

December 15, 2008
Report on the current status of Mpanda District Hospital, Mpanda,
Tanzania

Tanzania is currently one of the poorest countries in the world, placed 162nd position on the UNDP Human Development Index scale, with a per capita GNP of around US \$280. The ever expanding population of 39 million has been hit hard by an epidemic of HIV/AIDS resulting in an average life expectancy of just 50 years.

Health Status

Currently the major morbidity and mortality in the country is caused by the major communicable diseases HIV/AIDS, malaria and TB. Increasing numbers of cases of diabetes mellitus, hypertension and cardiovascular disease are adding significantly to the disease burden of the country, due to changes in lifestyle of the population. The current probability of dying between 15 and 60 years of age is 518 per 1000 for males, and 493 per 1000 for females, with the probability of dying under 5 at 118 per 1000.

Childhood mortality and morbidity are major concerns in the country with one in seven children dying before the age of five and two thirds of these deaths occurring before the age of two. 75% of these childhood deaths are due to preventable diseases; pneumonia, diarrhoea, measles and malnutrition. The infant mortality rate currently stands at 10.4% with the under 5 mortality at 16.5%. Children in Tanzania are significantly under-developed with 44.4% of children under-5 stunted for their age, 16.7% underweight for their age and 13% of newborns have a low birth weight.



Maternal mortality is a sizeable concern at 1,500 deaths per 100,000 live births with the fertility rate currently 4.9 births per woman. The contraceptive prevalence is merely 22% and only 44% of births are attended by a qualified health care practitioner.

Although the prevalence of HIV in the country is steadily decreasing from around 8% in 2000 to around 6% in 2007, it still accounts for 29% of deaths. Over 1.4 million people in the country currently live with HIV, with women more affected than men and 60% of new infections being reported among youths aged 15-24. There are 100,000 children in the country currently infected with HIV/AIDS and over 2 million AIDS orphans. TB prevalence is still rising, with the added problem of increased incidence in HIV positive patients, which currently accounts for 40% of all TB cases. Anti-retroviral access in the country has increased due to the support of US aid charities, but although coverage in Western Africa has increased significantly,

Tanzania lags behind with only 15% coverage, one of the lowest figures in the region.

Malaria is the primary cause for both in and out patient treatment, and is the major killer of children under the age of 5. There are 14-19 million cases of malaria a year which accounts for 30% of the country's disease burden and 100,000-125,000 deaths per year. 80,000 of these deaths are children under 5, and yet only 15% of children under 5 sleep under an impregnated mosquito net.



	UK	Tanzania
Gross national income per capita (PPP international \$)	33,650	980
Life expectancy at birth	79	50
Healthy life expectancy at birth m/f (years)	69/72	40/41
Probability of dying under five (per 1000 live births)	6	118
Probability of dying between 15 and 60 years m/f (per 1000 population)	98/61	518/493
Total expenditure on health per capita (intl \$ 2005)	2,598	40
Anti-retroviral therapy coverage amongst HIV positive pregnant women	-	15%
Anti-retroviral therapy coverage in advanced HIV	-	14%
Population living below the poverty line (less than 1\$ per day)	-	57.8%
Births attended by skilled personnel	99%	43%
Number of nursing and midwifery personnel	740731	13292
Number of physicians	133641	822
Deaths among under 5s due to HIV/AIDS	0%	9.3%
Prevalence of Tuberculosis per 100,000	12	459
Infant mortality rate per 1,000	5	74
Prevalence of HIV in age >=15 per 100,000	137	5909
Years of life lost to communicable diseases (%)	10	85
Data based on latest WHO figures available (see appendix 2)		

There is an extensive health service infrastructure on the Mainland of Tanzania with 280 hospitals, 479 health centres and 3,955 dispensaries with a total of

approximately 32,000 beds. The services are, however, severely under-funded and under-staffed with only 822 doctors and 267 dentists in the country. The standard of treatment and care is generally very low, with a significant lack of health care professionals working in the more rural and remote areas of the country. Supplies of drugs are inadequate for the demand and the country relies heavily on foreign assistance to fund essential drugs.

Mpanda District, Rukwa

Tanzania is divided into 26 regions, the most well known and urbanised being those such as Kilimanjaro, Arusha, Dar es Salaam and Dodoma, containing the large cities of Tanzania as well as natural resources such as Mount Kilimanjaro and the Serengeti National Park.

