

**Summer Training at
Care India Solutions for Sustainable Development, Bihar**

**Study to Assess the Infrastructural Readiness of The Blood Storage Units in
Public Sector Healthcare Facilities in Bihar**

**By
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**Under the guidance of
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**MBA Hospital & Health Management
2017-2019**


Institute of Health Management Research
The IIHMR University, Jaipur
2018

CERTIFICATE

This is to certify that **Dr. Bhawna Agarwal** has undergone summer training at Care India, Bihar from 9th April to 2nd June '2018.

The candidate herself completed the project assigned to her during summer training. Her approach to the project was sincere and proactive. This summer training is in partial fulfillment of the course requirement recommended for the award of MBA in Hospital and Health management.

I wish her success in all her future endeavors.



Dr. Sameer Phadnis

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TO WHOM IT MAY CONCERN

This is to certify that **Dr. Bhawna Agarwal**, student of **MBA (Hospital and Health Management)**, **IIHMR University, Jaipur** has successfully completed her Summer Training project on "**Assessment of Blood Storage Unit in Public Healthcare Facilities of Bihar**", at **Concurrent Measurement and Learning (CML) unit, CARE India Solutions for Sustainable Development (CISSD), Bihar Technical Support Program (BTSP), Patna** from **9th April, 2018 to 2nd June, 2018**. The Candidate has successfully carried out the study/tasks assigned to her during this training. We found her sincere, inquisitive and hardworking. We wish her all the best in her future endeavors.

Sincerely,

Dr Tanmay Mahapatra
Team Lead, CML Unit
CISSD-BTSP

Dr Anup G Nair
Deputy Director – HR and OD
CISSD-BTSP

ACKNOWLEDGEMENT

I would take this opportunity to express my deepest gratitude to my institute, Institute of Health Management and Research, for providing me a platform to gain enough knowledge and skills in different aspect of Health Management. I express my deep indebtedness to Dr Tanmay Mahapatra, Dr. Suneel Sonthalia and the entire team of CML CARE India for their advice, support, encouragement and guidance throughout my training.

My Sincere thanks to my respected mentor, Dr Sameer Phadnis for his support throughout my project.

I perceive the opportunity as a big milestone in my professional development. I will strive to use the gained skills and acknowledgement on the best possible way, and will continue to work on their improvement, to attain the desired career objectives.

Sincerely,

Bhawna Agarwal

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ABBREVIATIONS

FRU- First Referral Unit

PHC- Primary Health Care

CHC- Community Health

Centre **DH**- District Hospital

BSU- Blood Storage Unit

MMR- Maternal Mortality Rate

BEmOC- Basic Emergency Obstetric Care Centre

RMNCH+A- Reproductive, maternal, newborn, child, adolescence health

INTRODUCTION

ABOUT THE ORGANIZATION

The Capacity to learn is a gift; the ability to learn is a skill; the willingness to learn is a Choice, so choosing CARE India for Summer Training is best place to learn. In Training, There is no winning or losing there is only learning.

I got this wonderful opportunity to do summer training at CARE India, BIHAR. Doing training at this place gives me a wonderful real life experience in core health. I was assigned Different tasks in day to day activities. Experience the pain of our community due to health related issues; I learned the importance of the health management in building Gap of our health System. This training will definitely help me in my future.

CARE INDIA, Bihar

Care is a not-for-profit organization working in India for over 65 years, focusing on alleviating a poverty and social injustice. They do this through well planned and comprehensive projects in health, education, livelihoods and disasters preparedness and response. Overall goal is the empowerment of women and girls from poor and marginalised communities, leading to improvement in their lives and livelihoods.

During FY 2016-2017, CARE India directly reached out to 25 million people through 40 projects across 12 states, covering more than 90 districts. CARE is the part of CARE International Confederation, working in over 90 Countries for a world where all people live with dignity and security.

