

AI for Operational Efficiency



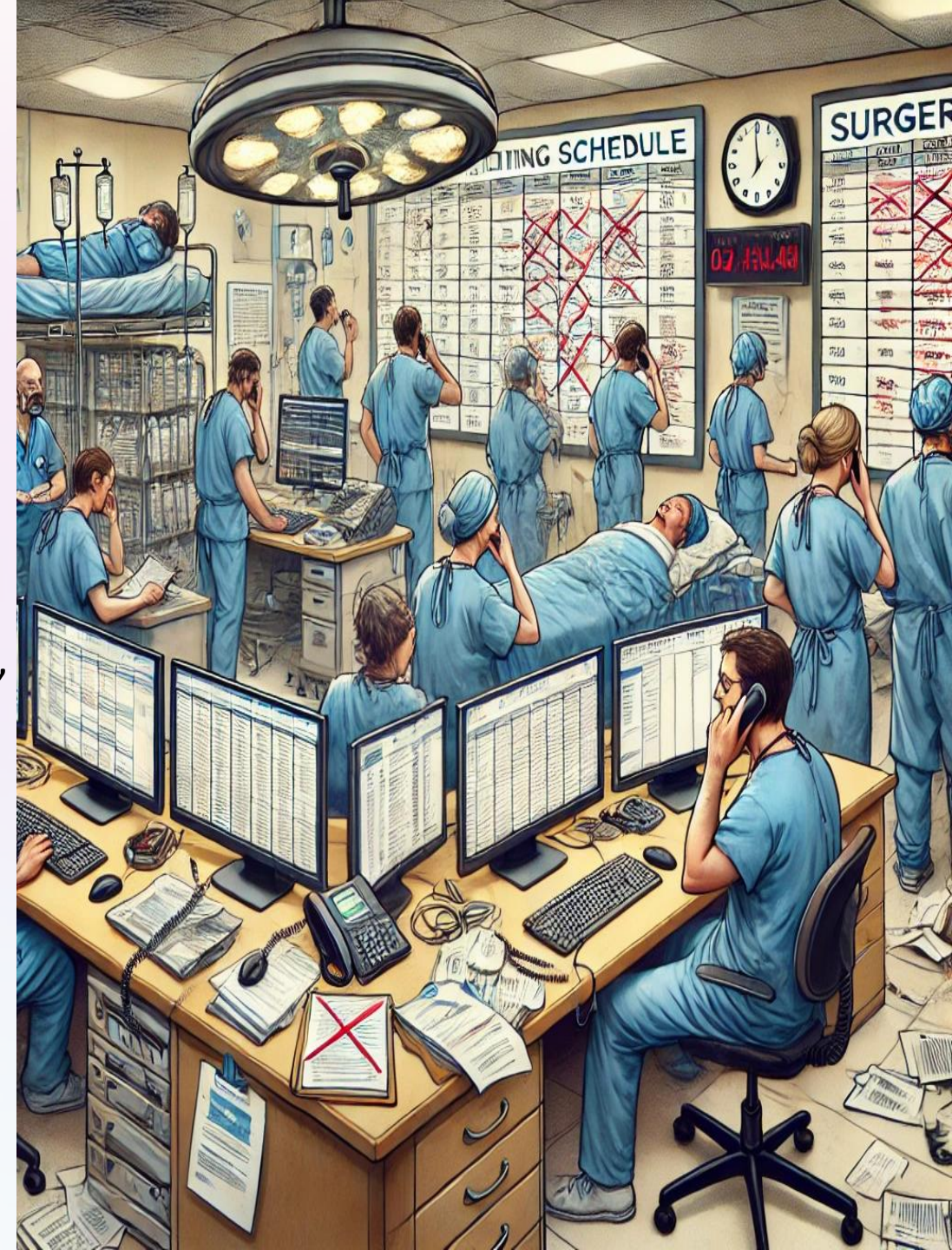
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Challenges in Operations

Few Pain points in day to day functioning:

- ❑ Manual scheduling systems for managing multiple surgeries; Underutilization of resources-OT, Doctors, Nurses; Prolonged Surgeries; Handling unforeseen emergencies; Increased patient waiting times
- ❑ Discharge Delays:
- ❑ OP Waiting time:
- ❑ Antimicrobial Stewardship



