

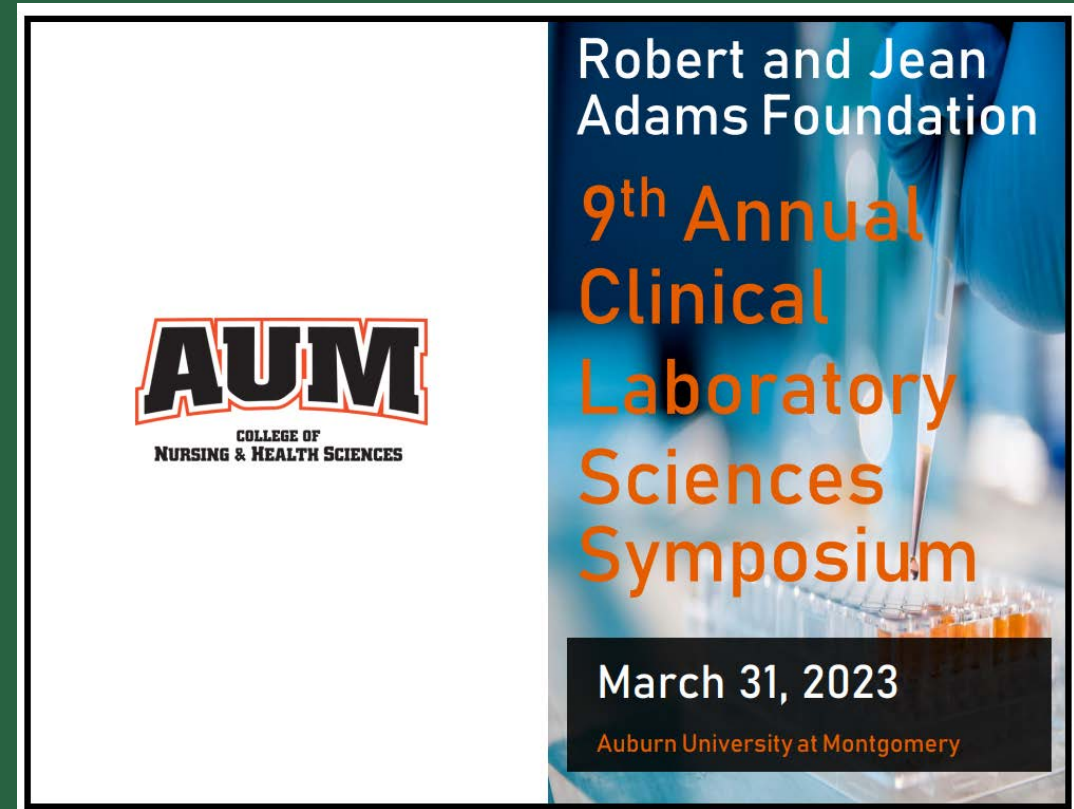


The University of Alabama at Birmingham

Department of Pathology

# "The crucial role of large and small teams of laboratory professionals"

Marisa B. Marques, MD



# Objectives

At the end of my presentation, I would like the audience to:

1. List types of teams that laboratory professionals participate in
2. Illustrate an example of a small and a large team that laboratory professionals belong to
3. Describe how laboratory professionals impact patient care through teamwork

# WHERE I HAVE BEEN FOR ALMOST 30 YEARS UAB UNIVERSITY HOSPITAL

- > 1,200-bed flagship facility of the UAB Health System
- Eighth largest hospital in the US
- Comprehensive Cancer Center
- Only Level 1 Trauma Center in Alabama
- One of two Burn Centers in Alabama
- Regional Neonatal Intensive Care Unit
- Among the largest comprehensive transplantation programs in the country and largest in Southeast
  - Kidney, Heart, Lung, Heart/Lung, Liver, Pancreas, Stem Cell



**VERY LITTLE COULD BE OFFERED TO OUR PATIENTS WITHOUT THE CLINICAL LABORATORIES!**

- A 7-year old \$6.8 million automated core laboratory (Clinical Chemistry, Coagulation and Hematology) in the heart of UAB Hospital.
- > 6 million tests annually, in addition to tests in the Blood Bank, Micro, Flow Cytometry and Immunology.
- Each laboratory managed by highly skilled medical technologists; most staffed 24/7.
- Laboratories accredited by: CAP, CLIA and AABB
- Proficiency of >300 staff members monitored by internal and external quality assurance programs.
- Laboratory Medicine pathologists are responsible for one or more clinical laboratory.
- They engage in clinical service, oversight of clinical laboratories, teaching and research.

