The Government of Southern Sudan, Ministry of Health, Directorate of Curative Services

BASIC PACKAGE FOR HOSPITAL CARE SERVICES

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Contents

Introduction
Section I  Buildings and General Working of Hospitals
Section II  Human Resources and Medical Staffing
Section III  Education and Training
Section IV  Equipment and Supplies
Section V  Management and Administration
Section VI  Research and Audit
Section VII  Regulation
Section VIII  Audit of the Strategy
Summary of Recommendations
INTRODUCTION

The Millennium Goals and the Health Policy of the Government of Southern Sudan rightly emphasise the need for primary health care. There are however many common, serious and life-threatening conditions which require hospital treatment. Examples include Caesarean Section for obstructed labour, dilatation+ curettage for incomplete abortion, eclampsia, surgery for trauma and acute conditions such as appendicitis and many of the more serious complications of common infections including malaria, pneumonia and diarrhoeal disease.

It should be a clear target of all governments and the international community that:

- All people should have reasonable access to a hospital where appropriate treatment can be provided for common acute and life-threatening conditions.

Of course secondary and tertiary healthcare is expensive. Furthermore it cannot be achieved in isolation of other aspects of a country’s infrastructure. Patient access to hospitals requires roads and transport systems and the development of skills to run hospitals requires a fully functioning educational system from primary schools through secondary schools, universities, postgraduate training and continuing professional development.

This document analyses the present state of secondary and tertiary healthcare in Southern Sudan, as seen from the clinicians perspective, identifies priorities and makes proposals for change which are Specific, Measurable, Achievable, Realistic, and Timely. It attempts to provide a vision of the direction in which secondary and tertiary healthcare in Southern Sudan should be going over the next 5-10 years. Many of the proposals have been suggested by South Sudanese healthcare professionals, few are original and many are presented as overall objectives the precise details of which need further working at a local level, possibly by means of a small number of sub groups of the Directorate of Curative Services.

There is a deliberate emphasis on Juba Teaching Hospital as the vanguard and catalyst for change and because there is an urgent need for at least one centre of excellence in Southern Sudan but the principles can and must be applied to the other teaching, state and county hospitals across the whole country.

The development of healthcare in Southern Sudan will inevitably require a significant increase in funding, whether this comes from the Government budget or external aid. The necessary changes will need to be precisely costed and funding sought. The Directorate of Curative Services MoH (GOSS) will need to work with NGO’s and other external agencies. Underfunding and slippage on dates of the minimum requirements will seriously threaten the ability to provide countrywide healthcare. Some proposals, however, can be developed quickly and at little cost. The most important resource in developing hospital care is the staff. The Directorate of Curative Services can develop policies and put facilities in place but it requires the dedication of the staff to use these to deliver the service and in particular the senior clinicians to take responsibility and to lead the service.
Section I - BUILDINGS AND THE GENERAL WORKING OF HOSPITALS

Assessment of the present situation:

MoH (GOSS) provides secondary and tertiary healthcare for the civilian population of Southern Sudan in 3 main or “teaching” hospitals (Juba, Wau and Malakal respectively) and anything between 13 and 37 state and county hospitals (depending upon the exact definition of a hospital).

Nearly all hospitals are in a poor state of repair, inadequately staffed and short of equipment. Although the United Nations Office for Coordination of Humanitarian Affairs (OCHA) has suggested that 9 hospitals have adequate supplies and can undertake major surgery, including blood transfusion, this is almost certainly an over-optimistic picture. A better measure of a hospital is whether those who are knowledgeable and can afford to go elsewhere would choose to be treated there. This level of confidence does not apply in Southern Sudan.

In addition to the civil hospitals there are a number of military and police hospitals and a large number of health facilities which are mainly run and funded by NGO’s and provide predominantly primary care.

Access to secondary care facilities is also a major problem. It has been estimated that only 20% of the population can reach a hospital within 24 hours. This has to be matched against the figure that in the event of obstructed labour Caesarean Section needs to be performed within 3 hours in order to avoid irrecoverable harm to baby and possibly mother. Of course much of the problem of access is caused by poor quality roads which make travelling long and arduous. Furthermore, hospitals in Southern Sudan are not evenly distributed. Nowhere is well supplied and available statistics are often incomplete and variable but when compared to Central Equatoria, Warrap and Northern Bahr el Ghazal, each with populations near to or in excess of 1 million and with only one state or county hospital, appear particularly underdeveloped.

Tertiary care in Southern Sudan is virtually non-existent. There is a number of individual specialists at Juba Teaching Hospital, and elsewhere, with the capability of supporting such a service but the number is very small, there is no sub-specialisation, diagnostic facilities (such as radiology and laboratory services) are totally inadequate, equipment is basic and poorly maintained, supply of drugs and other consumables is inconsistent and general ward processes need to be improved. There is an urgent need for Southern Sudan to develop a tertiary hospital. Such a centre would:

1. Attract healthcare professionals to work in Southern Sudan. A centre of excellence is probably the most important requirement if Southern Sudan is to recruit and retain high quality staff, particularly at specialist level.

2. Be a key element in developing healthcare training. This is particularly important in developing specialty medical training.

3. Enable quality treatment to be undertaken in Southern Sudan. This would act as a vanguard for other centres (e.g. Wau and Malakal) and would also remove any legitimate reason for the spending of huge amounts of money sending patients abroad for treatment.
The proposed John Garang Memorial Hospital would certainly be an ideal replacement for Juba Teaching Hospital as a tertiary hospital in Juba, or indeed it could be located in another place in Southern Sudan. There are compelling arguments in favour of developing a high quality tertiary hospital as soon as possible and there are also some good political reasons for creating a visible modern hospital. However, there are also good practical reasons why this should be considered a long-term project (10-20 years) as many other issues need to be addressed first:

1. The capital cost of building and equipping the John Garang Memorial Hospital as a new hospital is well beyond the present healthcare budget of MoH (GOSS). There will also be substantially increased running costs. External funding will almost certainly need to be obtained.

2. There are insufficient specialists to staff such a hospital and correction of this will take at least 5-10 years (see Education and Training, section III, below).

3. Current skills in nursing, midwifery and allied health professions could not support a modern hospital and need major development.

4. Equipment (see Section IV below) is markedly deficient at Juba Teaching hospital. Of course this can be purchased but that can only be justified when there are the skills both to use and to maintain.

5. The whole mode of practice at JTH needs to move to a higher level in order to justify and make best use of a new hospital. Examples of this are given under recommendations below.

6. Hospital management and administration needs to be reviewed and processes made more efficient. Examples include procurement and distribution of supplies, ward management, bed management, theatre usage, general maintenance, storage etc. These are not complex management issues. They are mainly commonsense and someone taking responsibility.

7. Although it has to be accepted that Juba Teaching Hospital is made up of old buildings, was never designed as a hospital and in many ways is not fit for purpose, there are some similarities with the NHS in the UK. The NHS started in 1948 soon after a very destructive war. Many hospitals were in poor condition, old buildings or aggregations of huts. Nevertheless, it was possible to undertake high quality work in these buildings and it was not until about 15-20 years later, as the economy improved, that there was any major rebuilding programme.

