

Humanitarian action: the duty of all doctors

Humanitarian issues, large and small, are all around us

Humanitarian is defined by Webster's dictionary as "having concern for or helping to improve the welfare and happiness of mankind." In that sense all doctoring is humanitarian. A second definition goes further: "a person actively engaged in promoting human welfare and social reforms." Many doctors are not active in promoting social reform, but should they be? Every doctor knows that those who live on the margins of our world—those who are poor, vulnerable, elderly, addicted, insane, imprisoned, unemployed, discriminated against, tortured, homeless, condemned, caught up in wars—have higher rates of sickness and ill health. Doctors should be paying great attention to those people, but too often, like everyone else, they neglect them. The poor have greater difficulty than the rich in accessing health care; prisoners get a second class service; doctors propose that the addicted—smokers, drug misusers—should be denied treatments like coronary bypass grafting. This issue of the *BMJ* has gathered together articles that deal with humanitarian issues, and although many concern people in poor, war torn countries, not all do.

The main reason for publishing this special issue now is that next week in Ottawa the world's nations will try again to take effective action against antipersonnel landmines. A hundred years ago the *BMJ* published papers on the injuries caused by particular types of projectile,^{1 2} and the authors became part of the history of warfare and of humanitarian action by doctors. The world has, more or less, agreed that there should be limits to the weapons used in war time and enshrined these in global protocols. Despite these controls, humans' ability to design "better" weapons seems limitless, while our capacity for devising systems to control these weapons has only recently been rejuvenated.

The issue of landmine control is played out on a world stage, but not all humanitarian issues work at that level. Regardless of where doctors work, they are required to use their skills to benefit patients. As Leaning points out, the Universal Declaration of Human Rights requires that doctors recognise the separate, inviolate nature of the individual patients who face them (p 1390). Universal human rights, Eleanor Roosevelt argued, begin "in small places, close to home."³

All those working in health care face challenges to these ethical precepts. These are often manifest as invitations to ignore the human rights of individuals or groups of patients. At other times doctors face demands to neglect one individual or group in favour of another, selected for political or other non-medical

reasons. And finally there are challenges which place health care low in the priorities of national and international leaders.

Hornblum shows how the fundamental requirement to obtain consent from research subjects which is informed and genuine, and therefore free of coercion, was ignored for decades in American prisons (p 1437).⁴ The greater good of society was considered more important than the rights and liberties of prisoners. Such abuses may not compare in scale to the horrors catalogued at the Nuremberg trials, but they show how easily some or all ignore a collective ethic and value system.

The values which society places on health and health care may most clearly and obviously be seen by the expenditure governments make. Afghanistan and Sudan are just two examples of places where military spending increases while people starve or die of preventable diseases. The solutions are complex. Discussion of population control has a place (p 1441).⁵ Does the millennium gift—the cancellation of debt—that Logie and Benatar propose that the developed nations should give to the world's poorest debtor nations have a place in global politics (p 1444)?⁶ If we accept that doctors have a duty to their patients and societies, ought we, as doctors, be involved in educating politicians about the true value of this gift? The humanitarian needs of the poorest and most vulnerable are clearly exposed by Veeken (p 1458, 1460),^{7 8} Rogers (p 1472),⁹ Garfield et al (p 1474),¹⁰ Lambert et al (p 1425),¹¹ and Reyes and Coninx (p 1447).¹²

Occasionally individuals stand out and confront us with these everyday challenges and the ways in which we face them. Charismatic individuals, such as Diana, Princess of Wales, can point out truths that are too often obscured by politics and apathy (p 1456).¹³ The debate on landmines has taken place over many years, and the campaign for a ban is five years old. But for those in Britain and in many other countries it came alive only when it was given a human face by Diana.

As Giannou says, some of the facts about landmines are irrelevant (p 1453).¹⁴ What matters is how and what we plan to do about them. A mined piece of land is useless for agriculture; it simply contributes to the dependence on external aid of a local population. The lesson we must learn as the Ottawa conference approaches is that the struggle to clear the world of unexploded ordinance and landmines is just beginning. A sustained effort for

many decades will be needed to clear land and rehabilitate those who will continue to be maimed.

While the landmine problem is not solved, enormous strides have been taken. The role played by doctors in obtaining the global ban on blinding laser weapons was significant. Flawed though that ban is (p 1392),¹⁵ it shows that medical expertise can have a place in the process of building on the Geneva Protocols.

