



**Effect Of A Temple Fireworks Disaster
On Blood Supply & Safety:
Experience In A Tertiary Care Centre
In Kerala**

Dr.Mili.S (JR), Dr.K.C.Usha (Prof & HOD)

Dept of Transfusion Medicine,
Govt. Medical College, Trivandrum



Puttingal Temple,
Kollam , Kerala



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“Disaster”

Any domestic disaster or act of terrorism that :

- Suddenly requires a much larger amount of blood than usual
OR
- Temporarily restricts or eliminates a blood collector’s ability to collect, test, process, and distribute blood
OR
- Temporarily restricts or prevents the local population from donating blood or restricts or prevents the use of the available inventory of blood products and thus requires immediate replacement or resupply of the region’s blood inventory from another region
OR
- **Creates a sudden influx of donors, requiring accelerated drawing of blood to meet an emergent need elsewhere.**

(AABB Disaster Operations Handbook)



Uncoordinated massive influx of donors pose a challenge to the blood collection system

Objectives

1. Describe the changes in pattern of blood donation before & after the disaster
2. Compare the rate of sero-reactivity for Transfusion Transmitted Infections in donations made before & after disaster



Materials & Methods

- Cross sectional study
- Study Period: 2 months
4 weeks prior to 10.4.16
&
4 weeks after 10.4.16



Materials & Methods...

- Donation dates
- Number of units collected
- Demographic characteristics
- Screening test results of HIV, Hepatitis B, Hepatitis C, Syphilis & Malaria



Materials & Methods.



- Compared the Number of donations & those screened positive for the five infectious diseases (as per the NACO guidelines) among the donations made before & after the disaster
- Statistical significance tested using Chi-square & t test

RESULTS

Fig 1: Number of weekly donations during the 2 month study period.

