RANCHO LOS AMIGOS
NATIONAL REHABILITATION CENTER

ADMINISTRATIVE POLICY AND PROCEDURE

Subject: REPORTING OF CRITICAL LABORATORY TESTS, AND CRITICAL RESULTS OR VALUES AND SIGNIFICANT MEDICAL IMAGING OR DIAGNOSTIC LABORATORY RESULTS

Policy No.: B856

Supersedes:	October 24, 2017	Review Date:	July 19, 2023
Origin Date:	October 9, 2009	Revision Date:	July 19, 2023

PURPOSE:
This policy and procedure addresses timely communication of Radiology, Diagnostic Laboratory and Clinical Laboratory critical values and significant positive findings.

POLICY:

The Power Scribe (PS 360) – formerly known as Vocada Veriphy System - is a contracted service used to communicate Radiology and Diagnostic Laboratory (e.g., ECG, ECHO, HOLTER and EX-TEST) results. This automated system contacts the ordering stakeholders and tracks retrieval of information.

The Clinical Laboratory will contact providers/designees directly via telephone and will document the critical laboratory value or significant positive findings with read-back directly into Orchid using the LIS CSM module.

PROCEDURES:

A. Power Scribe 360

1. Key elements of the Power Scribe 360 (PS 360) communication system.
   Critical value and provider information is entered in the Vocada system by Radiology & Diagnostic Lab staff.
   a. PS 360 notifies the provider and patient unit/clinic with a call-back phone number and reference code.
      i. The provider has previously specified the preferred method of communication for such information (e.g., via pager or telephone).
      ii. The ordering clinic/location receives fax notification from PS 360 including test results, telephone contact information and case reference code.
   b. Provider or unit representative contacts PS 360 to retrieve the critical value information and close out the report.
   c. PS 360 automatically contacts provider every 10 minutes (during a 30 minute window) – until the report is closed. If provider does not respond within the 30-minute timeframe, PS 360 notifies the originating diagnostic service.

2. Read Back Requirements:
   When the provider returns the call, the PS 360 System will automatically document the following information:
   a. Date and time of the call.
   b. Name of the Patient and Medical Record Number.

Approved By: Aries Limbaga
Digitally signed by Aries Limbaga
Date: 2023.07.19 12:46:15 -07'00'

c. Actual test result value reported.
d. Name of the Provider answering the call.
e. Confirm that READBACK is correct.

B. Reporting Clinical Lab/Pathology Critical Values (See Attachment I- DHS Expected Practice-Laboratory Medicine Critical Laboratory Values List)

1. The laboratory goal for reporting a critical value to the provider or to the licensed designee is 10 minutes. If the attempt to make a critical call exceeds 10 minutes, lab personnel will perform two repeat attempts at 10-minute intervals (for a total of 30 minutes).

2. The lab personnel may call the Registered Nurse (RN) or Licensed Vocational Nurse (LVN) to notify the critical results if unable to reach the ordering provider or designee.

3. The nursing staff is expected to notify the primary/on-call provider or chief of service as soon as possible to take appropriate action within 60 minutes and document the communication in the electronic medical record.

   KEY POINT: Critical Lab Values (CLV) test results are not to be left with an answering service, e-mail or clerical staff/secretary.

4. **REPORTING CRITICAL AND SIGNIFICANT CLINICAL LABORATORY RESULTS FOR TESTING PERFORMED AT RLA LAB DURING BUSINESS HOURS**
   a. Lab Read-back process:
      i. Documentation of the critical value result communication and read-back information must be performed by lab personnel using the Cerner ORCHID CSM module at the time the CLV is communicated.
      ii. Anatomic pathology results may be communicated via the ORCHID messaging system with acknowledgment of receipt documented on the official pathology report which is posted in the PowerChart for the patient medical record.
      iii. CLVs for patients whose orders originate from other DHS facilities will be called by the lab personnel to the laboratory affiliated with the ordering provider
   b. Nursing Read-back process:
      i. Nursing staff will proceed to inform the provider and will document the following information in the electronic medical record under Provider Notification:
         - Notification reason
         - Notification details
         - Results reported by
         - Able to reach the provider
         - Provider notification date/time
         - Provider informed
         - Provider readback
         - Provider notification time reported
         - Provider requested interventions

