

# **BLOOD BANKS IN INDIA: A RETROSPECTIVE CROSS-SECTIONAL ANALYSIS OF BLOOD VOLUMES, SAFETY, AND REGULATION**

**Yash Kamath, Siddhesh Zadey**

## **Introduction**

The Lancet Commission on Global Surgery (LCoGS) report suggests a lack of blood volume availability and safe blood transfusions in India. It has set a Blood Volume availability threshold of 15 units per 1000 people per year(PTPY). Blood Banks(BBs) are central to the healthcare paradigm and especially important to improving outcomes in surgical procedures. India has implemented a National Blood Policy which has been active since 2006, focused on improving blood bank safety and regulation conformity while simultaneously promoting voluntary donations by the public.

## **Aims and objectives**

- Analyzing current situation of blood banks with respect to blood volumes, safety, and regulations.
- Identifying problem areas and suggesting changes to statistic reporting tools.

## **Methods and materials**

A retrospective cross-sectional analysis of state-level data extracted from the State & Union Territory Blood Bank Reports(2016) accessed through the National Blood Transfusion Council website.

Outcome Variables:

- Volumes: Total Annual Blood Collection(ABC) and Voluntary Annual Blood Collection(VABC) per 1000 people and compared it to the LCoGS threshold of 15 PTPY.
- Safety: Percentage of BBs with quality checks(QC) for their kits and percentage of BBs with external quality assurance scheme(EQAS) for transfusion transmitted infections(TTIs).
- Regulations: Percentage of BBs with a valid license and percentage of those sending regular reports to the state drug controller (SDC) & strategic information management system (SIMS).

## **Results**

- We compiled data from 2,493 BBs from 35 States and Union Territories for 2016. ● India had an ABC of 9.09 & VABC of 6.49 units PTPY, much below the LCoGS threshold. Chandigarh had the highest ABC at 78.52 units PTPY and Delhi had the highest VABC at 24.41 units PTPY. Only 14.3% of the 35 states had ABC above the LCoGS threshold while even fewer - 8.6% of the 35 states - had VABC above the threshold.
- Though 86.24% of BBs had a QC system, only 8.72% had an EQAS for TTIs. Goa, Chandigarh, Meghalaya had 100% coverage of QC for kits while DNH, Arunachal Pradesh and D&D had the least. Chandigarh(50%), Delhi(34.85%), and Maharashtra(25.76%) had the highest number of blood banks under the EQAS, however, these were also low, compared to the overall number of BBs in these states.
- 65.74% of all BBs had a valid license, 80.34% sent regular reports to SDC and 84.18%

updated SIMS regularly. Daman & Diu, D&NH, Goa, Chandigarh, Manipur, Nagaland and Sikkim all had 100% BBs with valid licenses, with DNH, Goa and Chandigarh having perfect scores on SDC as well. Himachal Pradesh had the lowest compliance to sending SDC reports.

### **Conclusions**

India's blood banking capacity currently functions below recommended threshold, needing improvement in safety measures while having satisfactory regulations in place. Policy decisions centered around setting up BBs with automated SDC updates, along with campaigns to promote voluntary donations should be implemented.

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## INTRODUCTION

- India has had a National Blood Policy since 2006, focused on improving blood bank safety and regulation conformity while simultaneously promoting voluntary donations by the public.
- The Lancet Commission on Global Surgery (LCoGS) points to the lack of blood volume availability and safe blood transfusions in India. We aimed to systematically analyse problems for blood volumes, safety, and regulations.

