



Blood Administration

This module will demonstrate:

- How easily a mistake can occur.
- The Blood Product Pick-Up Request form.
- The Blood Administration Record.
- What actually occurs during a transfusion reaction.
- How following policy can prevent human error from turning into human tragedy.



A Nurse's Story:

It was a busy trying night. **The call bell was going off constantly.** I was going back and forth trying to take care of everything, and I had a patient who was supposed to get blood. **I was rushed and interrupted repeatedly.**

I filled out the blood pick up slip, stamped it, and stuck in my pocket. About 2 hours later, I finally made it to the blood bank to pick up the blood.

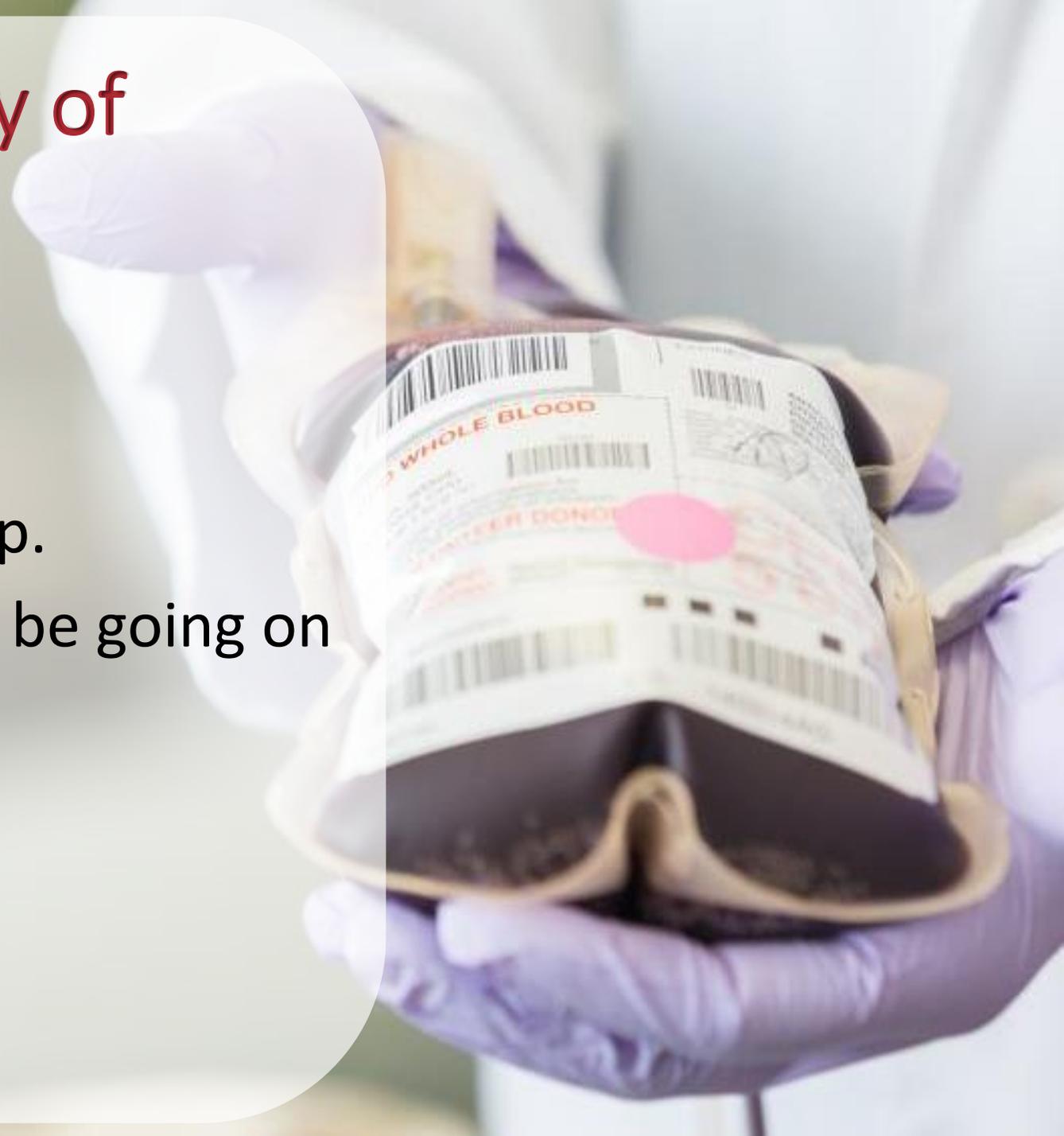
I went back to the floor, got another nurse to verify the transfusion with me, and tried to hang the blood. We started over on the blood administration from four times and because of this **we both missed checking the patient's armband.**

I monitored the patient for 15 minutes and he had begun complaining of numbness in his hands. I discontinued the blood and called the blood bank to report a possible reaction. The blood bank told me that they had not released blood for my patient. My heart stopped. I thought **because of my mistake the patient could die.**



Can you identify with any of these statements?

- I am interrupted repeatedly.
- We are short staffed.
- The call bell goes off nonstop.
- Something usually seems to be going on with all of my patients.



Blood administration
is a high risk
procedure...
no matter how often
you do it!



A Nurse's Story (part 1):

I had probably given blood 100 times before without a problem. I had a post-surgical patient, Mr. Jones, who was supposed to get blood. The lab called with critical H&H. I notified the doctor and was told to transfuse the blood. **I had seven patients that night and there was something wrong with all of them.** I had one getting a potassium bolus who had a problem with his IV burning, so I had to stop it and flush it. Then I had one getting ready for surgery. He had pulled the IV out, so I had to take care of that as well. **The call bells were going off constantly** and most of them were for my patients. It took me a couple of hours to get to the point where I could do the transfusion. When I went to get the stamp plate for the pickup slip, I saw Mr. Jones' card and **the call bell rang again; that distracted me. I picked up what I thought it was his card and stamped it.** There was something going on with my other patient so I just stuck the pickup slip in my pocket to take care of the problem.



Blood Administration Steps

- The process of Blood Administration begins with Phlebotomy.

HOWEVER

- A blood sample **CANNOT** be drawn without verification of the patient armband.



Blood Administration Steps

- Phlebotomist or nurse draws the patient sample after verifying:
 - Patient Name
 - Medical Record Number
- Verify this information by clicking on the appropriate areas of the patient armband label.

Jones, David	03/25/99
MR# 123456789	41Y M 7
Rubin, Bill E.	
OPI	123456789-1234

 Medical Records #



Blood Administration Steps

- Information on the Phlebotomy Label must also be verified.
- The label should be completed and affixed at the bedside, and include:
 - Patient name
 - MR# (Unique Identification #)
 - Date sample drawn
 - Time drawn
 - Initials of the person drawing the sample



Becton Dickinson VACUTAINER Systems L10262-00 Franklin Lakes NJ 07417-1885		
Jones, David A.	10/07/58	*403 CGU
123456789	Dr. J Smith	
03/30/05	10:37 am	SH
366432-8D708-EXP 3-00		

No Additive

Vacutainer®
Brand • Sterile Interior

Patient Stamp Plate:

Nurse must verify the Blood Pick-Up Request Form with the Physician Order PRIOR to blood pick-up.

Correct Patient Stamp Plate

CLINICAL IMMUNOLOGY Medical Center of Central Georgia Macon, Georgia 31203 Douglas J. Beckman, M.D., Director	BLOOD PRODUCTS PICK-UP REQUEST	Check Type of Component	Patient Name	Medical Records #
		<input checked="" type="checkbox"/> RBC (Packed Cells) <input type="checkbox"/> Fresh Frozen Plasma <input type="checkbox"/> Platelets <input type="checkbox"/> Pediatric Aliquot ___ cc <input type="checkbox"/> Cryoprecipitate <input type="checkbox"/> Rh Immune Globulin <input type="checkbox"/> Autologous Blood <input type="checkbox"/> Factor VIII <input type="checkbox"/> Factor IX <input type="checkbox"/> Other	JONES, DAVID ROOM 457 61 MR 345678901 CPI 345678901-1234 AGE - 41 DOB - 02/06/42 ATD, MD - RUBIN, BILL E. FIN, CLASS - X ADMIT DATE - 03/28/99	
Special Attributes: <input type="checkbox"/> CMV Negative <input type="checkbox"/> Irradiated <input checked="" type="checkbox"/> Slide Negative <input type="checkbox"/> Directed Product		Order entered by <i>Michelle Roberts, MR</i> <i>Julie Evans, RN</i> RN/CPH *Pickup Request marked with MR within 24hrs *Person picking up product must be signed at Blood Bank		



Blood Administration Steps

The Medical Receptionist (or person entering the physician's blood order) completes the Blood Product Pick-Up Request Form at the time the order to give blood is entered.



CLINICAL PATHOLOGY Medical Center of Central Georgia Macon, Georgia 31203 Douglas J. Erickson, M.D. Director	BLOOD PRODUCTS PICK-UP REQUEST	Check Type of Component desired:		Patient Name	Medical Records #
		<input checked="" type="checkbox"/> RBC (Packed Cells)	_____	JONES, DAVID	
		<input type="checkbox"/> Fresh Frozen Plasma	_____	ROOM - 403 03	
		<input type="checkbox"/> Platelets	_____	MR - 123456789	
		<input type="checkbox"/> Pediatric Aliquot _____ cc	_____	CR# - 123456789-1234	
		<input type="checkbox"/> Cryoprecipitate	_____	AGE - 41 DOB - 10/07/58	
		<input type="checkbox"/> Rh Immune Globulin	_____	ATD, MD - RUBIN, BILLE	
		<input type="checkbox"/> Autologous Blood	_____	FIN. CLASS - X	
		<input type="checkbox"/> Factor VIII	_____	ADMIT DATE - 03/25/05	
		<input type="checkbox"/> Factor IX	_____		
		<input type="checkbox"/> Other _____	_____		
		Special Attributes:			
		<input type="checkbox"/> CMV Negative	<input checked="" type="checkbox"/> Irradiated		
		<input checked="" type="checkbox"/> Stable Negative	<input type="checkbox"/> Directed Product		
				Code entered by: _____	
				*Pickup Request verified with MD written order	(RNLP)
				*Perchloric acid (Must be signed if Blood Bank)	

Blood Administration Steps

The Medical Receptionist signs the Blood Product Pick-Up Request Form and adds it to the patient chart in front of the physician's blood order.

