INTERNSHIP REPORT

Submitted to

The IIHMR University, Jaipur

for the partial fulfillment for the award of the degree of

Master of Business Administration (MBA)

in

Hospital and Health Management

By

Gurpreet Singh

Organization: Shri Mata Vaishno Devi Narayana Superspeciality Hospital

2021

COMPLETION CERTIFICATE

This is to certify that Mr. Gurpreet Singh in partial fulfillment of the requirements for the award of the degree of MBA Hospital and Health Management from the IIHMR University, Jaipur has successfully completed his internship at Shri Mata Vaishno Devi Narayana Superspeciality Hospital during March 22, 2021 to June 19, 2021.

For Narayana Vaishno Devi Speciality Hospitals Pvt. Ltd.

M M Mathavan (M3)
Preceptor/Head of the Organization

Place:

Date:

Name of the organization

Contents

Figures and Tables:

1) Introduction:

Narayana Health is headquartered in Bengaluru, India, and operates a network of hospitals across the country, with a particularly strong presence in the southern state of Karnataka and eastern India, as well as an emerging presence in northern, western and central India. Our first facility was established in Bengaluru with approximately 225 operational beds and we have since grown to 21 Hospitals + 1 Cayman Islands and 6 heart centres, 19 primary care facilities across India and an international hospital in the Cayman Islands. The group now features over 5,859 operational beds through a combination of greenfield projects and acquisitions. We believe that the "Narayana Health" brand is strongly associated with our mission to deliver high-quality, affordable healthcare services to the broader population by leveraging our economies of scale, skilled doctors, and an efficient business model.

In aggregate, our centres provide advanced levels of care in over 30 specialties, including Cardiology and Cardiac Surgery, Cancer Care, Neurology and Neurosurgery, Orthopaedics, Nephrology and Urology, and Gastroenterology.

Shri Mata Vaishno Devi Narayana Superspeciality Hospital is a NABH accredited Hospital of Jammu, Kashmir and it was inaugurated on Tuesday, 19th April 2016 by the Hon'ble Prime Minister of India, Shri Narendra Modi at Kakryal, near Katra in Jammu. This State-of-the-Art Tertiary care Superspeciality Hospital in collaboration with 'Shri Mata Vaishno Devi Shrine Board', caters to patients across more than 20 different specialities with a special focus on Cardiology & Cardio-Vascular Surgery, Medical & Surgical Gastroenterology, Orthopaedics & Joint Replacement, Renal Sciences, Medical, Radiation & Surgical Oncology (Cancer) and Critical Care Medicine, thus providing the affordable quality care that Narayana Health stands for to the people of Jammu & Kashmir.

Shri Mata Vaishno Devi Narayana Superspeciality Hospital is one of its own kind of hospital which provides accommodation for medical and paramedical staff within the hospital premises.

Mission: to deliver high quality, affordable healthcare services to the broader population in India. Our core values are represented by the acronym "iCare", which encompasses innovation and efficiency, Compassionate care, Accountability, Respect for all, and Excellence as a culture. At the same time, we seek to generate a strong financial performance and deliver long-term value to our shareholders through the execution of our business strategy.

Vision: to provide high quality healthcare with care and Compassion at an Affordable cost on a large-scale.

2) Objectives of Internship:

- To understand the work pattern and organization structure of SMVDNSH
- To coordinate proper functioning of projects that are assigned in order to complete them in timely manner
- To understand the work flow in quality department
- To groom myself as a professional personality

3) Organizational Profile:

3.1: Infrastructural profile:

- Critical Care: 62 bed ICUs: CCU, MICU, SICU, NICU
- Emergency beds: 8 beds
- 6 state-of-the-art OTs
- Modern Cath Lab
- Dialysis services: 12 beds
- Ultra-modern ICUs with ventilators, defibrillators, multipara monitoring system and centralized gas supply system
- Radiology: 128 Slice CT Scan, 1.5 Tesla MRI, Colour Doppler, Ultrasound, Digital X-ray, Mammography, C-Arm
- Radiation Oncology: State-of-art Linear Accelerator (Elekta Versa HD) with VMAT, SRS, SBRT, IGRT, IMRT, 3DCRT, Superficial skin electron Treatments and 4DCT based Radiotherapy. Elekta micro Selectron digital 18CH High Dose Rate Brachytherapy Unit.
- Non-invasive Cardiology: ECG, Echo, TMT
- Pulmonary Function Test (PFT)

- Nuclear Medicine: NUCLEAR MEDICINE - PET-CT (Siemens Biograph Horizon) 16 slices CT, 3 Rings PET, LSO Crystal. GAMMA CAMERA (GE Discovery NM 630) Dual Head, SPECT.

3.2: Organogram:

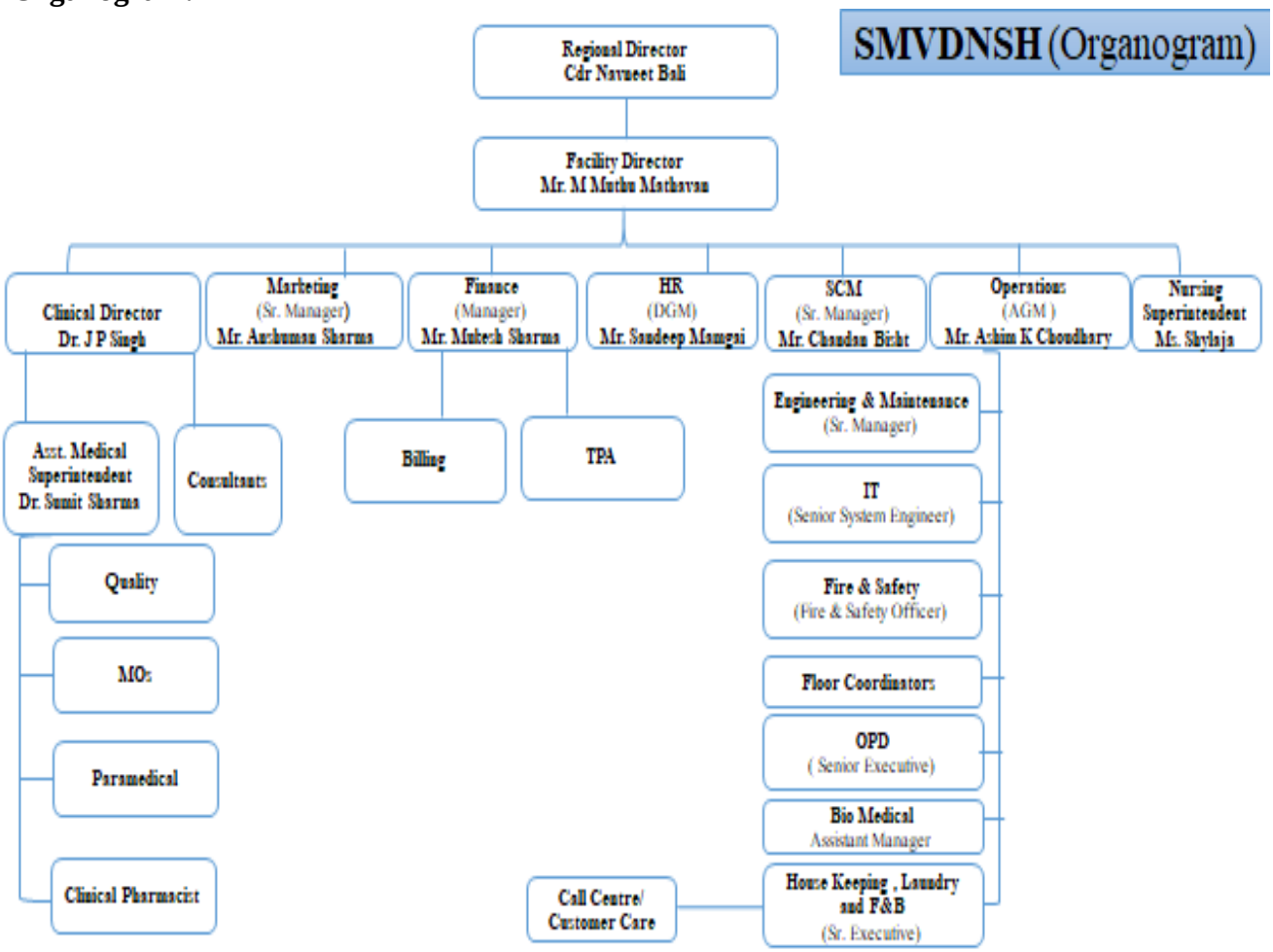

Figure 1: Organogram of the organization

4) Services Provided by Organization:

Clinical Services OPD and IPD: SMVDNSH

Department of Cardiac Sciences

1. Interventional Cardiology
2. Cardiac Surgery

Department of Neuro Sciences

3. Neurology
4. Neuro Surgery

Department of Oncology

5. Medical Oncology
6. Radiation Oncology
7. Surgical Oncology

Department of Orthopaedics

8. Orthopaedics & Joint Replacement

Department of Gastroenterology

9. Medical Gastroenterology
10. Surgical Gastroenterology

Department of Women & Children

11. Obstetrics & Gynaecology
12. Paediatrics
13. Neonatology

Department of Renal Sciences

14. Urology
15. Nephrology

Other Departments

16. Oral & Maxillo facial Surgery
17. ENT
18. Emergency Medicine
19. General Medicine & Rheumatology
20. Pulmonology

21. Nuclear Medicine
22. Dietetics

Laboratory Services

23. Biochemistry
24. Microbiology
25. Serology
26. Haematology
27. Clinical Pathology
28. Histopathology
29. Immunology

Radiology Services

30. MRI (1.5tesla)
31. CT (128Slice)
32. Color Doppler
33. Ultrasound
34. X-ray

Other Diagnostics

35. Bronchoscopy
36. Gastro Intestinal Endoscopy
37. Colonoscopy
38. EEG
39. ENMG
40. Uroflowmetry
41. GAMMA Camera
42. Support Services
43. Anaesthesia
44. Critical Care Services
45. PET SCAN

46. Bone Scans

Non-Invasive Cardiology

47. ECG
48. TMT
49. Holter
50. 2D Echo/TEE

Radio Therapy

51. Linear Accelerator
52. Branchy Therapy

Other Services

53. Physiotherapy
54. Health Check
55. Dialysis

24x7Services

56. Modular OTs
57. Cath Lab
58. Critical Care
59. Emergency
60. Ambulance
61. Laboratory
62. Blood Bank
63. Radiology

Services available as Visiting OPD

64. Psychiatry

5) Key Activities/ Projects Undertaken Other than Dissertation:

5.1: Activities:

- Active file audits
- Passive file audits
- Tracer audits
- Coordination of mock drills
- Analysing key performance indicators in accordance to NABH
- Training on code orange and NABH

5.2: Project: Process audit of blood bank:

Introduction:

One of the key performance indicator which is of major focus while providing service in hospital is turnaround time (TAT). It is essential to complete each and every step of a process happening in various departments in a timely manner. It is also important in order to increase patient satisfaction. As emergency cases are there in laboratory and blood bank services it is important to yield results within a set benchmark of time. In this study we analyzed the TAT for a blood bank process. The TAT was analyzed between the time of receiving of blood requisition slip and cross match time and when the blood was issued and the time when blood transfusion started.