VISION AND MISSION

VISION

We seek a world of hope, tolerance and social justice, where poverty has been overcome and people live in dignity and security

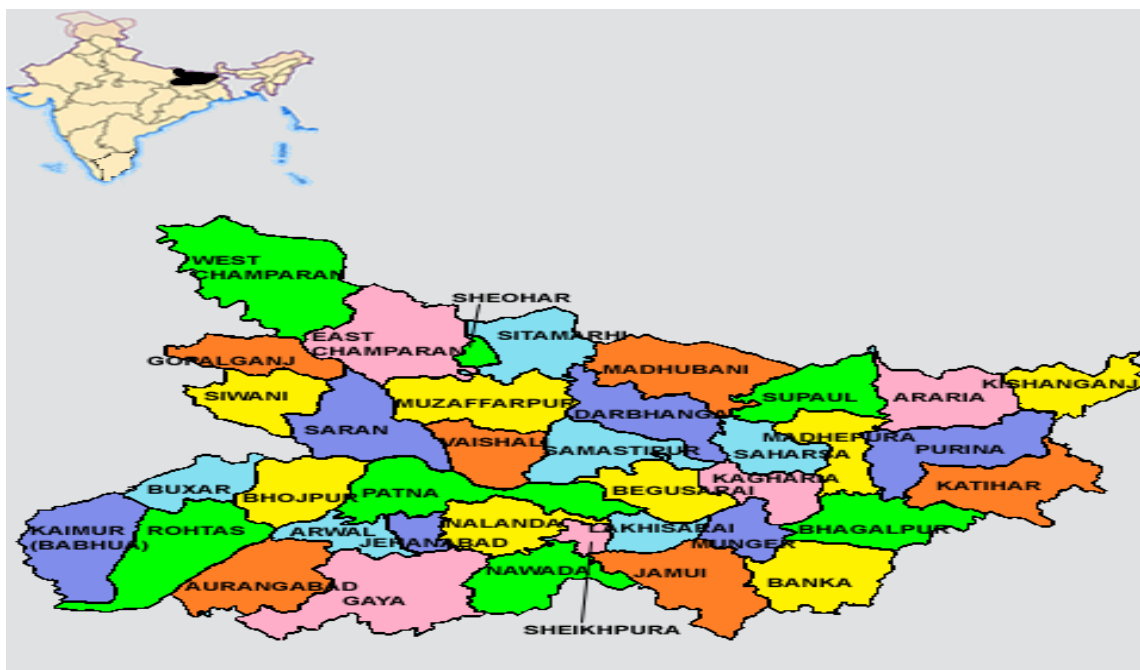
MISSION

CARE India helps alleviate poverty and social exclusion by facilitating empowerment of women and girls from and marginalised communities

Key Programme

Health, Education, Livelihood, Disaster, Gender, Inclusive, Building, Advocacy

Bihar Technical Support Programme



Division	9
Districts	38
Sub Divisions	101
Blocks	534
Panchayat	8463
Revenue Village	45103

Bihar Technical Support Programme find roots in CARE India's integrated Family Health Initiative (IFHI) projects that was first launched in 2011, as part of the Ananya Program, with support from the Bill and Melinda Gates Foundation (BMGF). The goal was to increase the coverage and Quality of life saving interventions and improve the health, survival and nutrition of women, newborns and children during the first 1000 days- from conception to the child's second birthday. CARE India interventions focused on better counselling and emergency preparedness for mother and new born, building Basic Emergency Obstetrics and Newborn care (BEmOC) capabilities, improved management of neonatal infections, early initiation and exclusive breast feeding, complimentary feeding, increased immunization and expanded access to quality family planning services and birth spacing methods.

The Bihar Technical Support Programme, supported by Bill & Melinda Gates Foundation, provides catalytic support to Health and Social Welfare Department of the Government of Bihar in achieving their goals of reducing maternal, newborn and infant mortality, total fertility, anaemia and malnutrition, improving family planning services, and increasing immunization coverage in the state.

The Programme helps the two departments in transforming capabilities and behaviours, build ownership toward health Programmes, and unlock the potential of both sector provides to effectively improve the quality and coverage of maternal and child health, family planning and nutrition interventions.

Concurrent Monitoring & Learning Team of Bihar Technical Support

Data plays a critical role in making informed decisions which lead to better health programme and better health outcomes.

Surveys are conducted using Paper based tools. This data then undergoes a process of back checks. Once the data is found satisfactory. It's then sent to the central data centre in Patna where the data is entered into the system, checked for inconsistent and then validated.

All this while, the entire process can be tracked by relevant Stakeholders on CML portal. One can see how much of the data is entered, validated and how much is yet to be. Validated data are available real-time in the form of reports on the portal, this fastens critical decision making leading to desired outcomes.

