

BLOOD BANK ACCESS

I. Project Summary

Many organizations, specifically Critical Access Hospitals, are continuing to utilize outdated methods of managing their internal blood bank systems. The blood bank is one of the most important sections in the laboratory and requires specific attention to details. It was identified that commercial blood bank software is too expensive and complex and would not meet the needs of a small volume laboratory. We decided that we would manually build a blood bank platform to replace the old system of blood bank workup and in an effort to meet the needs of our organization.

The Blood Bank Access is a simple and easy to use blood bank software developed by the Laboratory Director of Deer Lodge Medical Center in Deer Lodge, MT. It is customized to meet the need of the small volume laboratory and is developed based on the Microsoft Access platform. Our Blood Bank Access addresses the important needs of reviewing patient history, blood type, antibodies, and transfusions. In addition, our Blood Bank Access also eliminates the chances of data entry errors by the technologist through use of the hand-held barcode scanner and the cost is very minimal compared to commercial blood bank software programs.

Through implementation, we were able to incorporate a missing piece into our Electronic Health Record (EPIC), upgrade the blood bank system, improve reporting time, prevent lost charges, and most importantly IMPROVED PATIENT SAFETY!

II. Organization

The continued vision of the organization, and specifically the laboratory, is to provide our patients with the highest level of quality care we can provide. Through implementation of the project, the vision was to benefit the patients, families, staff and the organization as a whole through cost savings, decreased risk, and increased efficiency while also providing support to other organizations.

III. Project

The DLMC Laboratory has been utilizing the old process for many years. The current EHR does not have the capability for a Blood Bank Module. After researching commercial blood bank platforms, it was decided to create a tool from scratch. We identified four main objectives in the development of this project.

Objective 1: Document in EPIC the blood bank workup through the scanned data sheet.

Objective 2: Develop a new system for blood bank documentation to improve patient care and safety.

Objective 3: Increase efficiency when it comes to patient history, running queries, and searching capabilities.

Objective 4: Decrease errors and lost charges.

Many benefits have been identified specifically related to the Blood Bank Access project, but a few stuck out. The first benefit is related to the hospital, we decreased lost charges. Prior to the implementation, lost charges were varying from \$800- \$2,500 a patient. Since implementation, we have been remaining steadily at \$0 lost charges. Another hospital benefit was the improved efficiency. We decreased time for the reporting to get back to the provider, decreased paperwork, and improved staff productivity. The next, a community benefit, is the increased ability to review a patient's history and increased query and search function. By achieving these goals, we were able to increase patient care and safety.

Implementation has been ongoing since January 2014 and is still running to date with added functionality and features. The database was created solely on research from websites and YouTube, no outside contractor was utilized; keeping our cost low. As a Critical Access Hospital, the number of employees impacted by this project was fairly low; making the initial implementation a smooth, seamless process.

Our Blood Bank Access is an ongoing implementation and features are continually updated and added. This project was innovative in that it was not a required tool to complete the daily workload of the lab, but was proactive to increase patient safety, staff efficiency and productivity, and moving to an electronic platform that is user friendly and less prone to human error.

IV. Results/Outcomes

We have identified four measurable outcomes throughout this implementation process. The first was that we were able to decrease the turnaround time by 50%. Previously, researching patient history would take approximately 15 minutes with another 15-20 to do a quality control, check writing, and billing forms. By doing so, we increase not only efficiency, but patient safety. The second outcome, we looked at lost charges. We have effectively eliminated the chance of lost charges to date. The third, we have increased tech efficiency by 80% through ease of access, minimal errors, and quicker quality control. Lastly, we were able to reduce technical or data entry errors by 90% through standardized processes, electronic platforms, and bar code scanning.



Blood Bank Access Main Data Entry form

BLOOD BANK PATIENT DATA ENTRY

Patient Lookup	QC Form (Test Tube)	New QC Form(Gel)	Monthly Summary Report	All Patients list	Blood Utilization	QC Summary Report	Transfusion Reaction	Emergency Release	Donor's Lookback	Add Donor Typing	Donor Typing Summary	Units Reject /Quarantine	Units Reject Query
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Add New Record

Date Performed	<input type="text"/>	(New)				Attachments
Name (L,F,M)	<input type="text"/>					<div style="border: 1px solid #add8e6; width: 50px; height: 30px;"></div>
Date of Birth	<input type="text"/>	MR Numbers	<input type="text"/>			
Blood Band ID	<input type="text"/>	Doctor	<input type="text"/>			
Date Collected	<input type="text"/>	Time Collected	<input type="text"/>	Phlebotomist	<input type="text"/>	
Address	<input type="text"/>		State, Zip	<input type="text"/>	<input type="text"/>	