Process:

A blood requisition slip is first received from department mentioning the amount and type of component required. Prior to that, cross match is performed to see how recipient's blood reacts with donor blood. Once the satisfactory results are obtained the department sends the blood issuing slip. After receiving blood issuing slip the blood bank then performs blood compatibility test and if the donor blood is safe for transfusion then the appropriate blood bags is issued which is then sent to department for transfusion.

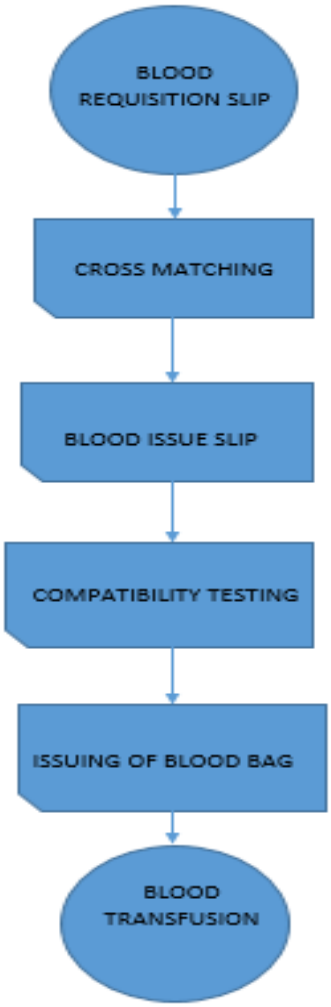

Figure 2: Process flow of blood bank

Materials and methods:

A total of 50 cases from a month of April was analyzed. Blood requisition to cross match TAT benchmark for emergency cases was 45 mins, for routine cases it was 8 hours and for reserve cases it was 8 hours and more. Statistical analysis was done using Microsoft excel and response on action for high TAT were determined by root cause analysis.

Results:

Table 1: Requisition to cross match TAT

Department	Condition for transfusion	Requisition Slip	Cross Match	REQUISITION-CROSSMATCH TAT

		Department Date	Department Time	Blood Bank Date	Blood Bank Time	Date	Time	
Dialysis	Emergency	01/04/21	11:30	01/04/21	11:40	01/04/21	12:10	0:30
MICU	Emergency	01/04/21	10:40	01/04/21	10:45	01/04/21	11:05	0:20
Chemo	Emergency	01/04/21	12:45	01/04/21	12:55	01/04/21	13:15	0:20
MICU	Emergency	01/04/21	12:30	01/04/21	12:30	01/04/21	13:15	0:45
IPD-FF	Emergency	01/04/21	14:00	01/04/21	14:10	01/04/21	14:30	0:20
SICU	Emergency	01/04/21	18:55	01/04/21	19:30	01/04/21	20:00	0:30
IPD-TF	Routine	01/04/21	23:00	01/04/21	23:55	02/04/21	0:25	0:30
ITU	Routine	02/04/21	0:30	02/04/21	0:35	02/04/21	1:05	0:30
NICU	Emergency	02/04/21	10:00	02/04/21	10:25	02/04/21	11:00	0:35
IPD-TF	Routine	02/04/21	18:30	02/04/21	18:30	02/04/21	19:00	0:30
MICU	Emergency	03/04/21	12:20	03/04/21	12:35	03/04/21	13:00	0:25
IPD-TF	Reserve	03/04/21	14:00	03/04/21	15:00	03/04/21	15:25	0:25
IPD-TF	Reserve	02/04/21	18:00	02/04/21	18:30	02/04/21	19:00	0:30
SICU/09	Reserve	04/04/21	23:15	05/04/21	1:35	05/04/21	2:05	0:30
Chemo	Emergency	05/04/21	15:10	05/04/21	15:25	05/04/21	16:00	0:35
IPD-TF	Routine	05/04/21	14:00	05/04/21	16:05	05/04/21	16:40	0:35
IPD-FF	Reserve	04/04/21	0:00	04/04/21	0:30	05/04/21	1:00	0:30
Emergency	Emergency	06/04/21	10:30	06/04/21	10:40	06/04/21	11:10	0:30
MICU	Emergency	06/04/21	8:50	06/04/21	9:15	06/04/21	9:40	0:25
SICU	Emergency	06/04/21	11:20	06/04/21	11:30	06/04/21	13:10	1:40
IPD-FF	Emergency	06/04/21	11:55	06/04/21	12:10	06/04/21	12:40	0:30
Chemo	Emergency	06/04/21	18:00	06/04/21	18:00	06/04/21	18:30	0:30
IPD-TF	Routine	06/04/21	12:15	06/04/21	13:20	06/04/21	14:00	0:40
OT	Routine	04/04/21	15:00	04/04/21	16:00	04/04/21	16:30	0:30
Chemo	Emergency	07/04/21	16:45	07/04/21	17:00	07/04/21	17:30	0:30
MICU	Emergency	07/04/21	20:30	07/04/21	20:35	07/04/21	21:00	0:25
SICU	Emergency	07/04/21	19:50	07/04/21	20:35	07/04/21	21:05	0:30
Dialysis	Emergency	08/04/21	11:00	08/04/21	11:10	08/04/21	11:40	0:30
Emergency	Emergency	08/04/21	11:30	08/04/21	11:50	08/04/21	12:20	0:30
Emergency	Emergency	08/04/21	11:50	08/04/21	12:00	08/04/21	12:50	0:50
Dialysis	Emergency	08/04/21	12:30	08/04/21	13:00	08/04/21	13:30	0:30
SICU	Emergency	08/04/21	11:30	08/04/21	11:40	08/04/21	12:20	0:40

