

An assessment of financial viability of packages offered for key select surgical procedures in a quaternary care multispeciality hospital

GUIDE:

Ms. Geetika Goswami
Assistant Professor

Dr. Shreyasi Dey
MBAHM-19
0218

INTRODUCTION

- ✖ Corporate hospitals have designed various packages for medical treatments requiring hospitals to cater to patient convenience as well as faster recovery of costs involved.
- ✖ A package is a set of services offered by a healthcare provider that clearly mentions the included services, costs and exclusions if any related to a specific medical treatment.

PROBLEM DEFINITION

- ✗ In the context of pre negotiated tariffs for surgical packages availed by cash or credit patients, there lies a gap between the actual cost incurred and recovery.

RATIONALE

- ✘ The healthcare services rendered involve huge costs and minimal profit margins.
- ✘ A differential cost analysis of key procedures performed is imperative to study the financial viability of hospitalization packages offered to cash and credit patients for sustenance of the hospital.

OBJECTIVES

- + To estimate the differential costs of key surgical procedures of a quaternary care multi-specialty hospital.
- + To assess the financial viability of hospitalization packages offered to cash and credit patients.
- + To assess the effect of cost of cushioning of vacant beds on overall viability of the package.

METHODOLOGY

- ✘ **Study area:** Single site- 150 bedded quaternary care multispeciality hospital, Hyderabad.
Out of 150, 14 beds belong to dialysis, emergency and radial lounge. Thus, 136 beds comprise of inpatient beds, which include ICU, wards, sharing, single, deluxe and super deluxe rooms.
- ✘ **Study design:** Retrospective study, with microcosting approach.
- ✘ **Sample selection:** All bills for the period of past three months of each procedure was taken for cost analysis. Purposive sampling for Laparoscopic cholecystectomy of 10 bills each (cash and credit patients) in the past three months was observed.
Exclusions: Patients with multiple surgeries or co morbidities.
- ✘ **Sample size:** 78
- ✘ **Methods of data collection:** Data was collected retrospectively of months January to March 2016 from the Hospital Information System, KraniumHealth and comparative analysis was done with the help of Microsoft Excel.

Key procedures:

- ✗ Laparoscopic Cholecystectomy
- ✗ Laparoscopic repair of Inguinal Hernia
- ✗ Ureteroscopic Lithotripsy
- ✗ Transurethral Resection of Prostrate
- ✗ Extracorporeal shock wave lithotripsy
- ✗ Total Knee Replacement
- ✗ Laminectomy

The most frequently done surgeries from the key departments were selected for cost analysis.