Recommendations:

- There should be an ongoing programme of renovation and structural maintenance of all hospitals. The budget for this should be defined and ring fenced, hopefully with a year on year increase. Although coordinated and vetted centrally, responsibility for identifying and undertaking essential renovation and maintenance should be at the state or local level.
A separate budget should be considered for Juba Teaching Hospital as this hospital needs to develop into a tertiary centre over the next 5 – 10 years.

- Applications for government support for essential renovation and maintenance must be done on a fair and structured basis of clinical need and not on the basis of “he who shouts the loudest.” A structured application should be made by a senior medical officer or senior manager at the hospital concerned. This should present workload and case mix which present to the hospital, the capacity of the hospital to treat, exactly what the problem is that needs renovation or maintenance and how this will affect the ability to treat patients. There should also be a section for those aspects which are essentially non-clinical but can have a major health and safety impact (eg ensuring that toilets and sinks are in working order).

- The major limitations on clinical care in Southern Sudan are the the shortage of skilled professionals and the lack of adequate equipment. Substantial improvement can be achieved without building new hospitals at least over the next 5 years. There may however be expectations and in the longer term (10-30 years) a properly coordinated and integrated hospital building programme across Southern Sudan will be needed.

- With the possible exceptions of some highly populated areas without hospitals (Warrap) and relatively remote areas (Western Bahr el Ghazal) access to hospitals would be best achieved by improving roads and transport and by strengthening existing hospitals rather than building new ones. The Directorate of Curative Services should do all that is possible to make state and county hospitals fit for purpose. Consideration should be given to abolishing the distinction between state and county hospital as they should serve very much the same function.

- The construction of a new tertiary hospital (The John Garang Memorial Hospital) should be considered as a long-term project (10-20 years). However, identification and acquisition of a suitable site which is of adequate size and suitably located should be considered at this stage. Some units such as a diagnostic centre may well be built early on this site and subsequently incorporated into the final building.

- A prerequisite for the opening of a new tertiary hospital is that working and clinical practices at Juba Teaching Hospital are gradually upgraded in preparation (over 5-10 years). It is essential to achieve :-

1. Levels of staffing and equipment which are appropriate for a tertiary hospital (see Sections II,III+IV )

2. Staff at all levels need to be accountable. All should have a job description with defined lines of accountability. This should not be considered restrictive or punitive. Line managers should help and support as well as ensuring duties are carried out.

3. Staff must be confident that they will be paid correctly and on time.

4. Clinical practice at nearly all levels needs to become much more patient centred.
   - Nurses need to be more directly involved in patient care and advocacy
Observations and fluid balance charts need to be accurately and routinely filled in for all acutely ill patients.

Essential drugs, intravenous fluids, other consumables and basic equipment must be immediately available when required for treatment

Basic investigations need to be immediately and consistently available

Triage of acutely ill patients presenting to the hospital should be routine

Documentation and the use of that data for audit/research needs to improve

Patients must be confident that there is always an on-call doctor available and who will come if requested

Nutritional support, especially for patients without relatives or from long distances must be readily available

A culture of learning in the clinical setting needs to evolve.

A tertiary centre will not function unless there are appropriate facilities to manage patients after complex major surgery and those who are critically ill. High dependency units (both adult and neonatal) are essential. Intensive care requires appropriately trained specialists.

5. Some of the necessary changes in practice are simply a change in thinking and ways of working. Others require funding, some of which may come from patient contribution. If patients are required to contribute at the point of delivery there must be safeguards to ensure that poor patients are not denied essential treatment.

6. The developments in working practice described above in paragraphs 4 and 5 focus on Juba Teaching Hospital and should be achieved within 5 years. The same principles apply to Wau and Malakal and there should be a clear objective to achieve soon after (within 7 years). Similar approaches to practice should apply in District Hospitals.
SECTION II – HUMAN RESOURCES AND MEDICAL STAFFING

Assessment of the present situation

The shortage of skilled professionals in Southern Sudan is by far and away the biggest deficiency in secondary and tertiary healthcare. The numbers of fully trained and qualified specialists in each of the major medical disciplines (medicine, surgery, paediatrics and obstetrics and gynaecology) in civil hospitals across the whole of Southern Sudan is in single figures. There is no subspecialisation and disciplines such as radiology, anaesthesia and mental health are almost completely lacking in any medically qualified specialists. The state and county hospitals are often staffed by only one or 2 doctors for catchment population in the region of 500,000 and there may be no more than 3 doctors for the whole of state of Warrap.

These shortages in skilled doctors is mirrored in the other healthcare disciplines. There is a severe shortage of registered nurses and midwives. For example, there are only 2 registered midwives at Juba Teaching Hospital.

A further damaging consequence of this shortage of skilled professionals is that many of the best qualified are drawn into management and administration roles, further depleting skills at the front line.

The top priority in developing a hospital service must go to creating a skilled workforce and the emphasis should be on creating a good cohort of medical specialists, senior nurses, midwives, etc who will be able to lead the service and provide the training which the large number of up and coming doctors and nurses desperately need.

Recommendations

Specialist doctors

- Target numbers for each cadre of healthcare staff and in each medical specialty should take into consideration the need to provide a 24 hour service and also the need to provide training. Numbers will also need to increase as an improving service will both attract a greater workload and create a demand for subspecialisation.

- Given that Juba Teaching Hospital will initially be the main training centre the following minimum numbers of specialists should be achieved within 5 years at JTH and within 10 years at Wau and Malakal.

  Medicine 6 All should be generally trained but also should develop one or more special interests. At least 2 should have a special interest in gastroenterology and 2 have a special interest in cardiology. The development of special interests in chest medicine, neurology, endocrinology, rehabilitation and dermatology is also necessary.
**Surgery** 6  All should be generally trained but there should be 2 orthopaedic surgeons, 1 urologist and 3 general surgeons. Of the general surgeons one should take a special interest in paediatric surgery. One surgeon (orthopaedic or general) should be able to undertake more advanced plastic surgery.

**Paediatrics** 6  In this subject the major pressure for a greater number of specialists is the very high workload. All must be generally trained whilst subspecialist interests are encouraged.

**O&G** 6  The focus needs to be on reducing maternal and foetal mortality rates. The development of 1-2 surgeons with a special interest in vesico-vaginal fistula should be considered.

**Anaesthesia** 4  With the development of High Dependency and especially Intensive Care this number will need to increase and should approximately equal the number of surgeons, although much routine anaesthesia can continue to be provided by clinical assistants.

**Ophthalmology** 4  of which at least one should have a subspecialty interest in paediatric ophthalmology.

**ENT** 2 and **Oro-Maxillofacial** (excluding Dentistry) 2  Consideration should be given to developing a combined specialty of “head and neck” surgery.

**Emergency Medicine** 2

**Radiology** 2-4  4 radiologists at JTH could provide a remote reporting service for the country and a national training programme. 2 radiologists at Wau and Malakal would allow a functioning department but should be increased to 4 as soon as funding and training allow.

**Pathology** 4  With special interests in microbiology, haematology/blood bank, histopathology and chemical pathology respectively.

**Oncology** 2  The exact required number is difficult to predict as radiotherapy equipment and oncology drugs are so expensive. The number of 2 is simply a starter.

**Mental Health** 4  The development of a medically qualified psychiatry service will take time and much will continue to be provided by psychiatric assistants. At least 1 centre should appoint 4 psychiatrists as a referral centre and to lead a future training programme.

