



LABletter

JAN/FEB 2009

PATHOLOGY & LABORATORY MEDICINE NEWSLETTER

NEWS YOU CAN USE

Defining Critical Tests and Critical Results: The Laboratory's Contribution to Critical Care

The Joint Commission, the organization which accredits the nation's hospitals, has included two critical components of clinical laboratory services in its National Patient Safety Goals for 2009. One is the definition of critical tests; the other communication of critical results. We recently made changes to the way we handle both of these. (See separate articles in this issue.)

New Tests Implemented: ADAMTS-13

Beginning in December, the Special Coagulation Laboratory implemented testing for ADAMTS-13 (order code: ADAM13; requires one 5ml blue-top tube). Deficiency of the ADAMTS-13 protease, which cleaves von Willebrand factor, is associated with an increased risk of thrombotic thrombocytopenic purpura (TTP). Deficiency of this protease may be congenital or, more commonly, due to inhibition by an autoantibody. For more information, call Special Coagulation at 650-723-4813.

Continued on page 2

CRITICAL TESTS: When "STAT" just isn't fast enough

Mary Thorne CLS – Manager, Clinical Laboratory Quality Management

Generally, healthcare staff order laboratory testing as either "stat" or "routine". But some medical emergencies require laboratory results to be reported extraordinarily quickly. The Joint Commission first included timeliness of critical test results as one of its National Patient Safety Goals in 2005, but it is placing special emphasis on this goal this year. All organizations are expected to define "critical tests"; define the length of time acceptable for reporting such results; monitor and, if necessary, take appropriate action to improve performance.

We have defined several clinical laboratory tests as "critical" for both LPCH and SHC. These tests are available at all times and will be reported within 10 minutes (Chemistry and Hematology) or 20 minutes (Coagulation) of receipt in the laboratory. Other tests may be ordered in conjunction with these critical tests and every attempt will be made to perform these and report the results as rapidly as possible. However, only the tests in the nearby figure are defined as critical.

When you need a critical test use the special "SUPERSTAT" requisition (yellow color) which is available throughout both hospitals; if one is not available, alert the lab that you are sending a critical test specimen by calling extension 3-8889. Send specimen and superstat requisition to pneumatic tube station 809.

Do not take the time to order these tests in the hospital information system. Superstat specimens will be processed in a way different from both stat and routine specimens and results will be called to the patient's location immediately, whether they are abnormal or not. We will be

closely monitoring this new protocol to ensure that we meet the target turnaround time.

Chemistry

Blood Gases (pH, pCO₂, pO₂)
Electrolytes (Na⁺, K⁺, Cl⁻, HCO₃⁻)
Calcium
Glucose

Coagulation

Prothrombin time (PT)
Partial Thromboplastin Time (PTT)
D-dimer
Fibrinogen
Thrombin Time

Hematology

Complete Blood Count (CBC)
includes hematocrit, hemoglobin, WBC & platelet count

Critical Tests defined in the clinical laboratory for LPCH and SHC.

1. Draw tubes needed.
Green-top (or blood gas syringe)
for Chemistry
Blue-top for Coagulation
Lavender-top for Hematology



2. Pack with new "Superstat" requisition or call lab at 3-8889 to alert us.

3. Send to clinical laboratory pneumatic tube station #809

In order to achieve rapid turnaround time, follow this new superstat protocol. This protocol is not meant to take the place of stat priority, and it should be reserved for severe life-threatening situations where immediate results are needed in order to initiate appropriate therapy or prevent serious injury.

Continued on page 2

NEWS YOU CAN USE (CONT.)

New Tests Implemented: MRSA Screening

Beginning in January, California state law requires screening for methicillin-resistant *Staphylococcus aureus* (order code: ROMRSP; requires nasal swab) for a subgroup of inpatients. For more information, call Infection Control at 650-725-1106.

Rapid RSV Testing Discontinued

Rapid testing for RSV is no longer available as a stat request and direct fluorescent antibody exam for respiratory viruses (order code: DVERV; requires nasal swab in viral transport media) should be ordered instead. Rapid screening for influenza A and B is still available (until April 2009).

