ABSTRACT

Background There is increasing interest in global health partnerships. However, evidence of benefit remains weak. We report on the impact of a 10-year public health partnership between the UK and Swaziland. Swaziland has the highest rates of TB and HIV in the world. Health services are being overwhelmed and patients suffer the cost and inconvenience of centralized services. Our international health partnership was set up to promote the translation of public health research into practice.

Methods The partnership is based on six principles: sustainability; robust measurement; evidence-based practice; patient-centred improvement; systems approach and researchers as implementers. Based on rigorous health needs assessments and informed by international evidence, we have achieved a number of successful changes.

Results The partnership has been successful in the development of a community TB service; a chronic disease programme for epilepsy; implementation of guidelines; implementation of ART programmes; nurse-led community ART clinics; innovations to improve follow-up and expert patients.

Conclusion Global inequalities are increasing rapidly and international partnership has an important role in tackling this threat. Partnerships should be based on sustainable, long-term links with a strong foundation of trust and mutual support. Effective leadership, good communication, clinical engagement and interagency collaboration are pre-requisites for the successful implementation of success.

Keywords epidemiology, public health, international health research

Introduction

There is increasing recognition of the value of global health partnerships between health organizations in the NHS and those in low and middle income countries. Such partnerships have the potential to raise awareness about global health inequalities, exchange skills and expertise and develop staff. While the intention of international health partnerships is well meaning, there has been little published evidence about their impact. In addition international partnerships tend to focus on clinical practice but public health practice is a much more fundamental part of improving international health.

This paper describes the challenges and successes of developing and running an international public health partnership between the UK and Swaziland.
population in the Lubombo region. The hospital is a non-governmental organization established originally as a mission hospital but nowadays funded almost entirely by the Swaziland Ministry of Health as the regional provider of secondary care services. The impact of the TB and HIV epidemics on the hospital is overwhelming. In-patients suffer from constant overcrowding and risk of transmission of infection. Out-patients have increased 4-fold over the last 2 years (Fig. 2). The introduction of antiretroviral treatment (ART) in 2004 has led to new and ever-increasing patient numbers with over 5000 patients currently returning for monthly follow-up.

The hospital had traditionally provided all care for patients with TB and HIV/AIDS in the Lubombo region. Patients in the surrounding districts find travel to the hospital as costly, inconvenient and time-consuming, and as a result default and non-attendance rates had been high.

Development and approach to international public health partnership

Two of us (J.Wr, H.F.) worked as medical officers in the early 1990s at Good Shepherd Hospital in the Lubombo region of Swaziland during the early years of the HIV epidemic. When we returned in 1997 we were taken aback by the overcrowding in the hospital, and in particular in the TB wards that had resulted from the impact of HIV/AIDS. The Senior Medical Officer (A.P.) requested assistance in assessing the future health needs and demands on the hospital and how effective public health programmes could be established to reduce demands on the hospital. We embarked on a joint collaboration that has lasted over 10 years and led to measurable benefits in strengthening health systems and improving health.

The partnership is based on NHS and academic staff in the UK working as long-term advisors to health staff in
Good Shepherd Hospital. Hospital staff identify new challenges to the successful delivery of health care based on burden of disease (from clinical experience and review of public health intelligence) and UK partners provide technical and training expertise on the identification and implementation of solutions.

Our approach is based on six key principles, which have emerged over the course of the partnership:

(i) Sustainable partnership. The hospital was accustomed to international experts calling in on a whistle-stop tour to dispense advice, but sceptical about their understanding or commitment to supporting improvements. Our approach has been to build a long-term collaboration that has a strong foundation of trust and to promote co-production of programmes.

(ii) Robust measurement. Accurate and reliable information is a prerequisite for understanding health needs and improving the health of a local population. Robust measurement of clinical and public health performance is critical in understanding where we are or which direction we are going. We established robust data collection methods as a priority for our public health programme.

(iii) Evidence-based practice. Our goal was to support the translation of the latest research evidence into routine practice by ensuring that busy health professionals had access to the most up to date technical support. We also promoted the use of applied research methods to evaluate our improvements and contribute to the evidence base.

(iv) Patient focus. Our approach tried to understand and put the needs of patients first and promote the availability of convenient and accessible health services.

(v) Systems approach to getting research into practice. Our approach recognizes that health services are complex and adoption of innovation can require multiple changes across a whole health system. Translation of research typically focuses on changing the practice of an individual practitioner or the treatment of an individual patient. However, translation of public health research requires change for populations of practitioners and patients.

(vi) Researchers as implementers and implementers as researchers. The dichotomy between researchers and practitioners can be a major barrier to translation of research. Our aim was to encourage researchers to be actively engaged with practitioners and encourage clinicians to be actively engaged in research.