- Indicated above are levels of subspecialisation which is considered appropriate in the next 5—10 years. During this time senior hospital doctors do need to be broadly trained.
- It may be noted that the total number of specialists recommended to staff each of the 3 main teaching hospitals is approximately equal to the number of consultants in a relatively small district hospital in the UK 25 years ago. This must be considered as an absolute minimum but experience does show that this number can provide a coherent service and training.
• **Medical Officers & Registrars** (intermediate grade) are required to:
  a) Provide intermediate grade support for the specialists at JTH, Wau and Malakal.
  b) To staff the state and county hospitals
  c) To provide trainees for the specialist training programmes

At the teaching hospitals the ratio of the number of specialists to intermediate grades should be approximately 1 to 1 and most should be in training programmes (although one specialist could train 2 intermediate grades).

In the State/County hospitals there needs to be a minimum of 4 doctors at each hospital with interests in, respectively, medicine, surgery, O&G and paediatrics. Some of these will be there as a part of their training programme, some to get experience in the district prior to applying to training programmes and some, usually more senior, who are career grades with or without specialist training. Seniority does need to be recognised.

As a rough estimate at least 200 Medical Officers/Registrars need to be in place within the next 3 years if there is to be any chance of developing the specialist and training programmes which are desperately needed.

• Non-medically qualified **Medical Assistants** will continue to play a major role in the front line treatment of patients. This is especially so in certain specialties and in the district hospitals. Numbers need to be service related. Training needs to be quality assured and they should work under the supervision of a Medical Officer. There should be a defined on-going professional development programme.

• **Nurses, midwives and professions allied to medicine** These professions make a major contribution to quality of care in hospitals. Responsibility for exact numbers, training and ongoing professional development should be in the hands of the Directorate of Nursing and Midwifery and is probably out with the scope of this document.

• **Non-clinical staff** – See Section V
SECTION III – EDUCATION AND TRAINING

Assessment of the present situation

The education and training of doctors and most other healthcare professionals in Southern Sudan is by any normal standards almost non-existent. The schools are not able to realise the full potential of pupils for entry to the professions. The University of Juba struggles to provide undergraduate courses of quality, registered nurse and midwife training in Southern Sudan is only just starting and most importantly there is no structured postgraduate education of doctors and hence no capacity to produce specialists locally.

The most important single strategic target must be to set up South Sudanese training programmes which provide the necessary medical specialists and hence the future leaders of the hospital service.

The above is a harsh assessment and resolution is difficult. It will have to be done in stages. There is currently an overwhelming shortage of trainers in all specialties and disciplines and in order to produce these trainers it will be necessary to both try to attract trainers from outside and also to develop training programmes for current medical officers. This will require a substantial increase in the numbers of medical officers.

There is at present no body or organisation to oversee the development of postgraduate education. This role could be undertaken by the University, College of Physicians and Surgeons run mainly by elected members or a GOSS appointed board (such as the Postgraduate Medical Education and Training Board in the UK). Universities must be involved in postgraduate medical education but where programmes and qualifications are entirely university based there is often a perception of differences in standard between different universities, especially if private universities are set up. This situation is seen in India. Colleges do represent the professionals and their councils are largely made up of respected specialists elected by their peers whilst government appointed boards are often perceived as regulatory and not always representative.

In practice the difference in membership of college councils and government appointed training boards is often minimal as the same people are frequently candidates for both election and appointment. The Bangladesh model of a College of Physicians and Surgeons has a Council of mainly elected representatives but with a number of government appointed representatives. The primary role of this college would be to develop postgraduate training and thereby improve quality of care. This is a separate role from regulation and assessing fitness to practice which should be undertaken by a General Medical and Dental Council (See Section VII).

Recommendations:

- The development of structured postgraduate training programmes for doctors is essential for the provision of specialists and the future of the hospital service in Southern Sudan.
- The first requirement in developing postgraduate medical training is to establish a body which will formulate curricula, supervise programmes and assess quality. The favoured option is a College of Physicians and Surgeons with members and run by a Council, some of whom are elected by peers and some are MoH (GOSS) appointees.
• Under the auspices of a College of Physicians and Surgeons training programmes should be set up in stages.

**Stage I Starting up postgraduate medical training Southern Sudan**

The lack of trainers in Southern Sudan means that this stage of the development of training will mainly need to be undertaken overseas, although some experiential training can still occur in Southern Sudan. Section II indicates that the minimum numbers of trainers/specialists which are required to start training across the specialties in Southern Sudan is 50 if training is to be based around JTH only and 150 if based around the 3 teaching hospitals of Juba, Wau and Malakal. It is suggested that the former figure could be achieved in 5 years and the latter in 10 years.

Efforts must also be made to attract specialists to Southern Sudan from the Diaspora but for the vast majority of specialists it will be necessary to train South Sudanese doctors from within Sudan (North and South) to specialist level by means of funded fellowship programmes overseas.

The College of Physicians and Surgeons and the Directorate of Curative Services needs as soon as possible to:

1. Establish a minimum of 50 (ideally 150) “initial” training programmes, distributed across the specialties. The exact composition of these programmes may vary with specialty but could consist of:
   - 2 years as a Medical Officer in Southern Sudan, during which time the trainee must demonstrate potential for specialisation and may be required to pass Part I of an international exam (e.g. MRCP or MRCS).
   - This to be followed by 2 years in a specialist overseas unit (funded).
   - This to be followed by 2 years as an “assistant” specialist at JTH (or other teaching hospital) working specifically under a recognised trainer. Visiting trainers from the UK or other countries on short term contracts may be able to help in this role.
   - Subject to satisfactory performance (and possibly the passing of an overseas or local exam) the status of specialist (or consultant) would be conferred by the College of Physicians and Surgeons and the General Medical and Dental Council.

2. Produce clear entry requirements which allow fair competitive entry of candidates with the ability to achieve specialist status. Until the number of established Medical Officers increases to around 200 as indicated in Section II it will be necessary to attract candidates from throughout Sudan (and overseas), but this should be possible if programmes are good and there are clear career prospects.

3. Develop rules which ensure that candidates who accept funding for overseas fellowships do return to Southern Sudan. In many countries such trainees are required to deposit a bond which they forfeit if they do not return.

4. Increase the establishment of Medical Officers to 200 and the specialist posts as indicated in Section II in preparation for further training.

**Stage II Evolution** Within 5-10 years it should be possible to appoint sufficient specialists and assistant specialists at Juba (and subsequently Wau and Malakal) to take over some of the training
responsibility. Candidates may only need 1 year of overseas training and the majority of candidates should come from within Southern Sudan.

Entry requirements, the structure of training/curriculum, quality of training and standards required on exit must be continually monitored by the College of Physicians and Surgeons.

Stage III  A South Sudanese training programme

The Directorate of Curative Services and the College of Physicians and Surgeons should be looking to develop a full South Sudanese postgraduate training programme in each specialty within 10 years. Overseas training and visiting overseas trainers should be encouraged but not be absolutely essential.

