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Evaluation of the Accuracy of Timestamps Created by an ED Operational Tracking System

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Objectives Managers use timestamps from electronic tracking systems to evaluate emergency department (ED) processes. Our objective was to determine how accurately these timestamps reflect the actual ED events they represent.

Methods: A trained observer monitored and recorded specific events during randomly selected ED shifts. These data were compared with timestamps collected by an active patient tracking system (Epic Systems, Madison, WI) using a matching algorithm and the difference between the timestamps was calculated. ED staff were blinded to the study objectives.

Results: The observer noted a total of 901 events; 686 of these were successfully matched to tracking system timestamps. Overall, tracking system timestamps are entered, on average, 15.9 min prematurely (95% CI: 10.2 – 21.63). Individual timestamp results are reported:

<u>Timestamp</u>	<u>Mean interval*</u>	<u>95% CI (min)</u>
Patient Enters Room (n=150)	6.5	-0.2 – 13.3
Attending First Enters Room (n=108)	23.7	3.2 – 44.1
Mid-level provider First Enters Room (n=171)	41.7	32.4 – 51.0
RN First Enters Room (n=129)	15.5	2.1 – 28.9
Patient Leaves Room (n=121)	-16.7	-31.3 – 2.0

* Interval computed as: observer – system. Therefore, a positive number indicates the tracking system prematurely recorded the event.

Conclusions: Overall, this study demonstrates a large amount of variability and systematic error in tracking system data. The majority of timestamps recorded by our tracking system are recorded prematurely. Managers using reports from these systems should be aware of potential data inaccuracies.