

Letter from Chennai

THE MARIE ANTOINETTE SYNDROME

Rousseau, in his *Confessions*, tells of a princess who, on being informed that the country people had no bread, replied, 'Let them eat cake.' This statement is generally attributed to Marie Antoinette, though there is no evidence that it ever passed her lips.

During the monsoon, our roads are converted into rivers. Our drains never seem to work. With every monsoon, water comes bubbling out of the storm water drains like a geyser from an underground spring, and brings sewage with it. Leptospirosis abounds. That is not all. Each time our roads are re-laid a layer of bitumen is spread on top of the road and then rolled in place. The level of the road rises by 3 inches. In my young days, each time a road was repaired, it was dug up to some depth and the foundations of the road were replaced with small stones, which we called road metal. Thus treated, the road level remained the same, and it used to last 12 years. Now it lasts only one monsoon, and a fresh surface coat is applied. The road keeps rising, and our houses and gardens sink below the road level. When the road is flooded, our gardens are too, and during a heavy and sustained downpour sewage-laden water enters our homes. Why in these days of improved technology our engineers cannot make a road last more than one heavy rain defies reason. Many citizens suspect the poor survival of roads is not from technical but from economic causes. This is planned obsolescence. Someone must have an interest in annual re-laying of the roads, and it is certainly not we the people.

The government informed us that there would be no fear of flooding in 2006. Marooned on the first floor of my house, with water flowing through the ground floor, I was not reassured. And if I have convinced you that I have troubles, imagine the plight of hutment dwellers, whose entire possessions are washed away every year.

The water spouting from the underground drains poses yet another hazard. It often lifts the manhole cover and moves it aside. We now have an open manhole concealed by a stream of muddy water flowing over it. Unwary souls wading through the water on the road could easily fall into these traps. Children have been known to drown there, and even adults may suffer serious and badly infected injuries.

We have many subways where the road dives under the railway line. 'Dives' is the right word. Excellence in engineering does not extend to ensuring that the subway stays reasonably dry in the monsoon. Water collects there, even in the newest of our subways that was opened only a few weeks ago. What we need is a ferry service to take us across the subway. Modern cars, especially those with electrically operated windows and automatic remote locking of doors, pose a new hazard. Mumbai faced the problem during its horrendous rains in 2005, and we had our first experience in 2006. Three people died trapped in a car whose doors and windows they were apparently unable to open.

The conditions are ideal for mosquitoes. Tamilians are dying of malaria and dengue, or are crippled by chikungunya. There has been an increase in cerebral malaria. How can we consider ourselves leaders in technology if we cannot curb the breeding of mosquitoes, if flooding is an annual problem, if year after year

slum dwellers see their homes washed away? One would think the government would devote every resource to control this problem. Instead, we experience the Marie Antoinette syndrome. We are told that 2.5 million TV sets will be distributed to the poor. When someone commented that they could not afford to pay for the electricity or for cable channels, our chief minister most philanthropically said he would provide both free of cost. If they cannot keep dry and healthy, let them watch TV when they are confined to bed with fever.

Is this proper use of public funds? Should entertainment take priority over good health? Yet the promise of TV sets was a significant factor in our last election. The people get the government they deserve.

SCHOOL HEALTHCHECK

Compulsory schooling offers a great opportunity to improve the health of the nation. A simple set of tests would enable us to detect disease in the young, and treat it at the outset. One does not have to go house to house in search of subjects. The *New Indian Express* of Chennai revealed that the medical officers of the Corporation had not checked students in Corporation schools for years. This is one news item that had a beneficial effect. The Additional Commissioner (Health) of the Corporation, in response to this news item, admitted the truth of the report, but said he would immediately take steps to re-introduce the health check-up.

THE CONDOM INDEX

The Tamil Nadu State AIDS Control Society (TNSACS) was formed in 1994 with the Secretary for Health as the president and a senior IAS officer as the project director. This has been a successful application of public-private cooperation. A number of non-governmental organizations (NGOs) have been associated with the work, and some 200 receive financial support from TNSACS. Some of the NGOs are involved in planning and implementing intervention programmes, and others are organizations of people living with HIV/AIDS (PLHA). A key component of the work is distribution of condoms with the help of NGOs.

Chennai's sales figures for condoms over the past few years have risen from 3.3 million in 2003-04 to 6.8 million in 2004-05, soaring to 12.9 million in 2005-06. Condoms are available in many new locations, fair price shops, bus stands and railway stations, movie theatres and petrol bunks, and through 480 condom vending machines all over the city. An official of TNSACS attributed the rise to increased awareness of HIV and the role of condoms in preventing its spread. A study by ORG-MARG reports an increase in awareness of HIV-AIDS in the general public from 23% in 1992 to 96.2% in 1997-98.2% in urban and 94.4% in rural areas. These figures seem too good to be true, but the rise in condom sales does indicate this trend.