Last Record

Date of Birth	<input type="text"/>	MR Numbers	<input type="text"/>			
Blood Band ID	<input type="text"/>	Doctor	<input type="text"/>			
Date Collected	<input type="text"/>	Time Collected	<input type="text"/>	Phlebotomist	<input type="text"/>	
Address	<input type="text"/>		State, Zip	<input type="text"/>	<input type="text"/>	

Previous Record

Date of Birth	<input type="text"/>	MR Numbers	<input type="text"/>			
Blood Band ID	<input type="text"/>	Doctor	<input type="text"/>			
Date Collected	<input type="text"/>	Time Collected	<input type="text"/>	Phlebotomist	<input type="text"/>	
Address	<input type="text"/>		State, Zip	<input type="text"/>	<input type="text"/>	

Next Record

PATIENT'S BLOOD TYPE REACTION

Anti A	Anti B	Anti D	Rh Control	A1 cell	B cell	ABORH
<input type="text"/>						

PATIENT'S ANTIBODY SCREEN REACTION

Screen cell1 IS	Screen cell1 37C	Screen cell1 AHG	Screen cell 1	Screen cell2 IS	Screen cell 37C	Screen cell AHG	Screen cell 2
<input type="text"/>							

Test Ordered Qty Blood product Tube Method QC done Irradiated CMVNegative

<input type="text"/>	0	<input type="text"/>				
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Time Cross matched Ordered Person got the call Time Cross matched Finished Performed by

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
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Notes

Save Record

OrdersT subform

ID	# Unit	Unit Number	Blood product	<input type="checkbox"/> Emergency Release
<input type="text"/>	0	<input type="text"/>	<input type="text"/>	

Blood Unit Typing

Anti A	Anti B	Anti D	D Control	ABO RH
<input type="text"/>				

Compatibility Testing

IS	37C	AHG	CC	Compatibility
<input type="text"/>				

Visual Check Expiration date Checkout Date Checkout Time Checkout RN Checkout CLS

<input type="text"/>					
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Scan Patients label here

Internal Notes

Delete Record

OrdersT subform

ID	# Unit	Unit Number	Blood product	<input type="checkbox"/> Emergency Release
<input type="text"/>	0	<input type="text"/>	<input type="text"/>	

Blood Unit Typing

Anti A	Anti B	Anti D	D Control	ABO RH
<input type="text"/>				

Compatibility Testing

IS	37C	AHG	CC	Compatibility
<input type="text"/>				

Visual Check Expiration date Checkout Date Checkout Time Checkout RN Checkout CLS

<input type="text"/>					
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Scan Patients label here

Internal Notes

Copy Record

OrdersT subform

ID	# Unit	Unit Number	Blood product	<input type="checkbox"/> Emergency Release
<input type="text"/>	0	<input type="text"/>	<input type="text"/>	

Blood Unit Typing

Anti A	Anti B	Anti D	D Control	ABO RH
<input type="text"/>				

Compatibility Testing

IS	37C	AHG	CC	Compatibility
<input type="text"/>				

Visual Check Expiration date Checkout Date Checkout Time Checkout RN Checkout CLS

<input type="text"/>					
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Scan Patients label here

Internal Notes

Print Check out Slip

OrdersT subform

ID	# Unit	Unit Number	Blood product	<input type="checkbox"/> Emergency Release
<input type="text"/>	0	<input type="text"/>	<input type="text"/>	

Blood Unit Typing

Anti A	Anti B	Anti D	D Control	ABO RH
<input type="text"/>				

Compatibility Testing

IS	37C	AHG	CC	Compatibility
<input type="text"/>				

Visual Check Expiration date Checkout Date Checkout Time Checkout RN Checkout CLS

<input type="text"/>					
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Scan Patients label here

Internal Notes

Print Data Sheet

OrdersT subform

ID	# Unit	Unit Number	Blood product	<input type="checkbox"/> Emergency Release
<input type="text"/>	0	<input type="text"/>	<input type="text"/>	

Blood Unit Typing

Anti A	Anti B	Anti D	D Control	ABO RH
<input type="text"/>				

Compatibility Testing

IS	37C	AHG	CC	Compatibility
<input type="text"/>				

Visual Check Expiration date Checkout Date Checkout Time Checkout RN Checkout CLS

<input type="text"/>					
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Scan Patients label here

Internal Notes

Print Billing slip

OrdersT subform

ID	# Unit	Unit Number	Blood product	<input type="checkbox"/> Emergency Release
<input type="text"/>	0	<input type="text"/>	<input type="text"/>	

Blood Unit Typing

Anti A	Anti B	Anti D	D Control	ABO RH
<input type="text"/>				

Compatibility Testing

IS	37C	AHG	CC	Compatibility
<input type="text"/>				

Visual Check Expiration date Checkout Date Checkout Time Checkout RN Checkout CLS

