Alberta Health Services

Laboratory Bulletin

Date: **February 6, 2014**

To: **South Zone East - Medicine Hat Regional Hospital**
Physicians, Nursing and Laboratory Staff

From: **AHS Laboratory Services – South Zone East**

Re: **Changes to D-dimer Testing and Reporting at Medicine Hat Regional Hospital Laboratory**

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Key Messages:

- D-Dimer reporting will change from a qualitative Positive or Negative result to a numerical value with the reference range of less than 0.5 ug FEU/mL (this is the only cut-off value validated for this reagent)
- The **qualitative** D-dimer method (Simplify) will no longer be available.
- Abnormal D-dimer results will not be considered critical results and will not be phoned.

Indications for ordering D-dimer:

- The **only** clinical indication for D-dimer testing is to help exclude deep venous thrombosis or pulmonary embolism when the D-Dimer result is less than 0.5 ug FEU/mL in patients with a "non-high" for DVT or "unlikely" for PE clinical probability of having these conditions.
- A D-dimer result less than 0.5 ug FEU/mL in patients likely to have DVT or pulmonary embolism using the Well's clinical criteria is **not useful** in excluding these conditions.
- A positive D-dimer (greater than 0.5 ug/mL) is **not diagnostic** of DVT or pulmonary embolism as many other conditions can cause a positive D-dimer.

Interpretation Guideline;
In conjunction with a non-high clinical probability assessment, a normal (< 0.5 ug FEU/ml) excludes deep vein thrombosis (DVT) and pulmonary embolism (PE) with high sensitivity.

Pulmonary Embolism (PE)

The negative predictive value for PE of a value < 0.5 ug FEU/ml combined with a "PE unlikely" score of less than or equal to 4 using the Wells criteria for pulmonary embolism was 99.4%.

Wells criteria and modified Wells criteria: clinical assessment for pulmonary embolism *	
Clinical symptoms of DVT (leg swelling, pain with palpitation)	3.0
Other diagnosis less likely than pulmonary embolism	3.0
Heart rate > 100	1.5
Immobilization (≥ days) or surgery in the previous four weeks	1.5
Previous DVT/PE	1.5
Hemoptysis	1.0
Malignancy	1.0
Probability	**Score**
Traditional clinical probability assessment (Wells criteria)	
High	> 6.0
Moderate	2.0 to 6.0
Low	< 2.0
Simplified clinical probability assessment (Modified Wells criteria)	
PE likely	> 4.0
PE unlikely	≤ 4.0

Data from van Belle, A, et al. JAMA 2006; 295:172.

Deep Vein Thrombosis (DVT)

The negative predictive value for DVT of a value < 0.5 ug FEU/ml combined with non-high Wells score for DVT (less than or equal to 3) was 99.4%.

Pre-test probability of deep vein thrombosis (Wells score) *	
Clinical feature	**Score**
Active cancer (treatment ongoing or within the previous 6 months or palliative)	1
Paralysis, paresis, or recent plaster immobilization of the lower extremities	1
Recently bedridden for more than 3 days or major surgery, within 4 weeks	1
Localized tenderness along the distribution of the deep venous system	1
Entire leg swollen	1
Calf swelling by more than 3 cm when compared to the asymptomatic leg (measured below tibial tuberosity)	1
Pitting edema (greater in the symptomatic leg)	1
Collateral superficial veins (nonvaricose)	1
Alternative diagnosis as likely or more likely than that of deep venous thrombosis	-2
	Score
High probability	3 or greater
Moderate probability	1 or 2
Low probability	1 or less
Modification: The clinical model has been modified to take one other clinical feature into account: a previously documented deep vein thrombosis (DVT) is given the score of 1. Using this modified scoring system, DVT is either likely or unlikely, as follows.	
DVT likely	2 or greater
DVT unlikely	1 or less

Adapted from Wells, PS, Anderson, DR, Bormanis, J, et al, Lancet 1997; 350:1795 and Wells, PS, Anderson, DR, Rodger, M, et al. N Engl J Med 2003; 349:1227.

Test Ordering:

- The mnemonic code **DD1** should be used when ordering D-dimer in Meditech.

Reference:

* “Wells criteria and modified Wells criteria”. *Up To Date* www.uptodate.com, accessed February 3, 2014

Inquiries and feedback may be directed to:

- Dr. Michael O’Connor at 403-529-8867 or email: Michael.O’Connor@albertahealthservices.ca

This bulletin has been reviewed and approved by:
Dr. M. O’Connor, Zone Clinical Department Head (Co-Lead) Laboratory Medicine, South Zone