New South Africa's doctors: a state of flux

Rajendra Kale

This is the fourth in a series of articles reporting on health care in South Africa

Over 25 000 doctors are registered in South Africa, and they serve a population of about 40 million. The doctor to population ratio in South Africa is higher than that in countries like Mozambique, Nigeria, and Chile but lower than that in other countries like Brazil, Greece, and Britain (table 1). The number of doctors who are actually in practice is probably fewer because of emigration. The exact number of doctors who have left South Africa is not known. Dr David Green, director of Profession Development for the Medical Association of South Africa, said that doctors who leave the country continue to be members of the association and often provide another South African address, making it difficult for the association to know if they have left. Some data are available for the period before 1989.[1] In 1986, the number of doctors registered with the South African Medical and Dental Council dropped from 20 477 to 20 229, largely because of migration, and in 1987, 72 family practitioners and 21 specialists migrated.

White men dominate the profession, but this is changing. Data available for 1985 show that 94% of specialists and 83% of non-specialists were men, and that 88% of all doctors were white.[1] The number of non-white students admitted to medical colleges has increased in the last few years. Professor J R van Dellen, dean of the faculty of medicine of the University of Natal, and Professor J P de V van Niekerk, dean of the University of Cape Town Medical School, provided data that show a definite increase in the numbers of non-white students admitted to their colleges (fig 1, 2).

The distribution of doctors is skewed in favour of urban areas and the Western Cape province, which has nine times more doctors than the northern Transvaal (fig 3). More than half of South Africa's doctors are in the private sector and serve 20% of the population. In 1989 the ratio of general practitioner to population was 1:1855, and the ratio of private general practitioner to insured population was 1:685.[1]

By First World standards, South Africa needs more doctors. But it needs them in the right places: mostly in rural South Africa or black townships. It can produce more doctors—a long and expensive process; import them, as Britain and United States did in the 1960s to remedy the immediate shortage; entice back the several South African doctors who have left the country; or try and redistribute them equitably.

TABLE I—*Doctors per 1000 population (1988-92)*

Mozambique	0·02
Nigeria	0·15
Chile	0·46
South Africa	0·61
Peru	1·03
Britain	1·40
Brazil	1·46
Greece	1·73
United States	2·38

Source: *World development report 1993: investing in health*. Oxford: Oxford University Press, 1993: 208-9.