LITERATURE REVIEW

Author	Study Title	Study Design	Area	Key Findings
Shukla et.al	A Study of First Referral Units in Border District of Uttar Pradesh, India	Cross sectional Study	Agra, Uttar Pradesh	There should be 10 services which is important and three out of this 10 which is must that include 24 hour basis services availability of surgical and new born care facility and blood storage unit. Blood Storage Unit is available only in Bah FRU that is only 25% FRU have Blood storage Facility(2).
Ashtekar et.al	Emergency Obstetric Care in a Rural Hospital: On-call Specialists Can Manage C-sections	Cross sectional Study	Rural Hospitals	Blood storage unit is very important in life saving of women having haemorrhage as it leads to maternal death. All hospitals in block should have blood storage centre. It should support emergency cases in public and private hospitals.(3)
Biswas et.al	Facility Death Review of Maternal and Neonatal Deaths in Bangladesh	Qualitative Study	Thakurgaon and Jamalpur District, Bangladesh	Major cause of maternal death is Postpartum haemorrhage. After the study, Eight District set up the blood storage unit to improve the(4) survival and reduce the maternal Mortality.
Satish kumar	Reducing maternal mortality in India: Policy, equity, and quality issues	Descriptive study	India	NRHM focus on the establishment of the Blood storagefacility. Government should ameliorate the existing resourceof blood storage unit.

				To reduce the third delay, FRU should have blood storage facility (5)
Sahoo et.al	Improved access to safe blood must be prioritized as a core component of Comprehensive efforts to prevent maternal deaths in Uttar Pradesh, India	Cross sectional study	Uttar Pradesh	Study includes 15 Facilities-1 DH, 2FRU, 4 CHC, 8 Block PHC. there is no blood storage facility except DH. Women with anaemia and postpartum at the time of delivery will lead to death. Blood storage unit is required at SDH level to prevent maternal death. (6)

RATIONALE for the ASSESSMENT of BSU

As focusing on RMHCH+A Programme;

In India, Half of the million women die during pregnancy or within 42 days of the end of the pregnancy. Safe motherhood initiative is taken in India with the main goal to reduce maternal death. According to SRS 2011-2013 MMR of India is 167 and MMR of Bihar is 208, highest as compare to national average. It holds 6th position among highest MMR states(1).

Several condition like Ante partum haemorrhage, Postpartum haemorrhage, anaemia require blood transfusion due to unavailability of blood units in FRU, CHC, PHC lead to death of the women.

As Focussing on reducing the number of maternal death, Establishment of BSU is required at FRU, CHC and PHC facilities.

Objectives for Assessment of BSU

General Objective:

- ☐ To Understand the Blood Storage Units in the Public-Sector Health Care Facilities of Bihar

Specific Objective:

- ☐ To assess the infrastructure of the blood storage unit in the public health care facilities of Bihar
- ☐ To assess the human resource of the blood storage unit in the public health care facilities of Bihar
- ☐ To ensure the availability of the essentials equipment for blood storage and for crossmatching.
- ☐ To assess the availability of blood unit in the blood storage unit.

RESEARCH METHODOLOGY

- ☐ **Research Design:** Descriptive Cross-sectional Study is done during assessment of BSU
- ☐ **Study Area:** The study is carried out in sub division hospitals of 28 District of Bihar.
- ☐ **Duration of the Study:** 2 months (9 April to 2 June,2018)
- ☐ **Type of Data Collection: Primary data collection:** Data collected by assessment of 5 District and data of the rest district are provided by the CML team of Care India.
- ☐ **Sample Size:** Sub division hospitals of all District of Bihar
- ☐ **Study Population:** All women under reproductive age 15-49Years
- ☐ **Sampling:** Complete Enumeration
- ☐ **Method of Data Collection:** Data collected through Staff Interview, direct observation and record review.

Observational Learning

During my 2 months summer training in CML Team,

In CML department, there was a baseline survey started that was related to the assessment of healthcare facility (SNCU, NBSU, PW, BSU, BLOOD BANK) in all the districts of Bihar under Care India solution for sustainable development (CISSD) Bihar Technical Support Programme (BTSP). In the stage of tool development, it was observed that local scenario should be kept in mind. It is impossible to consider all the point of guideline. During my Field Visit for the assessment, I visited Five BSU



This is the view of the SDH Hatwa of district Gopalganj, Where I found that equipment for the process is available, space is sufficient, Special room is allocated in the hospital, but it is not functioning because there is no Man power. Only one technician is there who is handling all the laboratory work of this SDH. It's difficult for him to manage both the facility general laboratory and blood storage facility.

PROJECT INTRODUCTION

Blood Storage Unit:

BSU is a centre where blood is stored and distributed at the time of need in FRU, PHC, and CHC

Basic Requirement:

Space require for BSU setup is 10 square meters. Space should be clean, well lighted, and air conditioned. 24 hour's electricity supply is essential and backup Generator is required.