5. **REPORTING RESULTS AFTER BUSINESS HOURS (After 1630, weekends, holidays)-**
   a. Inpatient Coverage:
      i. Lab personnel will notify the patient's primary nurse.

ii. The nursing staff is expected to notify the on-call provider as soon as possible to take appropriate action within 60 minutes and document the communication in the electronic medical record.

b. Outpatient Coverage:
   i. Lab personnel will call the on-call ambulatory care provider **(Use link for On-Call Physician schedule to determine provider on call).**
   ii. In the event the on-call ambulatory care provider is not reached after the 3rd attempt, the lab will escalate the call to the Chief Medical Officer of Ambulatory Care.
   iii. If unable to reach the designated CMO, call the operator to request the HOD be contacted.

6. **Critical and significant clinical laboratory results for testing performed at other DHS labs will be reported to the lab where the order originated**.

7. **Critical Lab Results from Reference Laboratories:**
   The performing Reference Laboratory will notify RLA laboratory lab personnel of Critical Lab Results. The result will be phoned to the ordering physician or unit caretaker and documented on the "Communication log (for all reference labs) form".

8. **Documentation Format for Notification of Critical Lab Result**
   The following format should be used to enter notification documentation into the LIS CSM Module:

   CRITICAL RESULT CALLED TO
   AND READ BACK BY: _.
   DATE/TIME CALLED: _.
   CALLER: _.

   For Reference Laboratories, documentation for notification of critical lab result should follow the same format by using the canned comment "QACRIT" under Order Comment which can be expanded to:

   Critical result called to _ at _ by _. Read back and verified _

C. Reporting Significant Positive Diagnostic Laboratory Results
See Attachment II for abnormal diagnostic lab test result guidelines.

D. Reporting Significant Positive Imaging Studies Results
See Attachment III for the communication of significant positive radiological results.

ATTACHMENTS:
Attachment I – DHS Expected Practices- Laboratory Medicine: Critical Laboratory Values List
Attachment II – Abnormal Diagnostic Lab Test Results
Attachment III – Significant Positive Radiology Exams

Health Services
LOS ANGELES COUNTY

DHS Expected Practices

Specialty: Laboratory Medicine

Subject: Critical Laboratory Values List

Date: February 19, 2021

Purpose:

To define and standardize a list of Critical Laboratory Values to be used throughout DHS in order to increase patient safety and quality of care.

Background:

A critical value is a test result value that is abnormal enough to warrant immediate attention by a clinician. Reporting of critical lab values is increasingly regulated by agencies and quality management organizations as a significant marker of patient-centered care. The Joint Commission and the College of American Pathologists emphasize critical values reporting as a key patient safety standard. The values in the attached list values were established after an extensive vetting process, including review by the DHS Clinical Lab Medical Directors Committee.

Target Audience:

All medical providers, nursing staff, and laboratory staff.

Expected Practice:

Each critical value identified on the below-referenced list will be reported via telephone to the licensed care provider who ordered the test or who is caring for the patient, and the call will be documented in ORCHID. The DHS Clinical Lab Medical Directors Committee will periodically review the List to make improvements and respond to changes in evidence.

Please Note

This *Expected Practice* was developed by a DHS Specialty-Primary Care Work Group to fulfill the DHS mission to ensure access to high-quality, patient-centered, and cost-effective health care. SPC Work Groups, composed of specialist and primary care provider representatives from across LA County DHS, are guided by 1) real-life practice conditions at our facilities, 2) available clinical evidence, and 3) the principle that we must provide equitable care for the entire population that LA County DHS is responsible for, not just those that appear in front of us. It is recognized that in individual situations a provider's clinical judgment may vary from this *Expected Practice*, but in such cases compelling documentation for the exception should be provided in the medical record.

As with all expected practices, clinicians should exercise their own clinical judgment to ensure that patients get appropriate care as needed.

Doing so may include contacting a consultant or re-eConsulting if they feel that recommendations are not aligned with the expected practices described here, doing so is warranted, or if the patient's condition changes.