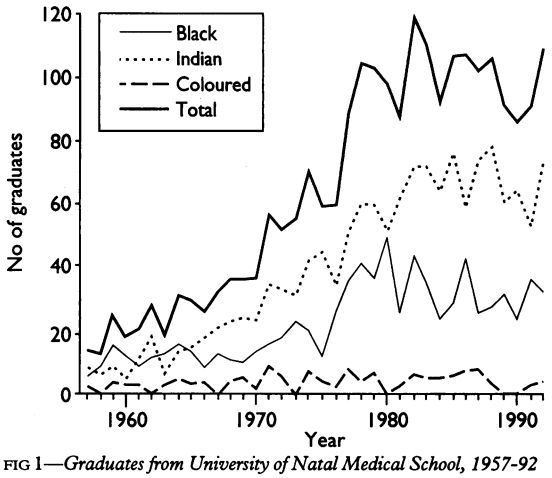

FIG 1—*Graduates from University of Natal Medical School, 1957-92*

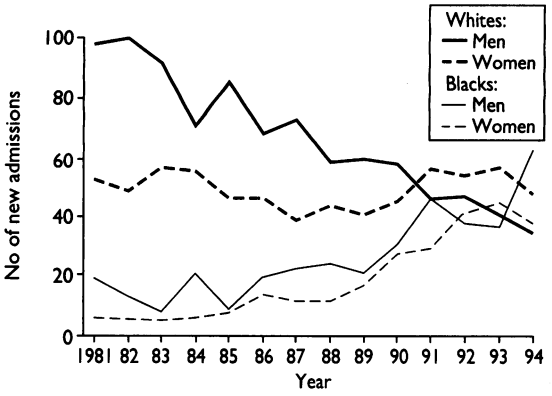

FIG 2—*New admissions, University of Cape Town Medical School, 1981-94*

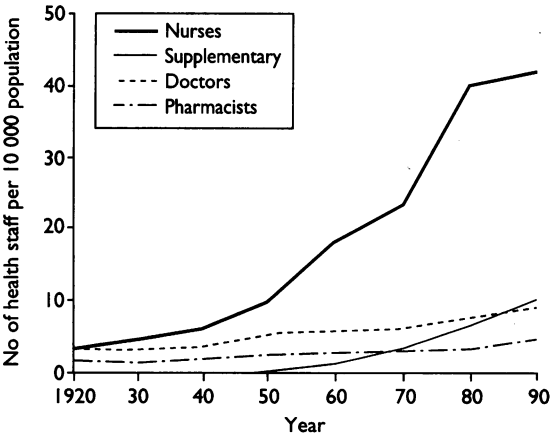

FIG 3—*Health team members per 10 000 population, 1920-90*

The situation with regard to nurses seems better than that for doctors (fig 4). Their numbers have increased at a faster rate than have doctors in the past 70 years. At present there are over 155 000 nurses in South Africa. South African nurses are well trained, and many of them are trained to deal with medical problems independently. Most doctors I spoke to rated the nurses' standards highly. This was especially true of paediatric and obstetric care, and also of primary level care in rural areas. Said Professor van Niekerk, "In this country most of the deliveries are done by midwives and done very effectively, done very well. We train nurse practitioners in paediatrics who deal with 90% of the problems more effectively than general practitioners would."

Medical carousel

South Africa has recently become a more active participant in a global phenomenon which Daniel Ncayiyana, editor of the *South African Medical Journal*, calls the medical carousel. Doctors from India move to Britain because they are unhappy with what India has to offer. British doctors move to Canada or the United States for a similar reason. American doctors, in turn,

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BMJ 1995;310:1307-11

go to India or Africa to work as missionaries, though the numbers are limited.

Many doctors from South Africa are leaving for greener pastures in Australia, Britain, Canada, and the United States. Recent data are not available, but between 1975 and 1981 as many as 30% of recent graduates from the older English speaking universities left South Africa.[1] They found it easy to get jobs in these countries because they were trained well, spoke English fluently, and were white. The political situation in South Africa was often an opportune excuse. Those who stayed on either had much to lose in South Africa professionally or were highly motivated.

What is the trend among medical students? Do they seek greener pastures? Naseema Karbanee, a final year medical student from the University of Cape Town Medical School, said: "They definitely do. There are a hell of a lot among my peers who want to go overseas. The United States, Canada, and Britain are the places they want to go to. Most of them say that they are not planning to emigrate. They say that they want to work for a few years and come back. They took a poll in our class a year or two ago about the number of students who plan to leave the country. Something like three quarters were planning to go."

I asked Daniel Ncayiyana, a former exile, the reasons why South African doctors leave the country. "In the apartheid regime it was primarily for political reasons. Some left because they did not want to serve in the army then, some because they feared that political events might lead to extreme violence. Many who left as exiles will come back as they left involuntarily and could not come home."

Professor J P deV van Niekerk was concerned about the flight of medical expertise from South Africa. "We have lost very senior people to the better places overseas already. There has been an exodus of outstanding people, though we have been more lucky at the medical school in Cape Town." He felt that most people left the country not for political reasons but for socioeconomic ones. I asked him if there would be a reverse flow of talent after the generally peaceful elections and the changed political situation. Professor van Niekerk felt that not many would return. "There are people who wish to come back, but there is no incentive for those who left for economic reasons to return," he said.

Daniel Ncayiyana agreed. "Those who left for economic reasons are not likely to come back. But, well, those we probably don't need here. We need people who are committed to South Africa as it stands. In the past, South Africa trained white doctors only. They are very comforable going abroad. When they train more indigenous doctors, you will find a greater proportion staying here."

A threat to other countries

Better salaries and working conditions attract many doctors from other African countries to South Africa. Thus, South Africa's relative prosperity and its shortage of doctors are a threat to the health of these already impoverished countries. Said Professor van Niekerk, "We are a grave danger to the rest of Africa in that many African doctors are desperately keen to come here. I get two or three letters every week from doctors who want to move here."

I asked Dr J H O Pretorius, deputy director general in the department of health, about recruiting foreign medical graduates with lower standards to remedy South Africa's shortage. "We will not open the doors for rejects or badly qualified people from other countries to look after our patients. Our patients are our concern and our responsibility," he said.

William Pick, a professor of community medicine in the University of Witwatersrand Medical School in Johannesburg, is in favour of getting doctors from abroad into South Africa. "This is already happening. Many Zimbabweans and Ugandans are coming down here now. We had 256 doctors leaving in one year when we had political unrest, I think it was in 1985. We may see a flight of doctors again. We have many doctors applying to come here, so if our doctors leave we will get other doctors. But I don't think all our doctors are going to leave either."