Human Resource for BSU:

There is no requirement of additional Staff. One doctor and one technician who are already available should designated for BSU.

Training of staff should be in various operating procedure of blood storage unit and several other measures like storage, grouping, cross matching, and release of blood.

Training of the Doctors and technician should be of 3 days in the blood banks at Medical Colleges, Indian Red Cross Blood Banks, and Regional Blood Banks or in any other well setup.

List of Equipments, Consumables and Reagent

EQUIPMENTS	▪ Blood Bank Refrigerators ▪ Deep Freezers for freezing ice packs ▪ Microscope and centrifuge ▪ Insulated Carrier boxes with ice packs.
CONSUMABLES	▪ Pasteur Pipette ▪ Glass slides ▪ Glass tubes ▪ Test tube Racks ▪ Rubber Teats ▪ Gloves ▪ Marker Pen ▪ Blotting / tissue Paper
REAGENTS	▪ Anti A ▪ Anti B ▪ Anti AB ▪ Anti D ▪ Antihuman Globulin (Polyclonal - IgG & Complement)
DISINFECTANTS	▪ Bleach & Hypochlorite Solution

Quantity of Blood Available In Blood Storage Unit

A, B, O (Positive) 5 Unit of each

AB (Positive) 2 Unit

A, B & O (Negative) 1 units of each

Training will include:

- Pretransfusion checking, i.e. patient identity and grouping
- Cross-matching
- Compatibility
- Problems in grouping and cross-matching
- Issue of blood
- Transfusion Reactions and its management
- Troubleshooting
- Disposal of Blood Bags.

The medical officer designated for the BSU will be responsible for overall working of the storage centre.

Research Question

What are the gaps in the BSU of the public healthcare facility of Bihar in terms of human resource, infrastructure and availability of equipment?

Objectives of research

- To assess the infrastructure of blood storage unit.
- To assess the human resource in blood storage unit.
- To assess the availability of equipment in blood storage unit.

LIMITATION OF THE RESEARCH

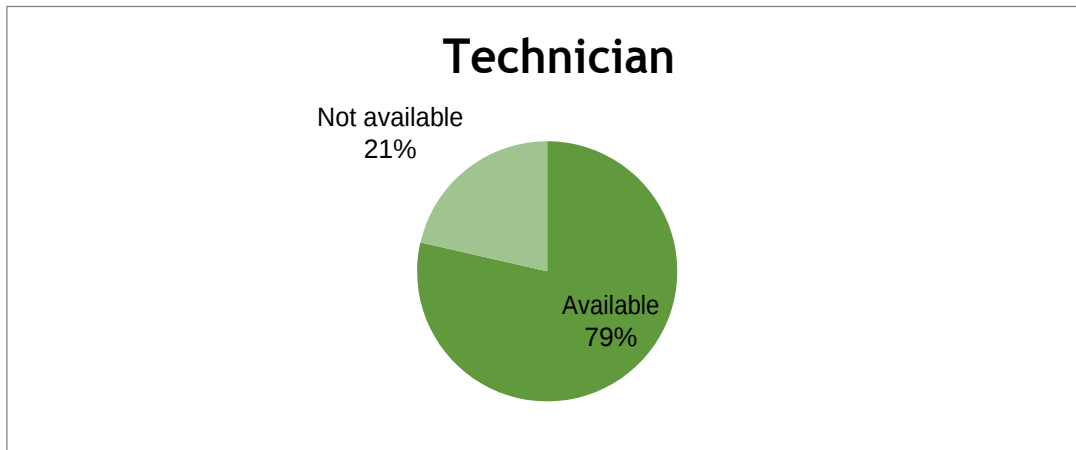
- Due to time and resource constraints it was not possible to visit all the BSUs.
- Long distance was also a constraint.

