

ORGANISATION - RBH, JAIPUR

CK Birla Hospitals, comprising its three identities across India

- The Calcutta Medical Research Institute (CMRI)
- BM Birla Heart Research Center (BMB)
- Rukmani Birla Hospital (RBH)

The three units of CK Birla Hospitals having footprint in Kolkata & Jaipur which offer 800 beds with comprehensive health care services in India.

RBH launched in 2016 with 230 beds at Jaipur

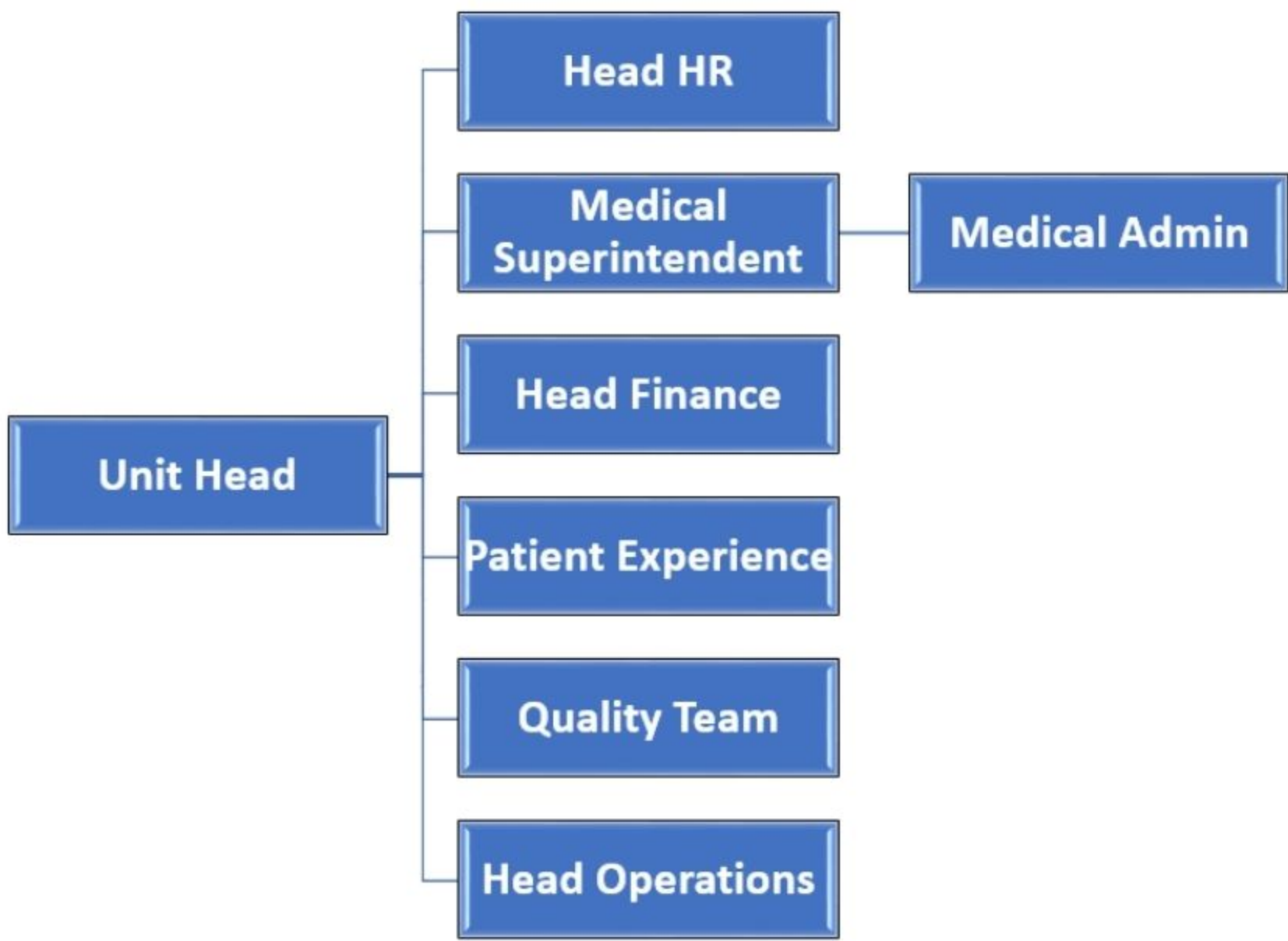
VISION

To provide best of Patient Service & Clinical Excellence.

MISSION

To create Clinical Centres of Excellence on a strong backbone of research, academics and evidence-based medicine for best clinical and patient outcome.