Can medicine do more? Can doctors find a way to prevent the development of new weapons? The SIRUS project may be an answer (p 1450).¹⁶ It places on doctors and other health workers a major role not only in dealing with the consequences of conflict, but in shaping and limiting those consequences. If this

project from the International Committee of the Red Cross is not supported by doctors, their colleges, and associations signing up to these concepts then we may have little influence except as direct care givers.

This issue of the *BMJ* ranges over a wide territory of neglect and abuse of those who live on the margins of society. The challenge to doctors is to try and understand the deprivations and problems of the marginalised. This is hard, especially when doctors are everywhere part of the elite. But many brave doctors have shown that it can be done.

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Human rights and medical education

Why every medical student should learn the Universal Declaration of Human Rights

The Universal Declaration of Human Rights enters its 50th anniversary year in 1998. Around the world efforts are under way to celebrate this event and accelerate efforts to disseminate the contents of the declaration. These efforts are undertaken in recognition that progress has been at best uneven since that early morning of 10 December 1948 when the United Nations General Assembly formally adopted this document and thereby sought to enshrine in world consciousness a commitment to secure basic human rights around the world.

In 1948 there were 58 member nations of the UN; there are now 185. For this world community the declaration has acquired the status of international law and all governments can be held to its principles. Many other international treaties and charters have incorporated the language of the declaration or referred to it; and many national governments have included its language and principles in their constitutions.¹

The declaration encompasses civil and political rights of individuals (in the first 21 articles); economic and social rights, including to health care (articles 22-27); and reciprocal obligations and constraints conferred by participation in a community (articles 28-30) (see p 1455).

There are several histories of this document which are relevant to those interested in the struggle to persuade human beings to find common ground and push off to higher reaches from it. Yet for the medical community in general, and for the subset who are medical students, the history is less crucial than is the fact of

what this document now has become, 50 years from its making.

With astonishing durability it has withstood the test of time and has become the minimum consensus statement for all cultures and creeds of what each human being has the right to expect on entering the world. Key elements are that rights inhere in human beings, rather than being conferred by the state; that these rights are universal, applying to all human beings regardless of any differentiating characteristics; and that the nations of the world unite in pledging their efforts to promote these rights within their own boundaries and, through the persuasive powers of the UN, across boundaries. This document, written in deliberately simple language, susceptible to translation in many languages, has become the reference point for appeals from the human rights community on behalf of beleaguered individuals and oppressed peoples throughout the world.²

Western medical students have traditionally been asked to recite the Hippocratic oath on graduation, and recently an increasing number have also included the prayer of Maimonides in their valedictory pledges. These exhortations, although noble and necessary, are essentially self referential. Those who would enter the practice of medicine promise to maintain the highest standards of personal integrity and competence and to have compassion for those placed in their care. They acknowledge that, in seeking to become medical professionals with special powers and responsibilities, they have entered a very special guild. What is missing in these commitments, and what the Universal

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Declaration of Human Rights provides, is a recognition of the separate, inviolate nature of the individual person who will face that young doctor in the casualty area, the examination room, the office, the conference room. From the opening statement in article 1, that every human being is "born free and equal in dignity and rights," the document enumerates the critical freedoms that fill the space surrounding every man, woman, and child on earth.

The beneficent aspects of the medical tradition (the doctor knows best, the doctor will decide, the patient does not need to know) are still very strong themes in training and play a legitimate part in medical practice, in particular instances at particular times. Prevailing discussions of medical ethics, however, launched since Nuremberg, emphasise the notion of patients' autonomy and patients' rights, in which the patient is seen as an independent actor who can claim a standing of respect and responsibility simply because he or she is a human being.³ In the vocabulary of the human rights movement this notion is introduced in the words "human dignity," the attribute of beings with rights, whether or not they know they have them.⁴

T S Eliot speaks of the need to see every other person as "a stranger," an unknown about whom one cannot make assumptions or presume prior knowledge.⁵ Martin Buber describes the unique separateness of the other person by stating: "When we walk our way and encounter a man who comes toward us, walking his way, we know our way only and not his; for his comes to life for us only in the encounter."⁶

Does it matter whether medical students learn to see patients as "other," as autonomous beings whom each day they have to struggle to apprehend, listen to, and understand? Several lines of observation and evidence suggest that it does.