Critical Laboratory Values – Los Angeles County DHS*

TEST	PATIENT AGE	UNIT	LOW	HIGH
Blood Gases				
Arterial or Venous pH	0 -1 month		<7.21	>7.49
	>1 month to adult		<7.21	>7.59
Umbilical Cord Arterial Blood pH	at birth		<7.01	
Umbilical Cord Venous Blood pH	at birth		<7.21	
Arterial or Venous pCO2	0 -1 month	mmHg	<31	>69
	>1 month to adult	mmHg	<21	>69
Arterial pO2		mmHg	<55	
Venous pO2		mmHg	<21	
Arterial or Venous Carboxyhemoglobin		%		>9.9
Arterial or Venous Methemoglobin		%		>9.9
Umbilical Cord Arterial Base excess	at birth	mmol/L	< -15.9	
Chemistry				
Bicarbonate	0 -1 month	mmol/L	<16	>39
	>1 month to adult	mmol/L	<11	>39
Bilirubin, Total	1st 24 hrs	mg/dL		>7.9
	> 1 day to 1 month	mg/dL		>11.9
Calcium, ionized		mg/dL	<3.5	>6.0
Calcium, total		mg/dL	<6.6	>12.9
Glucose	0 -1 month	mg/dL	<41	>199
	>1 month to 16 years	mg/dL	<41	>249
	>16 years	mg/dL	<41	>449
Lactate		mmol/L		>3.9
Magnesium	All ages	mg/dL	<1.1	>4.8
	Labor & Delivery	mg/dL	<1.1	>7.2
Phosphorus	0 -1 month	mg/dL	<2.1	
	>1 month to adult	mg/dL	<1.1	
Potassium	0 -1 month	mmol/L	<2.6	>5.9
	>1 month to adult	mmol/L	<3.0	>5.9
Sodium		mmol/L	<121	>159
Troponin T		ng/mL		≥0.10
Troponin I		ng/mL		≥0.30
Coagulation				
Activated Partial Thrombin Time (aPTT)		seconds		>115
Fibrinogen		mg/dL	<101	

TEST	PATIENT AGE	UNIT	LOW	HIGH
INR				>3.99
Anti-Xa (Low Molecular Weight heparin)		IU/mL		>1.99
Anti-Xa (unfractionated heparin)		IU/mL		>0.99
Hematology				
WBC		K / cu mm	<1.1	>49.9
Band Count (bandemia)		%		>24
ANC (absolute neutrophil count)		K / cu mm	<0.6	
Hemoglobin	<2 months	g/dL	<6.6	>21.9
	2 months to adult	g/dL	<6.6	>19.9
Hematocrit	<2 months	%	<19.6	>65.9
	2 months to adult	%	<19.6	>59.9
Platelet Count	0 -1 month	K / cu mm	<61	>999
	>1 month to adult	K / cu mm	<21	>999
Microorganisms (i.e., malaria, babesia, trypanosomes, leishmania, microfilaria, fungi, bacteria, etc) detected on peripheral blood smear, in CSF, or in body fluids		Qualitative		Positive
CSF WBC count (Birth to 28 days)		Per cu mm		>20
CSF WBC count (>28 days)		Per cu mm		>9
Microbiology				
Blood Culture		Qualitative		Positive
CSF Gram Stain		Qualitative		Positive
Parasites seen in any microbiology preparation of a thin or thick smear for detection of blood parasites (i.e., malaria, babesia, trypanosomes, leishmania, microfilaria)		Qualitative		Positive
Blood Bank (Transfusion Medicine)				
Bacterial contamination of transfused blood product		Qualitative		Positive
ABO incompatible transfusion reaction		Qualitative		Positive
Anatomic Pathology				
No Products of conception in endometrial evacuation		Qualitative		Positive
Herpes in GYN Pap smear of pregnant patient		Qualitative		Positive
Biopsy suggests perforation or penetration of an organ		Qualitative		Positive
Bacteria, yeast, fungi in explanted heart valve or bone marrow biopsy; or mucormycosis in tissue		Qualitative		Positive