CLINICAL PATHOLOGY
Medical Center of Central Georgia
Macon, Georgia 31203
Douglas J. Erickson, M.D., Director

BLOOD PRODUCTS PICK-UP REQUEST

Check Type of Component desired:

- RBC (Packed Cells)
- Fresh Frozen Plasma
- Platelets
- Pediatric Aliquot ___ cc
- Cryoprecipitate
- Rh Immune Globulin
- Autologous Blood
- Factor VIII
- Factor IX
- Other

Special Attributes:

- CMV Negative
- Indicated
- Bicidal Negative
- Directed Product

Patient Name: JONES, DAVID
Room: 403 02
MR: 123456789
CPI: 123456789-1234
AGE: 41 DOB: 11/07/58
ATD: MD - RUBIN, BILLIE.
FIN. CLASS: X
ADMIT DATE: 03/25/01

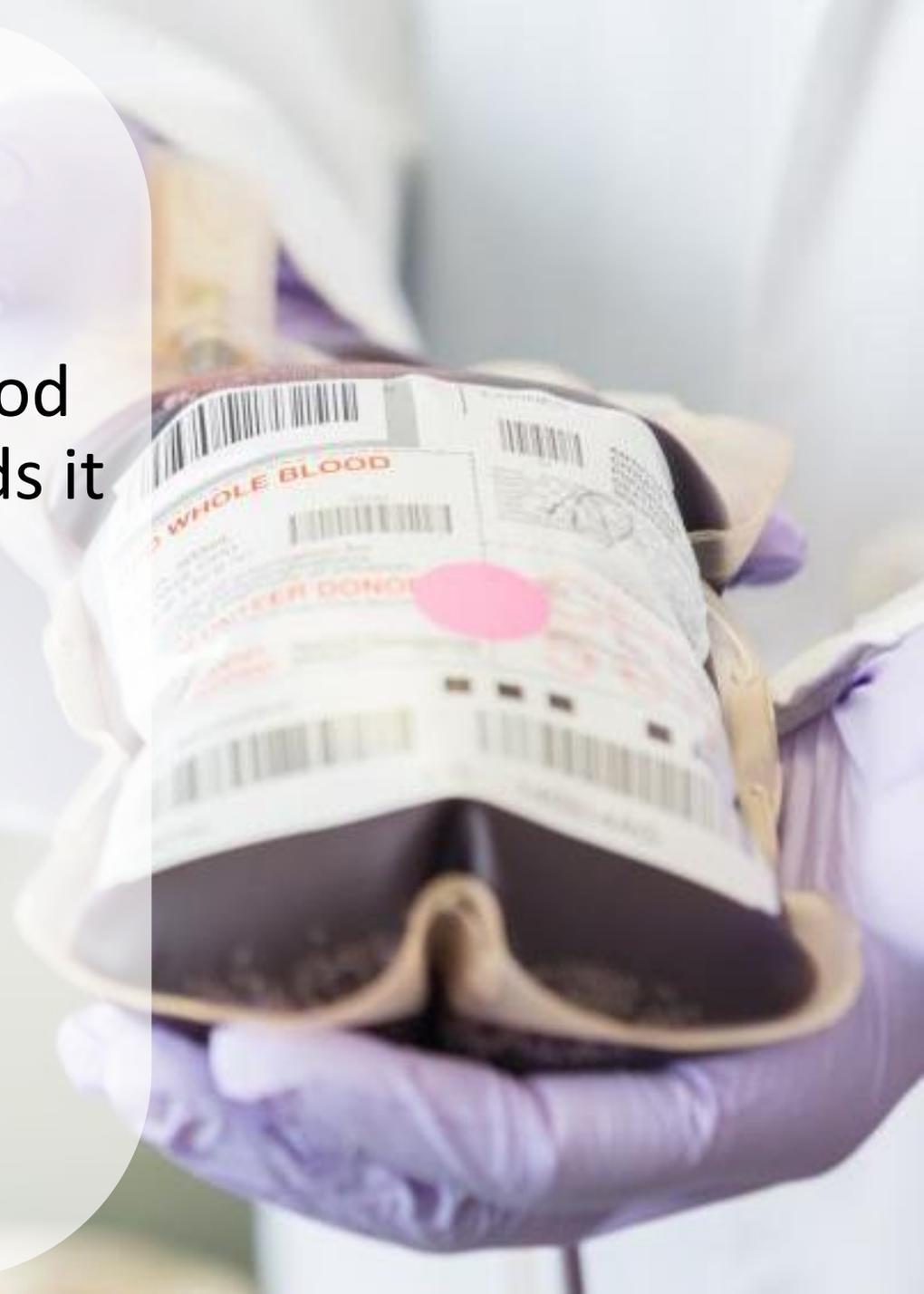
Medical Rec: Mick Roberts, MR

FORM 10/98

*Pickup Request printed with 800-number order

*Prescription pickup product must be signed if Blood Bank

MR's Signature



Blood Administration Steps

The nurse verifies the Blood Product Pick-Up Request Form with the physician's blood order, prior to going to the Blood Bank, then signs the form.

CLINICAL PRODUCT
Medical Center of Georgia
Macon, Georgia 31203
Douglas J. Erickson, M.D.
Z6/156

CLINICAL PRODUCT
BLOOD PRODUCTS PICK-UP REQUEST

Check Type of Component desired:
 RBC (Packed Cells)
 Fresh Frozen Plasma
 Platelets
 Pediatric Aliquot ___ cc
 Cryoprecipitate
 Rh immune Globulin
 Autologous Blood
 Factor VIII
 Factor IX
 Other

Special Attributes:
 CMV Negative Irradiated
 Stable Negative Directed Product

RECEIVED CENTER OF DONOR SERVICES
MCOO
Date Recd: _____
C 4/20/10 11:00 AM

GIVE 2 UNITS RBC
IRRADIATED
LABS: H&H IN AM
Buddy

CLINICAL PRODUCT
Medical Center of Georgia
Macon, Georgia 31203
Douglas J. Erickson, M.D.
Z6/156

Check Type of Component desired:
 RBC (Packed Cells)
 Fresh Frozen Plasma
 Platelets
 Pediatric Aliquot ___ cc
 Cryoprecipitate
 Rh immune Globulin
 Autologous Blood
 Factor VIII
 Factor IX
 Other

Special Attributes:
 CMV Negative Irradiated
 Stable Negative Directed Product

Patient Name: JONES, DAVID
Room: 408 62
MR: 123456789
CPI: 123456789-1234
AGE: 47 DOB: 10/07/58
ATD: MD - RUBIN, BILL C.
FIN. CLASS - X
ADMIT DATE - 03/25/05

Order written by: Mike Roberts, MD

CLINICAL PRODUCT
Medical Center of Georgia
Macon, Georgia 31203
Douglas J. Erickson, M.D.
Z6/156

GIVE 2 UNITS RBC
IRRADIATED
LABS: H&H IN AM
Buddy

Check Type of Component desired:
 RBC (Packed Cells)
 Fresh Frozen Plasma
 Platelets
 Pediatric Aliquot ___ cc
 Cryoprecipitate
 Rh immune Globulin
 Autologous Blood
 Factor VIII
 Factor IX
 Other

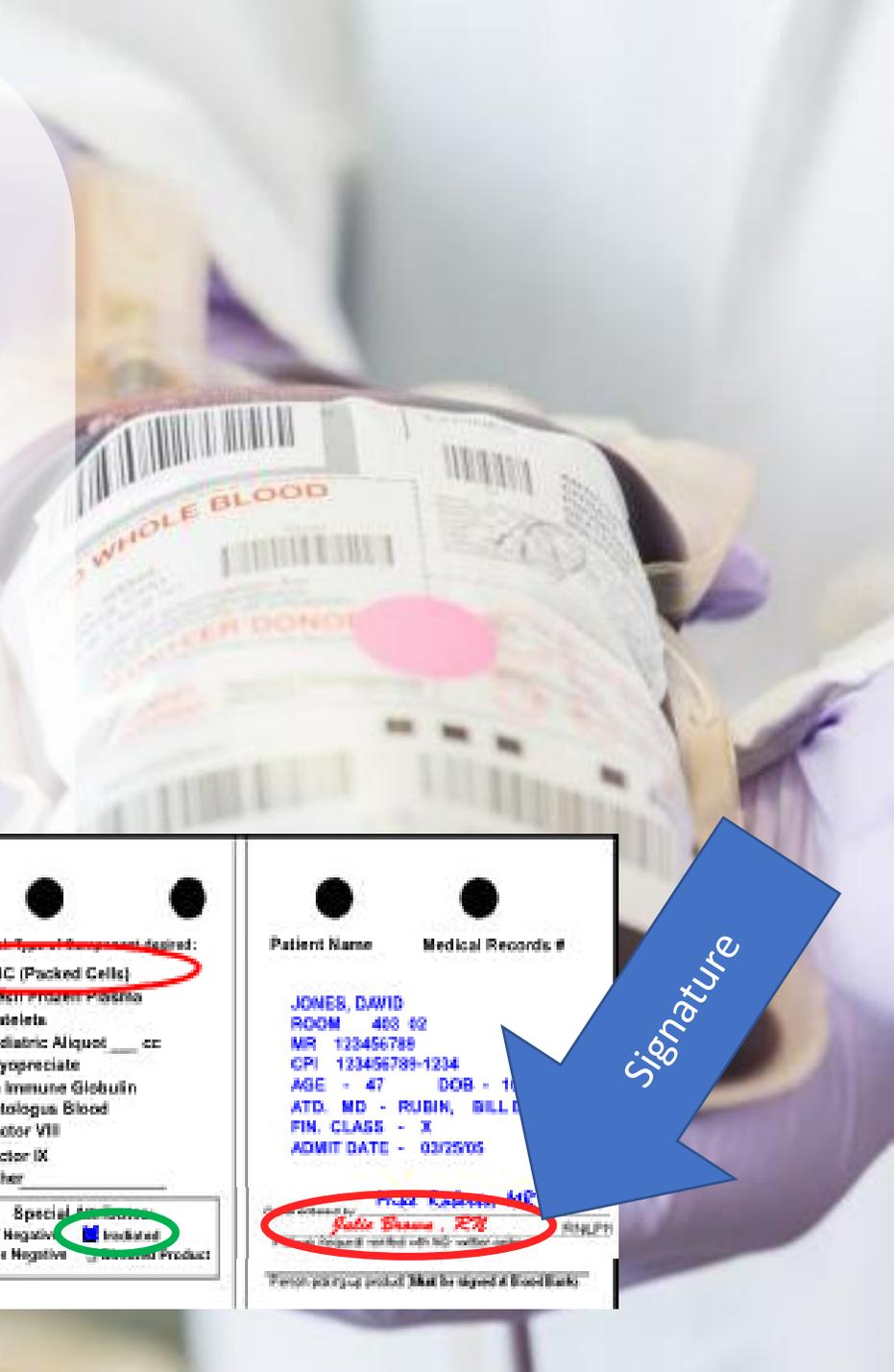
Special Attributes:
 CMV Negative Irradiated
 Stable Negative Directed Product

Patient Name: JONES, DAVID
Room: 408 62
MR: 123456789
CPI: 123456789-1234
AGE: 47 DOB: 10/07/58
ATD: MD - RUBIN, BILL C.
FIN. CLASS - X
ADMIT DATE - 03/25/05

Order written by: Mike Roberts, MD
Jodie Shum, RN

CLINICAL PRODUCT
Medical Center of Georgia
Macon, Georgia 31203
Douglas J. Erickson, M.D.
Z6/156

Signature



Blood Administration Steps

The person picking up the blood signs the Blood Product Pick-Up Request Form **at the Blood Bank**.