Amrita OT Scheduler: Modules

1

Scheduler

- Automated Scheduling
- Real-Time Updates
- Resource Optimization

2

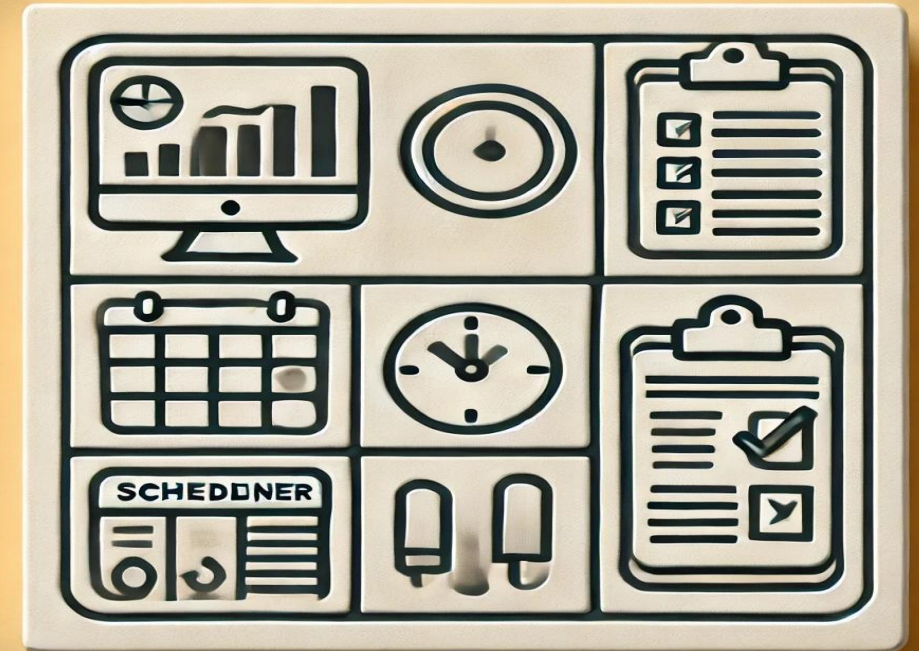
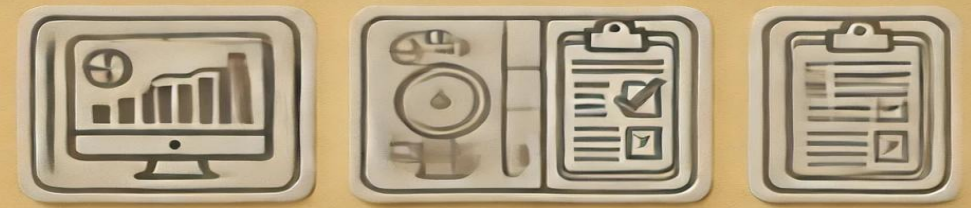
Event Monitoring

- Recording start/end time of each OT event
- Handling emergency surgeries
- Surgery Turnaround Times

3

Reports of Surgeries

- Performance Analytics
- Utilization Metrics
- Surgical Case Types

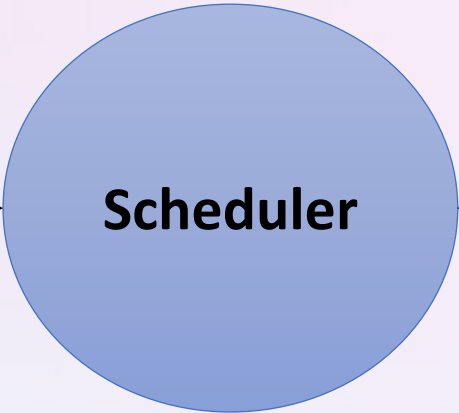


Scheduler Workflow

Input

DATE OF SURGERY	AGE/SEX	SURGERY	SURGEON	SPECIALITY	Name of the Patient	Special Request	Mrd Number
18-07-2024	28Yrs/F	DJ Stenting	Dr. Priya Gupta	Urology	Mr Vikram Singh	C ARM (Simans)	1201
18-07-2024	47Yrs/F	Hemorrhoidectomy	Dr. Amit Patel	Gen Surgery	Ms Anjali Patel		1202
18-07-2024	2Yrs/M	EMERGENCY LSCS	Dr. Anjali Gupta	OBG	Ms Poonam Sharma	Cusa (Soring)	1203
18-07-2024	6Yrs/M	Bioplar Hemiarthroplasty	Dr. Rahul Singh	ORTHO	Mr Rakesh Kumar		1204
18-07-2024	66Yrs/F	RIGHT Eye Pterygium Surgery	Dr. Priya Sharma	Ophthalmology	Mr Saleem Khan		1205
18-07-2024	69Yrs/F	LSCS	Dr. Rahul Singh	OBG	Ms Anita Sharma		1206
18-07-2024	78Yrs/F	Lap Cholecystectomy	Dr. Ritu kumari	Gen Surgery	Ms Madhuri Devi		1207
18-07-2024	23Yrs/M	Examination Under GA	Dr. Sanjay Kumar	Gen Surgery	Mr Gopal Das		1208
18-07-2024	30Yrs/F	TURP	Dr. Vikram rathod	Urology	Ms Kavita Devi	Cusa (Soring)	1209
18-07-2024	39Yrs/F	Leep	Dr. Anjali kumari	Oncogyne	Mr Ravi Shankar		1210
18-07-2024	55Yrs/M	EUA	Dr. Amit kapor	Oncogyne	Mr Vikas		1211
18-07-2024	3Yrs/M	Vaginal Tag Excision	Dr. Amit Gupta	Oncogyne	Mr Mahesh Chandra Singh		1212
18-07-2024	7Yrs/M	Hysteroscopic Endometrial Biopsy	Dr. Amit kumar	Oncogyne	Mr Deepak Kumar	Robot (Divanchi)	1213
18-07-2024	64Yrs/M	Excision OF Breast Lump	Dr. Meenakshi Sahai	Breast Surgery	Mr Ajay Kumar Singh		1214
18-07-2024	36Yrs/F	Breast Abscess Right	Dr. Priya gupta	Breast Surgery	Ms Neelam Devi		1215
18-07-2024	51Yrs/F	RIGHT Eye Cataract Implantation	Dr. Anjali Patel	Ophthalmology	Mr Amit Kumar Singh	C ARM (Simans)	1216
18-07-2024	60Yrs/F	RIGHT Eye Pterygium Surgery	Dr. Mohan yadav	Ophthalmology	Ms Jyoti Devi		1217
18-07-2024	8Yrs/M	Cataract	Dr. Vikram Singh	Ophthalmology	Ms Kiran Devi		1218