FAMILY PLANNING

Whatever happened to the family planning programme? One point seems clear: it is the women who are keen and actively for it. Dr K. Manivasan, Additional Commissioner in the Health Department of the Chennai Corporation, announced the other

day that just 56 vasectomies were done under the aegis of the Corporation in 2005 against 14 000 tubal ligations. When you consider that it is so much easier to perform a vasectomy than it is to ligate the tubes, these figures are surprising. But then we have to admit we are a male chauvinist society and, since women have to bear the brunt of the extra burden of rearing children, they are more interested in restricting their families.

RURAL HEALTH INSURANCE

Karnataka has been among the leaders in this field. Dr H. Sudarshan and his Karuna Health Trust initiated a simple health insurance scheme for people below the poverty line. They pay an annual premium of Rs 30. This ensures that they will receive Rs 50 per day as compensation for lost wages if they need hospitalization, for a maximum of 25 days. This covers admission only to Primary Health Centres and other government hospitals. If they are admitted to a hospital, they are also allowed to purchase medicines for up to Rs 50 per day, which are not stocked in the hospital.

The government followed suit with the Yashasvini Scheme, in which a premium of Rs 120 per year allows the patient to have surgical attention at any one of a number of participating hospitals, to a maximum expenditure of Rs 100 000. The average occupancy of hospitals in Karnataka was worked out to be just 35%, so there is an incentive for the hospitals to take part. As

for the subscribers, their numbers indicate that they welcome the scheme—170 000 registered during 2004–05, 250 000 during 2005–06, and drew 170 000 in the first 9 months of 2006–07. The famous cardiothoracic surgeon, Dr Devi Shetty of the Narayana Hrudayalaya, is intimately associated with the scheme.

I do not know whether this will prove an economically viable proposition. It is an Indian trait to misuse any beneficial scheme, and thereby to kill the goose that lays the golden eggs. Insurance is often taken when a person knows he is ill and needs treatment, and he then strenuously tries to conceal a pre-existing condition. One hopes the relatively unsophisticated villager will not learn these tricks. If the scheme proves a financial disaster, it cannot be sustained.

Meanwhile, the Government of Andhra Pradesh has decided to introduce a similar scheme for people living below the poverty line. The premium will be Rs 100 per annum for an individual, Rs 300 for a family. The scheme covers cardiac, neurological and renal diseases, and cancer. Insured persons who develop any of these illnesses will be treated at government hospitals and participating private hospitals, with Rs 200 000 being the upper limit of cover. If expenses exceed this figure, the private hospital or the government will have to meet the shortfall. This will be a public–private partnership, with the state, insurance companies and hospitals involved. I hope it will work.

M. K. MANI

Letter from Glasgow

DEMENTIA, DRUGS AND DOING THE RIGHT THING

I remember a Scottish politician saying to me once, 'If you need to do something in politics, do the right thing, not the popular thing.' I know that some doctors think that the decisions we make for patients are relatively straightforward. That is, do no harm to your patients and, if possible, do them good. Unfortunately it is rarely that simple. In medicine, as in anything else we do, we weigh up the costs and benefits of our actions. We may not do so explicitly but we do so nonetheless. Every day health professionals decide to devote more time and effort to one patient than another, we agree to review someone earlier, we refer some patients for further opinions and not others, we treat some aggressively and others not so aggressively. These judgements are based on the evidence that health professionals have and their interpretation of that evidence.

I was thinking of these things as I pondered a recent issue I had to deal with—which groups of people with dementia should have access to acetylcholinesterase inhibitors and memantine in Scotland. In England and Wales, the National Institute for Health and Clinical Excellence (NICE) published its multiple technology appraisal (henceforth the NICE appraisal) on drugs for Alzheimer disease (AD) in November 2006 (<http://www.nice.org.uk/guidance/TA111>). The National Health Service Quality Improvement Scotland (NHS QIS) looks at NICE appraisals and decides whether they are valid for Scotland. This process is described at the following webref (URL):

<http://www.nhshealthquality.org/nhsqis/files/NICE%20Guidance%20process%20.pdf>.