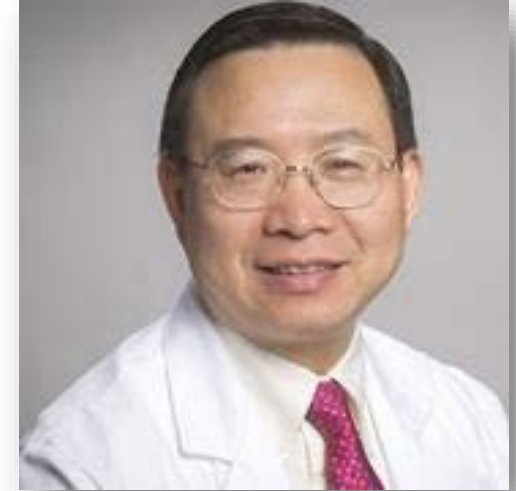


# 2020 LAB WEEK – PATHOLOGY FACULTY MEMBERS



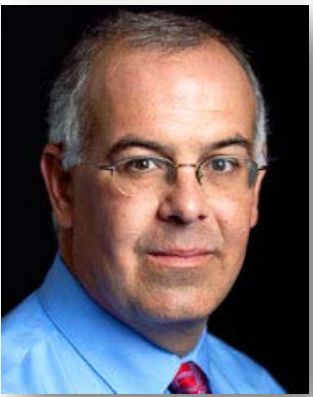
# UAB PATHOLOGY AND DR. ADAMS

- Faculty from 1961 to 1964.
- Served as the associate director of surgical pathology at UAB Hospital.
- In 2003, Dr. Adams and his wife, Jean, established the Adams Education Fund, which provides grant support for UAB pathology residents to stimulate their research interests.
- In 2013, made a gift to establish the Dr. Robert B. Adams Endowed Chair in Pathology.
- Dr. Adams' core mission
  - Devotion to patient care through advancing the highest quality of pathology education and technology within the state.



Dr. Long Zheng,  
first recipient of the  
Robert Adams  
Endowed Chair in  
Pathology

*If clinical laboratory  
professionals work in teams,  
which sport do they play?*



David Brooks

## Baseball or Soccer?

JULY 10, 2014

The  
New York  
Times

*Is life more like baseball, or is it more like soccer?*

“Baseball is basically an accumulation of individual activities.

The team that performs the most individual tasks well will probably win the game.” Soccer is not like that.

In soccer, almost no task, except the penalty kick and a few others, is intrinsically individual.

Even the act of touching the ball is not primarily defined by the man who is touching it; but by the context created by all the other players.”





## Baseball or Soccer?

JULY 10, 2014

The  
New York  
Times

“Soccer is a collective game, a team game, and everyone has to play the part which has been assigned to them, which means they have to understand it spatially, positionally and intelligently and make it effective.”

Most of us spend our days thinking we are playing baseball, but we are really playing soccer.”

*I propose that in the clinical laboratories we are also playing soccer!*



*I moved from Brazil  
37 years ago  
(the only country who  
has been World  
Champion 5 times!!!)*



# MARCH 2020 – START OF THE COVID PANDEMIC

- Clinical laboratories were inherently involved in the fight all the way through
- Individuals alone and in teams worked day and night to
  - Perform laboratory tests to care for critically ill patients
  - Create new assays to
    - Detect the virus – Microbiology and Molecular lab
    - Determine an immune response - Immunology
  - Provide convalescent plasma to treat critically ill patients – Blood Bank
  - Participate in research to study various aspects of the disease





# 24/7 MEDICAL TECHNOLOGISTS IN THE CORE LABORATORY, RECEIVED SPECIMENS FROM CLINICAL AREAS DESPITE THE RISK OF AN UNKNOWN DISEASE





HEALTH & MEDICINE

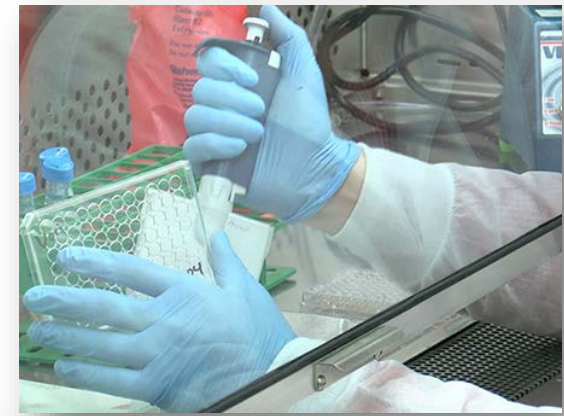
Working behind the scenes: UAB pathologists play key role in fighting coronavirus pandemic

by Adam Pope

April 24, 2020 | Print | Email

Due to UAB's efforts in molecular testing led by Sixto Leal, MD, PhD, UAB was among the first academic medical centers to offer in-house testing by launching a laboratory-developed test in March.

