Implementing a discharge checklist to improve the quality and consistency of discharges for patients from hospital.

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**Background to case study development**

This case study has been prepared using data from a qualitative research study conducted over 2 years in England, Scotland, America and Australia. The intention of this research, and the case study presented here, was to understand the complex reality of navigating and negotiating improvement efforts in hospital settings.

- The case study draws closely on three projects that were studied but in order to preserve the anonymity of the sites involved the case study presents a hypothetical situation (aim and intervention) that represents the type of issues that were commonly observed in the research study.
- All of the issues described in this case study reflect actual challenges experienced by the projects we observed during the implementation process, and all of the quotes (which will be shared in the workshop) are real.
- It is not appropriate to share the original quantitative data from the projects in this case study as the measure concepts have been modified to match the hypothetical scenario of the case study. Instead summary statistics based on artificial data are provided which reflect the trend in progress made during the projects and to support debate about how we interpret and make sense of complex intervention evaluation.
- The purpose of this case study is not to present a quantitative demonstration of impact, but instead to present a qualitative exploration of the complex systems into which changes are introduced and the human side of change.

1. **Introduction:**

The overall aim of the project is to improve the quality, timeliness and consistency of discharge from hospital for medical adult patients in Greenfields Hospital.

The primary outcome measure is the percentage of patients who experience a delayed discharge on the medical wards. This will be assessed by a validated monthly audit that will identify patients on wards where there is no medical reason for continued stay in hospital. The monthly audit will review all patients in medical wards on a single day each month. As well as the number and percentage of patients experiencing unnecessary delays in discharge, the reason for delayed discharge will be documented.

The secondary outcome measure is the average length of stay of patients in medical wards. This will be assessed using routinely collected hospital administrative data.

A balance measure was agreed as the percentage of patients readmitted to hospital at 7 and 30 days to ensure that patients were not being discharged too soon.

The process measure will assess the use of the intervention (the discharge checklist) by assessing the percentage of eligible patients for whom the checklist is completed.
2. **Background:**

**The setting**
This project took place in a UK Hospital in a rural setting with 300 beds.

A small team of quality improvement staff were responsible for leading this project which included an improvement advisor, a data analyst and admin support. The team had received quality improvement training and had some experience of quality improvement but had not previously tackled a project on this scale. As well as this project the team members were involved in a number of other improvement initiatives.

The project had organizational support in terms of executive champion and a supportive lead consultant. Improving discharges and patient flow was perceived as organizational priority and executive staff were keen to promote a quality improvement culture although they had limited experience in conducting quality improvement themselves.

**The problem**
The problem of delayed discharges was well recognized and evidenced in the hospital. An audit had shown that 32% of patients were experiencing delayed discharges and had no medical reason for continued stay in hospital. Other hospitals who have conducted the audit have between 16-25% delayed discharges suggesting Greenfields has greater delays than average. Hospital staff were aware of and frustrated by delays and the hospital had received a number of patient complaints regarding unnecessary delays of over 3 days.

Known reasons for delayed discharge included:
- Wait for senior decision making
- Wait for diagnostics
- Wait for blood results
- Provision of medications
- Transport arrangements
- Coordination with follow on care including social support

**The intervention**
The hospital wanted to implement a discharge checklist to improve how discharge was managed and reduce unnecessary delays.

A senior consultant in the hospital had learnt about a discharge checklist that had been successfully implemented in another hospital. They reported a reduction in unnecessary delays to the discharge process and over the same period a reduction in length of stay in medical wards.

The elements of the discharge checklist resonated with the challenges faced in Greenfields hospital and included:
- Estimated discharge date for patients (to be completed for all patients as they enter the ward)
- Review of final items of care
- Medication check
- Patient information provision
- GP follow-up appointment
- Transport arrangement

The intention was for the discharge checklist to be used on medical wards to support discussion of each patient’s needs by a multidisciplinary team and to build a shared understanding and a written summary of actions that needed to be completed before the patient could go home.
The initial theory of how change was going to be achieved can be represented by the following program theory diagram.