- The College should continue to ensure fair and open competitive entry from the Medical Officer cadre, monitor the structure of programmes and the curriculum and develop assessment methods to ensure exit standards.
- A suggested programme may include:
  - 3 years in at least 2 teaching hospitals
  - 1 year in a State hospital
  - 2 years as “assistant” specialist

The above programmes should not be considered inflexibly. For example, if a candidate has passed the Part I of an internationally recognised exam such at MRCP(UK) they should generally be supported for overseas training which allows them to satisfy the requirements and enable them to pass the subsequent parts of that exam. Similarly some Medical Officers are currently quite experienced and may be able to enter into the Stage I programme at year 2 or 3. Also the details of programmes will need to be subject to modification with time.

- It has to be recognised that the above training programmes will cost money. However such a structured strategy is almost certainly the only way in which a cohort of specialists and trainers can be developed and a major diplomatic effort at the highest level should be made to encourage governments of more developed countries to offer training fellowships free of charge. MoH (GOSS) should consider appointing an honorary (unpaid) advisor in key countries whose role would be to act as an advocate for such fellowships on behalf of MoH (GOSS) at the highest level.
- In conjunction with structured training programmes there is an urgent need to develop ongoing education and training in the hospitals. All the teaching hospitals should have appropriately equipped and functioning resource centres and the State and County hospitals should at least have ready access to the internet. This should be in place within 3 years. Above all there is a need to institute a culture of training and education into all hospitals. Time should be allocated in timetables for teaching and learning (including departmental meetings, teaching rounds, journal clubs, mortality meetings and audit). The teaching hospitals should appoint a senior doctor (?Clinical Tutor) whose role is to promote this culture of ongoing learning.

Clinical Assistants:

- These healthcare professionals will continue to play a major role in the delivery of care for the foreseeable future. The responsibility for primary training and continuing professional development should be devolved to the states since their main roles will be in the State and County hospitals. There should hence be a national body which overseas quality so that these professionals can move between the states.

Nursing, Midwifery an and Allied Professions
• Training of these groups needs major development through the Schools of Nursing/Midwifery and Schools of Health Studies. Responsibility for these should be with the Directorate of Nursing and Midwifery.
Section IV - EQUIPMENT AND SUPPLIES

Assessment of the current situation

Hospitals need the equipment, drugs etc which allows them to carry out their duty of care. There will always be financial constraints. The budget for equipment and supplies does need to be increased but the problem in Southern Sudan is only partly related to resources. Processes for the procurement and distribution of equipment and supplies need substantial improvement.

Examples of observed problems include:

- Basic laboratory investigations described as available but either no quality assurance or not in fact available because of lack of reagents. Similarly anaesthetic machines lie idle either because of absence of skills to use them or the lack of anaesthetic gases.
- X-rays at JTH may not be available because of lack of x-ray plates.
- Numerous pieces of equipment lying idle because of lack of maintenance.
- Inappropriate purchase or donation of equipment – for example a dialysis machine in a hospital with no nephrologist and new autoclave which seems to overload the electrical power whenever switched on.
- Processes for the supply of drugs are rigid and too centralised. Hospital pharmacies end up with large stocks of rarely used drugs whilst they rapidly run out of basic antibiotics.
- Storage of equipment and supplies is haphazard and variable. Finding simple things which are available, such as a colostomy bag, often involves a major search.
- Patients or relatives are required to pay for food and in many instances drugs, IV fluids etc. If the family cannot afford these payments there is a risk of the patient starving, dehydrating or simply having treatment discontinued.
- Even simple items such as IV fluids have to be imported.

More complex equipment, such as CT scanners, endoscopes, laparoscopes, etc which may be standard in Western hospitals are not currently available in Southern Sudan. Even if funding was found for these there are serious questions as to whether the skills exist to use them properly or to maintain them. In many countries the stimulus for obtaining such equipment has come from the private sector but this sector is poorly developed in Southern Sudan.

Maintenance or the lack of it remains the biggest concern when developing policies for equipping hospitals. It is estimated that about 50% of donated equipment in developing countries lies unused largely because of inadequate maintenance.

Recommendations:

- All hospitals (teaching, State and County) should be equipped to a basic level which allows for the management of the common, acute and life-threatening conditions which present to those hospitals. These conditions are largely similar to all hospitals and a common list should be drawn up as soon as possible. Such lists are already available (e.g. in “Hospital for War Wounded” published by ICRS -Geneva ,2005)

Included on the basic list for all hospitals should be at least:-
1. **Laboratory facilities** (analysers, reagents, etc) for the diagnosis of common conditions, including infections, diabetes and standard blood tests.

2. **A blood transfusion service**

3. **Radiology** to take plain x-rays (e.g. fractures and chest x-ray). Ideally ultrasound should also be available.

4. **Operating theatres** equipped to undertake standard surgery including trauma-related surgery, laparotomy and Caesarean Section. Ketamine and spinal anaesthesia should be available.

5. **The Emergency Admissions Units and Wards** to be equipped so as to be able to provide immediate and ongoing care to acutely ill patients. All acute wards should have at least sphygmomanometers, thermometers, ability to give IV fluids, venesection equipment, appropriate drugs (especially antibiotics and emergency drugs) and other consumables (dressings, etc) consistently available, oxygen (and airway equipment), catheters, observation/fluid balance charts and above all continuing access to clean water.

6. **Facilities for Obstetric care** so as to be able to deal with straightforward and more complex deliveries. For example, all hospitals should have Pinard fetoscopes, ventouse and possibly forceps. Emergency obstetric drugs, including magnesium sulphate, ergometrine, oxytocin, misoprostol, anticonvulsants, sedatives and antibiotics should be consistently available.

7. **Ophthalmology and ENT** should have basic examination and assessment equipment.

- Precise lists of minimum equipment and supplies for all hospitals should be drawn up and put in place over the next 3 years as the number of Medical Officers increases to the target of 200.

There should also be a small budget to allow Medical Officers at a local level some flexibility and additional equipment as there will be some variation in local workloads and individual practice. Doctors must provide leadership in identifying necessary equipment without making excessive demands.

- Processes for the distribution of drugs, reagents and other consumables needs urgent review and doctors and nurses in the end user hospitals must have some input into what is supplied. Supply must match need.

- At the teaching hospitals in Juba, Wau and Malakal there will be a need for more advanced and complex equipment to reflect their tertiary role. This however should be introduced concurrently with the expansion of specialists described in Section II (5-10 years).

This equipment is likely to be expensive, requires skills to use and to maintain and there may be running and maintenance costs. It is suggested that a subgroup in the Directorate of Curative Services should review all proposed purchases of high tech and high cost equipment to ensure that all the above criteria are in place and that it is of real value to healthcare. This level of scrutiny should also apply to donations. Unused equipment has a very negative effect even when given free.

- Consideration should be given to creating diagnostic centres where the more complex and high tech equipment is concentrated. Initially there would be one in Juba (5 years) and subsequently in Wau and Malakal (10 years). This concentration of skills would have
advantages especially in terms of maintenance and could also enable the development of remote reporting to the rest of the country.

- Technology related developments at diagnostic centres or teaching hospitals which should occur over the next 5-10 years as specialists are appointed include:
  - CT scanning, Fluoroscopy (and possible MRI)
  - Ultrasound
  - Endoscopy (upper and lower GI and bronchoscopy)
  - Laparoscopy both diagnostic and operative
  - Cystoscopy and transurethral resection
  - Pathology centre equipped and staffed to act as reference lab to the State/County hospitals.
  - Paediatric eye unit
  - Adult and neonatal high dependency*

This is not a comprehensive list as appointment of more specialists will lead to the undertaking of more complex procedures and require additional equipment and consumables.

