Letters

Diabetic retinopathy: time for action. No complacency please!

Editor – The importance of diabetic retinopathy as a cause of blindness has increased because of longevity and decline in the other preventable causes of blindness in developing countries (*1*). A diabetic can have a serious eye disease and not even know it until irreversible vision loss has occurred. It is estimated that by the year 2010 the world diabetic population will have doubled, reaching an estimated 221 million (*2*). The timely diagnosis and referral for management of diabetic retinopathy can prevent 98% of severe visual loss (*3*). Early diagnosis and treatment of diabetic retinopathy in Sweden has resulted in the virtual elimination of blindness due to diabetic retinopathy (*4*). An estimated 2–5% of diabetics have proliferative diabetic retinopathy (*5*) which, if not treated, causes blindness in more than 50% (*6*). Therefore it would be correct to state that the underlying cause of blindness in the majority of diabetic patients is not diabetic retinopathy but the misdiagnosis of diabetic retinopathy. To achieve near universal coverage, the screening method should be community-based and the point of delivery within easy reach of the population.

Currently, yearly dilated direct ophthalmoscopic examination seems the best approach but the number of ophthalmologists available is the limiting factor in initiating an *ophthalmologist-based* screening service in most countries. Because of this, screening will have to be organized in an "ophthalmologist-led" system rather than an "ophthalmologist-based" one in most communities. It is a sad state of affairs that a strategy which is cost-effective and has proved its worth (*4*) is not being implemented by many countries. Despite the fact that most diabetic patients attend some sort of health facility, their eye disease remains undetected because it is not looked for until the patient is symptomatic. Clearly, a "team" approach to screening, detecting, managing and monitoring the complex facets of this disease will serve the best interests of the patient. The present need is to make screening for diabetic retinopathy mandatory by all sufficiently trained health care providers, at least for all diabetic patients attending any sort of health care clinic. We must respond now, not with excuses but with action. ■

Lalit Verma,[1] Gunjan Prakash,[2] & Hem K. Tewari[3]

Conflicts of interest: none declared.

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Societal variables are central to effective HIV intervention models

Editor – Nagelkerke et al. (*1*) model the impact of interventions to prevent HIV transmission in India and Botswana to provide evidence for policy-making. Behavioural interventions focused on sex workers, treatment of sexually transmitted infections, mother-to-child transmission, and highly active antiretroviral therapy (HAART) for female sex workers and the entire infected population. In this model, HAART targeted at sex workers would have limited sustained effectiveness among sex workers in contrast to behavioural interventions which would drive the epidemic to extinction in India.

While Nagelkerke et al. outline many assumptions underpinning their model, they do not acknowledge the heterogeneity of the HIV epidemic across India. India has multiple HIV epidemics which are driven by distinct patterns of risk and vulnerability (*2*) and these are, in turn, driven by diverse social and economic factors. It is the disparity in these societal variables which renders assumptions about the extent of risk and the effectiveness of any intervention across the country problematic.

Whilst modelling can aid in priority-setting, the authors must rely on assumptions and simplified characterizations of complex realities which carry significant ramifications for the validity of the results and HIV prevention policy in general. For example, such assumptions include the targeting of sex workers in sites where condom promotion and distribution may be feasible. Some interventions with brothel-based sex workers in India have achieved remarkable success in reducing risk behaviours (*3*). In many areas of India, however, sex workers operate from home or on the streets and are less easily reached by public health interventions – including condom promotion or HAART. Sex work remains illegal in India and police may consider possession of condoms by women as evidence of sex work. Similarly, interventions using HAART require a functioning health care system. In India, over 75% of outpatient care is in the private sector, much of which is described as "low quality" and provided by "untrained practitioners" (*4*).