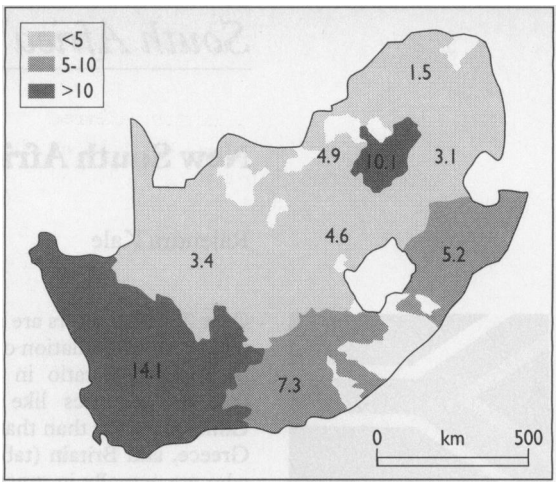

FIG 4—*Registered medical practitioners per 10 000 population, 1992*

Dr Pick said that he did not expect doctors from abroad to be familiar with African life. "If you come from the Philippines we accept that you will not have skills required for South Africa. Our graduates are also not prepared for our rural medicine."

Earlier, doctors from eastern Europe were encouraged to work in South Africa by the apartheid regime because they were white. Their professional standards were questionable, knowledge of African life negligible, and English poor.

Doctors and health indices

I asked Dr Pick what effect emigration of doctors would have on South Africa's health. He did not place much importance on the role of doctors in health care. "Doctors leaving the country in large numbers might affect our tertiary care. It will not affect our mortality ratios. The infant mortality rate came down in Mozambique in spite of doctors leaving the country. This is because reducing mortality isn't a result of doctors' activities. Mortality figures go down when you prevent people from dying not because of medical intervention when somebody is about to die or is half dead. That is what doctors do. That is also where the money is spent."

Dr Jerry Coovadia, professor of paediatrics at the medical school in the University of Durban, agreed to some extent. "The first level of health care is in the home and the next in the villages, where doctors don't play a role. But they have an important role in organising and managing community health services."

Green felt that doctors are necessary for health care. "They do not have to be the first referral service. That can be done by health workers and nurses and so on. but if these are not backed by doctors then the whole system falls into disrepute and is not trusted by the users."

The point made by Dr Pick is, however, important. The health profile of a country is judged by indices like infant mortality and prevalence of infectious diseases. Providing better housing, sanitation, food, and community health services including immunisation can improve these indices and the health profile of a country. Doctors are not necessary for these activities,

and the importance of doctors in improving the health indices of a population is overemphasised.

Good nurses preferred

I asked Ralph Kirsch, professor of medicine in the University of Cape Town Medical School, if employing foreign medical graduates results in a lowering of standards and a two tiered health service. Said Kirsch, "You are absolutely right. In the past that was allowed (employing foreign doctors). Now they must sit for the same final exam as our students and pass it.

"But I would prefer a South African nurse who spoke the same language, who understood the patient's culture, to an inferiorly trained doctor. In the long term the practice of employing second rate doctors would weaken our system because it would be perpetuated. We can't start graduating or recruiting second class doctors. If the government says, 'We can't afford these First World doctors; produce for us some second rate doctors,' we will destroy the system for ever. I will oppose any government which says produce second rate doctors."

The story in South Africa today is similar to that in Britain and the United States in the 1960s. The shortages are real and the pressure to provide doctors in deficient areas is high. The threat that South Africa poses to other African countries is real. The problems known to occur after recruiting foreign medical graduates will be seen inevitably here too. The medical carousel is set to spin faster in South Africa.

Making doctors go to rural areas

Doctors all over the world are generally reluctant to go to rural areas. Would the situation be different in South Africa? I asked Naseema Karbanee if she and her colleagues wanted to practise in rural areas. "Most of us don't want to go. Students feel that it is a good idea but I don't think that anyone is too keen on it.

"Many people are worried about their personal safety. I don't have personal experience but that is definitely a big concern, especially for women. We do a community medicine block in the final year, and we had the option of going to the Ciskei, a rural homeland. It just so happened that we were a group of women, and none of us wanted to go there by ourselves. It was also very close to the time of elections.

"There is also the fear of ignorance. You do not know what you are going to find there. The training we receive here is really in tertiary care. We don't even see the cases that present to the day hospitals around here."

What would make students go there? "Either remuneration or legislation," said Naseema Karbanee. "Another way would be to insist on some form of compulsory service as a prerequisite to being eligible to become a general practitioner," she added.

