

February 11, 2002

Physicians - Calgary Health Region

Re: Medicine Quality Council's Project Team Report on the Diagnosis of PE and DVT

Dear Colleagues:

The Medicine Quality Council formed a project team in July of 2001 to analyze the process involved in the diagnosis of pulmonary embolism (PE) and deep-vein thrombosis (DVT). This process was chosen because of a concern that the diagnosis of these disorders was not standardized and that best clinical practice was not being followed for all patients. The project team had a broad membership including physicians (General Internists, Pulmonologist, Hematologist, Hospitalist, Radiologist, Lab Medicine, Emergency Medicine and residents from internal medicine and radiology), a nursing unit manager, and managers from Lab Medicine, Diagnostic Imaging and Ambulatory Care. The project team followed standard quality improvement methodology and identified three major problems:

1. The approach to diagnosis of these conditions is variable and therefore not standardized.
2. 30 to 40% of patients in the emergency room suspected of having PE or DVT have to wait overnight for investigations.
3. Patients who have non-diagnostic investigations (primarily non-diagnostic VQ scans) should, according to best clinical practice, receive either a pulmonary angiogram or a bilateral leg ultrasound studies. If the latter is chosen and it is normal they should receive at least one additional study in one week. The project team clearly showed that this practice was not being followed.

Approximately 6,300 patients per year are being investigated for suspected PE and an additional 3,000 patients are investigated for suspected DVT, creating an incredible demand for DI resources. Recently, a new ELISA D-DIMER assay has become commercially available that has been shown to have a very high sensitivity and therefore, is useful to exclude the diagnosis of PE or DVT in patients in whom the clinical probability is either low or moderate. This provides an opportunity to incorporate clinical prediction and the new D-DIMER assay into a critical pathway that would reduce the demand for DI testing in these patients.

To address the problems identified above and to take advantage of the availability of a new D-DIMER assay as well as extensive research on the clinical factors that can be used to assign a clinical probability of PE or DVT, the project team has recommended the following be implemented in the Calgary Health Region:

- Introduce critical pathways to standardize the diagnostic process that would include clinical prediction scores, and the new highly sensitive D-Dimer blood assay along with the standard DI tests. (These are attached – Target date for implementation March 1, 2002).
- Establish a 'next-day' diagnostic outpatient clinic for emergency room patients who were unable to receive necessary investigations. This would prevent patients from having to return to the emergency department the next day.

- Establish a coordinated system for ensuring that follow-up leg ultrasounds, when recommended by the critical pathways are performed at the right time and that those patients who have positive studies are appropriately referred to the anticoagulation clinic.
- Explore with DI the appropriate mechanism and location of providing one week follow-up ultrasound testing
- Spiral CT scanning has not been included in the critical pathways at this time. The most recent reviews of this topic have been critical of the methods of the studies published to date, found a very wide range of reported sensitivities and have recommended a large multisite study of this technology. The implication of withholding therapy from patients with 'negative' findings on CT has not yet been adequately addressed. The National Institute for Health in the United States has funded a multisite study called PIOPED II to address the utility of CT in the diagnosis of PE and DVT. This study is currently underway and Calgary is one of eight centres in North America participating. The project team felt that it was premature to put CT scans into the critical pathways.
- It has been recommended that V/Q lung scans be reported as either normal (includes near normal); high probability; or non-high probability. The latter category combines 'low probability', intermediate probability and indeterminate into a single category.

For most physicians the biggest impact on clinical practice will be the advantage of being able to exclude the diagnosis of PE or DVT in almost half of the patients suspected of having this disorder with the finding of a negative D-DIMER test. Since this test is likely to be positive in patients with recent trauma, surgery, who are pregnant or who have active malignancy it is recommended that the test not be ordered in these clinical situations. We are asking all physicians to complete the clinical score for PE or DVT (there are separate ones for both) prior to ordering D-Dimer because it aids in the interpretation of the result. Completing the clinical score for PE or DVT is possible on TDS and will be available on paper order sets. If you have any comments, questions or concerns, please do not hesitate to contact me by email, pager (#0826), or phone.

Dr. Phil Wells, Chief of Hematology at the University of Ottawa and an internationally recognized expert in the diagnosis of PE and DVT will be giving Grand Medical Rounds on Tuesday, February 19th from 0800 to 0900. Phil's presentation, All's Well That Ends Well: Putting Best Evidence into Practice for Investigating Patients with Suspected PE and DVT will be given in the Coombs Lecture Theatre at Foothills Hospital but will be available through videoconferencing in the PLC auditorium and Fisher Hall at the RVH. Information on these changes to the process of diagnosing PE and DVT will also be made at noon on February 19 in room G601 at noon. If you would like to see the final report of the committee I would be happy to forward a copy to you electronically. These changes have been reviewed and endorsed by the Department of Medicine and the Medical Services Portfolio.

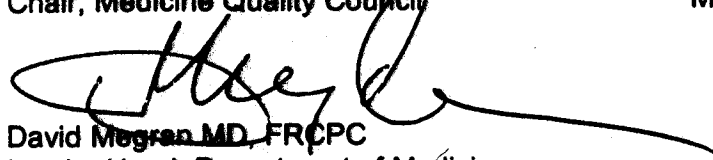
Yours truly,



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