ITU	Emergency	08/04/21	11:15	08/04/21	11:30	08/04/21	11:50	0:20
PICU	Routine	07/04/21	22:40	07/04/21	23:30	08/04/21	0:00	0:30
ITU	Routine	08/04/21	17:00	08/04/21	19:15	08/04/21	19:40	0:25
NICU	Emergency	09/04/21	16:20	09/04/21	16:25	09/04/21	16:55	0:30
Emergency	Emergency	09/04/21	16:30	09/04/21	16:55	09/04/21	17:25	0:30
IPD-TF	Emergency	09/04/21	15:30	09/04/21	16:30	09/04/21	17:00	0:30
SICU	Emergency	09/04/21	19:20	09/04/21	21:00	09/04/21	21:40	0:40
MICU	Emergency	08/04/21	12:10	08/04/21	12:20	08/04/21	12:45	0:25
Chemo	Emergency	09/04/21	12:50	09/04/21	13:00	09/04/21	13:30	0:30
IPD-TF	Routine	11/04/21	11:00	11/04/21	12:00	11/04/21	12:30	0:30
MICU	Emergency	12/04/21	2:30	12/04/21	4:15	12/04/21	5:00	0:45
MICU	Emergency	12/04/21	20:00	12/04/21	20:35	12/04/21	21:08	0:33
Dialysis	Emergency	14/04/21	7:15	14/04/21	7:35	14/04/21	8:00	0:25
IPD-TF	Reserve	12/04/21	18:00	12/04/21	19:00	12/04/21	19:30	0:30
NICU	Emergency	14/04/21	21:00	14/04/21	21:10	14/04/21	21:30	0:20
ITU	Routine	14/04/21	9:00	14/04/21	9:40	14/04/21	10:40	1:00
Emergency	Emergency	15/04/21	11:00	15/04/21	12:10	15/04/21	12:40	0:30
Covid ward	Emergency	15/04/21	11:45	15/04/21	12:15	15/04/21	12:40	0:25

Benchmark:

- 45 Minutes (Emergency)
- 08 Hours (Routine)
- Reserve: Transfusion not needed for next 8 hours, but blood is needed to be reserved

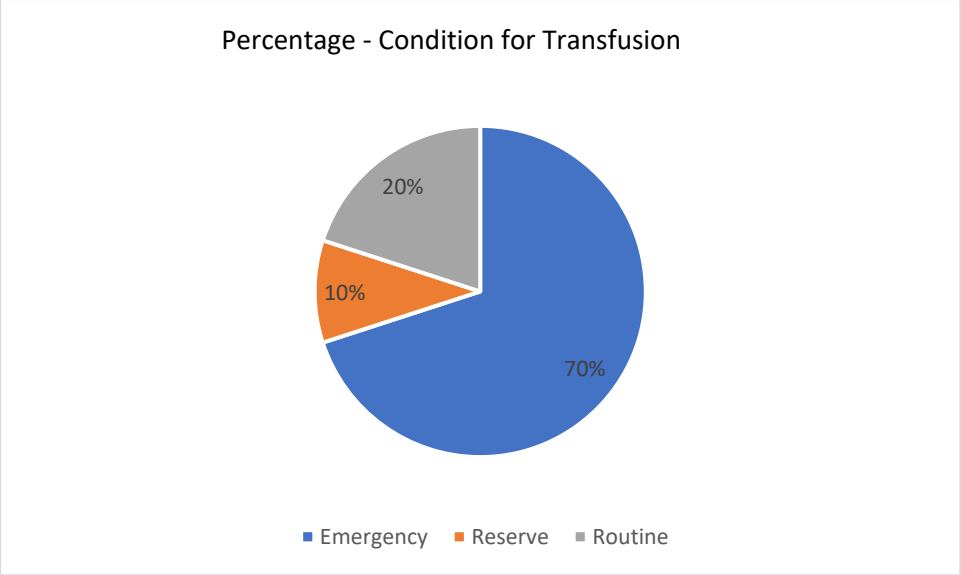

Figure 3: Condition for transfusion

Out of the 50 requests to the blood bank, 70% of requests were emergency, 20% of requests were routine and 10 % of requests were reserve.