Leal and his team are currently testing between 300 and 500 samples/day with COVID-19 RNA testing, with a TAT of <24 hours. A second COVID-19 RNA testing platform with <2 hours' TAT is now operational.



# Patient Care

Coronavirus antibody testing now is available at UAB. Here's what that means — and what it doesn't.

Matt Windsor | UAB Reporter

📅 April 29, 2020 | 🖨️ Print | ✉️ Email

In the validation process that led up to launching antibody testing, Lima and **his team** ran tests on blood samples from patients known to have COVID-19.

They also ran tests on blood drawn well before COVID-19 appeared.

100% of specimens from 73 patients with positive SARS-CoV-2 diagnoses had a positive result for IgG 14 days after the onset of symptoms.

In tests done on 997 samples taken before September 2019, only four showed IgG reactivity to SARS-CoV-2, for a specificity of 99.6%.



Jose Lima, M.D. (right), and members of his immunology lab with an initial diagnostic report from the antibody test. *Image courtesy Sherri Polhill.*



 **UAB Pathology** @UABPathology · Dec 11, 2020

Today on this #FeelGoodFriday we share images of our @UABPathology #healthcare #heroes working behind the scenes (and smiling 😊 behind their masks) to conduct testing @uabmedicine. Led by @ShukoHarada, director, Molecular Diagnostics Lab. Photos by Gina Coshatt, lab supervisor.



# MICROBIOLOGY and HEMATOLOGY LABORATORY TEAMS





# KIT PREP TEAM TO ALLOW STUDENTS TO RETURN TO CLASS IN THE FALL OF 2020



w|b|h|m  
NPR News for the Heart of Alabama

NEWS PODCAST PROGRAMS MEMBERSHIP SPONSORSHIP ABOUT COI

## Alabama's COVID New-Case Average Quintuples In 10 Days, As Health Officials Struggle To Get More People Vaccinated

ROBERT CARTER, BIRMINGHAMWATCH | JULY 15, 2021



UAB Media Relations

UAB researcher Derek Moates said in a video press conference that Delta was present in about 70% of the test samples this month.

The variant is far more contagious than the original coronavirus, spreads quicker, and is more likely to attack in Alabama because of the low vaccination rates.