*The development of true intensive care would be ideal but without substantial training of anaesthetists/intensivists is unlikely to be achieved to an adequate standard over the next 10 years. It is also very expensive.

- Careful consideration needs to be given to the plight of poor patients who cannot afford the costs which may be involved in hospital treatment. All hospitals should have a nutrition team with the skills to advise on nutrition and the resources to provide food and water if this is not provided by the families.

Other items which patients may be required to pay for include drugs, IV fluids and investigations. In many cases there is room for compromise and South Sudanese doctors are very skilled in using clinical judgement where Western doctors would use investigations. However, there should be clear policies which seamlessly ensure that poor patients are not denied items which are deemed clinically essential or potentially life-saving. The funding for this scheme could come from government provided social funding or by imposing a small levy on hospital in-patients who can afford it.

- MoH (GOSS) should consider entering into a public/private partnership to develop small businesses which can produce straightforward medical equipment and avoid the need for importation. IV fluids is the most obvious example but other things should be considered such as sutures, laboratory reagents, drugs and surgical instruments.
Section V – MANAGEMENT AND ADMINISTRATION

Assessment of the present situation

This section in particular reflects the clinicians’ view of management and administration. The management of secondary and tertiary health care in Southern Sudan appears very centralised. Decisions on development, refurbishment, equipment and distribution of drugs all require major MoH input. This is inevitable in the early stages of the development a hospital service and when there are very few trained managers or administrators but as staffing improves and the complexity of hospitals increases more responsibility for the running of hospitals needs to be devolved to a local level. In order to achieve this there is clearly a need to improve management structures in the hospitals.

The lack of defined job descriptions, job plans and lines of responsibility is an obvious deficiency and clearly impacts on efficiency. This applies to both clinical and non-clinical staff. Staff frequently complain of late payment of salaries and this not only creates some real hardship but is extremely demoralising. Some issues may relate to processes including the banking system.

Medical records are currently held by patients. This works reasonably well and it is generally possible to obtain appropriate information about past medical history. However, without at least a minimum data set of information on inpatients and ideally outpatients being kept by the hospital it will be impossible to undertake meaningful audit and very difficult to assess workload, outcome and hence the hospital needs.

Ideally a country which is introducing medical records de novo would utilise IT and probably create a paperless system. Attempts to do this in the UK have so far proved much more complex and expensive than predicted.

Recommendations:

- Local decision-making processes need to be strengthened
  A management structure needs to be developed for each hospital which is appropriate to local needs. This should be kept simple in the first instance. It is suggested that each hospital should be managed at a local level by a small Board or Executive Team consisting of:
    1. **Chief Executive** with overall responsibility for the care provided by the hospital and would directly manage the non-clinical staff. He/she should have management training. The Chief Executive should be responsible for maintenance, both of clinical equipment and the hospital infrastructure and must have authority to effect improvements.
    2. **Medical Director** – with responsibility for medical staff and direct medical care.
    3. **Nursing Director** - with responsibility for Nursing, Midwifery and professions allied to medicine.

In addition to the above there will need to be a financial advisor/director and human resources advisor/director as and the responsibility for management of these aspects are gradually devolved. This (or similar) management structure should be introduced to the teaching hospitals over the next 3 years and subsequently to other hospitals. Early management structures should be kept simple but will need to evolve with time. In particular, as departments get bigger there will be increasing need for the specialists to provide leadership of their specialty.
As the management structure of hospitals develops budgets for the running should be devolved.

All staff at all levels need to develop a culture of both managerial and professional responsibility. Only if all staff carry out their responsibilities will the system work and develop. (See Section VIII – Regulation).

- All staff (possibly most importantly the lower paid) must be paid agreed wages (including any incentives) on time and with immediate effect.
- Medical records should continue to be held by patients but the hospital should hold records of at least :-
  For inpatients - dates of admission and discharge
  - Diagnosis
  - Operations/treatment undertaken
  - Outcome, including deaths and complications
  - Serious adverse incidents

For outpatients - dates(s) of attendance
  - Provisional or definitive diagnosis
  - Treatment decision

- Although electronic records and data management programmes are used widely and beneficially in hospitals there are many pitfalls and developing such systems in Southern Sudan hospitals at this stage should be viewed with great caution. Some IT support for the developments in this strategic document will be required but in each case careful risk/benefit analysis will need to be undertaken.
SECTION VI – RESEARCH AND AUDIT

Research

Assessment of the present situation

Research is the tool by which we establish the evidence base for the best available preventive and curative measures against disease or disability. It helps us use the scientific method to determine the prevalence of common diseases so that we may target proven treatments against them. It also helps us test any available treatment regimes or drugs to establish which of these are efficacious in the management of the commonly encountered conditions in our country.

A Director General (DG) for Research and Development is in place in the Government of Southern Sudan Ministry of Health. The DG Chairs the Research and ethics Committee whose role amongst others is to approve research projects in the Southern Sudan.

- There is currently no Research infrastructure or dedicated funding for research in the Southern Sudan.
- There are no known formal collaborative arrangements between the Ministry of Health, the local universities in the Southern Sudan or Southern Sudanese scientists or clinicians in the diaspora.
- There is no system of building research competence at individual, institutional or system level as recommended by the World Health Organisation (World Health Report April 2006)
- The only medical publication dedicated to publishing information on health in the Southern Sudan is the Southern Sudan Medical Bulletin(to become Southern Sudan Medical Journal) which is currently published online by volunteers in the Southern Sudan with assistance from colleagues in the United Kingdom. The journal carries articles of practical importance to all cadres of Healthcare professionals but distribution to rural areas remains erratic, patchy and not supported by the Ministry of Health in the last two years of its existence.

Recommendations:

- Allocate funding for research into local diseases and health service provision in the Southern Sudan. This Funding allocation should be included in the Ministry of Health budget or supplemented by donations from non governmental organisations
- Collaboration between the Universities of Juba, Wau and Malakal on research projects with relevance to health need to be set up to strengthen the research base in the health sector to form an effective research network
- Pharmaceutical research needs to be developed and encouraged as this could bring in income to support the research infrastructure in the Southern Sudan
• Southern Sudanese working in health and scientific Institutions in the diaspora needs to be encouraged to cooperate with colleagues in the Southern Sudan to help strengthen the research base in the Southern Sudan

• Collaboration between established Institutions in neighbouring countries such as the Kenya Medical Research Institute (KEMRI) is recommended in order to enable Southern Sudanese to gain experience in conducting research

• A local Research and Ethics Committee whose membership is drawn from the University of Juba Medical School, senior Clinicians at Juba Hospital, a representative of the non governmental organisations working in the health sector, a lay person, the DG for Research and Development should be set up immediately to drive the development of research in the Ministry of Health.

• The Southern Sudan Medical Journal (SSMJ) needs to be supported financially to improve its quality, content and free distribution of the paper form to all health centres in the Southern Sudan

Clinical Audit

Assessment of the present situation

This has been defined by the Department of Health in the United Kingdom as, “Systematic critical analysis of the quality of medical care, including the procedures for diagnosis, treatment, use of resources and resulting outcomes for patients” (Department of Health 1999).