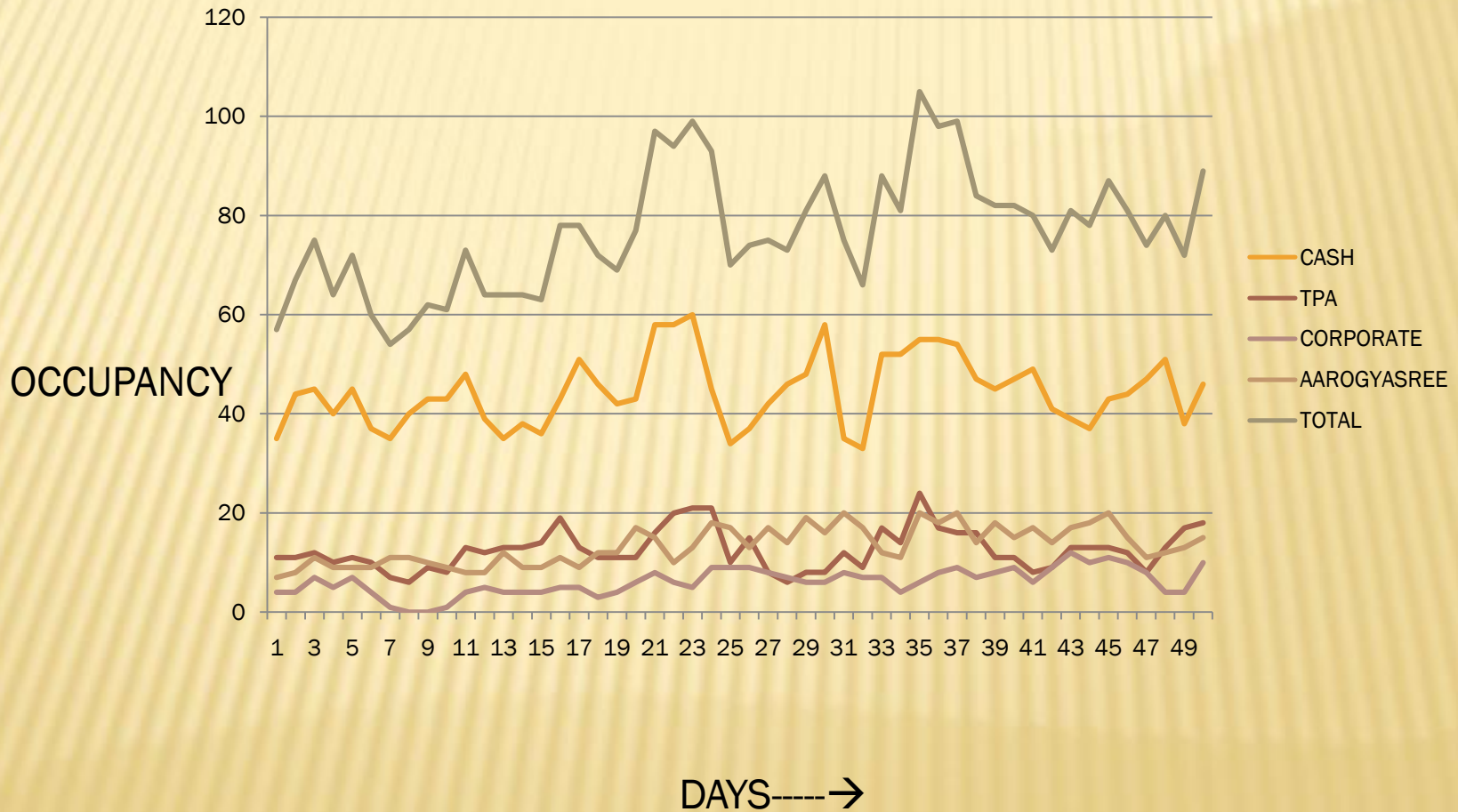
- ✘ Cost of material, manpower, equipment and overheads was calculated on the basis of information available in the bills.
- ✘ **Material-** Material cost was calculated as the sum of unit cost price of drugs and consumables used during the entire stay of the patient. The average of all bills observed was considered.
- ✘ **Manpower-** Personnel involved were surgeons, anaesthetists, residents, nurses, operation theatre technicians and pharmacists. Cost per hour was arrived at by dividing total salaries by number of employees, multiplied by number of hours spent on the patient, followed by dividing this value by the personnel to patient ratio.

- ✖ **Surgeon costs** were derived by taking into account professional fee payable. The cost per day per patient was calculated and multiplied by the duration of patient's stay in the hospital.
- ✖ **Equipment-** Cost of equipment per procedure was calculated. Price of major equipment used in each surgical procedure studied here was divided by 8 years(taken as life of equipment) to get the per year cost, and further divided by 300(working days of operation theatre), then by 10(working hours per day) and multiplied by average time taken to perform the surgery.
- ✖ **Overheads-** Cost of overheads per bed per day was calculated. Bills of past three months of water, electricity, building cost (rent, property tax and fire policy) and outsourced departments i.e. housekeeping, food and beverage, security, was divided by square feet area occupied by inpatient area(wards, sharing rooms, single rooms, deluxe, deluxe sharing and super deluxe and operation theatre).

ANALYSIS

- ✖ The average bed occupancy of the 150 bedded hospital was studied over 50 days. The type of patients are classified as cash, corporate, TPA, Aarogyasree patients. The average bed occupancy was found to be 80.
- ✖ For 80 occupied beds, 56 beds are vacant or for every bed, 0.7 beds lie vacant. In the service industry, vacant beds contribute negatively to costs. Hence, cost of vacant beds has been added to the cost of each of the following surgeries in order to compare with the offered tariff to check for viability.

