In a qualitative study in east London, UK, of south Asian and white adults admitted with asthma,[5] we noted that the south Asian group had poor understanding and use of inhaled and systemic corticosteroids and greater difficulty accessing emergency care from their family physician. South Asian patients tended to be registered with practices that lacked advanced strategies for asthma care, especially for access in an emergency.

These differences go some way to explaining differences in hospital admission rates for asthma between white and south Asian groups in the UK. Improvement of access to high-quality primary care is a key part of reducing health inequalities and the burden of asthma in secondary care.

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Declaration of Commitment against HIV/AIDS

Sir—The Declaration of Commitment against HIV/AIDS by the United Nations General Assembly Special Session was indeed unprecedented and I welcome your caution in your July 7 editorial[1] that provision of antiretroviral agents is only part of the issue. However, in my opinion, the most notable absence in the declaration was any meaningful mention of the disease tuberculosis.

If an affordable technology, already in existence, could extend the lives of half of the AIDS patients in Africa for 2–6 years without antiretroviral drugs, one would think this technology deserves attention. However, judging from the UN's statement of commitment this is not the case.

Most people infected with HIV-1 in less developed countries develop tuberculosis as the first manifestation of AIDS.[2] Tuberculosis is clearly a major accelerator of HIV-1 disease[3,4] and is the most prevalent infectious disease exacerbated by the HIV-1 epidemic that is then transmitted to people without HIV-1.[1]

The use of WHO's cheap and effective comprehensive tuberculosis control strategy, directly observed therapy short course, greatly delays the onset or progression of AIDS in people infected with HIV-1.[2]

In Uganda, efficient and speedy treatment and cure of tuberculosis has already slowed the spread and intensity of the HIV-1 epidemic.[5]

Properly used, this form of treatment cures up to 80% or more of tuberculosis patients whether they have AIDS or not.

Thus, directly observed therapy short course can significantly prolong the lives of AIDS patients with tuberculosis and should be a key component of any efficient HIV-1 counselling and prevention programme. Rapid expansion of this strategy could be easily implemented. However, according to the United Nation's statement of commitment, this approach still remains one of the best kept secrets in science.

Tuberculosis and HIV-1 are a common issue and need to be addressed in a unified way, but unfortunately this is still not happening.

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Sir—In your editorial[1] you confuse two issues. A functioning primary health care system is certainly a necessary precondition for effective and equitable access to care for HIV/AIDS. However, it is not a sufficient precondition for the comprehensive management of HIV-1-related illnesses; investment in tertiary care is also needed.

Prevention of the spread of HIV-1 is a separate issue. The most effective strategies for this are sex education, widespread condom use, and effective detection and treatment of ulcerative sexually transmitted infections for people with many sexual partners. International experience has shown that these strategies are most effectively implemented outside a primary health care system.

Let our thinking be clear. HIV/AIDS prevention can and must be implemented on a huge scale, and primary health care has little or nothing to do with this. Care of people with HIV/AIDS needs investments in primary health care and much, much more.

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Art and science of clinical knowledge

Sir—Kirsti Malterud's report (Aug 4, p 397)[1] restores some balance to the modern emphasis for a scientific approach to clinical practice.

The quantitative research paradigm, is necessarily reductionist, since it must tightly confine all possible variables. Even here, there may be a qualitative element in so-called objective medicine. A gold standard is frequently arbitrarily chosen. Given the complex nature of biology's control systems,[2,3] any biological gold standard is, by definition, almost certainly flawed at the outset.

Yet medicine is anything but reductionist. It has complex non-linear systems that interact. This concept was expressed succinctly some 2000 years ago by Marcus Aurelius, the Roman Emperor and Stoic philosopher.[4]

"Always think of the Universe as one living organism, with a single substance, and a single soul; and observe how all things are submitted to the single perceptivity of this one whole; all are moved by its single impulse, and all play their part in the causation of every event that happens. Remark the intricacy of the skein, and the complexity of the web."

Whereas we can justify as essential the reductionist concepts inherent in the Cochrane collaboration, reductionism can cause confusion elsewhere—eg, definitions made by expert committees might place clinical investigation into an

impossible straightjacket. The creation of long lists of rules can be counterproductive. Popper[5] described this approach as "linguistics" and believed it serves only to impoverish science.

Even symptoms, the very core of medical diagnosis, are judged unreliable. Unreliable they may be, but it is the non-linearity of biological systems that makes them unreliable, not some inherent fault in the patients. Small alterations in initial conditions may cause great variation in the end result.[2] An adequate grasp of non-linearity is essential for the understanding of qualitative and quantitative approaches to medicine.

