Emergency Care Teaching in Mozambique
Mozambique
Mozambique

- Population: 23,000,000
- Life expectancy: 52yrs (10th lowest)
- Prevalence of HIV/AIDS: 11.5% (8th highest)
  - 30-40% of adults in Beira are HIV positive
  - Less than 5% are receiving treatment ($360 p.a)
- 0.8 hospital beds/1000 pop. (Canada 3, France 7)
- **0.03 doctors/1000 = 690 total** (Canada 2, Greece 6)
Mozambique

- Exports: prawns, cashews, cotton, sugar, timber, gas
- Very large reserves of natural gas and coal
- GDP real growth 7.2% (28th) (Canada 2%)
- GDP per capita $1,100 (209th) (Canada $41,000)
• Inhabited by the Bantu from north of the Zambezi
• 1498 Discovered by Vasco da Gama
• 1500 Portuguese trading post
• 1884 Portuguese colony
• 1891 Companhia de Moçambique
History

• 1950 Declared an overseas province
• 1964 Armed struggle for independence (FRELIMO)
• 1973 Portuguese population reaches 300,000
• 1975 Mozambique Independence
• 1975 Portuguese exodus (90%, leaving 70 doctors)
History

• 1977-1992 Civil War
  – FRELIMO supported by Cuba and Soviet Bloc
  – RENAMO supported by Rhodesia, South Africa and USA
  – Named as the most dangerous country in the world and one of the poorest

• 1994 First elections

• 1995 Mozambique joins the Commonwealth
Beira

- Mozambique’s 2nd largest city
- Large commercial sea port
- Links to Zimbabwe, Zambia and Malawi
- Recent investment in new rail links to coal fields near Tete
Beira History

• Headquarters of the Mozambique Company
• Favourite holiday destination for white Rhodesians
• The Grande Hotel opened in 1954

• Used by refugees in Civil war
• Now home to 3000 squatters
• Beira historically RENAMO
Beira - Barrio
Beira Central Hospital

• Catchment population
  – Local city catchment: 580,258
  – Regional catchment: 5,722,889

• Number of beds: 773

• Inpatient specialties:
  – Internal Medicine
  – General Surgery
  – Pediatrics
  – Obstetrics and Gynecology
  – Orthopedics
  – (Neurosurgery)
Beira Central Hospital

- Outpatients
  - HIV
  - Chronic disease
  - Stomatology
  - Physiotherapy

- Pathology
  - Hematology / Transfusion
  - Chemical Pathology
  - Histopathology

- Diagnostic Imaging
  - X-Ray, Ultrasound, CT
Beira Central Hospital

• O.R
  – 3 Operating Rooms
  – Central sterilisation

• Emergency Care
  – Reanimação (High Dependency Unit)
  – Banco de Socorros (ED)
    • Adult
    • Pediatric
Beira Central Hospital

- Emergency Department
  - Attendances per year: 112,294
  - Adult admissions per year: 24,432
  - Paediatric admissions per year: 8202
  - Total admissions: 29% of attendances
Beira Central Hospital

• Medical Staff (2007)
  – Local specialists: 12
  – Foreign specialists: 21
  – Junior doctors: 8

• Medical Technicians: 10

• Trained Nurses: 221
The New Medical School

- UCM identified the need to train more doctors
- Dr John Day (Ipswich Hospital Physician)
- March 2000 Ipswich Hospital team involved
  - Problem Based Learning course
  - University of Maastricht methodology
  - Course taught in English
- August 2000 First students enrolled
- 2003 On-site Outpatient Clinic
- 2005 Ipswich Emergency Care team involved
- 2007 First doctors qualify
• Year 0 - Propadeutial Year
  – Basic Science, Maths, English, IT, Ethics

• Year 1 - 4
  – Scientific basis of medicine, public health, basic clinical and laboratory skills
  – Seven blocks per annum
  – Mixture of
    • Tutor facilitated self-learning
    • Lectures
    • Clinical skills training
    • Laboratory practicals

• Year 5 - 6
  – Clinical Attachments at Central Hospital Beira
• UCM Clinic
  – 2003
  – Assessment skills

• Community Health
  – Each student allocated 2 families
  – Weekly home visits
• Annual Progress Test (Maastricht, etc)

Figure 1. Average year class correct scores on successive progress tests from 1977 to 1985, with solid line (R) representing average scores of national reference groups of recently graduated doctors (in 1977 there were only four classes in the curriculum; the medical school was founded in 1974).

• Student fees $1500 per year
  – 70% receive grants
• Results
  – More than 100 new doctors have qualified
  – All patients in the hospital are reviewed by a doctor each day
  – Senior students are on all wards helping to treat patients
  – First nurses have qualified from UCM this year
  – Many district hospitals now have a doctor for first time
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Emergency Care
Undergraduate Teaching

• End of Year 4 - Emergency Block
• Ipswich Team
  – EM Physicians, Residents and EM Nurses
• Local Faculty (Visiting EM, Surgery, ENT, New Doctors)
• Annual visit
• 4-day Student ‘ATLS’ course
• 1-day Resuscitation skills (BLS, PLS)
• 1-day Introduction to Ultrasound
Emergency Care
Undergraduate Teaching

Trauma Teaching
• Modified ATLS course
• Lectures rewritten
• Large group skills stations - repeated 4 times
• All students do a moulage
• MCQ assessment
Ultrasound Teaching