Firstly, the complexity of medical practice now involves many choices of diagnostic and therapeutic routes, in the course of which a doctor is well advised to communicate closely and empathetically with the patient's preferences or become embroiled in disagreement, mistrust, and potentially poor outcome.⁷

Secondly, the composition of society is changing rapidly, so that doctors can now expect to be taking care of many patients who speak a language and live within a culture different from that in which they were raised and trained. To take an adequate history, let alone accompany a patient through life, requires a supple and educated capacity to connect empathetically across substantial barriers.⁸

Thirdly, the position of medicine within society is in flux, as financial barriers to access and analyses of poor quality have spurred the general public to critical engagement in issues of healthcare policy. Doctors are now impelled to strengthen their skills as communicators, patient advocates, and negotiators between and among systems and expectations.⁹

Fourthly, our understanding of determinants of health status and outcome has deepened to the point where it is now clear wherever we look that access to the goods and freedoms of society plays an important part in whether an individual patient experiences a particular illness or whether an illness is particularly severe.¹⁰ Unless doctors can talk to their patients about issues of work, home, life stresses, poverty, loneliness,

and humiliation we will never learn what steps medicine and society must take to intervene.¹¹

Fifthly, doctors who spend part of their lives working in underprivileged areas cannot escape the constraints imposed by the link between the health of populations and the human rights they enjoy.¹² Although it is violated every day in every country around the world, article 25 states: "Everyone has the right to a standard of living adequate for the health and wellbeing of himself and of his family."

On the tenth anniversary of the declaration, Eleanor Roosevelt, chairwoman of the original UN drafting committee, spoke again to the UN General Assembly of her commitment to this document and the pursuit of its realisation:

Where, after all, do universal human rights begin? In small places, close to home—so close and so small that they cannot be seen on any map of the world. Yet they are the world of the individual person: the neighborhood he lives in; the school or college he attends; the factory, farm, or office where he works. Such are the places where every man, woman, and child seeks equal justice, equal opportunity, equal dignity without discrimination. Unless these rights have meaning here, they have little meaning anywhere. Without concerted citizen action to uphold them close to home, we shall look in vain for progress in the larger world.¹³

There is perhaps no better place to begin to impart an awareness of human dignity than in the small world of the doctor-patient relationship. At entry to medical school, were each student to be given a copy of the Universal Declaration of Human Rights and asked to commend its essence to memory, by the time of graduation each article would be linked to recollections of people met and understood, people taken care of as patients and encountered as peers. Thus are patterns of a lifetime set, preparing this next generation of practitioners for practice into the next century. Hippocrates and Maimonides still abide, but the vast changes in situation and circumstance since they spoke create the need for other canons.

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Blinding laser weapons

Still available on the battlefield

Ever since the publication of H G Wells's *War of the Worlds* military strategists have dreamt of using beams as weapons. Weapons using optical radiation have the advantages of having unlimited, weightless ammunition; a huge range; almost instantaneous delivery of energy; silence; and under certain circumstances, self targeting. With the advent of the laser in 1960, the possibility of beam weapons became a reality. Present laser systems can deliver terawatts of power to remote targets at the speed of light. Although military designers soon determined that laser systems that would destroy armoured targets or aircraft required huge amounts of power and resulted in large, unwieldy systems, they rapidly appreciated that soldiers' eyes were a relatively easy target.

The human eye is vulnerable for three reasons. Firstly, it is the only organ that allows optical radiation to penetrate deep within it.¹ Secondly, the optical properties of the surface of the eye, the cornea, and to a lesser extent the lens increase the irradiance (power per unit area) in the passage of optical radiation between the cornea and retina by up to 500 000 times. Finally, the eye is consciously directed to any area of interest in the visual scene and thus presents the central and most sensitive area of the retina, the fovea, to the image of interest. If the fovea is destroyed the individual is legally registerable as blind, as he or she would have no high acuity vision.² A single exposure to a rangefinder laser could destroy the fovea in 10⁻⁹ seconds.

