Timeliness in Discharge Summary Dissemination is Associated with Patients’ Clinical Outcomes

JORDAN Y.Z. LI1,3, TUCK Y. YONG1,3, PAUL HAKENDORF2,3 and CAMPBELL H. THOMPSON4
Departments of 1General Medicine, 2Clinical Epidemiology Unit, Flinders Medical Centre, 3Faculty of Health Science, Flinders University, 4Department of General Medicine, Royal Adelaide Hospital and University of Adelaide representing the Internal Medicine Research Network of Australia and New Zealand

Introduction

The discharge summary is the primary means of communicating between the staff involved in a patient’s care during a hospital admission, and all those who will provide care in the future. This information is extremely helpful for patients’ continuity of care. It is not only the fact that a discharge summary has been completed, but also the timeliness of dispatch of a discharge summary to the general practitioner that is important. If a summary is never written or is delayed, then discharge plans that have assumed continuity of care in the community can go awry, resulting in readmission to hospital. The primary purpose of this study is to determine the relation of the readmission of general medical patients to either the existence of a discharge summary or the timeliness of its dispatch. As a yard-stick, the age of the patient was assessed as a risk for readmission to the General Medicine service.

Methods

This is a retrospective study on discharge summaries of all discharges from the General Medical service at Flinders Medical Centre (FMC), a tertiary referral teaching hospital in Adelaide, South Australia, from January 2005 to December 2009. A patient database was created by linking the hospital dataset collected at discharge to an inpatient tracking database and an Emergency Department database. Data were collected on patient gender, date of birth, dates of admission and discharge and any unplanned readmission to FMC within 28 days after discharge with the same medical conditions.

The association of timing of patients’ discharge summary finalisation: (1) within 7 days after discharge (2) after more than 7 days, and (3) not completed ever, with the readmission of the patient within 7 or 28 days were analysed. This readmission rate was compared with another established readmission risk; patient age (aged over 80 years or not).

Ethical approval was granted by the hospital quality and safety governing council because the study fell under the remit of audit and quality assurance.

Statistical analysis

Descriptive statistics were calculated for demographic data and are presented as means (SD) or percentages. 95% confidence intervals (CI) are cited where relevant. Statistical comparisons were made using chi-square tests. Linear trends between the categories of delays in discharge summary transmission and readmission rates were made using npctrend (STATA version 11.1) A p<0.05 defined significance.

Results

In the study period, 17,208 discharges were included for analysis. From this total, 961 patients who died were excluded from subsequent analysis leaving 16,949 who were potential readmissions. The mean age of the surviving population was 70.1 years (SD 19.1), 41.5% were aged over 80 years, with a mean length of stay of 5.9 days (SD 9.7). Of these discharges, 13,099 (79.4%) summaries were finalised within 7 days of discharge. 1899 (11.5%) summaries were finalised within 7 days of discharge. 1899 (11.5%) patients’ discharge summaries were not completed within a week of discharge, and 1498 were never produced, so that 3397 (20.6%) patients did not have a summary completed by 7 days (Table 1).

After dividing discharges according to the timeliness of summary finalisation, the 7-day and 28-day readmission rates for each group are also shown in Table 1. There was a linear trend between the (categorised) delay in transmission of the discharge summary and the readmission rate whether measured at 7 (p < 0.001) or 28 (p < 0.001) days after discharge. Where there was never any discharge summary completed for a patient, the rate of readmission was highest. A delay in summary transmission of over 7 days was equivalent to no summary at all in terms of its effect on readmission rates at either 7 or 28 days. If aged less than 80 years, the absence of a discharge summary was associated with a significant 127% increase in readmission rate within seven days (72% to 202% increase; p < 0.001) and a significant 55% increase within 28 days after discharge (26% to 91%; p < 0.001). Over the age of 80 years, these risks of readmission were lower: 24% (-15% to 83%; p = 0.27) for readmission within 7 days and 17% (-8% to 50%; p = 0.19) for readmission within 28 days.

Discussion

In this study, we have found that increasing rates of unplanned hospital readmission are associated with delays in discharge summary finalisation. The present study was not designed to establish a causal relationship between the timeliness of discharge summary finalisation and hospital readmission. Nonetheless, it raises the concern that delays in discharge summary finalisation are associated with unfavourable patient outcomes, particularly readmission within a short period after discharge. Readmission to hospital might be associated with inadequate care during the initial hospitalization that could be associated with suboptimal dissemination of information post-discharge. Previous studies have shown 11% of patient discharges have a preventable adverse event in the month post-hospital discharge and many of these events are related to inadequate communication between healthcare providers.

While the absence of a discharge summary may not be the only reason for readmission, there are many reasons for a low discharge summary finalisation rate such as busy medical officers, inadequate provision of infrastructure such as computers and an inability to locate patient medical records after discharge. It is also possible that patients were readmitted whilst discharge writing was in progress but not complete, or that the readmission aborted the discharge writing process that had not yet begun. Nevertheless, it is clear that the absence of a discharge summary was associated with an observed increased risk of readmission. In the context of finite resources, our work would suggest prioritisation for summaries on patients aged less than 80 years and completion of a summary within 7 days of discharge.

Conclusion

Our findings demonstrate an association between delayed transmission or absence of a discharge summary and readmission rate. We encourage all clinical staff to complete a discharge summary at patient discharge or as soon as possible after discharge, especially on those aged less than 80 years. If no summary appears by 7 days after discharge, the rate of readmission within 7 or 28 days is indistinguishable from no summary being written at all.

TABLE 1. The relation of delay in discharge summary transmission to the readmission rate at 7 and 28 days after discharge.

<table>
<thead>
<tr>
<th>Delay in discharge summary transmission after patient discharge</th>
<th>&lt;7 days</th>
<th>&gt; 7 days</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of summaries (% of total discharges)</td>
<td>13,099 (79.4)</td>
<td>1899 (11.5)</td>
<td>1498 (9.1)</td>
</tr>
<tr>
<td>Readmission rate &lt; 7 days (%)</td>
<td>2.89</td>
<td>4.58</td>
<td>5.54</td>
</tr>
<tr>
<td>Readmission rate &lt; 28 days (%)</td>
<td>7.18</td>
<td>9.53</td>
<td>10.28</td>
</tr>
</tbody>
</table>

There were significant linear trends between these categories of delay in summary transmission and patient readmission rates (expressed as a percentage of total discharges) by 7 days (p<0.001) and 28 days (p<0.001) after discharge.