Patterns within Emergency Department Timestamps

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The Emergency Department Information System (EDIS) records patient events in the emergency departments of Queensland hospitals. Timestamps of events are used for producing performance measures; one such example is "Patients seen within the clinically recommended time".

One issue with these timestamp recordings arises when entries are manually entered compared to automatically recorded. Timestamps risk being allotted to the nearest 5, 10 or 30 minute interval and as such, can potentially distort an accurate review of hospital performance.

As an example of these issues, episodes were examined from EDIS for the 2009/2010 financial year. Records were excluded where either triage or the diagnosis was unassigned, or the arrival time was later than another event, such as 'seen by doctor'. Duplicate records were removed where records had the same hospital, patient number and arrival time. The total number of records used remaining was 1,131,304.

Shown in Figures 1 and 2 are the frequencies of minute of arrival and minute of first treatment, respectively. The times for arrival present a small distortion at five minute intervals across the hour, while the distribution for treatment is much more likely to be assigned to 5 minute intervals, with the more rounded the interval, the higher the frequency e.g. on the hour and half hour.

Figure 1. Distribution of Arrival Minute in ED, Queensland, 2009/2010
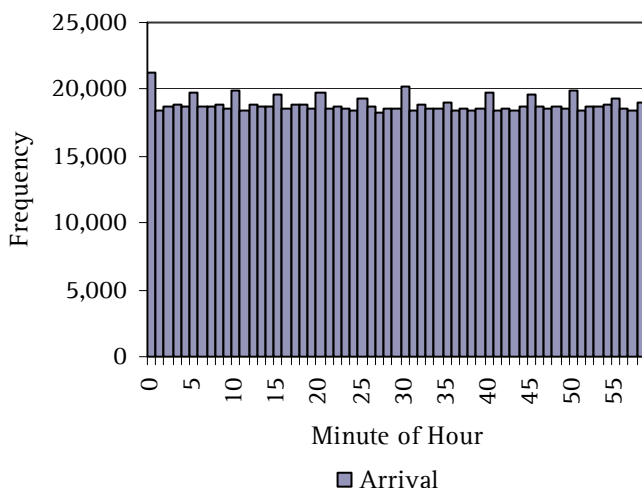
Source: Emergency Department Information System, Extracted 17/05/2011

Figure 2. Distribution of First Treatment Minute, Queensland, 2009/2010

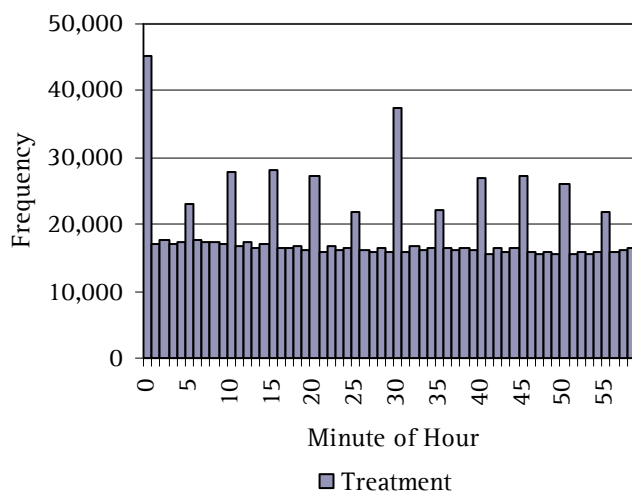Source: Emergency Department Information System, Extracted 17/05/2011

Distortions within the timestamps may be influenced by a number of factors and further investigations would be required to quantify the size of the influence on current performance measures. Factors which may be contributing to the distortion could include time of day, triage category, total waiting time as well as many other unknown local factors, including human factors and judgement.