needs to build on the evidence that exists rather than working on the basis that it is 'a good thing to do'. While I remain agnostic about the effectiveness of an assets approach to reducing health inequalities, I most certainly believe that it needs to be tested and evaluated. Draining the swamps of alligators requires different and complementary tools. I would welcome it if an assets approach was shown to be an effective tool in the toolbox to drain the swamps and reduce health inequalities.

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Letter from Chennai

THE GIFT OF SIGHT

I will not vouch for these figures, but from the literature I gather there are 12 million people in the country blind in both eyes, and 50%–80% of them are due to cataract. Fortunately, this is the most eminently curable cause of blindness. Unfortunately, the majority of sufferers live in areas remote from cities and big hospitals. Once they are blind, they cannot travel independently, and the cost of seeking assistance must include the cost of an attendant travelling with them, and also the income lost by that attendant for the days he or she is away from work. Regular readers of these letters will be aware that I am strongly opposed to medical camps. However, diseases of the eye, and especially refractive errors and cataracts, are easily diagnosed in camps, and treatment is a one-time intervention, cataract surgery being done today with the implantation of an intraocular lens. Refractive errors can be treated the same day with the provision of appropriate spectacles. Eye camps therefore became the most common way in which charitable organizations and ophthalmologists rendered community service. My support for these camps, and my admiration for the magnificent people who give of their time, effort and money, extends up to, but stops short of, surgery. It is well-nigh impossible to provide a truly sterile theatre in camp conditions, and there have been horrendous instances of large numbers of people getting infected and having their eyes permanently damaged, sometimes having to be enucleated. This led to the government declaring a ban on surgery outside a properly equipped operation theatre, a most welcome restriction.

One way in which philanthropic organizations have overcome this hurdle is to use the camps only to pick up patients, and then arrange to transport them to a hospital, operate on them, and take them back home. Tamil Nadu has been blessed with two colossi, Dr G. Venkataswamy (sadly no longer with us) and Dr S.S. Badrinath, who revolutionized the practice of ophthalmology in the country. Dr Venkataswamy established the Aravind Eye Care System with its headquarters in Madurai, and Dr Badrinath set up Sankara Nethralaya based in Chennai. While both institutions have done great work in all aspects of ophthalmology, my brief today is the relief of blindness among the poor. I do not know who first devised the method of finding cataracts at camps and transporting them to cities for surgery, but the Aravind Eye Care system has refined the model. Their camps are carefully planned. People are informed in advance by a person roaming in an autorickshaw and making announcements, by printed posters, and by word of mouth. People with visual problems turn up at the camp and are diagnosed there. Treatment that can be given on the spot is administered, those who need surgery are given a date to come to the hospital. On the appointed day they are picked up in a bus and taken to the nearest Aravind hospital, operated, and returned to their villages on the same day or the next. Many of these people act as unpaid recruiting agents for Aravind. They recruit patients and arrange to bring them to the next camp, and thus to the hospital where their sight will be restored. Aravind manufactures its own intraocular lenses. They have a unique pricing system. The patient can decide whether she pays full charges, or half, or whatever fraction she can afford, or nothing at all. The full charges are set in such a way that patients who pay that rate are also subsidizing those who are treated at concessional rates or free. The rates were set (in 2010) at a minimal charge of ₹550–₹850, a regular charge of ₹5550–₹9000, and a premium charge of ₹10 000–₹50 000. Any patient who wishes can have the procedure done at absolutely no cost. About 200 000 cataract operations are done each year by the entire Aravind Eye Care system.

As for errors of refraction, the procedure of testing vision and provision of glasses can be done with ease in a camp, and Aravind provides some 90 000 pairs of glasses in a year.

While this outreach model makes it easy for the poor rural blind to obtain relief that will restore to them a good quality of life,

there are still many who cannot avail of this. The blind or near-blind cannot travel on their own to the camp, which might be 10 km from their own village. If they have to go to the city, they need some friend or relative with good vision to accompany them, and that person will have to sacrifice his or her income for a day or two.