Military propagandists have been coy about antipersonnel weapon systems, claiming that such systems are designed merely to dazzle enemy troops. In fact, when the eye perceives bright light one of four reactions may take place.¹ These are, in order of increasing brightness: dazzle, after image formation, flash blindness, and irreversible damage. Most individuals will have experienced dazzle as a result of oncoming car headlights and persistent after images from accidentally staring at the filament of an incandescent bulb. Both dazzle and after images will distort vision for some seconds to minutes. Flash blindness occurs when an extremely bright flash is discharged, usually at night, and again vision is temporarily lost. All three reactions would be useful in temporarily disabling a pilot and causing him to abort close approach to a target. If even higher irradiances reach the retina then irreversible damage may occur. In practice, a laser system that will dazzle at one mile may permanently blind at closer range.

On the modern battlefield five classes of optical radiation sources may be deployed: rangefinders and target designators, antimaterial systems, antisensor systems, antipersonnel systems, and non-laser optical systems.³ All modern tanks have laser rangefinders and target designators, which, although primarily designed to measure distances and mark targets, are potentially blinding to support infantry. Antimaterial systems are the high energy systems designed to destroy aircraft or, indeed, satellites. Antisensor

systems are designed to destroy optical sensors deployed by the enemy. Unfortunately, optical sensors have almost the same response parameters as the human eye, so antisensor systems are potentially blinding.⁴ Several countries have developed antipersonnel systems to be carried by infantry, specifically designed to blind enemy troops. Finally, non-laser optical systems have been deployed in such devices as the "Dragon," a high-intensity light source for crowd control, and the flash discharge units used by special forces. This plethora of eye threatening sources of radiation may account for the increase in eye injuries as a percentage of total injures in warfare from 1% in the last century to 13% in the Gulf war, where such laser devices were deployed.⁵

Originally, it was thought that the eye could be protected against laser systems by goggles. However, many laser devices switch wavelengths between pulses, so protective goggles would have to be opaque and are therefore self defeating. Blinding weapons have a huge psychological impact on troops.⁶ There is no treatment and, if the fovea is destroyed, then the individual is permanently blind in that eye.² They also have an impact on support services and media coverage. A dead soldier ties down no personnel behind the lines. A maimed soldier requires on average 40 personnel in the medivac chain. With TV coverage civilian morale is further eroded by viewing masses of young men rendered blind.

Against this scenario, the International Red Cross initiated meetings of experts, starting in 1989, to try to formulate a protocol to prevent deployment of antipersonnel weapons.⁷ In 1995 protocols were signed by 40 nations in Vienna. Unfortunately, although antipersonnel systems should now not be manufactured or deployed by signatory countries, the efficiency of rangefinders, target illuminators, and anti-sensor systems is such that no countries will relinquish them and these are still effectively antipersonnel laser weapons.

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South Africa: does a truth commission promote social reconciliation?

Some pointers but no real evidence

In South Africa the Truth and Reconciliation Commission is winding to a close next year after a marathon of testimony taking from victims and perpetrators. It has pushed rather harder than similarly named commissions in El Salvador or Argentina, where the political and military order implicated in the events under investigation was still essentially in power. Its purpose has been to facilitate society's recognition of the extent of state violence during apartheid by recording the accounts of ordinary victims and thus promote reconciliation.

What can we reliably say about the role of public apology, acknowledgment, and forgiveness in the aftermath of war or political violence? Does truth purify? In optimal circumstances do victims forgive and forget, or do they die off and a new generation grows up for whom what happened is more remote and eventually mere history? How are we to measure the social impact of a truth commission in comparison with, say, economic factors (which is the first thing cited by people in Cambodia, for example, where there is little appetite for such a commission)? What happens when a sizeable section of the public is instinctively against such trawling of the past, as in East Germany, where an astonishing number of ordinary citizens were drawn into the security service's informer networks at some point during the communist era? What emerges in these circumstances might be inflammatory and divisive rather than reconciling—and anyway assumes that "truth" can be unearthed in pristine condition, uninfluenced by subsequent events.

Lastly, does the immunity from prosecution granted perpetrators if they testify ignore the way that

social cohesion depends on shared ideas about justice. The widow of Steve Biko, the black leader murdered in prison in 1977, challenged the right of the South African government to "forgive" his killers, and not just because they are still manifestly unapologetic.

A comparison between the postwar stances of Germany and Japan—and people's responses to them—offer a 50 year natural experiment on some aspects of this debate. After initial diffidence Germany apologised to its victims (and continued to do so) and made financial restitution. Japan has largely failed to do either, or even to give an open account in its history books. Japanese feel that it would be sinful to apologise for the second world war because they would be blaming their parents and also Emperor Hirohito, who was considered a deity. Thus allied survivors of death camps and thousands of South East Asian women forced into sexual slavery for the Japanese army are still agitating about unfinished business. One expression of this was their refusal to countenance the presence of Japanese officials at ceremonies commemorating the 50th anniversary of the end of the war.