List of Surgeries



Output

Scheduled Surgeries				
View all scheduled surgeries across all operation theaters				
OT NUMBER				
Filter by OT number				Download
OT Number	Surgeon	Department	Surgery	Start Tir
1	Dr.Namrata Seth	Obstetrics & Gynaecology	LAVH	8:00
1	Dr.Aparna Mahajan	ENT	Tympanoplasty+Mastoidectomy	12:27
3	Dr.Manav Suryavanshi/Dr.Ritesh Goel	Urology	DJ Stenting B/L	8:00
3	Dr.Puneet Dhar	Gastrointestinal Surgery	Laparoscopic Cholecystectomy	10:40
3	Dr.Sachin Mittal	General Surgery	Laparoscopic Cholecystectomy	13:04
3	Dr.Anil Sharma/Dr.Ahmed Kamaal	Urology	URS	15:28
4	Dr.Mrinal Sharma	Orthopaedic	Left TKR	8:00
9	Dr.Nitin Jain	Cardiac Surgery - Paediatric	1st Stage Hypospadias Repair	8:00
10	Dr.Sameer Bhate	Cardiac Surgery - Adult	CABG On Pump	8:00
Update/Confirm				

Scheduled surgeries

Improvement from 18% to 64% (manual to automated scheduling).
OT utilization increased from 43% to 66%.

Event Monitoring: Workflow

Step1: Confirm patient details

Surgery List

View all scheduled surgeries across all operation theatres

OT NUMBER

Filter by OT number

Neeraj

Procedure: LAVH

Surgeon: Dr.Namrata Seth

View/Update Details

Uma Kant Jha

Procedure: CABG On Pump

Surgeon: Dr.Sameer Bhate

View/Update Details

Master Punit

Procedure: 1st Stage Hypospadias Repair

Surgeon: Dr.Nitin Jain

View/Update Details

Renu

Procedure: Tympanoplasty+Mastoidectomy

Surgeon: Dr.Aparna Mahajan

View/Update Details

Jitender Grover

Procedure: DJ Stenting B/L

Surgeon: Dr.Manav Suryavanshi/ Dr Diteek Ghal

View/Update Details

Emergency/Add-on Surgery

Step2: Record In-time/Out-time

Operation Theatre #1

Patient: Neeraj

Pre-OP

17:51:11

In Time

Prophylaxis

17:51:11

In Time

Wheel-In

17:51:13

In Time

Induction

17:51:15-

In Time

Painting & Draping

00:00-00:00

In Time

Incision

00:00-00:00

In Time

Extubation

00:00

In Time

OT utilization increased from 43% to 66%.

Reports for Surgeries: Features



Utilization Rates

Track OT usage efficiency and identify improvement opportunities.