Rukwa is one of the larger and most western regions of Tanzania which borders Lake Tanganika and forms part of Tanzania's international borders with the Democratic Republic of Congo and Zambia. Due to its remote location Rukwa is one of the poorest regions in Tanzania, and has been heavily affected by a large infiltration of refugees from the conflicts in Rwanda and Burundi.



Mpanda is one of the largest districts in Rukwa covering over 60% of the area of the region. The total district population is around 412,683 (2002) with a population growth rate of approximately 11% per year. Mpanda district hospital is the major hospital that covers the district which is around 150km in

radius, there are also 8 health centres and 41 dispensaries in the district. Mpanda has some of the biggest refugee settlements in the country, one of which has a population of nearly 50,000 from the Burundi and Rwanda conflicts, which puts a significant strain on already over-stretched resources and services.

Mpanda District Hospital

Mpanda District Hospital is the major hospital that supplies the highest level of care in the district to a population of nearly 500,000, and yet it is severely under-funded and lacking in many essential resources and facilities. Due to its remote location the district often has a lack of drugs and medical supplies as well as health care professionals. There are no paved roads in the district, and some of the roads to the remote areas are virtually impassable during the rainy season. To reach the far out refugee settlements such as Mishamo it takes around 4 hours drive on dirt track roads to cover the 150km distance. This makes supplying the peripheries logistically very difficult. There is very little public transport in the district, so most of the patients arrive either on foot or by hitchhiking in passing overland trucks. Patients may walk up to 80km and sleep overnight in the bush in order to reach the hospital for treatment.



The district currently has 3 qualified doctors who are based at the district hospital. The District Medical Officer (DMO) is Dr Hussein, his job is largely a managerial role



of overseeing the medical services throughout the district and so he has little time to see patients coming to the hospital. The HIV/AIDS clinic (CTC) is run by a qualified doctor, but again due to the logistics of drug supply in such a massive and remote district he has little time to spare to see patients. The Hospital Medical Officer (HMO) is Dr Chaote who manages the running of the District Hospital and oversees the treatment of the more complex patients within the hospital. His time is often taken up with

meetings at the District Executive's office, but he attempts to see patients whenever he can and often reviews very sick patients after they have been given initial treatment on admission to the hospital.

The majority of the "doctoring" services are carried out by a team of 10 Assistant Medical Officers (AMOs) who have a diploma in clinical medicine, a 2 year qualification. This team of staff are very good at treating every day illnesses such as malaria and typhoid, but have little knowledge of pharmacology, biochemistry, physiology or pathology so often give insufficient or wrong treatments in more complex diseases or trauma patients. In addition to this team there are Clinical



Officers who have had around 1 year of training in clinical medicine, and who are often the staff who admit patients and prescribe the initial treatments for the patients. Due to their lack of knowledge of complex conditions and drug interactions this can sometimes have detrimental effects on the more complicated patients.

The medical staff are supported by a team of nursing staff, the majority of whom are auxiliary nurses, with a few of the more senior nursing staff having a full staff nurse qualification.

The hospital also has 1 fully qualified pharmacist who is responsible for the distribution of drugs to the various medical centres and dispensaries throughout the district. The dental services are supplied by 2 assistant dental officers who provide mainly extraction dentistry only.

In-Patient Care

In total the hospital can care for 150 in patients, although when the demand for beds increases (especially during the wet season when cases of malaria are at their highest) patients often end up sleeping on the floor or sharing beds.



The hospital consists of 6 in-patient wards, each with 20 beds, but in addition there are 30 beds squeezed in wherever they fit to



keep up with an increased demand on the hospital services. There are 2 medical wards (male and female) and 2 surgical wards (male and female), a maternity ward and a paediatrics ward. Each of the wards has an AMO who is responsible for overseeing the patient care within it.

The wards are generally in a state of disrepair, with structurally unstable buildings, ceilings that are falling down, a lack of running water and regular power cuts

due to the lack of a hospital generator. Although mosquito nets are generally provided, in some wards there are not enough for all the patients and since the buildings are so old most of the windows do not have nets or even panes of glass in them to stop insects from entering the ward.