There are pointers here to the role that official acknowledgment, apology, and reparation may play in hastening a sense of closure after horrific events. It is still unclear, however, what this may mean overall for society's health, and whether for individual victims it offers an effective remedy for what in Korea is called "anger illness."

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Embargoes that endanger health

Doctors should oppose them

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If all else fails you can starve your enemy out. Or let disease, unchecked, take its toll. A personal view (p 1474)¹ and a letter (p 1463)² in this week's journal remind us that the barbarous tactics of earlier wars still have their uses. Both articles deal with the effects on health of rigorously enforced embargoes.

The personal view from three visitors to Iraq augments the account we published a year ago on the effects of sanctions on surgical practice.³ Barnouti wrote then that they had "led to the disruption and collapse of the basic medical system, revealing the inhuman face of sanctions of such severity and length." Should they continue "the already awful situation of medical services could become even worse."

On the basis of visits to a wide range of Iraqi hospitals and health centres, the authors of this week's personal view found that problems with spare parts

and maintenance had put half the diagnostic and therapeutic equipment out of action. Antibiotics, antiasthmatic drugs, and analgesics stronger than aspirin were in short supply, with predictable results. They found a population "burdened by a rapid rise in serious infectious diseases, nutritional deficiencies among pregnant women and young children, and other treatable conditions for which neither the right drugs nor operations are available."

This sentence can be found almost verbatim in the summary of a report from the American Association for World Health (which serves as the US committee for the World Health Organisation and the Pan American Health Organisation)—except that this time the country is Cuba.⁴ This reports the effects on health of the financial noose that America has been tightening around the neck of its diminutive neighbour since

1960.⁴ Expert medical opinion was that “the US embargo has caused a significant rise in suffering—and even deaths—in Cuba.”

Although America has embargoed all trade with Cuba since 1961, the effects were limited so long as the Eastern bloc supported Cuba. With the collapse of this formation in 1989 came a sudden end to \$4-6 billion in subsidised and bartered trade. The US Congress then passed the 1992 Cuban Democracy Act, which prohibited trade between foreign subsidiaries of American companies and Cuba. As some 90% of this trade was in food and medicines, the number of unmet medical needs has “sharply accelerated.” An epidemic of 50 000 cases of optic and peripheral neuropathy occurred in Cuba between 1991 and 1993, which an official report attributed “to reduced nutrient intake caused by the country’s deteriorating economic situation and the high prevalence of tobacco use.”⁵ Licences to sell medicines and medical equipment can be applied for, but the red tape is so daunting that only four companies obtained such licences from October 1992 to May 1995.

The report notes that “few other embargoes in recent history—including those targeting Iran, Libya, South Africa, Southern Rhodesia, Chile, or Iraq—have included an outright ban on the sale of food. Few other embargoes have so restricted medical commerce as to deny the availability of life saving medicine to ordinary citizens. Such an embargo appears to violate the most basic international charters and conventions governing human rights, including ... the articles of the Geneva Convention governing the treatment of civilians during wartime.”⁴ And Cuba isn’t even at war with the United States.

But a war of sorts is raging, as Leon Eisenberg has recently argued in the *New England Journal of Medicine*. “The Cuban and Iraqi instances make it abundantly

clear that economic sanctions are, at their core, a war against public health. Our professional ethic demands the defense of public health. Thus, as physicians, we have a moral imperative to call for the end of sanctions.”⁶

Neither individually nor collectively can doctors let themselves off the hook, however messy the issues. They are obliged to use their skills to improve and protect people’s health, wherever they are. Doctors should therefore oppose economic embargoes, sanctions, and blockades wherever these are likely to endanger health. Last month the governing council of the American Public Health Association urged that essential humanitarian goods should be exempted from embargoes and that the health and wellbeing of embargoed populations should be aggressively monitored.

As well as individual action, doctors can apply pressure on governments through their professional organisations. International bodies could pack the greatest punch of all: if ever an issue deserved to be taken up by the World Health Organisation and the World Medical Association then this is one.

