

# Massive Transfusion Protocol



Medical Practice  
Improvement Project



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Date September 26, 2024

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# Disclosures

I have no financial disclosures



# Learning Objectives

1. What is a Massive Transfusion Protocol ( MTP)

2. Understanding the indication to activate Massive transfusion protocol

3. Tracking and documentation of the MTP

4. Advantages to having an MTP

5. Pitfalls and things to watchout for with MTP



# New Policy

The Massive Transfusion protocol is designed to allow for multiple units of balanced blood products to be dispensed from the Blood bank to the patient rapidly.

Defined: Massive Transfusion is defined as  $> 4$  units of PRBC's in the immediate resuscitation phase or greater than 10 units of PRBC's within a 24-hour period.



# New Policy

Goal is 1:1:1 transfusion 1 unit RBC: 1 Unit FFP:  
1 unit Platelets

(1 bag of platelets is 6 units)

Call Code RBC and then the Blood bank will send  
4 units of RBC, 4 units of Plasma and 1 bag of  
platelets

Each additional cooler will come every 15  
minutes with 6:6:1



# New Policy

Come

Blood will come every 15 minutes until you tell the blood bank to stop

Send

The unit will need to send a “runner” to drop off empty coolers and pick up full ones

Remember

Remember to send a type and crossmatch

- The first cooler will be uncrossmatched blood
- Need to switch to type specific so we do not run out of O blood type



# New Policy

- Male MTP patients may have O positive blood.
- (UnCrossmatched)
- Female patients of reproductive age under age 65  
...kidding
- Age 50 need to have O negative blood
- (Uncrossmatched)
- With the subsequent coolers they need to go to type specific blood

How do we  
know to  
Activate MTP ?

Trauma uses two scoring  
systems

Shock index

ABC score ( Assessment  
of Blood Consumption)



# Shock Index

Shock Index:

This is calculated by dividing the heart rate by the systolic blood pressure. HR/SBP

A normal value is in the range of 0.5 to 0.7.

If the "shock index" is greater than 0.9 there is a high potential for bleeding.

Ex normal BP 120/60 HR 80       $HR/SBP = 80/120 = .67$   
→ good

Ex trauma patient BP 74/40 HR 130       $HR/SBP = 130/74 = 1.76$  → bad



# ABC Score

Assessment of Blood Consumption (ABC) scale consisting of 4 parameters:

- Penetrating mechanism (no = 0, yes = 1)
- Systolic blood pressure  $\leq 90$  (no = 0, yes = 1)
- Heart rate  $\geq 120$  (no = 0, yes = 1)
- Positive FAST (no = 0, yes = 1)



# ABC Score

The score for each is added and indicate the % chance that the MTP will be needed.

ABC Score	% requiring MTP
0	1%
1	10%
2	41%
3	48%
4	100%

Activation of the MTP will occur when any two of the ABC criteria are met for a trauma patient.



# Documentation

- Tracking form is attached to the MTP it is Appendix A

**Appendix A**

**Massive Transfusion Protocol  
Blood Product Units Tracking Form  
St Mary's Medical Center  
Apple Valley**

**Patient Information:**

- Patient Name: \_\_\_\_\_
- Medical Record Number: \_\_\_\_\_
- Date of Admission: \_\_\_\_\_
- Date/Time of Protocol Initiation: \_\_\_\_\_

**Blood Products Transfused:**

Blood Product	Number of units transfused	Total Units
Packed Red Blood Cells (PRBCs)	_____	_____
Fresh Frozen Plasma (FFP "Fresh Frozen Plasma") (FFP)	_____	_____
Platelets	_____	_____
Cryoprecipitate	_____	_____
Other (Specify)	_____	_____

["number of units transfused" can be documented in tally marks, sum up tally marks to get "total units" number]

**Transfusion Details:**

- Indication for Transfusion: \_\_\_\_\_
- Ordering Physician: \_\_\_\_\_
- Transfusion Nurse: \_\_\_\_\_
- Circumstances Leading to Protocol Activation: \_\_\_\_\_
- Response to Transfusion: \_\_\_\_\_

**Documentation:**

- Nurse/blood bank Signature: \_\_\_\_\_
- Time: \_\_\_\_\_



# Documentation

Will need to check all the units as we always have

The appendix A tally sheet will help on the back end evaluating and improving the process

- It answers vital questions
  - How well did we do with the ratio?
  - How quickly did we get the blood products?
  - Where there any delays or barriers to getting the products or ratios?



# Things to Remember

Please give Calcium 1 gram with each cooler

Please remember to send Type and Crossmatch to lab

Please remember to fill out tally sheet

- Remember to give reversal agents if patient is on blood thinners
  - Detailed section on what agent to give and when.
- Please transfuse 1 RBC then 1 FFP then repeat. DO NOT want to give all the blood and then the products. Patient will be coagulopathic



# Things to Remember

Platelets have to “drip” in can not run them through the rapid Belmont or Level 1

Need Nursing initiative

- ALL OR nurses, ICU Nurses, ED Nurses, and rapid response nurses know how to set up, prime and use these devices
- I / other surgeons can not stop operating to show people how to set up the equipment
- This is what really saves lives.....working together as a team and everyone knowing what to do.

We will need to put the tally sheets in all the units

- I need a volunteer to help and to teach everyone about that process



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