Turnaround Times

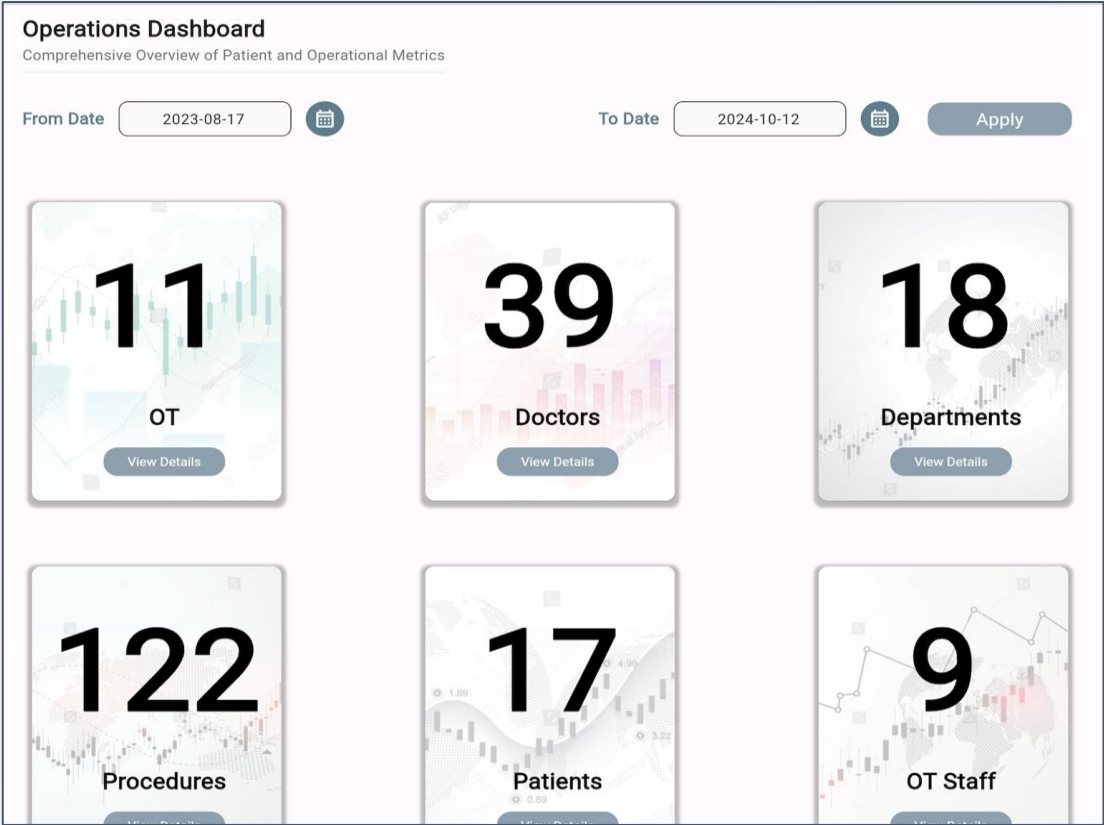
Monitor and optimize time between procedures for maximum efficiency.



Performance Metric Analysis

Analyze individual and team performance metrics for continuous improvement.

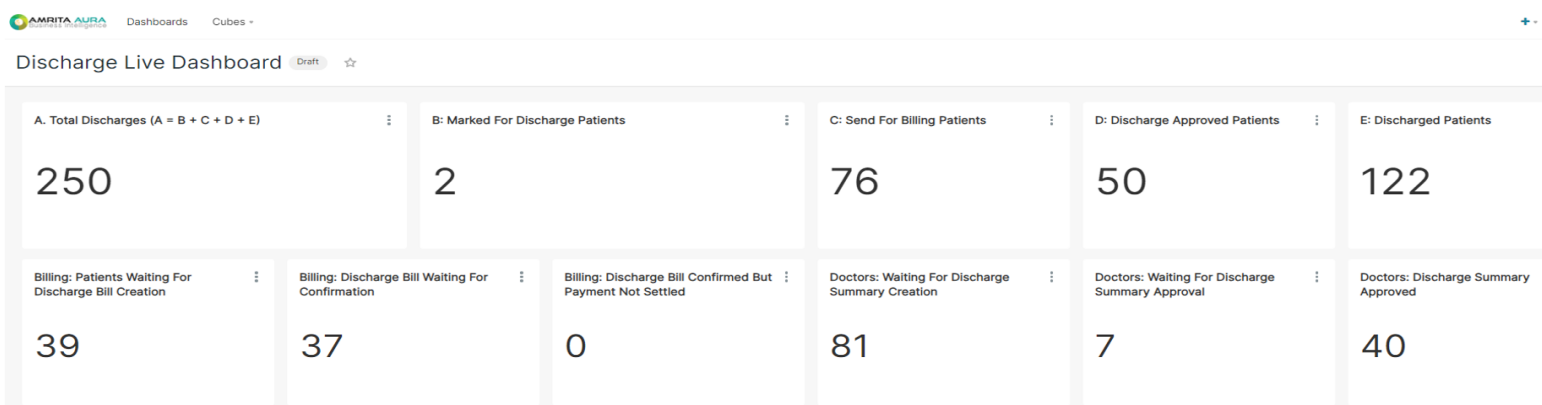
Safe Surgery Checklist compliance improved from 78% to 100%.



Dashboard Web Application Screenshot

Discharge: Pain Point - Dashboard

AMRITA Aura Discharge Live Dashboard



Discharge time improved by 2+ hours.

Introduction of a comprehensive OT dashboard.