Chris Barnards or general practitioners?

Like their counterparts in most parts of the world, do most South African medical students prefer to specialise rather than become general practitioners? Karbanee said that most of her friends, including herself, intended to specialise. "I don't know how many of us will actually do it. Maybe more of us will end up doing general practice but that is not what most of us intend to do at present. I asked Professor van Dellen, himself a neurosurgeon, what would make medical students prefer general practice. He said, "Students are influenced by what they see around them. We need to get the Chris Barnards off the pedestal."

Daniel Ncayiyana feels that to expect doctors to go to rural areas is a pipe dream. "One major fundamental change we must make is the way doctors are remunerated. If you pay doctors more for performing an ultrasound or a CT scan or for operating and you don't pay them for advising a patient for, say, over half an hour on health care, you will never get health care going. This old paradigm has to change.

"If you create incentives that are clearly identifiable for people to go and serve in underserved areas then you will begin to change things. We South Africans have to come up with a new formula that nobody else has thought about. Otherwise we will end the same as India or America and so on."

Unfounded fears

I asked Daniel Ncayiyana about the fears for personal safety of doctors working in the rural areas. "This kind of fear is unfounded. You are much more at risk of being killed, raped, and violated in Johannesburg. You can go to Transkei or Ciskei and sleep with your house wide open and nothing will happen. This is a matter of perception and can be corrected.

"There are, however, other disincentives in going to rural areas in that there are no proper schools for your children, the housing is not good, and you can't do proper shopping. These are the things that can be addressed. But the rural areas in the country are the safest places to be at the present times."

I asked Professor van Niekerk why his students were reluctant to go to rural areas. "You can't force people to go to such areas because you will force them out of the country or into the private sector. General practitioners here do not get the reward or status that their counterparts in Britain get. To make them go to such areas, you need more carrot and less stick.

"Where people go and how they work depends very little on the medical education they receive and depends a lot on socioeconomic and sociopolitical circumstances."

Dr Pick said he would be very surprised if South African doctors began volunteering to go to rural areas. "It is not going to happen. But we can improve the coverage by trying to get them to go to rural areas. We never really tried to send doctors to rural areas in the past. You must use a little bit of compulsion with young doctors. Money is only a part of it. Our students are urban people, and our teachers are urban people. Their role models are here."

Dr Laljith Dwarkapersad, chief medical superintendent of King Edward Memorial Hospital in Durban, said, "We need a programme like that in India where interns have to do a rural internship for a period. Give doctors a house, a school, and other facilities and doctors will go there. But why don't the politicians go to the rural areas and sort out the problems like sanitation first; why pick on the doctors?

Government's plans

I asked Dr Pretorius how the government planned to make doctors go to rural areas. "There are many issues involved," he said. Salaries or incentives on their own will not solve the problem. In the restructuring process we are looking at the downsizing of academic and tertiary care services. We are spending an enormous portion of our budget on our academic services. We need to downsize our academic system so that we can have more resources available to strengthen primary care. This means that our academic system should function differently. In the past our academicians worked within the gates of the hospital. We foresee an outreach responsibility for them to support the catchment area of the hospital. Any posts being created will

be linked to the university to provide options or advantages for staff working in rural areas.

"If you have your professor visiting you on a frequent basis or have him at the other side of the telephone, you will have more peace of mind when working in a rural area. What the young doctor fears is being left out there with enormous responsibility but without the knowledge and skills and nowhere to turn to.

"Another possibility that is being considered presently is whether we can have some form of licensing control for practitioners with respect to where they can practise. We could operate a formula by which newly qualified doctors will be licensed to practise only in underserved areas."

COMPULSORY SERVICE

Did the government plan to have any compulsory community service? Dr Pretorius replied that they had not yet decided about it—"simply because if you force people, their attitude is not necessarily going to be positive. It can be seen as very discriminatory if you force only the doctors but not the engineers or other professionals. This might also be seen as a disincentive to enter the health profession.

"We are considering some kind of compulsory service before getting full registration. Following that it will be unfair and even unconstitutional to prevent doctors from practising where they want."

