

THE GAMBIA



DEMOGRAPHICS OF THE GAMBIA.

Population 1.36 million (demographic profile 2003) and 1.6 million in 2006

Estimated population for 2011 is 1.79 million

60% of population live in rural area

51% of population are women.

Crude birth rate is 46 per 1000 population

Total fertility rate is 5.4 births per woman

Nearly 44% of population are below 15 years of age and 19% are aged 15-24

Average life expectancy at birth is 64 years overall.

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1.0 BACKGROUND

1.1 The Actual Evaluation Set Against The Objectives For The Evaluation.

The objective of this evaluation is to document successes, failures, constraints, best practice and lessons learnt. In particular look at the following areas:

- The documentation of resuscitations undertaken by trained providers and recorded in their log books.
Available logbooks were reviewed as was the previous review of log books already carried out. (see appendix 4.)
- It will also examine the mobile telephone system Interviews with staff at all levels concerning how the programme has impacted on maternal, infant and child emergency care, including major trauma by examination of the new flying squad system, in particular by interviewing both Traditional Birth Assistants (TBAs) and the on-call skilled birth attendants and vehicle driver. The log book documenting the retrievals will also need to be assessed. It is important to find out how the flying squad has impacted on the confidence and morale of TBAs in undertaking their vital work and their ability to seek medical help appropriately and its effectiveness.
A very wide range of staff and others involved with the project were interviewed, and the log book of the ambulance retrievals was carefully reviewed and the results analysed (appendix 5). The mobile phone system was looked at in terms of its effectiveness
- If possible to make a preliminary assessment of the lives that might have been saved by the programme.
The lives that may have been saved by the program were looked at in terms of the anecdotal information obtained from TBAs, midwives and others. A statistical assessment of the number of lives saved and whether this was statistically significant was impossible to undertake as figures for the relevant periods were not available.
- Assessment of the improved knowledge and skill base, morale and professionalism of Brikama health care staff of all levels. It may also examine the willingness of staff to continue working in The Gambian health service, in particular in the Brikama district.
A major part of the evaluation was looking at the improved knowledge and skill base, morale and professionalism of Brikama health care staff – done by questionnaires and direct interviews.
- Assessment of improvement in capability and functioning of the Brikama Major Health Centre through

refurbishment/equipment provision e.g. electricity supply, water supply, oxygen, drugs, medical supplies and basic emergency equipment and the knowledge of when to use them. In addition the effects of refurbishment of the operating theatre and its effects on local care as well as on the need for transfer of patients to the tertiary hospital in Banjul.

An assessment was made into the capability and functioning of the Brikama health centre by visiting the HC several times during the visit.

- To determine how the programme has interacted with others in the maternal and child health sectors

Through the staff at the Reproductive and Child Health Unit and in consultation with WHO and with the staff at Brikama Health centre – an assessment was made as how the present Maternal and Child Health program was functioning alongside other projects in The Gambia

- To determine/analyse cost-effectiveness of programme interventions.

The cost effectiveness of the project program could not be worked out in detail because of the lack of statistical information concerning maternal and child mortality data as an outcome. The 'value for money' that the program offered was examined instead.

- To make practical recommendation for expansion of programme interventions to other Major Health Centres and their catchment areas in The Gambia. We have already identified one such Centre which is in urgent need of a similar programme development. It would be helpful for the evaluation to advise on how best we should go about assessing each new district of the country.

It was possible to make practical recommendations both for the improvement of the program at Brikama and for the expansion of the program to other areas. Recommendations on how to go enlarge the assessment of need in each new district is also made.

1.2 International, National And Local Criteria/Priorities For The Program To Be Evaluated Against.

The UN Millennium Development Goals

1. Eradicate extreme poverty and hunger
2. Achieve universal primary education
- 3. Promote gender equality and empower women**
- 4. Reduce child mortality**
- 5. Improve maternal health**

6. Combat HIV/AIDs, malaria and other diseases
7. Ensure environmental sustainability
8. Develop a global partnership for development.

World Health Organisation

The project is justified by the WHO policy directives, Making Pregnancy Safer (MPS), whose aim is to ensure that governments and partner agencies receive guidance and technical support **during Pregnancy, during child birth, and during the post-partum period**. MPS interventions help strengthen health systems, including improving access to and quality of **obstetric and other health care** services, and enhance individuals', families', and communities' capacities to respond better to needs, to ensure that women and their newborn babies have access to and use the care they need when they need it.

General Health Priorities for The Gambia

Reproductive Health at Governmental Level

The Gambia in early 2001 put in place the first National Reproductive Health Policy which was approved by Cabinet in December 2002. This serves as workable National Strategic Plan to be used by all stake holders.

'Reproductive health focuses on a life-span approach to take care of every individual from conception to birth to adulthood, old age to the grave'.

Reproductive and Child Health remain amongst the top health priorities in The Gambia.

Reproductive Health Priorities

1. Safe motherhood – maternal, newborn and child health (including management of post-abortion complications as part of maternal health)
2. Family planning
3. Adolescent/youth health
4. Reproductive tract infections including sexually transmitted infections (STI's) and HIV/AIDS
5. Gender issues and male involvement in reproductive health; female discrimination, gender-based violence, rape and female genital mutilation (FGM)

Policy Goals. To improve the quality of reproductive health of **ALL** persons living in the Gambia through the promotion of reproductive health, and the prevention and reduction of morbidity and mortality associated with reproductive ill-health.

Policy Objectives.

- To provide direction for planning, implementation, co-ordination, monitoring and evaluation of an accessible quality and highly integrated gender sensitive reproductive health services.
- To build capacities of reproductive health service providers for effective and efficient care and services at all levels

- To provide adequate and appropriate resources, i.e. infrastructure, drugs, supplies, equipment and other resources for sustainable reproductive health services and care
- To create and increase awareness on sexual and reproductive health issues through advocacy and use of appropriate IEC strategies
- To maximise programme output through partnership and well co-ordinated use of meagre resources
- To advocate for and mobilize government's budgetary allocation towards sustainable reproductive health programme.

(Ref. *National Reproductive Health Policy 2001-2006. Government of Gambia. Department of State for Health.*)

The Gambia. Health Sector Strategy : The Health Services Master Plan 2008-2020

The 'Challenges, Issues and Constraints' (page 12 of document) include:

- Reducing the unacceptably high maternal mortality rate which remains a critical issue in the fight against poverty and underdevelopment and is highest in the rural areas where over 80% of the population live below the poverty line.
- Improving capacity for health service delivery in terms of equipment, drugs and other medical supplies, rehabilitation of health infrastructure, management of competence, transport availability and other logistics as well as improve referral system at all levels including tertiary level.

Specifically 'The Health Master Plan' includes under section 2.5 (page 18).

Objective: To improve the quality of reproductive life of all persons living in The Gambia by 2015.

- Strategy: To improve the provision of, and access to quality maternal, child and newborn care including Emergency Obstetrics Care (EOC) and family planning services country wide.
- Strategy: Increase awareness of sexual and reproductive health issues
- Strategy: Promote partnership and coordination amongst stakeholders

(ref: *Department of State for Health and Social Welfare - briefing paper on 'Health Sector for the Round Table Conference'*)

1.3 Relevant Background Information About The Gambia

General Demographics

See page 2.

Health and Poverty.

Gambia is ranked 155 out of 177 countries by the United Nations Development Programmes Human Development Report (2006). Overall about 60% of the population cannot afford a daily consumption rate of US \$1.00. and, like many other countries rural poverty is worse than urban poverty. The highest poverty areas are Central and Upper River Divisions and the lowest

are in the Western region which includes Brikama and Banjul. Of the 46 African Countries in the WHO African Region, The Gambia is ranked second in the order of highest proportion of national budget allocated to health (WHO African Regional Report 2006). Total expenditure as a percentage of GDP in The Gambia in 2003 was 14.9% and per capita health expenditure for the same year was \$4.67.

General Health Services Provision.

The RCH/FP services are delivered through three government hospitals, six major and twelve minor health centres, 18 dispensaries and clinics, 433 PHC villages and in 192 RCH outreach facilities.

Village Health Services (Community Health Posts)

The lowest level of health service provision is the community health post. These provide basic minimum health packages to villages and clusters of villages.

This is supplemented by the Reproductive and Child Health (RCH) trekking services from health centres. The RCH package includes: antenatal care, child immunisation, weight monitoring, and limited treatment for sick children.

Minor Health Centres

Unit for delivery of basic health services to a population of 15,000 people. Provides up to 70 percent of basic health care package need of the population

Major Health Centres (Regional hospitals)

The major health centre serves as the referral point for minor health centres for services like obstetric emergencies and essential surgical services. Bed capacity is up to 100 and serve as blood transfusion point. National standard is one per 200,000

General Hospital

Are regional referral points and have a bed capacity of up to 250 beds. There are 3 in the Gambia

Teaching and Specialist Hospital.

Final referral point within the Gambia and there is only one which is at Banjul

Private sector

Mainly in Banjul area and is small but growing and represents a real threat because the salaries will attract doctors and nurses (both very scarce) away from state facilities.

Traditional Birth Attendants (TBAs)

TBAs are women who are normally aged between 50 and 70 years who have been chosen by their local communities to (a) help look after women during pregnancy (b) attend the birth of women who deliver in their village (c) visit the mother and baby every day until the 'naming ceremony' on the eight day after birth. All TBAs receive 6 weeks training in obstetric and neonatal care from the medical system in the Gambia, and around 60 TBAs from the Brikama district have received further training from the project presently under evaluation. Most TBAs cannot read or write most have great personal experience of pregnancy, childbirth, care of the newborn and child care in general having had many children themselves. They may individually be responsible for delivering as few as 10, or as many as 200 births, a year. In the project – TBAs, when they referred a patient to the HC were encouraged

to travel with their patient to the HC and attend her till delivery. Presently most TBAs do their job without any remuneration.