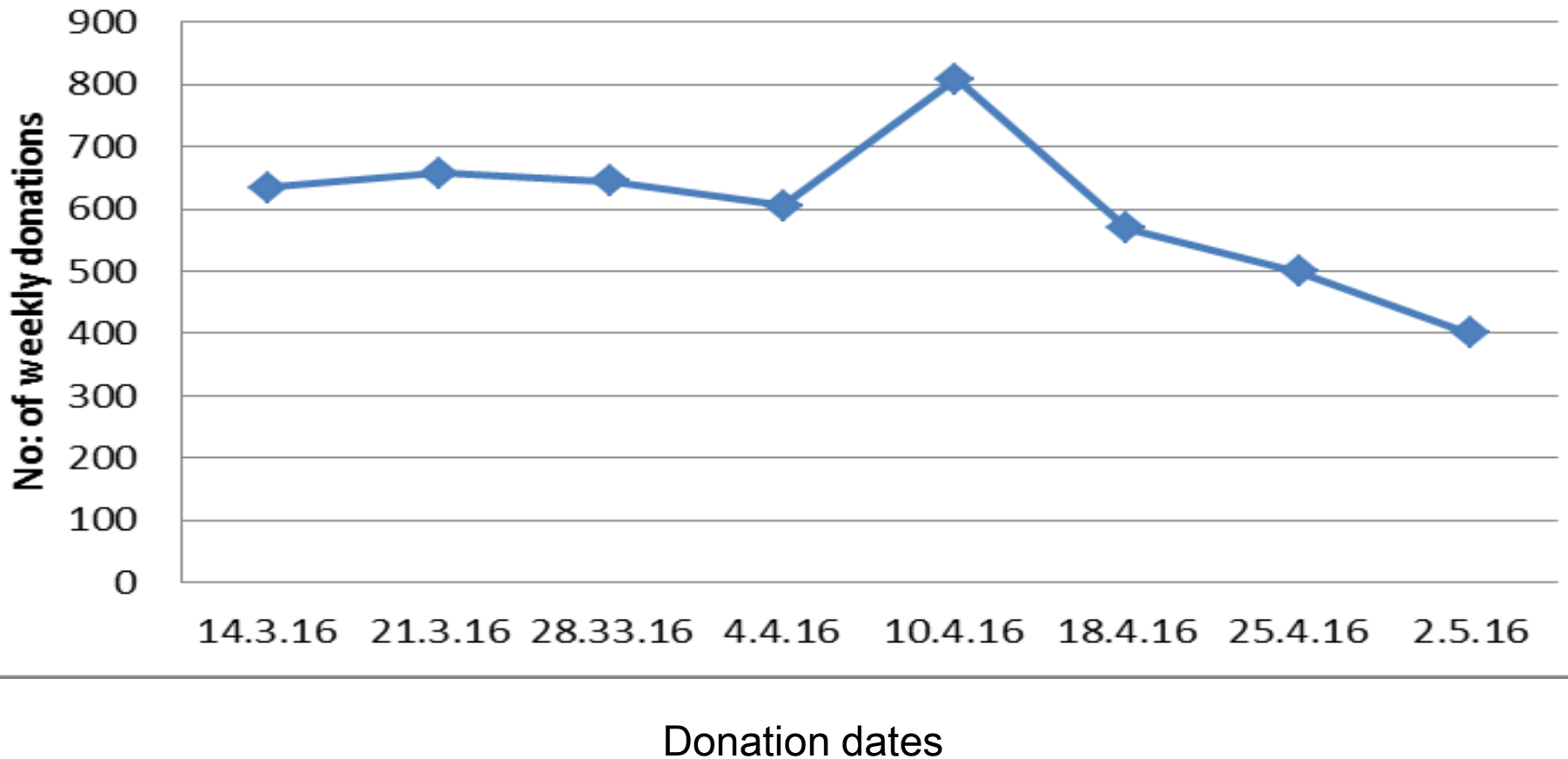


Fig 2: Sex wise distribution of the donations in the pre disaster & post disaster period.