Finding and Analysis of Data Collected

HR Availability in Blood Storage Unit:

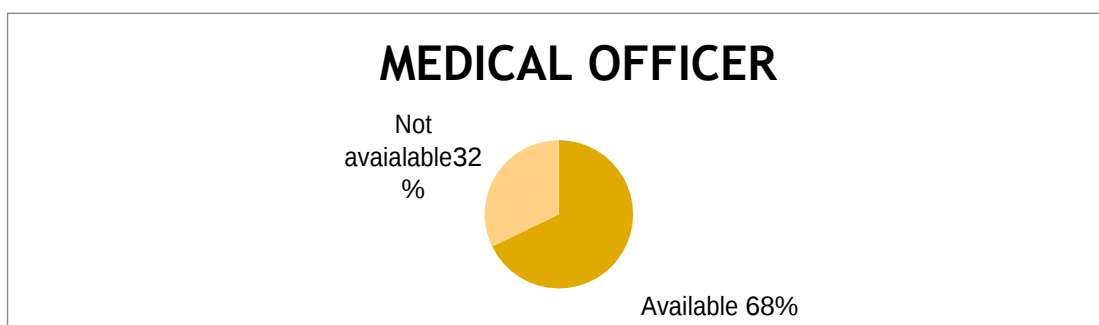
Sample Size= 28

	Available	Not available
Technician	22	6



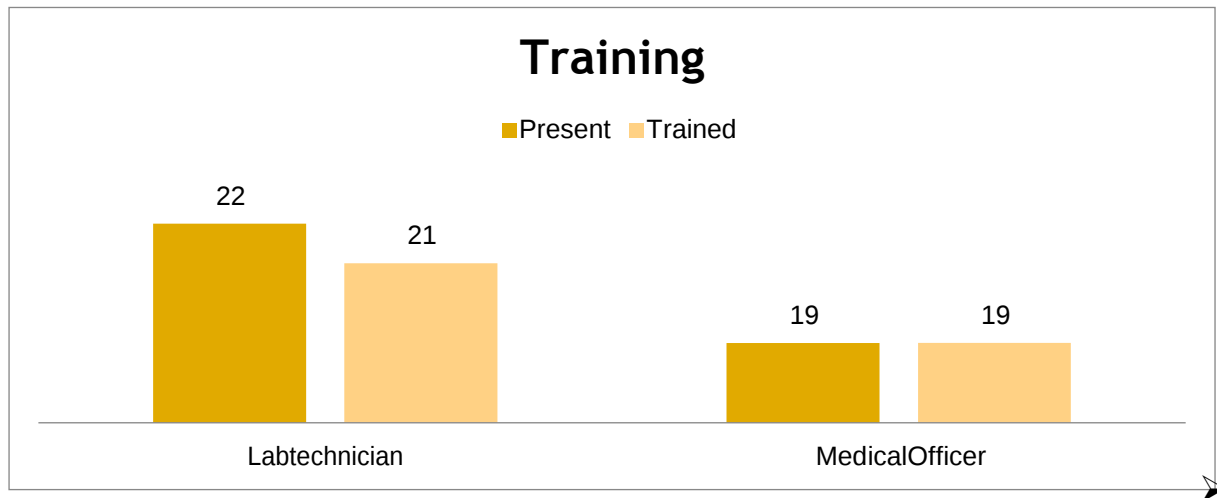
- There were no Lab Technician in 6 BSU out of 28, As per Guidelines there should be one technician in BSU

	Available	Not Available
Medical officer	19	9



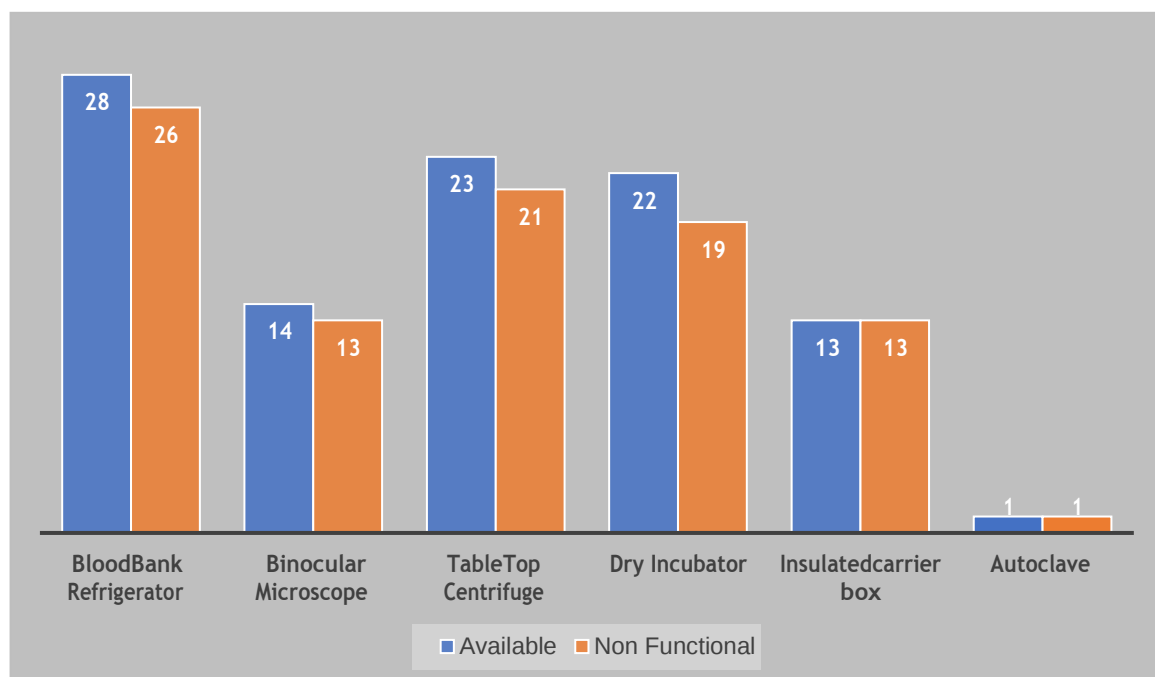
- 9 BSU was working without any designated Medical Officer