OCCUPANCY



LAPAROSCOPIC CHOLECYSTECTOMY(CASH PACKAGES)

	Cost heads	Amount (in rupees)	Component of total cost
A	Material (Drugs & disposables)	3213.7	14%
B	Manpower	17616.3	75%
C	Equipment	1182.9	5%
D	Overheads	1542.5	7%
	Subtotal (A+B+C+D)	23555.4	100%
E	Cost of vacant bed (Indirect Cost)	16488.7	
	GRAND TOTAL (subtotal + E)	40044.1	

PACKAGE DAYS	GW	SHARING	DLX SHARING	SINGLE	DELUXE	SUP. DLX
2 TO 3	47500	60000	67000	80000	90000	97500

FINDING: VIABLE

Calculations

LAPAROSCOPIC CHOLECYSTECTOMY (CREDIT)

	Cost heads	Amount	Component of total cost
A	Material (Drugs & disposables)	3163.4	14%
B	Manpower	16483.8	74%
C	Equipment	1182.9	5%
D	Overheads	1542.5	7%
	Subtotal (A+B+C+D)	22372.7	100%
E	Cost of vacant bed (Indirect Cost)	15660.9	
	GRAND TOTAL (subtotal + E)	38033.5	

	Package days	GW	SHARING	Deluxe SHARING	SINGLE	DELUXE	Super Deluxe
GIPSA	3	55250	59500	59500	63750	N.A.	N.A.
TPA	3	44500	52500	60000	70500	78500	89500

LAPAROSCOPIC REPAIR OF INGUINAL HERNIA

	Cost heads	Amount (In Rupees)	Component of total cost
A	Material (Drugs & disposables)	3952.9	18%
B	Manpower	15848.0	72%
C	Equipment	1088.4	5%
D	Overheads	1140.5	5%
	Subtotal (A+B+C+D)	22029.8	100%
E	Cost of vacant bed (Indirect Cost)	15420.8	
	GRAND TOTAL (subtotal + E)	37450.6	

GIPSA PACKAGE	GW	SHARING	DLX SHARING	SINGLE
3 DAYS	51000	59500	59500	63750

Calculations

FINDING: VIABLE

URETEROSCOPIC LITHOTRIPSY

	Cost heads	Amount (in Rupees)	Component of total cost
A	Material (drugs & disposables)	883.9	6%
B	Manpower	11261.7	80%
C	Equipment	863.4	6%
D	Overheads	1140.5	8%
	Subtotal (A+B+C+D)	14149.5	100%
E	Cost of vacant bed (Indirect Cost)	9904.6	
	Grand Total (Subtotal + E)	24054.1	

GIPSA	PACKAGE DAYS	GW	SHARING	SINGLE ROOM
	2	42500	46750	51000

Calculations

FINDING: VIABLE

TRANSURETHRAL RESECTION OF PROSTATE

	Cost heads	Amount (in Rupees)	Component of total cost
A	Material (drugs & disposables)	4083.2	18%
B	Manpower	14925.0	67%
C	Equipment	1391.5	6%
D	Overheads	1944.4	9%
	Subtotal (A+B+C+D)	22344.2	100%
E	Cost of vacant bed (Indirect cost)	15640.9	
	Grand Total (Subtotal +E)	37985.2	

GIPSA	PACKAGE DAYS	GW	SHARING	SINGLE ROOM
	4	51000	55250	59500

FINDING: VIABLE

Calculations

EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY

	Cost heads	Amount	Component of total cost
A	Material (drugs & disposables)	1033.0	11%
B	Manpower	6828.8	72%
C	Equipment	881.0	9%
D	Overheads	738.5	8%
	Subtotal (A+B+C+D)	9481.3	100%
E	Cost of vacant bed (Indirect cost)	6636.9	
	Grand Total (Subtotal +E)	16118.2	

GIPSA				
PACKAGE DAYS	GW	SHARING	DLX SHARING	SINGLE
DAYCARE	15300	17000	17000	18700

FINDING: NOT VIABLE (after including cost of vacant bed)

Calculations

TOTAL KNEE REPLACEMENT

	Cost heads	Amount	Component of total cost
	Material (drugs & disposables)		
A	Manpower	17289.8	32%
B	Equipment	30919.3	58%
C	Overheads	1958.2	4%
D	Subtotal (A+B+C+D)	3486.9	6%
	Cost of vacant bed (Indirect cost)	53654.2	100%
E	Grand Total (Subtotal +E)	37557.9	
	GRAND TOTAL(subtotal + E)	91212.1	

TARIFF	PACKAGE DAYS	GW	SHARING	SINGLE	DELUXE	SUPERDELUXE
GIPSA	7	76500	93500	106250	N.A.	N.A.
TPA	5	N.A.	92500	100000	115000	125000
CASH	7	85000	119000	131700	148700	170000

FINDINGS:

Not viable for GIPSA rates in General ward

Not viable for general ward package for cash/self pay patients

Break-even for sharing rooms under GIPSA rates.