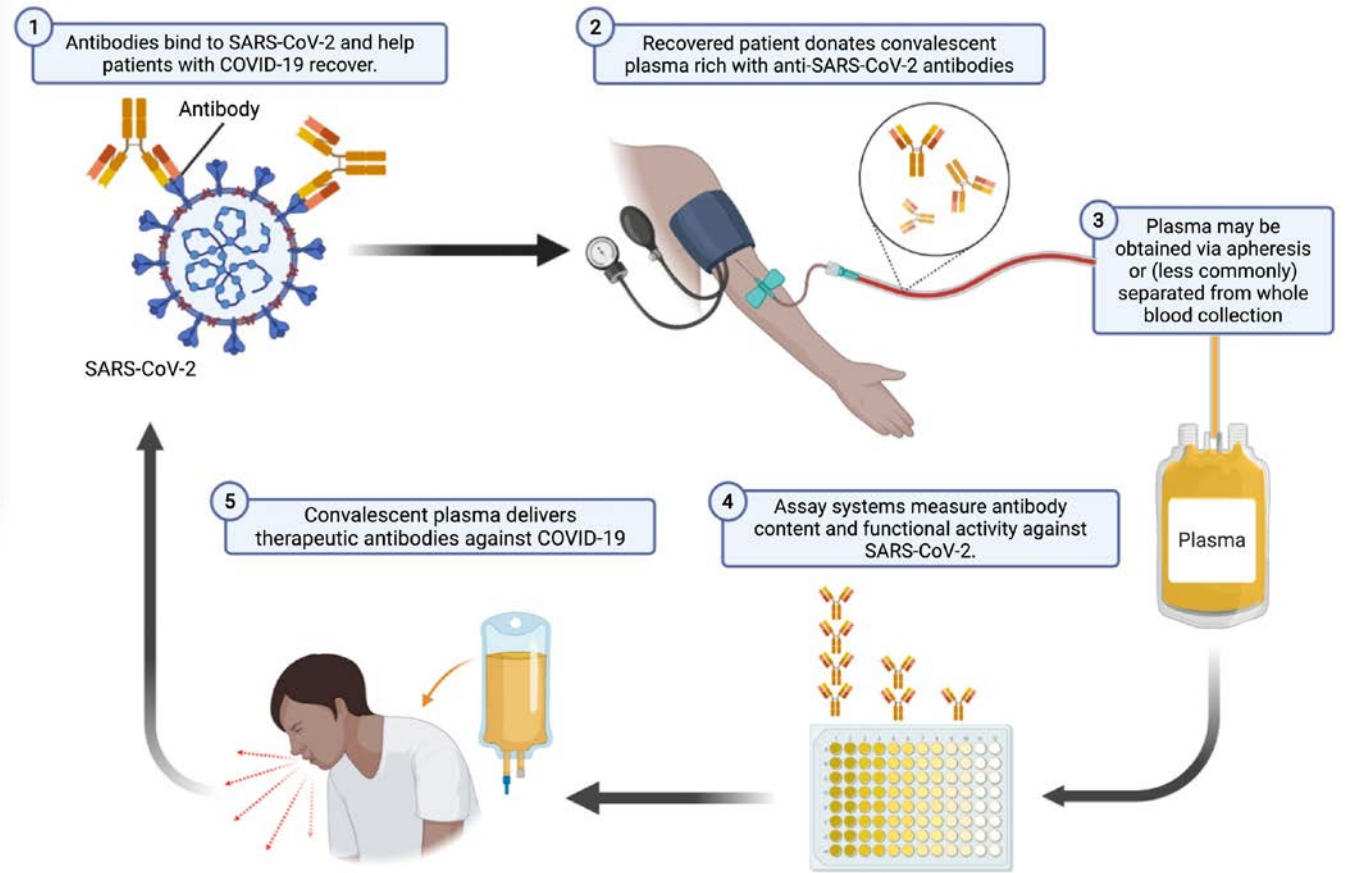
That will give Delta a better chance to learn how to defeat vaccines and other body defenses, Moates said.





Tammy Gray and Christina Whitener, medical technologists in the UAB Transfusion Services, dispensing the first unit of convalescent plasma to a UAB ICU patient on April 25, 2020 (Saturday afternoon).

# CONVALESCENT PLASMA ONLY TREATMENT OPTION AT THE BEGINNING



Trends in Molecular Medicine

<https://www.cell.com/trends/molecular-medicine/fulltext/S1471-4914%2822%2900046-6>

# UAB CONVALESCENT PLASMA TEAM

## Day 0 Transfusion: Transfusion

Transfusion  Physical Exam

**STUDY PLASMA TRANSFUSION**

Was the study plasma transfused?  No  Yes  
Enter date and expected time then save to populate expected times for vital collection.

**TRANSFUSION INFORMATION**

Transfusion Blood Type	RH factor	Expiration	First Verifier	Second Verifier
<input type="radio"/> A <input type="radio"/> B <input checked="" type="radio"/> AB <input type="radio"/> O	<input type="radio"/> Positive <input checked="" type="radio"/> Negative	04-Aug-2020		
Date	Start Time	End Time	Was the study drug transfusion interrupted?	
04-Aug-2020	Expected 13:28 Actual		<input type="radio"/> No <input type="radio"/> Yes	

**VITALS**

Were vital signs collected?  No  Yes



Ben Leonard, Tammy Gray,  
Ashton Kornbrust and  
Sarah Herring from UAB  
Transfusion Services



**COVID-19** PLASMA TRIALS  
SPONSORED BY JOHNS HOPKINS UNIVERSITY



From June 3, 2020 through October 1, 2021, 1225 participants were enrolled at 23 sites.



## Early Outpatient Treatment for Covid-19 with Convalescent Plasma

This article was published on March 30, 2022, at NEJM.org.

