

Mirror of the Life Line-The Blood Mobile Bus: Review of Voluntary Blood collection at Tezpur Medical College & Hospital, Tezpur, Assam, India. (An Institutional and Personnel Experience)

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Abstract: *The mobile bus supplied by National AIDS control Organization throughout country to Government and NACO supported blood banks to increase the no of VBD camps to avoid difficulties faced by Medical Colleges and District blood Banks in the remote areas of the country. Material and method: The study was carried out in Tezpur Medical College and Hospital, Tezpur in retrospective manner from a period of two years, 2019 and 2020. It was noticed that constraints faced by general OPD camps by using conventional method was overcome, while the most sophisticated first class mobile bus was used. Material required from normal VBD camps like banners, posters, donor beds etc greatly reduced and increased no of blood collection recorded, using low economy and high efficacy. Results: The study was carried out in our blood bank. There is increased number VBD camps and increased of collection was noticed in both the years 2019 and 2020. Discussion and conclusion: Using blood mobile bus for OPD/VBD camps is most essential today blood bank practice to save man power and money. We strongly recommend updating the present model of this blood mobile to attract and encourage new upcoming donors who used to come close by and waiting for “Selfie” with the bus and to encourage the other.*

Keywords: Voluntary blood donors, outdoor blood camp, National AIDS control Organization

1. Introduction

The modern and most sophisticated way of attending outdoor voluntary blood collection camp is using the Blood mobile Bus. The mobile bus supplied by National AIDS control Organization throughout country to Government and NACO supported blood banks, FRU etc. to facilitate and encourage the Voluntary donations across the country. Most of the donor organization run by different socio-economic NGO's are not so well funded to organized well equipped camp at all the time efficiently due lack of sufficient resource. The Third Phage of NACO has decided to deliver this wonderful item and thereby helped the mother blood bank and FRU's. This is a specific facility assisted, fully Air condition, air suspension bus in order to collect in a most hygienic and scientific way to prevent donor reaction, donor selection as well as storage and transfer within stipulated time saving money and safety to blood bank and donor organization. It is used to collect and organize in huge well located prominent public places and rotator schedule for “**Regular, repeated, voluntary, non-remunerated**” donors are never missed at their regular interval. And regular donor can plan his/her blood donation is scheduled on next due date at the specific venue as scheduled routine near to his/her near the office/bank/institute/auditorium etc.

The present study was carried out in present status of data on utilization of Blood Mobile with assisted facility to voluntary blood donor motivation, collection and utilization and to compare adverse donor reaction in comparison to open small camps in nursery school, football clubs, badminton room, prayer room where most of the crisis of open air, open light, ventilation, “No Bijuli” (No Current-

No ceiling fan etc) to encounter to help and support, comfort to the valued voluntary donor which is due.

2. Material and Methods

The study is a retrospective and carried out in the Government and NACO supported Blood Bank at Tezpur Medical College and Hospital, Tezpur using blood mobile bus in comparison to collected previously. With respect to the number of blood donation camps, number of blood units collected, methodology and guideline framed by NACO and NBTC was followed. The difficulties thus occur was noted.

The period of data collection was included from Jan to Dec, 2019 and 2020 consecutively (retrospectively)

The interior description of the Vehicle

This is mobile bus “**Blood bank on “Wheel”**”. Whole of the design and planning looks like a small blood bank. This spectacular motor vehicle is designed keeping in view of entire blood donation process medically safe and effective so as to keep control and enable entire process in one key one lock system. Entire area is divided to four different areas to facilitate without disturbing other in a well equipped manner so as to carried out inbuilt function which is mainly divided into



- 1) Pre –donation and waiting for donor: There two different doors. One manual on key to the pilot or the driver. Other pneumatic or hydraulic adjust door on soft closer for the staff and the valued donor. The usual capacity six. The counselor and the staff have to help the donor to filled up mandatory donor questionnaire, consent signature and other necessary protocols as per norms. There is (CCTV) LCD display for regular monitoring for audio-visual display etc.
- 2) Medical area: This area is provided to Medical Officer on duty to carry out medical examination for donor fitness, asking disease history, physical examination, checking pulse, B.P record. Donors are allowed to donate only after medical officer declared and signed in relevant paper certified as “Fit and Healthy” donor.
- 3) Phelotomy area: The interior of the bus which is most surgically, medically, neat and cleaned area and is looks like “Operation” Theatre where four no.of donors can donate without any difficulty with four no.of sophisticated donor couches. Each donor couches has its own blood collection monitor, B.P. machine, tray for surgical dressing for phlebotomy area. Each blood collection monitor is adjusted maximum amount of blood collection control digitally up to 350ml and 450 ml. Along with, the tube sealer is provided to seal blood bags as much we wish. Tube sealer provided a tremendous service in preventing air borne infection and closed surgical cleanliness. The special donor couch can be adjusted to reclined and flattened as per requirement to observe, monitor to donor if any donor takes place. The area is covered with Big LCD monitor, playing devotional songs, games and sports events, cinema etc. for calming, soothing and make up fresh mood to donor to donate for uneventful outcome.
- 4) Post donation and refreshment area: This area having usual capacity of four donors to get, relax and refreshment, tokens, certificate etc. There one domestic refrigerator, microware cooker, warmer, electric kettle etc to serve donor refreshment. Along with these there two blood bank refrigerator for collection, storage and transport collected blood bags maintaining 4-8^o degree and 22^o degree (cold chain) maintenance.