Skilful practitioners of the art of medicine (qualitative medicine) intuitively tune in to all the system's elements, and might be able to harness them to treat the patient (holistic medicine). They absorb all afferent stimuli—eg, history, examination, special tests, the patient's body language, what the patient says (and does not say), knowledge of family and environment, and so on. These stimuli are referenced against the accumulated knowledge of quantitative medicine to intuitively weigh up each factor. The created perspective is continuously modified until a diagnosis and its relevance to the person is reached. Such physicians first treat patients, then treat the disease.

A person skilled in the art of medicine, who intuitively understands complexity,[3] feedback control,[2] and the importance of small alterations in initial disorders[2] would not treat an individual patient with the quantitative system alone.

Medicine is 50% science, and is subject to proper statistics and objective criteria. It has to be. But it is also 50% art, and tuning chaotically into the disordered biological systems of a sick individual. We should not forget our art.

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Computerised study applications

Sir—Robert A Schwartz (Aug 18, p 589)[1] questions the propriety of some features of the Electronic Residency Application Service (ERAS), a programme of the Association of American Medical Colleges (AAMC). His concerns focus on the fee structure (escalating with the number of residencies applied to), on features that permit programmes to sort and filter applications, and on the contractual requirement that prohibits programmes from accepting applications outside of the ERAS system.

As Schwartz notes, the competition is keen for residency positions in the USA. Because ERAS permits applicants to submit credentials to any number of programmes with nothing more than a mouse click, programme directors naturally feared being overwhelmed by an unmanageable flood of applications when ERAS was introduced. Rather than impose an arbitrary limit on the number of applications an individual could file, we concluded that establishing an escalating price schedule would be more reasonable. Thus, applicants may submit up to 20 applications at the small cost of US$6 each (although there is a ten-application minimum). After that number the price rises. (The other $45 fee to which Schwartz refers is a transcript fee levied by the National Board of Medical Examiners, not ERAS.) Most applicants find this approach acceptable and the average number of applications submitted by US graduates is 25. The example Schwartz gives of more than 91 applications is clearly an outlier by a wide margin.

Even with the disincentives of the price structure, quite a few residency programmes receive as many as 100 or more applications for every available position. Because it is logistically impossible to interview so many applicants, programme directors must have a means for selecting those they wish to consider seriously. The sorting and filtering features of ERAS permit programme directors to accomplish this task in an even-handed and efficient manner, and are not legitimate targets for concern. Indeed, no application service, whether manual or electronic, could manage such a competitive process without a similar sorting and filtering feature.

Finally, Schwartz objects to ERAS requiring programme directors to eschew paper applications. When ERAS was first getting underway, we thought it prudent to require residency programmes wishing to participate to commit themselves fully to the new system. We reasoned that managing a huge number of applications with two quite different systems would defeat the efficiencies inherent in ERAS, and result in chaos for residency programme staff. Now that ERAS is well established, I do not think the efficiency of the system would suffer if programme directors chose to receive an occasional paper application. So, it may well be time to eliminate this contractual restriction.

The AAMC is committed to an equitable and efficient resident selection process. We are proud that ERAS has been an instrument in support of that end, not an obstacle to achieving it.

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1 Schwartz RA. Computerised application process for medical postgraduate study. *Lancet* 2001; **358:** 589.

Prevention of antiretroviral anarchy in sub-Saharan Africa

Sir—A D Harries and colleagues (Aug 4, p 410),[1] in their report on prevention of antiretroviral anarchy in sub-Saharan Africa, use the example of national tuberculosis programmes to show how antiretrovirals could be delivered. They emphasise the challenges of delivering complex medications for long periods of time in poorly resourced environments. A concern for tuberculosis and AIDS treatment programmes is the prevention of multidrug resistance.

One strategy that has been promoted in tuberculosis to prevent multidrug resistance is the use of fixed-dose combination (FDC) preparations.[2] Up to four drugs are combined in one tablet or capsule. Tablets are formulated so that the dose can be adjusted by the weight of the patient. This type of administration is different to combo-packs, in which multiple different drugs are placed in a blister pack. FDC preparations have become cheaper than their components.[3] The use of such preparations seems to have prevented the development of resistance to tuberculosis drugs in countries with suboptimum national tuberculosis programmes.

To prevent the development of resistance to antiretrovirals and to facilitate the logistics of antiretroviral drugs in sub-Saharan Africa, FDC preparations will be required. A few currently exist, but with 16 different separate drugs available, many combinations could be created. The