For those who are not familiar with NICE appraisals, these look systematically at the clinical effectiveness (i.e. does it work in the routine clinical setting?) and cost-effectiveness (i.e. are the benefits worth the costs, monetary as well as non-monetary?) of health technologies (interventions) and make recommendations for their use within the NHS in England and Wales. Since the NICE appraisal does not apply in Scotland, NHS QIS has been given the responsibility by the Scottish Executive (Government) to look at their validity for Scotland on 'contextual' differences such as:

- The principles and values of NHS Scotland,
- The epidemiology (frequency, distribution and stage at presentation) of the disease or illness,
- The structure and provision of services in Scotland, and
- Other implications for NHS Scotland, e.g. remoteness and rural issues.

From our experience, it is rare for NICE appraisals to be not applicable in Scotland—as we say the science does not change between the NHS in England and the NHS in Scotland but the application of that science may do so.

Specifically, the NICE appraisal on drugs for AD makes the following recommendations (among others):

- The 3 acetylcholinesterase inhibitors—donepezil, galantamine and rivastigmine—are recommended as options in the

management of people with AD of moderate severity only.

- Only specialists in the care of people with dementia should initiate treatment, and carers' views on the patient's condition at baseline should be sought.
- Patients who continue on the drug should be reviewed every 6 months by Mini Mental State Examination (MMSE) score and global, functional and behavioural assessment.
- Memantine (which is not an acetylcholinesterase inhibitor) is not recommended as a treatment option for people with moderately severe to severe AD except as part of well-designed clinical studies.

The NICE appraisal also states that people with mild AD who are currently receiving donepezil, galantamine or rivastigmine, and people with moderately severe to severe AD currently receiving memantine, whether as routine therapy or as part of a clinical trial, may be continued on therapy until it is appropriate to stop. As part of the contextual differences identified for this NICE appraisal, NHS QIS stated that general practitioners (GPs) in Scotland with experience in the care of dementia can initiate patients on these drugs as part of shared care protocols with specialists. This will ensure that people with AD who are eligible in remote and rural areas have access to these drugs.

It is important to recognize that the NICE appraisal reviewed the original appraisal in 2001 of the 3 acetylcholinesterase inhibitors—donepezil, galantamine and rivastigmine. In the 2001 appraisal, these drugs were assessed as being clinically efficacious and cost-effective for a wider group of people with AD. Therefore, the new NICE appraisal is more restrictive in its application. Consequently, the NICE appraisal's recommendations were resisted by professional groups such as the Royal College of Psychiatrists and patient groups such as Alzheimer's Scotland (www.alzscot.org) on the basis that the drugs worked in a wider group of patients than those indicated by the NICE appraisal, i.e. those groups of people with mild, and also severe AD.

For those in public health and decision-makers who have to make policy decisions, this issue highlights the difference, and difficulties, in making decisions about individual patients and about policies which affect populations. This is to take nothing away from the fact that AD is a difficult and heartbreaking disease for carers to cope with. Watching a person—a husband,

a father, a brother, a grandfather or whatever—whose memory and cognitive abilities atrophy while remembering them as they were, is one of the toughest things in life to adjust to. This is quite apart from the demands on carers for the love, care and attention that people with AD need. All this underlines the need for high quality multidisciplinary care for people with AD and their carers.¹

In my view, NICE have gone as far as they can with the evidence they have on donepezil, galantamine, rivastigmine and memantine. Indeed, some have argued that NICE may have gone too far with their recommendations with others stating that the drug issue has meant less discussion on the need for good services, a point made by Pelosi *et al.* in the *BMJ*.² I also think that clinicians and patient groups are missing a point. The issue is not whether these drugs work for AD—there is some evidence that they do—the crucial issue is whether the benefits of the drugs are worth the costs (monetary certainly, but also costs such as adverse effects on patients). I make no apologies for saying that cost-effectiveness must be one of the factors taken into account when deciding how healthcare budgets are used because if we use resources for something that is not cost-effective, then resources will be diverted away from other, more cost-effective, health interventions.

Of course for some, including journalists looking for an easy story,³ the issue is posed simply in terms of cost. It is not—health policy-makers have to make difficult, but necessary, choices about funding health services on the available evidence. Ignoring the evidence of cost-effectiveness on health interventions would be an abrogation of their responsibilities. So paraphrasing the first paragraph, it is important in healthcare to do the right thing, not the popular thing. On the evidence available to NICE, the NICE appraisal has done the right thing—recommending using the drugs for people with AD who will benefit most from them.