There is increasing recognition of the importance of addressing societal factors to curb the HIV epidemic (*5*). Over (*6*) has suggested that eight societal

[1] Additional Professor, Dr Rajendra Prasad Centre for Ophthalmic Sciences, All India Institute of Medical Sciences, New Delhi, India.
[2] Junior Resident, Dr Rajendra Prasad Centre for Ophthalmic Sciences, Room # 12, Hostel # 8, All India Institute of Medical Sciences, New Delhi – 110029, India (email: gunjan_prakash@rediffmail.com). Correspondence should be addressed to this author.
[3] Professor, Dr Rajendra Prasad Centre for Ophthalmic Sciences, All India Institute of Medical Sciences, New Delhi, India.

variables explain more than half of the differences in urban HIV prevalence between countries. Understanding societal variables (such as caste, gender relations, power in sexual relationships, etc.) may help in determining the future spread of the epidemic and contribute to explaining the local effectiveness of public health interventions – such as programmes to reduce risk for sex workers.

In addition to targeted behaviour change interventions, the HIV epidemic in India may be contained through a multisectoral approach that takes into account the highly diverse nature of behavioural, social and economic risk and vulnerability. Improved understanding of the contribution of societal variables is necessary in order to produce models that reflect the impact of addressing these variables on overall HIV incidence in India. ■

Prasanna Kumar,[1] **Sarah J. Hawkes,**[2] **& Kent Buse**[3]

Conflicts of interest: none declared.

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Global response to antimicrobial resistance

Editor – In a recent issue of the *Bulletin*, Smith & Coast (*1*) succinctly reviewed the emerging global scourge of antimicrobial resistance (AMR). Nevertheless, their strategies for containment of the emergence and dissemination of AMR in Table 1 do not include an evaluation of the potency and bioavailability of antibiotics, probiotics or vaccines being offered to the public worldwide. Plausible host factors or pharmacokinetics of drugs have also been ignored.

Antimicrobial agents require constant storage within a controlled temperature range: from either subzero to 2–8 °C, or 15 to 25–30 °C (*2*). Inadvertent exposure to extremes of temperature or humidity would alter their potency. This was evident during a Nigerian field trial when the active ingredients in 48% of the samples of common medicines were found to be outside the limits specified by the British Pharmacopoeia (*3*). Identical scenarios may occur with antimicrobial formulations elsewhere. Such formulations would be ineffective against microbial replication and, being lower than the required antibiotic quantum, encourage selection and dissemination of resistant microbes.

Obviously, any response at local, national, regional or global levels to manage AMR will not be effective unless losses in potency and bioavailability of antimicrobial agents are monitored regularly, including during their administration. Simple assay formats that could accomplish qualitative and quantitative analysis of antimicrobial agents in the clinical and household setting should be standardized. Recently, Green et al. (*4*) proposed a quick and simple field test requiring few chemicals and no sophisticated equipment to identify artesenuate, an antimalarial drug. Identical tests for frequently used antimicrobial agents would confirm the quality of the antibiotics or probiotics being consumed.

The addition of chemical stabilizers may well help retain the potency of antibiotics and probiotics in adverse environments. The least stable of the common childhood vaccines, oral polio vaccine is stabilized by the addition of pirodavir and deuterium oxide (*5*). Pre-stabilization of therapeutics would not only prevent emergence and dissemination of AMR, but be cost-effective.

Host-induced factors could alter the efficacy of therapeutic agents offered against microbial infection. For example, any concurrent formulations of antacid containing magnesium hydroxide or aluminium hydroxide alter the efficacy of orally administered therapeutic agents. The bioavalibility of ciprofloxacin would be reduced drastically with a concurrent administration of milk (*6*). Such eventualities cannot be ignored and should be eliminated by assaying the maximum drug plasma concentration, including the area under the assay curve. Undoubtedly, simpler tests to measure drug concentration in saliva or urine, rather than in blood, could be employed. These tests would be important assets for the global effort to tackle AMR (*1*). ■

Subhash C. Arya[4]

Conflicts of interest: none declared.

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[1] Assistant Director of Health Services (AIDS), Kerala State AIDS Control Society, India.
[2] Honorary Lecturer, London School of Hygiene and Tropical Medicine, London, England.
[3] Assistant Professor, Yale University School of Medicine, Room 301, 60 College Street, New Haven, CT 06520-8034, USA. Correspondence should be addressed to this author (email: kent.buse@yale.edu).
[4] Research Physician, Centre for Logistical Research and Innovation, M-122 Greater Kailash – Part 2, New Delhi 110048, India (email: subhashji@vsnl.net).