HTTTG 2008-1

Vanuatu Health: Review of Medical Equipment Needs 2008

1 Introduction

The 1999 Census revealed that only half the population of Vanuatu had a primary school education, with one fifth having never attended school. Only 3% of the population spoke English or French at home. Of the working age population, only quarter were engaged in monetary activity and two thirds worked as subsistence farmers. Some 43% of the population was under 15 y, and only 3% over 65. Families had 5-6 children and early teenage pregnancy is now a problem, especially in school dropouts, so family planning is a priority activity. However, there has been a big improvement in school attendance in recent years.

Major businesses are mostly owned by overseas interests and villages are rarely involved in commercial livestock and fruit & vegetable production.

The 2004 workshop by the Vanuatu Ministry of Health developed a Master Health Service Plan. This included a survey of health problems, the identification of 5 health priorities that included 14 recommendations, the delineation of health facilities and services, and the way forward. Currently, there are 34 Health Centers and 5 hospitals plus one coming on-line in 6 provinces, supported by 46 midwives and 40 nurse practitioners. Cuba is to provide 6 Cuban doctors, and undertake the training of 10 Vanuatuan doctors.

This report should be read independently to the Master Health Service Plan, as it is the impression of one person and its topic is solely focused on equipment and training needs. The following observations, which include selected Workshop recommendations, are pertinent to this report.

- The number of medical specialists is very low and not all specialties are represented.
- The system is highly dependent on nurse practitioners in hospitals and mid-wives and Registered nurses in the Health Centers.
- Retirement age is 55 years.
- Recruitment into the health services at all levels is inadequate.
- The health system is heavily dependent on grants from overseas organisations.
- Training is a cost to the trainee unless external funds are available.

Workshop recommendations include:

- Villages to support their own Health Centers.
- High cost interventions should not be at the expense of primary health services.
- Improve access to service and the quality of those services.
- Devolve services with more outreach services to remote communities.
- Expand the communication system.
- Monitor quality practices with refresher training.
- Appropriate remuneration and incentive programs.
- Collection of health status data.

2 Visit program

2.1 Level 6: National Referral Hospital: Vila Central Hospital, Efate

Meeting: This hospital has core inpatient services in Medicine, Surgery, Obstetrics, and Pediatrics. A meeting was held with Dr Willi Token, Mrs. Leipakoa Matariki & Mrs. Janet Ores. While many specialties were available, there were no specialists in pathology, oncology & radiology nor were there any biomedical engineers to maintain equipment [an Ausaid funded engineer is available 2 weeks each year].
There is no mammography.
Cervical screening is being introduced by Dr McAdam, a volunteer doctor from Brisbane.
There is no cancer program and the few potentially curative cases are sent to Australia.
Pathology slides were sent to McKay, Q but this has been discontinued because of cost.
VCH sees 20-30 pts per day (?).

Staff: Four or five specialist doctors in the hospital.
Specialists are trained in Fiji, Papua New Guinea and Australia.
Pathology laboratory staff train in New Zealand with refresher courses.
Dr Margaret Mcadam is developing a cervical screening program and is supported by Dr Don Cave, a Gyneacologist from Queensland and several local nursing staff.
Prof Ian Frazer was a visitor at the time of this review who has the objective of introducing free anti-HPV vaccine.

Equipment: Ultrasound (US) is available for abdominal and antenatal imaging, images are read by the technician. There is one Doppler US at VCH; as well as two mobile Toshiba hand units, found to be quite reliable and said to be good machines. Applications of the Doppler are blood flow in the fetus and deep vein thrombosis.
X-ray units are available, but images are read by technical staff. A 15 year old Toshiba mammography unit is available but had poor contrast and was not in use.
A Toshiba Flouroscopy unit was used for barium, general and breast examinations.
CT was not available.
The Pathology laboratory has 9 staff, but no backup personnel. Clinical tests include microbiology, blood bank, biochemistry, malaria, TB, serology and STD/AIDS. The blood analysis machine was manual, with no maintenance, no backup and no service engineer.
Recommendations:

- Telemedicine (TM) would facilitate pathology reporting of slides and interpretation of X-ray and US images. Dr Token experienced TM in the Solomons, where it was found to be quite satisfactory.
- Palliative cancer therapy for pain management should be available.
- Improved maintenance and servicing of equipment is required.
- Rapid introduction of cervical screening and anti-HPV vaccinations to improve short and long term health of women.