REFERENCES

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H. S. KOHLI

Letter from North America

DIAGNOSTIC MEDICAL IMAGING: REWARDS AND REGULATIONS

Medical imaging has increasingly become a vital part of healthcare in the past decade. The progress in imaging technologies not only resulted in improved patient outcomes, but also attracted the attention of Federal regulators to curtail its unnecessary use. Advances in applied engineering, physics and mathematics were put to use in biology and medicine. With phenomenal enhancement in computing power it became

possible to not only integrate these advances, but also to simplify imaging technologies for use by radiologists and physicians. Quicker and more precise diagnosis of disease within a short period of time has had a profound effect on patients. Medical imaging has redefined morbid and expensive procedures such as exploratory laparotomy.

Imaging is now an integral part of patient care in almost every field. Most of the positive impact observed has been in the management of cancer, cardiovascular disease (CVD) and stroke,

to name a few. Imaging devices are used in the screening, diagnosing and staging of cancer, guiding cancer treatment, monitoring for cancer recurrence and facilitating medical research. Screening mammography has resulted in major improvements in the case of breast cancer. Sixty-three per cent of breast cancers are now diagnosed at an early stage with an estimated 5-year survival rate of 97%. Similar trends are seen in the management of other cancers. On an average, there are 5–6 computed tomography (CT) scanners, magnetic resonance imaging (MRI) scanners, and positron emission tomography (PET) scanners per 100 000 persons in the USA. The estimates for the 2005 sales of imaging devices in the US are US\$ 8.1 billion (sales for all medical devices is US\$ 108 billion, and the estimate for pharmaceuticals is in the range of US\$ 500 billion). Although direct costs of imaging devices appear relatively small, real costs are worth noting. Medicare spending for radiology services has increased from US\$ 5.6 billion in 1998 to around US\$ 10.2 billion in 2003. In 2004, the cost of imaging services reimbursed by all health insurers and paid for out-of-pocket by patients was close to US\$ 100 billion, or an average of about US\$ 350 per person in the USA. Moreover, the reimbursement paid to the physician for performing and interpreting an examination has historically been in part related to the total cost of the procedure. Thus, with the increase in the technical cost of the imaging equipment, the total monies generated by the procedure increase, and so does the relative amount a physician can earn.

During this rapid growth, radiologists have enjoyed a monopoly in hospitals. With time, other physicians, especially cardiologists, have jumped in to seize the opportunity to generate revenues through imaging procedures. In spite of the recent outsourcing trend, there is still a shortage of radiologists in the USA. Part of the reason is that diagnostic imaging has become a non-stop activity, which needs far more personnel than ever. Also, the number of images to be read per scan has increased due to sophistication in software and diagnostics, which facilitate imaging of anatomical structures down to a millimetre. Another debatable feature is physician-owned freestanding imaging centres. In the past, when most imaging was conducted in a hospital, an important part of the hospital revenue stream from this service would come from a technical component. Now, the technical component is earned by physician-owners of freestanding facilities, which have become attractive avenues for investments for physicians and others. During the past decade, the number of freestanding diagnostic imaging centres owned by radiologists, other specialists, private investors, or for-profit companies has more than doubled from approximately 2500 to over 5500. In response, many private insurers have narrowed their provider networks, required that selected imaging services be authorized in advance, and imposed other constraints to stem what they assert is, in some cases, unnecessary testing. Medicare has been slower to respond, but in February 2007, Congress shocked the imaging community by approving steep reductions in Medicare payments for certain imaging services. President Bush signed the measure into law on 8 February.

Radiologists argue that the real potential in imaging has yet to be explored. They claim that new imaging technology, especially imaging of real-time molecular processes, can be used to monitor response to therapy. Imaging can also be utilized to evaluate the response to new cardiovascular medications or devices, such as coronary CT angiography

(CTA) to evaluate long term effects of statins and stents. Also, the major progress in imaging technologies will be in minimally invasive oncology treatment such as focused ultrasound ablation of tumours and radiofrequency ablation (RFA). Minimally invasive diagnostic techniques can save costs in addition to making monitoring more feasible. For example, a study claimed that if one million core needle biopsies are performed instead of surgical biopsies, the total savings could be as much as US\$ 1.6 billion per year in the management of breast cancer.

Radiologists also argue that unnecessary imaging for patients is augmented mostly because diagnostic imaging is being performed by physicians other than radiologists. Supporting this argument, by 2003, the share of Medicare payments to radiologists for imaging services had declined to 45% while the share received by cardiologists had surged to 25%. The Federal government and its agencies have instituted multiple measures to control the rising costs of diagnostic imaging. One approach some states have pursued is the use of certificate-of-need to blunt capacity growth. Michigan was the first state to require that mammograms be performed under specific rules that required machines to be in good working order and that those who operated them knew what they were doing. This was implemented because some general physicians had set up mammogram machines in their primary care practices without formal training and a few general practitioners even did mammograms on a standard chest X-ray machine. These scans were unreadable, uninterpretable and missed lesions, but the doctors still got paid for them. After Michigan took this step, Kentucky followed suit. Now there is a National Mammography Quality Control policy that has improved the use of mammography across the USA and several regulatory measures were proposed by Federal agencies.