Midwives in the Gambia have undertaken 3 years training in general nursing and a then further training in midwifery. They normally practice in hospitals or health centres.

Doctors. The training of doctors within The Gambia has only just begun. Till recently, all doctors have been trained elsewhere. There are a relatively large number of Cuban doctors working in the country. The rest of the doctors have been trained elsewhere, many of them in other African countries.

Summary Background Relating to National Reproductive Health Policy.

The Gambia is Africa's smallest country. It is extremely poor and has a high maternal mortality ratio (730 for every 100,000 live births-1990-2005 data UNICEF 2007 State of the world's children and adjusted 540/100,000) and high infant and child mortality rates (97 and 137 for every 1000 live births respectively-2005 data UNICEF 2007 State of the world's children). Around half of births are conducted in the home by Traditional Birth Attendants (TBAs) with little support and only basic training. Emergencies represent a major cause of maternal, infant and child deaths. The most common life threatening emergencies occurring in mothers and children in The Gambia are 1) pregnancy related: namely massive haemorrhage before and after birth, eclampsia and sepsis 2) neonatal: namely failure to breathe at birth and sepsis 3) paediatric: namely malaria, diarrhoeal disease and pneumonia and 4) major trauma. The indirect causes of morbidity and mortality are severe anaemia with malaria being a major contributing factor, low literacy levels of women, high attrition rate of trained or skilled health workers and poverty. Obstetric Fistula (OF) in women is also an important morbidity issue. Malaria remains the leading condition for severe illnesses and deaths in infants and children under five years. The main challenge for the Health sector is to get all the major health facilities in The Gambia functional for the provision of basic and comprehensive emergency care over 24 hours, supported by a well functioning laboratory service for blood banking and transfusion. Another challenge for the Government is to retain its trained health personnel especially the trained nurses and midwives (skilled health personnel). As part of the background to reproductive health in The Gambia it is worth noting that a UNFPA report on 'The National Survey Adolescent/Youth Health 1999-2000' found that although there was an apparent negative tendency towards pre marital sex, that the ideal age for first sex, marriage and childbearing according to the respondents to the questionnaire was 11.9, 15.5 and 16.9 years respectively for females. Corresponding ages of 12.3 years for first sex and 18.5 years for marriage were proposed by males.

Burden of Specific Relevant Diseases in Reproductive Health In The Gambia

1. Severe malaria is the commonest cause of admission during pregnancy
2. Apart from malaria – anaemia, haemorrhage, pre-eclampsia are the commonest conditions seen in pregnant women are relatively common, followed by sepsis and pelvic inflammatory disease

3. Commonest cause of pregnancy related death is pre-eclampsia and eclampsia
4. Of the common obstetric/labour and delivery problems – abortion (legal and illegal abortions are not disaggregated) is the commonest followed by pre-eclampsia and eclampsia, then antepartum haemorrhage and delayed/obstructed labour.
5. Neonatal conjunctivitis and neonatal sepsis are major diseases that affect neonates
6. Malaria is the commonest childhood illness report by the primary health care villages and severe malaria is the commonest reason for hospital admission in this age group.
7. Malaria is the commonest cause of death for the under 5's

(ref: *Department of State for Health. Health Management Information System Services Statistics Report. The Gambia 2001-2004*)

Obstacles to Safe Motherhood in The Gambia

3 major delays:

- Delay in deciding to seek care due to;
 - Non recognition of danger signs
 - Lack of preparation by family & community
- Delay in reaching health care facility due to;
 - Poor roads, lack of transport, poor communication
- Delay in appropriate care after reaching facility due to;
 - Inadequate skilled staff
 - Lack of drugs, equipment, supplies
 - Poor referral system

Key Specific Mortality Figures.

There was unfortunately a paucity of mortality figures available which hindered the objective evaluation of the project. It is hoped that further, more recent figures may become available in the near future.

For 2001 the national figures reported showed that there was a:

Maternal mortality	- 730/100,000 live births
Peri-natal mortality rate	- 54.9/1000 live births
Neonatal mortality rate	- 31.2/1000 live births
Infant mortality rate	- 84 per 1000 live births
Under 5's mortality rate	- 135 per 1000 live births

For 2003 the national figures were reported as showing that:

Maternal mortality	540/100,000
Infant mortality rate	75/1000 live births
Under 5 mortality rate	99/1000 live births

For 2003 Brikama local Government Area figures were reported as showing that:

Infant mortality rate	71/1000 live births
Under 5's mortality rate	93/1000 live births

Overall Place of Birth

In 2004 - 22,052 deliveries took place in health facilities with 8,314 of these being attended by a midwife. In the same year 13,083 deliveries were primary health care village deliveries by far the majority of which were attended by a TBA

Government Level Organisation of Health Services

The Reproductive and Child Health Unit headed by Mrs Ramou Cole-Ceesay is one of 12 technical units within the State Department of Health

Brikama Health District.

Brikama health District, along with Banjul are the two administrative areas which make up the Western Division of The Gambia (total population 389,594). After Banjul, Brikama has the second highest socio economic rating in the country. The catchment area covered by the Brikama Health Centre covers a population of 134,411 which is 41.24% of the Western Division population. The population covered is actually closer to 200,000 if temporary migration from Senegal is taken into account.

Brikama Health Centre.

Brikama Health Centre is situated near the market in Brikama Town (approx population 60,000) in the South West of The Gambia. It consists of a compound with a number of major buildings. The compound itself is earth with a few large shading trees. It has a security gate which is manned 24 hours a day and a breeze brick wall separating it from the nearby market. Both have been put in place as a result of the project itself. There are plans to develop the compound further – the next building planned is a mortuary.

In patient and out patient medical facilities. (1) an outpatient clinic with an emergency room (project development) and a dispensary (2) a 14 bedded antenatal ward including an emergency room (project development) and labour room with 4 beds, as well as post-natal ward (3) A building containing a children's ward with 11 beds, plus a two-bedded high care area being established by the project and a separate adult women's ward. This building also houses the operating theatre newly renovated by the project (4) an adult male ward.

Ambulance service. Before 2006 and the advent of the project there was one 4 wheel drive ambulance mainly used for transferring patients to and from the Royal Victoria Teaching Hospital (RVTH) though it also collected emergencies and takes them either from home or elsewhere to the HC or RVTH. A second ambulance has been provided for Maternal and Child Health Project used almost solely by the project itself.

Laundry. The original toilet area has recently been moved to a new location, and the old toilet area has been converted into a laundry room with a single washing machine.

1.4 The Project At Brikama.

Background and overview of the programme to be evaluated.

An essential overall concept to the project is the link between training, equipment, supplies and advocacy

The Department of State for Health through its National Reproductive & Child Health Project Unit in collaboration with the World Health Organisation (WHO), Child Advocacy International (CAI) and the Advanced Life Support Group (ALSG) UK, are implementing an Emergency Maternal, Newborn and Child Health Programme using a holistic and concerned approach to the delivery of quality emergency maternal and child health services on a sustainable basis.

This partnership intervention currently being implemented at the Brikama Major Health Centre and Catchment Area is aimed at accelerating the reduction of maternal and newborn mortality and morbidity as well as meeting the targets of the 'Vision 2010' and the Millennium Development Goals (MDGs) Number 3 and 4, by the year 2010 and 2015 respectively.

Brikama health centre and catchment area was chosen because according to the national census it has the second fastest population growth area in The Gambia and it has a major health centre which is centrally located and was already set up to provide basic and emergency obstetric care.

The intervention project was set up following the signing by Government of the Memorandum of Understanding between the Department of State for Health, the WHO, Childhealth Advocacy International (CAI) UK and the Advanced Life Support Group (ALSG) of the UK in October 2006. The Programme utilizes 3 major interventions i.e. capacity building of personnel and institutional strengthening: infrastructural improvements and, the direct linking of communities to secondary and tertiary level of care 24 hours daily. The program is overseen in the The Gambia by Mrs Ramou Cole-Ceesay. Country Programme Director. CAI.

During the last 12 months over 200 Nurses/Midwives including doctors have been trained on basic and emergency obstetric and child care, 82 Traditional Birth Attendants were also trained on recognition of obstetric emergencies and resuscitation of the newly born and equipped with mobile phones supported by a well-equipped flying squad ambulance on 24 hours duty at the Brikama Major Health Centre.

The women are now receiving caesarean sections and other life support services following modest infrastructural improvements and supply of equipment which have led to the functioning, for the first time ever, of an operating theatre in this facility. These improvements, among others, have increased the demand for services at the facility as well as the free maternal and child health services accorded by the Head of State in July 2007.

Against this backdrop, the programme completed its pilot phase in December 2007.

Summary of the overall project components.

1. Sustainable training programme within the existing system to reach all health care workers
2. Advocacy to ensure essential drugs, medical supplies and equipment by Gambian Government
3. Advocacy to ensure low cost and appropriate renovation of existing hospital buildings undertaken by local Government
4. Operating theatre in Brikama Health Centre staffed and equipped for operative deliveries
5. Strengthening of the referral system integrating home with hospital based care
6. Evaluation detailing every instance of resuscitation

Specific recommendations from Original Report of the Project on Community Maternity Services in the Brikama District 2006.