CLINICAL IMMUNOLOGY
Medical Center of Central Georgia
Macon, Georgia 31203
Douglas J. Endrey, M.D. Director

BLOOD PRODUCTS PICK-UP REQUEST

Check Type of Component desired:

- RBC (Packed Cells)
- Fresh Frozen Plasma
- Platelets
- Pediatric Aliquot ___ cc
- Cryoprecipitate
- Rh Immune Globulin
- Autologous Blood
- Factor VIII
- Factor IX
- Other

Special Attributes:

- CMV Negative
- Irradiated
- Slide Negative
- Directed Product

Order released by: Maria Cabral

Order received by: Jodie Shum, RPT

Signature: Jodie Shum, RPT

Patient Name: JONES, DAVID
Medical Record: ROOM 488 82
MR 123456789
GPI 123456789-1234
AGE - 47
ATD, MD - R
FIN, CLASS -
ADMIT DATE - 03

Preparation and storage instructions: **See Back**

Signature



Blood Administration Steps

Incomplete or incorrect Blood Product Pick-Up Request forms will not be accepted at the Blood Bank. Blood Will not be released, and the person who came for the blood will be asked to return to the unit to complete a new Blood Product Pick-Up Request form.



A Nurse's Story (part 2):

Dealing with patient's calls took about 20 minutes, but I finally managed to find some time to pick up the blood. **I never looked at the pickup slip again.** I just went down to the blood bank. **Normally if you go down to the blood bank with the wrong pickup slip, they tell you, "we don't have blood order for this patient."**

As luck will have it that night, **both Mr. Jones and the patient's name on the blood pickup slip I brought had blood ordered.** When I got back to the floor, I asked another nurse to check off for the transfusion. Something was going on so we couldn't start the transfusion right that minute. Both of us finally got free. I looked at the blood in Mr. Jones' room. **We started the check off to start over calling out the numbers several times.** Half way through checking the form, the other nurse got a page that just said "help now" with a room number. We didn't know the patient was coding or fallen out of bed. So we stopped and responded. **We were interrupted this way about four times.** Some of the calls were things that could have waited if the medical receptionist could have evaluated what was going on. By the time we got to the bottom of the administration form, we couldn't remember what we've checked or what we hadn't. **We both missed checking the patient's armband.** Just as we were finishing, the other nurse told me she had a unit to hang when I finished, and she left. I stayed with my patient and hung the blood. I told Mr. Jones what signs and symptoms to look for and report.



Blood Administration Precaution

The issues in this nurse's story were highlighted for you. But, there is also a policy that cautions nurses to notify the medical receptionist that a high risk procedure (like hanging blood) is taking place in a patient's room in order to avoid nonemergency calls.



Blood Administration Record

We will now examine each part of the form.

The image displays a blood administration record form and a blood bag. The form is divided into sections labeled Patient Data, A, B, and C, and Blood Product. The blood bag is labeled 'WHOLE BLOOD' and 'DONOR'.

Section	Description
Patient Data	Section for patient information, including name, ID, and other details.
A	Section for patient history and physical examination.
B	Section for blood product information, including lot number, expiration date, and volume.
C	Section for blood administration details, including date, time, and signature.
Blood Product	Section for blood product information, including lot number, expiration date, and volume.



Blood Administration Record

Patient Data Section: Verify data contained here against the patient armband.

PATIENT DATA

PATIENT NAME: JONES, DAVID
MR #: 123456789
CPI #: 1234567891234
LOCATION: COU
ABO/Rh: B POSITIVE
SEX: M
BIRTHDATE: 02/06/42
ANTIBODY SCREEN: PHYSICIAN: RUBIN, BILL E. MD
TECH: MC
ACC#: A12345

Routine Transfusion: Complete Parts A,B, and C
 Intraoperative Transfusion: Complete Part A&B Only. See Anesthesia Record

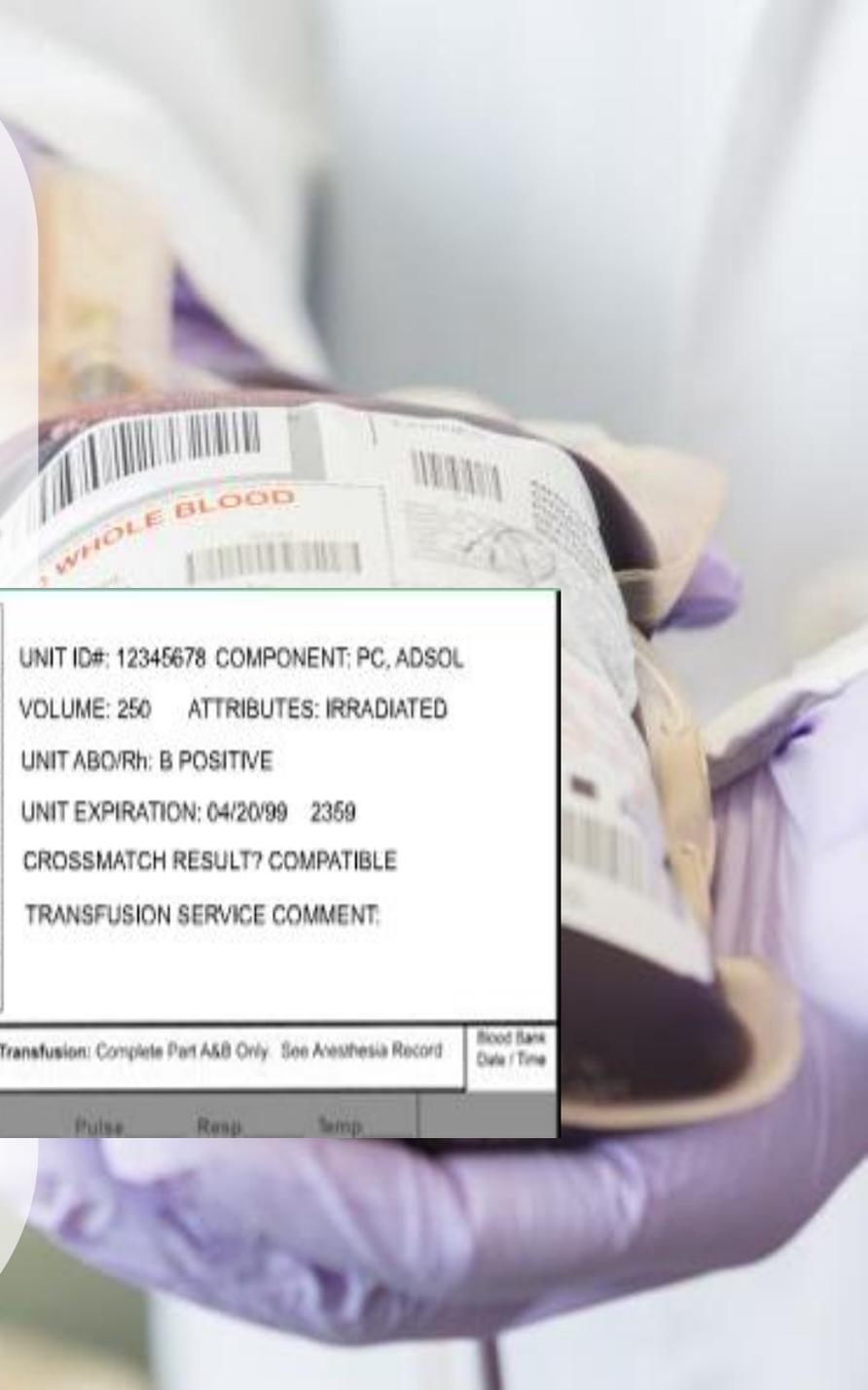
Blood Bank Date / Time

UNIT DATA

UNIT ID#: 12345678 COMPONENT: PC, ADSOL
VOLUME: 250 ATTRIBUTES: IRRADIATED
UNIT ABO/Rh: B POSITIVE
UNIT EXPIRATION: 04/20/99 2359
CROSSMATCH RESULT? COMPATIBLE
TRANSFUSION SERVICE COMMENT:

Routine Transfusion: Complete Parts A,B, and C
 Intraoperative Transfusion: Complete Part A&B Only. See Anesthesia Record

Blood Bank Date / Time



Blood Administration Record

Blood Product Section: Verify data contained here against the blood tag and bag.

