the two schools have remained responsive to the students' learning context needs by retaining a text-led mode of distance learning amidst strong pressure to switch to web-based learning. Surveys we have conducted indicate that only about 30% of our students are able to access the internet reliably for lengthy periods, making web-led learning at this stage possible for only a minority of African health and allied professionals. The web, however, remains a valuable support mechanism for our programmes, and its potential is regularly trialled and monitored and will be more fully developed when the context allows. So far SOPH has been able to offer two electives as CD-based options and one as a web-based course for those who have such access.

The programmes at the two schools are, we believe, innovative in several ways: the multidisciplinary curricula cater for a wide range of health professionals working at different levels of the public-health system; as far as possible, they are open-learning systems, allowing students to proceed at their own pace according to the time they have available. The development of applied research skills is given high priority, as is public-health professional development involving students in exploring a wide range of transformative strategies to address key problems facing public-health services in a developing country context. Aside from the pressure of combining work and study, students gain considerably from this pedagogical model, which facilitates the immediate application of theoretical concepts and models to their situations in the work arena.[3–5]

We believe that the only way in which Africa (and indeed other "developing" continents) can successfully address the human resource crisis, especially in public health, is by dramatically expanding access while simultaneously preserving quality service provision. Financially accessible distance learning provision, applied to practical public-health problems, offers such a possibility. ■

David Sanders,[a] David Guwatudde[b] & Lucy Alexander[a]

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Estimation of global visual impairment due to uncorrected refractive error

The paper by Resnikoff et al.[1] on the global magnitude of visual impairment caused by uncorrected refractive error published in the *Bulletin of the World Health Organization* in January 2008 does not refer to our previous publication[2] on the same topic in *BMC Medicine* that precedes their paper by about two years and is readily available in the public domain. The reason for this is unclear as our paper clearly shows up in a PubMed® search for both "blindness" and "visual impairment". In addition, the global estimates of blindness and visual impairment due to uncorrected refractive error made in our paper are know to the blindness community as they were presented at the World Ophthalmology Congress at Sao Paulo in February 2006. It is therefore surprising that Resnikoff et al. did not follow the usual norm of referring to previously published relevant literature. While there are differences in the inclusion criteria for studies in our paper and that of Resnikoff et al., with our paper using stricter criteria leading to fewer qualifying studies, and there were differences in the estimates of blindness and visual impairment due to uncorrected refractive error in the two papers, these should not be reasons for not referring to previously published work.

We estimated that globally there were 5 million persons who were blind due to uncorrected refractive error with distance vision worse than 3/60 in the better eye (plausible range 4–6 million), while Resnikoff et al. estimated this to be 8.2 million. Of particular note is that a large proportion of the estimate by Resnikoff et al. is due to the number in India, estimated as 3.15 million persons more than 50 years old who were blind due to uncorrected refractive error, which is 46% of their global estimate of 6.88 million for this age group. This is implausibly high and seems to have been influenced by data from a multistate survey done in India by Murthy et al., which reported that 5.34% persons older than 50 years had presenting visual acuity worse than 3/60 in the better eye which dropped to 3.37% with best correction, suggesting a very high improvement of 37% with refractive correction.[3] The estimate by Resnikoff et al. for India seems to be a direct application of this 1.97% absolute improvement to the approximate 160 million persons aged more than 50 years old in India in 2004 (in order to arrive at 3.15 million persons blind due to uncorrected refractive error in this age group). However, the paper by Murthy et al. also mentions that a fifth of the blindness was due to uncorrected or poorly corrected refractive error, which was for blindness worse than 6/60. Presumably this proportion would be lower for blindness worse than 3/60. This is at odds with the 37% blindness worse than 3/60 due to refractive error that could be derived from the data presented for improvement with refractive correction, which was apparently used in the estimate by Resnikoff et al., indicating that methodological issues related to these data and calculations need to be looked into carefully.

Our estimate for the number of persons in India who are blind due to uncorrected refractive error was less than half that made by Resnikoff et al.[1,2] Undoubtedly our estimates could be refined with further availability of data

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but we believe that the global estimate of 8.2 million blind persons due to uncorrected refractive error by Resnikoff et al. is an overestimate, largely due to the inclusion of an implausibly high estimate for India. While on the one hand we should not overlook blindness due to uncorrected refractive error as it can be addressed relatively easily, on the other hand we should be careful not to swing the pendulum in the other direction by overestimating it. Related to this issue, we have also published a proposal for revision of the definitions of blindness and visual impairment in the International Statistical Classification of Diseases that would take into account the inclusion of refractive error as a cause of blindness and visual impairment.[4] ■

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Author reply to: *Estimation of global visual impairment due to uncorrected refractive error*

In response to the letter by L Dandona & R Dandona,[1] we would like to point out that the study to which they refer (*BMC Medicine* 2006;4:6) – certainly a useful study in its own right – was not included in the references of our own paper as it informed neither the approach we took to our analysis nor the geographical scope of our work. Our study included data sources for all age groups from 68 surveys in 31 countries, chosen with epidemiological criteria different from those used by L Dandona & R Dandona, who derived their global estimates from nine surveys in eight countries. Our work presents an age-specific algorithm developed for missing data.

May we also point out a misinterpretation of our findings in this letter with regard to India. According to the estimated presenting and best-corrected blindness (visual acuity < 6/60) for people aged 50 years and older in 15 Indian states reported by Murthy et al.,[2] the reduction of visual impairment after correction is 42% and not one-fifth. The authors themselves point this out by saying that "the blindness load could be nearly halved by correction".

We agree with L Dandona & R Dandona's emphasis on the need for new definitions. This issue has been extensively discussed since a consultation on refractive errors held by WHO in 2000. The International Council of Ophthalmology adopted a resolution in 2002, followed in 2003 by a WHO consultation on the development of standards for characterization of visual loss and visual functioning, which led to significant changes in definitions and categorizations.[3] These have been subsequently integrated into the revision of the 10th International Classification of Diseases. ■

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Country ownership and vertical programmes in health, health information and health research

In the March 2008 issue, the *Bulletin of the World Health Organization* published two related items on the complex issue of ownership of health information in international health programmes and on the "vertical versus horizontal" nature of the health programmes responsible for generating this information.[1,2]

The first is an editorial by Sanjoy Bhattacharya of the Wellcome Trust, which highlights (once again) the divide between protagonists of vertical and horizontal health programmes, and makes a call for "adaptive verticality" to optimize the potential of international health programmes to integrate with primary health care systems in low-income countries and strengthen these in the process.[1] The second is a news item: an interview with Sally Stansfield of the Health Metrics Network in which she calls for country-ownership of health information and for "vertical" health programmes to integrate with and strengthen national health information systems. These she argues should become the source of information for improved public-health decision-making and, at the same time, for information needed by donors and by specific ("vertical") health programmes.[2]

The problems raised by Bhattacharya and Stansfield are not confined to the health sector nor to health information. On the contrary, the issue of ownership of data and the practice of vertical programming is, in many ways, far worse in the domain of health research. In most low- and middle-income countries, foreign-funded initiatives determine national health research agendas, even in countries in which governments contribute substantially to supporting national health

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