- Additional training in the emergency care of mothers and newborn infants should be give to the 60 trained TBAs in Brikama district.
- Training should be accompanied by:
 - the flying squad emergency response system of trained and equipped midwives from Brikama H.C, with the use of logbooks to document resuscitations
 - each TBA to be equipped with a mobile phone and charger
 - each TBA to be equipped with a bag valve and mask suitable for resuscitating the newborn
 - each TBA equipped with a mercury thermometer
 - each TBA to have appropriate sterile gloves
 - consider remuneration for the TBAs
 - each mother who is pregnant and attends the antenatal clinic should be given a card on which they have the mobile number of their TBA and the emergency flying squad midwives

(ref: Report on community maternity services in the Brikama district and proposal for the enhancement of the trained TBA service. 13/08/2006)

The maternal health goals.

To reduce by three quarters the maternal mortality ratio in order to achieve the 5th millennium development goal, by

- Training of community health care workers in
 - recognition of life-threatening complications
 - when and where to seek help
 - birth plans including emergency transport
- Increasing the skills of health worker involved in pregnancy and delivery
- Providing access to emergency obstetric services when complications arise

Specific Training goals

Hospitals

- Essential surgical skills-Emergency maternal and child health course (ESS-EMCH) for nurses and doctors
- Essential surgical skills-Emergency maternal and neonatal health course (ESS-EMNH) for midwives
- Training of 10 nurse anesthetists to support operative deliveries in all major health centres by Director of Anesthetic services in Gambia

Community & First Level Responders.

- Traditional Birth Attendants (TBAs)
- Village Health Workers

Instructor Courses (GIC)

- For suitable successful candidates in other courses to be trained to take over future training

Training components

1. At all 3 levels: community, district and tertiary hospitals and including ambulance services
- 3 Modular courses geared to those being taught
3. Similar courses for community midwives, paramedics, village health workers, ward cleaners and ambulance personnel

Emergency flying squad goals

- Most mothers experiencing emergencies at home never reach the hospital
- Strengthening of the link between home based (primary care) and Brikama major health centre, by
 - Local ambulance service improved by simple measures such as improved maintenance, available fuel
 - Each ambulance to contain essential equipment
 - Training of traditional birth attendants and equipping each with mobile phones, thermometer, and bag valve mask resuscitators
 - Skilled birth attendants at hospital with emergency kit available 24/7
 - Ambulance and driver dedicated to 24/7 response

Ambulance components

- 24 hour a day 7 days a week availability
- Well paid and properly valued and supported drivers and paramedics
- Good telephone/radio communication with health facilities
-

(ref: *The ESS-EMCH Project*)

2.0 THE EVALUATION.

2.1.Type Of Evaluation.

Definition. An 'evaluation' is a systematic and impartial assessment of an activity, project, program, strategy, policy, sector, focal area, or other topics. It aims at determining the relevance, impact, effectiveness, efficiency, and sustainability of the interventions and contributions of the involved partners.

SMART Criteria for Evaluation. These will be used for the overall evaluation of the project.

- a) **Specific.** The system captures the essence of the desired result by clearly and directly relating to the achievement of an objective and only that objective.
- b. **Measurable.** The monitoring system and indicators are unambiguously specified so that all parties agree on what they cover and there are practical ways to measure them.
- c. **Achievable and Attributable.** The system identifies what changes are anticipated as a result of the intervention and whether the results are realistic. Attribution requires that changes in the targeted developmental issue can be linked to the intervention.
- d. **Relevant and Realistic.** The system establishes levels of performance that are likely to be achieved in a practical manner and that reflect the expectations of stakeholders.
- e. **Time-Bound, Timely, Trackable, and Targeted.** The system allows progress to be tracked in a cost-effective manner at the desired frequency for a set period, with clear identification of the particular stakeholder group(s) to be affected by the project or program.

Five other evaluation criteria, are used to look at various aspects of the project where appropriate but are not be used systematically throughout.

- a. **Relevance.** The extent to which the activity is suited to local and national development priorities and organizational policies, including changes over time.
 - b. **Effectiveness.** The extent to which an objective has been achieved or how likely it is to be achieved.
 - c. **Efficiency.** The extent to which results have been delivered with the least costly resources possible; also called cost effectiveness or efficacy.
 - d. **Results.** The positive and negative, and foreseen and unforeseen, changes to and effects produced by a development intervention.
- Sustainability.** The likely ability of an intervention to continue to deliver benefits for an extended period of time after completion. Projects need to be environmentally as well as financially and socially sustainable.

(Ref: The global environment fund monitoring and evaluation policy 2008)

2.2 The Aspects of the Programme to be Evaluated.

- 1. Overall evaluation of the project from the questionnaires**
- 2. The evaluation of how the four parties with inputs into the program have worked together and how each body has fulfilled their stated obligations and coordinated their efforts.**
- 3. The evaluation of the training of personnel involved in the program, including doctors, midwives, and TBAs**
- 4. The evaluation of the equipment supplied to the programme including equipment supplied to the Health Centre, midwives and TBAs and the refurbishment of the HC.**
- 5. The evaluation of the clinical care being provided by the project**
- 6. The evaluation of the 'cost-effectiveness' of the program**
- 7. The evaluation of the sustainability of the program**
- 8. The over all SMART evaluation of the program and its applicability to other areas in The Gambia and elsewhere.**

2.3. Methods Used In The Evaluation.

The methods used in the evaluation were:

- Reviewing, in advance of visiting the project in The Gambia, all available documentation provided by Professor David Southall
- Visiting the project itself in The Gambia on 7 working days (see appendix 3)
- Interviews with key personnel involved with the project including those professionals responsible for the project, associated personnel involved in evaluating the project, doctors, midwives, traditional birth attendants, and mothers
- Designing specific questionnaires to be given to four health different groups of people involved in the project – health professionals overseeing the project, midwives, TBAs and mothers
- Visiting Brikama health centre and a number of villages in Brikama district
- Reviewing available documents provided by the project and by the Maternal and Child Health Dept of The Gambia Health
- Interviewing those responsible for the project from the NGOs and departments involved
- Reviewing the finances of the project
- Identifying the objectives of different parts of the project and evaluating the project against these objectives.

2.4 Overall Evaluation of The Project From the Questionnaires.

Virtually all respondents to the questionnaires were extremely positive about the project's benefits. The following are typical quotes.

'The benefits are immeasurable at all levels – capacity building – institutional strengthening, infrastructure improvements, clear project proposals which have been met; because it was not stand alone, and has forged links from community level to tertiary level'

'It has improved moral and makes people feel more self confident and more valued and supported than they did before the project began'.

'The project is very helpful to women to give them safer childbirth and for children'

'The project and training has helped me a lot in undertaking safer delivery services and made it easy to communicate with the CHN and flying squad about complications encountered'

'It is making communication easy for TBAs and transportation is always available'

There were also, a number of very positive and useful comments made by both by the mothers receiving the service and by service providers about how the service could be improved (see appendix 1)

Recommendation

That, alongside the recommendations made by the evaluator below - the recommendations arising from the questionnaires are also reviewed at a meeting of the four parties running the project – before the project is developed elsewhere.

2.5 The Evaluation Of How The Four Parties With Inputs Into The Program Have Worked Together And How Each Body Has Fulfilled Their Stated Obligations And Coordinated Their Efforts.

Objectives of collaborative work

In August 2006 a Memorandum of Understanding (MOU) was drawn up between the four parties involved in the project. In broad terms this Memorandum of Understanding (MOU) outlines the different responsibilities that would be undertaken by the different bodies.

The four parties are:

- 1) The Department of State for Health and Social Welfare – The Gambia (DOSH)
- 2) Child Advocacy International (CAI)
- 3) The Advanced Life Support Group (ALSG)
- 4) World Health Organisation (WHO) – The Gambia

1. The Department of State for Health agrees:

- To undertake the actions agreed in column 3 of the attached Proposal A : refurbishment of the Brikama Major Health Centre (see file entitled ' MOU and proposals a, b and c')
- To undertake the actions agreed in column 3 of the attached Proposal B (see file entitled ' MOU and proposals a, b and c'): establishment of an integrated maternity emergency service for the Brikama District

2. The Advanced Life Support group agrees:

- To collaborate with CAI in the further development of the course materials to make them suitable for The Gambia.
- To provide the network links to instructor volunteers who will catalyse the development of ESSEMCH in the Gambia.
- Subject to the availability of the necessary resources, to maintain quality control and thus the International accreditation process
- To allow CAI the use of ALSG logo on ESS-EMCH materials jointly developed and agreed with ALSG
- With CAI to continue to develop the teaching materials for The Gambian health-workers as the situation in the country develops.

3. Child Advocacy International agrees:

- To work with ALSG in the continuous development of the course materials and ensure concordance with WHO IMPAC guidelines the WHO IMEESC tool and the IMCI guidance , the ETAT program and the CAH publications “ The management of a child with serious infection or severe malnutrition, guidelines for care at a first referral centre in developing countries” and “.The Pocket book of hospital care for children, Guidelines for the management of common illnesses with limited resources”
- To ensure the ESSEMCH movement addresses the emergency care of mothers during the last three months of pregnancy, newborn infants and children.
 - To act as the implementing agency in the Gambia, passing the running of the programme to the government through the designated Country Programme Director thereby enhancing an integrated approach to the existing Maternal, Newborn and Child Health Care within the context of the National Reproductive Health policy. To maintain international recognition, control of the training courses will remain with ALSG/CAI who will continue to ensure the courses’ suitability for The Gambia in conjunction with DOSH Gambia and WHO Gambia. (see also file entitled ‘ MOU and proposals a, b and c’)

4. WHO The Gambia agrees:

- To provide overall guidance to ensure the successful implementation of the pilot part of the project based in the Brikama District.
- To provide office space and support to the project, including computer and printing facilities and email.
- To provide for the duration of the pilot project a vehicle (CAI to fund the Driver) including servicing and fuel to a maximum of 100 US \$ per month.