HR received blood bank/ BSU related training:



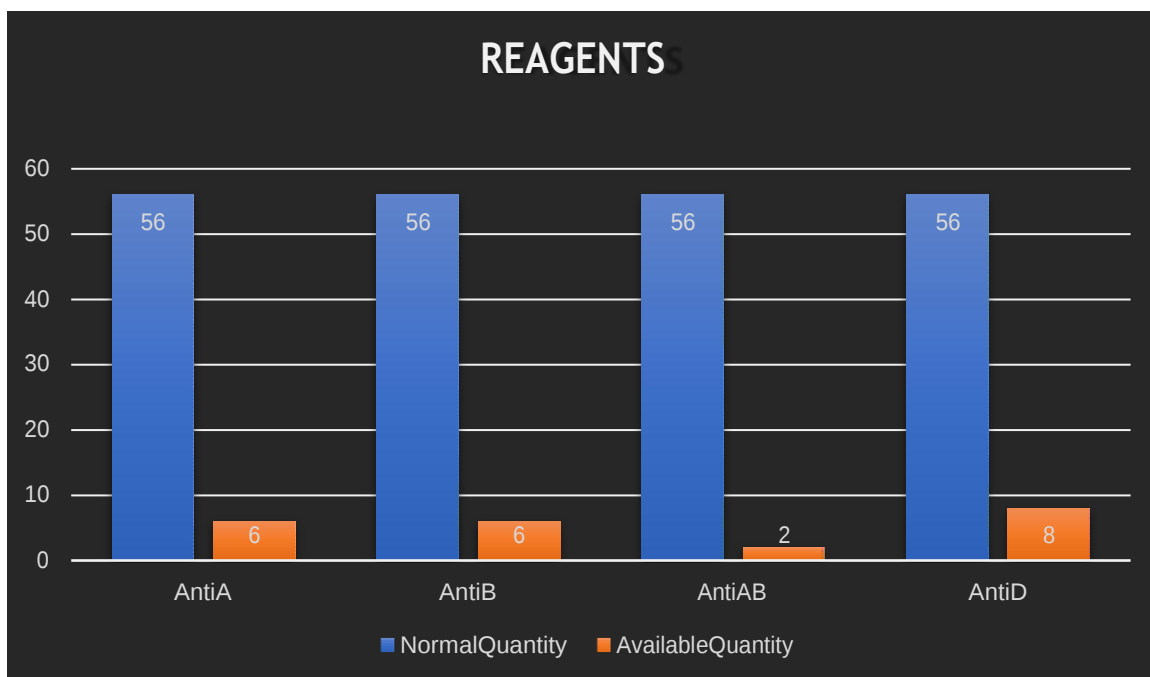
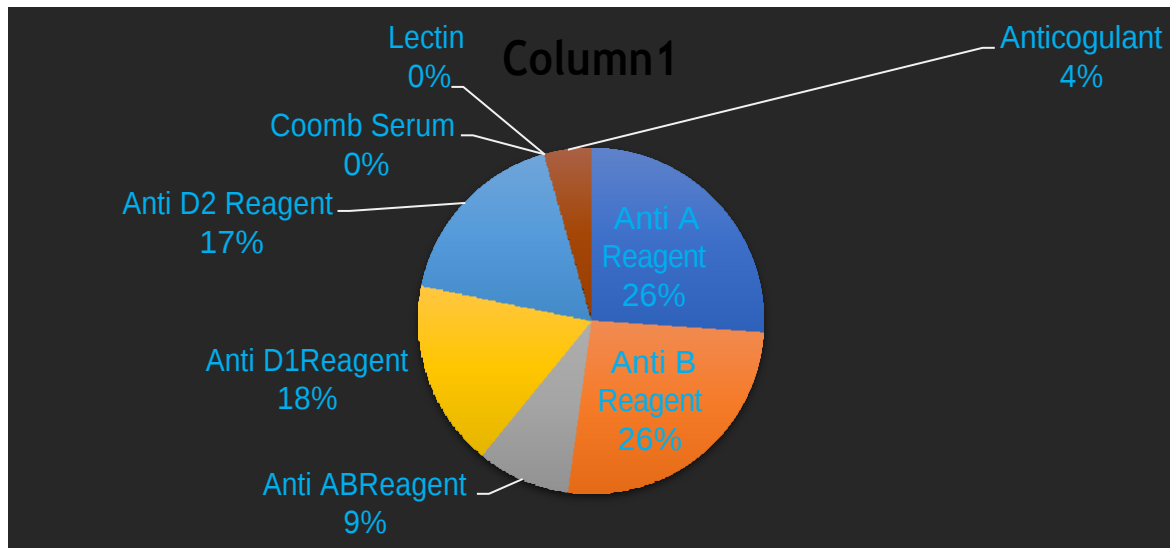
- As we can see in Graph there is only one lab technician who don't have the blood storage related training. As per guidelines, lab technician who are designated for BSU should receive training related to blood storage procedure, crossmatching.