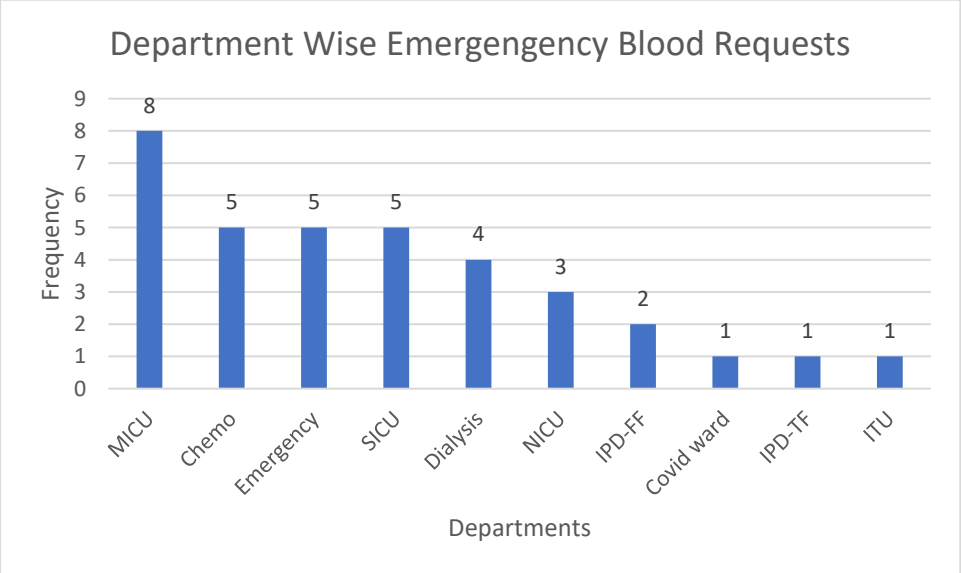

Figure 4: Department emergency blood requests

MICU requested for the most number of emergency blood (n = 8). Third Floor requested the most number of routine blood (n = 5) whereas Third Floor request for the most number of reserved blood (n = 3).