ORGANISATION STRUCTURE



OBJECTIVES

- To analyse about robotic surgeries at RBH
- Comparison between expected & actual outcomes of robotic surgeries as compared with laparoscopic surgeries.
- To identify factors for cost optimization of robotic surgeries

METHODOLOGY

- Study Design : Retrospective (November 1, 2023 – May 31, 2024)
- Study Duration : The study covered the data for all robotic surgeries and 98 laparoscopic surgeries performed over the period of 7 months, from Nov 1, 2023 – May 31, 2024.
- Sample size : 98
- Data collection method : Secondary data
- Specialties included : OBS/GYN, Urology, General Surgery (GS), Gastro-intestinal (GI)

SWOT : ROBOTIC & LAPROSCOPIC SURGERIES

STRENGTH

- ROBOTIC**
- First mover advantage
 - 3D, HD vision

- LAPROSCOPIC**
- Shorter ALOS
 - More surgeries
 - Experienced surgeons

WEAKNESS

- ROBOTIC**
- High initial investment + maintenance
 - Less surgeries, longer ALOS, high operative time
 - Cardiology not available

- LAPROSCOPIC**
- Surgeon fatigue

OPPORTUNITY

- ROBOTIC**
- Growing demand : minimally invasive
 - Scope for expansion

- LAPROSCOPIC**
- Globally accepted

THREATS

- ROBOTIC**
- Emerging competition
 - Resistance to change

- LAPROSCOPIC**
- Large market competition

PRACTICAL v/s THEORITICAL KNOWLEDGE

THEORETICAL

Gained knowledge, basic core concepts, enhanced understanding about all the various functions & departments of a hospital.

PRACTICAL

While practical knowledge was focused on real-world application & helped develop skills like problem-solving, decision making, teamwork

CHALLENGES FACED DURING INTERNSHIP

- Handling multiple tasks under pressure.
- Taking approvals & permissions for poster and getting relevant info due to confidentiality issues.
- Launch of HIS, lead to disturbance in data collection.

DA VINCI XI ROBOTIC SYSTEMS

Surgeon console : The surgeon controls the robotic arms from here, using intuitive hand & foot movements to guide the instruments.

Robotic arms : Robotic arms mimics surgeon's hand movements, enhancing dexterity & flexibility.

Visualization system : An HD, 3D camera provides magnified, clear view of surgical site, enhancing visual & spatial awareness.

BENEFITS :

- 3D Visualization
- Enhanced dexterity, precision & accuracy
- Improved access
- Better ergonomics

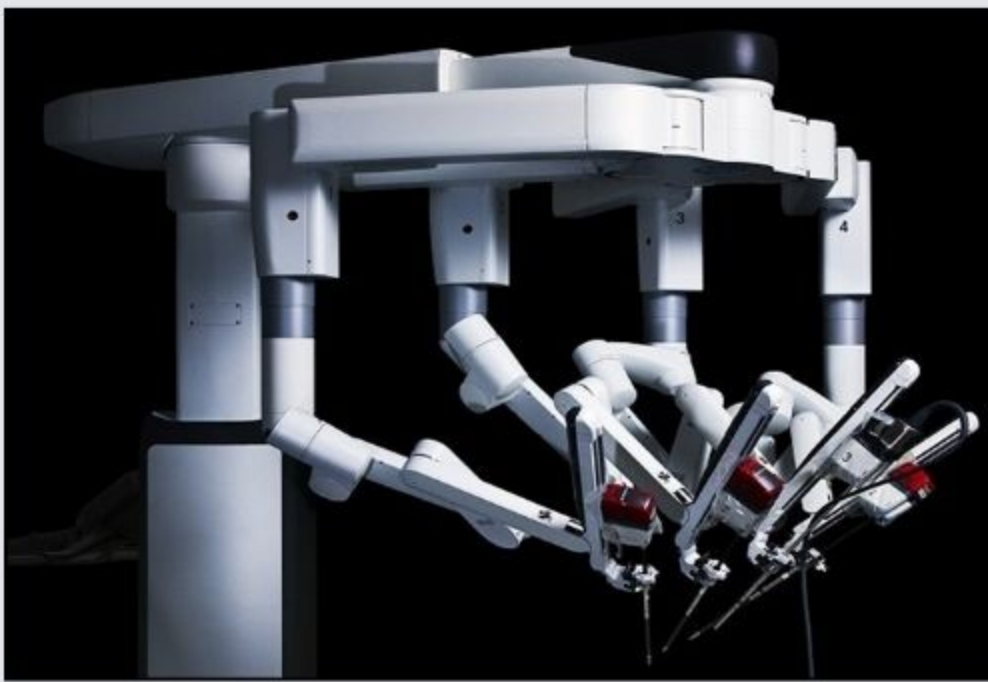
EVIDENCE BASED OUTCOMES :

- Reduced blood loss
- Faster recovery
- Improved & consistent outcomes
- High patient satisfaction