Evaluation of collaborative work.

The collaborative working of the four parties concerned with the project is a definite strength. The role of each party has been, to a very large extent been fulfilled, as stated. From observation and from the questionnaires - most of the above agreements have been met by the four parties involved and at least part of the success of the program has been due to their close cooperation. Mrs Ramou Cole-Ceesay has played a central and vital role in overseeing the overall development of the project in The Gambia.

However there are certain problems arising at least partly because the four parties have *not met regularly* to discuss the ongoing implementation of the memorandum of understanding.

Problems that have arisen include:

- the allowance of 40 litres a week for the project ambulance at Brikama has recently been cut to 30 litres or less, without discussion between the parties, which has led to difficulties with the ambulance not being able to attend to all requests and in at least one case this has been a threat to the health of a patient as a result.
- although the refurbishment of the wards at the Brikama health centre has been carried out – the standards that the original refurbishment met has not been kept up e.g. there are presently torn screens, worn bed mattresses etc
- The question of the CAI '*passing the running of the programme to the government through the designated Country Programme Director*' needs clarification. There are definite problems in the detailed overseeing of the programme on a day to day and week to week local basis which are outlined elsewhere in this report. All these problems could have been easily and rapidly solved if one *technically able person with management* local to Brikama had a day to day overall responsibility for the project as their main role.
- Linking the project more closely with Divisional/Regional health team to aid coordination and cooperation. It is not clear what has happened as far as linking the project in this way
- Providing some kind of extra incentives for the project staff (other than the surgeon (who already is paid an incentive) needs to be kept under constant review. It appears that some members of project staff have incentives whilst others do not.
- Consideration should be given to training up staff in the technological aspects of the equipment which has been, to a certain degree, overlooked
- Need for recording/filling in of log books etc, has not taken full account of (a) the literacy of the staff (b) that staff are giving it low priority at times when they are under pressure from clinical emergencies etc.
- There are perceived inadequacies of staffing, and staff seem, to a certain extent, to be moved off and into the project arbitrarily.

Recommendations arising from the evaluation of collaboration

- That the four collaborating organisations should hold formal meetings to manage the project on a more regular basis. Every three months should be a minimum. These meetings should include discussions about responsibilities for the ongoing review and 'upkeep' of the project.
- A set of 'quality standards' for the project, which need to be maintained and reviewed, on a regular basis, should be drawn up by the four parties involved. This would also aid when developing the project elsewhere.

- That the provision of ‘incentives’ for the clinical and other staff working on the project should be kept under constant review
- That staffing and staffing levels should be kept under constant review
- That the day to day supervision of the project at a local level, by someone with technical as well as managerial expertise – should be discussed
- That all these matters and others should be discussed and reviewed when considering expansion of the project to other areas in The Gambia or elsewhere in Africa

2.6 The Evaluation of the Training of Personnel Involved In The Program, Including Doctors, Midwives, And TBAs.

Objectives of training;

Generic Clinical areas to be covered by the training.

- The structured approach to the resuscitation of patients suffering emergencies
- Recognition of serious illness in the infant, child and pregnant mother
- Prevention of hospital acquired infection
- Basic monitoring
- Setting up a high dependency area
- Fluid requirements and fluid balance
- Prescribing practice- minimizing errors
- IV drug and fluid administration
- Blood transfusion
- Pain control and sedation
- Transport of the critically ill

Life threatening emergencies to be covered in the course

- Triage
- Medical emergencies during pregnancy (the mother with breathing difficulties, shock, coma, confusion and convulsions-eclampsia)
- Pregnancy related emergencies: massive haemorrhage (ectopic, miscarriage, APH, PPH), sepsis, complications of labour)
- Major trauma and burns
- Domestic violence
- Emergency skills

Life threatening emergencies in children covered in the course

- Triage
- Basic Life Support
- The child with: breathing difficulties, shock, confusion, coma and convulsions
- The severely malnourished
- Trauma and burns
- Poisoning
- Child abuse
- Emergency skills

Life threatening emergencies in the newborn infant covered in the course

- Resuscitation of the newborn
- The neonate with: -
 - Sepsis
 - Breathing difficulties
 - Coma, confusion or convulsions
 - Severe jaundice
- Emergency skills

Three tiers of training.

Hospitals

- ESS-EMCH for nurses, midwives and doctors
- Infection control and basic life support for ward cleaners**
- Community & First Level Responders.
- Ambulance Personnel
- Traditional Birth Attendants (TBAs)
- Village Health Workers

Instructors Courses (GIC)

Main components of training.

- Courses involve lectures, skill stations, drilling of skills, workshops and scenarios
- Based on the courses taught in richly resourced countries (APLS and MOET) but tailored to poorly resourced situations
- Quality controlled by ALSG volunteer instructors and educator
- ALSG accredited
- Banks of local instructors created
- High quality and appropriate teaching materials
- Designed to fit in with existing maternal and child health programmes
- Integrates with local solutions to healthcare problems resulting from poverty

Types of courses.

- Initial *5 day ESS-EMCH* for leading, carefully selected obstetricians, paediatricians, nurses and midwives by UK volunteer ALSG instructors
- Subsequent courses *3 days: ESS-EMNH* (Emergency Maternal and Neonatal Healthcare) followed by an *ESS-ECTH* (Emergency Child and Trauma Healthcare) course. These first courses undertaken by ALSG international volunteer instructors
- Local candidates recommended as potential ESS-EMCH instructors will then undergo a 2 day *Generic Instructor Course* by visiting ALSG instructors (at least one an Educator). If successful become Instructor Candidates and later fully accredited ALSG Instructors
- *Special short 2 day courses* for traditional birth attendants
- *Special short 2 day courses* for village health workers, paramedics, ward cleaners and ambulance personnel to be undertaken in the future

Evaluation of training.

The teaching part of the project has trained staff from all over The Gambia – with the preponderance come from Brikama.

The following courses have been run to date:

- One 5 day EMCH course – Jan 2007
- Four 3 day EMNH courses – Jan 2007, July 2007 (2) , March 2008.
- Two 3 day ECTH courses – October 2007
- Four 2 day TBA courses – 3 in April/May 2007 and October 2008
- Three generic instructor courses – Jan, July, October 2007.

One course has been run (4th TBA course) without direct participation by international instructors from ALSG. All TBA courses were held in the local languages of Madinka and Wolof. For the three courses where international instructors took part, translating was undertaken by Gambian instructors.

Evaluation of these courses by the individual participants was not available though overall, everyone that was interviewed who attended the training courses assessed them very highly.

There are now 22 trained instructors chosen from the provider courses by a criteria based system, used in all ALSG courses. Having done the instructor course the instructors would normally do two courses under supervision. At the present time all the instructors have done at least one and more than half have done two courses.

Incentive to become an instructor appears to be (a) recognition of having potential skills (2) they get a per diem and travel expenses whilst on the course. The general assessment of the instructors is that most of them could now run the course themselves *if everything went smoothly* but that they are not really ready to take over all the training fully at this stage.

Further training courses are being set up include:

Village Health Workers to be trained next. Falls out trees and injuries in general, and convulsions. Basic life support for drowning and electrocution. Probably about the same number of TBAs. The components of this course are available but not put together yet.

Cleaners – bit of background as to why they clean. Using the NHS basic course for cleaners. Pilot at the end of June.

Ambulance drivers - on emergency care.

Training was also evaluated by:

1. observing a training course run by David Southall and Barbara Phillips during the visit to The Gambia
2. reviewing the training manuals provided by the project
3. reviewing the questionnaires given to the health personnel, and the TBAs
4. talking to the staff involved in the project and also, more specifically, those involved in providing the training

The regular training of all the personnel involved in the project is undoubtedly, from this evaluation, one of its great strengths. The training program is very

much geared, as it needs to be, to the individual requirements and level of education of the different course participants; the courses include a great deal of interaction; are in line with modern training concepts; provide excellent manuals and other materials.

Everyone questioned either by interview or via the questionnaires praised the training that they had been given. There was absolutely no criticism from anyone of the training provided, which was considered universally appropriate and of a very high quality.

Recommendations for training in the future.

- There should be regular *re*-training and updating of the TBAs
- There should be more training in neonatal care for TBAs and midwives
- There should be training for TBAs in the recognition of illness in older children
- Training should be expanded to the doctors and other staff 'in training' at the RVTH in 'Emergency resuscitation and care'.
- That the project should, in general, remain flexible about training health staff from elsewhere in The Gambia according to 'need'
- That when considering expansion of the project to other areas – consideration should be given to the *advanced* training of the staff that will be involved
- That future training should include training in the technical and practical sides of equipment maintenance
- Consideration needs to be given to training in project 'management'
- Individual evaluation sheets should be prepared for each training course and distributed, collected and analysed. The results of this should be made available for future overall evaluations of the project

2.7 The Evaluation Of The Equipment Supplied To The Project Including Equipment Supplied To The Health Centre, Midwives And TBAs And The Refurbishment Of The HC.

Objectives of provision of equipment.