DOI: 10.1056/NEJMoa2119657

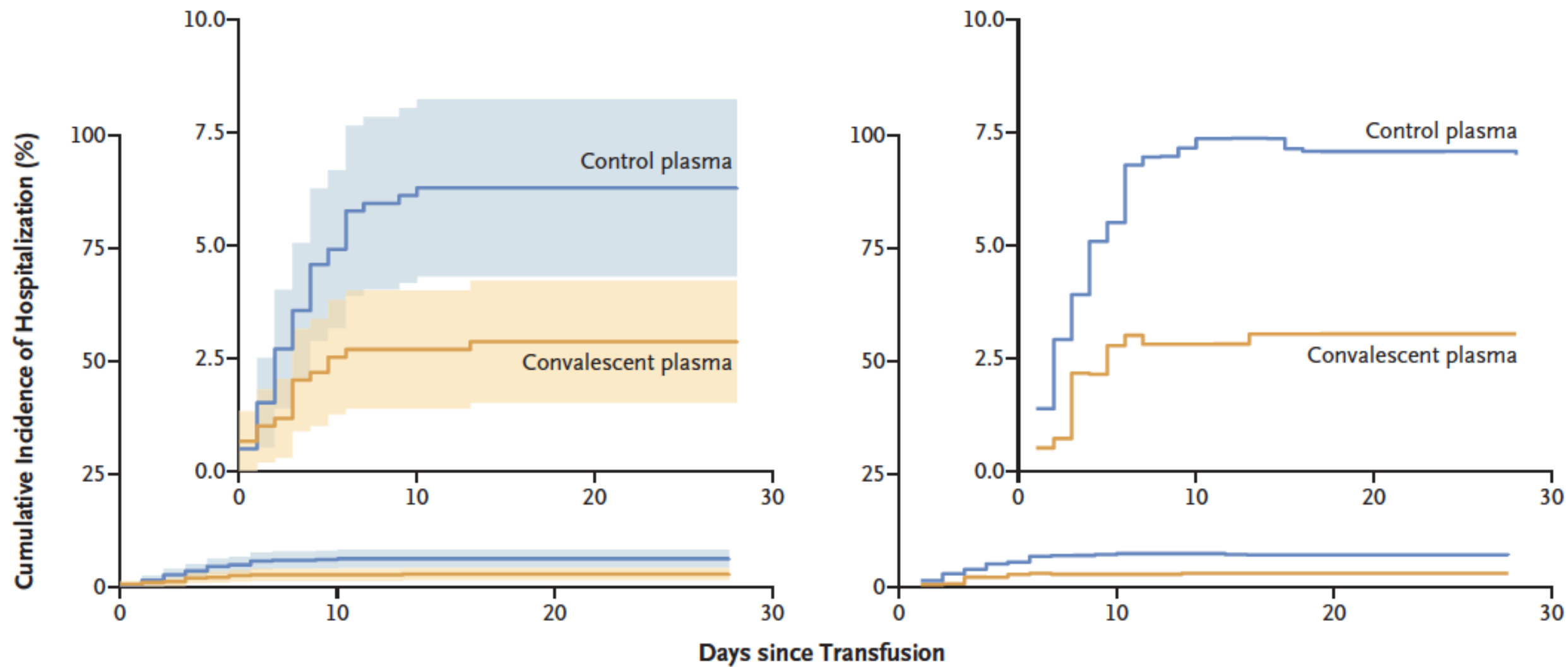
Copyright © 2022 Massachusetts Medical Society.

**Table 1.** Baseline Characteristics of the Participants in the Modified Intention-to-Treat Population.\*

Characteristic	Convalescent Plasma (N = 592)	Control Plasma (N = 589)
Median age (IQR) — yr	42 (32–54)	44 (33–55)
Age category — no. (%)		
18–34 yr	190 (32.1)	165 (28.0)
35–49 yr	207 (35.0)	208 (35.3)
50–64 yr	155 (26.2)	176 (29.9)
≥65 yr	40 (6.8)	40 (6.8)
Female sex — no. (%)	323 (54.6)	352 (59.8)
Race or ethnic group — no. (%)†		
Asian	22 (3.7)	22 (3.7)
Black	92 (15.5)	71 (12.1)
American Indian or Alaska Native	8 (1.4)	9 (1.5)
Native Hawaiian or other Pacific Islander	2 (0.3)	2 (0.3)
White	459 (77.5)	475 (80.6)
Hispanic or Latino	80 (13.5)	90 (15.3)