PATIENT DATA

PATIENT NAME: JONES, DAVID
MR #: 123456789
CPI #: 1234567891234
LOCATION: COU
ABO/Rh: B POSITIVE
SEX: M
BIRTHDATE: 02/06/42
ANTIBODY SCREEN: PHYSICIAN: RUBIN, BILL E. MD
TECH: MC
ACC#: A12345

UNIT DATA

UNIT ID#: 12345678 COMPONENT: PC, ADSOL
VOLUME: 250 ATTRIBUTES: IRRADIATED
UNIT ABO/Rh: B POSITIVE
UNIT EXPIRATION: 04/20/99 2359
CROSSMATCH RESULT? COMPATIBLE
TRANSFUSION SERVICE COMMENT:

Routine Transfusion: Complete Parts A,B, and C Intraoperative Transfusion: Complete Part A&B Only. See Anesthesia Record

Blood Bank Date / Time

PATIENT DATA

PATIENT NAME: JONES, DAVID
MR #: 123456789
CPI #: 1234567891234
LOCATION: COU
ABO/Rh: B POSITIVE
SEX: M
BIRTHDATE: 02/06/42
ANTIBODY SCREEN: PHYSICIAN: RUBIN, BILL E. MD
TECH: MC
ACC#: A12345

UNIT DATA

UNIT ID#: 12345678 COMPONENT: PC, ADSOL
VOLUME: 250 ATTRIBUTES: IRRADIATED
UNIT ABO/Rh: B POSITIVE
UNIT EXPIRATION: 04/20/99 2359
CROSSMATCH RESULT? COMPATIBLE
TRANSFUSION SERVICE COMMENT:

Routine Transfusion: Complete Parts A,B, and C Intraoperative Transfusion: Complete Part A&B Only. See Anesthesia Record

Blood Bank Date / Time

Blood Administration Record

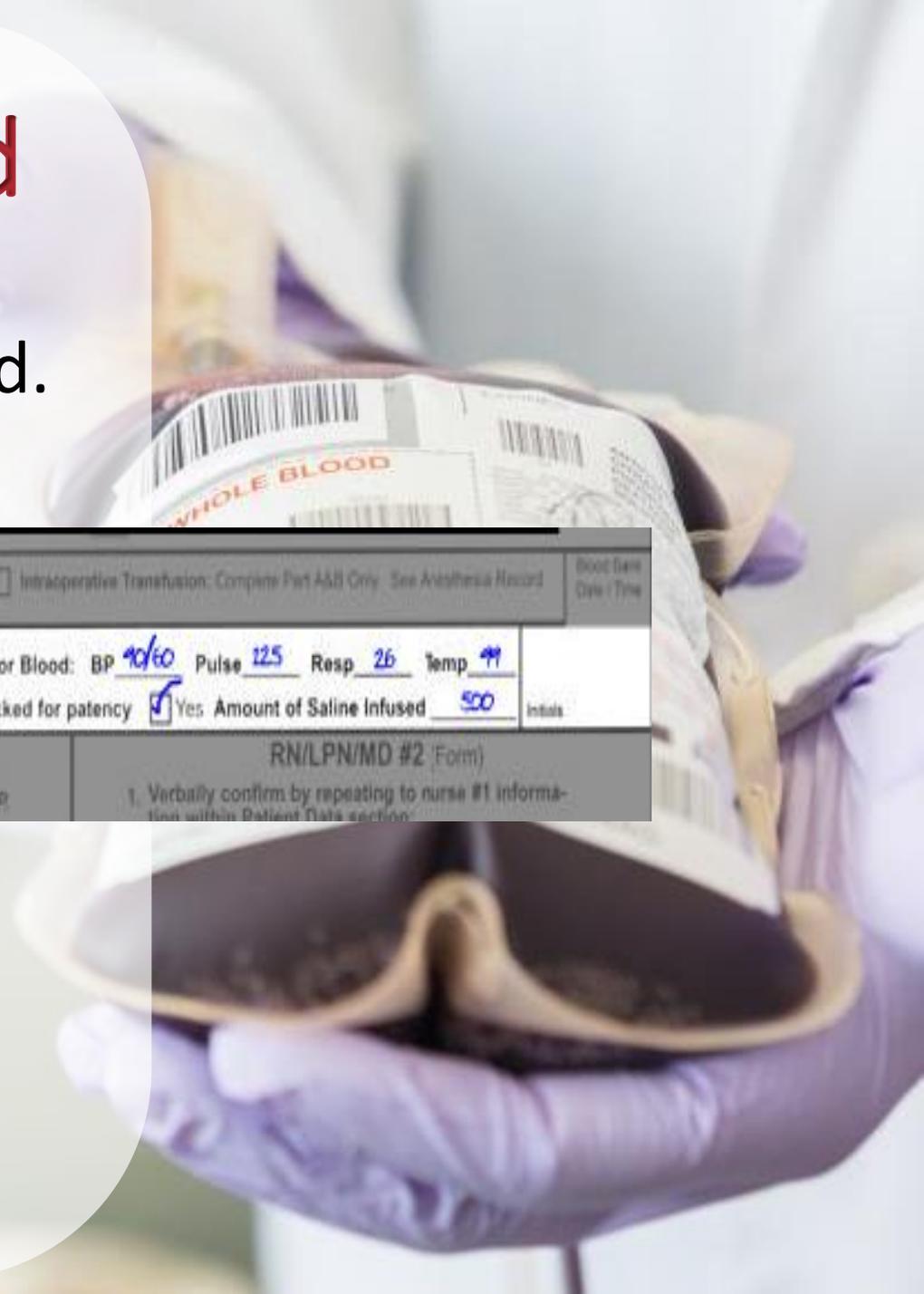
Section A: Record the vital signs taken **immediately** prior to picking up the blood.

The image shows a full page of a blood administration record form. It contains various sections for patient information, blood product details, and checkboxes for different types of transfusions. A blue arrow points from this form to a zoomed-in view of Section A.

Routine Transfusion: Complete Parts A, B, and C Intraoperative Transfusion: Complete Part A&B Only. See Anesthesia Record Blood Date / Time

A Date / Time: 1300 Vital signs prior to sending for Blood: BP 90/60 Pulse 125 Resp 26 Temp 99
Infusion Site Location RIGHT ARM Checked for patency Yes Amount of Saline Infused 500 Initials

B RN/LPN/MD #1 (Blood product) RN/LPN/MD #2 (Form)
1. Read from patient's armband: *If no armband STOP* 1. Verbally confirm by repeating to nurse #1 information within Patient Data section.



Blood Administration Record

Section B: Nurse 1 is the one holding the blood product. Nurse 2 is the one with the form.

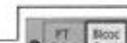
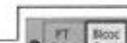
I'm nurse 1 because I'm the one holding the blood product.



I'm nurse 2 because I'm the one with the form.



B RN/LPN/MD #1 (Blood product)

1. Read from patient's armband: *If no armband STOP.*
Patient name
Medical Record #
2. State Location of Armband 
3. Ask Patient to state his/her name 
4. Read Unit ID # from Blood Product Tag 

RN/LPN/MD #2 (Form)

1. Verbally confirm by repeating to nurse #1 information within Patient Data section:
 Patient name
 Medical Record # 
2. Location of armband:
 R. arm L. arm Other _____
3. Name matches, or
 Patient unable to verbalize name
4. Verbally confirm by repeating to nurse #1 Unit ID

Blood Administration Record

Section B: The following section is a clinical simulator. Check the appropriate information as nurse 1 calls it out.



Hi, I'm Deanna Smith. I will be working with you on the administration record. I'm nurse 1 because I'm the one holding the blood product. You are nurse 2 because you are the one with the form. The patient name from the armband is David Jones.

PATIENT DATA	PATIENT NAME: JONES, DAVID	UNIT DATA	UNIT ID#: 12XX45678 COMPONENT: PC, ADSOL
	MR #: 123456789 CPI # 1234567891234		VOLUME: 250 ATTRIBUTES: IRRADIATED
	LOCATION: COU ABO/Rh: B POSITIVE		UNIT ABO/Rh: B POSITIVE
	SEX: M BIRTHDATE: 02/06/42		UNIT EXPIRATION: 04/20/99 2359
	ANTIBODY SCREEN: PHYSICIAN: RUBIN, BILL E. MD		CROSSMATCH RESULT? COMPATIBLE
B	RN/LPN/MD #2 (Form)		
1.	Patient Name	1. Verbally confirm by repeating to nurse #1 information within Patient Data section:	<input type="checkbox"/> Patient name
	Check off the appropriate information as Nurse 1 calls it out.		<input type="checkbox"/> Medical Record #
2.		2. Location of armband:	<input type="checkbox"/> R. arm <input type="checkbox"/> L. arm Other _____
3.		3. Name matches, or	<input type="checkbox"/> Patient unable to verbalize name
4.		4. Verbally confirm by repeating to nurse #1 Unit ID	

A Nurse's Story (part 3):

I stayed with Mr. Jones for 15 minutes. After several minutes, he said **his hands were cold and feeling numb**. I wondered if I was running the blood too fast, so I decreased the rate and stayed there with him. He said, "I don't know what's happening, but my hands are really numb and don't know why it's doing that." At that point, **I stopped the transfusion because I wondered if he had some sort of reaction** to the blood. **I called his doctor** and he told me to get Mr. Jones some Benadryl and Decadron so I gave it to him as ordered and **called the blood bank**.

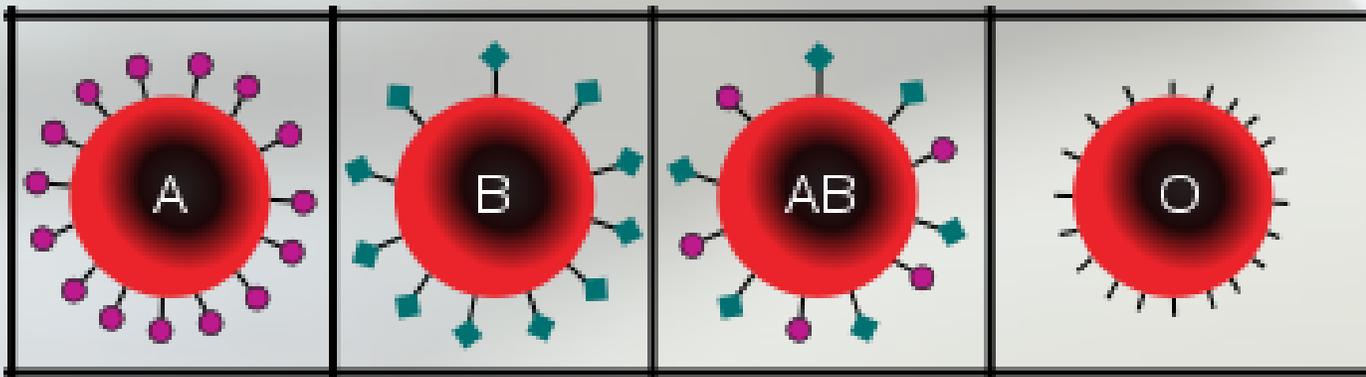


Blood Type or ABO Groupings

There are four basic human blood types or ABO blood groupings.

These types are: A, B, AB, and O.