TEST	PATIENT AGE	UNIT	LOW	HIGH
Crescents in renal biopsy		Qualitative		Positive

Therapeutic Drug Potentially Toxic (Critical) Values

A. Drugs with separate potentially toxic values for peak and trough levels

TEST	UNIT	Trough	Peak	Random
Cyclosporine	ng/mL	>360	>1500	>1500
Gentamicin (conventional dosing)*	mcg/mL	>2.5	>12.0	>12.0
Tobramycin (conventional dosing)*	mcg/mL	>2.5	>12.0	>12.0
Vancomycin	mcg/mL	>25.0	>80.0	>80.0

* Interpretation of the aminoglycoside values depends on renal function

B. Drugs with a single potentially toxic value (no separate values for peak and trough)

TEST		UNIT	POTENTIALLY TOXIC VALUE
Carbamazepine (Tegretol)		mcg/mL	>12.0
Digoxin		ng/mL	>2.0
Iron (for assessing overdose)		mcg/dL	>300
Lithium		mmol/L	>2.00
Magnesium, Labor & Delivery (3B)		mg/dL	>7.2
Phenobarbital		mcg/mL	>50.0
Phenytoin (Dilantin or Fosphenytoin)		mcg/mL	>25.0
Tacrolimus		ng/mL	>20.0
Theophylline	0 – 5 months	mcg/mL	>10.0
	5 months to adult	mcg/mL	>20.0
Valproic Acid and Divalproex Sodium		mcg/mL	>150

C. Drugs for which potentially toxic (critical) value is dependent on collection time

Values above the following will be called to the ward

TEST	UNIT	POTENTIALLY TOXIC VALUE
Acetaminophen	mcg/mL	>49.9
Methotrexate	μmol/L	>10.00
Salicylate (for assessing overdose)	mg/dL	>29.9

D. Environmental exposure

TEST	UNIT	POTENTIALLY TOXIC VALUE
Lead (EDTA plasma)	mcg/dL	>45

ABNORMAL DIAGNOSTIC LAB TEST RESULTS

RED FINDING	ORANGE FINDING	YELLOW FINDING
Those values/interpretations that indicate the patient is in imminent danger of death, significant morbidity, or serious adverse consequences unless treatment is initiated immediately. **These values/Interpretations require immediate (within 1 hour) notification of the responsible (ordering or covering) physician** who can initiate the appropriate clinical action for the patient.	Those test values/interpretations that indicate significant abnormalities that warrant rapid, but not immediate attention by the responsible clinician. These values do not represent a clinical emergency and do not warrant a stat page to the physician. These values however require prompt clinical attention for the patient or for the patient's contacts to avoid serious adverse outcomes. Physicians should be notified of these values/interpretations within the shift (target 6-8 hours) and an acknowledgment is required.	Those test values/interpretations that indicate a significant abnormality that may threaten life, or cause significant morbidity, complications, or serious adverse consequences unless diagnosis and treatment is initiated in a timely and reliable manner. There is no immediate threat to life. These test values/ interpretations are targeted at diseases that merit timely detection and evaluation and for which corrective action can be taken. Physician notification and acknowledgment should occur within three days.
ECG Significant ST segment evaluation **NEW ONSET** A-Fib/Flutter, SVT, 2nd or 3rd AV Block BBB, WPW **ECHO** Tamponade **HOLTER** Episode(s) of sustained V-Tach **EX-TEST** Onset during exercise without resolution post-exercise of the following: A/Fib/Flutter, SVT, 2nd or 3rd AV Block BBB, WPW, significant ST-T changes Pre-exercise contraindications to exercise Signs or symptoms of ischemia Signs of symptoms of CHF	**ECG** Uncontrolled ventricular rate in A-Fib/Flutter (HR> 120) Complex ventricular ectopy (Vtach > 3 beats, frequent multifocal PVCs, etc) **ECHO** Circumferential pericardial effusion Pleural Effusion **HOLTER** HR< 30 BPM HR> 140 BPM (adult) at rest HR> 160 BPM (peds) at rest Intermittent A/Fib/Flutter, SVT, 2nd or 3rd AV Block BBB, WPW Complex ventricular ectopy (Vtach > 3 beats, frequent multifocal PVCs, etc) Significant ST segment depression or elevation **EX-TEST** Significant drop in BP with exercise especially along with other signs or symptoms of LV dysfunction and/or at a low workload Onset during exercise of the following: A-Fib/Flutter,SVT, 2nd or 3rd AV Block BBB, WPW Complex ventricular ectopy (Vtach > 3 beats, frequent multifocal PVCs, etc) Uncontrolled ventricular rate in AFib/Flutter Angina/chest pain Significant ST segment depression or elevation Pre-exercise systolic BP> 200 Pre-exercise diastolic BP> 120	**ECG** HR< 40 BPM HR> 140 BPM (adult) at rest HR> 160 BPM (peds) at rest **ECHO** New identification of the following: Severe LV dysfunction Thrombi Wall motion abnormalities Mitral & aortic stenosis Severe valvular regurgitation **HOLTER** Frequent uniform PVCs, sinus tachycardia (HR>140) **EX-TEST** Decrease in SaO_2 <85%