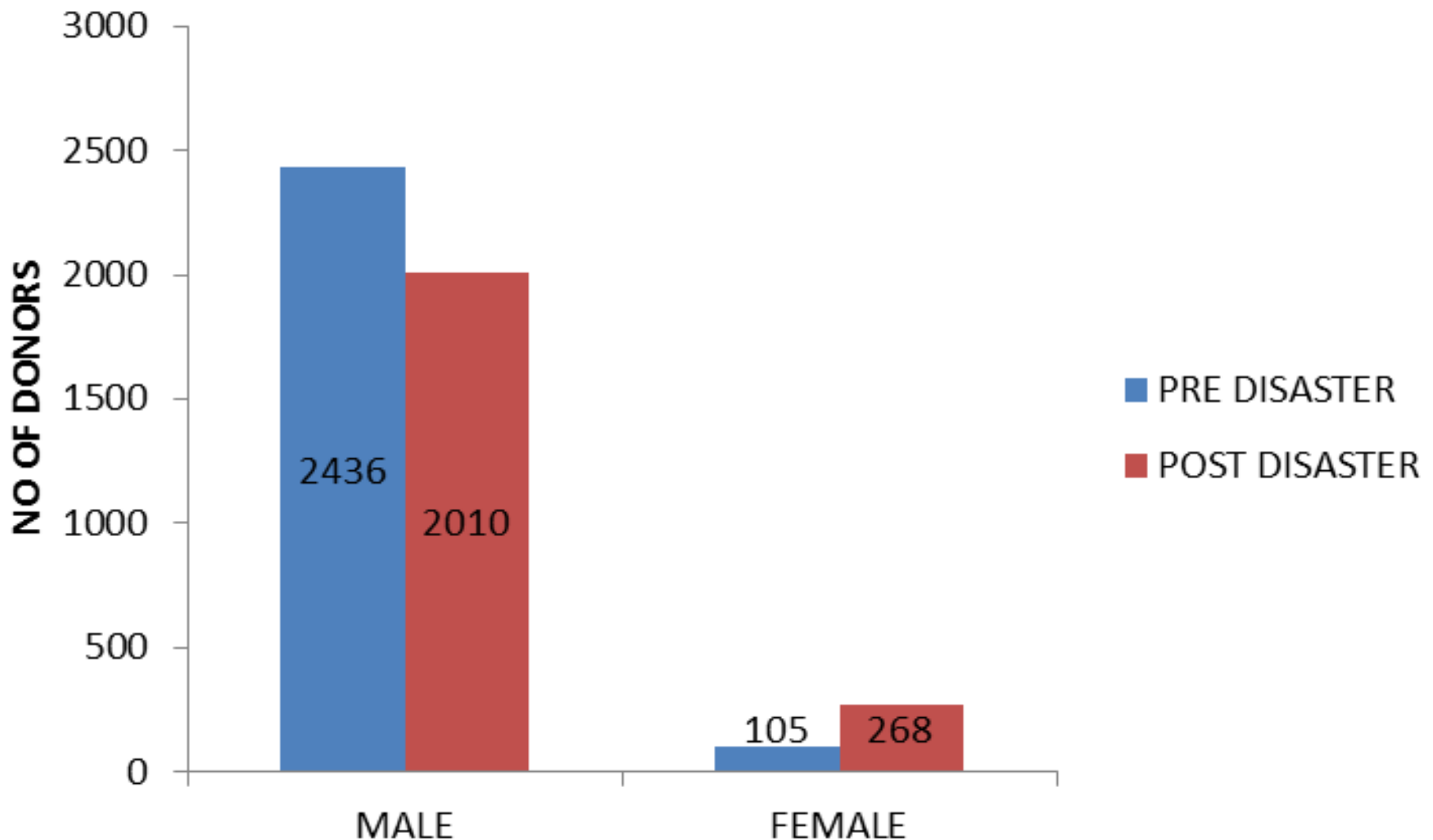


Fig 3: Proportion of