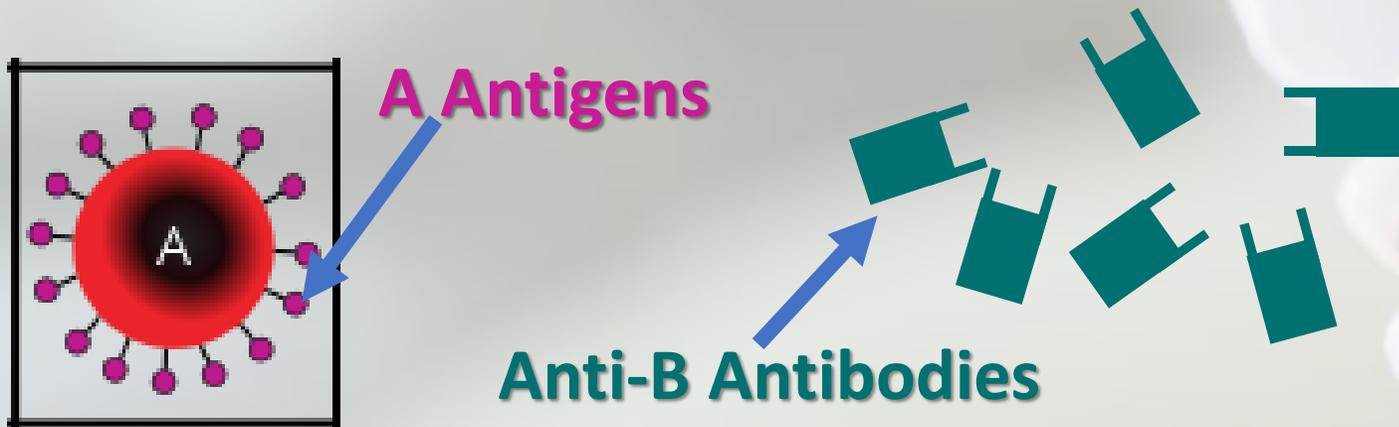
There are two things that determine an individual's blood type: the **red blood cells** and the **blood plasma**.



Blood Type or ABO Groupings

A person with Blood Type A has red blood cells with A antigens on the surface.

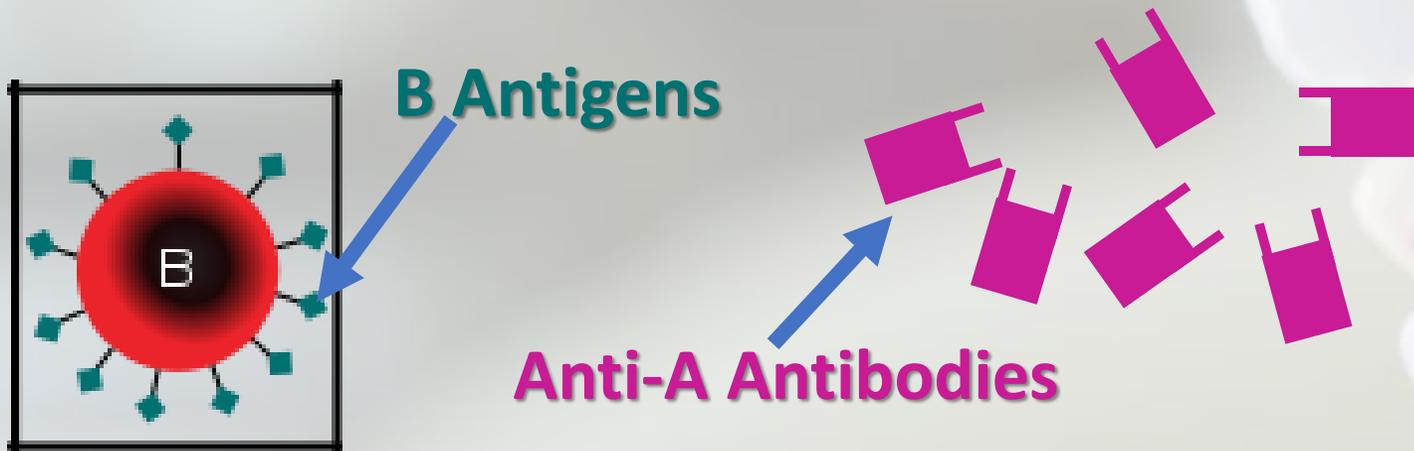
And type A plasma contains antibodies against type B antigens.



Blood Type or ABO Groupings

A person with Blood Type B has red blood cells with B antigens on the surface.

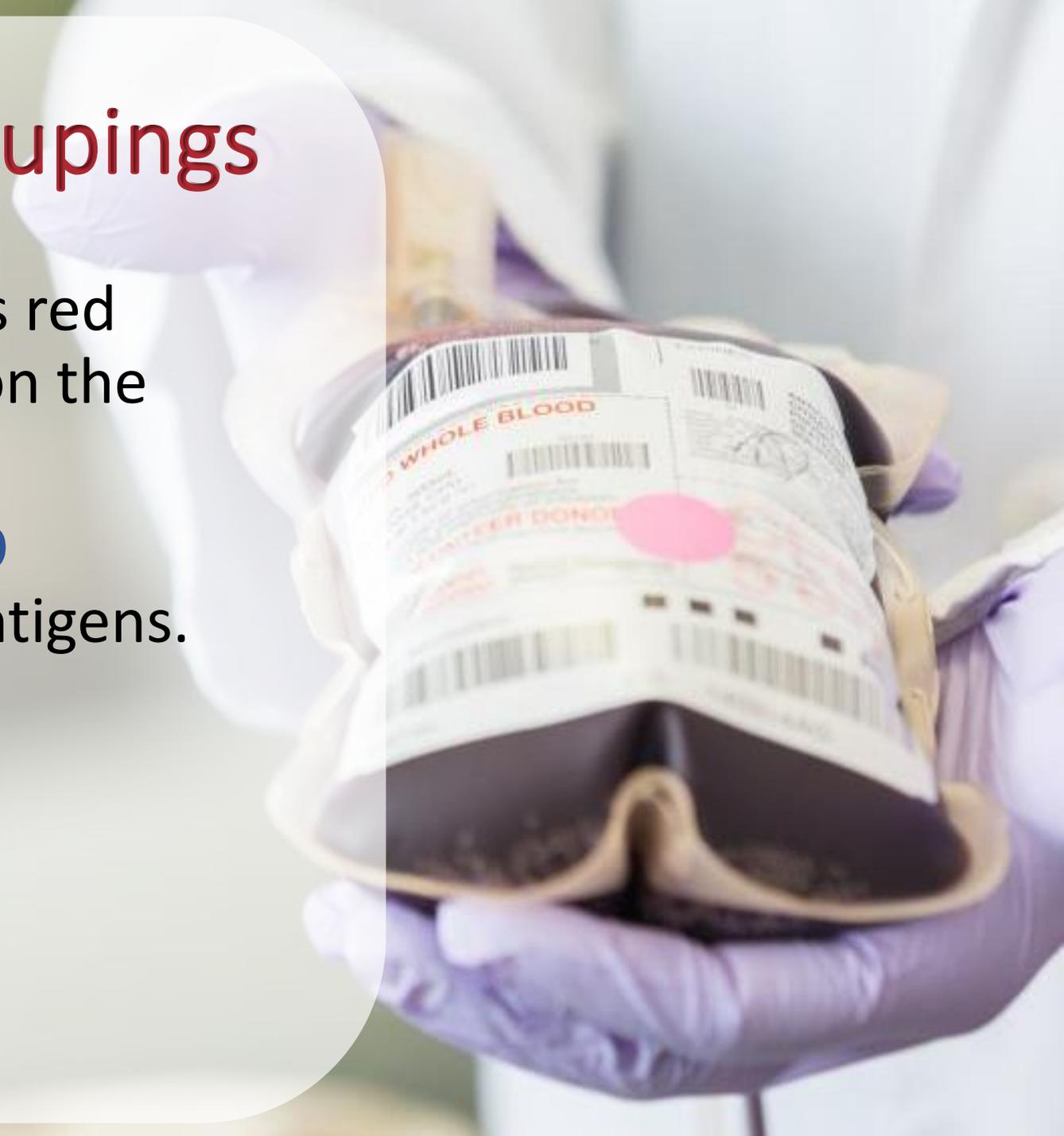
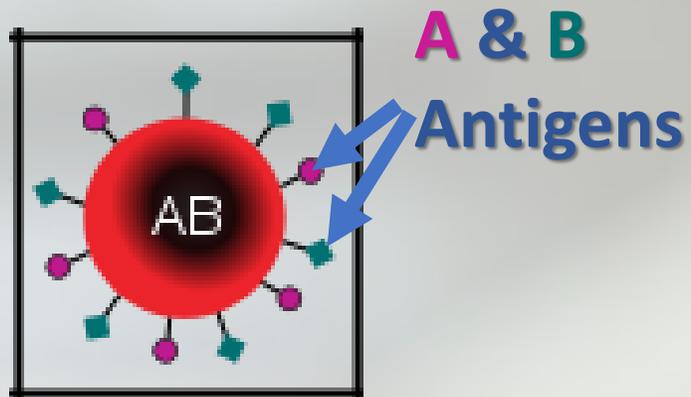
And type B plasma contains antibodies against type A antigens.



Blood Type or ABO Groupings

A person with Blood Type AB has red blood cells with A & B antigens on the surface.

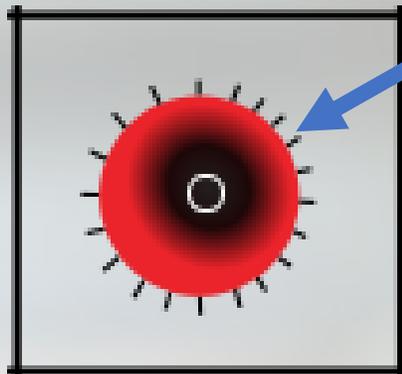
And type AB plasma contains **NO** antibodies against type A or B antigens.



Blood Type or ABO Groupings

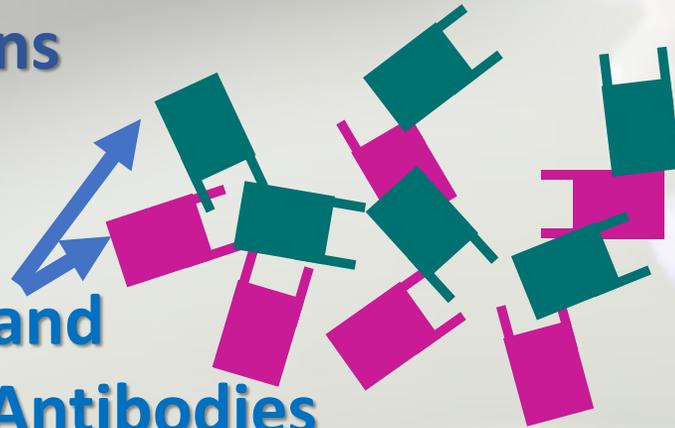
A person with Blood Type O has red blood cells with **NO** A or B antigens on the surface.