Health Services
LOS ANGELES COUNTY

Expected Practices

Specialty: Radiology, Nuclear Medicine

Subject: Reporting Critical Imaging Results

Date: July 1, 2022

Purpose: Outline the appropriate mechanism for communicating and documenting critical (immediate, urgent, confirmed) imaging results

Target Audience: Radiology, Nuclear Medicine, Providers ordering and responsible for imaging results

Background: Interpreting radiologists and nuclear medicine physicians are expected to provide documented communication of critical imaging findings, as defined by the DHS Critical Radiology Notification List (detailed below), to the appropriate provider (ordering provider, covering provider or current medical team) either by telephone conversation, ORCHID message, secure email or face-to-face discussion. The escalation tree for provider communication follows the local facility process and is ultimately brought to the Chief Medical Officer or Medical Director if the appropriate provider cannot be contacted.

In order to document and track the confirmed notification of these results, interpreting radiology providers should also document their communications within Fluency using the dedicated *Critical Findings* tool. The workflow for entering this documentation is detailed below.

In addition to this requirement for imaging results communication by the radiologist, ordering providers remain responsible for the results and follow up of imaging orders and should always check the medical record for the formal written radiology report.

Please Note

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As with all expected practices, clinicians should exercise their own clinical judgment to ensure that patients get appropriate care as needed.

Doing so may include contacting a consultant or re-eConsulting if they feel that recommendations are not aligned with the expected practices described here, doing so is warranted, or if the patient's condition changes.

DHS CRITICAL RADIOLOGY NOTIFICATION LISTS

Radiology-Primary Care Workgroup – July 1, 2022

Definitions:

- **Immediate Notification:** A situation where the radiologist reads a study and recognizes an immediate, imminent danger to life, limb, or public health. This requires an immediate communication to the provider or appropriate contact as soon as possible but not to exceed 1-hr. The radiologist would be required to document the time and the name of the provider whom they notified.

- **Urgent Notification:** A situation that is important but not life threatening, where the radiologist is required to communicate to the provider or appropriate contact within 8-hrs. The radiologist or department should keep a record of whoever was notified.

- **Confirmed Notification:** A situation where the radiologist reads a study and recognizes a condition where follow-up is essential. The finding would be such that a radiologist should not rely on the provider to find the results. Notification is not urgent, but should be confirmed, and notification should be sent to the referring service within 1-week. The radiologist or department should keep a record of whoever was notified.

