

SURGERY IN DISTRICT HOSPITALS

Is it important?

Is it cost-effective?

Do we meet the need?

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QUESTIONS

Is surgery important?

Is it effective?

Does it cost too much?

Who will do the operations?

Can we meet the need?

IMPORTANCE

In Africa

Obstetrics: 5% of women die in childbirth.

Perinatal Death – 5% of pregnancies

Injuries: 5% of all deaths.

Increase with economic development.

For every death, 1 disabled.

Acute abdomen, hernia, cataract, other congenital

IN AFRICA

Surgically treatable: 25 Million DALYs
(10% of all African DALYs)

Injuries -	10 Million
Obstetrical Complications -	4 Million
Perinatal conditions -	2 Million
Malignancies -	2 Million
Congenital Anomalies -	2 Million
Cataracts and glaucoma -	1 Million
Other -	4 Million

MATERNAL CASE FATALITY*

(UN Guideline – 1%)

	MWANZA	KIGOMA
University Hosp.	29/1407=2.1%	-
Other Govt. Hosp.	73/2764=2.6%	6/1885=1.4%
Mission Hosp.	17/1833=0.9%	2/369=0.5%
ALL HOSPITALS	119/6004=2.0%	28/2254=1.2%

(Chi square = 4.97; p<.026)

*Hospital Maternal Deaths/Hospital Complicated Deliveries

DOES IT COST TOO MUCH?

Annual Cost per Bed- 4 Hospitals

	Cost/Bed*	GDP/Capita*
Seattle, USA	\$606,000	\$25,000
Monterey, Mexico	\$68,000	\$3,900
Kumasi, Ghana	\$4,100	\$330
40 bed NGO Hospital, Bangladesh	\$3,600	\$350

*1995

DALYs in 3 MONTHS

40 Bed NGO Hospital in Bangladesh

	Life Years	Newborn Life Years	Disability Years	Total
Medical	177		7	184
Obst./Gyn.	898	1,024	125	2,047
Pediatric	372		11	382
Surgery	459		236	696
TOTAL	1,905	1,024	379	3,309

COST PER DALY

40 Bed NGO Hospital in Bangladesh

$$\$35,836 / 3,309 \text{ DALYs} = \$10.83$$

COMPARATIVE COSTS

Of Various Health Interventions

Total Hospital Cost per DALY	\$11*
ORS for Diarrhea	\$35**
Measles Immunization	\$15**
Tuberculosis Treatment	\$3**

* 40 bed hospital in Bangladesh, 1995

** From "Disease Control Priorities", 1993

BUT WHO WILL DO THE OPS?

AMOs in TANZANIA

- Since independence (1961)
- Clinical Officers selected for 2 yr. training to be general practitioners (medicine and surgery)
- Informal surgical training on the job
- Licensed to practice medicine and surgery

TANZANIA AMO STUDY

Phase 1

In Mwanza & Kigoma Regions:

- Calculate the UN Process Indicators:
 - 1) CEmOC Facilities per 500,000 Population
 - 2) % of births in CEmOC Facility
 - 3) % of OB ops. In CEmOC Facility
 - 4) Met Need
 - 5) Case Fatality
- Calculate the contribution of AMOs to 3 & 4
- (Calculate the contribution of AMOs to Case Fatality)

PROCEDURES

- Visit 16 hospitals.
- Meet staff and view facilities.
- Simultaneous Review of:
 - Annual Report
 - Major OT Books
 - Minor OT Books
 - Delivery Room Record
 - Maternal Mortality Records
- Check each record against the others

POPULATION AND OBSTETRICAL SERVICES

(1st 3 UN Process Indicators)

	MWANZA	KIGOMA	UN Guideline
1) CEmOC Hosp.per 500,000 population.	2	1.5	1
2) % of estimated births in CEmOC Hosp.	24.6%	16.2%	
3) % of estimated births with major operation	1.8%	2.2%	5-15%

COMPLICATED DELIVERY (NUMBER)

• Major Operations	4,600
• Incomplete Abortions	2,500
• Vacuum Extraction	260
• Retained Placenta	267
• Eclampsia (no surgery)	87
• Perineal Tear (3 rd Degree)	24
• PPH	425
• TOTAL	7,963

MET NEED

(UN Guideline - 100%)

MWANZA

KIGOMA

Compl. Deliveries

Compl. Deliveries

University

1,407

0

Govt. Regnl.