And type O plasma contains antibodies against type A and B antigens.

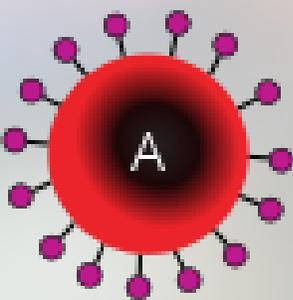
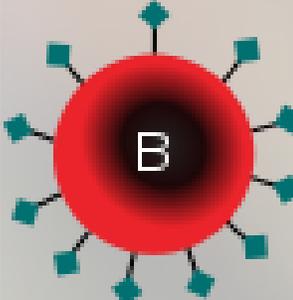
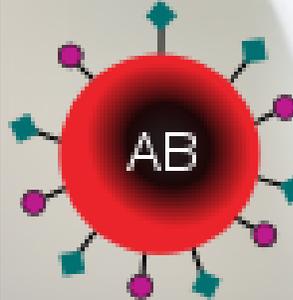


No Antigens

**Anti-A and
Anti-B Antibodies**



Blood Type or ABO Groupings

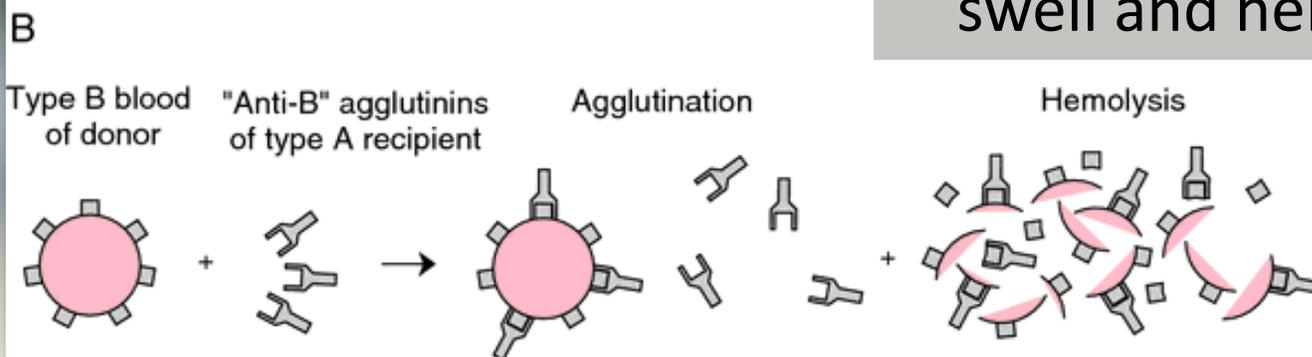
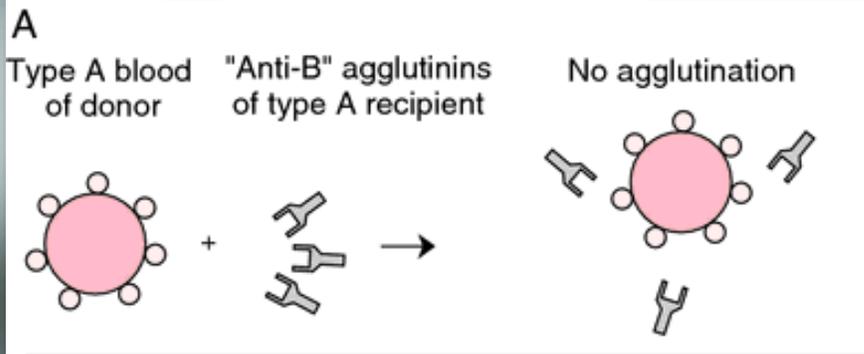
	Group A	Group B	Group AB	Group O
Red blood cell type	 A	 B	 AB	 O
Antibodies in plasma	 Anti-B	 Anti-A	None	 Anti-A and Anti-B
Antigens in red blood cell	 A antigen	 B antigen	 A and B antigens	None



Blood Type or ABO Groupings

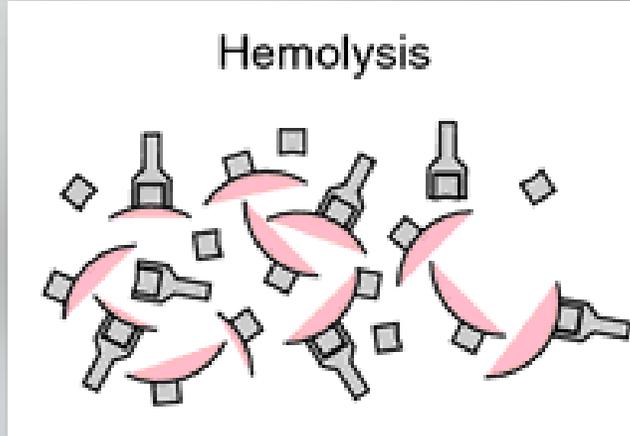
Hemolysis or cell rupture occurs when incompatible blood types mix.

In example B below, type B blood is given to a patient with blood type A. This ABO incompatible blood combination can cause the patient to have an acute hemolytic transfusion reaction. In acute hemolytic transfusion reactions, incompatible blood types react against each other. Donated antibodies react with antigens on the patient's red blood cells. The same reaction occurs between donor red cells and the patient's antibodies. The red blood cells swell and hemolysis, red blood cell rupture, occurs.



Blood Type or ABO Groupings

The antibody red blood cell complexes come together, or agglutinate, in emboli form and result in hemolysis. The agglutinate and emboli formation causes damage to the body as it occurs.



Blood Administration Precaution

The type of hemolytic transfusion that is the most severe is ABO.

ABO reactions are serious, rapid (usually within 24 hours), and often fatal.

- Reactions may occur with as little as 10 to 15 cc of incompatible blood transfused.
- National statistics indicate that these reactions are most commonly caused (46%) by mistakes during blood administration.
- Failure to properly verify patient identification is often the problem. Patient armbands must always be checked before hanging blood.



Correct Blood Types

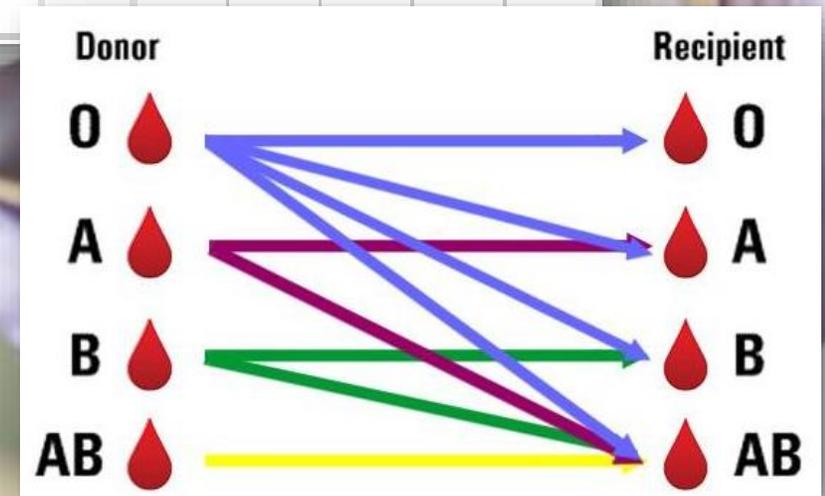
- An Rh+ patient can receive Rh- blood.
- Rh- means that there is no Rh antigen present on the red blood cells. However, Rh- patients cannot receive Rh+ blood.
- Exposure to Rh+ blood can cause Rh- patients to create anti Rh+ antibodies. The initial reaction would be a delayed hemolytic transfusion reaction and is generally not life threatening. But, a second exposure to Rh+ blood might cause a serious transfusion reaction.
- Appropriate cross-matches are very important as a single mismatch can be fatal.

		Donor							
Type	O-	O+	B-	B+	A-	A+	AB-	AB+	
AB+									
AB-									
A+									
A-									
B+									
B-									
O+									
O-									

Correct Blood Types

- O recipients have antibodies against A, B, and AB blood and exposure to Rh+ blood can cause Rh- patients to create anti Rh+ antibodies.
- O is “theoretically” the universal donor. Other antibodies/antigens can cause transfusion problems.

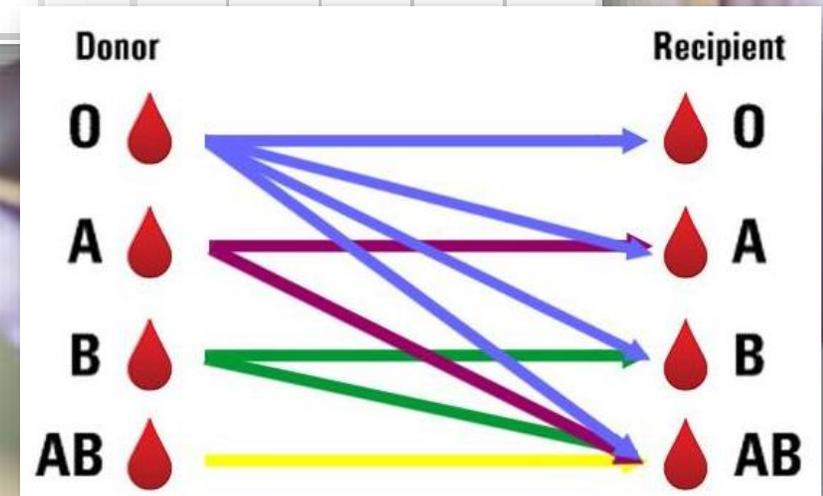
		Donor							
Type	O-	O+	B-	B+	A-	A+	AB-	AB+	
AB+	🩸	🩸	🩸	🩸	🩸	🩸	🩸	🩸	
AB-	🩸		🩸		🩸		🩸		
A+	🩸	🩸			🩸	🩸			
A-	🩸				🩸				
B+	🩸	🩸	🩸	🩸					
B-	🩸		🩸						
O+	🩸	🩸							
O-	🩸								



Correct Blood Types

- AB+ patients have no antibodies against A or B blood and a Rh+ patient can receive Rh- blood.
- AB+ is “theoretically” the universal recipient. This means they can, in theory, receive any blood type in an emergency situation.
- They possess no antibodies against the ABO blood groups, but other antibodies/antigens can cause transfusion problems.