The refurbishment needs are outlined in several linked documents which include:

- Emergency Maternal and Child Health Care (EMCH) Project: Emergency Drugs
- Emergency Maternal and Child Health Care (EMCH) Project: Emergency Equipment
- Emergency Maternal and Child Health Care (EMCH) Emergency Medical Supplies

The more specific details concerning the actual provision of equipment by the four parties involved in the project is laid out in detail in the 'Memorandum of Understanding (MOU) between the Department of State for Health (DOSH) of The Gambia, the Advanced Life Support Group (ALSG), Childhealth Advocacy International (CAI), and The World Health Organisation (WHO) The Gambia. (see pages 5-8 ' MOU and proposals a, b and c')

Evaluation of equipment.

A very thorough and appropriate assessment of need, including the equipment needs, has been carried out by the CAI and the Department of State for Health for The Gambia and this assessment has been a key element in the development of the project. Further the initial provision of equipment by all involved parties appeared to be in line with the Memorandum of Understanding though it was impossible, because of time factors, to check every item listed and agreed. 'A Study of the General Condition and Operation of Bio-Medical Equipment within The Gambia November 2007' carried out by Mr Ousman Ceesay and Mr George Robertson found that all equipment was functioning correctly apart from an old NeoCare incubator. Their overriding concerns that were noted was 'user training'. An infant warmer had not been used since being donated as nobody had explained how to operate the unit.

A number of factors have overall interfered with the efficient running of the project as far as the equipment is concerned.

These include:

- (a) the TBA's mobile phone batteries are no longer charging
- (b) neither of the two oxygen compressors were being used - as the staff were unaware of how to 'reset' them (a matter of pushing a button)
- (c) the washing machine provided for the project was not used for three months because no one unpacked it properly or obtained an extension cord needed to plug it in to the electrical supply
- (d) the staff at Brikama health centre said that they had been informed by RCH unit that the surgical operating theatre could only be used for maternal/obstetric cases, when it could in fact be efficiently and effectively used for other surgical cases at Brikama H.C. This would not only make more efficient use of the equipment but also of the staff provided there by the project
- (e) credit for the mobile phones used by the TBAs has not been available and the TBAs are having to pay for their calls when asking for help
- (f) problems with providing an adequate supply of delivery kits
- (g) lack of regular supplies of some drugs' such as Pitocyn

Recommendations for the future provision and upkeep of equipment.

- Many of the equipment issues could have been dealt with faster if there had been more regular meetings between the four parties involved in running the project
- Technological training in the maintenance of equipment needs to be reviewed and undertaken by the project.
- Someone at a local level to the project needs to take on responsibility for continuing to assess and maintaining equipment and for making sure that it works
- Future memorandum of agreements need to include arrangements of maintenance of equipment, wards etc
- Sources for funding this maintenance need to be identified

2.8 The Evaluation of The Clinical Care Being Provided By The Project

Objectives of clinical care.

These include:

The overall objective of reducing maternal, neonatal and infant mortality and morbidity by:

- Training of traditional birth attendants and equipping each with mobile phones, thermometer, and bag valve mask resuscitators
- Skilled birth attendants at hospital with emergency kit available 24/7
- Well equipped ambulance and driver and skilled birth attendant dedicated to 24/7 response
- Strengthening of the link between home based (primary care) and the local referral hospital as, till the start of the project, most mothers and children experiencing emergencies at home never reach the hospital

Evaluation of clinical care:

This was done:

- by examining the log books of the midwives and the flying squad ambulance
- looking at the delivery records that were available at Brikama
- looking at the nationally available statistics
- interviews with, and questionnaires for, health professionals, midwives, TBAs and mothers
- observing practice at Brikama health centre and in the surrounding villages and informally discussing the project with the relevant people involved

From all these sources, it appeared that the project was much valued. Ideally the evaluation should include an analysis of the maternal and neonatal mortality statistics. However the details needed of the statistics were not all available. What was available showed that:

The mortality rates nationally for The Gambia for 2001 are:

Maternal mortality	- 730/100,000 live births
Peri-natal mortality rate was reported	- 54.9/1000 live births
Neonatal mortality rate	- 31.2/1000 live births
Infant mortality rate	- 84 per 1000 live births
Under 5's mortality rate	- 135 per 1000 live births

Ideally the figures for:

- neonatal death rates – National
- neonatal death rates – Brikama district
- infant mortality rates – National
- infant mortality rates – Brikama district
- under five mortality rates – National
- under five mortality rates – Brikama district
- maternal death rates – National
- maternal death rates - Brikama district

for the years 2002, 2003, 2004, 2005, 2006, 2007 are needed for analysis – but were not available for a variety of reasons. Some data had been lost and some data on the Brikama district figures were so low as to be considered not worth recording.

However information from the midwives log books and the flying squad ambulance service log books plus that from the interviews with the TBAs and other staff - clearly indicated specific occasions when the lives of individual mothers and of babies – were saved by the facilities – both human and equipment – provided by the project.

A good indication of the benefits achieved by the project can also be seen by reviewing the 'Flying Squad Data for Brikama District 14/5/07 until 22/3/08' (see appendix 5).

Out of 62 cases dealt with by the flying squad:

- 11 resulted in live births via a Caesarean section and it would be reasonable to assume that many of these babies would have died if the intervention of the flying squad had not been available.
- 14 were cases of antepartum haemorrhage where the lives of the mothers were endangered as well as those of the foetuses
- In 23 cases – a baby survived to go home – and though the outcome without the intervention of the flying squad is difficult to judge the intervention appeared to have had a positive benefit.

Overall exactly how many maternal and infant lives were saved, and how much morbidity was prevented – by the project facilities – is impossible to estimate without detailed reliable statistics being available over a greater period of time.

Recommendations for the future in the field of clinical care.

- When developing the project elsewhere – high priority should be given to the reliable collection of clinical data including maternal and child morbidity and mortality
- All the staff now appears to be appropriately trained to provide a much improved standard of care – in emergencies, in prenatal, intra natal and post natal care. There is however a need, that has been identified above, for further training in some specific areas of clinical care – especially the care of the newborn and infant.
- There is a need, already identified above, for the equipment provided to both the TBAs and to the Brikama Health centre to be better maintained.
- The availability of local surgical skills (both obstetric and general) at Brikama Health Centre is critical and this provision needs to be reviewed by the four parties concerned
- The overall supervision of the project at Brikama Health Centre needs to be reviewed to ensure that staff and equipment are kept up to the standards required of the project to ensure its efficiency in meeting the project's objectives.
- A number of other recommendations were given by mothers, TBA's, midwives and others (see appendix 1).

2.9 Evaluation of the 'cost-effectiveness' of the program

Funding for the project has come mainly from the CAI who have between 1/5/2006 and 29/2/2008 raised a total of £129,448.59 and have shown expenditure over this period of £121,934.03.

Part of the income that is shown on the CAI accounts for the project comes from the ALSG.

The refurbishment costs a Birkama HC was met by the Reproductive and Child Health unit and these amounted to £2,677.75

WHO costs were in providing a room in WHO The Gambia office along with internet access, plus fuel, car and driver when the CAI team visited the Gambia.

In order to demonstrate the cost-effectiveness of the project it would be ideal if one was able to set against this a specific number of maternal and child deaths prevented – but this is not possible.

What it *is* possible to say is that the project is financial well managed, costs are kept to the minimum necessary, and overall the cost benefits are *likely* to be extremely positive.

Recommendations for the future on funding.

- That it is assumed that the costs benefits are positive
- That sources of funding such as UNFPA and Government funding are looked for at this stage for the development of the project elsewhere in The Gambia – on a sustainable basis – and specifically to cover on going staff, equipment and refurbishment
- That the CAI and ALSG continue to have a major input in the training of staff
- That further other sources of funding are looked for
- That in two years time a detailed evaluation of the cost-effectiveness of the project is undertaken when appropriate statistics concerning the maternal and child mortality data is more reliable and available at local district levels.

3.0 The Evaluation of The Sustainability Of The Program in Brikama

Objective.

To ensure the sustainability and further development of the project at Brikama Health Centre.

Evaluation.

The present program for the project is sustainable at the moment because of:

- the financing of the project by the CAI and ALSG
- the time and effort put in by David Southall and Barbara Phillips as well as other volunteers
- the work of Mrs Ramou Cole-Ceesay heading up the project in The Gambia, has been able to put into the project
- Support in several forms has been provided by local WHO

- The enthusiasm and support for the project by all the clinical and other staff concerned

The *future* sustainability of the program depends on a number of different factors many of which have already been covered. However from the present evaluation it appeared that there is:

- A lack of real leadership of the project at local level at the Brikama Health Centre. This may have been because the project only represents a part of the work carried out at the HC and has to be seen alongside the other needs of the HC.
- A periodic shortage of staff at all levels at the Brikama HC. Midwives were often short staffed and therefore overworked and stressed.
- There is a real risk that the staff who have been trained by the project will see opportunities of getting better jobs elsewhere outside of The Gambia (although the training is specific to the clinical situation in The Gambia and not elsewhere)
- When the project surgeon was away – there was no one there to replace him.
- There has been no one taking responsibility for the technical side of keeping the equipment in running condition.
- The use of the ‘theatre’ for non – obstetric cases needs resolution
- There is a periodic shortage of certain essential drugs
- Log books were not, in some instances being filled in regularly

These and other factors need to be corrected if the program is going to be sustained.