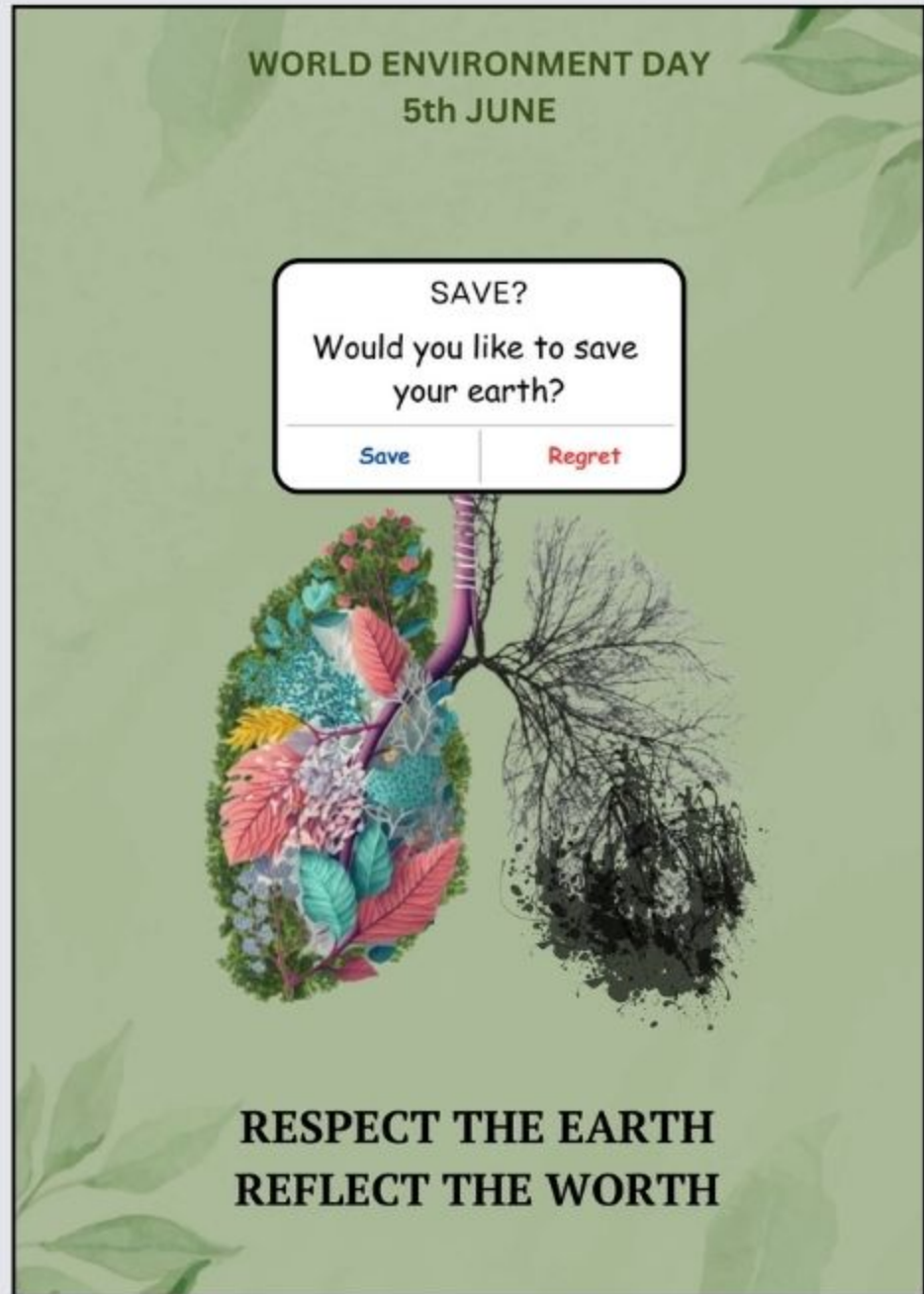
RBH, Jaipur



DA VINCI XI Robot

