Regulatory Reforms—Future of Plasma Protein Therapy in India

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Price Tag of Contrast

- Uniqueness
- Co-existence: Rich & Poor
- Many Socio-Political complexities
- Opportunities

Education and Healthcare System
Introduction

✧ Human blood “Transfusion Medicine” and its components are defined as a ‘Drug’ and regulated under Drugs & Cosmetics Act 1945

✧ Normally blood collection, testing, component preparation, and dispensing is responsibility of blood banks

✧ Blood/plasma (generally) cannot move from blood bank to other

✧ Transfusion Medicine and Plasma Fractionation are very closely related

✧ Progress of one is dependent on other
Milestones

1945: First blood bank in Kolkata

1954: Voluntary blood donation enhanced: 1962/65/71 wars

1975: Blood bank licensing started with HBV, Syphilis & Malaria test

1988: Hemophilia tragedy / HIV testing made mandatory

1989: National Plasma Fractionation Center (NPFC), Mumbai

1992: National AIDS Control Programme (NACO) started

1996: Supreme court Judgment against public litigation

1. National/State Blood Transfusion Council(s) (NBTC/SBTCs) (1996)

2001: HCV testing made mandatory

2005: Recovered plasma collection permission/NIB

2005: Contract Plasma Fractionation started

Regulatory Agencies involved

- Central Drugs Standard Control Organization (CDSCO) - Import & Registration (Plasma Products)

- National Institute of Biologicals, India - Testing samples (Plasma Products)

- The Central Drugs Testing Laboratory (CDTL) - is another national statutory laboratory of the Government of India, its functions include Testing of imported bulk drugs and formulations referred by ADCs

- Indian Pharmacopeia

Ministry of Health and Family Welfare

Directorate General of Health Services (DGHS)

Drug Controller General of India [DCG (I)]

National Institute of Biologicals (NIB)

State Drug Authority
4 Zonal offices

State Health Dept

Licensing and Approval Authority

State Blood Transfusion Council (SBTC)
State Aids Control Organizations (SACS)

National AIDS Control Organization (NACO)
National Blood Transfusion Council (NBTC)

State level Blood Banks

District Blood Banks

Blood Storage Units

Collection, Testing Processing, Storage & Distribution

Distribution
Regulatory Challenges

- Multiple organizations
- Poor Coordination
- Less trained manpower
- Outdated system
- Governance deficit: Regulator and Industry

Delays and non-compliance; Major Road Block
Serious Public Health Issue

- Hospital told to pay 10L to HIV-infected boy - Times Of India

- HIV infected Blood Transfusion: Latest News - The Times of India

- Woman gets HIV from 'infected' blood - Times Of India

- Frequency of HIV type 2 infections among blood donor population

- Andhra blood bank gives teen mom HIV - India Today

- Woman given HIV-infected blood - India Today

- HIV-infected thalassemic kids: Gujarat HC orders CBI Procedures
## Blood Collection: Demand and Supply

<table>
<thead>
<tr>
<th>Sector</th>
<th>No. of Blood Banks</th>
<th>Annual Blood units collection (in million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>940</td>
<td>4.37</td>
</tr>
<tr>
<td>Voluntary and Trust</td>
<td>376</td>
<td>1.32</td>
</tr>
<tr>
<td>Pvt Hospitals</td>
<td>753</td>
<td>1.72</td>
</tr>
<tr>
<td>Private Stand alone</td>
<td>540</td>
<td>0.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2609</strong></td>
<td><strong>8.01</strong></td>
</tr>
</tbody>
</table>

8.01 Vs 11.70 Millions Units 3.69 Millions Units
## Comparative Scene

<table>
<thead>
<tr>
<th>S. No</th>
<th>Country</th>
<th>Population status (rank)</th>
<th>Blood Collected</th>
<th>Plasma Processed Million lit</th>
<th>No of plants</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>USA</td>
<td>III</td>
<td>Highest</td>
<td>~ 11</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>China</td>
<td>I</td>
<td>II Highest</td>
<td>~ 4.1</td>
<td>17</td>
</tr>
<tr>
<td>3</td>
<td>India</td>
<td>II</td>
<td>III Highest</td>
<td>???</td>
<td>1</td>
</tr>
</tbody>
</table>

Largely import dependent
Plasma Fractionation in India

- Availability of plasma
- Regulatory deficiencies
- Technology barrier
- Uncertainties
- Historical view
- Public awareness
- Political will

- Affordability
- Insurance
- No support from state
- Diagnosis
- Sustainable model