Recommendations for the future

The project will be sustainable only if a number of actions are taken:

- Future sources of funding for the project are identified at least two years in advance
- Clear specific objectives are set for the project at Brikama for the next two years
- There are regular (every three months if possible) meetings of the four parties involved in the management of the project so as to deal with some of the problems listed above
- Clear responsibility for the upkeep of the wards, ambulance, equipment, staff training at Brikama health – is identified in a new MOU
- The future of TBAs and their training – is ensured – along with upkeep of the equipment supplied to them
- Someone local to the project takes responsibility for the technical upkeep of equipment at Brikama health centre
- Recent pressure on the work time of Mrs Ramou Cole-Ceesay raises the question as to whether someone else should take over the *local* running of the project on a day to day basis with Mrs Ramou Cole-Ceesay maintaining overall national responsibility.
- Clarification needs to be made over WHO's continuing role in the project especially if the project is to be expanded elsewhere.
- Further evaluation of the project is undertaken every two years

3.0 SUMMARY OF OVERALL 'SMART' EVALUATION OF THE PROGRAM

a) Specific (the system captures the essence of the desired result by clearly and directly relating to the achievement of an objective and only that objective).

The ESS-EMCH project has clear general objectives. The present overall aim is to reduce the high levels of maternal, neonatal and infant/child mortality and morbidity in the Brikama district of The Gambia – using a number of specified methodologies the most key ones being:

- skilled health worker during pregnancy and delivery
- access to emergency obstetric services when complications arise
- access to improved emergency services for infants and children

Without question – the project captures the essence of what is required to meet the stated aims of the project and the needs of the population. In fact certain aspects of the project probably goes beyond these aims in that the 'training' programs do, on occasions seek to train those outside of the project.

b. Measurable. (the monitoring system and indicators are unambiguously specified so that all parties agree on what they cover and there are practical ways to measure them).

A good attempt has been made – via log books, ambulance records, and recording of obstetric activity/births/paediatric care etc at Brikama HC – to try and provide a monitoring system. Specific indicators for process 'success' have however not been clearly enough specified by the four parties involved, at the onset of the project. There is the single specific objective of helping to achieve the Millennium development goals to reduce by a three quarters the maternal mortality ratio and the child mortality rate by two thirds but no specific target for reducing neonatal mortality rates or any specific targets for reducing morbidity. There are also a number of obstacles still to be overcome as far as practical measurement of outcomes is concerned. These include the fact that the TBAs are, on the whole, illiterate and therefore the regular measurable recording of their activities is impossible. Even at Brikama H.C, the midwives are sometimes so busy that it is impossible for them to regularly record their activities or the outcome of their work. Recent relevant mortality data has been lost covering several years between 2003 and 2006 has been lost.

c. Achievable and Attributable (The system identifies what changes are anticipated as a result of the intervention and whether the results are realistic. Attribution requires that changes in the targeted developmental issue can be linked to the intervention)

What changes are anticipated by the project are clear – the reduction of maternal, neonatal and infant/child mortality. Proving that these changes are (1) present and (2) attributable to the project is difficult. There are however clearly results to be expected from the project interventions and some evidence that these are occurring. *It would be difficult, from the*

anecdotal evidence available – not to attribute these to the interventions provided by the project.

d. Relevant and Realistic. (The system establishes levels of performance that are likely to be achieved in a practical manner and that reflect the expectations of stakeholders).

The project is attempting to help in the specific area of reproductive and child health – which is one of the highest priority health areas for The Gambia. The overall project and the four parties involved in the project are all realistic in what can be expected to be achieved by the staff involved, the time that the project has been running and with the resources and equipment available. Of concern however is that not all aspects of the sustainability of the project have been fully thought through. The sustainability of the Brikama project needs to be carefully worked out before expanding the project elsewhere. There are a number of key stakeholders with expectations from the project, who include amongst others - all four parties directly involved, International WHO Geneva, the Department of Health and the government in The Gambia, the people of The Gambia.

e. Time-Bound, Timely, Trackable, and Targeted. (The system allows progress to be tracked in a cost-effective manner at the desired frequency for a set period, with clear identification of the particular stakeholder group(s) to be affected by the project or program.)

The most specific time bound target that would really reveal the bottom line effectiveness of the project against a specified target is the reduction by a third of the maternal mortality ratio. Comparing the national figure with the Brikama district figure for the maternal mortality ratio and seeing if there is a significant difference in the maternal mortality ratio reduction is probably the best indicator that the project is being effective. However these figures would need to be looked at over a number of years – ideally from 2003 through to 2009 or 2010. Present data collection systems have not allowed any detailed evaluation of the relevant statistics. As stated above – there has been no specific target given by the project to reduce neonatal, infant or under 5 mortality rates. This needs to be corrected.

4.0 APPLICABILITY TO OTHER AREAS IN THE GAMBIA AND ELSEWHERE.

1) The success of the Brikama project is due to a number of elements which include (a) a sound needs assessment (b) the cooperative working of the four parties involved with clear stated objectives for each of the parties involved (c) the realisation that improvements in maternal and child health need to *start* at the primary health care level (d) the improvements at the primary, secondary and tertiary care levels being carefully coordinated to ensure that all levels are improved to a similar degree

2) There are a number of other specific lessons to be learnt from the Brikama based project which could be used to improve the inception of the project elsewhere. One of the most essential lessons is to be more specific about the outcomes to be achieved as targets. Another is to ensure that there is a well developed 'information system' in place before the intervention takes place – so as to be able to better evaluate the 'outcomes' of the intervention in terms of reduced maternal and child mortality. Other elements for improvement are contained within the specific recommendations elsewhere within this document.

3) The project should ideally form part of a wider effective concept of possible interventions into maternal and child health within any area. Other concepts that have already been shown to be effective in reducing maternal and child mortality and therefore worth considering putting into place alongside an expansion of this project should include (a) further improving the overall general education for women (b) clarifying and developing family planning services as appropriate for the culture and the culture's religious beliefs (c) developing a system of providing micro credit for women to aid their socio economic development. It is recommended that when carrying out a needs assessment in other parts of The Gambia or Africa to assess how the project might be developed elsewhere – these factors are also 'built-in' to that needs assessment.

(4) A further crucial factor to the success of expanding the project else where within The Gambia is the long term future role of TBAs within the society in general. They are the most essential element to the present and future reproductive and maternal health of women in The Gambia but their recruitment, training and incentives all needs careful consideration. It is unlikely that there will be, at least for the immediate future, enough midwives, or enough alternative care provision for all births to be attended by a fully trained health professional.

(5) Many elements of the program could be used elsewhere in Africa. This should be preceded by a careful needs assessment which should include a broader set of 'needs' to take into account the possibility of other effective interventions as outlined in section 3 above.

5.0 SUMMARY OF THE EVALUATION AND THE RECOMMENDATIONS

This is an excellent and worthwhile project. It has been based on a careful needs assessment carried out by parties from both within, and external to, The Gambia. The results of the needs assessment has led to a good working collaboration between the four 'provider' parties for developing the different essential elements for the project to work.

Further the project has, from the start, recognized the basic essential factor of working with local communities, primary and secondary health care workers, and the local administrative system to ensure appropriate development at all levels of service provision. It has also recognized the need for training and has been outstanding at delivering (and continuing to deliver) – good training to all the staff and other personnel involved both within and also outside the project.

This evaluation of the project, coming as it does within the second year of the project being set up, is limited by the fact that (a) although the project has some set objectives – these have not always been specific enough to be used as 'targets' for the evaluation (b) it may be too soon after the inception of the project to use outcome measures of decreasing maternal and child mortality as suitable measures of success.

Nevertheless, evidence from the flying squad data for the Brikama District for 14/5/07 till 22/3/2008 (appendix 5) clearly demonstrates that both maternal and infant lives were saved by the project. Also all those interviewed either directly or via a questionnaire, praised the project and were extremely positive about its benefits whilst, at the same time, making valuable comments and observations as to how the project could be further improved.

There are therefore a number of recommendations arising from the evaluation. Some of these are quite simple to meet and will need small amount of input; others are to do with the overall management of the project and will need further discussion between the four parties running the project.

The results of the evaluation would strongly support the concept of extending the project to other areas in The Gambia and elsewhere in Africa, after taking into account the many lessons that have been learnt from setting up and running the Brikama project, and also learnt from this evaluation. How the extension of the project will be financed and what other developments might take place alongside it – in order to improve maternal, neonatal, infant and under 5 health should also be carefully considered.

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Professor David Southall

Dr Barbara Phillips

Lumin – my driver

Meggie and other staff at CAI

Abbreviations Used

ALGS = Advanced Life Support Group

CAI = Child Health Advocacy International

DOSH = Department of State For Health and Social Welfare

FP = Family Planning

ECTH = Emergency Child and Trauma Healthcare

EMCH = Emergency Maternal and Child Healthcare

EMNH = Emergency Maternal and Neonatal Healthcare

HC = Health Centre

HIV = Human Immuno-Deficiency Virus

HMIS = Health Management Information System

MOU = Memorandum of Understanding

PHC= Primary Health Care

RCH = Reproductive and Child Health

RVTH = Royal Victoria Teaching Hospital

TBA = Traditional Birth Attendant

UNPA= United Nations Population Fund

WHO = World Health Organisation

APPENDIX 1.

Summary Of Comments By Mothers For Improving The Project.