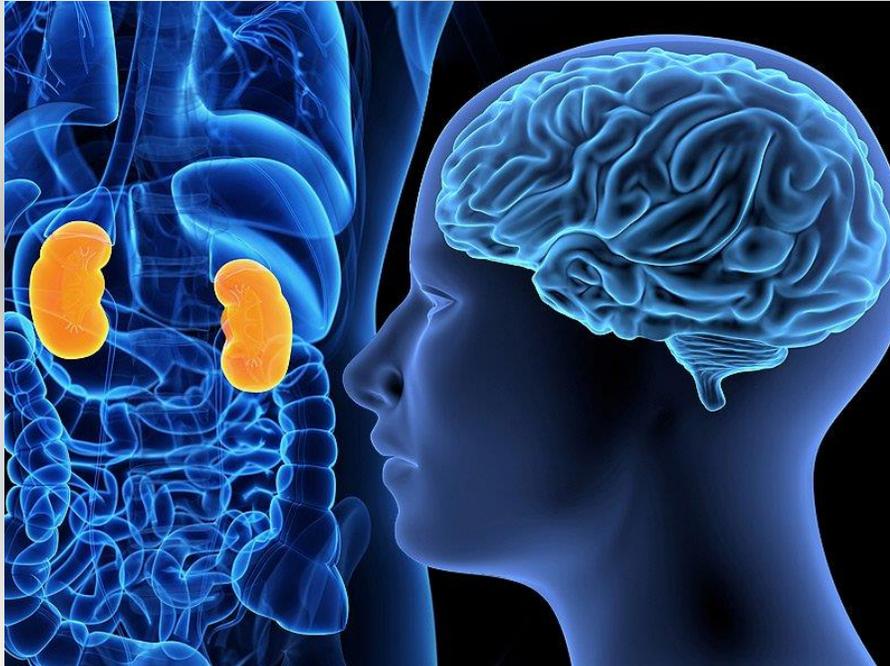
		Donor							
Type	O-	O+	B-	B+	A-	A+	AB-	AB+	
AB+	🩸	🩸	🩸	🩸	🩸	🩸	🩸	🩸	
AB-	🩸		🩸		🩸		🩸		
A+	🩸	🩸			🩸	🩸			
A-	🩸				🩸				
B+	🩸	🩸	🩸	🩸					
B-	🩸		🩸						
O+	🩸	🩸							
O-	🩸								



Formation of Emboli

The widespread formation of emboli during acute hemolytic transfusion reactions causes life-threatening systemic complications.

Highly vascular areas, such as the kidneys and brain, are particularly vulnerable.



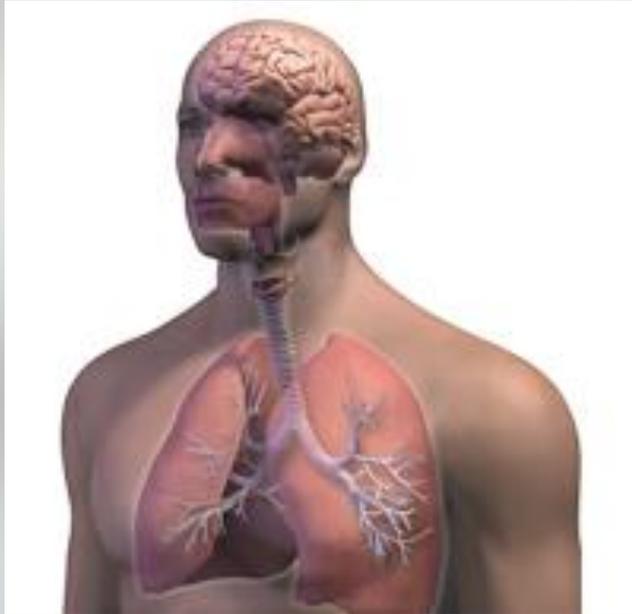
Formation of Emboli

- Kidney damage is almost always seen in cases of acute hemolytic transfusion reaction.
- The kidneys function as the filtering apparatus for blood, thus they are abundantly supplied with blood.
- The emboli generated in a hemolytic reaction quickly lodge in the millions of tiny blood vessels.
- Blood supply to the kidney is gradually cut off.
- Healthy kidneys can quickly be severely, and in many cases irreversibly, damaged resulting in kidney failure and death.



Hemolysis & Emboli Migration

Hemolysis and emboli migration also cause similar damage in the brain and the respiratory system.



Hemolysis & Emboli Migration

There are 8 common signs and symptoms you can expect in a hemolytic transfusion reaction:

1. Chills and fever
2. Hemoglobinuria (blood in urine)
3. Back/flank pain
4. Shock (hypotension)
5. Decreased urine output.
6. Patient uneasiness
7. Excess bleeding at surgical site
8. Death



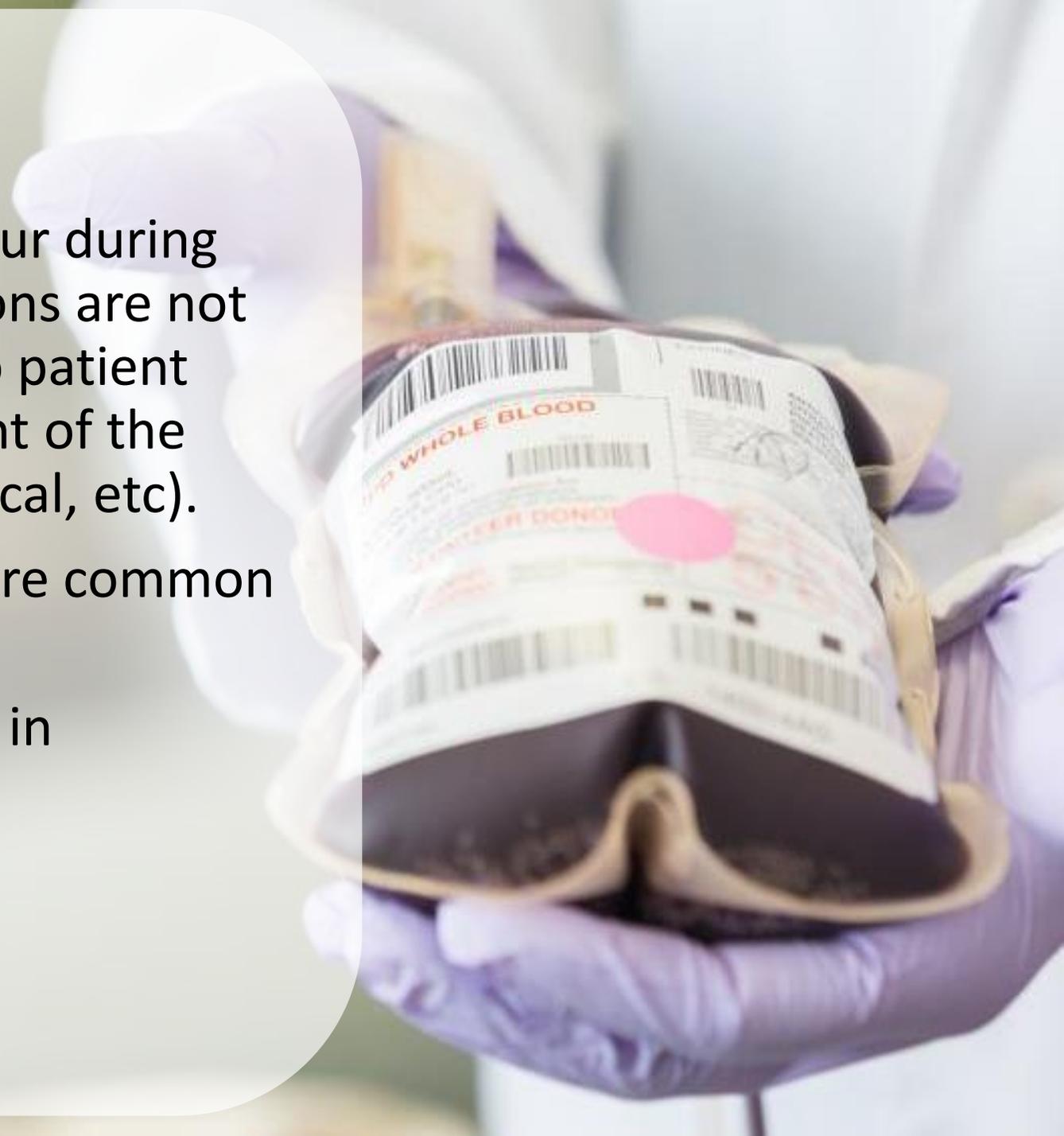
Correct Blood Types

- A small percentage of hemolytic reactions occur even when ABO matching is properly done.
- These reactions can occur because of bacterial contamination of blood product, hemolytic anemia, or infection.



