Gateshead Healthcare Foundation Trust implemented a rehabilitation service that helped patients to recover quickly and effectively following critical illness.

Improving recovery with critical care rehabilitation

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- How critical illness affects patients following discharge
- Developing a service to reduce negative outcomes
- Feedback and evaluation after service implementation

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It is well documented that, following a period of critical illness, patients can suffer complex physical and non-physical complications. This has considerable effects on patients and their families in all aspects of life. This article discusses a service improvement project that led to the development of a critical care rehabilitation pathway, its implementation at Gateshead Healthcare Foundation Trust, and how it is being used to improve patient care, experiences and quality of life. Implementation of the pathway has resulted in 52% reduction in length of hospital stay during ward care.

Rehabilitation should start as early as clinically possible and include an individualised, structured rehabilitation programme (National Institute for Health and Clinical Excellence, 2009). As well as physical needs, rehabilitation should address psychological symptoms including delusional memories, anxiety, panic attacks, nightmares and depression.

Publication of NICE (2009) guidance highlighted the lack of a rehabilitation programme for patients in Gateshead Foundation Trust and raised concerns that not providing this service could be detrimental to patients and negatively affect the quality of care provided. Anecdotal evidence told us that providing a self-help rehabilitation manual can be effective in aiding physical recovery and reducing depression (Jones et al, 2003). Further to this, the provision of a diary used during the patients’ critical care stay has been associated with a reduction in the incidence of new-onset post-traumatic stress disorder (PTSD) (Jones et al, 2010).

We decided to use this evidence and NICE guidance to pilot a critical care rehabilitation pathway to improve recovery following critical illness.

Initiation of service

The project started by identifying how patients perceived their quality of life six months after critical illness.

Patients were asked to rate their quality of life in relation to activities of daily living by completing a questionnaire; 27 patient responses were collated. The questionnaire identified areas in which patients felt they had continuing health problems, such as poor mobility and independence with self-care, and therefore this needed to be given greater priority in the pathway. Implementation of the pathway has resulted in 52% reduction in length of hospital stay during ward care.

Many patients have no memory of their critical care stay.
asked leading questions to prompt discussion. Themed analysis was used to identify common themes from their experiences (Box 1). These themes enabled us to define areas of recovery that were most challenging and which therefore required greater intervention within the critical care rehabilitation service.

The areas requiring intervention can be categorised into three stages: critical care; care on the ward; and care at home. These included:

» Having a point of contact for critical care, someone to listen, and to provide understanding of complex information and support;

» The transition from critical care to the ward environment, providing time and support with regaining independence relating to fundamental activities of daily living during ward-based care;

» Starting a self-directed exercise programme early and improving communication around hospital discharge.

Setting up the service
A small core multidisciplinary team, comprised of a nurse practitioner, a physiotherapist and a healthcare assistant with considerable critical care experience, was established. The team received valuable input from other expert health teams, such as medical, dietetics, speech and language, and drug and alcohol services.

An eligibility criterion for the critical care rehabilitation pathway was agreed. This was all patients who had been ventilated and sedated for three days or longer. This was all patients who had been ventilated and sedated for three days or longer.

The critical care rehabilitation team included greater continuity of care to fill in memory gaps; they also seek to promote the seriousness of what has occurred and to provide a context for any inaccurate or delusional beliefs.

Experiences from practice
It quickly emerged that the amount of time that needed to be spent with each patient to achieve a therapeutic outcome was far greater than originally anticipated. Salisbury et al (2010) describe how a generic rehabilitation assistant worked effectively with ward-based teams to provide additional rehabilitation in the period after discharge from intensive care. The benefits of this included greater continuity of care that was flexible so it would meet patients’ individual needs.

So, following the development of a training package, a critical care HCA role was introduced to facilitate and encourage the achievement of prescribed rehabilitation goals. The training package enabled the HCA to gain an understanding of the theory behind the exercises prescribed by the physiotherapist, and how to follow a goal-directed approach to rehabilitation related to activities of daily living, exercise and emotional support. These goals are prescribed by the nurse practitioner and physiotherapist following patient assessments.

Goals that are more complex, particularly relating to non-physical complications, require the support of the wider multidisciplinary team. The amount of time spent with individual patients providing an intervention depends on the severity and complexity of the patient’s physical and non-physical complications.

Once one set of goals has been achieved, the assessment cycle starts again, and continues until the patient has regained independence.