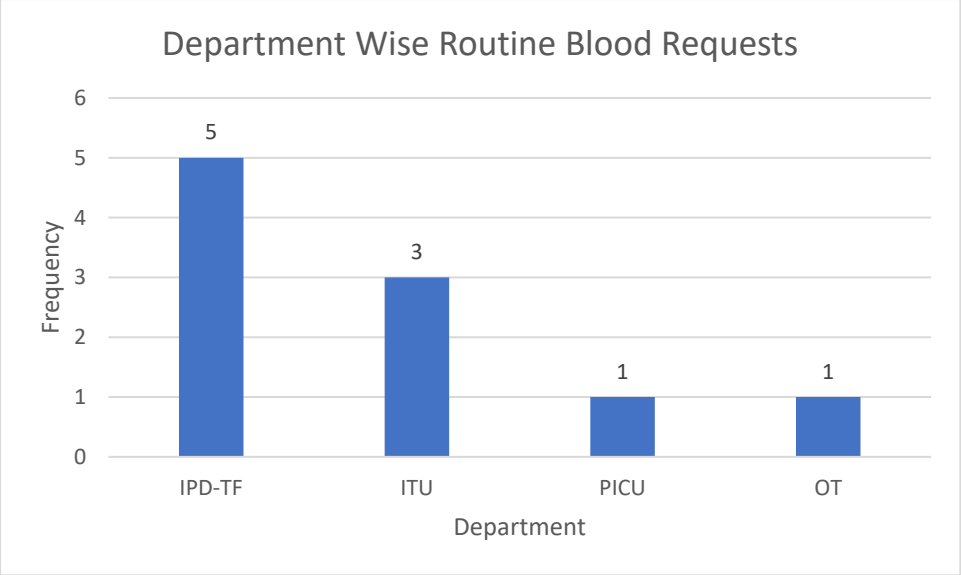

Figure 5: Department wise routine blood requests

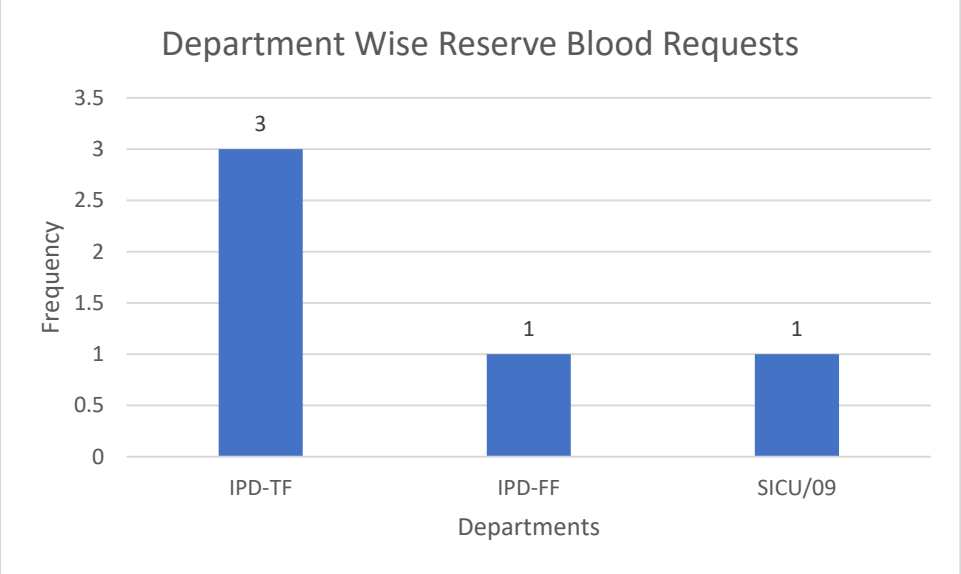

Figure 6: Department wise reserve blood requests

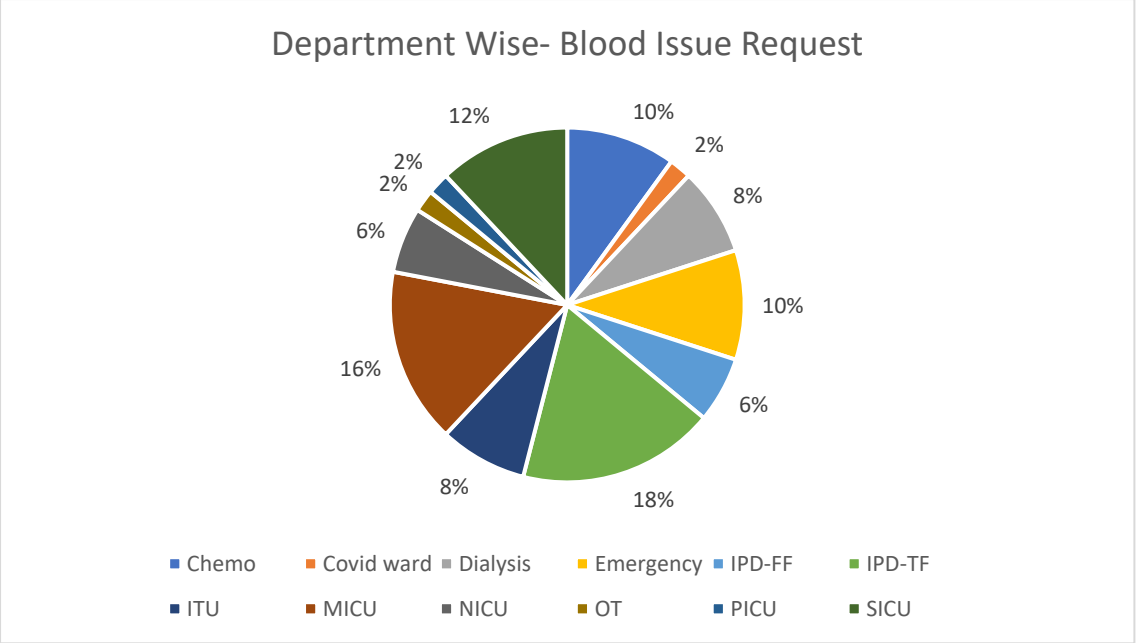

Figure 7: Department wise blood issue requests

Out of the 50 requests to the blood bank, the most number of requests were made by IPD third floor (n = 9) (18%). While, OT, COVID ward and PICU made the least number of requests (n = 1) (2%) (Includes all type of requests i.e. emergency, routine, reserve).

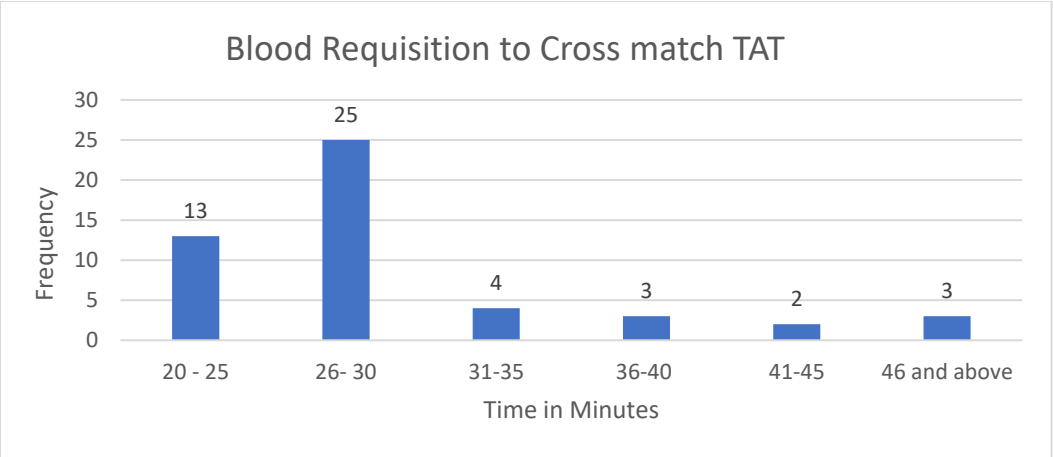

Figure 8: Blood requisition to cross match TAT

The overall mean for time taken from blood requisition to cross match is 45 minutes 46 seconds, that for emergency requests is 41 minute 5 seconds, for routine requests is 51 minutes, for reserve it is 1 hour 8 minutes. Although one emergency request TAT was out of benchmark

