an inevitable spiralling of specialist care costs in all countries. High spending on THC is not unique to the Western Cape or South Africa. Hospitals in developing countries absorb 30 - 50% of total health expenditure, and secondary and tertiary hospitals utilise 60 - 80% of this.[14]

## Is there a way to ration THC that will protect PHC services?

The WHO and the public health community agree that health services must be structured to provide maximum value for money.[15] That involves favouring more cost-effective activities, which is consistent with the ethical view that limited resources for health should be allocated to maximise the health benefit for the population served. This rationale requires South Africa to divert resources to improve highly cost-effective PHC services such as curing patients with TB. Cost effectiveness also provides a powerful alternative way to ration THC services. The predominant form of rationing THC in South Africa has been to cut its total allocated budget (largely via imposed staff and bed cuts) and not to interfere in the package of services offered. This will result in the same package of care simply being offered to far fewer patients. An underlying rationale for this form of rationing is the perception that specialist-run services are inappropriately expensive and unable to ration themselves.

An alternative approach would be to decide on an affordable package of tertiary care via the application of explicit criteria. This would have the advantages of making the rationing process more transparent and cost effective and would enable

the benefits of THC to be delivered to a greater proportion of the population.

The UK and Australia have structures to evaluate whether or not to add new treatments to their national health services. The National Institute for Health and Clinical Excellence (NICE) in the UK and the Australian Pharmaceutical Benefits Scheme (PBS) use different criteria to make these decisions. However, both have established *de facto* cost-effectiveness threshold values of around $49 000 per quality-adjusted life-year (QALY), which will vary in accordance with the size of the national health budget.[16,17] Drugs and interventions costing more than this are almost inevitably rejected. Since national wealth (GDP/capita) is the greatest determinant of the size of this health budget, the WHO has recommended that the following rough thresholds be used when evaluating the cost effectiveness of health products:[15]

• Highly cost effective: <1 times GDP/capita per disability-adjusted life-year (DALY) saved (about R20 000 in South Africa in 2007)

• Moderately cost effective: 1 - 3 times GDP/capita per DALY saved

• Not cost effective: >3 times GDP/capita per DALY saved.

It might be asking too much of a South African equivalent of NICE, at least in the short term, to determine the cost-effective packages of care at primary, secondary and tertiary levels. It could, however, help us to agree to a set of criteria to evaluate new medical technologies. While health planning textbooks suggest several criteria that should be used in this evaluation process, one of these should be a cost-effectiveness threshold.

The utility of this approach is illustrated by a decision by the Groote Schuur Hospital Medicine Meeting to motivate to the Therapeutics Committee for the procurement of rivastigmine for the treatment of Alzheimer's dementia. The treatment would cost R12 000 per year for moderately slowing the rate of decline of the dementing process. None opposed the motion, as we have no nationally agreed frame of reference with which to decide if this is too expensive. What would the benchmark be of a claim that this was not cost effective? Of interest, NICE has just re-evaluated its recommendations on rivastigmine. Whereas before it was deemed cost effective for mild and moderate Alzheimer's, it is now regarded as cost effective for moderate disease only. Given the 10 times greater health expenditure per capita in the UK, it is very unlikely that rivastigmine would be deemed cost effective in South Africa at current prices.

## Apportioning blame in proportion to responsibility in an age of global apartheid

The introduction of HAART at $11 000 represented the first time that a whole class of highly efficacious medications would be completely unaffordable to the majority of those afflicted by a mass condition. If the public health community had merely accepted these high prices, then HAART would certainly have remained unaffordable for the many high-prevalence and poor countries. A key part of rationing in the new era is therefore exposing the unfair pricing system and campaigning for alternative systems. So far this pressure has yielded a crucial amendment to the Trade Related Intellectual Property Rights System. This enables countries such as South Africa to import or manufacture cheap generic antiretrovirals at one-hundredth of the initial price of HAART.[13] Cost-effectiveness thresholds can assist in this process. If a new life-saving medication, such as HAART, is introduced at a price that is 37 times the GDP/capita of a country like Uganda, and generic production could produce the medication for 30% of its GDP/capita, then the ethical conclusions to be drawn are clear. It is not the fault of the Ugandan state that it cannot afford the new treatment, but rather the international forces which allow the pharmaceutical industry to get away with these pricing strategies. This suggests that if a new efficacious treatment is introduced at more than 1 - 3 times the GDP/capita of the poorest country affected by the illness, then there is a moral imperative to find ways to bring down the prices for this country.  (A similar logic applies to the pricing and provision of chronic medications. If the standard medical treatment of ischaemic heart disease, using the cheapest available beta-blocker, ACE inhibitor, statin and aspirin, in a country such as Malawi costs the equivalent of 18 days' wages of the lowest paid civil servant, then clearly such treatment should be regarded as overpriced.[18])