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Prison health services

Should be as good as those for the general community

On any day the number of imprisoned people throughout the world will number 30 to 50 million. Most periods of incarceration are short, so that four to six times those numbers pass through prisons every year. As imprecise as these figures are, one thing is certain: the numbers are increasing. Prison is a regulated but not a closed system, simply because of the numbers of people who enter, leave, and re-enter custodial institutions. So health problems in prison move between the two sides of the wall, in a seemingly chaotic manner.¹

Incarceration means that personal freedoms are denied to the prisoner—loss of choice over sanitation, diet, recreation, and cell mates to name a few. Moreover, overcrowding provides ideal circumstances for stress related disorders and transmission of diseases such as tuberculosis and HIV, as illustrated in this issue by Reyes and Coninx (p 1447).² The more prisoners’ freedoms are limited, and the worse the general prison conditions, the greater the responsibility of the state to protect prisoners: this leads to a misunderstood principle

that prisoners actually acquire rights while in custody, principally protection from harm and access to services, including health services.³

Prisoners are far from being representative of the general population. They are predominantly male, young (15-44 years), and poorly educated and belong to minority or migrant groups. Many have lived on the margins of the community, and there they are likely to return. This complex of factors ensures the greatest chance of ill health, optimal conditions for infection to progress to severe disease, and minimal opportunity for early diagnosis and adequate treatment. Not surprisingly, excess prevalences of hepatitis, tuberculosis, HIV, and mental illness are reported among prisoners from many countries. In fact, a prison sentence can turn into a death defying experience.⁴ And the increased risk of illness and death continues after release.⁵

Yet the period of imprisonment could offer opportunities to improve the health of prisoners and at least minimise the risk of poorer health to the community.

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“Doing time” could improve nutrition; reduce consumption of tobacco, drugs, and alcohol; and provide remedial education programmes and job training, so improving the health of prisoners. Access to the prison health service may be the first opportunity for an inmate to receive medical care in an otherwise disordered life. Moreover, a visit to the clinic may be one of the few distractions to the boredom of prison life, or a haven in an otherwise violent environment. Health services in prisons should therefore be free and readily accessible.

Regrettably, prison health care is too often the subject of criticism—either for its failings or because it is perceived as providing excessive services.⁶ Prison specific health problems such as transmission of infectious diseases due to overcrowding, non-consensual sexual activity, illicit drug use, and physical violence are difficult for the community to comprehend. When prison care is adequate the costs of providing it are questioned. Reduction of costs leads to deteriorating services, which may in turn prompt prisoners to react to “inhuman or degrading” treatment (dissatisfaction with prison health services has contributed to riots in British jails).

The only protection from this is the principle of equivalence: that services provided to prisoners should be as good as those the state provides for the general community. Equivalence is affirmed by the United Nations and the Council of Europe. Even in prison services which have moved the furthest toward equivalence, such as those of Norway and France, problems are nevertheless encountered. Norway, for example, integrated penitentiary and community health care, but increased mobility between prisons and the community created security and logistic problems.⁷

An effective process to monitor progress in prison health services is undertaken by the European Committee for the Prevention of Torture and Inhuman or Degrading Treatment or Punishment. Since 1992 the committee has undertaken preventive inspections of prison health services in most member states of the Council of Europe; many have resulted in

public reports.⁸ Opening prison services to public scrutiny is the most effective way of ensuring accountability and maintenance of standards. As Reed and Lyne report, there is a long history to this activity, it is difficult to do, but very informative (p 1420).⁹

The lack of attention paid to prisoners’ health is reflected in the almost universal absence of the prison population from national health statistics. Prison statistics exclude health data, with the exception of deaths. Performance indicators for prison health seem to be limited to suicide rates.¹⁰ This lack of baseline data inhibits the assessment of current services and future needs.

Winston Churchill said that society could be measured by the way prisoners are treated. The importance of excellent health care transcends considerations of ethics and human rights: it also simply makes good sense for the community as a whole.

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Strengthening “DOTS” through community care for tuberculosis

Observation alone isn't the key

See pp 1403, 1407

World wide, more adult deaths are attributed to *Mycobacterium tuberculosis* than to any other infectious agent, and without improvements in control 30 million people are expected to die from tuberculosis in 1990-2000.¹ In sub-Saharan Africa alone about 1.5 million new cases arise each year. How can we care for all these patients?