Equipment availability in BSU



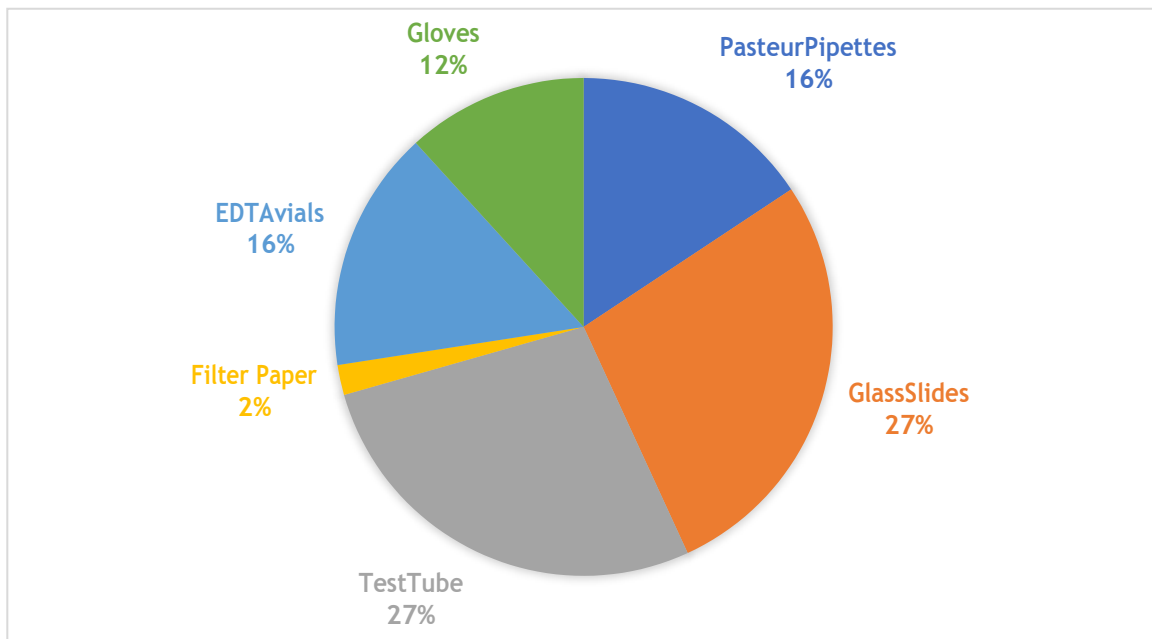
- Microscope and Centrifuge is the Integral Part of the laboratory. By this graph we can observe that only 14 BSU have Microscope and Out of this Only 13 is in functional condition.
- Only One BSU has Autoclave, this shows the shortage of equipment in BSU's.

