

# Does handover time at English Emergency Departments correlate with number of handovers per month?

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## Introduction

Busy periods can create challenges for Emergency Departments (EDs) managing patient flow. This may increase the potential for patient harm: patients in ED may receive suboptimal care, some patients may remain in ambulances, sometimes for hours, whilst queued ambulances cannot attend other patients. In some EDs, ambulance queueing is relatively rare; in others, it is more common.

As part of the STALLED study (SafeTy, pAtient experience, outcomes and costs related to deLayed ambulance handovers at Emergency Departments; IRAS reference 340963), we investigated the association between mean handover time and the number of handovers per month.

## Methods

We investigated variations in handover times at English EDs using publicly available data from NHS England. These data covered the period from October 2023 to March 2024.

We included all Type 1 Acute Trusts, excluding children's hospitals, those with fewer than 100 handovers per month, and clear outliers. We then calculated summary statistics for each hospital and region of England and conducted a regression analysis of mean handover time against the mean number of handovers per month (Figure 1).

## Results

105 EDs were included (10 to 18 per NHS England region). The number of handovers per hospital per month varied between 716 and 8,404 with a mean of 3,090 (Table 1). The figure shows no obvious correlation between mean handover time and number of handovers. Regression analysis found  $\beta = -0.006$  (95% confidence interval -0.160 to 0.156,  $p = 0.953$ ).

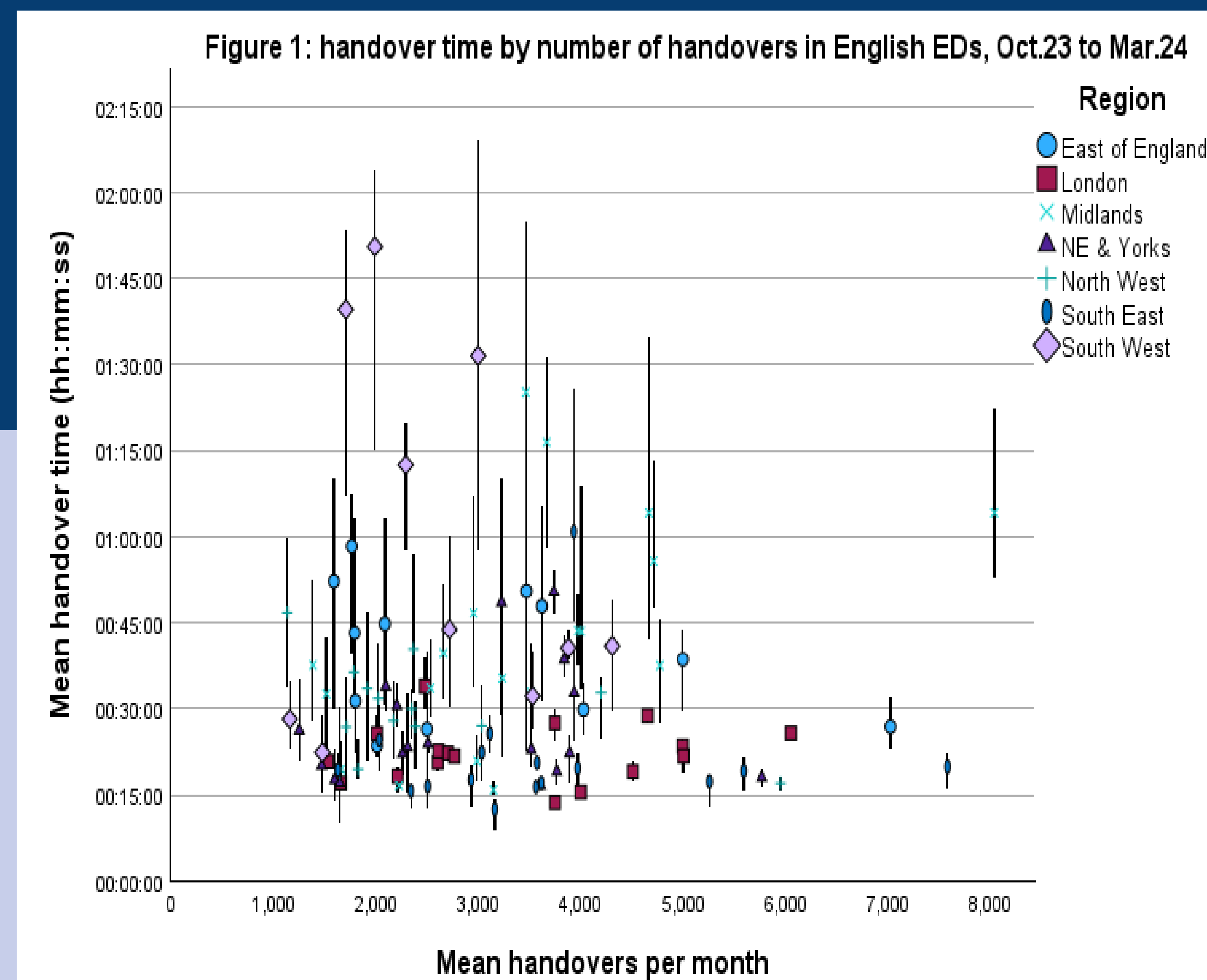


Table 1: mean handover time by NHS England region

| NHS England Region | Total handovers, Oct. 23 – Mar.24 | Mean handover time (hh:mm:ss) | Monthly mean handover time at a single hospital (hh:mm:ss) |                 |
|--------------------|-----------------------------------|-------------------------------|--|-----------------|
|                    |                                   |                               | Minimum  | Maximum         |
| East of England    | 219,919                           | 00:37:32                      | 00:16:36   | 01:55:04        |
| London             | 343,468                           | 00:22:28                      | 00:12:57   | 00:38:57        |
| Midlands           | 390,387                           | 00:46:23                      | 00:15:00   | 01:42:26        |
| NE & Yorks         | 315,576                           | 00:27:28                      | 00:13:45   | 01:10:10        |
| North West         | 206,830                           | 00:28:09                      | 00:10:01   | 00:59:50        |
| South East         | 346,769                           | 00:21:46                      | 00:08:45   | 01:25:39        |
| South West         | 156,223                           | 00:56:08                      | 00:18:14   | 02:09:06        |
| <b>England</b>     | <b>1,979,172</b>                  | <b>00:32:47</b>               | <b>00:08:45</b>  | <b>02:09:06</b> |

## Limitations

Only aggregate monthly data are available for 2023-24; trends at smaller time intervals may be obscured.

## Conclusions

Mean ambulance handover time is not obviously correlated with mean number of handovers. Therefore, we propose the existence of deeper-rooted obstacles/challenges which warrant further exploration. It also remains to investigate any patterns in handover delays over time in more detail.

While queueing is a problem everywhere to some extent, there is variation in how EDs manage it. Understanding these variations may lead to improvements in patient safety, health outcomes, experience, and costs.