

# Surgical facilities available at district hospitals in Malawi

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## Introduction

It is often said that the majority of surgery in Africa occurs in cities because the surgeons prefer to live in the cities. This is certainly true in Malawi where all the country's practising surgeons live in the four main towns. We have recently reported (1) on the low level of surgical activity in district hospitals despite several new district hospitals being built with multiple theatres, and international encouragement from the World Health Organisation to perform surgery at the district level (2). Undoubtedly lack of resident surgeons is a major factor, but another possible factor is the availability of surgical facilities. We decided to investigate the facilities available at districts in Malawi.

## Methods

Every one of Malawi's 21 district hospitals was visited by the authors in 2004 as part of a regular support programme to orthopaedic clinical officers. The theatre staff was interviewed and a simple one page proforma was filled in. As far as possible the questions could be answered by yes or no. The following questions were asked:

### Section 1 Staff

- Anaesthetic CO  
Do you have an anaesthetic clinical officer?
- Clinical Officer able to do laparotomy  
Is there a clinical officer or doctor with sufficient training to undertake a laparotomy?
- Orthopaedic CO  
Is there an orthopaedic clinical officer?
- Dedicated theatre nurse  
Do you have at least one nurse who is based in theatre?
- Visiting specialist  
Do you have any regular visiting surgical specialist?

### Section 2 Major equipment

- Working autoclave  
Is there a working autoclave today?
- Boiler back-up for autoclave  
Do you have a back-up sterilisation system or boiler if your autoclave is broken?
- GA facilities  
Are there facilities for general anaesthesia?
- Oxygen concentrator  
Is there a working oxygen concentrator in the theatre?
- Oxygen cylinders  
Do you have oxygen cylinders available, with oxygen in them?

### Section 3 Utilities

- Constant water supply  
Is there a constant running water supply to the theatre?
- Reliable electricity supply  
Do you have electricity in theatre most of the time?

### Section 4 Instruments

- Instruments for laparotomy  
Do you have abdominal instruments including retractors and bowel clamps?
- C Section instrument set  
Do you have a specific caesarean section set?
- Orthopaedic instrument set  
Do you have an orthopaedic instrument set with a minimum of a bone nibbler, an osteotome and a mallet?
- Hand drill  
Do you have a hand drill available?
- External Fixators  
Do you have an external fixator available today?
- Instruments for internal fixation  
Do you have any instruments for internal fixation?
- Instruments for Craniotomy  
Do you have a burr hole set?
- Instruments for Thoracotomy  
Do you have instruments for a thoracotomy?

### Section 5 Consumables

- Gloves available  
Are latex gloves regularly available for surgery?
- Sutures available  
Do you have sutures with needles for both skin and soft tissue available today?
- Gauze available  
Is there surgical gauze available today?

## Results

These are outlined in fig 1.