<input type="text"/>					
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Scan Patients label here

Internal Notes

Deer Lodge Medical Center
 1100 Hollenback Ln.
 Deer Lodge, MT 59722



ID

Date Performed Time Performed Tech

ABD REVERSE CARD

GEL CARD	Anti-A	Anti-B	Anti-D	Rh Control	A1 cell	B Cell	Satisfactory
Cell 1(AB Neg)	4+ <input type="text"/>	3+ <input type="text"/>	0 <input type="text"/>	0 <input type="text"/>	0 <input type="text"/>	0 <input type="text"/>	<input checked="" type="checkbox"/>
Cell 2(O Pos)	0 <input type="text"/>	0 <input type="text"/>	4+ <input type="text"/>	0 <input type="text"/>	4+ <input type="text"/>	4+ <input type="text"/>	<input checked="" type="checkbox"/>

ABD DONOR CARD

Cell 1_Cell 2	Anti-A1	Anti-B1	Anti-D1	Anti-A2	Anti-B2	Anti-D2	Satisfactory
	4+ <input type="text"/>	4+ <input type="text"/>	0 <input type="text"/>	0 <input type="text"/>	0 <input type="text"/>	4+ <input type="text"/>	<input checked="" type="checkbox"/>

IGG CARD

Confidence Antibody	Screen I(+)	Screen II(+)	Screen I(=)	Screen II(=)	DAT(+)	DAT(=)	Satisfactory
	3+ <input type="text"/>	3+ <input type="text"/>	0 <input type="text"/>	0 <input type="text"/>	3+ <input type="text"/>	0 <input type="text"/>	<input checked="" type="checkbox"/>

RGT BOTTLE

Anti-A Rqt	Anti-B Rqt	Anti-D Rqt	Anti-IgG Rqt	Satisfactory
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>

Daily Maintenance

WSTemp	WS Speed	Inc Time
<input type="text" value="36.8"/>	<input type="text" value="1032"/>	<input type="text" value="15"/>

Visual Check Diluent
 Visual Check Gel Card

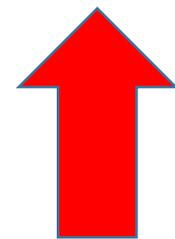
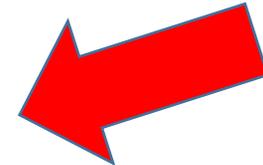
	Lot Number	Expiration Date		Lot Number	Expiration Date
MTS Diluent 2	MD097	8/23/2017	Afirmagen	8A611	4/25/2017
MTS Diluent 2+	MPD136	9/6/2017	Selectogen	VS008	4/11/2017
ABDRev card	102816037-17	9/28/2017	Conf antibody	CNF054	4/11/2017
IGGcard			Anti-A lot		
MTS ABD	091216053-1	6/14/2017	Anti-B lot		
			Anti-D lot		

As Needed Maintenance

Clean with 70% alcohol
 Check Tachometer speed
 Check for volume delivery

Corrective actions/ Remarks

**Blood bank Access
QC form**



**Blood Bank Access Check out
form/slip**



Blood bank Access Patient data Sheet

BB ID	270							
Date Performed	4/4/2017							
Patient's Name	BEAKER	ANNE						
Date of Birth	1/1/1965	Medical Records	6000011111					
Date Collected	4/4/2017	Time Collected			Phlebotomist	KT		
Doctor	DOCTOR	Blood Band ID	WGY123					
<u>PATIENT'S REACTION</u>								
Anti-A	Anti-B	Anti-D	RhControl	A1 cell	B cell	Patient ABORH		
4+	0	4+	4+	0	4+	A Pos		
Screen cell1 IS	Screen cell1 37C	Screen cell1 AHG	Screen cell1	Screen cell2 IS	Screen cell 37C	Screen cell AHG	Screen cell2	
0	0	1+	0	0	0	0	0	
Qty	Test	Blood product	<input type="checkbox"/> CMV Neg	Time Crossmatched Ordered	Time Crossmatched Finished	Person got the call	Performed by	
2	XM	PRBC	<input type="checkbox"/> Irradiated					
					<input type="checkbox"/> QC done	<input type="checkbox"/> Tube method		
<u>DONOR'S REACTION</u>								
Unit	Unit number		Unit Blood product	Emergency Release				
0	W2020123456789		PRBC					
Anti-A	Anti-B	Anti-D	Rh Control	ABORH				
4+	0	4+	0	A Pos				
Initial spin	37C	AHG	Check cell	Compatibility				
0	0	0	4+	Compatible				
Visual Check	Expiration Date	Check out Date	Check outTime	Check out RN	Check out CLS			
OK	5/3/2017	4/4/2017	1100	AG	KT			