

# Emergency room patients acuity levels not always considered when within wait time target

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New research from the UBC Sauder School of Business reveals that Metro Vancouver emergency patient acuity levels sometimes come second to wait time targets, largely due to doctors being unclear around existing emergency room prioritization guidelines. The study found that patient acuity levels are considered more seriously once wait time targets have passed.

The study is the first of its kind to statistically analyze doctor decision making in the [emergency room](#) and the impacts it can potentially have. Through an analysis of more than 186,000 [emergency department](#) (ED) admissions between April 2013 and November 2014 in the four largest emergency departments in Metro Vancouver, the researchers modelled how decision-makers chose which patient was seen by the next available [physician](#).

Metro Vancouver [emergency](#) departments currently use the Canadian Triage and Acuity Scale (CTAS) to classify patients into priority levels. While each level, ranging from one (most acute/serious) to five (least acute/serious), has a suggested wait time for patients, it can still be difficult for ED physicians to decide who should be seen next.

Researchers found that once triage level-2 patients waited beyond 13.3 minutes and triage level-3 patients waited beyond 18.9 minutes, physicians put more consideration on other attributes, such as acuity

level, chief complaint system, age, etc., rather than waiting time.

The study's authors suggest future policy revision should call for detailed guidelines on how wait times can be weighed against the patient's acuity level, rather than simple targets based on wait times.

"The current ED protocols fail to provide physicians with detailed guidelines about how to prioritize patients because, in most cases, those wait time targets cannot be met due to the limited capacity," explains Yichaun Ding, study co-author and UBC Sauder operations and logistics assistant professor.

"Does a physician treat a patient with a more serious illness first, or someone less acute who has waited an hour longer, for example?" questions Ding. "Our research found that if both patients have waited less than the CTAS recommendation, the less acute patient is treated first. But for those who have waited beyond the CTAS threshold, the more acute patient is treated first."

"Our research further indicates that extended ED [wait times](#) can be harmful to patient health, since conditions can deteriorate over time," says study co-author Mahesh Nagarajan, who is also an operations and logistics professor at UBC Sauder. "So that means a lower-triage level patient who has waited longer can be prioritized over a higher triage-level patient who has waited less time, because the less acute patient could become sicker over time."

According to study co-author Eric Park, a former post-doctorate fellow at UBC Sauder and currently an assistant professor at the University of Hong Kong, there could be a psychological reason for this: "Many physicians acknowledge that meeting CTAS wait time targets are difficult in practice," Park says. "Doctors could unconsciously be more inclined to choose patients who have waited a shorter amount of time,

since these patients are still within the CTAS guidelines."

**More information:** Yichuan Ding et al, Patient Prioritization in Emergency Department Triage Systems: An Empirical Study of the Canadian Triage and Acuity Scale (CTAS), *Manufacturing & Service Operations Management* (2019). [DOI: 10.1287/msom.2018.0719](https://doi.org/10.1287/msom.2018.0719)

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