We have known for almost 40 years that most patients with tuberculosis can be treated in the community without increasing the risk of their infecting contacts. Indeed, the strategy of supervised outpatient therapy was developed in poor settings.² Nevertheless, until recently, the World Health Organisation and the International Union Against

Tuberculosis and Lung Disease advocated a strategy of admission to hospital for at least the first two months of treatment, primarily as a way of ensuring adherence. Indeed hospitalisation, together with the other elements of the control programme, was highly effective.³

However, the epidemic of tuberculosis associated with HIV in sub-Saharan Africa is such that hospital based care is no longer feasible. The caseload in Malawi increased from 5334 in 1985 to 19 195 in 1995 (Malawi National Tuberculosis Programme). Over a similar period the cure rate for smear positive cases decreased from 90% to 63% and bed occupancy reached 400% in cities.⁴ The consequences of this over-

crowding include nosocomial transmission of tuberculosis,⁵ including multidrug resistant strains.⁶ Crowded wards are also likely to deter admission and adherence. A paper in this issue provides evidence that hospital based tuberculosis treatment is also about three times more expensive for both the patient and the health system than directly observed treatment in the community (p 1407).⁷

We have therefore come full circle: direct observation of treatment, not hospitalisation, is advocated to promote adherence within WHO's current global tuberculosis control strategy: directly observed treatment, short course (DOTS).⁸ This is despite the fact that a systematic review, also in this issue, shows that the effect of directly observed treatment on adherence has not been evaluated in a randomised trial (p 1403).⁹ Does this matter? All the interventions tested in the five trials identified improved adherence, suggesting that any serious commitment to tuberculosis care improves adherence. In New York the introduction of directly observed treatment has been associated with a sustained reduction in the number of new cases and cases of multidrug resistant disease.⁶ But while cure rates exceed 90%, only about 40% of cases receive directly observed treatment. Which is more important, the observation of treatment or the concurrent strengthening of the programme?

The WHO's strategy is in fact defined by three elements in addition to observation: case detection using sputum smear microscopy among symptomatic patients presenting to health services, establishment of regular supplies of essential antituberculosis drugs, and establishment of a standardised reporting system, allowing assessment of treatment results. As the implementation of these elements requires commitment to tuberculosis control, implementation of the DOTS strategy will probably be associated with improvements in adherence rates and, as a consequence, cure rates.¹⁰

Directly observed treatment requires that a responsible observer holds the antituberculous drugs and observes each administration. At one extreme a nurse may observe the daily dosing of 100 or more hospital inpatients. At the other, the drugs may be held by a storekeeper who observes the twice weekly dosing of two or three patients who live nearby. The success of the form of observation is likely to depend on how attractive it is to the patient and the observer, not on the act of observation itself. In China it is made attractive to the observers (village doctors) through financial incentives.¹¹ This concept has been extended in Bangladesh through payment of a bonding incentive between patients and community healthcare workers.¹² For patients, the attraction of directly observed treatment in Hlabisa in rural South Africa probably lies partly in the fact that community treatment costs less than hospital treatment.⁷ The arrangement may also be attractive to the storekeepers because it may raise their status and increase their custom.

Therefore the more accessible therapy is within the community the more likely patients are to comply. Recognition of this fact has lent impetus to the current move to dehospitalise tuberculosis treatment.¹³ The next question is how best to provide observation. The caseload in Hlabisa increased from about 300 in 1991 to over 1200 in 1996, and caseholding by clinic health

workers fell significantly more in 1991-6 than it did among community workers or volunteers.¹⁴ Thus it may be a mistake to rely entirely on clinics for supervision as they too risk becoming congested.

The message is that we should look to the community itself to sustain DOTS but not look on it as a limitless resource.¹⁵ Future economic analysis of provision of tuberculosis treatment could usefully extend its assessment to broader societal costs—for example, those incurred by carers. It is important not to concentrate solely on adherence but also to assess the pathways patients take to reach treatment. There is some evidence, for example, that sputum smear microscopy is not achieving its potential as a casefinding tool.¹⁶ Also, if a significant number of cases of tuberculosis result from recent transmission and casual contact in developing countries^{17,18} then we should not tolerate delays between onset of symptoms and starting treatment. We need to involve communities in casefinding as well as caseholding. If we succeed, the DOTS strategy, and community care for tuberculosis, can only be strengthened.

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