Other health professionals

South Africa has a large body (table II) of well trained nurses and competent pharmacists, some of whom are trained to look after some medical problems

TABLE II—*Registered health care professionals registered in South Africa, 1992*[2]

	Number		Density per 10 000 population*
Medical doctors		25 375	7·5
Specialists	6 632 (26%)		
Dentists		3 998	1·2
Specialists	325 (8%)		
Nursing professionals		155 679	41·1
Registered	75 844 (49%)		
Enrolled	30 137 (19%)		
Auxiliary	49 098 (32%)		
Supplementary health professionals		29 727	8·8
Ambulance and emergency service assistants and technicians	855		
Anaesthetic practitioners	8		
Biokinetic practitioners	100		
Biomedical engineers	11		
Chiropodists	156		
Clinical biochemists	29		
Clinical technologists	338		
Dental therapists	166		
Dietitians	714		
Electro-encephalographic technicians	62		
Food inspectors	34		
Health inspectors	2 574		
Masseurs	37		
Medical technologists	3 913		
Medical physicists	75		
Medical scientists	364		
Medical orthotists and prosthetists	276		
Occupational therapists	1 648		
Optical dispensers	131		
Optometrists	1 219		
Oral hygienists	717		
Physiotherapists	3 150		
Psychologists	6 764		
Radiographers	3 595		
Radiation technologists	9		
Remedial gymnasts	3		
Speech therapists, audiologists and audiometrists	949		
Pharmacists		9 280	2·7
Associated health service professionals		569	

*Population figures, except for nurses, exclude Ciskei and Transkei, as these states do not require health professionals to be registered with the controlling boards of the Republic of South Africa.

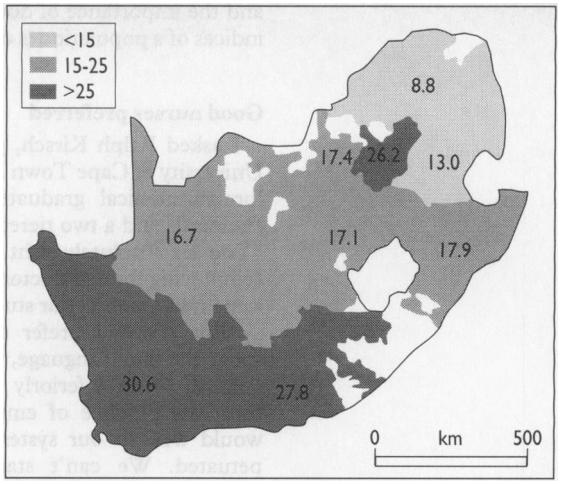

FIG 5—*Registered nurses per 10 000 population, 1992*

independently. Over 150 000 nursing professionals serve the population. Their distribution is also skewed: the Western Cape area has three and a half times as many nurses as northern Transvaal (fig 5). Dentists, pharmacists, and other supplementary health professionals are also maldistributed.

Nursing standards in South Africa are high. The number of nurses has risen, from 9·1 nurses per 10 000 of the population in 1950 to 40·2 in 1990. In 1990, of the nearly 150 0000 nurses registered with South African Nursing Council over half were Africans, a third were white, and over 21 000 were coloured.[1] Nurses make up more than half of the health professionals in the country (see table II), they constitute the backbone of public health care. Nurse midwives manage deliveries independently in community day care centres.

Most of the 2900 community pharmacists are concentrated in the urban areas. The effect of apartheid is evident in the ratio of pharmacists to people. One pharmacy serves 616 white people, whereas black people have one pharmacy to every 232 992 people.[3] Six thousand doctors practising in former black areas also dispense medicines, and pharmacists in these areas face competition from these doctors. Some pharmacists can undergo further training and can then dispense drugs that can otherwise be sold only with a doctor's prescription.

Fewer than 4000 dentists serve South Africa's 40 million people, and most are in private practice. Those who are not in the private sector do little besides pulling out teeth. The dentist to population ratio in the northern Transvaal region is 1:50 000, and it is even lower in the former homelands.

Plans for the future

Medical schools have set up affirmative action programmes, often by setting up "bridging courses" to upgrade the entry qualifications of otherwise talented black students from poor schools. This is expected to correct the skewed racial distribution of doctors.

Will South Africa produce more doctors? Academic institutions are already facing cuts in their budgets as funds are required for primary health care, which has been grossly neglected so far. In this financial situation increasing the production of doctors is unlikely.

South African doctors find rural areas and black townships inhospitable and are usually unwilling to work there. South Africa thus needs more doctors who are willing to work in such areas. A period of compulsory service, despite its negative appeal, is the option that South Africa is most likely to go for. Jobs in deprived areas might be taken up by increasing numbers of medical graduates from other developing

countries who prefer these jobs to working in their own countries. Another option would be to use increasingly the services of nurses and health workers for primary health care.