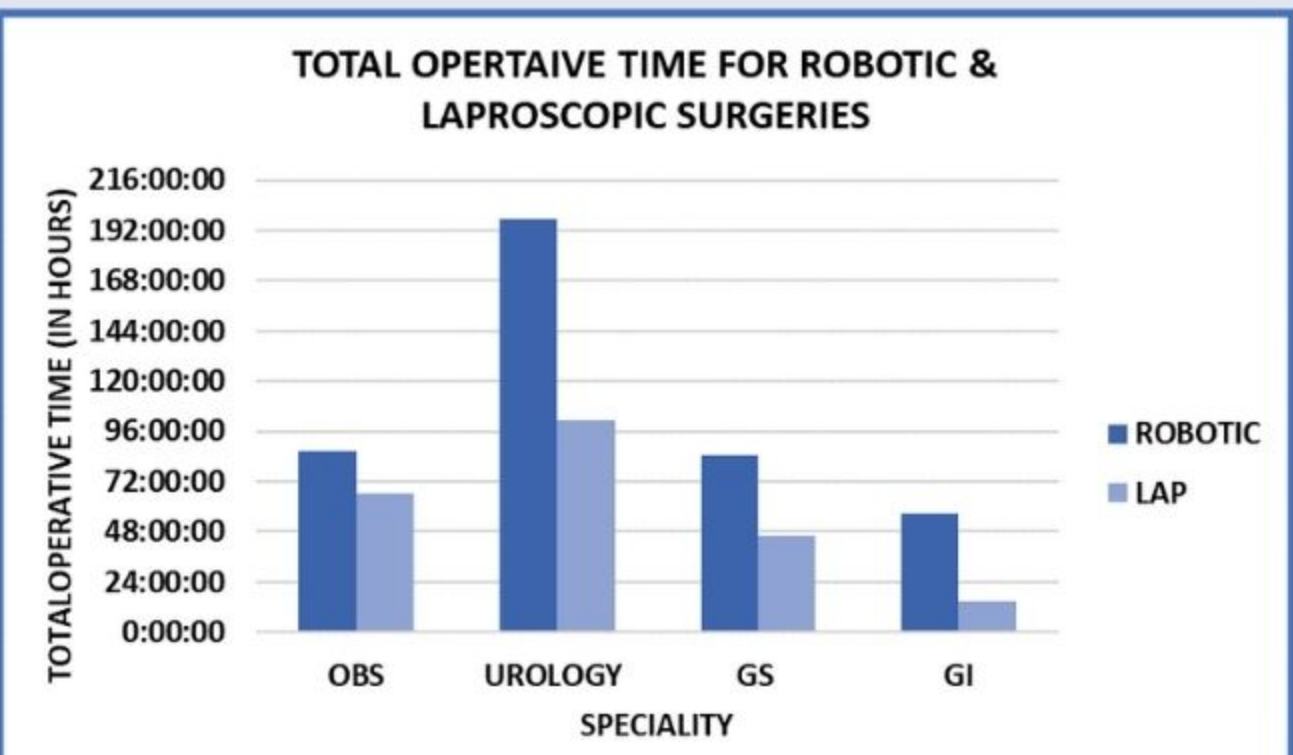
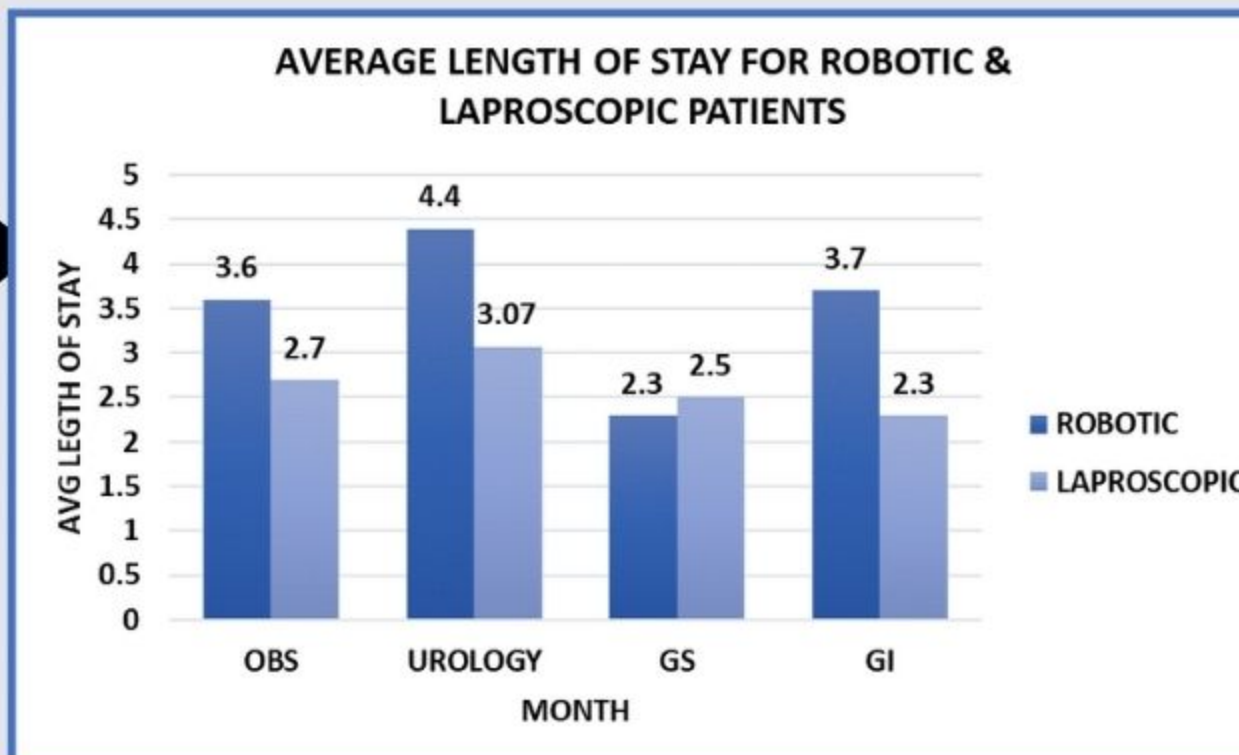