The total design and planning of blood mobile bus is combat external environmental temperature and pressure and provide total required air conditioned status to carry out total

blood bank activity outdoor at any place at any time or as desired.

Special about the Bus Engine and capacity

This special bus is well equipped with two different engines. The important bus engine is a very powerful either petrol/diesel which performs the main activity of the bus to carry out such heavy weight machines plus man power to long and remote places of state without break. But road status should be non gravel, motor able big road like National highway etc. it is not recommended for small gravel road where bus can't be return.

Usually following equipments and instruments are inbuilt with various types of blood mobile from state to state and country to country. Many of the overseas and affluent country and their National Boards and Organization build very sophisticated mobile buses. Our model is Blood Mobile Bus model is JC 12HD bearing chassis No.MEBCP61200910A016, Engine No.21873831. (NACO to Govt. of Assam).

A. Driver Area

Fire Extinguisher 2 Kg: 1
 LCD Screen 22" with remote: 1
 DVD: 1
 P.A System with Siren: 1
 Chemical Toilet: 1
 GPS connection facility.

B. Donor Area

Donor Couch: 4
 Hemo Seal (A): 2
 Hemo Seal (M): 2
 Hemo light plus: 4
 Oxygen Cylinder: 2
 LCD Projector: 1
 Dustbin: 1

C. Refreshment Area

Microwave Oven: 1
 Refrigerators 165 lts: 1
 Stainless Steel Sink: 1

Other important second supported engine is also run on diesel to carry out the main power generator function to provide air-conditioning, running the refrigerators to provide necessary electricity to run for stored blood can be kept under necessary temperature.

The important outlook of this generator is that it can be off mood while not in use. Again in case of generator mal functioning bus may be in idle mood and air conditioning can be run by batteries/by primary engine. This is possible when diesel is nearly 50% or more (minimum 250 L) as the generator does not run below half of its capacity (half tank).

Many times, there is also provision of petrol generator to provide necessary electricity run the donor couches separately along with blood collection monitor, the blood storage refrigerators, domestic refrigerators, microwave, food incubators etc.

Where the facility of 32A current is available near the collection site, the function of the petrol engine is stopped. It is seen that there is 50 mtr long electric wires with plug socket, in built, is supplied with blood mobile bus usually to save fuel for alternating source of connection.

The most important inverter charge during and inter current motion the required interior bus lighting system is maintained by itself.

The approximate time required for one donor is about 10-12 min on the donor couch, so about 24 donors can donate per hour which great benefit both for the donor organization and blood bank concerned.

So, entire the OPD camp in a day (or any circumstances at least for 5-6 hrs./ a day in an well organized) area can collect, store about 80-100 units of blood bags or may be more.

Keeping in view benefit and the outcome of profit some important issues like donor adverse reaction, very difficult phlebotomy, surgical fitness of phlebotomy area, wastage of time and money are proportionate reduced.

3. Observations and Results

The blood mobile has collected huge number of blood within very short time even in extreme climatic condition.

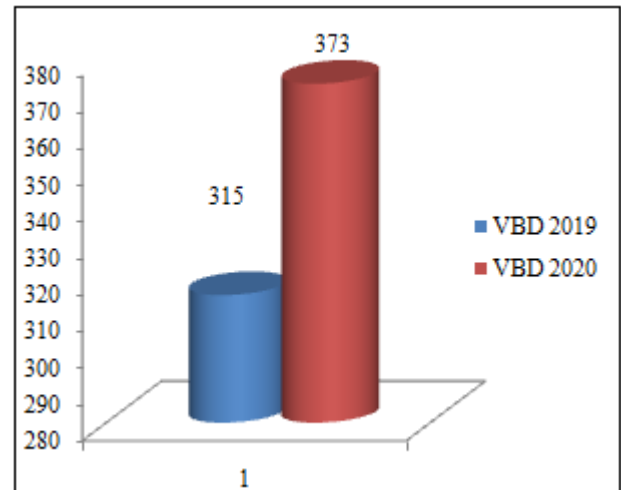


VBD collection by Blood mobile bus on 2019

S. No	No. of VBD	Total Collection
1.	8 no. of OPD camps	315 units

VBD collection by Blood mobile bus on 2020

S. No	No. of VBD	Total collection
1.	11 no. of OPD camps	373 units



Graphical representation of the total no cases both the year: 2019 and 2020

4. Discussion

Our medical college blood bank took a sharp rise in OPD/ voluntary blood donation with this mobile bus. The total collection has reached to greater dimension with the assisted facility within short span of time. In terms of percentage it was 10% on an average basis from Jan 2019 to Dec 2019. The extra cost that was incurred using this bus service was not much with support by NACO and State AIDS control organization.