**Table 1.** Baseline Characteristics of the Participants in the Modified Intention-to-Treat Population.\*

Characteristic	Convalescent Plasma (N = 592)	Control Plasma (N = 589)
BMI — no. (%)‡		
≥30	210 (35.5)	234 (39.7)
≥35	97 (16.4)	107 (18.2)
Coexisting conditions — no. (%)		
Hypertension	140 (23.6)	136 (23.1)
Diabetes	49 (8.3)	50 (8.5)
Asthma	59 (10.0)	73 (12.4)
HIV infection	13 (2.2)	12 (2.0)
Pregnancy	2 (0.3)	1 (0.2)
Median time from symptom onset to transfusion (IQR) — days	6 (4–7)	6 (4–7)
Vaccination status — no. (%)		
Unvaccinated	493 (83.3)	481 (81.7)
Partially vaccinated	27 (4.6)	31 (5.3)
Fully vaccinated	72 (12.2)	77 (13.1)



**Figure 2. Cumulative Incidence of Coronavirus Disease 2019–Related Hospitalization.**

On the left, the results of the unadjusted analysis are shown. Shading indicates the 95% confidence interval. On the right, estimates according to the adjusted targeted minimum loss–based estimation model are shown. The insets show the same data on an expanded y axis.

# Other examples of teamwork

## **The Effect of Lupus Anticoagulant in the Second-Generation Assay for Activated Protein C Resistance**

*Brian D. Ragland, MD, Cari E. Reed, MT(ASCP), Barbara M. Eiland, MT(ASCP), Patricia H. Tichenor, MT(ASCP), Christine L. Hudson, MT(ASCP), George A. Fritsma, MS, MT(ASCP), Brian K. Adler, MD, and Marisa B. Marques, MD*

Am J Clin Pathol 2003;119:66-71

DOI: 10.1092/1GN6NTM7BQAP8VKX



## **Screening With the Activated Protein C Resistance Assay Yields Significant Savings in a Patient Population With Low Prevalence of Factor V Leiden**

*Laura J. Taylor, MT(ASCP), Robert A. Oster, PhD, George A. Fritsma, MS, MT(ASCP), Patricia H. Tichenor, MT(ASCP), Cari E. Reed, MT(ASCP), Barbara M. Eiland, MT(ASCP), Christine L. Hudson, MT(ASCP), and Marisa B. Marques, MD*

Am J Clin Pathol 2008;129:494-499

DOI: 10.1309/4370VLY9PBDDEWF6





# Case Study

## Rat Poisoning: A Challenging Diagnosis With Clinical and Psychological Implications

Sierra C. Simmons, MD,<sup>1\*</sup> Laura J. Taylor, MT(ASCP),<sup>2</sup> Marisa B. Marques, MD,<sup>1</sup>  
Lance A. Williams III, MD<sup>1</sup>

Laboratory Medicine 2018;00;1-4

### Lab 1

Name of Test	Result	Units Reference Range
Brodifacoum	<0.1	ug/ml

### Lab 2

Analysis and Comments	Result	Units	Reporting Limit
0406SP Anticoagulant Poisoning Panel (Qualitative), Serum/Plasma			
Analysis by High Performance Liquid Chromatography/Tandem Mass Spectrometry (LC-MS/MS)			
Brodifacoum	Positive	ng/ml	10

# PRESENTATIONS AT NATIONAL MEETINGS



Laura Taylor, Patti Tichenor and Marisa Marques: How laboratory professionals can avoid misdiagnosis of thrombophilia in protein C and protein S testing.

ASCP  
2011  
  
LAS  
VEGAS



Patti Tichenor, Laura Taylor and Marisa Marques: How the laboratory can improve anticoagulation safety.

**UAB** THE UNIVERSITY OF  
ALABAMA AT BIRMINGHAM.

LAB TEAMS DO  
NOT HAVE AN  
"OFF-SEASON"





# UAB to lead national resuscitation study in trauma patients

Written by: Allie Hulcher

Media contact: [Bob Shepard](#)

The Center for Injury Science at the University of Alabama at Birmingham, together with the School of Public Health at the University of Texas Health Science Center at Houston, has been awarded \$8.8 million by the National Institutes of Health to conduct a pivotal clinical trial in trauma patients.

The Trauma Resuscitation with Group O Whole Blood or Products, or TROOP trial, will compare two resuscitation strategies — one using whole blood, the other using component therapy — in trauma patients predicted to require large-volume blood transfusions.