### 3. Testing Changes:

#### Phase 1 – Developing the discharge check list intervention – Month 1

Purpose – To engage variety of healthcare professionals in adapting the discharge checklist for use in Greenfields hospital; engagement to ensure that intervention is suitable for local setting and that stakeholders buy-in to using the intervention.

A series of PDSAs were conducted with individual staff and multidisciplinary groups assembled to trial the checklist on a small number of patients. In total 12 PDSAs were run, engaging 21 members of staff and 23 patients. The final 2 PDSAs in this series were run at the scale of all eligible patients on an entire ward round for a single ward. Through this process a number of modifications were made to the checklist including:

- Replacing ‘General Practitioner follow up appointment arranged’ with ‘follow-up care plan for when the patient leaves hospital’ which the staff felt was more appropriate for the patient population whose needs were likely to require input from multiple professionals rather than just GPs
- The need for social support arrangements was felt to be high for the patient population and staff recognized this was a current cause of significant delay and so was added to the checklist
- A section for physiotherapy assessment was added
- The style and wording of a number of sections were amended to align with existing hospital documentation practices and processes of nurses and junior doctors
- The medication check section was reviewed and replaced by pharmacy team to reflect local expectations and processes

Following this stage, staff were confident that the intervention was fit for purpose for use in their local setting.
Phase 2 – Implementing discharge checklist – Month 2 - 18
Discharge checklist was implemented across all medical wards with strong championing from senior ward leaders and executive staff. – Month 2
Despite initial enthusiasm and support from staff for the discharge checklist a number of issues emerged that needed to be resolved to support effective use of the discharge checklist.

- Streamline volume of paper work completed for patients  Month 3 - 9
- Improve Multidisciplinary Team ward rounds to support discussion and information sharing regarding patient care plans  Month 4 - 16
- Review of contracts and job plans for consultant doctors (which outline their contracted clinical activity and when they are expected to be on the ward)  Month 8-16
- Improved timeliness and prioritization of radiology results  Month 14-17
- Improved timeliness and prioritization of pathology results  Month 18 - onwards

The revised program theory at the end of the 18 month project period is summarized below:
4. **Data:**

   **The primary outcome measure** is the percentage of patients who experience a delayed discharge on the medical wards. Data was plotted on a run chart and shows a meaningful trend (8 consecutive points under the median line) in a reduction in the percentage of patients experiencing a delayed discharge.

   ![Run chart showing percentage delayed discharges over time](chart.png)

   **The secondary outcome measure** is the average length of stay of patients in medical wards per week. A rule break was detected by statistical process control (Xbar-S) at Month 17 following 8 consecutive weeks’ worth of data appearing below the central line and a recalculation of limits made. The mean length of stay reduced by 0.86 days (7.31 days to 6.45 days) following this recalculation. No further rule breaks occurred until Month 18 when analysis finished.

   **A balance measure** was agreed as the percentage of patients readmitted to hospital at 7 and 30 days: No changes were identified in readmission rates by statistical process control (p-chart)

   **The process measure** assessed the use of the intervention (the discharge checklist) by assessing the percentage of eligible patients for whom the checklist is completed (SPC p-chart)

   Recalculation of SPC limits occurred when triggered by a rule break – only summary statistics are presented.

<table>
<thead>
<tr>
<th>Time period</th>
<th>Mean</th>
<th>Average control limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Month 1-4</td>
<td>Mean 20%</td>
<td>UCL 74% LCL 0%</td>
</tr>
<tr>
<td>Month 5-13</td>
<td>Mean 32%</td>
<td>UCL 56% LCL 14%</td>
</tr>
<tr>
<td>Month 14-18</td>
<td>Mean 71%</td>
<td>UCL 85% LCL 63%</td>
</tr>
</tbody>
</table>

5. **Questions to be asked to case participants:**

   To explore the following question detail of the changes that took place and the reasons for the changes will be provided. Quotes from staff involved in or impacted by the change will also be provided.

   - What are the different changes and what was the reason for them?
   - What happened during the changes and why?
   - What are the different contextual issues which affected the improvement?
   - What are the perspectives of the stakeholders involved with and impacted by the change?
   - What can we conclude about the impact of the discharge checklist intervention?
   - What learning would you want to share with other sites?
   - What learning do you think is generalizable and what is context specific?