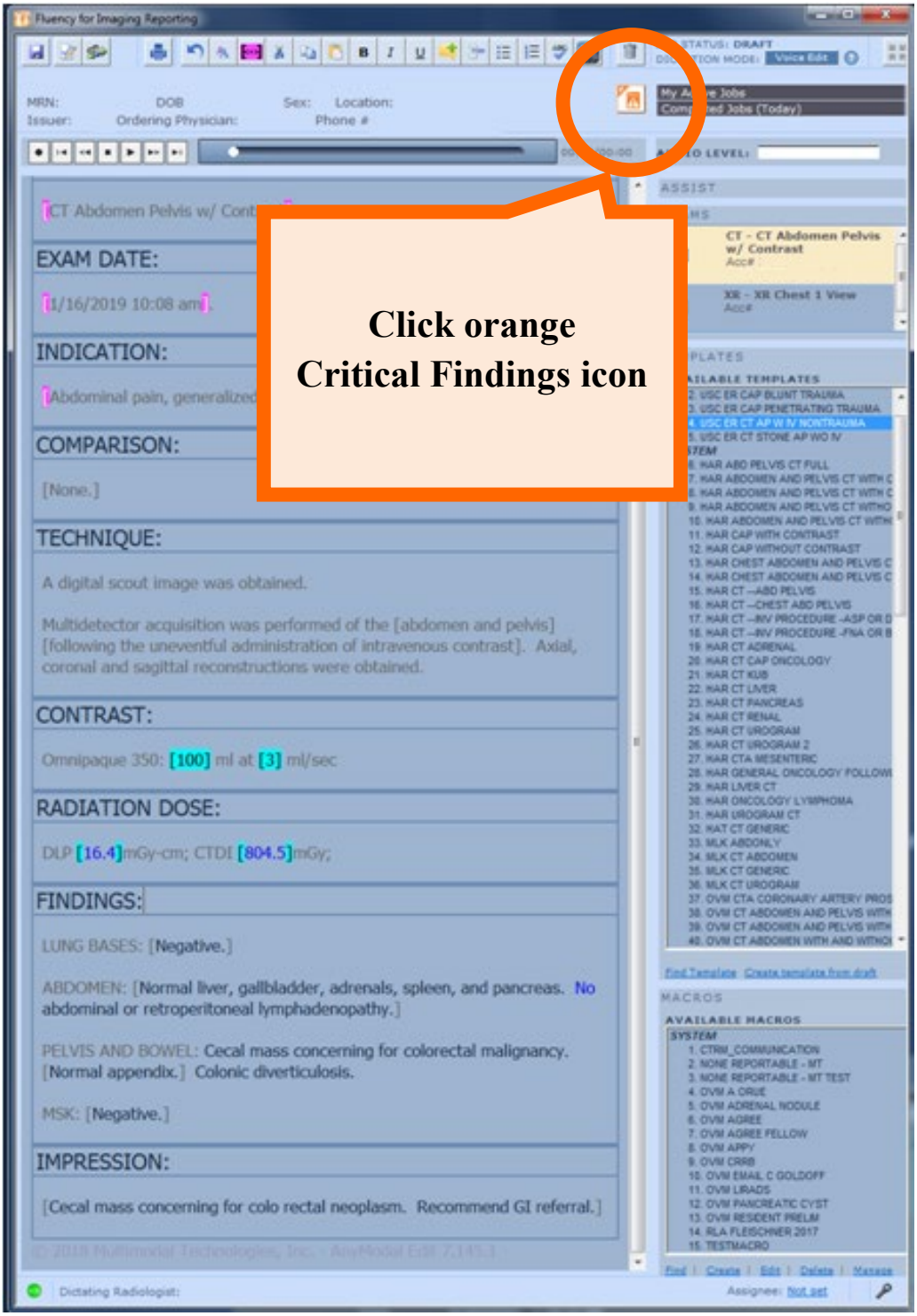
Lists:

- **Immediate Notification List: (critical results read back within 1-hr. of Radiology interpretation)**
  - Evidence of new/worsening/unsuspected increased intracranial pressure (i.e. bleed, mass, edema, shift)
  - Leaking aneurysm (cerebral, thoracic, abdominal), acute aortic syndrome (new or progressive major vessel dissection, pseudoaneurysm, intramural hematoma, etc.)
  - Unsuspected acute ischemic stroke
  - Spinal fracture with instability
  - Acute cord compression
  - Dangerous malposition of central line, endotracheal tube or nasoenteric tube
  - New pulmonary embolism
  - Highly suspected active tuberculosis
  - Pneumothorax (new, increasing or unsuspected)
  - New or unsuspected large sized pericardial effusion
  - Emergent surgical or interventional abdomen (eg acute hemorrhage with active bleeding, unexpected free air, bowel/organ perforation, appendicitis, etc.)
  - Suspected necrotizing infection
  - Suspected child abuse
  - Actionable retained foreign body
  - Ectopic pregnancy (confirmed or suspected), hemoperitoneum/mass in pregnant patient, etc.
  - Acute testicular or ovarian torsion suspected (mass, abnormal Doppler, absent or reversed end diastolic flow)
  - Any change to a preliminary read that would urgently impact patient care
  - Any finding which represents an immediate, imminent danger to life, limb, or public health