Table 2: Blood issue to transfusion start TAT

Department	Blood Issue slip				Compatibility Report		Blood Issue	Transfusion		Blood issue - Transfusion start TAT	Blood Component	Condition for Transfusion
	Department Date	Department Time	Blood Bank Date	Blood Bank Time	Date	Time	Time	Date	Time			
Dialysis	01/04/21	12:10	01/04/21	12:12	01/04/21	12:17	12:17	DNM	TNM	TNM	PRBC	Emergency
MICU	01/04/21	12:30	01/04/21	12:50	01/04/21	12:50	12:50	01/04/21	13:00	0:10	PRBC	Emergency
Chemo	01/04/21	13:30	01/04/21	13:45	01/04/21	13:50	13:50	FNM	FNM	FNM	PRBC	Emergency
MICU	01/04/21	13:30	01/04/21	13:30	01/04/21	13:35	13:35	FNM	FNM	FNM	PRBC	Emergency
IPD-FF	01/04/21	16:05	01/04/21	16:10	01/04/21	16:15	16:15	01/04/21	TNM	TNM	PRBC	Emergency
SICU	01/04/21	23:35	01/04/21	23:40	01/04/21	23:50	23:50	02/04/21	1:00	1:10	FFP	Emergency
IPD-TF	02/04/21	0:30	02/04/21	0:55	02/04/21	1:05	1:05	02/04/21	TNM	TNM	PRBC	Routine
ITU	02/04/21	1:00	02/04/21	1:15	02/04/21	1:20	1:20	02/04/21	1:40	0:20	PRBC	Routine
NICU	02/04/21	0:00	02/04/21	11:45	02/04/21	11:50	11:50	02/04/21	12:00	0:10	FFP	Emergency
IPD-TF	02/04/21	21:00	02/04/21	20:50	02/04/21	20:55	20:55	02/04/21	TNM	TNM	PRBC	Routine
MICU	03/04/21	16:48	03/04/21	17:00	03/04/21	17:05	17:00	03/04/21	TNM	TNM	PRBC	Emergency
IPD-TF	03/04/21	18:30	03/04/21	19:50	03/04/21	19:55	19:55	03/04/21	21:00	1:05	PRBC	Reserve
IPD-TF	03/04/21	21:00	03/04/21	21:25	03/04/21	21:30	21:30	FNM	FNM	FNM	PRBC	Reserve
SICU/09	05/04/21	10:42	05/04/21	11:10	05/04/21	11:10	11:10	FNM	FNM	FNM	PRBC	Reserve
Chemo	05/04/21	14:30	05/04/21	15:25	05/04/21	18:30	18:30	FNM	FNM	FNM	PRBC	Emergency
IPD-TF	05/04/21	19:15	05/04/21	19:45	05/04/21	19:50	19:50	05/04/21	22:00	2:10	PRBC	Routine/Reserve
IPD-FF	06/04/21	4:00	06/04/21	4:40	06/04/21	4:46	4:46	FNM	FNM	FNM	FFP	Reserve
Emergency	06/04/21	12:30	06/04/21	12:35	06/04/21	12:40	12:40	06/04/21	14:00	1:20	PRBC	Emergency
MICU	06/04/21	12:15	06/04/21	12:35	06/04/21	12:45	12:45	06/04/21	15:30	2:45	PRBC	Emergency
SICU	06/04/21	TNM	06/04/21	15:50	06/04/21	16:00	16:00	06/04/21	18:00	2:00	PRBC	Emergency/Reserve
IPD-FF	06/04/21	15:50	06/04/21	16:10	06/04/21	16:20	16:20	06/04/21	16:20	0:00	PRBC	Emergency
Chemo	06/04/21	18:45	06/04/21	18:50	06/04/21	19:00	19:00	FNM	FNM	FNM	PRBC	Emergency
IPD-TF	06/04/21	18:00	06/04/21	19:20	06/04/21	19:30	19:30	06/04/21	21:00	1:30	PRBC	Routine
OT	07/04/21	11:35	07/04/21	11:45	07/04/21	11:45	11:45	07/01/00	12:45	1:00	PRBC	Routine/Reserve
Chemo	07/04/21	20:30	07/04/21	20:30	07/04/21	20:35	20:35	07/04/21	20:40	0:05	PRBC	Emergency
MICU	07/04/21	22:00	07/04/21	22:15	07/04/21	22:20	22:20	08/04/21	FNM	FNM	PRBC	Emergency
SICU	07/04/21	22:15	07/04/21	22:20	07/04/21	22:25	23:30	07/04/21	0:00	0:30	PRBC	Emergency
Dialysis	08/04/21	12:20	08/04/21	12:35	08/04/21	12:45	12:45	08/04/21	12:50	0:05	PRBC	Emergency
Emergency	08/04/21	12:20	08/04/21	12:40	08/04/21	12:50	12:50	08/04/21	13:10	0:20	PRBC	Emergency

Emergency	08/04/21	12:20	08/04/21	12:55	08/04/21	13:05	13:05	08/04/21	13:10	0:05	PRBC	Emergency
Dialysis	08/04/21	13:10	08/04/21	13:25	08/04/21	13:35	13:35	08/04/21	13:40	0:05	PRBC	Emergency
SICU	08/04/21	15:30	08/04/21	16:00	08/04/21	16:00	16:00	08/04/21	16:30	0:30	PRBC	Emergency
ITU	08/04/21	17:20	08/04/21	18:30	08/04/21	18:30	18:30	08/04/21	19:00	0:30	PRBC	Emergency
PICU	09/04/21	10:20	09/04/21	10:45	09/04/21	10:50	10:45	09/04/21	13:00	2:15	PRBC	Routine
ITU	09/04/21	12:00	09/04/21	12:55	09/04/21	13:00	12:55	09/04/21	TNM	TNM	PRBC	Routine
NICU	09/04/21	17:00	09/04/21	18:14	09/04/21	18:15	18:15	09/04/21	18:45	0:30	PRBC	Emergency
Emergency	09/04/21	17:40	09/04/21	18:20	09/04/21	18:20	18:20	09/04/21	18:25	0:05	PRBC	Emergency
IPD-TF	09/04/21	18:30	09/04/21	19:30	09/04/21	19:40	19:40	09/04/21	21:15	1:35	PRBC	Emergency
SICU	09/04/21	22:25	09/04/21	22:25	09/04/21	22:35	22:00	09/04/21	22:35	0:35	PRBC	Emergency
MICU	11/04/21	10:30	11/04/21	10:35	11/04/21	10:35	10:35	11/04/21	11:00	0:25	PRBC	Emergency
Chemo	11/04/21	11:00	11/04/21	11:15	11/04/21	11:15	11:15	FNM	FNM	FNM	PRBC	Emergency
IPD-TF	11/04/21	17:00	11/04/21	17:35	11/04/21	17:40	17:40	FNM	FNM	FNM	PRBC	Routine
MICU	12/04/21	6:10	12/04/21	7:10	12/04/21	7:25	7:25	FNM	FNM	FNM	PRBC	Emergency
MICU	12/04/21	21:30	12/04/21	21:45	12/04/21	21:50	21:50	12/04/21	TNM	TNM	FFP	Emergency
Dialysis	14/04/21	8:10	14/04/21	8:10	14/04/21	8:10	8:10	14/04/21	8:15	0:05	PRBC	Emergency
IPD-TF	14/04/21	17:45	14/04/21	17:50	14/04/21	17:50	17:45	FNM	FNM	FNM	PRBC	Reserve
NICU	15/04/21	12:15	15/04/21	12:30	15/04/21	12:35	12:35	15/04/21	12:40	0:05	PRBC	Emergency
ITU	15/04/21	12:00	15/04/21	12:20	15/04/21	12:25	12:25	15/04/21	12:30	0:05	PRBC	Routine/Reserve
Emergency	15/04/21	15:00	15/04/21	15:30	15/04/21	15:35	15:35	15/04/21	15:50	0:15	FFP	Emergency
Covid ward	15/04/21	16:25	15/04/21	16:35	15/04/21	16:45	16:45	15/04/21	16:50	0:05	PRBC	Emergency