• Audit does not currently constitute part of everyday clinical practice in hospitals in the Southern Sudan though this has been introduced by the Juba Link and a few audits have been carried out recently.

• Participation in clinical audit is not a mandatory undertaking for Medical officers

• Audit is not funded

• There is no Ministry of Health policy on regular audit reports on clinical care

Recommendations:

• Participation in Audit must be made a mandatory part of clinical training and clinical practice

• The Ministry of Health needs to identify areas of clinical importance which need to be audited regularly to monitor clinical standards in all hospitals

• Funding must be allocated to support clinical audit.
Section VII – REGULATION

Assessment of the present situation

Hospitals have a duty of care to provide good medical practice. In order to do this all staff must have defined duties and clear lines of responsibility. Ultimately all civil hospital staff are managerially responsible to the Director of Curative Services.

In addition professional staff need to be responsible for their professional standards of practice to a professional body.

Healthcare workers are also subject to regulation by the civil or even criminal courts but this usually only applies when the above systems fail.

In Southern Sudan there is little managerial accountability and virtually no professional accountability. The institution of processes to ensure these is one of the most urgent needs.

Recommendations:

- All staff should have job descriptions and a related contract. The job description should state the duties of that individual, where relevant a job plan and lines of responsibility both managerially and professionally.
- A South Sudan General Medical and Dental Council should be set up immediately. This body should be responsible for assessing the fitness to practice for all doctors and dentists. In order to register and be allowed to practice as a doctor or dentist the individual must demonstrate to the GMDC the achievement of defined standards of training including a primary medical degree, a commitment to maintaining and updating skills and a caring and ethical approach to practice.
  
  The GMDC is a regulatory body. As such it must be seen as fair and impartial. Assessment of fitness to practice should as far as possible be criterion based. A simplified version of the GMC (UK) would be a reasonable model.
- A similar Council for the regulation of nurses, midwives and allied health professionals needs to be set up especially as the Nursing/Midwifery schools start to produce registered nurses/midwives.
- All doctors and dentists in practice must be required to be registered with the GMDC.
- The position of non-medically qualified practitioners (Clinical assistants, Traditional Birth Attendants, etc) needs to be addressed. In order to practice they should be registered with a professional body but should not use the title of doctor as this will mislead patients.

The skills, training and qualifications in this group varies considerably and registration needs a local solution.
Section VIII – AUDIT OF STRATEGY

The key objectives of the strategy are presented in the tabulated “Summary of Recommendations” and success will need to be measured against these. Important objectives for the Directorate of Curative Services to achieve within 5 years include:

- An annual hospital refurbishment budget and programme with processes to ensure that this money is used effectively to improve care. (In place within 1 year and ongoing)
- Although the construction of a new John Garang Memorial hospital may be beyond this 5 year plan, MoH (GOSS) should be undertaking preparatory work, including identification of possible site (5 years)
- 60% of the population should have access to a fully functioning hospital within 12 hours. (5 years-but Directorate of Curative Services cannot effect this alone)
- Improvements in clinical practices at Juba Teaching Hospital. Specific objectives are listed under “Recommendations” in Section I. (Progressively over 5 years)
- A general upgrading of Wau and Malakal to at least the level of staffing and facilities currently at Juba Teaching hospital. (Progressively over 5 years)
- A College of Physicians and Surgeons to oversee training. (Within 1 year)
- At least 50 medical specialists (across the disciplines) to be trained largely through overseas attachments and who can staff Juba Teaching Hospital to a level that allows this hospital to start providing training programmes which are mainly or exclusively undertaken in Southern Sudan. (1 year to set up rotations, 5 years to produce these specialists at JTH)
- Each State and County hospital to be staffed at a medical level by a minimum of 4 doctors with respective interests and training in medicine, paediatrics, surgery and obstetrics and gynaecology. This requires a minimum of 200 Medical Officers across the country. (3 years)
- Parallel progress in the training of nurses/midwives and allied health professionals is needed (Primarily a development of the Directorate of Nursing and Midwifery (3-5 years).
- There should be a culture of ongoing learning in hospitals. All hospitals should have at least reliable internet access and all teaching hospitals an appropriately equipped Resource Centre. (2 years)
- There should be a list of “basic” medical equipment and this should be available at all teaching, state and county hospitals. (3 years)
- Processes for the procurement and distribution of drugs, laboratory reagents and other consumables should be reviewed and modernised. (1 year)
- More advanced and expensive equipment should be available in the teaching hospitals or the proposed diagnostic centres (see section IV text for details). (5 years)
• The purchase and donation of more advanced and expensive equipment should be subject to scrutiny by an equipment sub-committee of the Directorate of Curative Services (see section IV text for details). (1 year)
• There should be clear and workable protocols to ensure that patients without funds are not excluded from life-saving treatment, drugs, IV fluids or nutrition. (1 year)
• There should be a management structure in each hospital which allows for gradual devolution of responsibility to a local level and establishes lines of accountability. (3 years for teaching hospitals, 5 years for other hospitals)
• All staff should have a contract and a job description. (2 years for teaching hospitals, 4 years for all hospitals)
• All staff should expect to be paid agreed remuneration and on time. (Immediate effect)
• All hospitals should keep records of inpatients and outpatients to include a minimum data set of information. (2 years)
• There should be a Southern Sudan Research Ethics committee and a budget for health research. (1 year)
• Print copies of each issue of the Southern Sudan Medical Journal should be disseminated to all civil hospitals in Southern Sudan as part of Continuing Professional Development. (2 years)
• The requirement to undertake regular audit should be incorporated into job descriptions and the working practice of all healthcare professionals. (2-4 years)
• There should be a General Medical and Dental Council and a General Council for Nursing, Midwifery and Allied Health Professionals with powers to regulate the relevant healthcare professionals. (1 year for GMDC, 3 years for Council for Nursing, Midwifery and Allied Health Professions)

The above objectives should be audited annually over the next 5 years with the following being documented each year and for each objective:

1. Objective to be achieved
2. Target date for achievement (as given above)
3. Progress towards target so far
4. Was objective achieved at target date (when applicable) YES/NO
5. If progress is not as expected or the target date was not achieved the reasons should be recorded and where possible remedial action indicated.
ACKNOWLEDGEMENTS

We would like to thank the many people who contributed information and feedback to this strategy. Important contributions included preliminary reviews of the specialties undertaken by:
Dr Eluzai Hakim (Medicine), Dr Antoinette McAulay (Paediatrics), Dr James Ayrton (Emergency Medicine), Dr Matthew Dennison (Emergency Medicine), Dr Fiona Henderson (Anaesthesia), Dr Tim Walsh (Surgery), Mrs France Reed (Obstetrics), Dr Karinya Lewis (Ophthalmology), Dr Jane Newson-Smith (Psychiatry)

We are also grateful for the enormous amount of constructive feedback we have obtained from a large number of people. It is not possible to do justice to all those who have helped but we would especially like to thank Dr Maker Issac (Medical Director, JTH), Dr Dario Kuron Lado (Surgeon, JTH), Dr Wani Mena Gindalang (Ophthalmologist, JTH), Dr Mergani Abdalla Mohammed (Obstetrician & Gynaecologist, JTH), Professor Andrew Akon (Physician, JTH), Dr Mabier Deng (Dentist, JTH), Mr Samuel Ersto (Radiology technician, JTH), Dr Augustine Okwahi (Senior Medical Officer, Torit), Dr Mathew Nero Lope (Medical Officer, Torit), Dr Sarah Petrie (Co-Sector Lead Health), Dr Hassen Cholllong (Paediatrician, JTH), Dr Yatta Lugor Lori (Director General, JTH) and many other staff especially at JTH.