The other giant ophthalmic system of southern India, Sankara Nethralaya, has devised another model that could take care of this problem. In association with the Indian Institute of Technology, Madras, Nethralaya planned and constructed a mobile Eye Surgical Unit. Dr S.S. Badrinath, Chairman Emeritus of Sankara Nethralaya, and Lt Col N. Raghavan, Advisor Projects, kindly arranged to show me the unit in detail. The unit includes an area where patients are prepared for surgery and the surgeons can change into theatre clothes, and another that houses the sterilization unit and the operation theatre complex. If all this were accommodated in one vehicle it would have to be huge, and so large a vehicle would never be able to negotiate our narrow country roads. The planners from Nethralaya and the IIT instead split the unit into two vehicles, each mounted on a standard bus chassis. Both are driven independently to the camp site where they are parked side by side and a completely covered passage is set up between the two. When the vehicles are being driven this vestibule is retracted into one of the vehicles. Each bus has four hydraulic jacks that are lowered onto the ground and stabilized, so that no movements or tremors would disturb the surgeon during his delicate operations. The buses have their own generators to provide electricity. An air handling unit filters and cools the air and a reverse osmosis unit takes water from the local sources and turns out pure water for the needs of the operation theatre. The interior of the Mobile Eye Surgery Unit is lined with stainless steel for efficient cleaning and sterilization. Microbiological tests are done in the unit itself and operations start only when sterility is established and confirmed. Patients are prepared and appropriately gowned, local anaesthetics are instilled in the eyes, and then they are led through the vestibule to the operation theatre unit where the surgeon does the surgery with as much ease and convenience as he would command in the theatres of the main hospital in Chennai. The patient is sent home the same day, and called again the next day to confirm that all is well, and then to prescribe any further corrective glasses if needed. Sankara Nethralaya also has a vehicle with a variety of spectacle frames and a facility to grind suitable lenses on the spot, so that these patients, and others with refractive errors, can have glasses provided for them at the village itself. The benefit to those who cannot travel on their own to the base hospitals, and who lack people to accompany them, is priceless.

The vans do not come cheap. The two vehicles between them cost ₹52 lakh, and with the rest of the equipment including air handling and reverse osmosis units, medical equipment and furniture, the total cost of the mobile operating unit came to around ₹96 lakh. When you add the cost of fuel for transport and for the generator, it would obviously cost more to run this mobile unit than to take all the patients to the main hospital and have them operated there. Detailed costing has not been done as yet as the mobile unit has only recently been deployed, but a rough estimate that was given to me was that one cataract procedure would cost around ₹3500 if the patient were brought to the main hospital, and ₹5500 if the operation theatre were driven to the patient.

Since surgery outside a hospital operation theatre was banned, Sankara Nethralaya had to obtain special permission from the Ministry of Health and Family Welfare, Government of India to deploy this unit. This was granted for a pilot trial, and accordingly 451 cataract operations were performed in backward areas of Pernambut and Jolarpettai in Vellore district between December 2011 and March 2012 with no complications, and another 52 in February 2013 in Tiruvannamalai, also with no complications. The unit has now been cleared for regular use, and as I write this another camp is under way in Sri City on the Tamil Nadu–Andhra border. Sankara Nethralaya has plans to add more such mobile units and expand their area of operations.

Of all the disabilities that plague mankind, none is more distressing and crippling than the loss of sight, and no boon can be greater to a blind person than its restoration. I salute these two great institutions, and all the other hospitals and ophthalmologists who do not lag behind in their endeavours to eliminate blindness. However, since I am obsessed with prevention, I would also appeal to them to tackle the problem from the roots, and see in what way they could prevent the formation of cataract in the first place.

WATER, WATER, EVERYWHERE, AND NOW WE CAN DRINK IT ALL

I do not know whether it is just advancing age, but every year seems to me to be hotter than the last. Summer has hit us earlier and with greater severity this year. To make matters worse, our water supply is in perilous straits, with the last monsoon having failed. We have abundant water in the Bay of Bengal that laps our shores, and the government has decided to tap this source to quench our thirst. The first desalination unit was commissioned in 2010, but that is in the private sector and Metrowater (our city corporation's water supply and sewerage board) buys it at a cost of ₹48.66 a kilolitre that includes the capital cost, as the plant will ultimately be bought by Metrowater. The second unit, inaugurated by the Chief Minister in February 2013, is owned by Metrowater, and water will cost ₹35 per kilolitre, including capital and operating costs. This plant can treat 100 million litres of sea water each day. The sea seems to be the only reliable source for the thirsty city.

GOVERNMENT NEPHROLOGISTS ARE A HAPPY LOT

For once I can keep an entire letter from Chennai cheerful. The monthly clinical meeting of the city nephrologists was held at the Government General Hospital in April, and I found all the government nephrologists in a buoyant mood. The General Hospital has a spanking new dialysis unit which puts all private sector units in the shade. It was donated by a charitable trust, but the Chief Minister's insurance scheme provides funds to keep it running. Each insured patient brings ₹8000 a month to the dialysis unit, and with some supplementation from a few paying patients and charity, the unit runs smoothly.

I too am happy for the patients, but all of us realize that this cannot sustain the state's demands. The General Hospital unit has 14 beds and will run two shifts a day, maintaining patients who are registered for the deceased donor programme till they obtain their grafts. While Tamil Nadu leads the country in organ donations, the supply is still far from adequate to meet the demand, and it will not take long for this new unit to be filled up. And what will happen after that to the patients who land up in end-stage renal disease? It will be death as usual.

The government still does not realize the value of running an efficient and cheap prevention programme that will keep people healthy, instead of spending thousands of times the amount to save a few of them.

M.K. MANI