First Time Donors in the Pre & Post Disaster Period

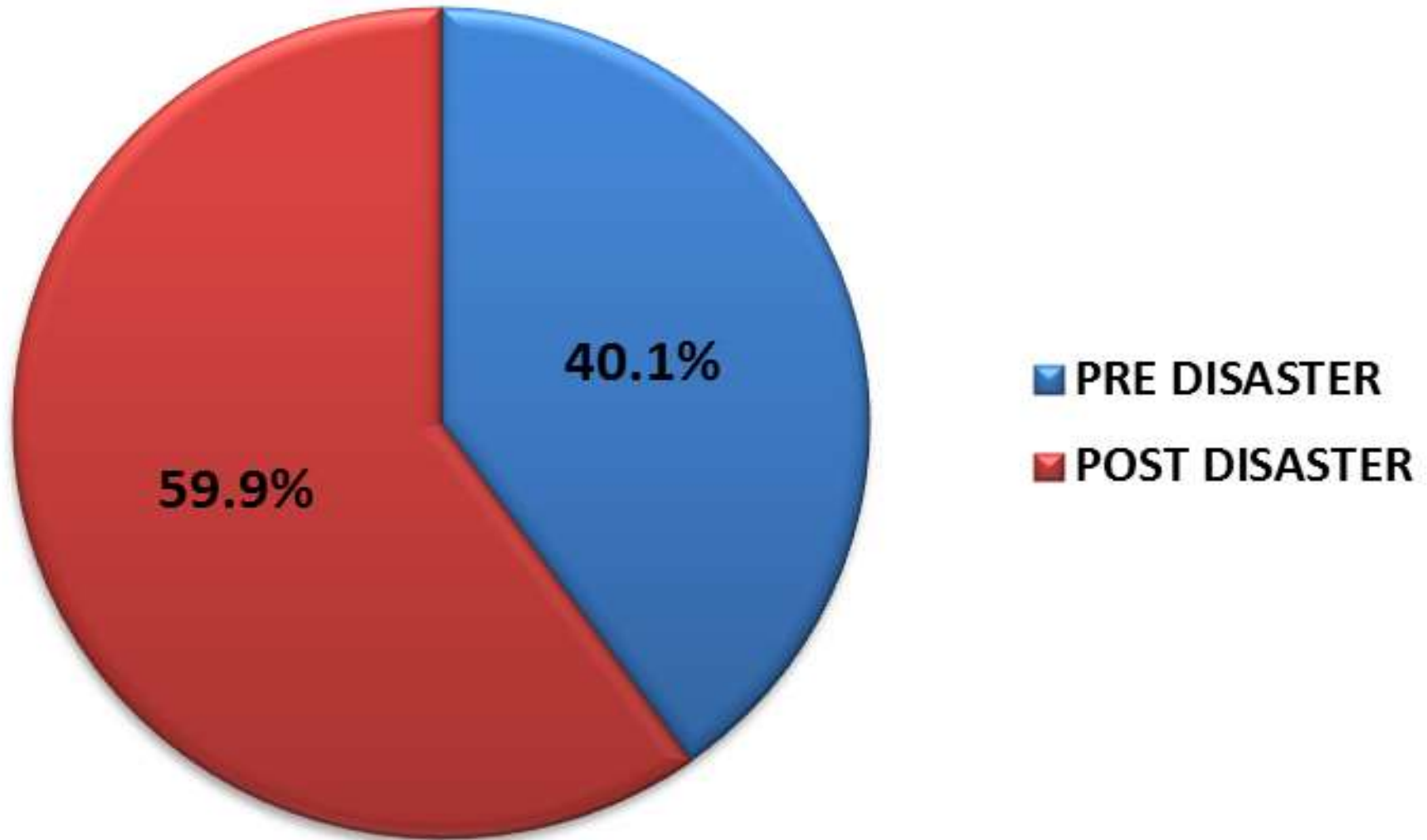
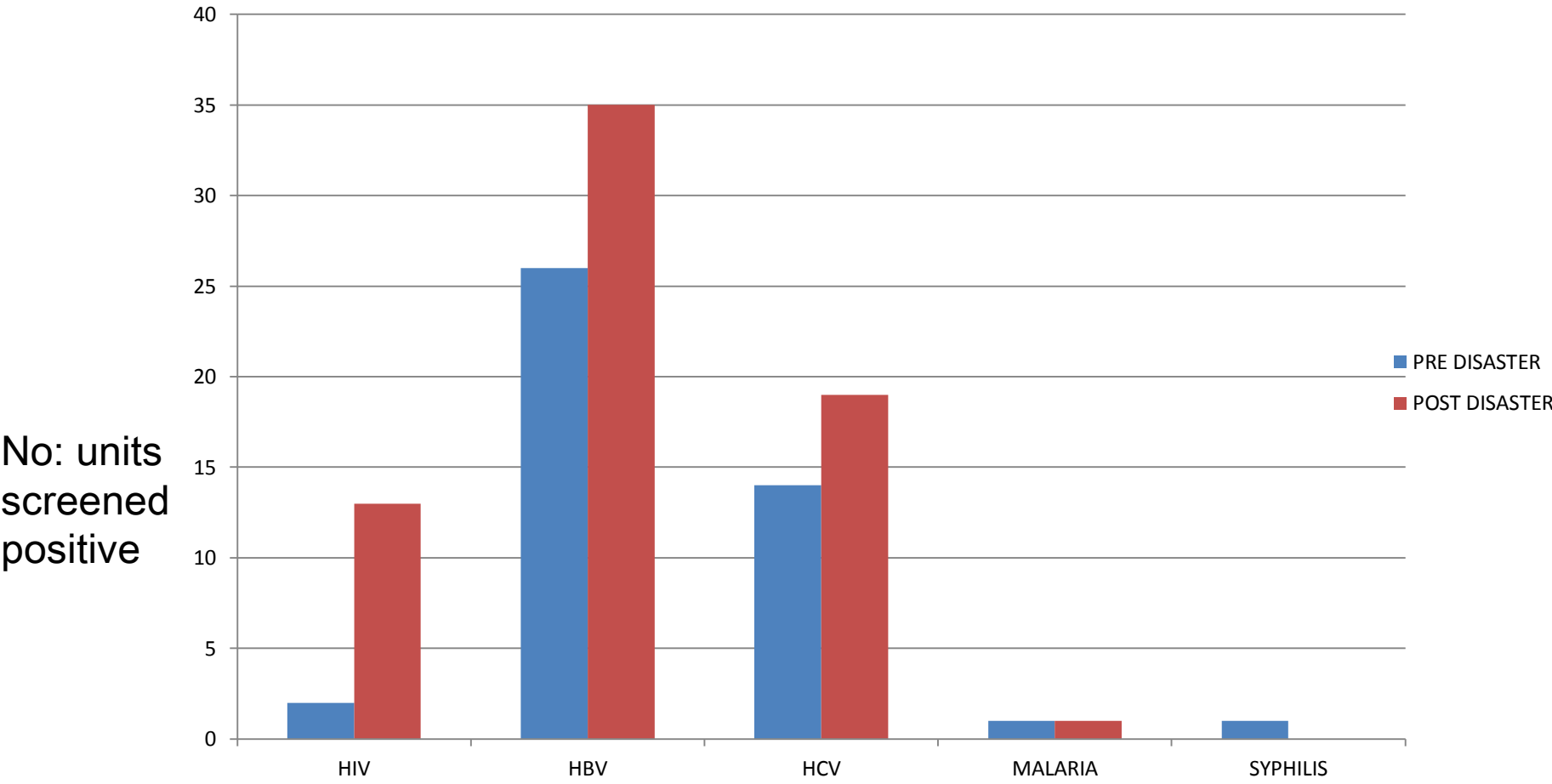