Discharge Summary Details with time stamps with Delayed Time

Patients Delayed for Discharge (1 hour Beyond Send For Billing)

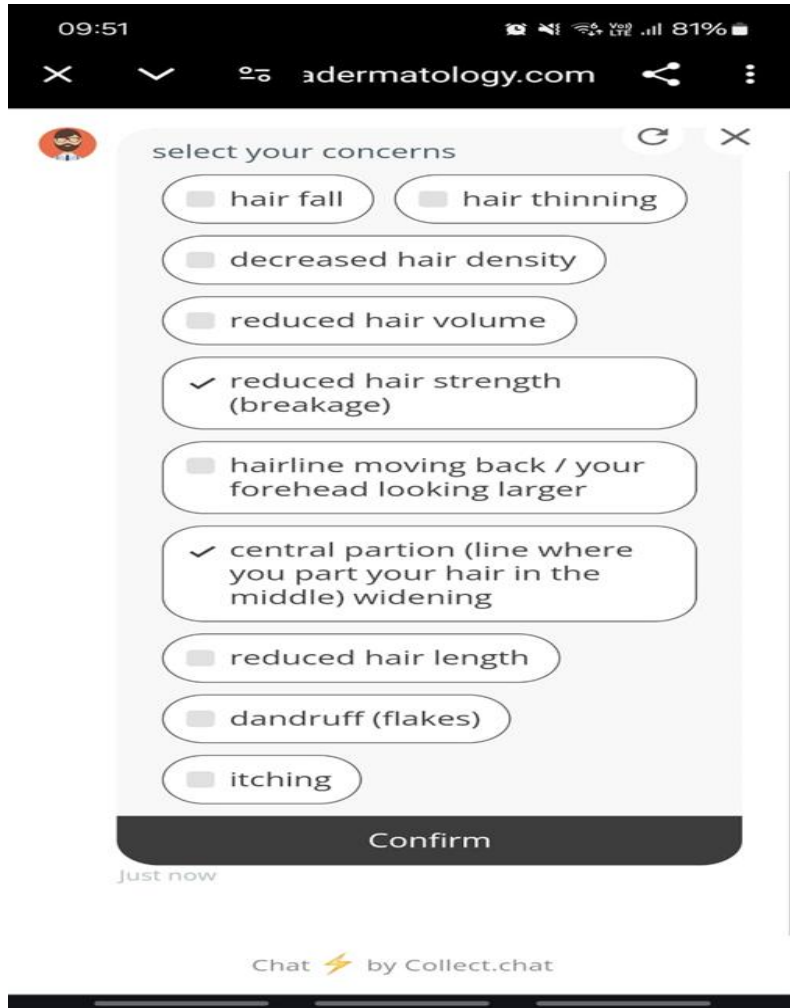
MRD Number	Patient Name	Admitting Doctor	Specialty	Current Status	Discharge Summary Approved Time	Mark For Discharge Date	Send For Billing Date	Bill Confirmed Date	Sales Return Request Processed Time	Discharge Approved Date	Actual Discharge Date	Total Discharge Prescription	Total Partially Processed Prescription	Total Fully Processed Prescription	Total Pending Prescription	DelayedTime
175282	MR ADITYA RAJ	Unit1 Ortho	General Orthopaedics	SEND FOR BILLING	15-10-2024 04:41	15-10-2024 05:02										3718:26
175283	MR ANIL SAJ	Unit1 Ortho	General Orthopaedics	SEND FOR BILLING	15-10-2024 04:41	15-10-2024 05:05										3712:08
175105	MR Gyan madhav shahgar	Unit1 Ortho	General Orthopaedics	SEND FOR BILLING	15-10-2024 04:42	15-10-2024 05:05										3711:51
175104	MR Eshwar D Adjuvin	Unit1 Ortho	General Orthopaedics	SEND FOR BILLING	15-10-2024 04:42	15-10-2024 05:06										3710:46
175103	MR DON THOMAS	Unit1 Ortho	General Orthopaedics	SEND FOR BILLING	15-10-2024 04:42	15-10-2024 05:07										3709:46
175101	MR DHANANJAY K J	Unit1 Ortho	General Orthopaedics	SEND FOR BILLING	15-10-2024 04:42	15-10-2024 05:08										3708:51
175100	MR DEVANGU	Unit1 Ortho	General Orthopaedics	SEND FOR BILLING	15-10-2024 04:42	15-10-2024 05:09										3707:48
175099	MR Angelo Anish	Unit1 Ortho	General Orthopaedics	SEND FOR BILLING	15-10-2024 04:41	15-10-2024 05:10										3706:51
175098	MR ANAJ KRISHNA P S	Unit1 Ortho	General Orthopaedics	SEND FOR BILLING	15-10-2024 04:41	15-10-2024 05:11										3705:53
175096	MR Anil Pritam	Unit1 Ortho	General Orthopaedics	SEND FOR BILLING	15-10-2024 04:41	15-10-2024 05:12										3705:07
175094	MR Abin Pritam	Unit1 Ortho	General Orthopaedics	SEND FOR BILLING	15-10-2024 04:41	15-10-2024 05:13										3704:08
175095	MR ALWIN SHEEN JOHN	Unit1 Ortho	General Orthopaedics	SEND FOR BILLING	15-10-2024 04:41	15-10-2024 05:14										3703:20

Discharge Summary Details with time stamps.