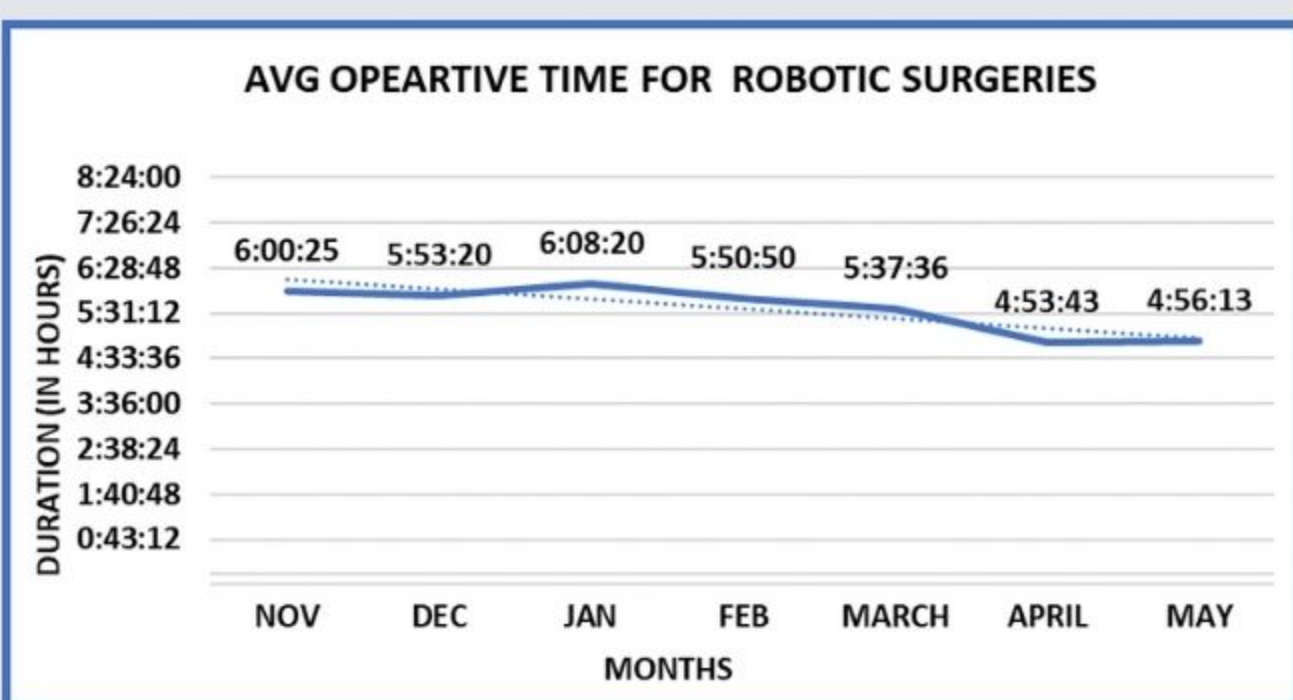
