Health Improvement Project Zanzibar: a new model of healthcare delivery

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The effectiveness of aid programmes in delivering improvements on the ground in resource-poor countries is often questioned. In this article the authors describe a project involving the direct, semi-autonomous running of two hospitals in Zanzibar and highlight the successes they have achieved.

Zanzibar is a semi-autonomous region of Tanzania, consisting of an archipelago of islands off the coast of mainland Africa. The estimated population of 1.3 million inhabit two of the largest islands, Unguja and Pemba, where the combined doctor-to-patient ratio is around 1:20,000 (as compared to 1:360 in the UK). Healthcare provision is designed as a three-tiered structure of primary, secondary and tertiary care. Primary care is provided by 134 basic Primary Healthcare Units (PHCUs), which are distributed evenly around the two main islands to ensure that all the population have a centre within five kilometres. On Unguja, secondary care is provided by two hospitals: Makunduchi and Kivunge. Tertiary care is provided by the largest hospital on the archipelago, Mnazi Mmoja, located in the capital Stone Town. In practice, prior to 2006, the hospitals were so dysfunctional that the secondary care tier was provided almost exclusively by Mnazi Mmoja. This led to overcrowding, inadequate staffing, and long patient journeys.

HEALTH IMPROVEMENT PROJECT ZANZIBAR

Health Improvement Project Zanzibar (HIPZ) is a UK-registered charity established in 2006 by Mr Ruaraidh MacDonagh, a consultant urological surgeon based in the UK. Having previously worked in Zanzibar, Mr MacDonagh was approached by the Principal Secretary for Zanzibar’s Ministry of Health for assistance in the delivery of healthcare in Makunduchi Hospital: a 36-bed hospital with a catchment area population of around 50,000 in the rural south of Unguja, which had fallen into a state of virtual disuse. In 2007 this led to a 10-year agreement, giving HIPZ management responsibility for Makunduchi Hospital, with the aim of improving healthcare services and systems in the hospital and the wider region.

In 2012, following the success of HIPZ’s involvement at Makunduchi, the...
Ministry of Health requested that HIPZ undertake a similar 10-year project at Kivunge Hospital in the north: a larger, 72-bed hospital with a catchment area population of around 200,000. HIPZ now manages the only two hospitals outside of the capital, providing primary and secondary care to an area with a combined population of around 250,000.

THE HIPZ MODEL
International development organisations have tried many diverse approaches to healthcare improvement in resource-poor countries.1 HIPZ has an innovative model to achieve this goal in Zanzibar. Some key elements of this approach are summarised below.

A formal partnership with the Ministry of Health
A Memorandum of Understanding (MoU) was created, giving HIPZ management responsibility for each of the two hospitals, in collaboration with the Ministry of Health Zanzibar, for a period of 10 years.

The agreement outlined the roles and provisions apportioned to the two partners. The Ministry of Health would continue to provide staff, salaries and basic services, such as certain medications and equipment. HIPZ would support and develop the day-to-day management of the hospital, provide clinical support through volunteer UK doctors, supervise and fund renovations and building projects, and develop systems to deliver a reliable and consistent health service. Although generally working within Government regulations, HIPZ funding is spent directly on service improvement and does not go via the Government, thus ensuring accountability and a degree of autonomy.

In short, the Government has handed over the running of a hospital to an NGO for a protracted period with the aim of improving services. As far as we know, this arrangement is unique.

Identifying realistic, tailored healthcare solutions
HIPZ aims to improve healthcare through micro-managing health systems at a local level. This strategy allows us to work in a constructive partnership with staff to identify already well-functioning projects, troubleshooting ‘on the ground’ issues, and understanding the various complexities of failing healthcare projects.

Providing volunteer doctors from the UK, who work with Zanzibari staff on a daily basis, allows us to observe, listen and learn about area-specific issues. A ‘one-size-fits-all’ approach to improving healthcare in low-income countries is simply not effective across the wide range of economic and cultural settings. The close relationship between our leadership team and the team on the ground enables a targeted approach: we are selective and specific about the areas that we support, and ensure that we follow through on all projects we undertake. This results in clinically important, high-impact improvements for relatively modest financial investment.