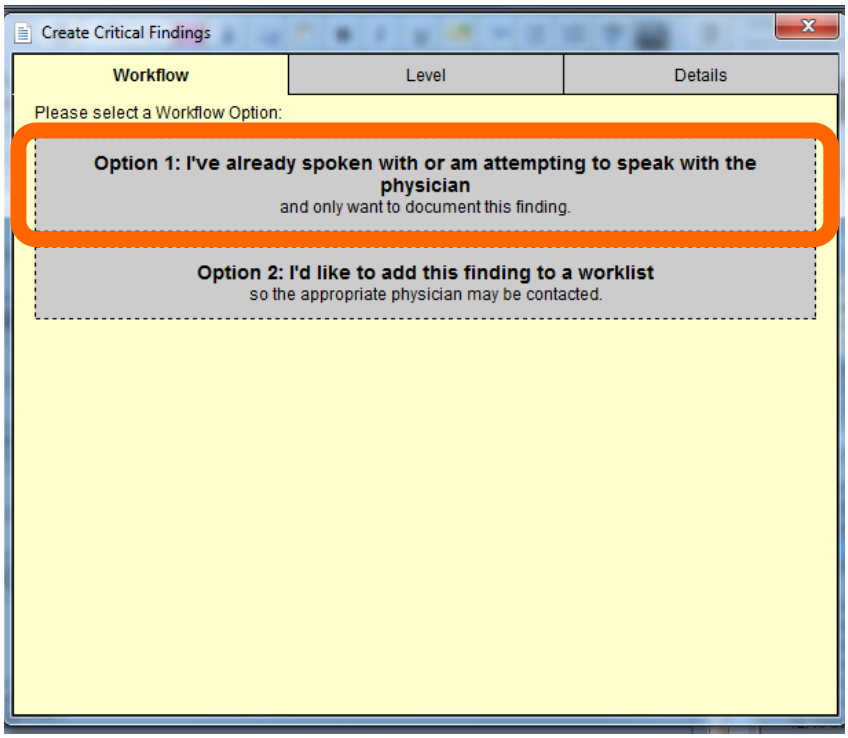
- **Urgent Notification List: (critical results read back within 8-hrs of Radiology interpretation)**
  - Acute deep venous thrombosis
  - Moderate to severe obstructive uropathy (unsuspected, new or increasing)
  - New or unsuspected urgent fetal anatomic or functional abnormality
    - Fetal demise (confirmed or suspected)
    - Concern for molar pregnancy
    - Oligohydramnios (AFI < 5 cm, MVP < 2 cm)
    - Intrauterine growth restriction (AC <3%, increased HC:AC ratio, abnormal Dopplers)
    - Short cervix in 2nd trimester (< 3 cm, TVUS, empty bladder)
    - Fetal hydrops (new or unsuspected)

- **Confirmed Notification List: (notification within 1-week of Radiology interpretation)**
  - Unsuspected finding highly worrisome for malignancy
  - Unsuspected sizable aneurysm or rapid growth (Aorta > 5 cm, > 1 cm growth/year or > 5 mm/6 mo)
  - Unsuspected significant prenatal anatomic structures or functional abnormality (cardiac, spinal, organ, mass, etc.)
  - Suboptimally imaged prenatal anatomic structures or components which are still not adequately visualized at the time of the follow-up ultrasound (at the 2nd anatomy scan attempt).
  - Complete placenta previa/accreta/percreta
  - Any change to a preliminary read that would impact patient care