Patient Services

All patients attending the hospital are required to pay for their treatment, unless it is emergency life saving treatment. The patients pay a registration fee upon arriving at the hospital and then pay a fee to see a doctor, a nurse, an AMO or a clinical officer, with seeing a doctor being the most expensive. They are required to pay for their own diagnostic testing and their drug treatment, both of which many patients can't afford to pay for as they are living on under \$1 per day. The drugs are partly funded by the government, but are still expensive for the patients to buy.



HOSPITALI YA WILAYA YA MPANDA	
GHARAMA ZA UCHANGIAJI WA HUDUMA ZA AFYA	
• KUMUONA DAKTARI	Tsh. 600/-
• KUMUONA TABIBU	Tsh. 300/-
• KULAZWA KWA MUDA WOTE	Tsh. 500/-
• KUFUNGUWA FAILI KWA WALIOLAZWA	Tsh. 300/-
1. B/S	Tsh. 300/-
2. B/SUGAR	2000/-
3. FULL BLOOD PICTURE	2000/-
4. H/B	300/-
5. STOOL ANALYSIS	1000/-
6. W. TEST	2000/-
7. B/GROUPING & MATCHING	500/-
8. URINE ANALYSIS	1000/-
9. STOOL CULTURE & SENSITIVITY	2000/-
10. SICKLING TEST	1000/-
11. GRAM STAIN	1000/-
12. RPR	1000/-
13. ASPATATE AMINO TRANSFERASE	2000/-
14. ALANINE AMINO TRANSFERASE	2000/-
15. BILIRUBIN CONJUGATED	2000/-
16. SERUM CREATININE	2000/-
17. BRUCELLA TEST	5000/-
18. HVS	1000/-
19. UPT	2000/-
20. URIC ACID	2000/-
21. BLEEDING & CLOTTING TIME	1500/-
22. ESR	500/-
23. OCCULT BLOOD (STOOL)	2000/-
24. CSF	2000/-
25. ZN STAIN	1000/-
26. URINE MICRO	300/-
27. STOOL MICRO	300/-
28. HEPATITIS BSA ₀	2000/-
29. BLOOD UREA	2000/-

The diagnostic testing available is extremely basic, and often depends upon certain reagents for the testing machines being available. A great help has come from the US funded HIV/AIDS clinic which has provided the hospital with a machine to check CD4 levels (a measure of progression of the disease) in HIV positive patients, but has also provided the means for some biochemical blood tests. The majority of blood tests such as liver function tests are only used occasionally because they are too expensive for the patient to afford.

Diagnostic imaging at the hospital currently consists purely of an old x-raying machine. There is an old ultrasound machine but it stopped working in June 2008 and is waiting for

somebody travelling from Dar Es Salaam to come and fix it. The hospital also has the ability to do a barium swallow, barium meal and barium enema, but this depends on them having a supply barium at the time.

The most basic of testing methods such as ECGs are not available. The hospital currently has 3 or 4 electronic BP (blood pressure) machines but these are often extremely inaccurate. There is no way of doing cultures of any kind for infections, there is only one small microscope which is used to look at blood films taken for malaria, there is no PCR for HIV and no arterial blood gases. There is no way of doing biopsies, there are no advanced imagery techniques, and



often the x-rays have very poor exposure due to the aging machine.

The drugs that patients are treated with are often ineffective and of poor quality as they are imported from India and China, where they are less expensive for the government to buy. The HIV/AIDS drugs come from US aid charities, so thankfully are very effective and are given free of charge to the patients that need them. Drugs are prescribed for minimal amounts of time and are often given unnecessarily. All patients admitted



to the hospital are put on benzylpenicillin, so there is massive resistance to penicillin based antibiotics. In addition, due to the overuse of gentamicin in patients, resistance to this is also starting to develop. The mainstay of malaria treatment in hospitalised patients is still quinine, which has recently been proven to be generally ineffective due to ever increasing resistance the parasite has to the drug. Other alternatives are either too expensive for the hospital and the patients to afford or are unavailable due to the remoteness of the district. Some patients are put on drugs that are too expensive for them to afford, so they remain without treatment for many days until either their condition worsens and they are admitted to hospital or they save up the money to consult the doctor again, by which time their condition is generally a lot more difficult to treat.

