The Effect of Delays in Obtaining Radiologic Studies on Length of Stay in Patients Admitted for Pulmonary Embolus

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A. Introduction / Study Purpose

Hospitals nationwide are engaged in finding ways to cut costs and operate more efficiently. With the advent of fixed reimbursement based on drg's, hospitals have been given the incentive to decrease length of stay as much as possible while staying within the confines of delivering health care effectively. To this end, exploring the factors that may increase length of stay, and in turn devising ways to address these issues, is extremely important. The availability of ancillary services, particularly radiologic studies, may influence length of stay tremendously. The ability to obtain a study in a timely fashion may impact the ability of the physician to make or exclude a diagnosis. Therefore, it may influence length of stay by both impacting the time until appropriate treatment is initiated, and by helping to avoid potentially preventable complications from what turn out to be unnecessary interventions. As a significant number of radiologic studies at Presbyterian Hospital are not completed within a day of being requested (probably in the range of 15-25%), the goal of this study is to ascertain whether this delay in the performance of radiologic studies does have a direct impact on length of stay. If this is the case, then further studies that address the different factors that potentially affect the completion of radiologic studies, such as equipment or technicians available, will need to be explored. As part of this investigation, the costs of decreasing the time needed for completion of a study versus the benefits of decreasing length of stay would have to be quantified.

B. Hypothesis

That a delay in obtaining a radiologic study (to be defined below) results in the addition of one to two days in length of stay.

C. Methods

a. Study Design
A retrospective chart review will be done of patients admitted for suspicion of pulmonary embolus. This specific subset of patients is being chosen for several reasons: first, it is a relatively common reason for admission; second, it is a situation in which the result of a radiologic study (CT angiography or V/Q scan) will impact treatment because of the risks of anticoagulation in many patients.

b. Definitions
As most inpatient studies are done the evening after being requested, a *"delay"* in a study will be defined as the study not having been performed by 8 am the day after being called in. *Length of stay will* include the time from presentation in the emergency room to discharge. If a patient is going to a nursing home, then length of stay will be cut off on the day that the patient is medically ready to be discharged.

c. Statistical Analysis
A correlation will be performed between the length of stay and whether or not the study was done be 8 am or was delayed. A t-test will be used to analyze the data and test for significance.

d. Sample Size
Assuming a one day difference between the length of stay for the two groups, a standard deviation of 2, and a 20% occurrence of a delay in study completion, the number of charts to be reviewed is 230 (191 without delay, 39 with delay).

e. Subject

Selection: Any patient admitted to any of the general medicine services for suspicion of pulmonary embolus. Both patients who rule in or out for this diagnosis will be included. Whether or not a patient is called for a study should be unrelated to any other patient characteristics that may increase length of stay. However, to decreased the possible confounding influence of severity of illness preventing a patient going for a test, ICU patients will be excluded.