## TABLE 1. LENGTH OF STAY

<table>
<thead>
<tr>
<th>Time period/year</th>
<th>09/07-09/09</th>
<th>09/09-09/11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of patients admitted to the unit</td>
<td>2,894</td>
<td>2,180</td>
</tr>
<tr>
<td>Total number of eligible patients – three days or more of ventilation and sedation</td>
<td>266</td>
<td>183</td>
</tr>
<tr>
<td>Discharge to other hospitals</td>
<td>28</td>
<td>24</td>
</tr>
<tr>
<td>Number of deaths in critical care</td>
<td>74</td>
<td>48</td>
</tr>
<tr>
<td>Number of patients discharged to the ward</td>
<td>144*</td>
<td>111*</td>
</tr>
<tr>
<td>Number of deaths on the ward</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Average length of stay on the ward (days)</td>
<td>24.6</td>
<td>12.8</td>
</tr>
</tbody>
</table>

* It is of note that fewer patients were eligible to receive the pathway between 2009-2011, which may have affected the length of stay
Results

Two methods were used to measure the effectiveness of the service: the length of hospital stay following discharge from critical care, and a patient questionnaire evaluating quality of life six months after hospital discharge.

Table 1 demonstrates that, before the rehabilitation pathway was implemented between September 2007 and September 2009, a total of 144 patients would have been eligible to receive the rehabilitation pathway. The average number of days this group of patients spent recovering on the ward was 24.6.

Over the same amount of time, from September 2009 to September 2011, 111 patients were recruited to the critical care rehabilitation pathway. The average number of days this group spent recovering on the ward was reduced to 12.8. This demonstrates a 52% reduction in length of ward stay following the implementation of the critical care rehabilitation service/pathway. The service, which incorporates the pathway, patient diaries and a multidisciplinary approach to support after critical care rehabilitation, has made a significant difference to patients’ quality of life by providing a quicker recovery after critical illness, and hence a more cost efficient service.

Fig 1 shows the before and after evaluations from the quality of life questionnaire in relation to activities of daily living six months after the critical illness. Twenty-seven patients completed the questionnaire before the service was implemented and a further 27 patients completed the questionnaire after.

Six categories relating to the patients’ activities of daily living were used for the questions, with a series of three suggested responses. From the results, it is evident there was an improvement in all the assessed activities of daily living after the service was introduced. The areas that showed the most dramatic improvement of more than 30% were mobility, self-care and pain/discomfort. Within the mobility category, 62% of patients questioned had “no problems with walking about”, an improvement of 33%. Within the self-care category, 88% of patients questioned had “no problems with self-care” an improvement of 37%, and within the pain/discomfort category, 55% had “no pain or discomfort” an improvement of 33%.

The implementation of the service has also led to improvements in non-physical and emotional categories such as anxiety, depression and sleep.

Limitations identified in practice

When the criterion for the rehabilitation pathway was first introduced, it focused on all patients who were ventilated and sedated for three days or longer. It is evident from the literature that these patients are most at risk of developing physical and non-physical complications following critical illness (Jones et al, 2010).

During the development stage, it was important to consider the number of patients who could practically be on the rehabilitation pathway at any one time. A limiting factor affecting the specified criterion was the size of the rehabilitation team. It was not possible to assess all patients admitted to critical care using the short-stage assessment as recommended in the NICE clinical guideline CG83 (2009), and due to its limitations, this service/pathway targeted a specific group of patients only.

It has become evident since implementation another limitation to the delivery of the rehabilitation pathway is that the core team is small. Key sections of the pathway, including essential assessments at specific times, may be missed because they depend on a single practitioner, and because of the challenges of adopting a multidisciplinary approach to implementing the service. This may have resulted in physical and non-physical complications being unidentified and patients’ recovery being delayed. Therefore it has been necessary to expand the team to include a second nurse practitioner and HCA to meet the demands.

Conclusion

Introducing the critical care rehabilitation service has been a challenging project. Service development in this area has led to the implementation of a rehabilitation pathway and patient photographic diaries, the establishment of a nurse-led follow-up clinic and has reinforced the importance and influence of multidisciplinary working.

Implementation of the service has produced positive results for patient care, most notably a 52% reduction in hospital length of stay and therefore a more cost-efficient service. There have also been significant improvements in quality of life and activities of daily living six months after critical illness, with the greatest improvements seen in mobility and independence with self-care.

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References


North of England Critical Care Network.

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Fig 1. QUALITY OF LIFE QUESTIONNAIRE

![Quality of Life Questionnaire](image-url)