- Benchmark is 30 mins for doing transfusion after receiving blood bag from blood bank.
- TNM: Time not mentioned
- FNM: Form not mentioned
- DNM: Date not mentioned

Total Forms Audited	50
Form not Mentioned	12 (Blood Transfusion Monitoring form not present in the file)
Time not Mentioned	7

Table 3: Total forms

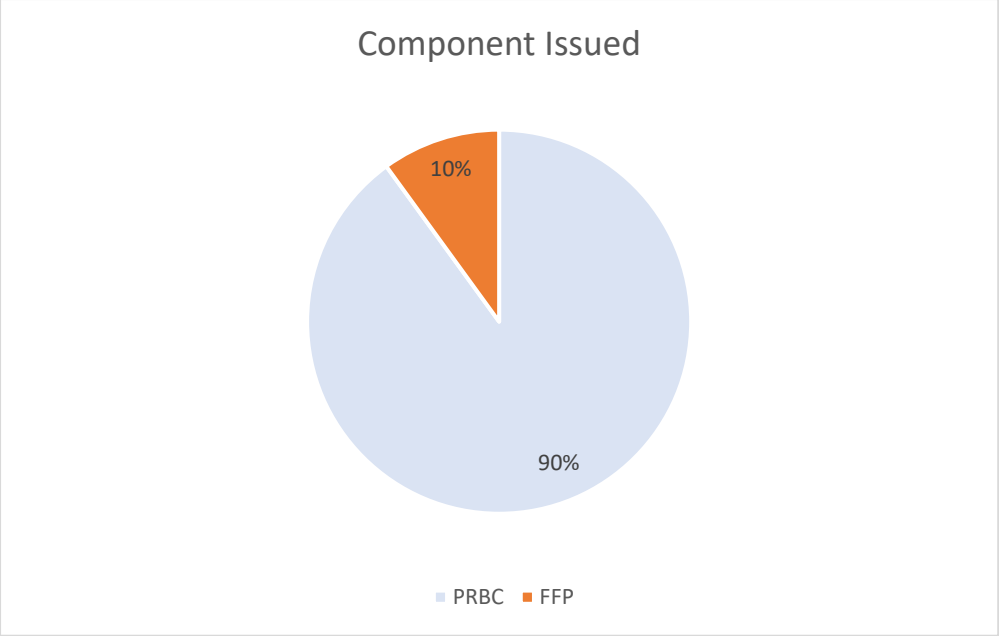

Figure 9: Component issued

In most of the requests (n = 45) (90%) PRBC was asked for transfusion and the other 5 requests were that of FFP.

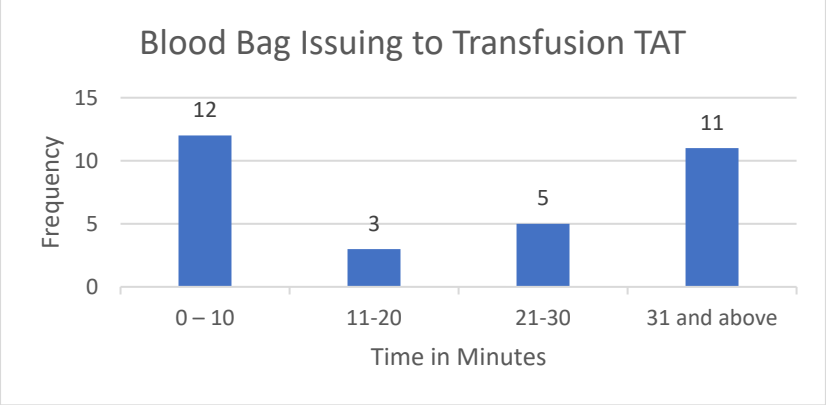

Figure10: Blood bag issuing to transfusion TAT

The TAT between blood bag issuing and start of transfusion should not more than 30 minutes, although 12 entries were out of TAT

Conclusion:

Though almost all the entries for blood requisition and cross match were within the TAT, we observed a wide variation in entries of issuing of blood bag and starting of blood transfusion. There were 12 entries which were out of standard TAT. Root cause analysis was done for these 12 entries and it was found that for 7 case GDA took long for delivering the blood bag to department and for 5 cases the blood bag took time to be thawed. For corrective action it was noted that the blood bag can be transfused to the patient within 6 hours of issuing, so the blood

was transfused and in preventive action the GDA assigned for blood bag delivery is counselled for prioritizing the deliveries of blood bags. Further for decreasing the TAT in future various strategies can be developed like work force distribution, educating staff regarding SOP's and process, re-assigning the duties, blood bag transportation and documentation can be closely monitored.

6) Key Learnings from Internship:

- Implementation of NABH 5th edition standards
- Terminologies used in quality department
- To perform active, passive and tracer audits
- Internal audits
- Stakeholder management
- Conducting training session on emergency codes, NABH and IPSG