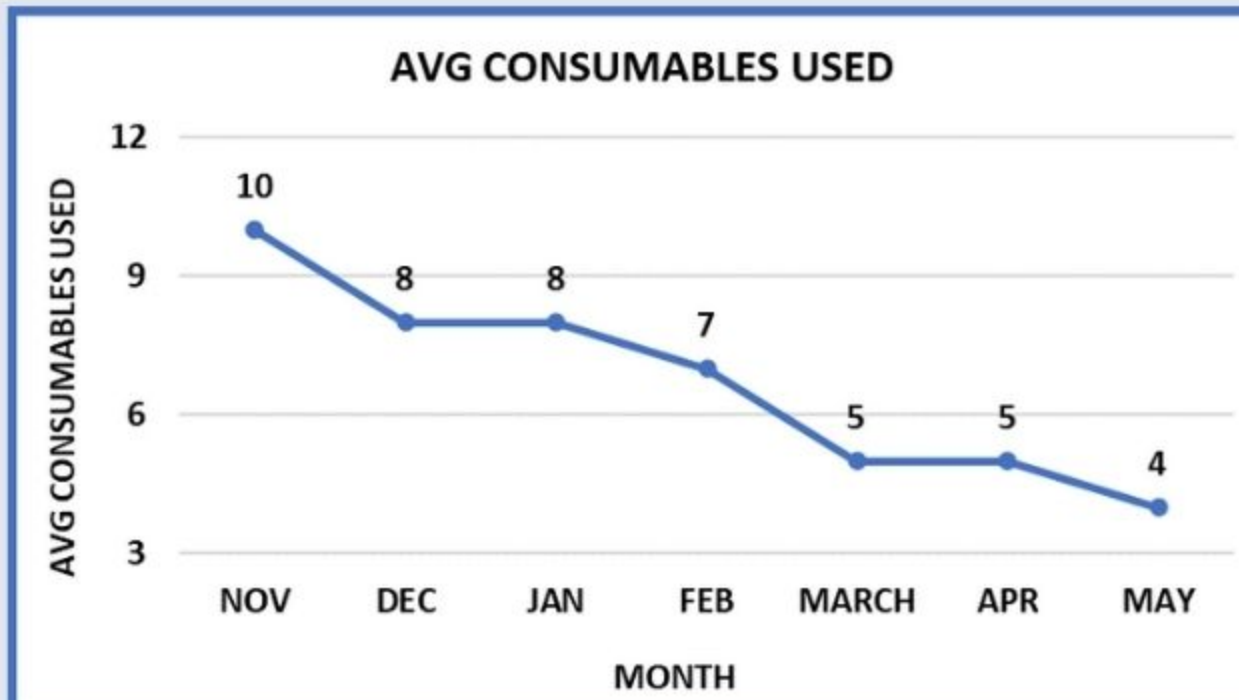
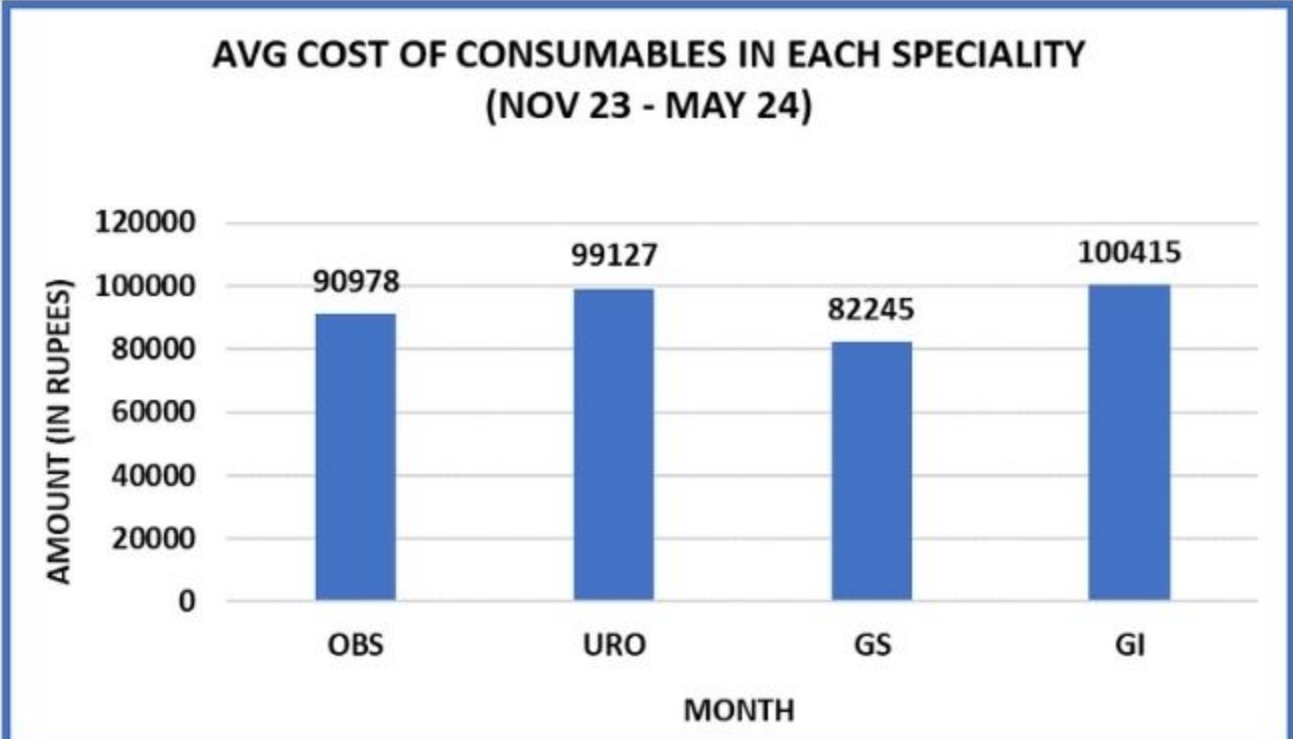