Discharge Summary Detail (B+C+D+E)

MRD Number	Patient Name	Admitting Doctor	Specialty	Current Status	Overstay Days than expected discharge	Discharge Summary Approved Time	Bill Preparation Time after Send For Billing	Payment Delay After Bill Confirmation	Actual Discharge after Discharge Approval	Sales Return Processing Time	Total Time Taken	Discharged/Yes/No	Mark For Discharge Date	Actual Discharge Date
171117	SURINDER KAUR	Dr. Saphalta Bhaghat	Medical Oncology	DISCHARGE APPROVED	0	16-10-2024 16:50	01:41:17	00:00:00	00:00:00	00:00:00	0 days 00:00:00	NO		
154744	GUDDI GUDDI	Dr. Prashant Mehta	Medical Oncology	PATIENT DISCHARGED	0	16-10-2024 17:00	00:59:10	00:00:00	00:12:16	00:00:00	0 days 01:11:31	YES	16-10-2024 17:06	
174900	MRS SUNITA	Unit1 Obs and Gynae	OBGY Surgery	PATIENT DISCHARGED	2		01:14:25	00:00:03	00:02:37	00:00:00	0 days 01:17:02	YES	16-10-2024 17:47	
81550	RABINDRA MANJHI	Dr. Umila Anandh	Nephrology (Adult)	PATIENT DISCHARGED	0		00:00:00	00:00:00	00:27:36	00:00:00	0 days 03:46:37	YES	16-10-2024 16:06	
175288	FOOL SINGH	Unit1-Gen Medicine	Internal Medicine	PATIENT DISCHARGED	1	04:15:42		00:00:03	20:34:26	00:00:00	1 days 00:50:08	YES	14-10-2024 17:41 13:04	16-10-2024 13:04
175179	MR BALKAR	Unit1-Gen Surgery	General Surgery	PATIENT DISCHARGED	1	04:13:08		00:00:02	20:35:30	00:00:00	1 days 00:48:38	YES	14-10-2024 17:47	16-10-2024 13:01
175169	SHANKAR GUPTA	Unit1-Gen Surgery	General Surgery	PATIENT DISCHARGED	1	04:12:50		00:00:03	20:36:41	00:00:00	1 days 00:49:31	YES	14-10-2024 17:57	16-10-2024 13:01
175242	MRS SHARBATI	Unit1-Gen Medicine	Internal Medicine	PATIENT DISCHARGED	1	04:15:01		00:00:03	20:38:38	00:00:00	1 days 00:53:39	YES	14-10-2024 18:14	16-10-2024 13:07
175216	CHANCHAL DEVI	Unit1-Gen Surgery	General Surgery	PATIENT DISCHARGED	1	04:13:45		00:00:03	20:34:35	00:00:00	1 days 00:48:20	YES	14-10-2024 19:23 13:00	16-10-2024 13:00
175285	LOKESH SHARMA	Unit1-Gen Medicine	Internal Medicine	PATIENT DISCHARGED	1	04:15:47		00:00:02	20:34:52	00:00:00	1 days 00:50:39	YES	14-10-2024 19:45	16-10-2024 13:05
175285	RAJALA DEVI	Unit1-Gen Medicine	Internal Medicine	PATIENT DISCHARGED	1	22:07:26		00:00:03	17:29:07	00:00:00	1 days 00:48:55	YES	14-10-2024 19:46 13:03	16-10-2024 13:03

Chat Bot – UI (Dept of Dermatology)