Surgical Services

The hospital has some surgical services, although it lacks an actual surgeon. There are 2 major operating theatres, and a small minor operating theatre, where small operations, as well as investigations such as pelvic examinations are carried out. The operating theatres are extremely basic, with primitive operating tables, lighting and other equipment. Due to the hospital lacking a generator



operations are often held up or interrupted by power cuts, which is particularly troublesome during the night. The operating theatres are generally not sterile, with the windows and doors often being left open during surgery. The cupboards and surfaces are wooden so sterilisation is not complete, and often the boots and aprons worn by the doctors are only washed down using a



hosepipe at the end of the procedures. For scrubbing up there is an old water bottle filled with soap and a small amount of running water from a holding tank outside the theatre building. The staff performing the surgeries do their best to be as sterile as possible, and the patients contract a surprisingly small amount of post-operative infections considering the conditions in which they are operated on. The sterilisation of the equipment is done in an autoclave, but there is a question over the effectiveness of this due to the amount of maintenance that these machines usually need to work properly.

The operations are generally carried out by the AMOs, although in more complex cases the HMO may perform the surgery. Generally only emergency surgeries should be carried out in the theatres due to the lack of training of the staff, but often



elective surgeries are carried out because the patients simply cannot afford to get to a referral centre 2 or 3 days bus ride away. The surgery is carried out under the use of a combination of ether and ketamine IV as anaesthetic, this is usually ineffective and the patients often wake up several times during the course of an operation. The patients are not intubated during surgery; an oropharyngeal airway is used for airway maintenance. If oxygen is needed there is an electronic machine which filters oxygen from the air, but is rather ineffective so the maximum that can be obtained is around 5L per minute. There is no monitoring

whilst under anaesthetic, besides a

very inaccurate semi-automatic blood pressure machine, so the patients are often extremely hypoxic and poorly saturated. During caesarean sections the babies are often poisoned by the ether and delivered blue, with an Apgar score of under 6 (a score to assess the clinical status of a baby at birth, scored out



of 10) and often take up to 10 minutes to breathe. Many babies die during childbirth after a prolonged labour due to the administration of ether as anaesthetic to the mother. There is no resuscitation equipment in the hospital for either adults or children, there are one or two bag valve masks, but these are usually not used. The most that can be done for a patient struggling to breathe is to put them on the oxygen machine and use the foot suction pump machine to clear the airway.

Maternity Services

The hospital provides maternity services via both in patient and outpatient departments. Again the services are severely lacking in trained personnel, with no obstetrician or gynaecologist available, most of the work is carried out by auxiliary nurses trained to be midwives and a female AMO who acts as the supervising doctor.





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The maternity inpatient services consist of a large ward which is divided into pre and post natal areas. There is a labour room which consists of 4 beds and some gloves and some sterile instruments for difficult births.

Births in Tanzania are generally without medical intervention but due to the high fertility rate many first births occur under the age of 18 where the pelvis is not large enough for the baby's head and so caesareans are commonly performed. There is a relatively high maternal mortality rate in the region due to the rural environment, many mothers have very prolonged labours and are sent to hospital after a day or more of labour, they are sent in an ambulance which takes 8 hours to complete the return journey to the peripheries. On arrival at hospital it is not uncommon for both the mother and baby's condition to have deteriorated, but due to a severe lack of monitoring in the maternity services it is not possible to assess the state of either accurately. Caesareans are then carried



out with ether as the anaesthetic and no monitoring so many babies die during childbirth.

The maternity ward has one automatic BP wrist cuff that is not accurate, they have no other form of equipment. Analgesia is not offered.

The neonatal mortality is high in the region and there is no provision for premature babies or babies in distress. There are no incubators or neonatal services; the most that can be provided is the oxygen through an adult mask without any form of airway support.

The hospital provides a mother and baby clinic as part of the outpatient maternity services at the hospital. This clinic follows the progress of the baby's development and provides advice to mothers. In addition it provides a vaccination programme for all children. This clinic has helped to reduce childhood mortality under the age of 5, by both vaccinating the population and recognising malnutrition and infection early.



Outpatient Services

The outpatient services are some of the busiest in the hospital, with up to 100 patients in a day being seen by 1 or 2 AMOs or the doctor. Patients come to the clinics for a multitude of different problems. Every day there is a dentist clinic (with an assistant dentist as the hospital does not have an actual dentist), a child and baby clinic, a HIV, TB and leprosy clinic (CTC), a geriatric clinic and a general outpatient department clinic which is very similar to a GP clinic.