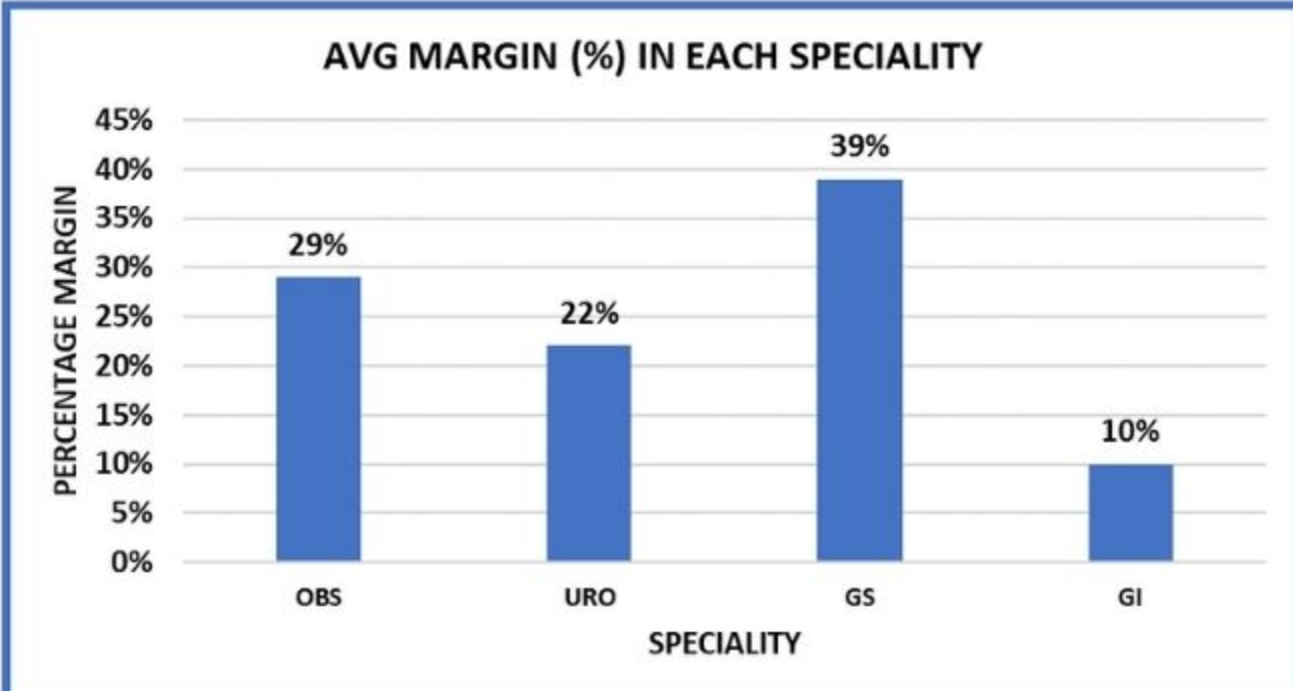
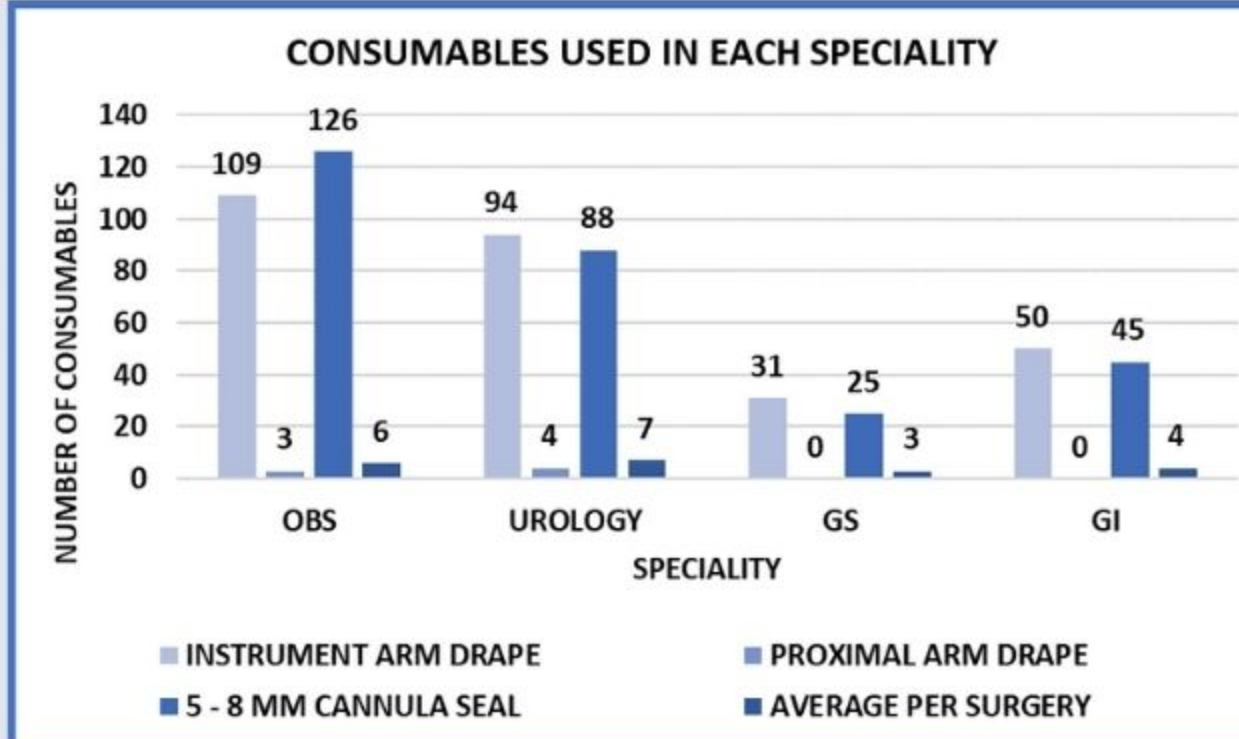