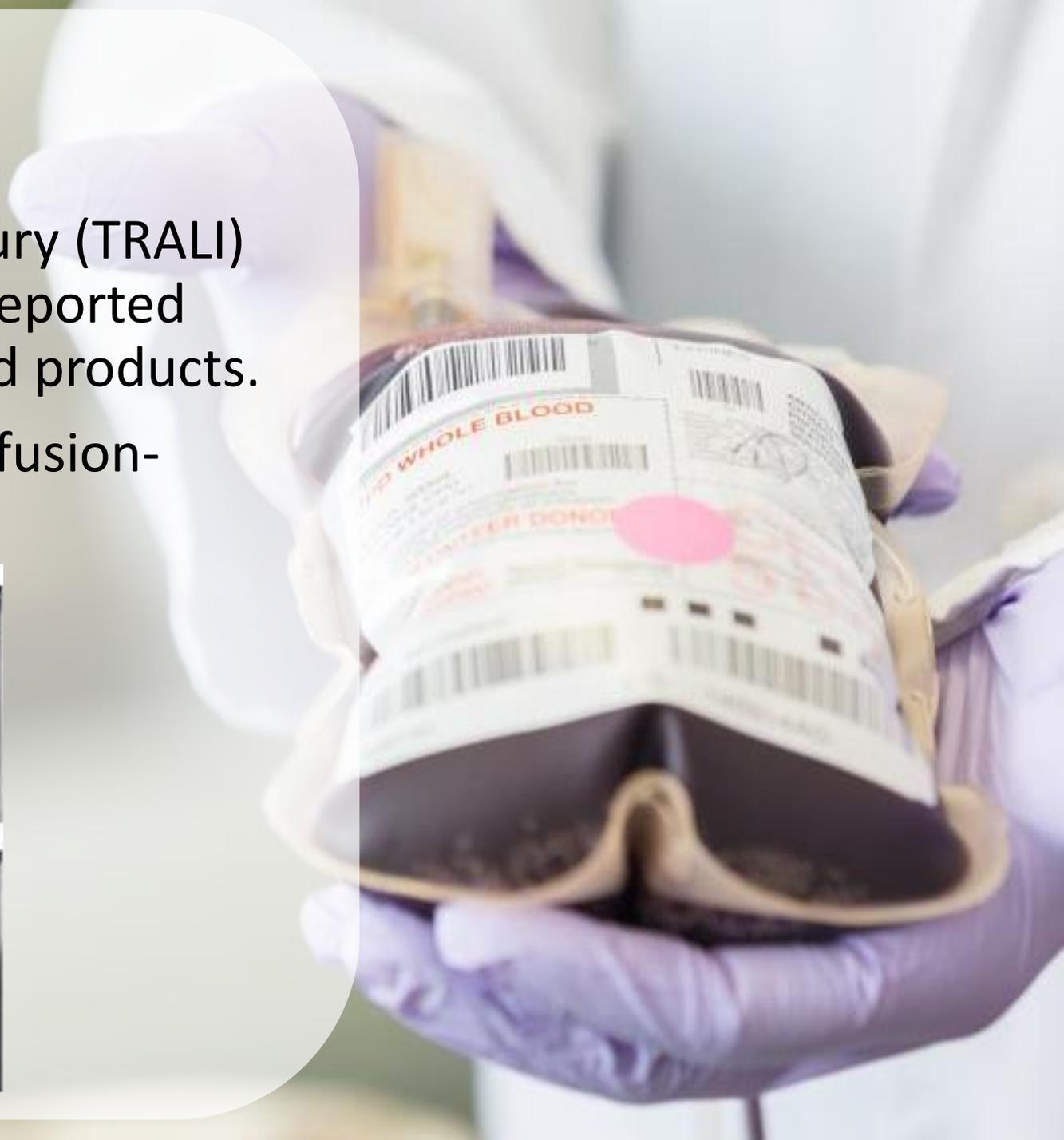
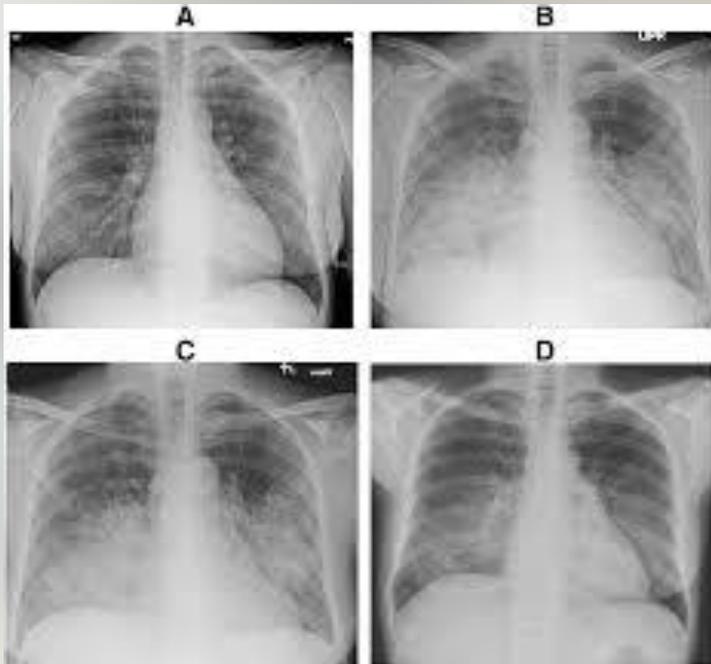
Correct Blood Types

- Anaphylactic reactions can also occur during blood administration. These reactions are not due to blood incompatibility, but to patient hypersensitivity to some component of the blood product (preservative, chemical, etc).
- Itching and respiratory symptoms are common in these types of reactions.
- Hemoglobinuria is not usually seen in anaphylactic reactions.



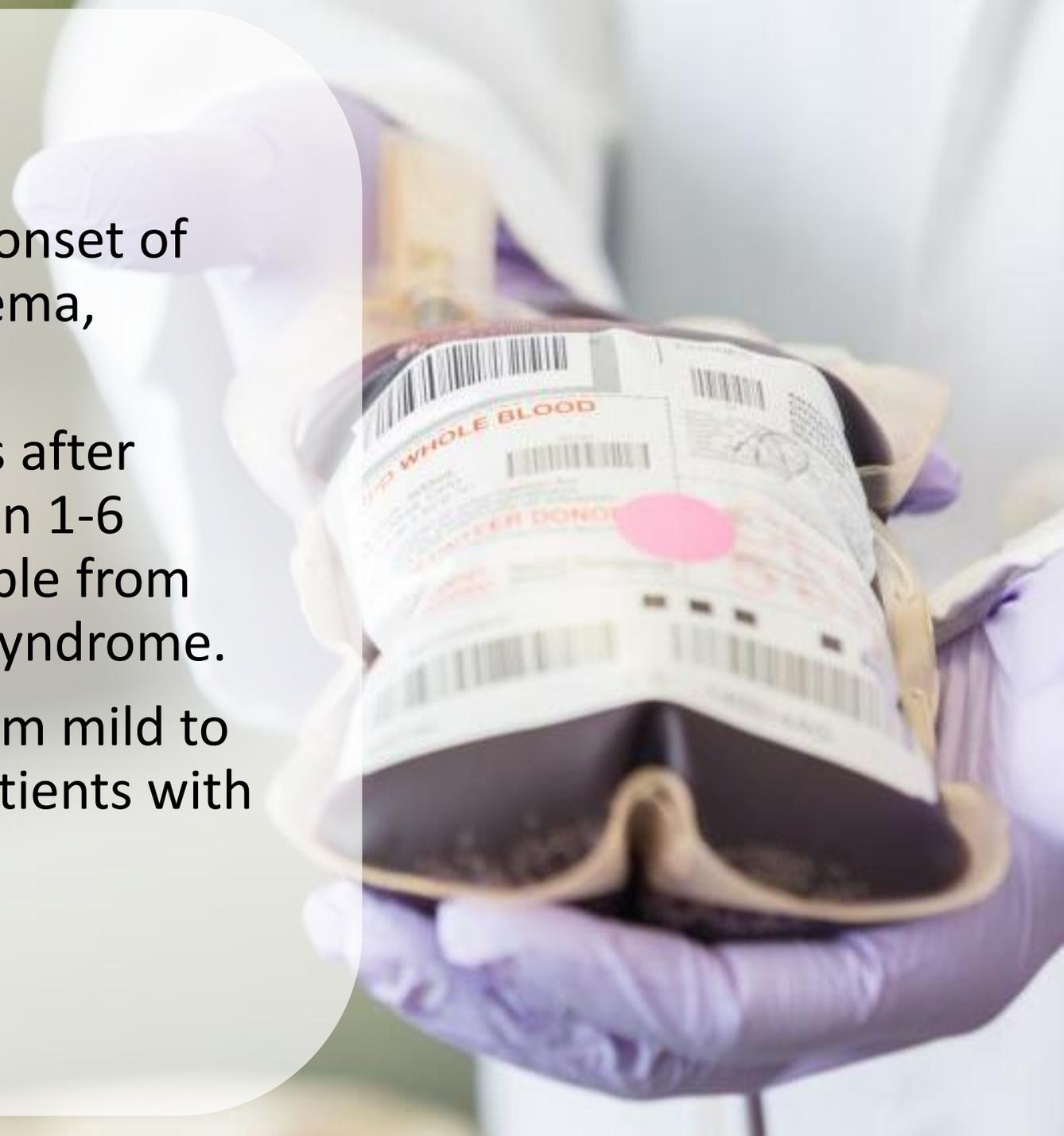
TRALI

- Transfusion-Related Acute Lung Injury (TRALI) is an under-recognized and under-reported complication of transfusion of blood products.
- It is the third leading cause of transfusion-related deaths.



TRALI

- TRALI is characterized by the rapid onset of respiratory distress, pulmonary edema, hypoxia, and hypotension.
- Symptoms typically begin 1-2 hours after transfusion, are fully manifest within 1-6 hours, and are often indistinguishable from those of adult respiratory distress syndrome.
- Severity of symptoms can range from mild to severe. If treated properly, most patients with TRALI recover within 96 hours.



TRALI - Management

- Stop the transfusion and provide supportive measures, similar to those for acute respiratory distress syndrome, up to and including intubation and mechanical ventilation.
- Maintain hemodynamic status (e.g., saline infusion).
- Diuretics are usually contraindicated since the pulmonary edema in TRALI is not related to fluid overload or cardiac dysfunction, but to altered vascular permeability in the lungs.
- Notify blood bank and initiate the transfusion reaction procedure.



A Nurse's Story (part 4):

I told the blood bank technician that I thought I had a transfusion reaction. She asked who was the patient. I told her it was Mr. Jones. She said **I didn't give out any blood for Mr. Jones.** Well, who did you give it for? The technician said, "I gave it to Mr. Smith." It hit me then, "Oh my!" **I realized it was the wrong blood.** We left out the one step that should have prevented the whole thing. **We didn't look at the patient's armband.** I told the nurse who had helped me hang the blood what was going on. We both felt awful. Our blood pressure went sky high. I went to sit down for a minute. **I could've killed this man!** I thought to myself, "you've got to deal with it. You've got to go check on this patient. Do whatever you can for it. You'll have to deal with the rest later." So that's what I did.



Managing Transfusion Reactions

If your patient has a transfusion reaction:

1. Stop the transfusion immediately
2. Detach IV at hub, flush with 5-10 cc of NS, and infuse NS at KVO to maintain IV patency.
3. Notify patient's physician and Blood Bank of possible reaction.
4. Initiate Transfusion Reaction Consultation Request Form N1486.
5. Check labels and orders to verify product given.
6. Send remaining blood products in bag, attached tubing, and related forms to Blood Bank.
7. Phlebotomist (or nurse if instructed by Blood Bank) will draw post reaction sample.
8. Remain with patient; monitor vitals and I&O and administer meds or other supports as indicated.



A Nurse's Story (conclusion):

It's probably the worst feeling I ever had. As a nurse, you take care of that patient to make sure he gets better. If you do something that will harm the patient, well, I can't even explain the feeling. **It was a wakeup call for me** and for my department.

We've been working for so long at a crazy pace. I know we've said "there's no way to follow every detailed step when there's so many things to do."

But **now we know how important following procedures is** no matter what is going on. Just take the time. Now, when I transfuse blood, I asked the medical receptionist to **hold all non-emergency calls**. I am very thorough with the check list and **I can't check the armbands too many times**.



TEST

<http://w3.mccg.org/IOTA/test-blood-admin.asp>

