COLD CHAIN MANAGEMENT FOR BLOOD SAFETY

BURKINA FASO

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• Landlocked country in West Africa with about 14 million inhabitants

NBTC

• Sole blood supplier and administrative role

4 RBTC

• Operating units in charge of all activities in the transfusion chain from promotion of blood donation to distribution
NATIONAL BLOOD TRANSFUSION CENTRE

NBTC: has financial autonomy and is a legal entity
- Has a “Strategic plan for enhancing blood safety 2011-2025”

Staff number: 202
- Specialist doctors/pharmacists = 8
- Non-specialist doctors/pharmacists = 7
- Biomedical technicians = 36
- Nurses = 72
- Communicators = 2
- Social educators = 5
RBTC: EQUIPMENT

Refrigerated cabinets for storage of blood products, reagents and specimens
RBTC: EQUIPMENT

Containers for transport of blood products / ice packs
ACTIVITIES OF NBTC: PROMOTION OF BLOOD DONATION

Activities to raise awareness and to value blood donors
ACTIVITIES OF NBTC: BLOOD DONATION

At fixed sites
Open on every working day from 7 am to 5 pm and on Saturdays for some RBTC
2011: 14,939 units collected, i.e. 26.11% of all units collected

Mobile collections
Almost every day at distances sometimes up to 300 km
1,050 mobile collections with a total of 42,284 units collected, i.e. 73.89% of all units

A total of 57226 units were collected in 2011
LABORATORY TESTING OF DONATED BLOOD

• Immunohaematology
  – ABO and Rh blood typing by 2 techniques and 2 different technicians

• Systematic screening of all donations
  – HIV
  – HBsAg
  – HCV
  – Syphilis
PREPARATION OF BLOOD PRODCUTS

Rate of component separation almost 100%

*x-axis labels – on graph shown*

• Red cell concentrate (adult units)
• Red cell concentrate (paediatric units)
• Fresh frozen plasma
• Platelets concentrate
• Whole blood
DISTRIBUTION OF BLOOD PRODUCTS

Total distributed: 48,111 blood products to the following institutions:

• University Teaching Hospitals: 3
• Regional Hospitals: 2
• Medical Centre with surgical units: 19
• Private clinics and military dispensaries: 27

i.e. a total of 51 health institutions
SITUATION ANALYSIS OF BLOOD COLD CHAIN
INSTITUTIONS VISITED

Regional Blood Transfusion Centre (4)
Hospital transfusion centre (15)
Hospital blood bank (2)
CONDITION OF COLD CHAIN EQUIPMENT (1)

Cold chain equipment for blood non-compliant

Variety of fridges used for storage of blood products (household)
CONDITION OF COLD CHAIN EQUIPMENT (2)

Insufficient blood cold chain equipment

Concomitant storage of blood products, reagents and specimens and sometimes even other items
CONDITION OF COLD CHAIN EQUIPMENT (2)

Various modes of transport of blood, and in non-compliant containers

Trays, bare hands, small containers, cardboards, etc.
QUALITY ASSURANCE OF BLOOD COLD CHAIN (1)

- Evaluation of equipment not done on receipt
- Absence of calibration of temperature display devices
- Absence of QA documents (SOPs) for cold chain management
- No formal system for maintenance of equipment
QUALITY ASSURANCE OF BLOOD COLD CHAIN (2)

• Different types of forms for temperature records
  – Daily, monthly, annually
  – Pages with different records: 1, 2, 3 times daily

• Irregular follow-up of readings
QUALITY ASSURANCE OF BLOOD COLD CHAIN (2)

• Blood products often discarded because of cold chain problems
  – Maximum period for return not respected
  – Absence of relay generator
  – Lack of awareness of risks associated with breaking cold chain
IMPLEMENTING THE ACTION PLAN

Action plan includes:

1. Training of trainers in management of blood cold chain
2. Training of users in management of blood cold chain
3. Training of personnel involved in transport of blood products
4. Distribution of WHO manuals on blood cold chain
IMPLEMENTING THE ACTION PLAN

5. Production of posters on information on cold chain and blood safety
RESULTS

6 MONTHS AFTER ACTION PLAN

1. Uniform temperature record form for the whole country
2. More regular follow-up of temperature
RESULTS

6 MONTHS AFTER ACTION PLAN

• Standard temperature record form for cold cabinets
• Regular monitoring of temperature
• Dissemination of lower and upper temperature thresholds for storage of blood products
RESULTS
6 MONTHS AFTER ACTION PLAN

3. Introduction of Operating Procedures on management of blood cold chain

– Action required in cases of temperature abnormalities of cold cabinets
– Management of temperature abnormalities recorded during transport of whole blood
– Report of mobile blood collection
– Packing of blood bags
– Packing of blood products for distribution
– Monitoring of temperatures of cold cabinets
– Transport of whole blood bags
RESULTS
6 MONTHS AFTER ACTION PLAN

4. Packaging and transport of blood products
5. Consensus on maximum period for returning blood products that were distributed but not used
6. Decrease in blood products discarded because of broken cold chain
7. Cleanliness and maintenance of cold cabinets and packaging and transport materials
CONCLUSION

• A good situation analysis → exposed inadequacies in management of blood cold chain
• Training of staff, involved in blood transfusion, on cold chain management
• Involvement of healthcare staff in taking decisions through agreed resolutions

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Behavioural change on cold change management of blood
  – Absence of storage of blood products in healthcare facilities
  – Regular maintenance of cold cabinets
  – Regular monitoring of temperature
  – Ability to manage the cold chain in case of failure of cold cabinet
  – Return of unused blood products within required time period
CONCLUSION

Keeping alive the ‘fire’ which has been lit by regular follow-up through supervision

Extinguish and reverse dangerous blood safety practices
THANK YOU