[Calculations](#)

LAMINECTOMY

	Cost heads	Amount	Component in total cost
A	Material (drugs & disposables)	6666.7	19%
B	Manpower	26651.3	75%
C	Equipment	383.6	1%
D	Overheads	2056.6	6%
	Subtotal (A+B+C+D)	35758.2	100%
E	Cost of vacant bed (Indirect cost)	25030.7	
	Grand Total (Subtotal +E)	60788.9	

	GIPSA			
PACKAGE DAYS	GW	SHARING	DLX SHARING	SINGLE
7	72250	80750	80750	93500
IMPLANTS EXTRA				

Calculations

FINDING: VIABLE

FINDINGS

	Viability	COST		TARIFF			MARGIN (%)			MARGIN 2(%)		
		SUB TOTAL	GRAND TOTAL	CASH	GIPSA	TPA	CASH	GIPSA	TPA	CASH	GIPSA	TPA
Cholecystectomy Cash	YES	23555	40044	47500	N.A.	N.A.	50	N.A.	N.A.	15	N.A.	N.A.
Cholecystectomy Credit	YES	22373	38034	N.A.	55250	44500	N.A.	60	50	N.A.	31	15
Inguinal Hernia	YES	22030	37451	N.A.	51000	N.A.	N.A.	63	N.A.	N.A.	37	N.A.
ESWL	NO	9481	16118	N.A.	15300	N.A.	N.A.	38	N.A.	N.A.	-5	N.A.
TURP	YES	22344	37985	N.A.	51000	N.A.	N.A.	59	N.A.	N.A.	31	N.A.
URSL	YES	14150	24054	N.A.	42500	N.A.	N.A.	70	N.A.	N.A.	48	N.A.
TKR	NO	53654	91212	76500	85000	N.A.	37	41	42	-1	-1	1
Laminectomy	YES	35758	60789	N.A.	77250	N.A.	N.A.	51	N.A.	N.A.	16	N.A.

