Operative surgery at the district hospital

Miranda Voss, Riaan Duvenage

Surgical disease is an important cause of preventable mortality and morbidity, but it is not clear how best to deliver surgical services to under-served rural populations in poorer countries.[1]

South Africa's policy is to restructure heath services, with district hospitals and health centres becoming the primary delivery vehicle for quality health care to all South Africans.[2] Among other things this involves defining what services a district hospital should be expected to provide, including the district hospital service package (DHSP).[3] Many felt that the list of district hospital surgical procedures is unrealistic, and it is not clear to what extent the package is deliverable. We therefore studied the operative surgery undertaken at district hospital level in a single region with well-organised primary health care services.

Methods

We surveyed the 7 district general hospitals in the Winelands/Overberg region. This region has a strong family medicine training programme, the first family medicine specialists have been appointed to district hospitals, and the Rural Clinical School of Stellenbosch University is being piloted in the region.

Department of General Surgery, Worcester Hospital, W Cape
Miranda Voss, FCS (SA)
Riaan Duvenage, MMed (Surg)

Corresponding author: *M Voss (mvoss@worcestersurgery.co.za)*

We visited all sites and recorded entries in the main theatre logs for 23 November 2009 - 23 November 2010. Some hospitals had an additional 'procedure room' for minor procedures such as abscess drainage and closed reduction of fractures, but these cases were excluded because recording was inconsistent. Family medicine specialists, registrars and district hospital medical officers were informally interviewed to determine barriers to delivery of surgical services.

Results

Main theatre logs were complete and available in all 7 district hospitals; 6 had procedures performed by visiting specialists, comprising operative gynaecology for culposcopic treatment of the cervix (2 hospitals) or sterilisation (2 hospitals), upper gastro-intestinal (GI) endoscopy (2 hospitals), upper and lower GI endoscopy (1 hospital), operative general surgery (3 hospitals) orthopaedics (1 hospital) and ophthalmology (1 hospital).

Table I summarises the operative surgical activity over the 12-month period and indicates whether the service was provided, or largely provided, by a visiting specialist.

Of the 21 appendicectomies, 19 were performed in one hospital, 2 in another and none in 5 of 7 hospitals. The 6 non-gynaecological laparotomies were all performed in the same two hospitals, both of which had a regular visiting surgery specialist, but a specialist performed only one of the laparotomies. Most of the other cases were performed by a single medical officer with a surgical interest.

Discussion

We found that a very limited amount of acute general surgery was performed at district hospital level. Only 2 of 7 hospitals undertook

Table I. Summary of operative surgical procedures at district hospital level in Winelands/Overberg, November 2009 - November 2010

Type of surgery	Total	Type of surgery	Total
Obs and gynae		Endoscopy	
Caesarean section	1 024	Upper GI	387*
Ectopic pregnancy	97	Lower GI	68*
Sterilisation	491†		
Evacuation uterus	433	Acute surgery and orthopaedics	
Culposcopy with treatment	324*	Debridement	151
Hysterectomy	5*	Major amputation	26
Other gynae laparotomy	4	Digit amputation	27
Repair 3rd-degree tear	2	Internal fixation	10*
		Skin graft	18
Dental extractions		Tendon repair	9†
Patients	1 395	Explore acute scrotum	2
Teeth	15 381	Appendicectomy	21
		Laparotomy	6
ENT			
Tonsils/adenoids	252†	Elective general surgery	
Grommets	7*	Circumcision	73
		Unspecified lumps/warts	451
Eye cases	52*	Other elective minor/medium	179*‡
		Majors	33*
		Elective orthopaedics	98†

*Procedures performed by visiting specialist.
†Over 50% of procedures performed by visiting specialist.
‡Includes one non-specialist hydrocoelectomy.

appendicetomy or non-gynaecological laparotomy, and this service was heavily dependent on a single individual. This pattern is reflected in the regional referral hospital, where a prospective 2006 - 2008 internal audit showed that about half of general surgical theatre cases are unplanned urgent or emergency operations (unpublished data).

Interviews with district hospital staff confirmed the reason for this: acute general surgery does not lend itself well to district hospital practice. Surgical patients usually present with undifferentiated problems, e.g. acute abdomens or bowel obstructions, and the precise diagnosis, required procedure and operative difficulty only become apparent during the procedure. Generalists prefer to avoid starting an operation they will not be able to finish, and choose to refer when possible. When pre-operative selection is unreliable the DHSP requirement that district hospitals should do 'selected laparotomies' is meaningless.

It is not clear whether these findings can be generalised to other rural health regions in South Africa, as the primary health care and patient transport services in the Western Cape are among the best in the country. The academic involvement in primary care in the region, in particular the family medicine specialist training programme and the development of a rural clinical school, suggest that Winelands/Overberg may represent the future direction that district hospital services will take.

Can the skills set required to manage more acute surgery at the district hospital be developed? The Colleges of Medicine Higher Diploma in Surgery for generalists with a specialist interest has not been enthusiastically embraced, probably because 2 years of supervised training is required and candidates feel that they might as well specialise fully. Diplomas in anaesthetics, child health or obstetrics and gynaecology require 3 - 6 months; however, to develop reasonable operative competence in less than 2 years is very difficult.

Family medicine specialists are unlikely to meet the need for acute surgical services: their College regulations do not specify any surgical competence and candidates can structure their clinical training around perceived needs, which may be non-surgical. Even if a family medicine specialist who can manage surgical emergencies were appointed to each district hospital, it would be unreasonable to expect him or her to be permanently on call – and these cases generally will not wait.

An incidental finding was the large number of dental extractions, almost exclusively in children under the age of 12, which reveals a significant public health problem with caries and dental hygiene.

Conclusions

In a region with well-organised primary health care services, most general surgical cases are elective operations provided or supervised by visiting specialists. Because of uncertainty in patient selection and legitimate concerns about unmanageable intra-operative findings, acute surgical procedures were limited and reliant on a single individual. The training time needed to develop the necessary skills, and the fact that this service is required around the clock, means that this situation is unlikely to change in the foreseeable future. The regional hospital and not the district hospital therefore becomes the *de facto* primary vehicle for delivering acute surgical care.

References

1. Debas HT, Gosselin R, McCord C, Thind A. Surgery. In: Jamison DT, Breman JG, Measham AR, et al., eds. Disease Control Priorities in Developing Countries. 2nd ed. Washington, DC: World Bank, 2006: chapter 67. http://www.ncbi.nlm.nih.gov/books/NBK11719/ (accessed 3 May 2011).
2. Department of Health. The District Health System in South Africa. Progress Made and Next Steps. Pretoria: Department of Health, 2001. http://www.doh.gov.za/docs/policy/dhsystem.html (accessed 23 February 2010).
3. Department of Health. The Primary Healthcare Package for South Africa – a Set of Norms and Standards. Part 3: Norms and Standards for District Hospitals. Pretoria: Department of Health, 2002. http://www.ruralrehab.co.za/uploads/3/0/9/0/3090989/norms_and_standards_district_hospital.pdf (accessed 3 May 2011).

Accepted 14 June 2011.