1. Provide more education about birth and delivery for pregnant women
2. Ensure that the ambulance is always available and has adequate fuel
3. Provide better mobile phones that really work – for the TBAs
4. Provide more incentives and more training for the TBAs
5. Ensure that TBAs always have suitable equipment
6. Ensure that everyone in village knows that TBAs have a mobile phone which can be used in emergencies
7. Increase the number of TBAs in big villages
8. Provide more 'credit' for the mobile phones used by the TBAs
9. Have the Health Centre staff contact the individual TBAs via their mobile phones – on a regular basis to check (a) whether their mobile phones are working and (b) what pregnant women they have under their care (c) whether these pregnant women have any health problems
10. Ensuring that the TBAs have all the appropriate drugs and equipment
11. Having a village house where all deliveries can take place and that has the proper bed and other equipment, as there is little privacy or the necessary equipment in individual village houses

Summary of Comments By TBAs for Improving The Project

1. Provide allowance for TBAs
2. Improve supply of delivery kits
3. Supply of mattress and delivery bed at village level
4. Help with other supplies like cotton wool, gloves, cord ligature material
5. Iron and ergometrine tabs
6. Supply identification badge
7. Money to pay for referral calls on mobile
8. Supply of adequate fuel for ambulances
9. Training in knowledge and skills to do thorough examination of newborns
10. Refurbishment of PHC station to include labour and delivery room
11. More reliable mobile phone
12. More reliable ambulance services

Summary of Comments by Other Health Professionals for Improving The Project.

1. Should develop project in other areas in The Gambia and other countries in Africa
2. Get Government commitment to project development
3. Four partners to meet more regularly

4. Make Brikama H.C into a specific training centre for staff for other projects when they are developed
5. Provision of incentives to TBAs to help motivate them
6. Provision of enough fuel for the ambulance service
7. In service training to be extended to staff at basic health facilities
8. Continuing the training of TBAs on annual or bi annual basis
9. More training and expand to other areas in The Gambia
10. Train new TBAs as an assistant to work alongside established TBAs
11. The government should take over full responsibility for the project
12. Improve the filing and information system
13. Ensure that future developments have working laboratory facilities
14. Increase the frequency of visits by support staff to check on progress of the project

Appendix 2.

Supporting documents consulted included the following:

1. National Reproductive Health Policy. 2001-2006. Government of Gambia. Department of State for Health.
2. ESS and EMCH. Essential Surgical Skill with special emphasis on Emergency Maternal and Neonatal Health Care. Collaboration between CIA, ALSG, WHO, Government of the Gambia. 2006
3. Briefing paper on Health Sector for the Round Table Conference. Health Sector Strategic Document. Department of State for Health and Social Welfare
4. Evaluation of the National Reproductive and Child Health Service. Provider Questionnaire. Dept of State for Health
5. Gambia National Reproductive Health Strategic Plan of Action 2002-2006
6. Report of the Major Health Centre (District Hospital) In The Brikama District. The Gambia (2006)
7. Report on Community Maternity Services in The Brikama District and Proposal for The Enhancement of The Trained TBA Services. 2006
8. Department of State for Health. Health Management Information System Service Statistics Report. The Gambia 2001-2004. (undated)
9. Report on The National Survey/Youth Health 1999-2000. UNFPA
10. Memorandum of Understanding 2006.
11. Log Book for Emergencies in Pregnancy, The Newborn Infant and the Child (The Gambia) (Undated)
12. Brikama Health Centre records of deliveries
13. Ambulance logbook
14. Evaluation of The Reproductive and Child Health Policy: Focus Group Discussion Guide. (Undated)
15. Department of State for Health. Evaluation of the National Reproductive and Child Health Services. Provider Questionnaire (Undated)
16. A Study of the General Condition and Operation of Bio-Medical Equipment within The Gambia November 2007. George P. Robertson.

Teaching manuals reviewed included:

1. Provider Manual for the Emergency Care of Critically Ill and Injured Infants, Children and Pregnant Mothers (Draft 1/8/2006)
2. Pocket book of Obstetrics, Neonatal and Paediatric Emergencies including Major Trauma. Feb 2008.
3. Log book for Emergencies in Pregnancy, The Newborn Infant and The Child (The Gambia) – undated.
4. Pocket Book of Obstetric and Neonatal Emergencies. Feb 2007
5. TBA Pictorial Manual (When to phone in an emergency). Undated.
6. Provider Manual for the Emergency Care of Critically Ill and Injured Infants, Children and Pregnant mothers. 10/5/2007.

Appendix 3.

WORK PLAN/DIARY FOR THE EVALUATION OF:

THE EMERGENCY SURGICAL SERVICES (ESS) AND EMERGENCY MOTHER AND CHILD HEALTH (EMCH) PROJECT.

Tuesday 18th March and Wednesday 19th March

Read all available literature on project provided by CAI and by DS
Draw up work plan for visit
Draw up outline of project evaluation
Review relevant evaluation programs on the internet
Draw up outline of report

Tuesday 25th March.

Meet with DS and fly out to The Gambia. Discuss aspects of project with DS.
Meet with BP in Gambia and start discussions on other aspects of the project.

Wednesday 26th March.

Attend training session led by Professor David Southall and Barbara Phillips
Meet trainers and trainees. Sit in on representative training sessions by DS and BP.
Meeting with Mrs Ramou Cole-Ceesay. Director of The Reproductive and Child Health Programme Unit. Department of State for Health.
Meeting with Bafoday Jawara. Reproductive and Child Health Programme Unit.
Meeting with Falu Njie. National Planning Commission.
Set up program for the rest of the visit including devising questionnaires for health professionals, midwives, TBAs and mothers.

Thursday 27th March.

Go through questionnaires for TBAs, admin, and mothers with Falu and his two assistants (Ousman Dibba and Dembo Touray) and with Bafoday. Work out plan for visiting TBAs and mothers and nurses in a selection of 8 villages in Brikama area. Print questionnaire. Arrange Friday for formal interviews at Brikama

Friday 28th March

Brikama Health Centre – interviewing health personnel about project; talking to project mothers; interviewing doctors, midwives, admin;. reviewing equipment and refurbishment; examining available logs and other information.

Saturday 29th and Sunday 30th March

All day both days visiting villages in Brikama area chosen at random to interview 8 TBAs (and 10% sample of 80 TBAs in the area. Interview 3 mothers for each TBA that have been helped by project. Interview any other admin staff and midwives available

Monday 31st March.

Review all information gathered so far, Interview Nestor at WHO. Discuss the whole training issue with David and Barbara. Get the names and details of various trainers and the details of training programs already carried out and training programs envisaged in the future.

Tuesday 1st April

Attend opening ceremony of the '2010' project of the wives of African presidents to see how the project fits with their goals and to try and see Mrs Ramou Cole-Ceesay. Visit Falu at the National Statistics Department to collect questionnaires and see how they are getting on with data entry on the mother's questionnaires.

Wednesday 2nd April – Friday 30th April – total of 12 days work

Work on writing the evaluation of the project up including visits to DS and BP on 22nd and 28th April respectively.

Appendix 4.

Summary of log book analysis

244 resuscitations from 32 providers throughout Gambia

- Birth asphyxia = 62 (25%)
- Complications of pregnancy = 106 (43%)
 - APH 22 (21%) 1 death
 - Eclampsia 27 (25%) 2 deaths
 - PPH 17 (16%) 1 death
 - Haemorrhage 40 (38%) 0 deaths
 - Other conditions = 63 (31%)

Overall survival rate = 229 (94%)

Flying squad data Brikama first 2 months

Call out condition n = 27 women	Resuscitation given (all transfer hospital)	Outcome (babies) All mothers survived
Prolonged labour: n = 7	IV glucose	6 live, 1 stillbirth (SB)
APH: n = 4	Hospital, IV	1 live, 1 SB, 2 unrecorded
Severe asthma in pregnancy: n = 1	Neb. Salbutamol, IV HC and aminoph	Live
Elderly primip: n = 1	IV	Live
Miscarriage with heavy bleeding: n = 2	IV N saline	Evacs
Twin: n = 2	IV glucose	4 live
Eclampsia or pre- eclampsia n = 6	MgSO ₄ , IV, hydrallazine	6 live
Maternal fever : n = 1	IV antibiotics	Live
Footling breech: n = 1	IV glucose	SB

Appendix 5. Flying Squad Data For Brikama District 14/5/07 Until 22/3/08

Name	Date	Time	Emergency (parity if pregnant and age of mothers)	Total journey (Km)	Skilled birth attendant	Hospital of admission	Resuscitation given	Outcome
1	14/5/07	0830	Previous CS Prolonged Labour Delay 2 nd stage 36 weeks BP 160/120 Bandle's ring 3 previous stillbirths	141	LD	Br to RVTH	IV glucose Hydrallazine CS	CS Live female Home 4 days later
2	20/5/07	1330	High parity 9+0 BP 200/110 38 weeks	66	JF	Br	IM hydrallazine	NVD live female
3	24/5/07	0900	Eclampsia in labour BP 180/120 0+0 Age 17 36 weeks FHR120	107	JF	RVTH	IM hydrallazine and IV magnesium sulphate CS	CS live male
4	26/5/07	1130	In labour breech 4+1	78	JF	Br	IV glucose Vaginal breech delivery but head stuck and arm extended	Fresh stillbirth female
5	1/6/07	1230	Preterm labour 2+0	143	LD	Delivered at home		XX
6	4/6/07	2030	Fitting child aged 3 years	187	LD	Br	Airway support IV glucose bolus then IV glucose infusion	XX
7	7/6/07	1130	Prolonged labour 1+0 age 22years Delay 2 nd stage	57	JF	Br	IV glucose	NVD live female 4.5Kg
8	8/6/07	1100	APH in labour Age 20	120	JF	RVTH	IV glucose Lateral tilt and leg elevation	XX
9	8/6/07	1230	Road accident	415	JF	RVTH	Airway and compression for bleeding	All 3 survived and went home
10	19/6/07	1125	Prolonged labour Delay 2 nd stage 8+1 Age 36 years 38 weeks Breech BP 160/120	590	JF	Br to RVTH	IV glucose Hydrallazine IM CS	CS Live female 2.8 Kg
11	20/6/07	2230	Road accident Age 40 and 26 years	132	JF	RVTH	Airway and cervical spine protection IV fluids Pain control	Both died
12	20/6/07	2230	Age 36 years Incomplete miscarriage 7+2	132	JF	RVTH	IV N saline bolus Evacuation	Home