Ensuring long-term clinical and financial sustainability
A core element of HIPZ’s strategy is to incorporate long-term sustainability into all projects and healthcare initiatives. Fundamental to this has been the identification of key members of staff and the support of their personal and professional development. As per the MoU, Makunduchi and Kivunge Hospitals will return to a fully locally-delivered healthcare service at the end of the 10-year period of the agreement.

Maximising the potential of local staff
Having talented, motivated staff in key clinical, administrative and managerial positions is instrumental in implementing improvements and will be essential in maintaining sustainability in a Zanzibari-led healthcare service. Consequently, the implementation of measures to improve staff performance has been key to HIPZ’s successes. These have included renovation of staff accommodation, staff training, introduction of the hospital manager role to strengthen leadership and discipline, and building staff morale and pride by providing an improved work environment that is clean, has better equipment and offers new services. Initially, HIPZ also provided a supplement to employees’ salaries to encourage engagement with the improvement process; this is now transitioning to a performance-based approach.

Partnerships with other health development organisations
A multitude of health development organisations have a presence in Zanzibar, each with its own priorities and need for donor accountability. There is risk of poor co-ordination between organisations, and few have an ongoing presence on the ground to ensure the long-term success of projects. Within our hospitals we are well placed to help with these issues, and have had several successful partnerships with other development organisations including the United Nations International Children’s Emergency Fund (UNICEF), the United Nations Population Fund (UNFPA) and Rotary International.

NOTABLE ACHIEVEMENTS
Soon after taking on the management of Makunduchi Hospital, HIPZ initiated a monthly collection of data relating to the usage of hospital services, compiled by the hospital manager. As well as allowing the early identification of problems and key areas for development, this has demonstrated a number of successes (Box 1).

Data from 2009–2014 showed a dramatic increase in the use of hospital inpatient services. Monthly hospital admission rates increased by 193%. Since the establishment of comprehensive emergency obstetric care and general improvements to maternity services, a 116% increase has been seen in the number of mothers delivering in hospital. Other maternity services, such
as antenatal clinics, also showed an increase in attendance of 160%.

The roots of these successes are multifactorial, but are in part attributable to the renovation of dilapidated wards (Figure 1) and the improved provision of essential services through the development of a reliable supply of medication and equipment. This, in turn, has led to increased trust and confidence from the local community, who previously travelled long distances to go to the tertiary hospital in the capital rather than attend locally.

The monitoring of physiological observations in inpatients was another basic but challenging area for improvement. Observations were rarely checked or acted upon appropriately. Prior to HIPZ, the hospital had little functioning equipment to measure blood pressure or oxygen saturations, and no oxygen therapy was available. Through regular teaching and daily supervision of clinical officers on ward rounds, the proportion of patients having daily observations has increased from less than 10% to over 85%.

**KEY CHALLENGES**

**Staffing levels and experience**

Makunduchi and Kivunge Hospitals are not allocated any qualified doctors by the Government. In the place of doctors, clinical services are provided primarily by clinical officers: a mid-level clinical position that is unique to East Africa. However, even they are in short supply throughout the island, leading to low staffing levels in many areas. Guidance and teaching is imperative to support these individuals who, after only three years of study, are immediately thrust into senior clinical positions. Changes are occurring, however, with the first cohort of medical students graduating from Zanzibar University last year.

**Cardiovascular disease**

Increasing urbanisation and exposure to a range of risk factors has led to a huge rise in the incidence of cardiovascular disease in Africa. A BMJ editorial in 2005 reported that cardiovascular disease ‘has reached near epidemic proportions in Africa’, with the WHO reporting in 2002 that almost 10% of deaths were due to cardiovascular disease, with hypertension the most prevalent underlying cause. This figure will only have increased in the last decade, as lifestyles continue to change.

The management of hypertension was, therefore, identified as a key priority in improving health outcomes. However, there is a striking lack of robust data on the prevalence of hypertension in Zanzibar. Unpublished research, based on a survey of 2639 adults aged 25–64, found a prevalence of 33% (based on WHO definition of hypertension as >140mmHg systolic or >90mmHg diastolic). The overall prevalence of moderate to severe hypertension (>160 systolic or >100 diastolic) was also high at 16%, and extremely high in the over 45-year-old population at 34%. A basic hypertension clinic was in operation at Makunduchi Hospital prior to improvements by HIPZ. An audit in 2013 showed that median systolic blood pressure was 170mmHg, with 39% of patients having a systolic >180mmHg (Figure 3). This was in a cohort of patients supposedly treated for hypertension and...
indicates the likely scale of the problem in the untreated population.