2.2 Level 5 Regional Referral Hospital: Northern Districts Hospital, Luganville, Santo

Meeting: This hospital has 100 beds. Meetings were held with Dr Timothy Vocor, Director and Joseph Mape, Manager, Sanma Provincial Health.

Staff: NDH has one general surgeon and a gynecologist from China under a 2y contract.
French government funds are available for training program in PNG. Fiji offers a medical degree, under the WHO.
There are 55 registered nurses (RN) & 10 nursing aids (NA). In service training for NAs of only 1h per week (?). The RNs come from all over Vanuatu, but there is a shortage of RNs and the concept of in-house training was well received. The nurse practitioners (NP) have 5 y post-RN experience, plus 1y training. There are 5 NPs, who diagnose and treat outpatients, diagnose, admit and treat inpatients; a doctor validating the inpatient treatment at some later time.

Equipment: Portable US machines are operating well, but another machine is needed. Gas refrigerators need maintenance to prevent loss of vaccines. Short wave radios are inoperable and need repair.
-rays are run by technicians and scans are reviewed by doctors. Mobil phone consultation with the VCH is possible.
There is neither mammography nor cervical screening.

Recommendations:

- Additional equipment needs include a portable US, ECG cardiac monitor, diathermy, and a backup anaesthesia machine.
- Repair of failed equipment and preventive maintenance is required.
- Telemedicine to VCN and beyond.
- In-house training of NAs and RNs by distance education.

2.3 Level 3 Health Centres

Visits were made to the following centres:

Paunagisu Health Centre, North Efate: about 1½ hours out of Port Vila by unsealed and at times very rough road. Mobile clinics are run every month to the surrounding villages, population ~5000.

Fanafo Health Centre, Santo: about ½ h out of Luganville on sealed road.

Port Olry Health Centre, Santo: Port Olry is a pleasant village in picturesque surroundings on the coast. It is 2 h from the Luganville NDH by a slow and bumpy unsealed road. A biogenerator for electricity was being installed and wireless telephone was in operation via the village wireless transmitter. Solar panels for electricity had been installed. The Centre serves a population of 2500. The location is ideal for tourism, and sea transport of patients and tourists by fast boat should be considered as an alternative to road.

While current communication in Vanuatu and between islands may be limited, mobile phone towers are being installed and should be available by next year. Advantage should be taken of this new technology to reduce the tyranny of distance.

Detailed discussions were held with staff on various topics at all Health Centers, and the following comments represent a collage of responses that are assumed to have general application.
In all cases, the grounds were neat, the Centers clean and the equipment very sparse. Patients are charged ~ 100 vatu or more for various services. Any services provided

by the village are paid for from patient fees, including construction of a new ward. However, all Centers needed a coat of paint and improved hygiene procedures. Disinfectant was not used for floors and bedding.
Staff: The centers are manned by a mid-wife (MW), a registered nurse (RN) and a nursing aide (NA). In some cases, temporary mid-wives in training are present; in one case the RN position continues to be vacant after 3 years. NAs cover for MWs when in outreach service. Staff are not replaced by equivalent levels when absent.
Staff resides on site in free accommodation, but conditions for visiting trainee staff are poor.
Maternity: The maternity load was 5-40 deliveries per month; perhaps one high risk delivery per month and some home births. Antenatal management is as follows: 6 weekly examinations in the first semester, 4 weekly in the second and 2-3 weekly in the third. There are 3-4 emergency deliveries each year from each centre that are referred the hospital. An antenatal flow chart protocol was followed, and risky cases sent early to hospital, often a 1-2 h drive over rough unsealed roads.
Equipment: Town or generator electricity was available. Vaccines are mostly stored in gas powered refrigerators. While hardly an equipment issue, but there were no folders or computers available so family medical files were not maintained, just a log in record. Its not clear how of if any statistical data is maintained.
There were neither forceps or vacuum equipment for deliveries, and no spare oxygen bottle and no incubator for preterm babies.
Vaccines are stored in a gas fridge with a temperature meter; the gas bottle did not have a pressure gauge but a spare full bottle was available for replacement.
A new maternity wing in one Medical Centre was built by the village in January, but there were no electrical services, only in the old section. The cistern was missing from the new toilet.
The yellow, blue and O&G bibles were available.
Staff wish lists: US, TM, email, blood test for hemoglobin, cervical screening, mobile phones.
Recommendations:

- Staff morale would be enhanced by availability of improved communications.
- Case files and statistical data should be maintained.
- Vacuum birthing equipment is required.
- US requested.
- In-house training and distant education for improved morale, skill base and service.
- TM is strongly recommended.
- The villagers should provide voluntary maintenance support, so that accumulated funds can be spent on more important requirements.
- Increase in the retirement age so as to retain experienced staff.
- Microscope needed for malaria, HIV in hospital.
- Needed equipment includes pressurized autoclave; drip stand for IV infusion; baby scales; blood pressure measurement.
- The NDH Ambulance requires replacement. Distant patients referred to NDH must endure seated transport by 4WD on bad roads.

2.4 Level 2b Dispensary: Erakor Dispensary, Efate

The dispensary is located in an outer suburb of Port Vila, serving a population of 2050. Some 10-30 patients per day are seen. The registered nurse (RN) in charge was

due to retire this year. She was supported by a nursing aid (NA).
Antenatal patients are seen up to 8 months, and then are referred to the hospital. The dispensary is to be upgraded to a Heath Centre with midwife.
The formal training requirement for a nurse aid is 10 months and for a registered nurse is 3y. Courses are self-funded even at nurse aid level. There is no apprenticeship scheme in place.
In the absence of the RN, the NA takes over as there is no equal level replacement policy.
Equipment: The RN prescribes & delivers medication, but over a reduced range of drugs. Resources are the Yellow Bible (2004) which lists symptoms & drugs, the blue book which lists drug doses and reactions, and the white gynecology & obstetrics book.
A delivery bed with stirrups was available, presumably for emergency use, by staff that would rarely see an emergency and which would be readily referred to VCH.

2.5 General comments

It is clear that Hospital and Health Centre staff are working well above their qualifications. Nurse practitioners (NP) in the hospital environment diagnose and treat at the MD level. Mid-wives do the same thing at the Health Centers, and when the MW is away, the replacement is an RN, or in one case, a NA. So the gap between training and task level is even higher.
The Health Center's role is to educate, immunize, treat or refer patients to the town hospitals. However, Mid-wives revealed that they felt the heavy responsibility of their position when difficult decisions needed to be made.
In–house local apprenticeships are needed to overcome the staffing problems. This would lead to more dynamic, rather than static, career paths, better morale, more competent replacement and to higher standards of service.

2.6 Overall recommendations

- Introduction of local, in-house apprenticeships at all levels; NA, RN, MW, NP.
- Increase in the retirement age so as to retain experienced staff.
- Engineer required for urgent equipment repair. Volunteers from Australia may need some support or incentive, e.g. free accommodation. A continuous replacement process would be needed for short term appointments.
- Palliative pain centre is required for end-stage cancer patients.
- Applications to Ausaid could be made for:
  distant medical centers with agreed equipment profile.
  pain centre at VCN.
- Telemedicine via mobile phone to be introduced with the installation of transmission towers.

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Abbreviations

Ausaid	Australian Aid Agency
HTTTG	Health technology and training task group
IUPESM	International Union of Physics and Engineering in Medicine
MD	medical doctor
MW	mid-wife
NA	nursing aid
NDH	Northern District Hospital
NP	nurse practitioner
O&G	obstetrics and gynecology
RN	registered nurse
TM	telemedicine
US	ultrasound
VCN	Vila Central Hospital