Seeds of Change

BY S SILVERTON, W MATHENGE

If you give a man a fish, he will eat once.
If you teach a man to fish, he will eat for the rest of his life.
If you are thinking a year ahead, sow seed.
If you are thinking ten years ahead, plant a tree.
If you are thinking one hundred years ahead, educate the people.
By sowing seed you will harvest once.
By planting a tree, you will harvest tenfold.
By educating people you will harvest one hundredfold.

Chuang Tsu

As I'm sure most readers of Eye News will be aware, 90% of global blindness is concentrated in the poorest countries. The British Council for Prevention of Blindness (BCPB) is a UK registered charity which funds training and research programmes to prevent blindness in these countries. The programmes aim to address the chronic shortages of trained people at all levels, as well developing detailed local knowledge and other research outcomes that improve planning, service delivery and treatments. The story of Dr Wanjiku Mathenge, an Ophthalmologist based in Nakuru, Kenya, who is better known as 'Ciku', helps to illustrate what we are aiming to achieve. Ciku was the recipient of BCPB's first Sir John Wilson Fellowship, and tells her story below. Reading it, I think you'll agree that Ciku's commitment to her work and determination to overcome all obstacles is inspiring.

First, some background. Our charity has been funding training and research projects to save sight for more than 30 years. For several years up until 2002, the charity had been funding general blindness research, including providing seed funding for research which lead to the development of Ivermectin, which now prevents 'river blindness' in many regions of Africa. Under the stewardship of Prof Andrew Elkington, who was Chairman of the charity from 2001-2009 (the charity is now chaired by Dr Jeffrey Jay) BCPB moved in 2002 to develop a strategic focus which would give us a sustainable niche in the field of blindness charities and a way forward in terms of fundraising and finances. We decided to focus on lesser developed countries (LDCs), recognising that there was a huge need for both trained people and local knowledge in blindness prevention there, and that we could build on our existing experience of funding training and research at MSc level. BCPB had been part-funding Boulter Fellowships (named after a BCPB founder, Eric Boulter) for eye care professionals from Africa and other developing world regions to study Community Eye Health at the London School of Hygiene and Tropical Medicine (LSHTM). This MSc programme equips students with the skills and knowledge they need to plan and develop eye care programmes at regional and local level in these countries.

We introduced Doctoral Level Fellowships, which we would fully fund from our own resources. Worth some £180,000 in total, Sir John Wilson and Barrie Jones Fellowships provide both new research-based knowledge about how best to save sight in developing countries, and personnel trained to Doctoral level who are equipped to become national leaders in blindness prevention. Projects fit with VISION 2020 objectives and priorities, and are selected by an Advisory Panel of experts chaired by Prof James Morgan of Cardiff University. All monies are administered here in the UK by our charity and by those UK universities where the research is supervised.

An application process was developed and we advertised the Fellowships for the first time in publications such as Eye News, in 2005. Dr Wanjiku Mathenge was

Dr Mathenge examines a patient.

chosen to become the recipient of the first Sir John Wilson Fellowship, and her project began in September 2006. She is supervised by Prof Allen Foster OBE, at the London School of Hygiene and Tropical Medicine, and is researching the prevalence and causes of posterior segment eye diseases in Kenya, in the context of planning for VISION 2020 in East Africa. The project provides data on incidence as well as treating patients at risk of blindness. On completion of her Doctorate Dr Mathenge would play a leading role in blindness prevention in East Africa.

As I write (January 2010) Ciku is in the writing-up phase of the project. I asked her to write her own personal account of the journey for this Eye News piece. It makes for gripping reading! She has battled through rough terrain and political upheaval to complete a survey of over 4,400 patients, every one of whom she examined personally – and somehow in the middle of all this Ciku managed to have another child too. On completion, she plans to take up a teaching post to pass on her knowledge and skills, and eventually to set up a Centre of Excellence in the region. This is just what we hoped for when we developed the Sir John Wilson Fellowship programme (see the words of the ancient Chinese sage Chuang Tsu at the top of this article) and I hope that the fruits of this investment will indeed benefit the people of East Africa for many years to come.

Dr Wanjiku Mathenge writes:

Why I wanted to be awarded a Fellowship, what I hoped to achieve personally and professionally, and why the work was needed

My first exposure to serious research was when I studied for an MSc in Community Eye Health at the International Centre for Eye Health (ICEH) in 2002. To be honest, I had joined the course expecting it to be extremely boring and irrelevant but a good one year break form routine clinical work in a busy District Level Eye Unit in Kenya. For my research then, I studied Vitamin A deficiency in prisoners in the same District I worked. It was fascinating and I caught the research bug.

By 2005 my previous supervisor, Prof Allen Foster (then of the ICEH), was still persisting in encouraging me to pursue research to higher levels. I believe he was impressed that I had managed to get into a prison in Africa to evaluate inmates - something he had struggled to do but failed while he was a medical officer in Tanzania. I was not keen to go back to working in prisons but I wanted to do research, and in particular something that was not only relevant to my work as a district ophthalmologist but also would answer some of the questions that challenged me in my care of patients and planning for my district. I wrote a proposal to study retinal diseases in my district. I knew this was an area in which I had been inadequately trained, had limited technology available to me for diagnoses, and even less for treatment, and yet I knew it was a leading contributor to visual impairment in my District. The LSHTM offered me admission, the Kenyan Ministry of Health approved my study leave and the only task then was to find a way to fund my studies. The team at ICEH suggested many options where I could apply for funding but when the Sir John Wilson Fellowship programme was launched by the British Council for the Prevention of Blindness, I spent days and nights putting all my energy into writing a suitable application, with a lot of help from colleagues who were eager to see me succeed. Finally in January 2006 I was offered the first Sir John Wilson Fellowship.