The CTC is run by a doctor who is generally not clinical but manages all the HIV and TB treatment



and maintenance throughout the population of the district. Due to the rural nature of the district HIV prevalence is relatively high, but it is coming under control thanks to HIV/AIDS eradication programmes from the US. This provides the money for the drugs, the distribution of these to the rural populations and the monitoring of patients in the peripheries.

The geriatric clinic is run by an AMO that has a particular interest in medical care for the elderly. This provides care for normal illness of the aged such as arthritis and cardiovascular disease.



Many patients attending the general clinics are first seen by a clinical officer who clerks the patient and takes an initial history. If the patient is complex or wishes to see a doctor/AMO they pay another fee and join the queue to be seen. Patients often travel many kilometres (in some cases over 80km) on foot in order to reach the clinic and see a doctor. They also often have to save up to see the doctor so present with worsening symptoms and advanced diseases.

From the clinic the AMO or doctor will take a history and examine the patient, and order any necessary tests (as described previously) and prescribe a treatment or admit the patient. Very few patients ever leave the clinic with no treatment (usually they leave with at least 1 antibiotic) due to the large distances most of them travel.

Miscellaneous Services

The hospital provides an ambulance service which is sent out to collect both trauma patients and occasionally patients referred from the peripheries. It



has several land cruisers which have a built in stretcher and very little else. The drivers are not medically trained and there is no medical equipment carried in the vehicles.



The hospital has a mortuary which is essentially a small shed which can hold one body on a dissection table. If there is more than one dead body at any one time they are stored on the floor of the building. There is a new mortuary being built which hopefully will provide body refrigeration and more equipment for post mortems.



Each in-patient is provided with 2 meals which are



prepared in the hospital kitchen using a log stove. They consist of cheap staples such as ugali – a stiff maize porridge.

The sheets of the hand in the laundry sheets that are soiled from HIV and TB washed in large basins stick. The hospital did washing machines but electricity supply and the aren't functional.



hospital are washed by room; this includes with secretions and blood patients. They are using a detergent and a buy some large industrial due to the unreliable lack of running water they



The blood transfusion services are generally provided by the patient's relatives, and are often transfused straight away when the blood is still warm.

The blood is checked for the antibody to HIV and the antibody to hepatitis B (if the reagent is available at the time). Due to the high prevalence of HIV and the fact the antibody may not be present in the blood of a newly infected patient for 3-6 months, there is significant risk in transfusing patients.

Appendix 1: Summarised List of Patients Seen at Mpanda District Hospital

Infections

Malaria
TB
Multi-drug resistant TB
Extremely drug resistant TB
TB of the bone
TB meningitis
HIV
AIDS
Paratyphoid
Tetanus
UTIs
Hepatitis E
Salmonella typhi
Bacilli dysenteri
Cellulitis
Streptococcus meningitides
Worms
Ringworm
Infectious complications of HIV
Genital warts
Scrotal infection
Fungal skin infections
Tropical skin infections
Infections of unknown source

Trauma/Accidental Injury

Head injury resulting in unconsciousness and GCS 7/8

Fractured:

- Neck of femur
- Mid-shaft femur
- Cervical vertebrae
- Ribs
- Tibula and fibula
- Open compound comminuted fracture and dislocation of tib/fib
- Epiphysis of ulnar
- Comminuted tib/fib
- Mid-shaft tibia
- Radius
- Collis fracture

Head wounds

Scorpion sting

Severe burns (>30% of body surface)

Thumb amputation

Extensive burns to the legs

Surgical Cases

Caesarian sections
Abdominal mass ?cause
Ovarian/uterine fibroids
Haemorrhoids
Subacute bowel obstruction
Intestinal adhesions
Hydrocele
Obstetric fistula
Surgical debridement of infected wounds, especially burns
Umbilical hernia
Inguinal hernias
Massive pelvic mass ?cause
Lung abscess

Medical Cases

Severe hypertension (210/130)
Severe anaemia (Hb <2-3)
Lymphoma (?Burkitts)
Strange combinations of symptoms (teenage girl):

- numbness of the L limbs
- chest pain
- breathlessness and fatigue

Rheumatic fever
Massively swollen tongue with bloody discharge ?cause
Scoliosis
Jaundice ?cause

Report Courtesy of Sarah Richardson – HealthCare Volunteer

Appendix 2: References

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5. WHO Country Health System Fact Sheet 2006: United Republic of Tanzania
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