**Impact of programme**

Our public health programme started in 1999 with strengthening of the TB service and has expanded to epilepsy, HIV/AIDS and ART. Our first project involved a health needs assessment of TB in the region, and found overcrowding in hospital TB wards, low levels of cure and completion and high levels of defaulting in patients. This evidence was used during 2000–02 to develop a community TB programme linking the hospital with 23 rural health centres (government, NGO/mission and industry). The programme also built links between the health centres and the community health workers who had previously been working independently. In doing so, we built a functioning ‘district health system’ integrating primary, secondary and community health carers. This was key for the TB and other community health programmes. TB patients were referred up to the hospital for diagnosis and treatment initiation, and after approximately 3 days referred to the health centre and community for follow-up care. This programme demonstrated an improvement from 27% cure/completion to 67% cure completion and allowed us to undertake a rigorous randomized controlled trial of direct observation of treatment by family members or health workers, which showed that with appropriate training and support, family members were equally effective as health workers.

In 2003 we started a chronic disease management programme for epilepsy to improve the diagnosis, initial treatment and on-going active management of epilepsy. Epilepsy services were previously centralized and based within the mental health unit. Default rates were high and there was limited evidence of active management of drug regimes. The programme has focused on: education of patients and carers, community and hospital health workers and the devolvement of management to rural health centres with a visiting nurse-led epilepsy team. The team monitor seizure activity, review active patients and distribute anti-epileptic drugs in the region. We were able to establish a register of 530 patients and demonstrate improvement in the proportion of seizure-free patients from 65 to 88% by 2007.

We established a training programme to improve the diagnosis and treatment of common and opportunistic infections by hospital and health centre nurse clinicians through piloting of an early version of the WHO’s Integrated Management of Adolescent-adult Illness (IMAI). In addition, TB and HIV education was promoted at community meetings. By 2004 we were able to facilitate the introduction of the first antiretroviral treatment (ART) clinic in the region, which rapidly expanded to initiate treatment on over 5000 patients within
the first 3 years. The ever-increasing patient demand led us to establish a community-based HIV testing and ART service, which included CD4 monitoring and pharmacist support. This programme was evaluated as a controlled trial and demonstrated that nurse-led ART clinics provided an equally good quality of care together with significant improvements in attendance and patient satisfaction.7,8

In 2005 we established one of the first models for expert patients on ART, using a network of volunteers across the region (basiti) to provide support and mentoring for newly diagnosed patients. Basiti are patients on established ART based in each village or town in the region. They provide a mentoring and support role for local patients and run regular support group meetings.

In 2006 we introduced a novel method of reducing defaulting for patients on TB treatment and ART using outreach adherence officers on motorbikes. These became known as the ‘pizza delivery boys’ as they drove their motorbikes around the villages and homesteads in the region delivering support and follow-up. Their role has extended to delivering medication and collecting blood and sputum samples.

In 2008 we were able to open an innovative integrated TB/HIV centre based on ideas from WHO expert guidance on research priorities for TB/HIV in resource-limited settings.9 We used this integration of services to establish routine HIV testing for TB patients and cough screening for newly diagnosed HIV patients, together with prophylaxis for opportunistic infections.10

Our initiatives have been underpinned by an evidence-based approach to implementation. This has included clinical guidelines, audit and feedback of performance, interactive educational outreach visits, patient reminders and prompts, use of opinion leaders.11,12 We have been able to share international experience in quality and safety improvement on projects to redesign patient flow and assess the safety of ART supply and dispensing.13

## Challenges faced and lessons learned

Global health inequalities are rapidly increasing. While life expectancy in the UK is now over 80 years, it has fallen to nearly 30 years in Swaziland. International partnership has a crucial role to play in increasing global health awareness and exchanging skills and knowledge in both directions. However, if these partnerships are to be successful then they need to be sensitive to local contexts and be sustainable over long term.

The challenges to the partnership are the same the world over—lack of funding, lack of time, engaging clinicians and meeting competing priorities—and public health professionals are adept at tackling these challenges and promoting change to health systems. Funding is inevitably an important part of our success. Over the last 10 years we have received a number of charitable, research and government grants to support our partnership. This funding of about $30 000 per annum has provided income to support new training and development and some staff support. We obtained funding from small charities, the Elton John AIDS Foundation and from the Department for International Development, but there are other sources of funding related to specific health areas that can be sought to maintain a coherent programme of development. Equally important is the recognition of the value of the international partnership from NHS and university employers who have supported staff in the UK to undertake field work and training in Swaziland, using a combination of professional and unpaid leave. The support requirements from the UK staff in both direct (visits) and indirect (email/telephone) time can be considerable.

Leadership and effective engagement of clinical staff has been another key component of our success. Strong support from the Ministry of Health in Swaziland, and the senior leaders of the hospital has promoted the right environment for creativity and innovation, and reduced the hurdles of bureaucracy. However, this engagement can be hard work to maintain with rapid changes in staff. High turnover of staff at the Ministry of Health reflects the ever-changing political landscape and is perhaps no different to the ever-changing leadership of NHS organizations. High turnover of clinical staff can be related to more specific issues such as brain drain and the high mortality that health professionals share with their non-health professional communities in an AIDS endemic environment. Perseverance remains the stalwart of success.

