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Clinical Question: Does the presence of an observation unit/clinical decision-making unit lead an increase in admitting patients to the hospitals that would have otherwise been discharged to home had the unit not existed?

Background: Observation/clinical decision-making units have increased in use in the past several years. They were touted as a way to reduce hospital length of stay and patient-related costs. Early studies stated that observation units for chest pain would lead to a cost savings of 25% compared to hospitalization. Individual site studies have suggested that while observation units decrease hospitalizations, but may also lead to a decrease in discharges from the ED. This study was created in an attempt to evaluate what number of patients that were admitted to an observation unit would have been discharged had the unit not been available.

Methods: They performed a retrospective analysis of ED visits for chest pain between 2007-2010 using the National Hospital Ambulatory Medical Care Survey. The study included visits that resulted in an CDU admission and compared them with ED visits at hospitals without a CDU that resulted in discharge to home or hospitalization. They looked at patients 18 and older and excluded patients that received intubation, cardiopulmonary resuscitation, death, hospital transfer, left before being seen, or against medical advice. Patient characteristics that were compared included: sex, age, race, insurance, presenting vital signs, comorbidities, hospital regions and medications administered in the ED. A propensity score was developed to determine the patients that were hospitalized or discharge from a non-CDU hospital to create a percentage of those patients who would have been placed in CDU had one been available.

Results: 1,325 ED visits for chest pain were included in the study, which represented more than 5 million visits for chest pain during this time. After using propensity the score to examine matches, 223 observation unit patients were matched to 1,109 patients, which ended up representing 442 unique patients at non-CDU hospitals. They found that after applying the predictive model, 50.1% of patients admitted to a CDU would have likely been hospitalized at a non-CDU facility, while 49.9% would have been discharged home. Of those likely to be discharged, they found that 9.2% of them were hospitalized after being admitted to CDU.

Discussion: I included their table of patients that were hospitalized at non-CDU hospitals because I feel that it does highlight that those patients fall along the lines of patients that we most consistently admit to CDU or the hospitalists. Overall, the result of the study does not significantly surprise me as I do find myself admitting more patients to CDU at Kettering because it removes some of that uncertainty factor with patients that lie on the fence for discharge vs admit. They do comment that there were many limitations to the study, including important clinical variables, including: troponin results, EKG findings, and a description of the chest pain. These are crucial in determining clinical decision making and in providing an estimate of the patient's risk, be it with the TIMI score or the HEART score. Overall, I do agree that the number of facilities with observation units will increase and I do agree that there is going to be an increase in the number of patients admitted to them. In regards to whether they will reduce the amount of patients discharged to home, I cannot say one way or the other, the study does not

convince me that it will. The big problem is that the study only looks at one complaint, chest pain, it does not look at the other complaints that would normally be sent home to followed up if it worsened, such as a moderate clinical concern for cholecystitis, but an otherwise normal workup. A CDU allows an admission point for further testing, such as a HIDA scan, without it having to be scheduled as an outpatient or a return visit to the ED. I think the important factor is that the CDU provides a place for further evaluation of a patient against adverse outcomes than can be done in the EDU

Table 2. Association of patient and ED characteristics with likelihood of hospitalization, among matched ED patients treated for chest pain at hospitals without observation unit.

Characteristic	Adjusted Odds Ratio for Hospitalization (95% CI)
Age	1.13 (1.09–1.16)
Women	0.66 (0.30–1.43)
Black	2.29 (0.78–6.69)
Hispanic/Latino ethnicity	0.004 (0.0001–0.14)
Insurance	
Medicare	1 [Reference]
Medicaid	2.36 (0.47–11.78)
Self-pay/no charge	5.02 (0.68–36.84)
Other	2.57 (0.89–7.37)
Oxygen saturation, %	
≥92	1 [Reference]
<92	2.62 (0.08–80.74)
Pulse rate, beats/min	
<100	1 [Reference]
≥100	2.23 (0.80–6.18)
Systolic blood pressure, mm Hg	
<115	1 [Reference]
115–160	0.14 (0.03–0.54)
>160	0.13 (0.03–0.56)
Comorbid conditions	
Anemia	800.43 (37.14–17,251.01)
Hypertension	0.09 (0.02–0.39)
Diabetes	72.21 (6.49–802.72)
Coronary atherosclerosis	11.03 (1.58–76.79)
Cardiac dysrhythmias	1.69 (0.19–14.64)
COPD	0.14 (0.02–0.91)
Asthma	0.12 (0.02–0.70)
Cardiac enzymes	2.70 (0.80–9.11)
CT scan	0.38 (0.13–1.14)
Region	
Northeast	1 [Reference]
Midwest	0.94 (0.35–2.49)
South	1.25 (0.52–3.01)
West	0.10 (0.03–0.40)
Nonmetropolitan statistical area	0.16 (0.04–0.63)
Medications administered	
Aspirin	1.41 (0.57–3.44)
Antianginal	43.71 (19.01–100.49)
Anticoagulant	2.36 (0.19–29.33)
NSAID	0.22 (0.07–0.70)