CUSTOMER SERVICE CALLING: Critical results from the core laboratory

Brent Tan MD – Medical Director, Customer Service

In the past, test results considered life-threatening to the patient, which are also known as “critical results”, have been called to doctors or nurses by the medical technologists performing the tests. While this approach engenders a sense of patient responsibility, technologists today perform multiple tasks; trying to reach the appropriate doctor or nurse often interferes with their other duties.

Beginning in January, most critical values encountered in the core laboratory are now routed to Customer Service from Monday at 6:00 am through Saturday at 7:00 am. These include numerical critical values, such as elevated serum potassium or low hemoglobin levels. However, the technical areas continue to call complex results, such as the identification of a new acute leukemia.

This change also presented an opportunity to improve our documentation of critical result notification throughout the laboratory. Using a new component of our laboratory information system called, appropriately, “Call Back”, the location and title of the individual receiving the critical result are now specific required entries.



Our Customer Service Department

The individuals who contributed to this project include Denise Lutz, senior operations manager for Customer Service, as well as Gay Routh, Jerry Michaud, Linda Thomason and Phil Cheng from the core laboratory; Steven Wright, Cory Spencer, and Sonny Nguyen from IT; Shirley Wong-Jose and Sim Castro from Education; and Barbara Schmale from Customer Service.

With the success of this project, we look forward to moving more types of calls into Customer Service to provide additional support to our highly trained technologists.

LABletter

Published by the Department of Pathology, Stanford University Medical Center. For more information about Stanford's Pathology and Laboratory Medicine services, visit www.stanfordlab.com. If you have questions or comments, please e-mail your inquiry to askthelab@stanfordmed.org.

TEST	AGE RANGE (if not all ages)	CRITICAL RESULT	TEST	CRITICAL RESULT
Sodium		<125 or >160 mmol/L	PT	INR >5
Potassium	<1 week	<2.5 or >6 mmol/L	PTT	>100 seconds
Chloride	>1 week	<3.0 or >6 mmol/L	Fibrinogen	<100 mg/dl
Carbon Dioxide		<80 or >120 mmol/L	Unfract. heparin	<0.1 or >0.7 U/ml
Anion Gap		<10 or >40 mmol/L	WBC	<0.5 K _{ij} /L (if out-patient)
Glucose	<2 days	>30 mmol/L	Abs. Neutrophil Count	>50 K _{ij} /L (except CLL)
	2 days - 1 year	<35 or >200 mg/dl	Hemoglobin	<0.5 K _{ij} /L (if out-patient)
	1 year - 17 years	<40 or >300 mg/dl	Hematocrit	<7.0 g/dl
	>17 years	<55 or >300 mg/dl		<21 or >65%
Total Bilirubin	<1 day	>55 or >450 mg/dl	Platelet Count	<100,000 K _{ij} /L with microangiopathy
	1 - 2 days	>8 mg/dl		or <50,000 K _{ij} /L (if from L&D)
	2 - 30 days	>13 mg/dl	Peripheral Smear	otherwise <10,000 K _{ij} /L
Total Calcium		>15 mg/dl		Intracellular organisms or
Free (ionized) Calcium		<6.5 or >13 mg/dl	Transfusion Request	blasts (initial or relapse)
Iron		<0.8 or >1.6 mmol/L	CSF	Positive antibody screen
Phosphate	<3 years	>350 mg/dl	Any Body Fluid	or 2-fold increase (if prenatal)
	3 - 12 years	<2.5 mg/dl	Blood Culture	WBC >30 K _{ij} /L, blasts or tumor
	>12 years	<2.0 mg/dl	Stool Culture	Intracellular organisms,
Magnesium		<1.5 mg/dl	CSF Viral Tests	blasts or tumor cells
pH		<1.0 or >3.5 mg/dl	Respiratory Viruses	Any positive
pCO ₂		<7.20 or >7.60	Any Microbiology	Positive (if Pediatric or ED)
pO ₂		>65 mmHg	or Virology Test	Any bioterrorism agent
Carboxyhemoglobin		<50 mmHg		
Troponin		>20%		
		>0.3 ng/ml		

Critical Results defined in the clinical laboratory for LPCH and SHC.