09:51 81%

adermatology.com

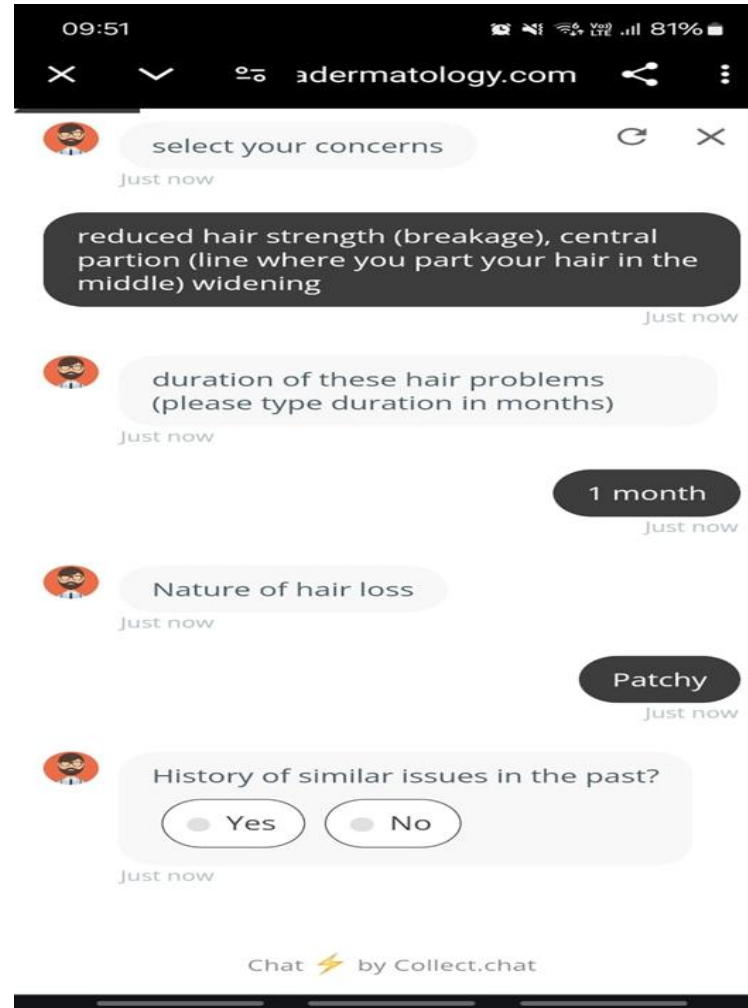
select your concerns

- ☐ hair fall
- ☐ hair thinning
- ☐ decreased hair density
- ☐ reduced hair volume
- ☒ reduced hair strength (breakage)
- ☐ hairline moving back / your forehead looking larger
- ☒ central portion (line where you part your hair in the middle) widening
- ☐ reduced hair length
- ☐ dandruff (flakes)
- ☐ itching

Confirm

just now

Chat ⚡ by Collect.chat



09:51 81%

adermatology.com

select your concerns

just now

reduced hair strength (breakage), central portion (line where you part your hair in the middle) widening

just now

duration of these hair problems (please type duration in months)

just now

1 month

just now

Nature of hair loss

just now

Patchy

just now

History of similar issues in the past?