We would also like to acknowledge the enormous amount of work undertaken by Zorina Walsh and Madeleine Linnington in the preparation of this document.

Finally, we are indebted to Dr Thuou Loi (Acting Director General for Curative Services) without whose vision and assistance this work would not have been possible.
SUMMARY OF RECOMMENDATIONS
## SUMMARY OF RECOMMENDATIONS

### Section I Buildings – General Working

<table>
<thead>
<tr>
<th>Problem to be addressed</th>
<th>Recommendations</th>
<th>How to achieve</th>
<th>Time to achieve</th>
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</thead>
</table>
| Hospital buildings are in a poor state of repair    | A defined and ring-fenced annual budget to provide planned ongoing renovation and maintenance of all MoH (GOSS) civil hospitals.  
(JTH may be best considered separately) | Budget to be administered by the Director of Curative Services. Structured applications by senior medical officers or senior managers of all hospitals with priority given to bids which improve clinical care.  
Rebuilding is costly and with limited exceptions should be considered as a long term project | Immediate effect & annually  
10+ years         |
| Access to hospitals is unacceptably poor             | The target is arbitrary but if 60% of the population had access to a fully functional hospital within 12 hours this would be a major step forward | Requires improvement in roads and transport and strengthening of existing State and County hospitals. Building new hospitals which cannot be properly staffed may worsen the situation | 5 years          |
| The general standard of care at Juba Teaching Hospital is not up to that of a tertiary hospital in the 21st century | Southern Sudan needs a minimum of one tertiary hospital.  
Staffing, equipment and working practices at Juba Teaching Hospital all need to be upgraded. | For staffing and equipment – see Sections II and IV below. A list of required improvements in clinical practice is given in the text. These will require some funding but many can be achieved by developments in clinical working and nursing/midwifery training. | 5 years for JTH  
(7 years for Wau & Malakal) |
| The functioning of the “teaching” hospitals at Wau and Malakal is poor | These hospitals need substantial upgrading | A specifically planned programme of improvement in structure, staffing and equipment should be undertaken. This requires MoH (GOSS) support and local leadership by senior staff. The staffing and facilities should be brought up to at least the current level at JTH | 5 years          |
### Section II Human Resources

<table>
<thead>
<tr>
<th>Problem to be addressed</th>
<th>Recommendations</th>
<th>How to achieve</th>
<th>Time to achieve</th>
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</thead>
<tbody>
<tr>
<td>Severe lack of doctors at the specialist level</td>
<td>Minimum requirements of specialists at each teaching hospital should be:</td>
<td>Some recruitment from the Diaspora but the majority of appointments will require MoH (GOSS) to undertake targeted training, initially overseas and subsequently by means of South Sudanese training programmes (See staged approach in text).</td>
<td>5 years for JTH, 10 years for Wau &amp; Malakal</td>
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<td></td>
<td>Medicine 6, General Surgery 3, Orthopaedics 2, Urology 1, Paediatrics 6, O&amp; G 6, Anaesthesia 4, Ophthalmology 4, Head &amp; Neck 4, Emergency Medicine 2, Radiology 2-4, Pathology 4, Oncology 2, Mental Health 4, Numbers need to include service provision, provision of training and some subspecialisation</td>
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<tr>
<td>Severe lack of Medical Officers and Registrars both in order to provide service in the State /County hospitals and to feed future training programmes</td>
<td>A minimum of 200 Medical Officers/Registrars are needed to provide the trainees and to staff State /County hospital with a minimum of 4 Medical Officers</td>
<td>Attracting and appointing these doctors is critical. Incentive payments may attract them but retention requires good working conditions and real career prospects. Loyalty payments may help with the retention of senior Medical Officers.</td>
<td>3 years</td>
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<tr>
<td>Shortage of well-trained nurses, midwives and allied health professionals</td>
<td>The skill levels of these professions need to be upgraded with a significant increase in numbers of nurses and midwives at the registered level.</td>
<td>The development of Nursing /Midwifery Schools at JTH must be supported as should further schools at Wau &amp; Malakal. The precise strategy to be the responsibility of the Director of Nursing and Midwifery working in conjunction with the Director of Curative Services</td>
<td>3-5 years</td>
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### Section III  Education and Training

<table>
<thead>
<tr>
<th>Problems to be addressed</th>
<th>Recommendations</th>
<th>How to achieve</th>
<th>Time to achieve</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no culture of ongoing learning and education in South Sudanese hospitals</td>
<td>This culture needs to be developed</td>
<td>This will only be achieved when doctors, nurses and other professionals perceive career benefit from ongoing learning. To initiate however:</td>
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<td>1. All teaching hospitals should have an appropriate equipped Resource Centre with books, journals and internet access</td>
<td>2 years</td>
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<td>2. Each teaching hospital should appoint a senior doctor to the post of “Clinical Tutor” whose remit is to promote on-going learning.</td>
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<td>3. State and County hospitals should have access to teaching material – at the very least they should have reliable internet access.</td>
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<tr>
<td>There are currently insufficient trainers/specialists to enable structured postgraduate medical education programmes within Southern Sudan</td>
<td>Staged establishment of postgraduate training, starting with programmes which are mainly overseas and leading to self-sufficient South Sudanese programmes</td>
<td>1. Establish a College of Physicians and Surgeons to oversee training.</td>
<td>1 year</td>
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<td></td>
<td></td>
<td>2. Set up, fund and appoint to 50 rotations which include at least 2 years training overseas and lead to specialist appointments at Juba Teaching Hospital.</td>
<td>1 year to commence and 5 years to produce these specialists at JTH</td>
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<td>3. An increase in rotations to 150 would allow specialist training for appointment at Wau and Malakal</td>
<td>5-10 years</td>
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<td>4. The number of Medical Officers nationally to feed the training rotations needs to be increased to at least 200.</td>
<td>3 years</td>
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</table>
5. As the number of specialists at JTH increases the proportion of training in Southern Sudan can be increased until programmes are undertaken fully within country.

6. Clear rules need to be established to ensure that trainees who are offered training overseas return to public service within Southern Sudan.