## Discussion

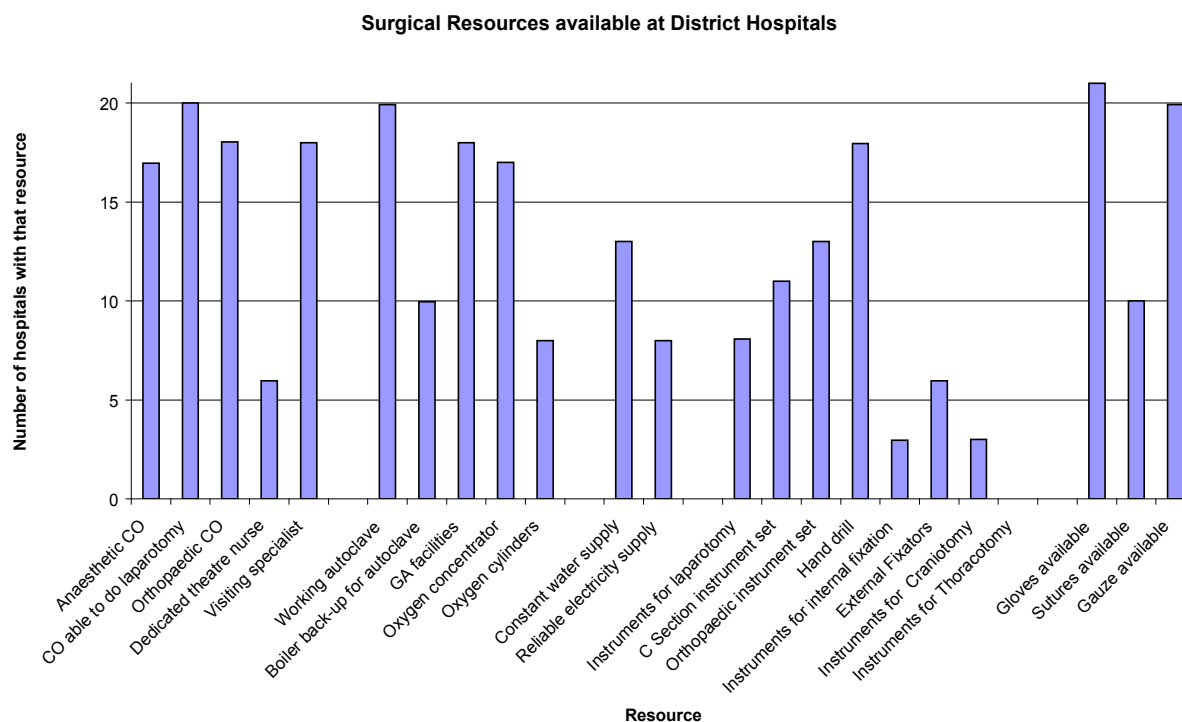
### Staff

This aspect of district resources was encouraging. Most hospitals had a clinical officer capable of caesarean sections and laparotomy, an orthopaedic clinical officer trained in open and closed fracture management, and an anaesthetic clinical officer. Most did not have a dedicated theatre nurse, but borrowed a nurse from the ward as needed. There is of course a nationwide shortage of nurses but it is likely that a nurse whose main place of work was theatre would improve organisation and supplies.

### Major equipment

Here credit must go to national maintenance services as most

Fig 1 Graph of surgical facilities and resources available at District Hospitals in Malawi



hospitals had a working autoclave, and many had a back up autoclave or electric boiler. Most also had a functioning oxygen concentrator.

### Utilities

Just over half of the districts had regular running water and just under half had a reliable electricity supply. These are difficult areas to remedy as the whole country often suffers long cuts to both these services. A back-up generator or back-up battery lights and oxygen in cylinders for emergency could be arranged but would need a theatre manager or nurse, whose duties extended beyond operations, to keep charge of the equipment.

### Instruments

Basic instruments were present in most hospitals but they were not kept in order. In some hospitals the sets in regular use had broken or missing instruments, yet in the back room there were new instruments as yet unsorted or unopened in boxes. There are also a lot of unused instruments in central hospitals that could be shared out among the districts. The authors are aware for example of a box of 100 high quality osteotomes in one of the central hospitals that has been sitting fallow for several years. The appointment of a national instrument curator and the design and standardisation of basic district instrument sets could improve this area with very little extra cost.

### Consumables

All district hospitals had an adequate supply of latex gloves for surgery. This was reassuring not only for the sake of surgery but also because it demonstrated that a supply line could be maintained. Gauze was also in good supply with only one hospital lacking it. Sutures however were another issue altogether and less than half of districts had both skin

and soft tissue sutures available. This is a difficult problem in a resource poor country as commercially available sutures cost several US dollars per suture, and a common operation like a caesarean section may need 4 or 5 sutures. When no sutures are available patients may be transferred to central hospitals thus causing the health service major extra expenses, and the patient a serious delay in treatment. Using outdated donations of sutures from richer countries is an option but not one that is ethically defensible except in life threatening situations. One cheaper option is to have a back-up supply of sterile bulk suture rolls with loose autoclavable needles. This costs less than one tenth of commercially available individual sutures with attached needles. The authors have used this system in mission hospitals, and although not as simple as using a modern factory swaged needle, it is a skill easily learned. It does however need time and preparation and is another factor in favour of having a dedicated theatre nurse who keeps the theatre ready for surgery.

### Conclusion

Facilities for surgery in district hospitals in Malawi are not perfect but the basics of a good surgical service are present. Moderate expenditure to improve management, instrument organisation, and attention to the supply system could ensure that theatre facilities are not a limiting factor in the provision of surgery to the people of Malawi.

### References

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