

Supplementary materials

1 INDIVIDUAL DATABASE ANALYSES

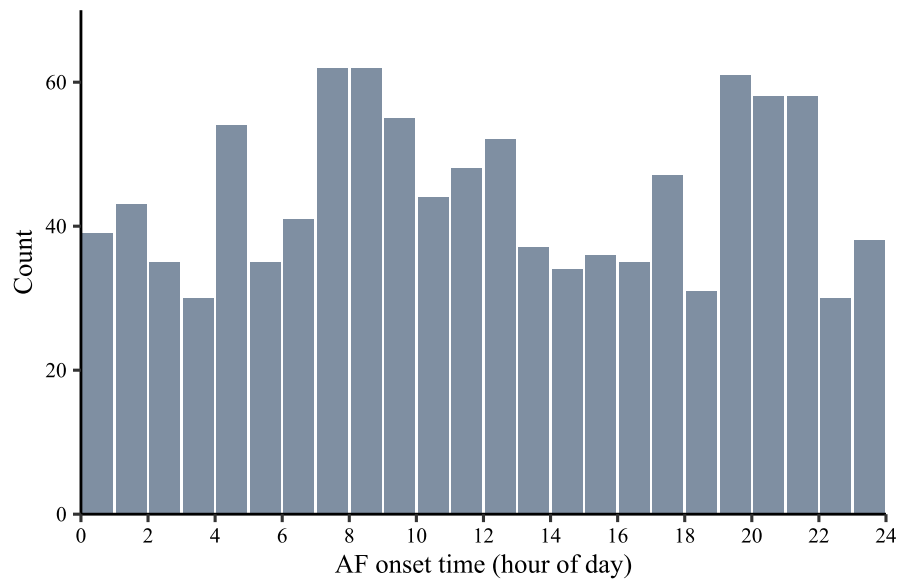


Figure 1 - Histogram of NOAF onset times: MIMIC-III data

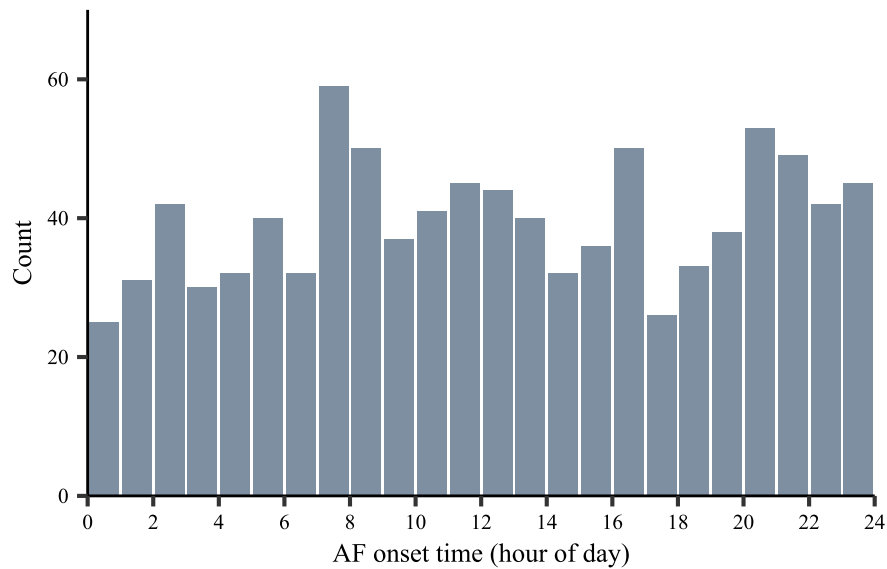


Figure 2 - Histogram of NOAF onset times: PICRAM data

2 SENSITIVITY ANALYSES

2.1 DOCUMENTATION OF HEART RHYTHM

We analysed the distribution of all documented heart rhythms. We hypothesised that heart rhythms may be documented more frequently at certain times, introducing potential bias. The distribution of all heart rhythm documentation was uniform (Figure 3).