Political will and Regulations
12th Plan 5 year plan will focus on Public Health
Universal health coverage (UHC)
Planning commission
High level expert group (HLEG) Oct 2010
Planning commission’s steering committee
HLEG submitted Nov 2011
- Human Resource for Health (HRH)
- National Commission for Human Resource for Health (NCHRH)
- National Drug Regulatory and Development Authority
Priority

Safe drinking water
Immunization
Maternal mortality rate (MMR)
Infant mortality rate (IMR)
Malnutrition
Rural health program

Focus on Critical Healthcare

Public Health...........
Blood Plasma Products : Public Healthcare Agenda

Assurance to timely access of quality, safe, efficacious drugs at affordable price

Safe supply of blood and plasma products is very important public health concern

- Hemophilia care
- MMR
- Thalassemia care
- TTI
History of Public Litigation

- Professional donor: 1995
- Hemophilia care: 2004
- Testing of Blood: 2011
- Thalassemia Care: 2013
- Use of Plasma: 2013
Government: Under Pressure

- Policy: Mandate
- Regulation
- Financial resources
  - R & D
  - Infrastructure
  - Treatment
  - Rehabilitation
2001-2005 - 2013: Plasma/ Plasma Products

- 0/ 8000/ 2-300,000 liters/yr
- No blood component lab to 300 labs
- Products from Indian plasma for Indian patients

PPB-2013
Change in Drug and Cosmetic Act (D&C Act): Major Changes and final draft has been submitted to Ministry in Jan 2012.

Streamlining the entire blood banking system for safe supply of blood component and generation of plasma for fractionation.

Process of Regulation: WHO audit June/July 2012
- Human Resource Training
- Documentation
- Audit

Role of NACO:
- Blood Safety
- Plasma Fractionation
- Movement of Plasma
NIB : Regulatory Reforms

First meeting on March 24, 2012 : Regulators, industry, Clinicians, NGOs and experts

Second meeting in Sept 2012

Recommendation submitted : Nov 2012

- Product Testing Protocols
  - Viral markers in final products
  - Product Monographs
  - Product testing

- Timelines/Vials
  - Batch release
  - Number of vials
  - Documentation

PPB-2013
First meeting on Aug 10, 2012
Background document: Sept 2012
Software development: Nov. 2012
First steering committee workshop: Nov 29, 2012
Program goes live: Dec 10, 2012

Hemo
Hemovigilance : Public Healthcare Agenda

- In Asia : 3rd country
- Feb 2013 : 80 Govt. and Private Hospitals and Medical Colleges
- Each center will have id and password
- No punitive action
- March 2013 : Data from 2 Govt and 1 Private hospital
- June 2013 : First report
- Step towards Biovigilance
IP: Regulatory Reforms

- New Products
- Improvement in IP compliance
- Harmonization
Blood Safety Program

Increase voluntary donor base

Quality assurance system

Metro Blood Banks
- Mumbai
- Chennai
- Delhi
- Kolkata

Plasma Fractionation Centre, Chennai

Plasma requirement, policy and pricing
End point

To work towards capacity building and develop ecosystem for timely, safe supply of:

- Blood and blood components
- Plasma generation and its utilization for plasma product development program
Inspired by the freedom movement. Milk became a symbol of protest. Founded in 1946 to stop the exploitation by middlemen.

**Started:** 2 Villages and 247 liters of milk at Kaira District Co-operative Milk Producers Union Ltd.

**Now:** 15 million milk producers, 1,44,246 dairy cooperative societies across the country.

Processed in 177 District Co-operative Unions
Marketed by 22 State Marketing Federations

**2012:** 14.5 million liters/day
**Target 2018:** 18 million liters/day

Currently, per capita availability of milk in India is 280 ml/day higher than the WHO's minimum recommendation.

UAE / Bahrain / Kuwait / Oman / Hong Kong / Shri Lanka / USA / Malaysia / Singapore / Qatar / New Zealand

Rs.11,668 crores (Rs.116.68 billion)
India: Next 10 years: Plasma Fractionation

- One of the fastest growing economies: unusual pattern
- Evolved into hub for Medical Tourism
- Silicon Valley of east (Bangalore)
- Hub for clinical trials (Factor VIII)
- US-FDA approved plants
- Regulatory reforms
- Nation of youth
- Trained manpower
- Cost of setting-up Plasma Fractionation Center and operations

PPB-2013
Technically robust & financially sustainable model of plasma fractionation for developing economies