In summary, South Africa's medical workforce is inadequate and unevenly distributed. It is in a state of flux, with doctors emigrating from and immigrating to South Africa. The immediate shortage will inevitably be made up by foreign medical graduates. These problems are not unique to South Africa, and the way South Africa goes about solving them will be of interest to health planners in other areas of the world.

1 Pick W. The development of human resources for health in South Africa: ethical dilemmas post apartheid. In: Aoki K, ed. *Ethical dilemmas in health and development.* Tokyo: Japan Scientific Societies Press, 1994:93-115.
2 Department of National Health and Population Development. *Health trends in South Africa 1993. Human resources.* Pretoria: The Department, 1994:73-84.
3 Simpson D. Pharmacy in South Africa. *Pharmaceutical Journal* 1994;**253**: 685-92.

Letter from Chengdu

China takes to the roads

Ian Roberts

China is undergoing rapid motorisation—motor vehicle registrations are growing at a rate of 10%-20% a year. Road trauma is already a major public health problem, and road deaths, officially estimated to be around 50 000 a year, will almost certainly rise with increasing motorisation. China, with its millions of bicycles, currently has one of the most environmentally friendly transportation systems on the planet. However, as the trend towards car travel continues, the problems of congestion and environmental pollution so evident in the West will also become critical public health issues in China.

The gargantuan Chinese state was set moving in a new ideological direction by Deng Xiaoping at the Third Plenum of the Eleventh Party Congress in 1978. The economic reforms instituted to encourage private enterprise and promote sustained economic growth were a great success. Since the early 1980s, the Chinese economy has continued to gather momentum. Between 1980 and 1991, the gross national product per capita increased at a rate of 7·8% a year. Industry, fuelled by an exports boom, provided the thrust for economic growth. The immense internal market also contributed, with consumer products such as refrigerators, washing machines, and televisions becoming more widely available to the Chinese public.

The past decade has also witnessed a dramatic increase in motorisation (fig 1). Although by Western standards the levels of car ownership remain low, there can be no mistaking the trends. And the increase is likely to continue. A recent World Bank report on transport development in the Guangdon province of southern China, a province that contains three of China's four special economic zones, warned that shortages of transport threaten to stifle the region's burgeoning economy.[2] The report called for increased investment in road transport, observing that the fastest growing segments of the economy, light manufacturing and agricultural produce, require flexible, door to door services to be competitive. What the report did not consider were the health implications that these changes might have for both China and the planet. Overdependence on road transport, with the problems of traffic accidents, congestion, pollution, and social inequality, is now a critical issue in the West. Will history repeat itself in China? Last November I travelled to Chengdu in southwestern China to learn more about some of these issues at first hand.

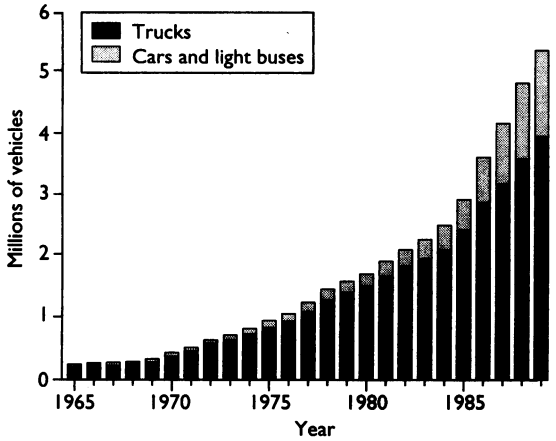

FIG 1—*Motor vehicles in use in China, 1965-89.*[1]

FIG 2—*Cycle lanes are separated from vehicles*

China's Sichuan province is slightly larger than France and has a population of 110 million. The capital city, Chengdu, lies at the heart of the province, midway between the high Tibetan plateau to the west and fertile alluvial plains to the east. Like other rapidly developing Chinese cities, Chengdu is a city under construction. The concrete skeletons of new office blocks and luxury hotels dominate the horizon. A road map of Chengdu looks like a dartboard. Inner and outer ring roads are linked by some 20 radial routes. These, in turn, are interconnected by a labyrinth of narrow alleys. At the bullseye is a colossal statue of Mao, his right arm raised, palm pressed outwards, signalling like King Canute to the waves of traffic on Renmin Nan Lu, the city's main throughfare.

Mass transit in Chengdu is by bicycle. During rush hour, the wide, separated cycle lanes flanking the major routes are rivers of (unhelmeted) bobbing heads (fig 2). At city intersections, retired Chinese

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BMJ 1995;310:1311-3