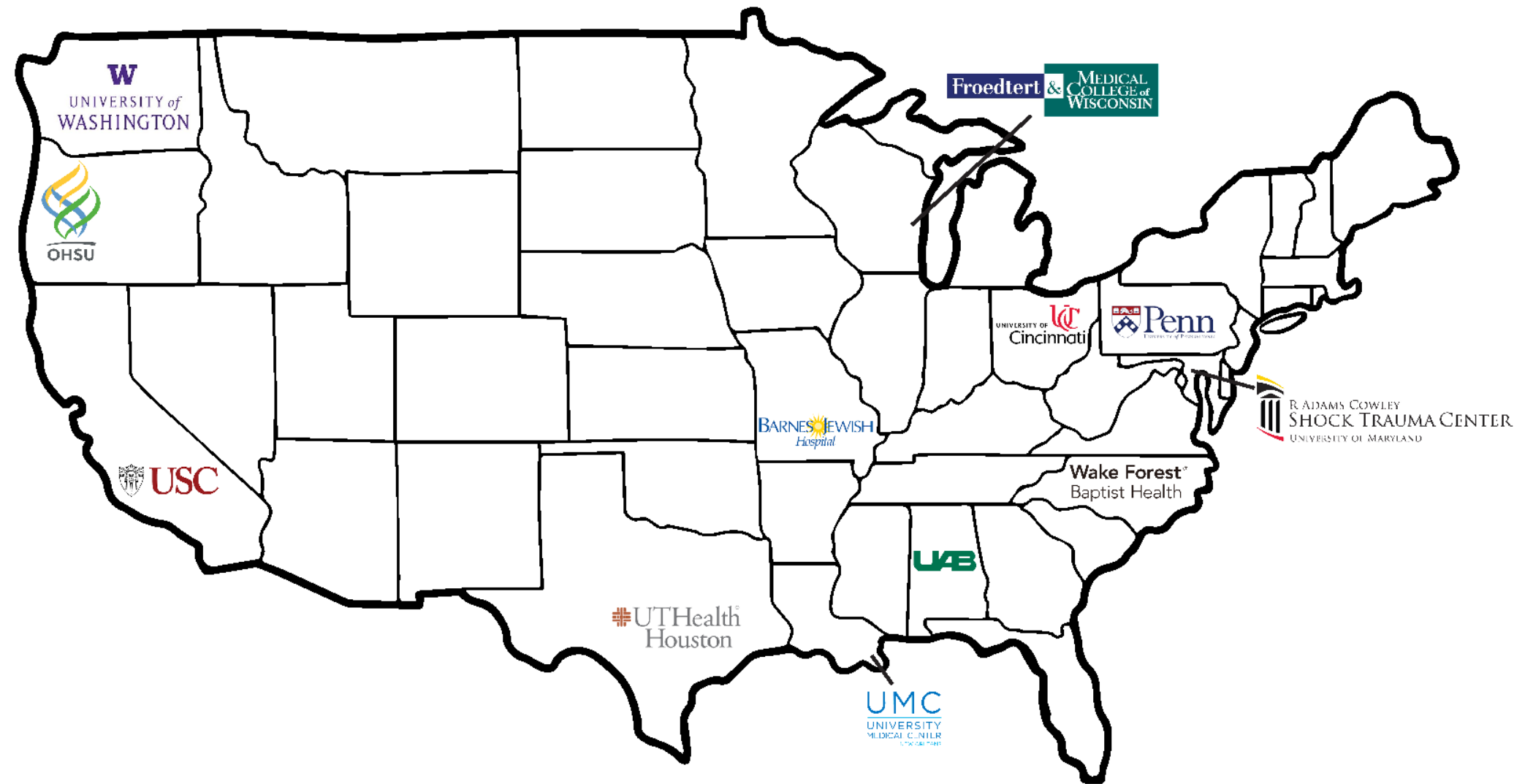
Dr. Jan Jensen

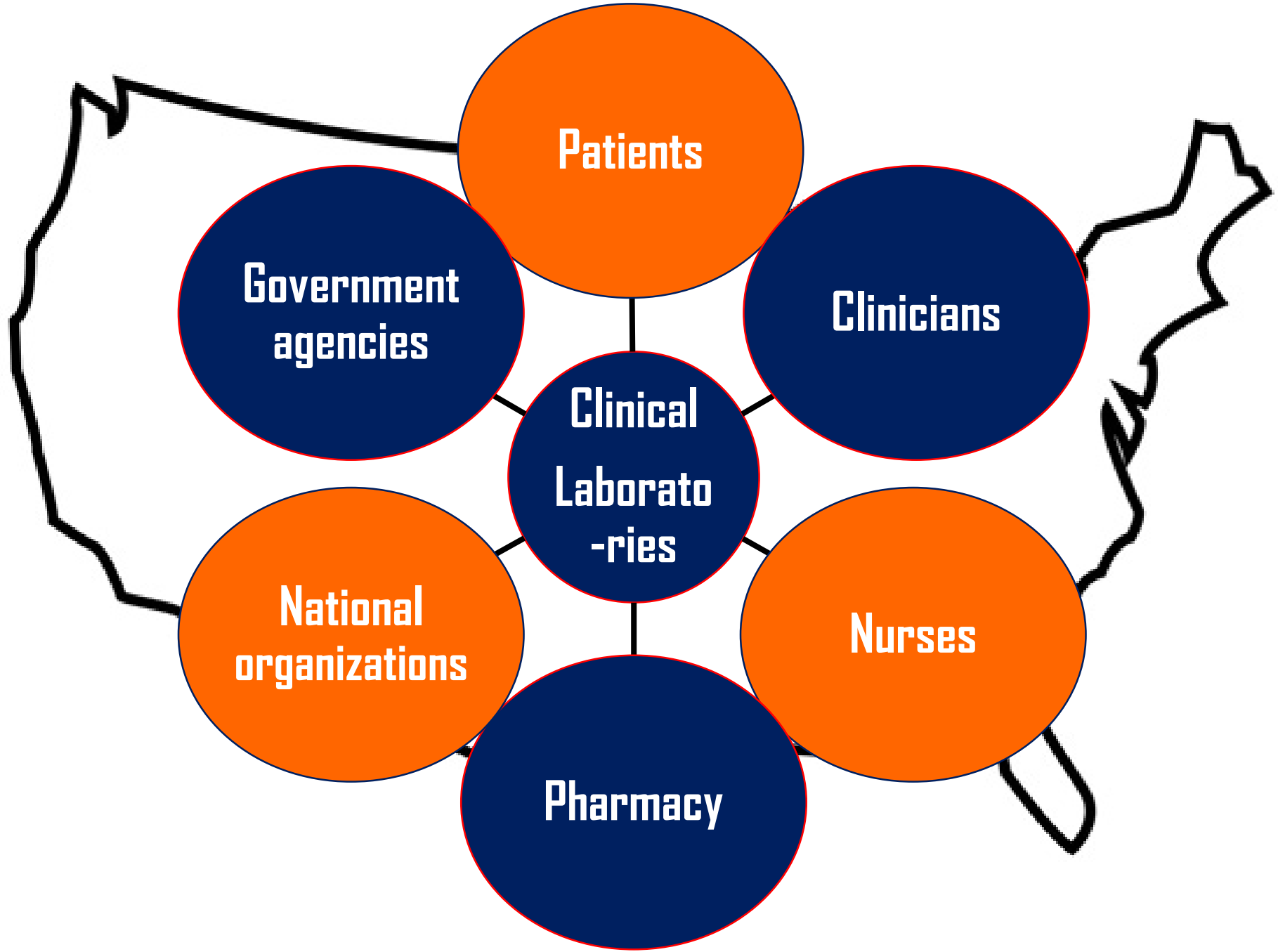


UAB Blood Bank Medical Technologists working on the TROOP study: Tammy Gray, LaKecia Watkins, Hallie Clark




# TROOP sites





“Talent wins games, but teamwork and intelligence win championships.” Michael Jordan



**AUM**  
COLLEGE OF  
NURSING & HEALTH SCIENCES

Robert and Jean  
Adams Foundation  
**9<sup>th</sup> Annual  
Clinical  
Laboratory  
Sciences  
Symposium**

March 31, 2023  
Auburn University at Montgomery

The image is a promotional poster for a symposium. It features a white background on the left with the AUM logo, and a blue-tinted laboratory background on the right. The text is arranged in a clear, hierarchical layout, with the event title in large orange letters and the date and location in white and orange text on a dark background.





**ASCP  
LAB WEEK'S  
THEME  
April 23-29,  
2023**

**UAB** THE UNIVERSITY OF  
ALABAMA AT BIRMINGHAM.

Department of Pathology

Thank you!  
[mmarques@uabmc.edu](mailto:mmarques@uabmc.edu)