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EMERGENCY MEDICINE

WHITE PAPER

VIRTUAL CAPACITY INNOVATIONS

A PRACTICAL GUIDE TO EXPLORE VIRTUAL CAPACITY INNOVATIONS TO OPTIMIZE EMERGENCY DEPARTMENT PATIENT FLOW.

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National emergency department (ED) overcrowding has continued to grow over the past couple of decades alongside economic, regulatory and public pressures to provide expeditious service, reduce wait times and delays and meet quality benchmarks. This growth in overcrowding demands innovative solutions to better optimize ED patient flow.

OVERVIEW

Prevailing conditions have led to the development of ED patient flow management maneuvers that:

- Enable a saturated ED to provide medical evaluation, treatment and disposition of patients during episodes when patient flow would otherwise have come to a stop, with arriving patients being triaged and placed into "waiting" status in the lobby until space is available.
- Can be implemented along with—or independent of—best practice flow prototypes, such as Split Flow and Team Triage, that target reduction of door-to-medical provider time and the number of patients who leave prior to medical screening examination.
- Move front-end and overall length-of-stay metrics in a positive direction.
- Enable under-bedded EDs to provide expeditious service without undertaking expensive construction projects.

Virtual Capacity

Virtual capacity employs parallel processing of patients with several being in process simultaneously rather than one at a time using traditional sequential (linear) flow. In short, virtual capacity tactics enable EDs to move low-to-moderate-acuity patients through their systems without using beds. The benefits to be gained through virtual capacity are therefore greatest for space-constrained departments.

ED boarding of admitted inpatients has had a significant negative impact on the number of beds available to patients presenting to EDs across the country. Boarding is not being overlooked or dismissed among the list of causative factors for ED overcrowding. Virtual capacity, however, is comprised of processes that reside entirely within an ED's operational control and is more readily amenable to implementation.

Virtual capacity is comprised of the following concepts:

1. Keep vertical patients vertical and moving. For horizontal patients, location is the focus, but for vertical patients, speed of throughput matters most.
2. Vertical patients do not own beds. This is also referred to as the "No Parking" approach to patient flow.

3. Internal results-pending areas provide infrastructure for virtual capacity.
4. Occupancy limits for intake and treatment rooms minimize throughput time for patients who are in process and wait times for those yet to be evaluated and treated.

Keep Them Vertical

Beginning at arrival, vertical (upright, lower acuity) patients remain vertical. They are not placed into beds and sometimes not even into rooms. Not every patient needs a bed or a fixed room. The acuities that comprise this segment of patients generally include Emergency Severity Index (ESI) lower acuity 3s, often referred to as "v3s" or "soft 3s," and fast track-eligible patients who are predominantly ESI 4s and 5s.

Keep Them Moving

Patients who do not require diagnostics or minor treatment can be discharged directly from the intake area where medical evaluation is performed without further utilization of space. Depending on the flow pattern as established at a given ED, vertical patients might be seen by a medical provider in an intake area, moved on to have diagnostics carried out, and then moved again to an internal results-pending area. A room or cubicle that provides privacy for informing patients of findings and giving discharge instructions is usually located near the results-pending area. Results-pending areas should be pleasant, with adequate space for the projected number of patients plus one visitor for each, comfortable seating, such as recliners, and television and reading materials. Other patients might move from the intake area to a minor treatment room where discharge can take place if care has been completed.

This flow tactic can also be applied to stable, upright patients who occupy beds in the main (acute) ED, or in some cases from a "3 track" that sees only ESI 3s. Some higher acuity ESI 3s, often referred to as "h3s" or "horizontal 3s," such as those receiving work-ups for abdominal pain and stable patients receiving oral contrast prior to diagnostic imaging, can be moved to a results-pending area to make beds available for patients who otherwise would have to wait until a bed becomes unoccupied or be placed into hallway beds.

Reliable tracking of each patient is of the utmost importance using this flow concept.

Set Room Occupancy Limits

Intake and treatment room occupancy limits can maximize the benefits of virtual capacity. For example, the intake room(s) might have a 10- to 15-minute occupancy goal, and minor treatment spaces or rooms might have a 20- to 30-minute occupancy goal.

Results are Pending (RAP) Areas

RAP areas are a subset of virtual capacity. Vertical 3s who are placed in the main (acute) ED might also be rotated out of their rooms/beds to an internal RAP room. RAP areas work best under the following five conditions:

1. They are implemented along with a 100% reliable tracking system to ensure that patients who are placed there are not forgotten and that their results are immediately known without extended waits between results and care/disposition decisions.
2. They are not resource sponges. The only patients who should be placed in RAP areas are vertical patients, so there is no need for ongoing RN monitoring or even rounding between placement in RAP and discharge. Any rounding can be done by nursing support staff.
3. They are internal (not in the general ED lobby). Internal location reduces the probability that patients will leave prior to medical provider diagnosis, treatment and disposition.
4. They are combined with room occupancy limits for vertical patients.
5. They have comfortable chairs or recliners, reading material, and a TV; and they allow space for one visitor per patient.

Conclusion

While the flow tactics described have a positive impact on patient flow, they can also create confusion and yield mixed responses from patients who appreciate faster care and shorter throughput but may not readily appreciate repeated relocation as they move through the system. Proactive and ongoing education and communication with the customers and the community, not only about the new flow design, but also the reasons for it and the benefits of it, are key to aligning expectations and experience. For most patients, expeditious care and throughput are highly valued, with delays in the provision of ED care and throughput being one of the most frequently cited dis-satisfiers. When concerns about being without a bed and movement from one place to another are stacked up against expedited service and minimal delays, the latter wins in the court of customer satisfaction.