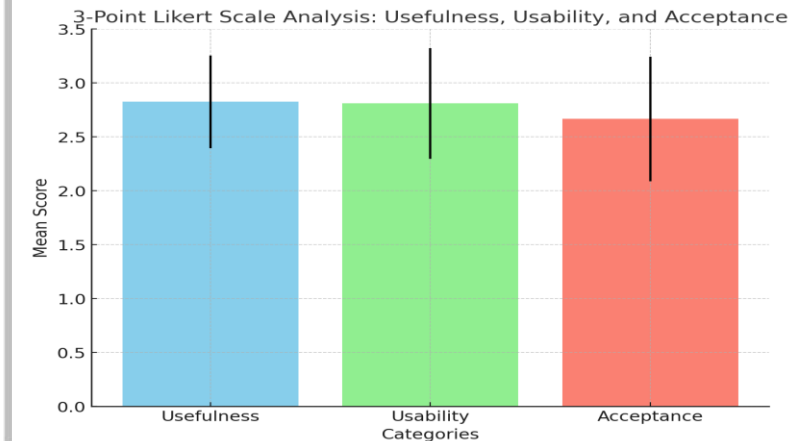
☒ Yes ☐ No

just now

Chat ⚡ by Collect.chat

Comparison Chatbot Group:
Mean Consultation Time:
minutes.17.46 minutes

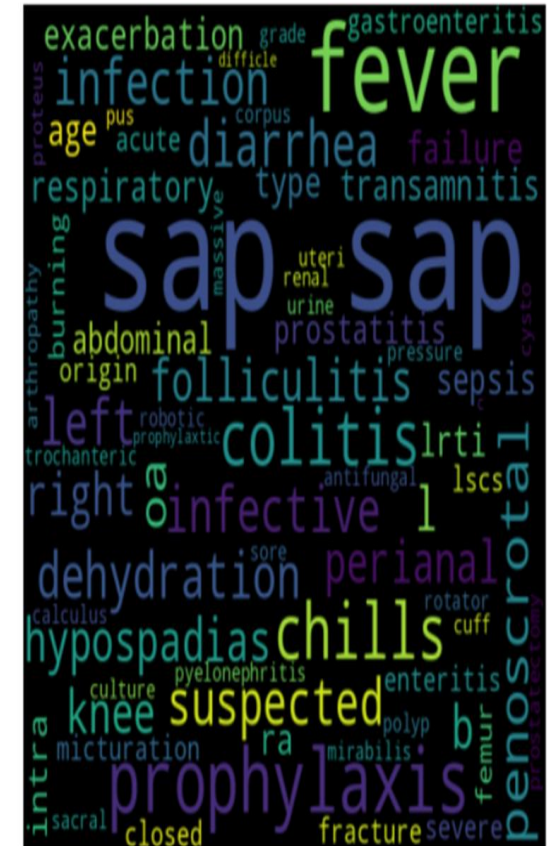
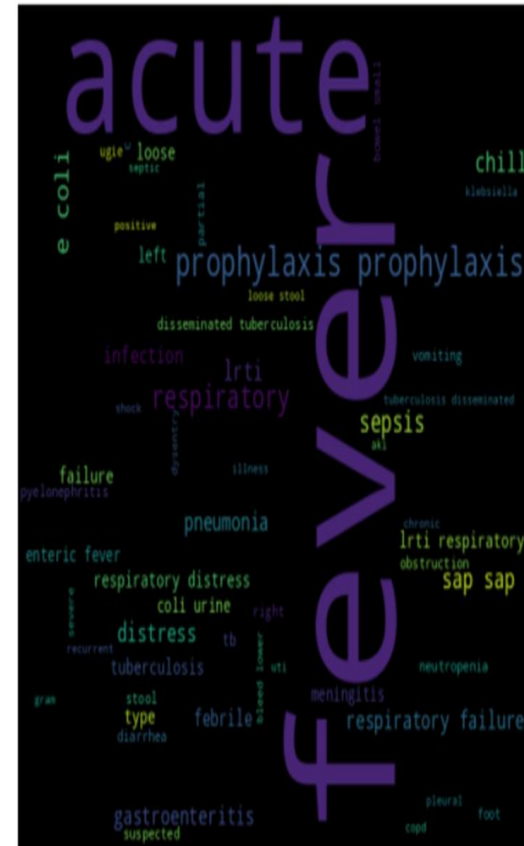
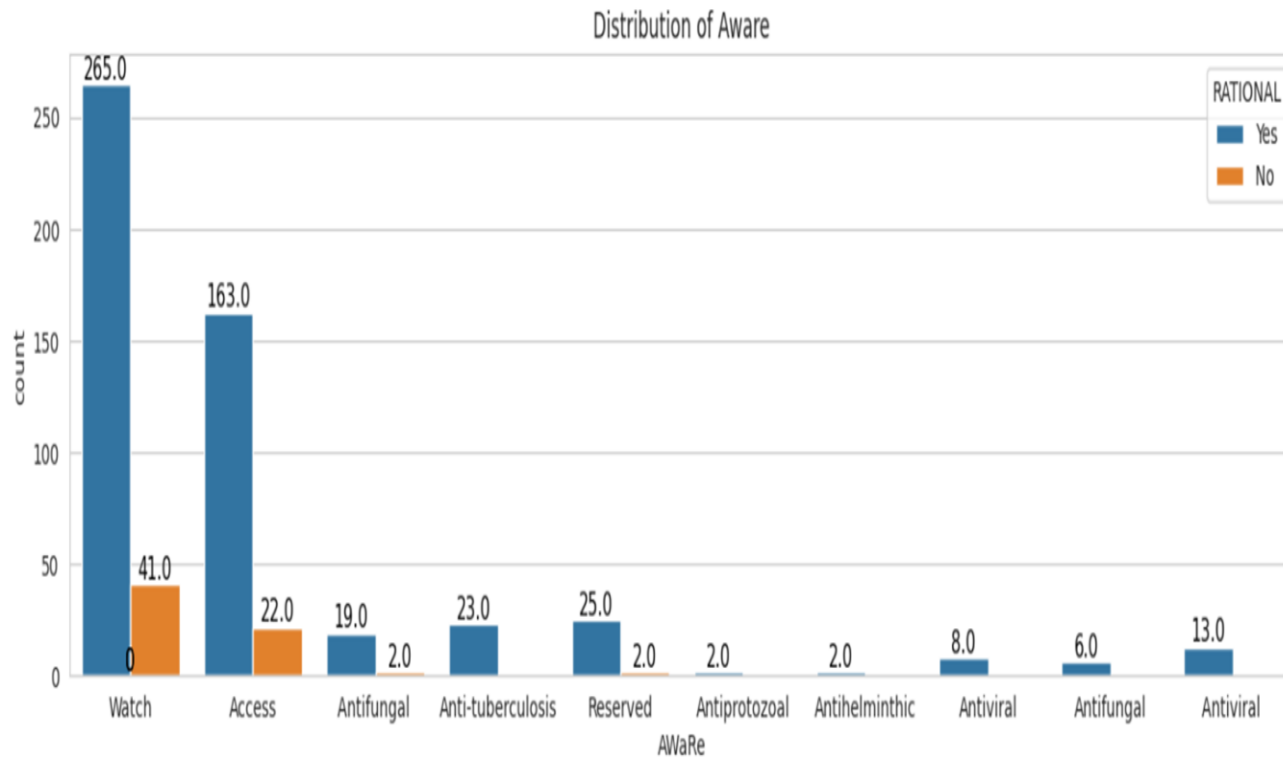
Gp2: 9.82 mts



Consultation time reduced from 22 to 10.5 minutes.
Satisfaction rate increased from 77% to 89%.



Antimicrobial Stewardship



Thank you
melanie@fbd.amrita.edu