Seen in this light, the role of doctors is therefore to fight for all efficacious treatments to be available for all our patients, but to do so keeping sight of the bigger picture. Only if drugs are priced affordably should we be placing pressure on our national providers for their inclusion. If they are not, then we need to lobby at multiple (mostly international) levels to ensure that prices are lowered so that all our patients receive treatment on the basis of need rather than wealth.

1. *Healthcare 2010: Health Western Cape's Plan for Ensuring Equal Access to Quality Health Care*. Cape Town: Department of Health, Western Cape, 2003. www.capegateway.gov.za/Text/2005/7/cover_contents_foreward.pdf (accessed 10 December 2007).

2. Mayosi B. 2007. Briefing by Prof. Bongani Mayosi on challenges facing Health Care in the Western Cape. http://www.pmg.org.za/schedule/audio.htm (accessed 10 November 2007).

3. *World Health Report 2000. Health Systems: Improving Performance*. Geneva: World Health Organization, 2000.

4. Poullier J, Hernandez P, Kawabata K, Savedoof WD. 2002 *Patterns of Global Health Expenditures: Results for 191 Countries*. Geneva: WHO, 2002. http://www.who.int/healthinfo/paper51.pdf (accessed 12 November 2007).

5. Day C, Gray A. Health and related indicators. In: Ijumba P, Barron P, eds. *South African Health Review 2005*. Durban: Health Systems Trust, 2005.

6. Evans R, Marmor T, Barer M. *Why Are Some People Healthy and Others Not? The Determinants of the Health of Populations*. New York: Aldine, 1994.

7. *World Health Report 2006: Working Together for Health*. Geneva: World Health Organization, 2006.

8. McIntyre D, Bloom G, Doherty J, Brijal P. 1995 Health Expenditure and Finance in South Africa. In: Harrison D, ed. *South African Health Review 1995*. Durban: Health Systems Trust, 1995.

9. *Comprehensive Service Plan for the Implementation of Healthcare 2010*. Cape Town: Western Cape Provincial Department of Health, 2006. www.capegateway.gov.za/eng/pubs/public_info/C/143710 (accessed 10 November 2007).

10. Mills A. The economics of hospitals in developing countries – Part  II: Costs and sources of income. *Health Policy and Planning* 1990; 5(3): 203-218.

11. Schieber GJ. Health expenditures in major industrialized countries, 1960-1987. *Health Care Financing Review* 1990; 11:159-168.

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12. Scherer FM. The pharmaceutical industry – prices and progress. *N Engl J Med* 2004; 351: 927-932.

13. Médecins Sans Frontières. Untangling the web of price reductions: a pricing guide for the purchase of antiretroviral drugs for developing countries. 10th ed. July 2007. www.accessmed-msf.org/resources/key-publications (accessed 10 December 2007).

14. Mills A. The economics of hospitals in developing countries – Part I: Expenditure patterns. *Health Policy and Planning* 1990; 5(2): 107-117.

15. Tan-Torres E, Baltussen R, Adam T, eds. *Making Choices in Health: WHO Guide to Cost Effectiveness Analysis*. Geneva: WHO, 2003.

16. Henry DA, Hill SR, Harris A. Drug prices and value for money: The Australian Pharmaceutical Benefits Scheme. *JAMA* 2005; 294: 2630-2632.

17. Claxton K, Buxton M, Cuyler A, Walker S, Schupher M. Value based pricing for NHS drugs: an opportunity not to be missed? *BMJ* 2008; 336: 251-254.

18. Mendis S, Fukino K, Cameron A. The availability and affordability of selected essential medicines for chronic diseases in six low- and middle-income countries. *Bull World Health Organ* 2007; 85(4): 279-288.