Improved primary care facilities at the hospital enabled the development of specialist hypertension clinics. Various factors had to be considered: identification and training of suitable staff; designing pro formas with tailored guidance for clinical officers; sourcing a regular and affordable supply of antihypertensive medications; involving Shehas (local leaders) to ensure community understanding of the changes; and measures to improve health education of both clinic patients and the local population as a whole.

The weekly hypertension clinic in Makunduchi now treats up to 350 patients per month. A recent audit showed that over 85% of patients are now treated in accordance with HIPZ guidelines.

Women’s and children’s services
Developing integrated women’s and children’s services has led to an increase in women accessing healthcare. Since opening the PHCU in Makunduchi, tailored clinics and screening programmes have been created, increasing the number of children receiving vaccinations and growth monitoring. With the Kivunge PHCU building approaching completion, these developments are being mirrored at this site.

Mental health services
Zanzibar has one psychiatrist covering a population of 1.3 million over two islands. This leaves a huge unmet need of patients with mood disorders, psychosis, child and adolescent mental health problems, and epilepsy (traditionally within the remit of psychiatry in Tanzania). HIPZ has collaborated with the Zanzibari Ministry of Health and a team of Norwegian psychiatrists from Haukeland University Hospital in Bergen, in a project to widen access to psychiatric care. This has decentralised psychiatric care to nurse-led outpatient clinics in the hospitals. Three general nurses undertook a six-month education programme (based on WHO MhGAP guidelines) to train as psychiatric nurses. The lead psychiatric nurse at Makunduchi Hospital now delivers a fortnightly clinic, seeing around 80 patients per month. New referrals are growing rapidly, including from the main psychiatric hospital in Stone Town. The service is a reflection of the wider HIPZ model – identification of a local problem, fostering the talent of local staff and working closely with the Ministry of Health and other development partners.

FUTURE DIRECTIONS
HIPZ is currently in a challenging phase of the hospitals’ development. Three years remain of the agreed 10-year lease of Makunduchi Hospital, meaning that the phase of handing back care to the Government is fast approaching. With so many developments achieved and some still underway, the consolidation of existing improvements and ensuring their long-term sustainability is now the key challenge at this site. As previous examples illustrate, there are still many areas in which patient care could be improved.

As is central to the HIPZ model, the path forward must be decided collaboratively with local staff and address the issues specific to this region. Being embedded locally, HIPZ is perfectly placed to understand these issues and to provide workable solutions.

Lessons learnt at Makunduchi Hospital are being applied to the improvement process at Kivunge. However, even between these two sites on a small island, different approaches are often required. This further emphasises the importance of grassroots involvement and understanding in effective health system development work.

The HIPZ project has the potential for further successes by extending the knowledge gained through the work in our hospitals, not only to other centres on the
Zanzibar archipelago, but possibly further afield. The ultimate impact of this work will only be known in time. But this model, or an adapted version of it, applied to meet the specific needs of a setting elsewhere, could provide valuable assistance to other regions in need of drastic improvements to their healthcare systems.

**CONCLUSION**

Since 2006, HIPZ has transformed the healthcare system in Zanzibar, delivering medical care to over 250,000 people who previously had almost no access to even the most basic healthcare. This has been achieved on a low budget, consistent with the aim of long-term sustainability. The innovative approach adopted by HIPZ has increasingly been recognised by influential bodies to be an effective model of aid to which global health partners should aspire. Again, from the *BMJ*:

‘International aid genuinely earmarked for eradicating poverty must be taken out of the hands of the politicians and bureaucracies of both donor and recipient countries. Such funds should be controlled by independent and accountable agencies which have knowledge of the existing needs and have direct access to those in need.’

**Declaration of interests**

Mike Spencer Chapman and Jonathan Rees are trustees of HIPZ. Ruairidh MacDonagh is Founder and Chairman of HIPZ.

**REFERENCES**