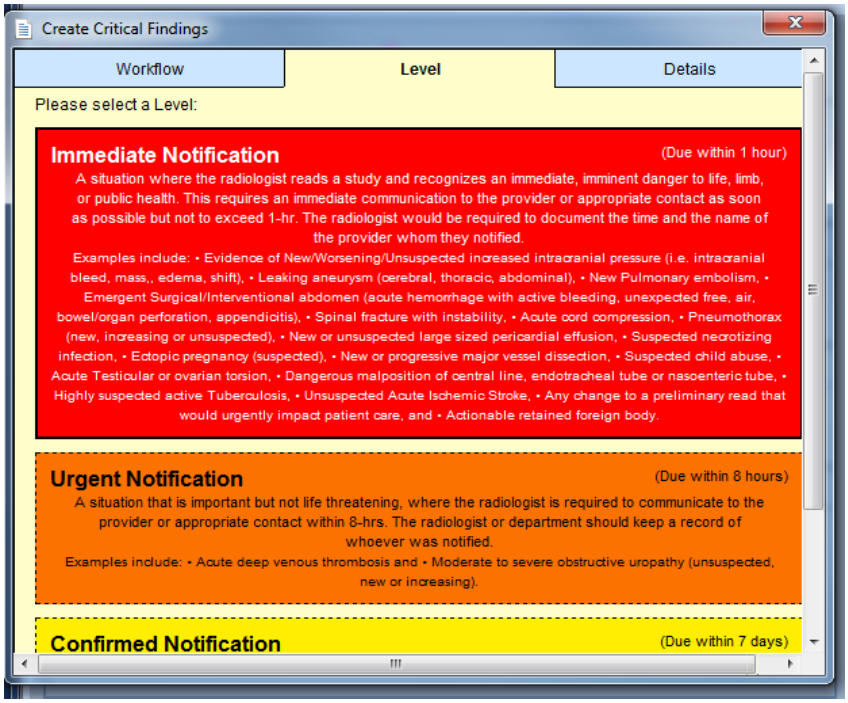
Step 1: After communicating critical finding with the appropriate clinical provider, launch Fluency report and click the orange Critical Findings icon on the upper right side of the report window. See circled icon on the screenshot below:



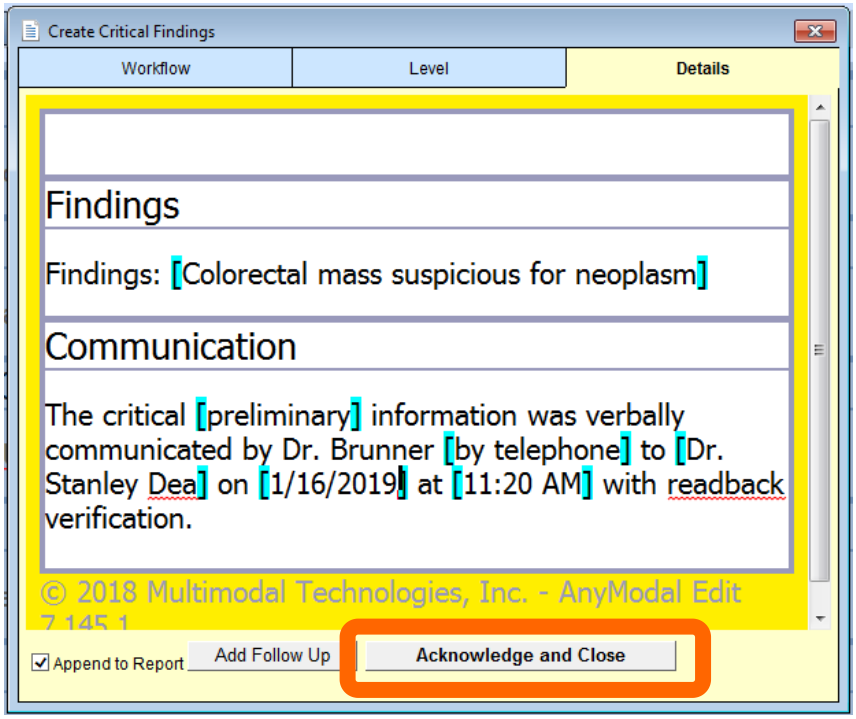
Step 2: The Critical Findings dialog box will open. Select Option 1 if finding has been discussed with clinician.



Step 3: Choose between Immediate, Urgent and Confirmed Notification based on the acuity of the finding. Refer to the DHS Critical Radiology Notification List for guidance.



Step 4: Complete the appropriate information within the Findings, Communication and Follow up forms to document the critical results. Click the "Acknowledge and Close" box.



Step 5: The dialog box will close and the information will be appended to the bottom of the report (See below). Sign the report. Documentation will be recorded in the Fluency tracking system.