Name	Date	Time	Emergency (parity if pregnant and age of mothers)	Total journey (Km)	Skilled birth attendant	Hospital of admission	Resuscitation given	Outcome
13	25/6/07	0930	APH placenta praevia Age 22 years No FH heard	147	JF	RVTH	IV N saline bolus CS	CS Fresh stillbirth female
14	25/6/07	2000	Pre-eclampsia BP 190/110 18 years	89	LD	RVTH	Hydrallazine and IV glucose CS	CS live female 2.6Kg
15	26/6/07	0600	Twins First breech 26 years Bladder distended	58	LD	Br	IV glucose infusion	XX
16	26/6/07	0920	Prolonged labour delay 2 nd stage 1+0 25 years Twins both breech	77	JF	RVTH	IV glucose infusion CS	CS live twins male 2.9 and 2.3 Kg
17	26/6/07	1200	Prolonged labour Polyhydramnios Irregular FH 1+0 26 years	80	JF	RVTH	IV glucose bolus and infusion CS	CS Fresh stillbirth female 4.3Kg
18	26/6/07	1515	APH 0+0 18 years 26 weeks	48	JF	RVTH	IV N saline	Bleeding stopped Home
19	26/6/07	1515	Threatened miscarriage 4+0 32 years 16 weeks	64	JF	RVTH	IV N saline	Home
20	28/6/07	0445	Elderly primagravida Short stature 28 years Prolonged labour	29	JF	Br to RVTH	IV glucose CS	CS live female 3.7Kg
21	28/6/07	2330	Elderly primagravida 30 years 0+0	40	JF	Br	IV glucose	NVD live female 3.4Kg
23	3/7/07	0930	Previous CS APH abruption 1+0 20 years	142	JF	RVTH	IV N saline CS	CS live female 3.4Kg
24	5/7/07	1120	Severe asthma 31 years Pregnant 5+0	200	JF	Br to RVTH	IV hydrocortisone Nebulised salbutamol IV aminophylline	NVD live
25	5/7/07	1120	Neonate with sepsis-pneumonia 3 weeks	70	JF	Br to RVTH	IV antibiotics IV fluids	Home

Name	Date	Time	Emergency (parity if pregnant and age of mothers)	Total journey (Km)	Skilled birth attendant	Hospital of admission	Resuscitation given	Outcome
26	12/7/07	1145	APH Placenta praevia 4+0	136	FC	RVTH	IV N saline bolus	XX
27	XX	XX	Pre-eclampsia prolonged labour fever 38 degrees C 18 years 2+0	204	FC	Br	IV antibiotics IV glucose IV oxytocin	NVD live male 3.5Kg
28	16/7/07	2230	Prolonged labour Maternal exhaustion 2+0 25 years Term	67	JF	Br	IV glucose bolus and infusion	NVD
29	20/7/07	0430	Prolonged labour Meconium 1+0 25 years	263	JF	RVTH	IV N saline CS	CS live female 2.9Kg
30			APH preterm labour 0+2 22 years	80	JF	RVTH	IV glucose/saline	NVD live male 1.0Kg
31	22/7/07	0930	APH 5+2 33 years	50	JF	RVTH	IV fluids and high flow oxygen	NVD fresh stillbirth
32	27/7/07	1100	APH 3+0 28 years Term	25	LD	RVTH	IV fluid bolus CS	CS fresh stillbirth
33	28/7/07	2300	APH 5+1 35 years	38	LD	RVTH	High flow oxygen IV N saline bolus and hydrocortisone	XX
34	20/7/07	1700	Prolonged labour Maternal exhaustion 5+1 Term Fully dilated 34 years	83	LD	Home	IV glucose Vacuum extraction at home	Live male infant at 1750 hours
35	27/7/07	1430	APH 2+0 26 years	27	LD	RVTH	IV bolus N Saline	XX
36	29/7/07	0630	8 day old baby Unconscious	244	LD	RVTH	Airway opening, oropharyngeal airway placed Bag valve mask ventilation with high flow oxygen all the way to hospital Heart rate good throughout and airway open	XX

Name	Date	Time	Emergency (parity if pregnant and age of mothers)	Total journey (Km)	Skilled birth attendant	Hospital of admission	Resuscitation given	Outcome
37	5/8/07	0000	Primagravida in labour Term 20 years BP 150/110	207	LD	Br	None Normal delivery at Brikama	XX
38	7/8/07	1255	APH abruption 4+0 28 years	306	JF	RVTH	IV bolus N saline CS	CS fresh stillborn female 3.4Kg
39	7/8/07	0000	High parity No emergency 7+0 In labour at term	138	JF	Br	None	NVD live female 2.7Kg
40	18/8/07	1830	Severe anaemia plus asthma 20 weeks gestation 45 years 3+0	62	JF	RVTH	ABC High flow oxygen Nebulised aminophylline Transfused 2 units	Home after 1 week
41	17/8/07	0502	Eclampsia 15 years 0+0 BP 250/150 36 weeks	258	JF	RVTH	ABC Airway with oropharyngeal airway and suction High flow oxygen IV line ?? XX hydrallazine ?? XX Magnesium sulphate CS	CS live female 3.0Kg
42	16/8/07	1702	APH abruption 21 years 3+0 36 weeks FHR 36 weeks	115	JF	RVTH	ABC IV line and N saline bolus CS	CS live male 2.8Kg
43	XX	2300	Not an emergency. Onset labour High parity	154	LD	Br	No treatment except transfer to Brikama	XX
44	23/8/07	1100	Eclampsia 36 weeks 23 years 0+0 BP 200/120	73	JF	RVTH	Airway opening, suction High flow oxygen IV fluids CS	CS live female 3.5Kg
45	3/9/07	1400	Second twin Transverse lie 36 years 2+0	265	JF	RVTH	IV N saline First twin delivered at home CS for second twin	CS fresh stillborn female second twin 3.0Kg
46	18/9/07	0339	Pre-eclampsia BP 180/110 in labour 30 years 3+1 36 weeks	478	JF	Br	IV glucose/saline ?hydrallazineXX ? magnesium sulphate ??XX	NVD live infant
47	18/9/07	XX	APH abruption Preterm in labour 30 years 4+0	172	JF	Br	ABC IV N saline	NVD fresh stillborn female 1.9Kg

Name	Date	Time	Emergency (parity if pregnant and age of mothers)	Total journey (Km)	Skilled birth attendant	Hospital of admission	Resuscitation given	Outcome
48	20/9/07	2300	Not emergency In labour	71	LD	Br	None	XX
49	21/9/07	0930	Collapsed after delivery 23 years 0+0 Pallor BP 130/80 pulse 82 fully conscious No bleeding Perineum intact	11	JF	Br	Ergotamine given. IV bolus N saline and IV bolus glucose	Recovered and home
50	26/9/07	2115	High parity and elderly mother in labour 7+1 40 years 38 weeks	166	JF	Br	IV N saline	NVD live male 3.0Kg
51	30/9/07	1530	Prolonged labour Urinary retention 0+0 24 years	82	JF	Home	Urinary catheter Delivered at home	NVD live male
52	9/10/07	1200	Primagravida No emergency 20 years In labour	45	JF	Br	None IV N saline	NVD live female 2.5Kg
53	17/10/07	1200	Prolonged obstructed labour 1+0 27 years FHRR	89	JF	RVTH	High flow oxygen IV N saline CS	CS live male 3.7Kg
54	XX	0930	High parity Severe anaemia Undiagnosed twins 7+0 36 weeks	XX	JF	Br to RVTH	IV N saline Hb 5g/dl Transfused	NVD male twins both stillborn 2.5Kg and 3.0Kg
55	7/11/07	1300	Pre-eclampsia 0+0 25 years BP 200/120 24 weeks	XX	JF	RVTH	Hydrallazine IV glucose/saline	Discharged home when BP normal
56	2/1/08	2030	Primagravida in labour. No emergency 18 years	XX	LD	Br	None	XX
57	16/2/08	2200	APH 4+0 32 years 38 weeks	XX	JF	None	IV N saline bolus NVD at home Ergotamine IM	Live male
58	5/3/08	1130	APH (not severe) 36 weeks 4+0 26 years	XX	JF	Br	IV N saline	NVD live male 2.9Kg
59	8/3/08	2300	Severe anaemia in labour 0+4 35 years 38weeks	XX	JF	Br to RVTH	IV N saline Transfused 2 units	NVD live infant

Name	Date	Time	Emergency (parity if pregnant and age of mothers)	Total journey (Km)	Skilled birth attendant	Hospital of admission	Resuscitation given	Outcome
60	14/3/08	1800	Compound presentation 36 weeks 2+0 27 years	XX	JF	Br	IV N saline	NVD live male
61	19/3/08	1415	Retained placenta Urinary retention 5+0	XX	JF	Home	Urinary catheterisation Ergotamine Successful delivery placenta at home	NVD live female
62	26/3/08	0030	4 days post circumcision heavy bleeding from the site Aged 2.5 years Conscious but shocked, pallor ++, pulse 101, bleeding	XX	LD	Br	No oxygen available. Bleeding padded Transfusion	Recovered

Appendix 6.

Introducing ESS-EMCH Into A New Country