Fig 4: No:donations screened positive for infectious disease markers



Discussion

Increase in

- Number of donations

*(Glynn et al Sep 11 terrorist attack
Akkok et al Oslo Massacre explosion)*

- 1st time donors
- Female donors

(Liu et al on Bam earthquake)

- TTD seropositivity

*Busch et al on safety of blood donations
following earthquake
Dodd et al in Mass Casualty Events*

Our Experience



Chronology of Events on 10.4.16

3.30am

- Explosion took place

4.30am

- Patients brought to casualty

7.00am

- Donors started coming one by one

8am

- Higher authorities ordered immediate collection of blood

8.30am

- Massive influx of donors

9.00am

- Blood collection started

Fake News in Media Regarding Blood Shortage

- Assessed Inventory
- Less Transfusions
- Emergent blood collection not needed

Group	PRC	FFP	PC	CRYO
A +	114	102	18	30
B +	255	130	20	50
O +	152	98	14	40
AB +	77	100	7	5
A Neg	25	64	4	5
B Neg	49	86	9	5
O Neg	27	70	2	5
AB Neg	11	52	1	5
Total	740	702	75	140

Total no: of components available: 1657



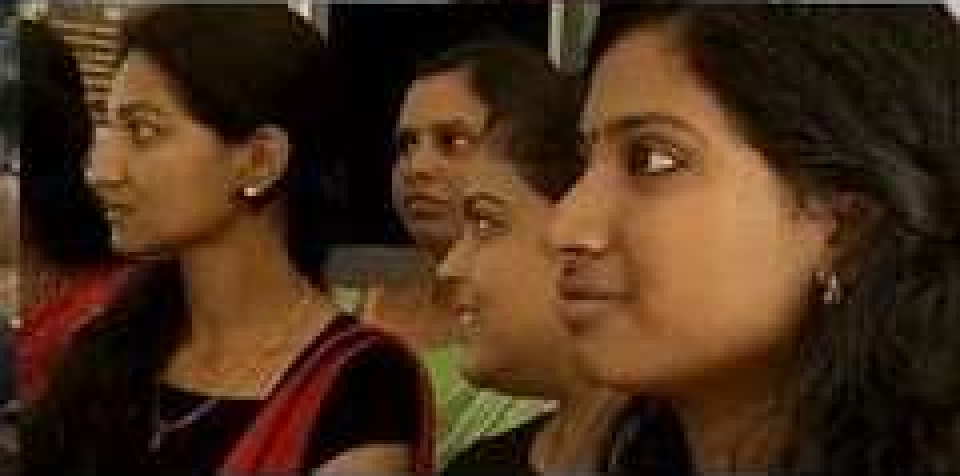
Challenges Faced

1. CROWD MANAGEMENT

- Donors waiting for 3-4hrs
- Lack of privacy
- Difficulties in counselling
- More adverse donor reactions
- Space constraints in post donation area

Resolution

- Security staff posted by around 4pm
- Restricted entry into centre
- Help from Volunteers of Blood Donation Forum
- Donor Selection Criteria announced briefly
- More Nursing staff recruited from other departments



Blood Mobile



2. STAFF FATIGUE

- Errors in documentation
- Suboptimal care for donors



3. EXHAUSTION OF CONSUMABLES

- Records scrutinised every 15-30mins
- Notified off- duty staff to report
- Staff rescheduling
- Additional staff at screening & component separation
- Volunteers helped in transportation from main store
- local purchase with immediate effect

Volunteers supplied food & water to the crowd



4.LIMITED CAPACITY FOR STORAGE OF BLOOD COMPONENTS

- Excess donations
- Very few transfusions

- Collected contact number from those who could not donate on the day, briefed about the situation, advised to return after few days if received call from blood bank
- Offers from other blood centres turned away since we had sufficient stock

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5. COMMUNICATION

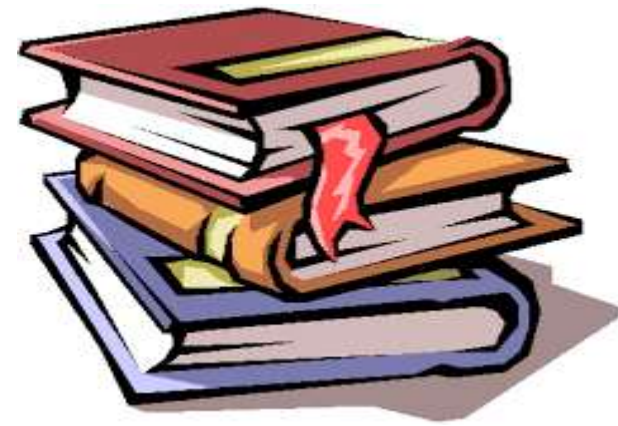
- Media continued to issue appeals for donation even after the donor influx exceeded the centre's ability for collection & processing
- Phone calls from donors all over india & abroad enquiring about the need for donation
- Informed media about inventory status
- Convinced donors to make donation later for maximum utility

Take Home Message

- Communicate with hospital staff to assess the need for blood
- If more blood needed, transport from nearby centres rather than emergency donations
- Control the excess donations
- Clear communication with media about status of inventory
- Staff contact information readily available & updated
- Volunteers assigned for assisting the staff
- Ensure adequate supply of consumables
- Elective surgeries may be postponed if needed



References



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- Impact of the May 12,2008,earthquake on blood donations across five Chinese blood centers,Transfusion 2010
- AABB Disaster Operations Handbook October 2008
- Evaluation of blood supply operation and infectious disease markers in blood donors during the Egyptian revolution, Transfusion 2012
- Revisiting blood transfusion preparedness:experience from the BAM earthquake response journal of Emergency and Disaster Medicine



THANK YOU