7. The Directorate of Curative Services should consider a pro-active approach to overseas governments and other bodies, such as Royal Colleges, requesting access to placements with funding. In the UK the possible appointment of an honorary adviser as an advocate could be of great assistance.
### Section IV Equipment

<table>
<thead>
<tr>
<th>Problem to be addressed</th>
<th>Recommendations</th>
<th>How to achieve</th>
<th>Time to achieve</th>
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</thead>
<tbody>
<tr>
<td>There is a lack of basic equipment in all hospitals in Southern Sudan caused partly by lack of funding and partly by the processes involved in procurement, distribution and utilisation.</td>
<td>There is a need to progressively equip the teaching, State and County hospitals with basic equipment which enables treatment of the common and life-threatening conditions. This needs to be done as and when the necessary staffing is put in place.</td>
<td>Defined lists of the minimum equipment and supplies for all hospitals (with some flexibility for local need) should be drawn up and this equipment be supplied and funded as the appropriate staffing is established. (See text for more details of essential equipment)</td>
<td>3 years</td>
</tr>
<tr>
<td>Supplies of drugs, laboratory reagents and other consumables is patchy and inconsistent</td>
<td>Essential consumables must be consistently available</td>
<td>Arrangements for the maintenance of basic equipment should be reviewed and improved.</td>
<td>ongoing</td>
</tr>
<tr>
<td>More advanced equipment which is essential for the equipment to enable key developments in the teaching hospitals (see text) should be</td>
<td>Appropriate key clinical developments are indicated in the text. There should be agreement at an early stage to</td>
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</table>
| provision of tertiary care is not generally available in Southern Sudan | put in place as and when the specialist staff are in post to use this equipment | purchase or obtain by donation this equipment but it should only be acquired when:
1. It is agreed as an appropriate priority
2. The specialist staff to use the equipment are in post
3. There are clear maintenance arrangements
4. There is a budget for any running or maintenance costs
The responsibility for careful scrutiny of the above issues needs to be identified and could be delegated to an Equipment Sub-Committee of the Directorate of Curative Services | 5 years for JTH and 10 years for Wau and Malakal |
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<tbody>
<tr>
<td>There is a risk of poorer patients not getting adequate treatment if they are unable to afford food, drugs, etc.</td>
<td>Essential life saving equipment, consumables and nutrition should be ensured for all patients.</td>
<td>There should be clear protocols and some resources to ensure that patients without funds are not excluded from life saving treatment</td>
<td>6 months</td>
</tr>
</tbody>
</table>
Even with the equipping of the Teaching, State and County hospitals as above diagnostic facilities in the districts will remain weak.

<table>
<thead>
<tr>
<th>State and County hospitals should have access to the diagnostic facilities of the teaching hospitals</th>
<th>Consideration should be given to the developing of diagnostic centres, initially in Juba and then in Wau and Malakal. These centres could act as referral centres and with the advancement of IT could be developed into remote reporting centres. They could also act as clinical advice centres. Concentration of skills in these centres would make the maintenance of equipment and scrutiny of the purchase of expensive equipment easier.</th>
</tr>
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<tbody>
<tr>
<td>Simple equipment and consumables need importing</td>
<td>MoH (GOSS) should consider whether some items could be manufactured locally</td>
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</table>
### Section V  Management and Administration

<table>
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<th>Problem to be addressed</th>
<th>Recommendations</th>
<th>How to achieve</th>
<th>Time to achieve</th>
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</thead>
<tbody>
<tr>
<td>Management and administration is very centralised</td>
<td>Local decision-making processes need to be strengthened</td>
<td>A simple management structure needs to be introduced which will allow subsequent gradual development of hospital management in Southern Sudan (see text)</td>
<td>3 years for the teaching hospitals, 5 years for state &amp; county hospitals</td>
</tr>
<tr>
<td>Payment of salaries and incentives is frequently late</td>
<td>Staff must be confident of prompt payment of salaries</td>
<td>Payment processes need improving. Additional/incentive payments should only be negotiated if the budget has been identified</td>
<td>Immediate effect</td>
</tr>
<tr>
<td>Medical records held by the hospitals are inadequate</td>
<td>All hospitals should hold a minimum data set of all admissions and outpatient attendances (see text for details)</td>
<td>The information should be completed on discharge or end of outpatient visit on a structured form, one copy to the patient and one to medical records for filing and collation</td>
<td>2 years</td>
</tr>
<tr>
<td>There is minimal use of IT in hospitals in Southern Sudan</td>
<td>Best use must be made of IT in the proposed developments</td>
<td>IT should only be introduced when conditions are right and only after careful risk/benefit analysis</td>
<td>On going</td>
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</tbody>
</table>
### Section VI  Research and Audit

<table>
<thead>
<tr>
<th>Problem to be addressed</th>
<th>Recommendations</th>
<th>How to achieve</th>
<th>Time to achieve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of research infrastructure and dedicated funding</td>
<td>Set up a local research ethics committee and agree a suitable budget for health research</td>
<td>Invite representatives from the Universities of Juba, Wau and Upper Nile Medical Faculties, The Southern Sudanese healthcare professionals in the Diaspora and the lay public to join the DG of Research and Development to form a strong Research Ethics Committee and agree a research budget for Southern Sudan</td>
<td>6 months to 1 year</td>
</tr>
<tr>
<td>Lack of pharmaceutical company supported research</td>
<td>Explore the possibility of pharmaceutical companies conducting research in the Southern Sudan in collaboration with local clinicians to raise funds for healthcare research</td>
<td>Director General for Research and Development to approach large pharmaceutical companies in developed countries to consider setting up studies in the Southern Sudan</td>
<td>1 year</td>
</tr>
<tr>
<td>Lack of collaboration between the Ministry of Health and the Faculties of Medicine the Southern Sudanese Universities on health research.</td>
<td>Establish collaboration between the University Faculties in Wau, Juba and Malakal</td>
<td>Director General for Research and Development to invite the Deans of the Faculties of Medicine in the three Universities to form a collaborative research group in health research</td>
<td>2 years</td>
</tr>
<tr>
<td>Lack of official medium for disseminating local research data throughout the Southern Sudan</td>
<td>Support the Southern Sudan Medical Journal(SSMJ) as the official medium for disseminating local research data</td>
<td>Produce print copies of each issue of the Southern Sudan Medical Journal and disseminate to all health centres and hospitals in the Southern Sudan as a Continuing</td>
<td>2 years</td>
</tr>
<tr>
<td>Lack of the undertaking of Clinical Audit by healthcare professionals in Hospitals</td>
<td>Healthcare Professionals in all hospitals in the Southern Sudan must undertake at least one audit a year in their area of practice.</td>
<td>Professional Development (CPD) tool and also to encourage healthcare professionals to publish their work.</td>
<td>This requirement to be included in job descriptions</td>
</tr>
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### Section VII: Regulation

<table>
<thead>
<tr>
<th>Problem to be addressed</th>
<th>Recommendations</th>
<th>How to achieve</th>
<th>Time to achieve</th>
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</thead>
<tbody>
<tr>
<td>There is a general lack of accountability and taking responsibility</td>
<td>All staff must have defined duties which they carry out</td>
<td>All staff should have a contract and a job description which clarifies their duties, responsibilities and to whom they are directly responsible.</td>
<td>2 years for teaching hospitals 4 years for State &amp; County hospitals</td>
</tr>
</tbody>
</table>
| There are no regulatory bodies to which healthcare professionals in Southern Sudan are accountable | These structures need to be set up                   | 1. For doctors there should be a GENERAL MEDICAL & DENTAL COUNCIL. The purpose is to regulate doctors and dentists to ensure good medical practice. All doctors and dentists must be registered and the GMDC should require defined standards of training, maintenance of skills and ethics.  
2. A similar GENERAL COUNCIL for NURSING, MIDWIFERY AND ALLIED HEALTH PROFESSIONS should be set up with parallel functions to the GMDC. This should be under the auspices of the Directorate of Nursing and Midwifery. The non-medically qualified Clinical Assistants should be registered professionally with this body. | 1 year 3 years   |