## METHODS

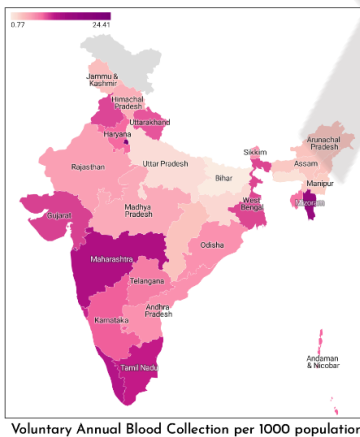
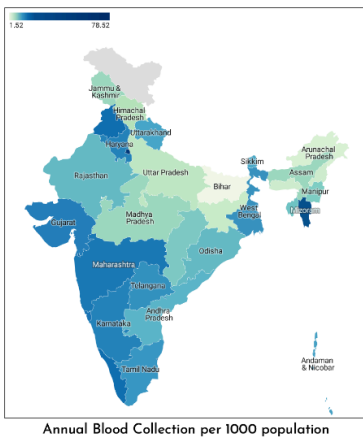
Data Sources:  
State & Union Territory Blood Bank Reports (2016) accessed through the National Blood Transfusion Council website

- Data Variables:
- Volumes: Total Annual Blood Collection (ABC) and the Voluntary Annual Blood Collection (VABC) per 1000 people
  - Safety: percentage of blood banks (BBs) with quality checks (QC) and external quality assurance scheme (EQAS)
  - Regulations: BBs with valid license and percentage of those sending regular reports to SDC and SIMS

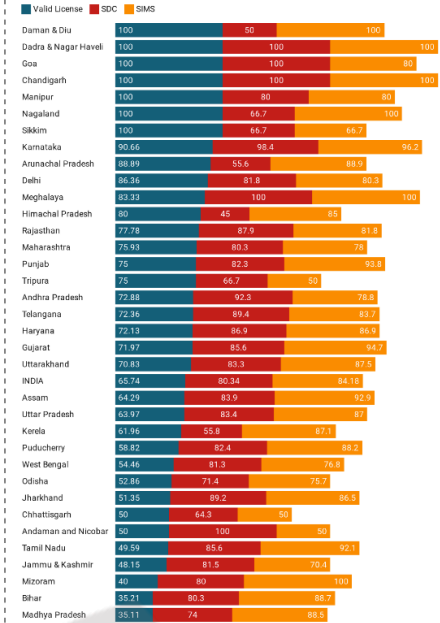
- Statistical Analysis:
- General Descriptives - JASP 0.16 Software
  - Tables, Charts and Choropleth Map - Datawrapper

## CONCLUSION

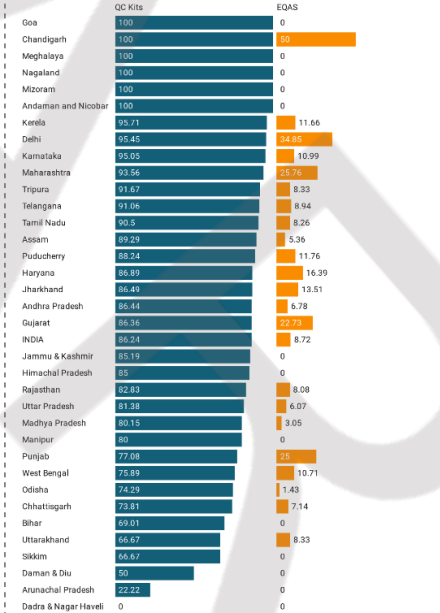
India's blood banking capacity currently functions below recommended threshold, needing improvement in safety measures while having satisfactory regulations in place. Policy decisions centered around setting up Blood Banks with automated SDC updates, along with campaigns to promote voluntary donations should be implemented. Main limitation is the lack of more recent data.



## Blood Banks Regulations Compliance in States & UTs



## Blood Banks Safety Compliance in States & UTs



## REFERENCES

- National Blood Transfusion Council (NBTC) - MoHFW, India. <http://nbtc.naco.gov.in/page/reports/>. Accessed 4 Feb. 2022.
- Meara JG, Leather AJM, Hagander L, Alkire BC, Alonso N, Ameh EA, et al. Global Surgery 2030: evidence and solutions for achieving health, welfare, and economic development. The Lancet. 2015 Aug 8;386(9993):569-624.