Clinical engagement can be difficult. Clinicians can be overwhelmed with the high clinical workload and reluctant to spend precious time on public health or service development programmes—too busy ‘in the mud fighting alligators’ to contemplate how to build fences to stop people falling in after them. However, the case for prevention and community-based care was gradually accepted when clear links were made to reducing the inexorable demand on hospital services. Good understanding of the local clinical context, effective two-way dialogue, shared goals and demonstration of benefits for patients and staff are all important components of the case for engaging in effective public health programmes.

One of the big challenges we have faced is establishing robust data collection systems to measure change and
evaluate impact. Health data have tended to be of poor quality and of little use to staff. So for example some data on patients with TB or HIV would be collected for new cases, but not linked to health outcomes. While this provided useful descriptive epidemiological information, it could not inform the quality or effectiveness of health programmes. Access to computers and information systems was also limited by lack of resources and where they did exist were often limited by lack of integration. So for example the ART database was isolated from the TB database despite the major overlap between diseases. It has taken us several years working on improving the quality, utility and integration of health data to develop systems that we can now use to evaluate impact of our programmes.

Operational research was only slowly internalized, and remains in part dependant on public health specialist trainees seconded from the UK on a succession of attachments. We found that it was difficult to implement the detailed protocols required for clinical trials (such as our DOTS trial) due to the high burden of clinical work and the urgency of the solutions required, and we have concentrated instead on more pragmatic study designs using controlled before and after or cohort methodologies to evaluate the impact of interventions.

Our partnership has been based on a strong foundation of trust and mutual support built up over the period of nearly 20 years through personal friendships and shared goals. There are no instant solutions for replicating such a foundation on which to build public health partnerships, but there are other examples that have demonstrated the feasibility of a long-term and sustainable approach. These can begin with the UK staff working abroad and maintaining links on return or from broader international links between communities or organizations.

Training and education, with the two-way exchange of skills and knowledge, lies at the heart of any international health partnership. Our public health programmes have provided expert trainers to deliver support, the delivery of education and training on local priority topics such as chronic diseases, TB and HIV/AIDS to primary and secondary care teams in the Lubombo region. We have supported the postgraduate development of local medical and nursing staff. The programmes have also provided a rich and powerful source of learning for the UK health professionals involved—the principles of public health remain the same across the world, and the scarcity of funding in developing countries provides a particular urgency to decisions about health-care provision.

These lessons and challenges have informed the six principles outlined at the start of the paper, which we hope may be of help for others working to establish similar international health partnerships.

**Public health training**

The health link has provided training opportunities for public health training. We applied for approval from the Postgraduate Medical Education Board and Faculty of Public Health International Committee for 6–12 month placements in Swaziland. With the support and vision of a number of postgraduate deans and public health training leads from across the UK, a series of five UK public health specialists have been able to take up these training attachments over the last 5 years.

This programme offers a trainee a unique opportunity to contribute to the health and wellbeing of a defined population in a low-income country, assess need and work collaboratively with local communities and local, regional and national stakeholders. The placement facilitates development of personal skills, initiative and leadership skill and meets training competencies in the areas of epidemiology, health policy and management and implementation of change.

There are unique challenges for international training related to distance and the importance of maintaining good communication. Local supervision and support is critical with external supervision provided by email, phone and field visits from UK trainers. Feedback from trainees has been excellent, but the nature of the post dictates that only experienced trainees can be considered. Trainees are required to submit a report on completion of their attachment and we encourage readers to refer to these for more in-depth and personal reflections on the challenges and benefits of the international training attachments.

**Next steps**

The ever-increasing demand on health services from the HIV/AIDS epidemic is pushing hospital services towards breaking point. The challenge for the future is to provide universal access for HIV/AIDS care, while providing other priority services, such as maternal and child health, family planning and nutrition services, all this despite a deteriorating economic situation, underpaid and overloaded staff.

Part of the solution is to continue public health approaches to decentralize services from the hospital to the community clinics. This will help to provide accessible and convenient services to patients and reduce the unsustainable rise in demand at the hospital. To enable this, the district health system (linking all health facilities and community workers) needs further strengthening. Another part of the solution is to speed up the transfer of skills from scarce human resources (such as doctors and nurses) to more affordable and available alternatives (such as nurses and lay workers).

These are huge challenges that will require perseverance to maintain change and improvement, and in particular to resist...
the natural tendency for individuals and health sectors to retreat into isolation. Our approach based on continued long-term partnership together with robust measurement, evidence-based interventions and patient-centred care has demonstrated that these challenges can be met and that knowledge and research can be effectively translated into practice and health improvement across a whole health system.

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