REAGENTS AVAILABILITY IN BSU:



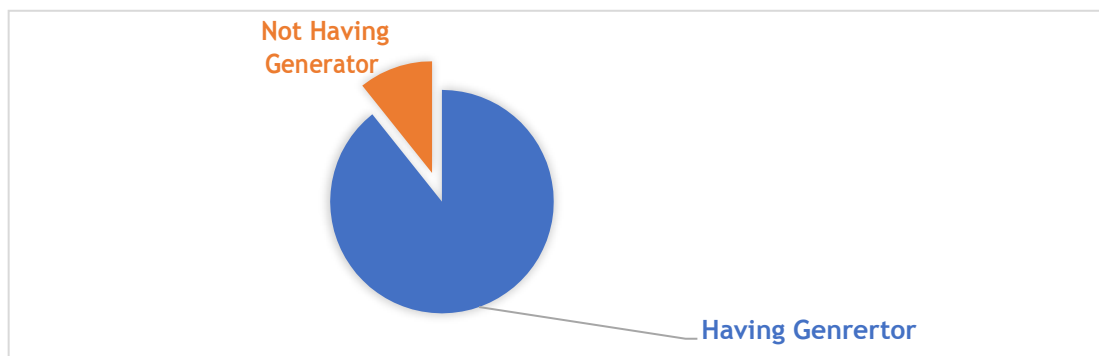
- As per Guidelines Quantity of Reagents (Anti A) should be 56 vials in a BSU, but we found only 6 Vials, we notice same Quantity difference in reagent Anti B. Only 2 Anti AB is there instead of 56.
- We can analyse by this that there is a huge Gap in required and available. Proper Quantity of Reagents is not available. It is showing that Majority of the BSU do not have the Reagents.

CONSUMABLES AVAILABLE IN BSU:



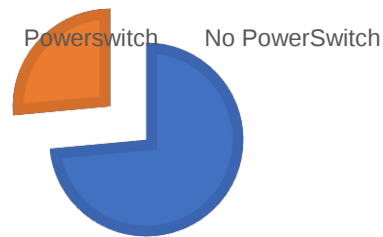
- As per Guidelines there should be 12 Dozen / year Pasteur Pipette in one BSU but at the time of visit we found that 8 Dozen in BSU. Glass Slides 12 Boxes /Year in 1 BSU, here we can see only 14 boxes is found at the time of data collection. These are the essential for BSU but majority of BSU is not fulfilling. Lack of equipment, Consumables and Reagents shows that there is no procedure is carried out in BSU
- As these are require for Cross matching, Pretransfusion Checking and compatibility test and these are the basic Procedures that should be carried out in blood storage unit before issue of the blood.

ELECTRICITY SUPPLY:



- For blood storage, 24 hours of electrical supply is required, But out of 28 BSU only 25 BSU was having Generator connection.

AUTOMATIC CHANGE OVER



- In 25 only 9BSU have Automatic Change Over in case of power cut. Here we can see theGap.

AVAILABILITY OF BLOOD IN Q4 (2017-2018):

- The mean of available blood in 28 BSU is5.8

	Mean ± Standard Deviation	Range	
		MINIMUM	MAXIMUM
Total Blood Received by Mother Blood Bank(In units)	5.8±16.5	0	79
Blood Issued (In units)	5±16.2	0	78

RECOMMENDATION

Based on the findings of this study following recommendations are made

- According to NACO guidelines, a designated doctor and Lab technician for each BSU. So allBSU have require amount ofHR
- Majority of BSU lacked proper availability of Equipment, Reagents and Consumables,recommended to have adequate number of Equipment, Reagents in eachBSU
- Monitoring is necessary to increase the effectiveness ofBSU.
- All the essential Consumable should be made available at eachBSU.
- There should be 24 hour electricity supply in eachBSU

CONCLUSION

In this Study, we observe that there is gap in BSU in terms of equipment, in terms of Human Resource availability and infrastructure.

According to the NACO Guidelines there should be 1 Lab Technician and 1 Medical Officer in each BSU but we found only one fourth BSU had no lab technician where as in one third BSU we found no designated Medical Officer. HR is very important in functioning of any facility as we see here there is unavailability of HR in few facility. We found that only One BSU had Autoclave and 14 BSU had microscope. As Microscope is the integral part of the any lab, half of the BSU did not have microscope. As per guidelines Reagents, consumables are require for Cross matching, Pretransfusion Checking and compatibility test and these are the basic Procedures that should be carried out in blood storage unit before issue of the blood. But we found that there is major lack in the availability of these.

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