The executive director of MedPAC, Mark E. Miller, testified that during the period from 1999 through 2003, the volume and complexity of imaging services grew by 45%. This is more than twice as fast as all physicians' services, which grew by 22% during the same period. He also noted the absence of a clear link between the delivery of more imaging services and better outcomes for patients, a wide variation in the quality of images that are produced and their interpretations, and the reduction in standards of quality that apply when imaging services are delivered in physicians' offices as compared with hospitals. His commission of 16 members unanimously recommended that Congress direct the Secretary of the Department of Health and Human Services (DHHS) to set quality standards for all providers who bill Medicare for performing diagnostic imaging services and interpreting these diagnostic tests. They also recommended that the Secretary should measure physicians' use of imaging services 'so that physicians can confidentially compare their practice patterns with those of their peers'; that the secretary should expand the National Correct Coding Initiative to improve the Initiative's ability to detect improper claims for imaging services; that the Secretary should reduce payments for multiple procedures for imaging of contiguous body parts; and that the Secretary should strengthen the rules that govern the investments that physicians may make to facilities to which they refer Medicare patients. Radiologists anticipated that the recently passed Deficit Reduction Act of 2005 would reduce the fees for imaging studies of contiguous body parts taken in the same imaging session, and they were right. Those fees are due to decline by 25% next year and 25% the year after that.

The trend in use and overuse of diagnostic imaging is also observed in India. With a population exceeding 1 billion and a gross national product (GNP) that surpassed US\$ 800 billion, India has begun to attract the attention of US medical device manufacturers. The country's GNP is projected to grow 4% per year through the end of the century. The Indian healthcare industry is estimated at US\$ 22 billion and the medical device market is estimated at US\$ 1.85 billion and growing at 15% per year.

Diseases with increasing use of diagnostic imaging such as CVD and cancer are on the rise in India. India is home to 60 million coronary heart disease (CHD) patients, with 30% below the age of 40. Two million deaths in India occur annually due to CVD. The World Health Organization (WHO) estimates that by 2010, as much as 60% of the world's CHD patients will be from India. Cancer is also becoming a growing concern in India with an estimated 100 000 suffering from cancer in 2007 versus 53 000 in 1985. Unfortunately, 70% of the cancers are detected very late. Breast cancer is of particular concern with over 80 000 women in India diagnosed annually and 40 000 dying annually. India is also home to over 1 million patients suffering from stroke, which is the sixth major cause of disability-adjusted life years. Strokes are the cause of 1.2% of the total deaths in India. India also faces the challenge of making healthcare affordable and accessible to patients not just in urban India but also in rural India and across a wide range of economic affordability.

No one has better realized the potential of future diagnostic imaging in India than General Electric (GE). GE is investing heavily in its 'In India for India' strategy. The healthcare division is tapping into the resources of the GE global research facility, The Jack Welch Technology Centre located in Bangalore, and the expertise of its global medical diagnostics team in the US. The Centre presently employs over 2700 scientists,

researchers and engineers, with over 60% having advanced degrees. The Centre has filed for more than 405 patents for research and development activities in Bangalore and been granted over 70 to date. GE Healthcare, a division of the US\$ 150 billion General Electric Company, has entered into a strategic alliance with Manipal Health Systems to conduct clinical studies of its diagnostic products in India. The trials will be conducted at the Bangalore-based Manipal Hospital, where GE Healthcare has set up the world's first integrated development centre (IDC). This IDC has equipment bought by the hospital for US\$ 7 million and has invested another US\$ 1.5–2 million for setting up the infrastructure of this facility. The information generated from the Indian IDC will be combined with data from other centres globally and contribute towards the development of new contrast and molecular imaging agents or new indications for existing agents. The GE equipment for clinical studies includes LightSpeed VCT, Discovery STe 16-slice PET/CT scanner, Dual Head Gamma with CT, and TwinSpeed High Definition Magnetic Resonance (HDMR) imaging systems. The GE Healthcare Indian division employs over 1000 engineers for research and development (up from only 150 in 2000), with 50% having advanced degrees such as a PhD or MS. Till February 2007, GE Healthcare in India has filed more than 400 invention disclosures with 128 patents granted, including 80 international patents and 40 country patents.

In this scenario, it is important to define the role of the new imaging modalities and their cost-effectiveness not only in resource-poor countries such as India but also in the wealthier nations of the world.

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