World Environment Day Poster submission



GRAPHS & FINDINGS

- Total surgeries in each month : NOV (5), DEC (10), JAN (11), FEB (9), MARCH (14), APR (18), MAY (31)
- Total surgeries in each speciality : OBS (37), URO (27), GS (24), GI (10)



EXPECTED v/s ACTUAL OUTCOMES

PARAMETER	STANDARD (ACCORDING TO REFERENCE FROM INTUITIVE SURGICALS)	AVERAGE IN RBH		TARGET TO ACHIEVE
	Reference - https://www.intuitive.com/en-us/about-us/company/instruments-program-notice	LAPROSC -OPIC	ROBOTIC	
AVERAGE LENGTH OF STAY (ALOS)	0.4 days shorter than average laparoscopic	2.6 days	3.5 days	1.3 days shorter than current robotic LOS
OPERATIVE TIME	18.8 min longer than average laparoscopic	128 minutes	265 minutes	118.2 min lesser than present robotic

RESULTS

- TREND -**
 - Highest number of surgeries : May, OBS
 - Highest margin : GS
- CONSUMABLES -**
 - Over the months, an overall **reduction in use of number of robotic arm consumables, per surgery has been observed, leading to better cost optimization.**
 - Better optimization** can be **suggested in Urology.**
- SURGERY OPERATIVE TIME -**
 - Operative times have **decreased over the months**, but needs to be **reduced even more to 118.2 min lesser than current** (265 min) operative times for enhanced OT utilization.
- ALOS -**
 - The ALOS for robotic patients needs to be **1.3 days shorter than present ALOS** (3.5 days), for cost optimization and better bed turnover ratio.
- BREAK-EVEN -**
 - ROBOTIC RENT + MAINTAINENCE : 15 Lakhs
 - To **break-even**, RBH needs atleast **36 surgeries per month** (all specialties)

COST SAVING STRATEGIES

REUSEABILITY

- Increasing the number of uses** of consumables, thereby reducing price-per-use.
- By this method, an average of **24% cost reduction per case** has been reported by Intuitive.

LESS CONSUMABLES

- Lesser use of consumables can lead to lesser operative costs per surgery.
- As seen in GS, the average number of consumables their cost is less, giving us highest margins.

REFERENCE - <https://www.intuitive.com/en-us/about-us/company/instruments-program-notice>

GAPS

ROBOTIC

- Less number of surgeries
- Cardiology not available
- Untrained staff
- Less promotion

LAPROSCOPIC

- More number of scheduled surgeries compared to availability of OT, leading to disagreement amongst surgeons and staff

SUGGESTIONS (ROBOTIC SURGERIES)

INCREASING NUMBER OF SURGERIES PERFORMED

- Expanded marketing initiatives & quarterly progress to be mapped
- Digital promotion featuring patient video & audio testimonials on social media & waiting areas

LESSER OPERATIVE TIME

- Emphasis on advanced simulation training & proctor support
- Enhanced practice & training initiatives for medical staff

REDUCING LENGTH OF STAY

- Patients can be admitted on the day of surgery, pre-op and PAC can be done on OPD basis
- Discharge of patients as soon as possible

REDUCING COST OF CONSUMABLES

- CSSD, OT Manager advanced training for reprocessing & of instruments.
- Training to perform maximum surgeries using two robotic arms
- Finding safe practices for the reuse of arm drapes and consumables

INCREASING THE NUMBER OF TRAINED STAFF

- To improve surgical outcomes, shorter operative times & better patient bed turnover ratio.

LEARNINGS

- Practical knowledge of different hospital operations, departments & management functions.
- Hospital management challenges & solutions.
- Audits : ICU open & closed files, Family counseling, Restraint forms, BMW, HIRA, PREM
- Others : Emergency codes, MDT counselling, Mockdrills

USEFULNESS

- Helped develop life skills like patience, team work, working under pressure, effective communication, patient dealing, along with practical exposure of hospital setting.