- Introduction to Ultrasound Physics and Instrumentation
- Trauma Ultrasound
- Focused Assessment with Sonography in HIV (FASH)
- Practical skills
Emergency Care
Undergraduate Teaching

Results

• 8 Courses
• Over 250 medical students taught
• 5 previous students have now joined local faculty
• Engagement of local specialists
Emergency Care
Postgraduate Teaching

The Problem

• Overstretched resources and the lack of a structured training program in the hospital resulted in:
  – Inconsistent care for acutely ill and injured patients
  – Inconsistent training for clinical medical students in emergency care

• Disengagement of senior clinicians

• Learned helplessness
The Course

- Principles
  - Locally delivered
  - Multidisciplinary
  - Scenario based
  - Assessment skills
  - Resuscitation skills
  - A single lecture

- Influence drawn from other courses e.g. Primary Trauma Care, APLS, ALERT, ATLS

- Delivered in Portuguese
The Course

• **Aims**
  – To teach a system of care that is effective, easy to remember and reproducible
  – Interactive – less lectures, more workshops
  – Team based education
    • Doctors, Technicians, Nurses who normally work together, attend course and rotate as a team
    • Role based scenarios
    • Able to discuss problems with existing system
  – Scenarios allow attendees to utilise the assessment and resuscitations skills learnt in the skill stations
• Acute
• Life-Threat
• Awareness
• Recognition and
• Management
Requirements

- **Planning**
  - Email contact between local and visiting faculty
  - Invite prospective local faculty to observe course

- **Faculty**: Minimum of 4 local faculty

- **Time**: 1 day, protected time

- **Venue**: Large room, adjacent break-out areas for skill stations and scenarios

- **Refreshments**: Morning and afternoon breaks, lunch
Equipment

• Mannequins
  – Paediatric and Adult BLS models
  – Paediatric and Adult advanced airway models
  – Intra-ossseous trainer

• Basic resuscitation equipment
  – Oxygen masks, airways, iv cannulae, etc

• Teaching aids
  – PowerPoint projector
  – Glasgow / Blantyre Coma Scale charts etc
• 20-24 participants
• Single lecture highlighting the important aspects of assessment and initial treatment
• Split into 4 groups to rotate round the skill stations Faculty demonstrate a scenario
• Groups rotate through the scenarios, preferably as a multidisciplinary team (who normally work together)
• Finish with a summary

8:00 am Introduction
8:10 am Lecture: Recognition of Serious Illness
9:00 am Skill Stations: Rotate through all
  Airway  40mins
  Breathing 40mins
  Coffee  20mins
  Circulation 40mins
  Disability 40mins
12:00 Lunch
13:00 Scenario Demonstration
13:30 Scenarios: Rotate through all
  Airway Scenario 40mins
  Breathing Scenario 40mins
  Coffee  20mins
  Circulation Scenario 40mins
  Disability Scenario 40mins
16:30 Close
# Results

- **5 Courses**

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Flavio - Technico

- “We have improved our skills in assessment of critically ill patient especially with polytraumatized patients.”
- “We understand that assessment is vital to seek out the signs of life-threatening conditions and we are all motivated to do our best.”
- “One of our priorities is to teach the course recommendations and knowledge to younger nurses.”
Feedback

• Molinho - Nurse
  – “We are doing our best to apply all knowledge we have learned.”
  – “Before the course we had no confidence about what to do and how. Now we can intubate and ventilate the patient in the absence of the doctors”

• Regina - Nurse
  – “We have great improvement in recognition and treatment of critically ill child, especially shock. We can identify shock patients easily.”
  – “Follow ventilation recommendation, we aspirate the secretion before we start ventilating with the ambu. Before we were not doing this correctly.”
Difficulties

• Long distance relationship between the Ipswich and Beira faculty
• Unreliable email communication
• Understanding of local health care environment and ensuring the course aims were achievable with current resources
• Importing teaching equipment
• Protected teaching time for faculty and participants
• Local Postgraduate Lead
Benefits to Beira

- Establishment of a team dedicated to the delivery of post-graduate programmes
- Provision of a multidisciplinary forum where clinical teams can learn together, discuss common issues and their solutions
- Provision of the educational equipment and material required to ensure the course continues to be locally delivered
- Improved patient care
Benefits to Ipswich

• As a consequence of experience with the course in Beira a similar course has been developed in Ipswich to replace pre-existing one
• A new manual has been developed
• The first of these new courses took place in September 2007
• Courses are now held 3 times per year
Developments

• The local postgraduate lead left Beira
• A replacement with appropriate seniority and enthusiasm has yet to be identified
• On last 2 visits, despite advance organising, the ALARM course did not go ahead

But....

• New Clinical Lead in Beira ED
  – Qualified 2008 from Beira
  – Masters in EM (Milan)
Emergency Care
Postgraduate Teaching

The Future

- Adaptation of the ALARM manual for use in Beira
- Complete translation of the manual into Portuguese
- New focus on shop-floor teaching in ED and wards
- Mini-topics
- Development opportunities for EM trainees
Conclusions

- Undergraduate teaching at the University remains the core activity of the visits
- Meticulous planning is essential
- Attempts to support a top-down postgraduate education programme were over ambitious
- Reliance on a single individual is risky and unsustainable
- Always plan for the unexpected (e.g. U/S Course)
- Highlight the mutual benefits for both Beira and Ipswich Hospital
Acknowledgements

- Professor John Day - Retired Ipswich Physician
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http://www.ipswich-mozambique-health.org.uk