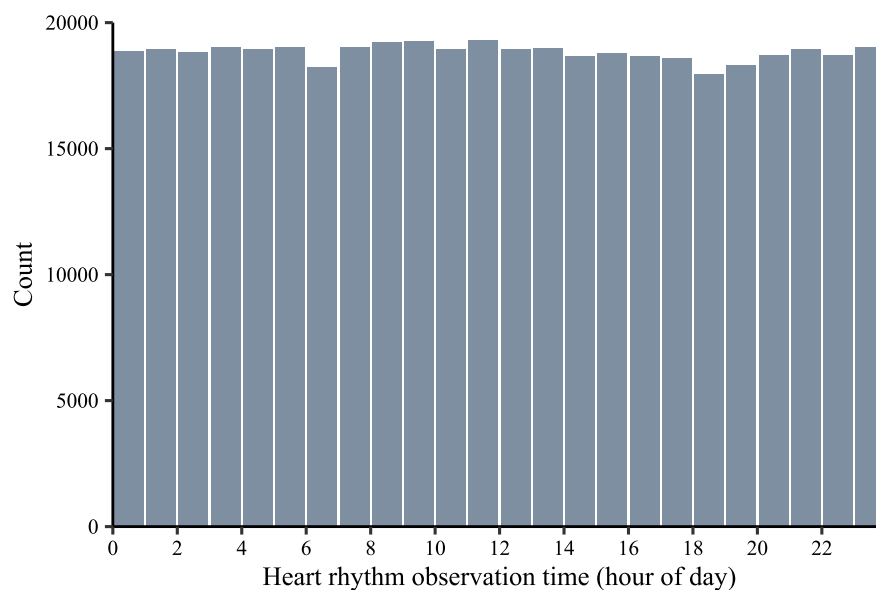


Figure 3 - Histogram of heart rhythm observations recorded

2.2 DOCUMENTATION OF HEART RHYTHM CHANGES

We analysed the distribution of times of any documented change in heart rhythm. We hypothesised that staffing handover may be associated with a “fresh eyes” effect where a previously unnoticed rhythm may be detected and documented. There appeared to be an increase in all documented rhythm changes around 8am, suggesting a potential fresh eyes effect (Figure 4).

To account for this, we performed resampling with replacement (bootstrapping) to generate a population with a uniform distribution of heart rhythm change documentation times. We generated 2000 bootstrap samples, inversely weighted by frequency distribution. We calculated the mean

NOAF incidence for each hour over each bootstrap sample. The bimodal distribution of NOAF onset times remained evident (Figure 5).

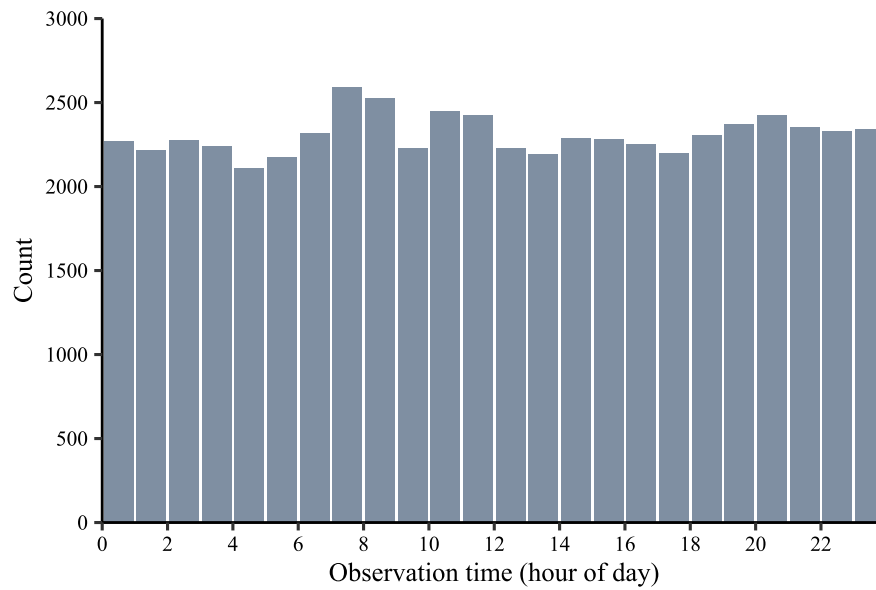


Figure 4 - Histogram of all documented heart rhythm changes

2.3 ADJUSTMENT FOR NON-UNIFORM HEART RHYTHM CHANGE DOCUMENTATION

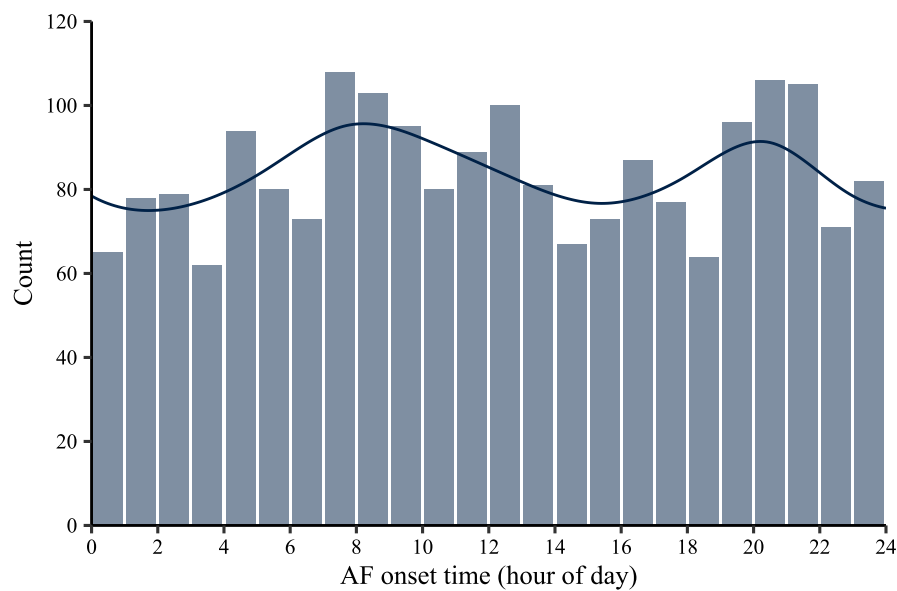


Figure 5 - Histogram of NOAF onset times with overlying GAM model: Resampled data accounting for non-uniformity in rhythm change documentation