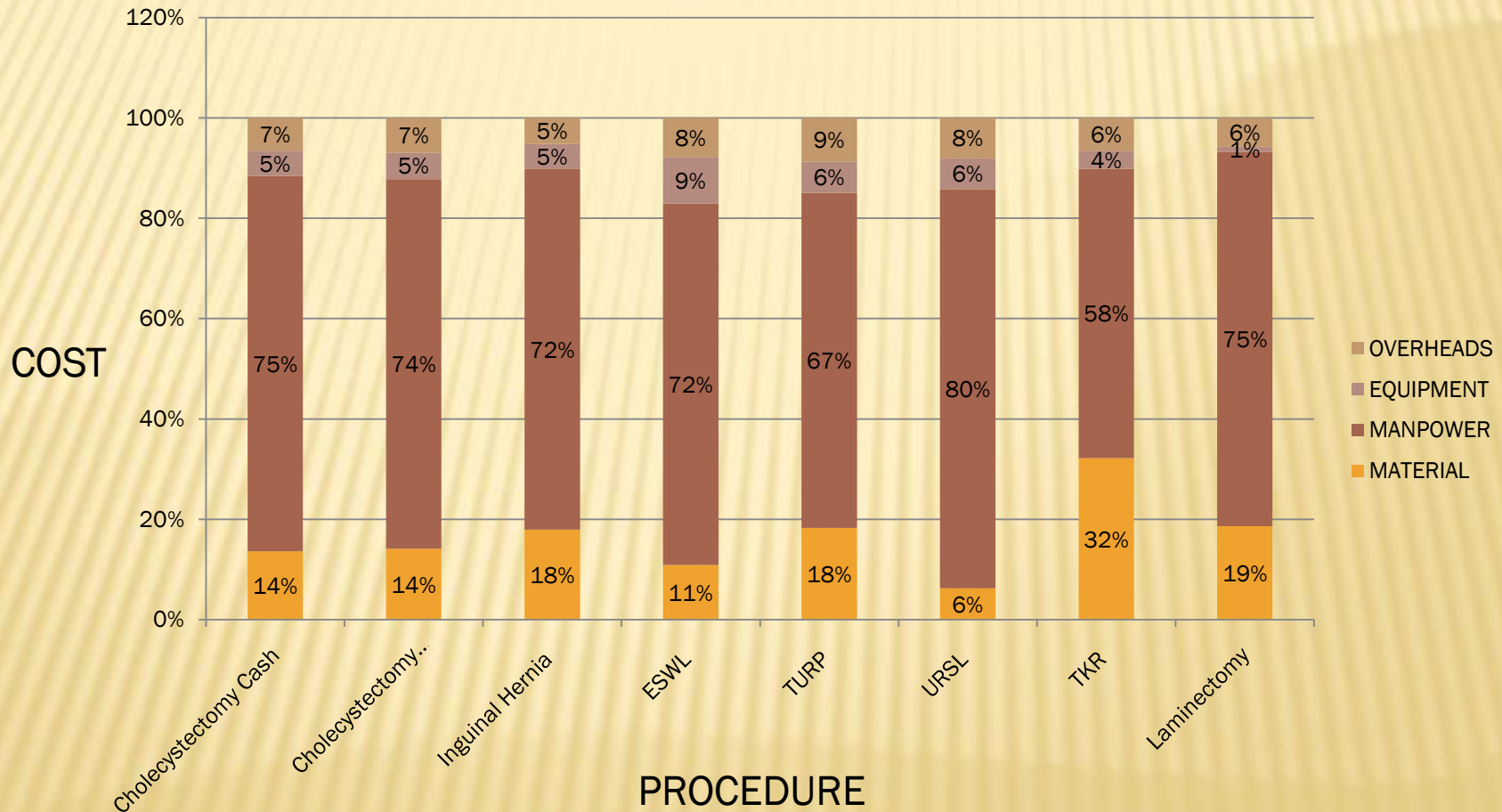
*All costs are in Rupees

FINDINGS

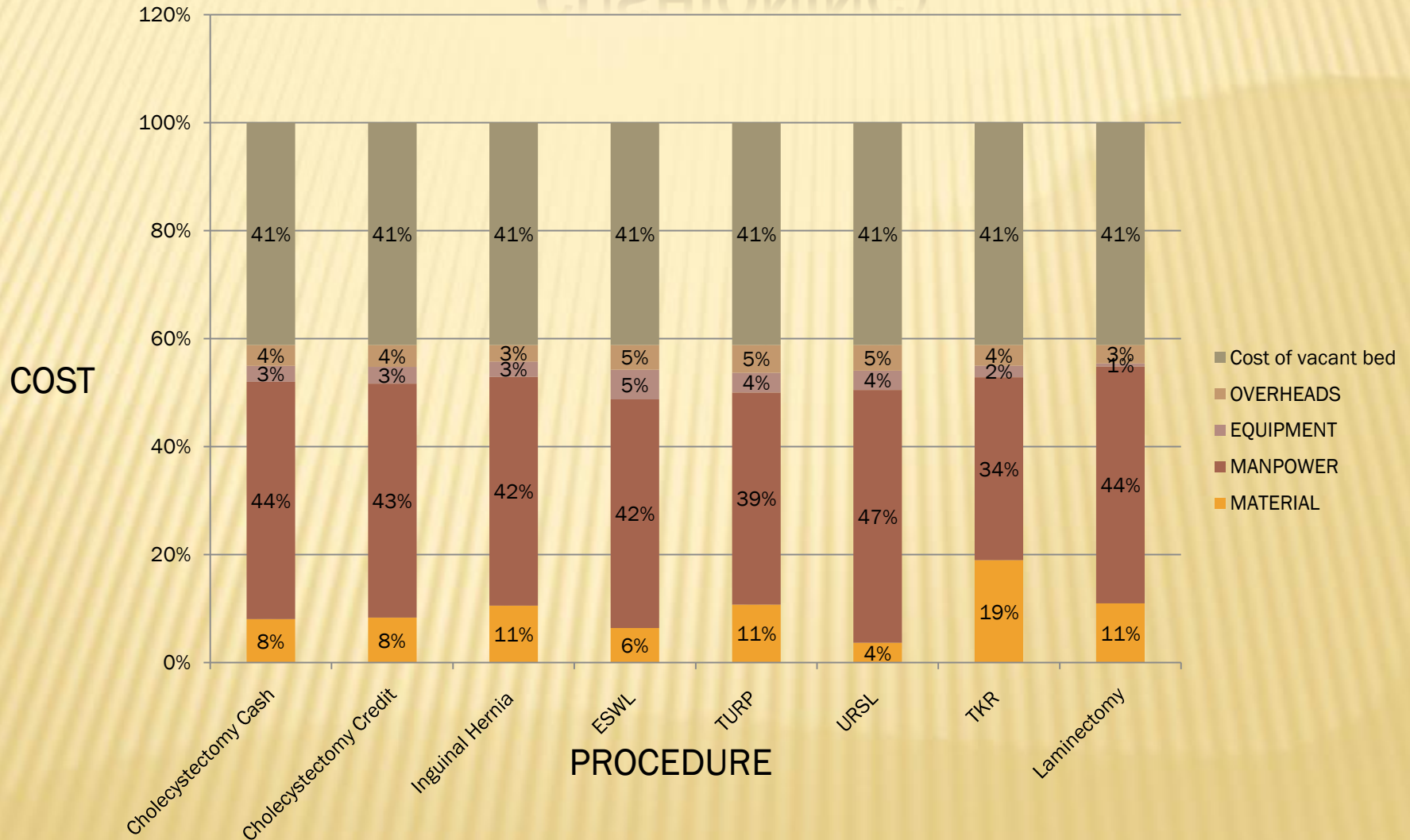
	Viability	COST		TARIFF			MARGIN (%)			MARGIN 2(%)		
		SUBTOT AL	GRAND TOTAL	CASH	GIPSA	TPA	CAS H	GIPSA	TPA	CASH	GIPSA	TPA
Cholecystectomy Cash	YES	23555	40044	47500	N.A.	N.A.	50	N.A.	N.A.	20	N.A.	N.A.
Cholecystectomy Credit	YES	22373	38034	N.A.	55250	4450 0	N.A.	60	50	N.A.	35	20
Inguinal Hernia	YES	22030	37451	N.A.	51000	N.A.	N.A.	63	N.A.	N.A.	37	N.A.
ESWL	NO	9481	16118	N.A.	15300	N.A.	N.A.	38	N.A.	N.A.	-1	N.A.
TURP	YES	22344	37985	N.A.	51000	N.A.	N.A.	59	N.A.	N.A.	36	N.A.
URSL	YES	14150	23435	N.A.	42500	N.A.	N.A.	70	N.A.	N.A.	50	N.A.
TKR	NO	53654	79109	76500	85000	N.A.	37	30	42	7	-3	14
Laminectomy	YES	35758	60789	N.A.	77250	N.A.	N.A.	51	N.A.	N.A.	22	N.A.

*All costs are in Rupees

COST HEADS AT A GLANCE (EXCLUDES CUSHIONING)



COST HEADS AT A GLANCE (INCLUDES CUSHIONING)



DROP IN PROFIT MARGINS AFTER CUSHIONING

	GIPSA (%)	TPA(%)	CASH(%)
CHOLECYSTECTOMY CASH	N.A	N.A	34
CHOLECYSTECTOMY CREDIT	29	35	N.A
INGUINAL HERNIA	26	N.A	28
ESWL	43	N.A	N.A
TURP	28	N.A	N.A
URSL	22	N.A	N.A
TKR	42	41	38
LAMINECTOMY	35	N.A	N.A

*The above figures are in percentages

CONCLUSION

- ✖ Although, the analysis depicts financial viability of most of the procedures, the profits earned range from 37- 63%.
- ✖ Cost of vacant bed represents 41% of total cost after cushioning.
- ✖ Adding cost of unoccupied beds causes the profit margins to drop 22-42 percentage points.
- ✖ Manpower takes up the highest fraction, 58-80%, in the components of entire costing of each procedure.

RECOMMENDATIONS

- ✘ Revision of tariffs and Memorandum of Understandings with insurance companies is required.
- ✘ The cost of vacant beds cannot be ignored as they affect the overall cost of each procedure, hence marketing efforts for conversion of outpatients to inpatients is the need of the hour.
- ✘ A modification in payments payables to the surgeons may be required for cost containment.

LIMITATIONS

- ✘ The sample collected for the study was limited to a period of three months only.
- ✘ Pre operative and follow up costs were not included.
- ✘ Cases with multiple surgeries and co morbidities have been excluded from the study.

THANK YOU