SUMMARY:
A Rapid Assessment Unit (RAU) was formed to transform the traditional "series" evaluation to a "parallel" evaluation structure. Nurses and providers were defined by function rather than location to form a unique team structure that successfully decreased the LOS for ambulatory discharged patients.

HOSPITAL: Lehigh Valley Hospital and Health Network

LOCATION: Allentown, PA

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CATEGORY:
- A: Arrival
- C: Clinician Initial Evaluation

KEY WORDS:
- Crowding
- Door-to-Doc
- Fast Track
- Length of Stay
- Rapid Intake
- Triage

HOSPITAL METRICS:
- Annual ED Volume: 56,018 (LVHN)
- Hospital Beds:
- Ownership:
- Trauma Level: n/a
- Teaching Status: Suburban Teaching Hospital

TOOLS PROVIDED:
Included in the text

CLINICAL AREAS AFFECTED:
- ED
- Fast Track
- Triage

STAFF INVOLVED:
- ED Staff
- Nurses
- Physicians
- Technicians
A Rapid Assessment Unit (RAU) was formed to transform the traditional "series" evaluation to a "parallel" evaluation structure. Nurses and providers were defined by function rather than location to form a unique team structure that successfully decreased the LOS for ambulatory discharged patients.

**Background**
In order to reduce crowding, this new entry process for ambulatory ED patients was designed to improve door-to-treatment time. The first step was setting up a Rapid Assessment Unit (RAU) area organized around an “Intake Team” model in line with Institute of Healthcare Improvement initiatives and as described by Mayer and Jensen in Hardwiring flow: Systems and processes for seamless patient care. We believed that this new entry process would reduce the median LOS from arrival to discharge and door-to-provider times for our ED patients.

**Innovation Implementation**
Four innovations were implemented simultaneously in one day: new intake team construction, new intake team process, functional nursing in the new intake team area, and vertical flow (seated patients awaiting results). These innovations were designed to eliminate patients waiting in the waiting room. After the implementation phase, an escalation protocol was established for situations when demand exceeded the capacity of the new setup. This protocol shifted resources gradually and up by specific criteria to manage waiting patients.

The traditional triage and the express care areas were eliminated and replaced with two new distinct spaces: the intake team area (RAU) for the initial patient evaluation and the intermediate disposition area (IDA), an internal vertical flow area where patients can be seated to wait for results or minor procedures.

Upon entering the “walk-in” entrance of the ED a patient is greeted by a registration staff member, who escorts the patient to an RAU room. The patient is evaluated by a nurse and physician (or mid-level provider) and the provider remains present during the nursing evaluation to eliminate having the patient tell their story twice. When the physician conducts a brief history and physical, orders are placed. Patients requiring further work ups or close monitoring are transported to the acute care ED, thus care is transferred to acute-care providers. However if patients need only laboratory or radiological tests, simple medications, or basic procedures, they are escorted to the IDA to wait for results and be discharged. Arrival by ambulance directly brought patients into the acute-care ED.

As opposed to the traditional geographic model of one nurse to 4 beds, nursing roles were defined by function. Two treatment nurses and one assessment nurse staff the RAU. The assessment nurse is responsible for the initial nursing evaluation. The two treatment nurses are responsible for initiating treatment (such as IVs or medications) regardless of the patient’s room location, and they do not see patients that don’t necessitate nursing interventions.

**Timeline**
It took about two years of planning in construction. It was a brand-new concept in design that would meet the needs of an intake team model.

**Results**
Median length of stay is 20 minutes shorter then prior to this implementation almost equivalent to the duration triage added to the LOS. The door to Dr. time was consistently reduced at all hours showing some resiliency with the demand with the peak reduction at peak times. This change was felt by our patients as our Press Ganey patient satisfaction national percentile jumped from 40% to > 85%. 
Cost/Benefit Analysis
Our demand prior to these innovations was not being met. Construction for a new clinical space was inevitable. Renovation was required to meet our demand then it into the future. The RAU construction design allowed a cost avoidance of $18 million in capital budget when compared to construction that would accommodate traditional processes for the emergency patient. Likewise the additional staffing required would have exceeded the current model’s staffing although this is not as crisp a number.

This intervention necessitated an expansion in the number of medical staff. The 3 nurses already staffing the pre-implementation model were rearranged to the RAU, requiring one additional nursing position for the IDA. An APC FTE and an attending physician FTE were also added.

The RAU system increased ED throughput, allowing physicians to see high acuity patients faster. The data showed that after the innovation implementation, our patients entered the ED and had orders placed sooner leading to earlier lifesaving interventions and treatments. At both peak and non-peak hours there was a decline in the median LOS, showing how the RAU process is works at peak patient capacities.

Advice and Lessons Learned
- Involve all personnel in the ED with a team approach to change!
- During the post-implementation phase, an escalation protocol for occasions when demand exceeds the capacity of the new structure and process is a helpful feature to have in place.
- Monitor the Door to Dr. times and overall length of stay closely.
- Give feedback to all staff
Understand that you are changing the departmental priority. You are changing from seeing patients at the speed of capacity to seeing the patients at the speed of demand. In traditional flow the waiting room becomes the “buffer” for lack of capacity and capacity can be influenced by all staff members.

**Sustainability**

It is sustainable. The RAU concept of evaluating and treating ED patients profoundly restructures current methods utilized in standard emergency departments. This innovation established at our site decreased the LOS of the ambulatory discharged patient successfully. Continued data monitoring and fine-tuning of this process (especially with regard to staffing time of day and the escalation protocol) is expected to take place for sustained quality improvement.

**Referenced Literature**