450

651

Govt. District

2,314

1,234

Mission DDH

1,512

0

Mission Ind.

256

368

TOTAL

6,004

2,253

MET NEED

34.5%

22.9%

PROVIDERS FOR MET NEED: PERSONS (Major Ops only)

HOSPITAL	MWANZA			KIGOMA		
	MO	AMO	OTHER	MO	AMO	OTHER
University	1139	0	0	0	0	0
Govt.	40	1158	11	63	1114	16
Mission	325	509	13	78	132	1
TOTAL	1504	1667	24	141	1246	17

(Outside the University, 85% of operations by AMOs)

CASE FATALITY*

(UN Guideline – 1%)

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CONCLUSIONS

AFTER 40 YEARS:

- 1) MET NEED is still relatively low.
- 2) Outside the University 90+% of met need comes from AMOs, Clinical Assistants, & Midwives.
- 3) CASE FATALITY differences are important and significant.
 - Between Mission and Govt. Hospitals
 - Between regions
 - ?Between AMOs and MOs?

PHASE 2: (Jan., Feb., Mar., Apr., 2006)

Prospective

- 14 Hospitals (University and 1 small mission excluded)
- Review all obstetrical operations + eclampsia and PPH
- Detailed record kept by Nurse/Midwife with AMO of:
 - Distance traveled.
 - Time in labor.
 - Condition on admission.
 - Time from admission to operation.
 - Indication for op, type of op, and who did it.
 - Outcome: Maternal/Infant Death or major complication.
 - Blood transfusion.

OUTCOMES

(Operated Cases. AMO – MO)

	AMO n=929	MO n=143	p*
Maternal Death	1.6%	3.5%	0.12
Perinatal Death (Fetal Heart +)	6.4%	1.6%	0.21
Major Complication	2.9%	7.7%	0.004
ALL BAD OUTCOMES	8.7%	7.7%	0.62

* = Chi square.

CONCLUSIONS – PHASE 2

- 1) AmoS v MOs: no differences in
 - risk indicators
 - quality indicators
 - outcomes
- 2) Government v Mission Hospitals: perinatal deaths are significantly worse in Government Hospitals.
- 3) Overall Maternal Case Fatality was 1.9% in this prospective review. (95% CI 1.1%-2.7%)
- 4) All hospitals had important problems with:
 - access to blood transfusion,
 - delays of urgent operations,
 - delays in hospital arrival,
 - patients with severe chronic illness on arrival.
- 5) Mission hospital patients had better access to blood, fewer severe chronic illnesses, and more patients operated for risk to the fetus without clear indications.

Met Need for EmOC in 4 Countries

(Assume 15% of deliveries are complicated)

	<u>Met Need</u>	<u>Doctors per</u> <u>Million</u>
Kenya*	3%	140
Uganda	5%	80
Mozambique	7 – 30%	30
Tanzania	14% - 35%	20

*North eastern region

HOW TO MEET THE NEED?

- More Facilities
 - 1 per 500,000 is not enough in Africa.
 - More hospitals or better health centers?
- More Staff – MOs, AMOs, Nurses
 - Specialists or Generalists?
- More Money – a little will do a lot
 - hospitals already have 50% of District Budget.
 - \$1 more per capita will buy the essentials.
- Cost of Transport – it's not just the car.

QUESTIONS

- How much will it really cost to expand?
- What kind of staff?
 - Quality?
 - Cost – including cost of training?
 - Can a generalist be an effective surgeon?
 - Will they go to the District and stay there?
- Transport – ambulances don't solve the problem.
- Blood.
- Supervision.

BUT WE ALREADY KNOW:

- That thousands of lives are being saved in District Hospitals.
- That it is cost effective.
- That more hospitals and more staff are badly needed.