

Title: Blood Banks in India: A Retrospective Cross-sectional Analysis of Blood Volumes, Safety and Regulation

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Conflicts of Interest: None (for both)

Background:

Blood Banks are central to the healthcare paradigm. 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) pointed 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:

We conducted 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. For blood volume outcomes, we considered the Total Annual Blood Collection (ABC) and the Voluntary Annual Blood Collection (VABC) per 1000 people and compared it to the LCoGS threshold of 15 units per 1000 people per year (PTPY). Safety outcomes were the percentage of blood banks (BBs) with quality checks (QC) for their kits, reagents and blood banks, and the percentage of BBs with external quality assurance scheme (EQAS) for transfusion transmitted infections (TTIs). 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) were the outcomes for adherence to regulations.

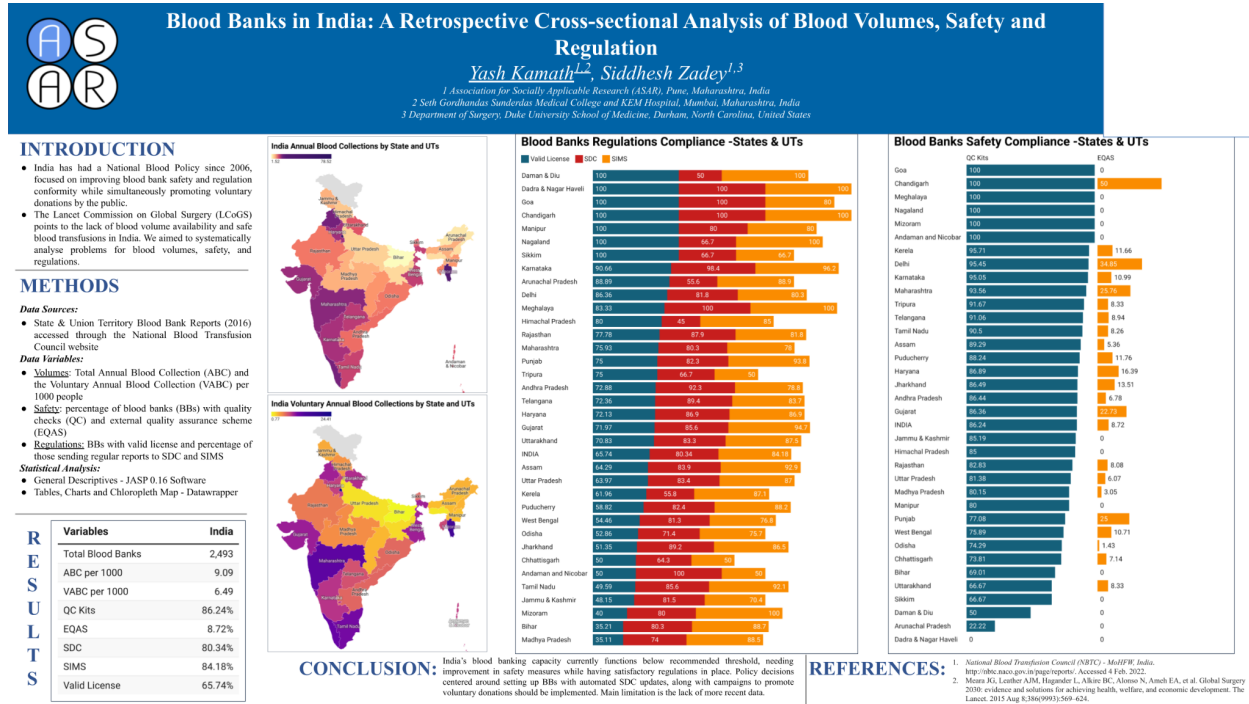
Findings:

We compiled data from 2,627 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 states had ABC above the LCoGS threshold while even fewer (8.6%) had VABC above the threshold. Though 81.8% of BBs had a QC

system, only 8.4% had an EQAS for TTIs. 62.4% of all BBs had a valid license, 80.3% sent regular reports to SDC and 84.2% updated SIMS regularly. Himachal Pradesh had the lowest compliance to sending SDC reports.

Interpretation:

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. Main limitation is the lack of more recent data.



Variables	India
Total Blood Banks	2,493
ABC per 1000	9.09
VABC per 1000	6.49
QC Kits	86.24%
EQAS	8.72%
SDC	80.34%
SIMS	84.18%
Valid License	65.74%