Suchet Sachdev, Lakhvinder Singh et al, found out a fairly good number collection using blood mobile bus from 2012-2014, and concluded that sufficient number can be collected if planned properly at PGIMER, Chandigarh.

Nevertheless, there was minor problem like adverse donor reaction in hot summer, humid climatic condition. We encountered several adverse donor reaction issues after receiving refreshment outside the bus.

Again it disappeared while in early winter and spring season. It may be understand that environmental and adverse climatic condition may certain role. Few, donor organization has arranged their pre donor counseling, donor fill up forms, and set up post donation refreshment events separately celebrating their various rituals as per social custom outside the blood mobile. Many times there are some co-incidence

of dual or triple programmes simultaneously, like “Students day+cultural event+blood donation” . Again 14th June + sports day” etc.

Maximum care was taken for pre donation camp meeting, donor forms filling process, donor relaxation and refreshments after donation. Few of the donor organization couldn't follow mandatory guidelines for ongoing different programme at a time in spite of strict control, to acclimatize the donor or post donation advice. We put vigilance over and above all adverse circumstances so far possible.

Very comfortable atmosphere was noticed during winter while the outside temperature quite low and the blood mobile has provided a ideal environment to voluntary valued donors.

Advantage of the Blood Mobile vs General camp:

- a) The blood mobile is designed to collect VBD camps in extreme climatic condition in very specific manner to organize, collection and return in time, by saving money, energy during special situation like National, International holidays, Workers day even in summer holiday.
- b) In case small cities, towns and nearby area where collection and transportation in due time can help the blood bank to make different blood components and platelets to maintain inventory in optimum time.
- c) The interior design of the blood mobile helped staffs to collect from the respective donor couches and to maneuver different special function at the same time like observing the collection monitor, withdraw bags and sealed phlebotomy area and put the units in respective. And the same the staff also keep close vigilance on the next donor. So the requirements of man power are less in respect huge number personnel used in manual OPD camps.
- d) Now-a-days many donor organizations prefer this blood mobile in terms of saving huge expenditure costs used for tents, sitting arrangements, space for rent and advertising using big banners. The blood mobile by virtue of its nature is BIG Banner, proving much advertisement while moving and collect 80-100 units within a span of 5-6 hrs. of day. With the much more added facility attract young, enthusiastic, voluntary donor air conditioned, adjustable attractive donor couches forgetting any trouble watching one day cricket/ world cup football on the LCD TV with cool.
- e) We have noticed many who took part in VBD camp wish see the interior of the bus and wants to experience donation. Many young donors used to donate out of excitement and most of the old, experience donor used to donate to save time and to maintain routine. So it becomes a very wonderful experience for new and time, money for old. Really a marvelous creation by modern science and technology.

Mandatory requirements for technical operation:

To conduct the standard running condition of the vehicle it requires a regular maintenance to achieve optimum services at regular time interval which will save money and other fuel efficacy for inter district and state travelling.

This huge bus which is running on dual engine, special battery and special generator requires regular check up in due time with all new national highway regularization acts and services with AMC

Whereas the funding authority is the State AIDS control organization and for Annual maintenance cost is different for the same bus for areas e.g petrol engine, diesel engine, generator and fuel pump for mileage for a routine calendar year (financial year).

Many small and un towards events has to faced by the blood bank staff or even the bus driver where bus is said to be out-of-order for a very minor issue. POL (petrol, oil and other necessary lubricants), battery water, diesel/petrol fuel coupons, engine cleaner service etc and electric, electronic and other digital services are not be interrupted suddenly. Few incidents seen where bus has cover district blood bank services away from the metro city, engine was required immediate repair and staff of said blood bank has to bear the cost and has to wait for long to reimbursement of bill.

So computing all the mandatory and prospective budgetary requirement of blood mobile in a financial year covering all probable costs are done before hand such incidents can be easily prevented and operational guidelines as per manufactures can be resolved.

This heavy duty vehicle needs yearly updated AMC as per manufacture operational manual which desirable for blood bank and the bus.

5. Conclusion

The mirror of the Life Line; the blood mobile bus is magnificent, wonderful and an incredible assets for blood bank in terms of its design, arts, sculpture and very gorgeous outlook to provide high profile modern scientific combine technology of automobile, refrigeration, electric, electronic and other digital services more than intercity luxury coach today. It is a special product of medical, bio medical and other combine research outcome for long time.

Transfusion experts along with automobile, electric, electronic, refrigeration and other techno experts has found out this state-of-the Art model designed as “Blood Bank on Wheel” for today and tomorrow.

Smooth functioning of this special vehicle for yearlong services requires mainly on its regular check up, maintenance through updated AMC under new motor vehicle act and loving care and attention for service provider and service receiver. We expect long life of this vehicle. Inadequate attention may invite huge financial investment for repair may lead to loss of big public property.

Financial help: Nil

Conflict of Interest: None.

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