The story of the project work itself, the personal and professional journey (quite dramatic I know)!

For my project I set out to do a population based survey of posterior segment eye diseases to estimate their magnitude, distribution and associated risk factors. I was determined to do the study using all the gold standard measures that existed at the time and to use objective measures that could be re-checked and verified in future. That meant using high-tech equipment that would digitally back up retinal images, visual fields and even anterior segment data. I was expecting to unearth unexpected statistics and wanted to be sure they could be verified by anyone who wanted to. High-tech ophthalmic equipment costs a lot and the first task in my journey was to squeeze every last penny out of BCPB for the Fellowship so that I could afford the retinal camera recommended by Europe's leading Reading Centre, buy the latest Humphreys visual field analyser, an anterior segment optical coherence tomographer (OCT) and all the other equipment I would need. When I exhausted the very generous scholarship fund from BCPB, the Fred Hollows Foundation stepped in to support the last part of my course.

Once I got the funding my next task was to pass the first academic test: the upgrading exam that would officially allow me to study for a PhD. It was a thorough seminar at which I received invaluable guidance and feedback that brought reality, caution and sense to my "I can do it all" plans and focused my study down to manageable portions. In addition I was advised to visit the ongoing survey in

Dr Mathenge's team unload equipment.

Dr Mathenge's survey team on the road in Kenya.

Nigeria just to see how things actually worked on the ground. I found that trip extremely enlightening.

That done, the next challenge was to get all the equipment ordered, delivered and set up in my District without damage or loss. The able team at ICEH sorted all that for me and the Fellowship funds allowed me to bring in a senior technician from Moorfields Hospital to set up the equipment, train me in basic maintenance and even show me how to get it to work off a generator as half of my survey clusters (in rural districts of Kenya) would have no electricity supply. He set up backup systems for all the computers too. I have to say that I was impressed by how well my equipment handled being packed and unpacked daily for 200 days, being transported at the back of a truck on extremely rough roads, and working off very unsteady power supplies! Quality costs money - but it is worth it in the end.

The actual field work period spread over two years in 2007-2008; six months on, one year off and six months on, in a way I could never have predicted. The first unpredicted event was that I had a baby boy - born seven months into the survey, having worked in the field until the doctor stopped me. Just when I was ready to resume from the maternity break unprecedented violent political unrest broke out in Kenya - the worst of which covered 78 of my 100 clusters! The District Administration would not allow me to proceed for months, fearing my ethnicity would make me a target. I also needed to wait until all the displaced people could return to their homes before I could continue. Sadly, three key members of my survey team left the District and never joined us again. Eventually I did cover all 100 clusters and personally examined 4414 (88%) out of my 5010 enumerated participants.

Summary of the findings so far

I am now in the last stages of looking at what my survey revealed. I completely underestimated the pain involved in so much number crunching! But still, it has been more straightforward than the field work. Each analytic test has revealed such wondrous stories. Like the fact that my District has more blind men than women (which is really startling for a developing country, though not to me. Having realised early in my work as a district ophthalmologist how disadvantaged women were in accessing care, I have positively discriminated towards them....putting them first on operation lists, asking each old man about the state of his wife's eyes etc.). The data also shows me that the majority of women in my district are overweight by existing standards; amusingly, that just as many women take snuff as men; and more worrying, that half my study population suffer from high blood pressure. The ophthalmic results are revealing that the range of posterior segment diseases is as vast as anywhere else, ranging from toxoplasmosis to retinal detachments; that as expected diabetic retinopathy prevalence depended on duration of diabetes; and more surprisingly, that there is as much age-related macular degeneration in this population as has been reported in some Western populations. I look forward to getting more answers from my data.

Now that I know how much posterior segment eye disease there is, I feel I have to contribute to **ensuring that those who can benefit from treatment or rehabilitation can access both** in the region

What next? – next steps for this work and for me, for Kenyan/African eye care

I cannot help but look forward to the end of this PhD process. It has been an exciting time but a hard time too. Many things in my life have changed in the course of the last four years. There have been dramatic changes within my family, as well as changes in me as a person and as a professional. One of the things that has surprised me is how much more knowledgeable I feel. The skills that I have acquired at LSHTM were more than I expected - whether they be skills in statistical methods, in computer packages, in clinical interpretations, in research methodologies or just in getting my ever-serious British office mates at ICEH to relax a bit and leave the office early on Friday afternoons as we do in Africa. I feel ready to be tested and tried and I hope this will come by way of teaching other younger Africans eager to explore the world of ophthalmology or research. I am in the process of looking for a teaching post in the Eastern Africa Region. At the same time I feel challenged to never settle for the mediocre and will aim to one day set up a Centre of Excellence not just in clinical care but also in research and teaching for my region. I believe the contacts I have made in the last four years will help a lot in making this dream a reality. Now that I know how much posterior segment eye disease there is, I feel I have to contribute to ensuring that those who can benefit from treatment or rehabilitation can access both in the region. But first of all I must disseminate all the findings that this study has revealed by trying to publish as many papers as possible. As soon as my thesis is bound that will be the next step. **EN**

To find out more about BCPB's work and about applying for a BCPB Fellowship please see the BCPB website: http://www.bcpb.org/training.html or email info@bcpb.org

All projects must meet the aims and objectives of this programme:

- To respond to the areas of greatest need in the field of global blindness.
- To align with the key VISION 2020 objectives, in particular human resource development, in order to build the eye care infrastructure at all levels in low-income countries.
- To build and disseminate practical knowledge about how best to prevent blindness.
- To foster partnerships between developing and developed world institutions, in order to spread knowledge and skills to where they are most needed.

Deadlines for applications will be mid-November 2010 for projects beginning Autumn 2011. Full details will be posted on the BCPB website: www.bcpb.org

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