Enhanced Rehabilitation in Critical Care Dragons Den Project April – July 2015 (Q1)

Aims and objectives : To increase the frequency and intensity of early rehabilitation to critical care patients in order to reduce the time spent by the patient on critical care and to improve their physical , cognitive and psycho-social outcomes.

Who are we : The team consists of a band 7 and band 6 occupational therapist, a Band 7 and band 6 physiotherapist and a Band 5 physio. The project employed two Band 4 generic therapy support workers (TSW) to deliver rehabilitation treatments to stable patients on critical care under the direction of the registered staff, and to assist registered staff with more complex patients. Table 1 outlines the number of rehabilitation contacts the TSW have delivered independently and with registered staff from April-July 2015.

Service standards

NICE guidelines 83 published in 2009, outlined a need for enhanced rehabilitation and a co-ordinated approach to improve patient outcomes post critical illness. The Intensive Care Society guidelines recommend that rehabilitation for critical care patients should mirror the stroke guidelines of providing at least 45minutes of each indicated therapy per day, 5 times a week.

Patients at risk of physical and non-physical morbidity are assessed . Patient's rehabilitation needs are addressed during their critical care stay, again when on the ward and through to discharge home as required. Continuity of care from critical care to the wards is vital and the rehabilitation team provide this. These elements are clearly stated in the NICE guideline and the employment of the TSW in the therapy team enables us to work within the gold standard framework.
In addition to the improved contact time with patients on critical care and those recently discharged from critical care , the team endeavour to ensure their transition to the ward is smooth and progress with rehabilitation goals continues, as recommended by NICE

Progress so far

Progress so far data comparable with 2014 (see Table 2 for raw data)

- 14% more admissions to Critical Care
- 9% reduction in advanced respiratory days
- 8% reduction in level three bed days
- Readmissions static at 17% (despite increased overall admissions to the unit)
- Unit mortality reduced by 3.9%
- Planned admissions increased by 30 patients

Although these benefits cannot be wholly and directly be attributed to the service implementation, it could be hypothesised at this point that the increased level of rehabilitation has had a very positive effect and has contributed to the improved outcomes when all variables have been considered

Table 1: Number of contacts seen by TSW from April-July 2015

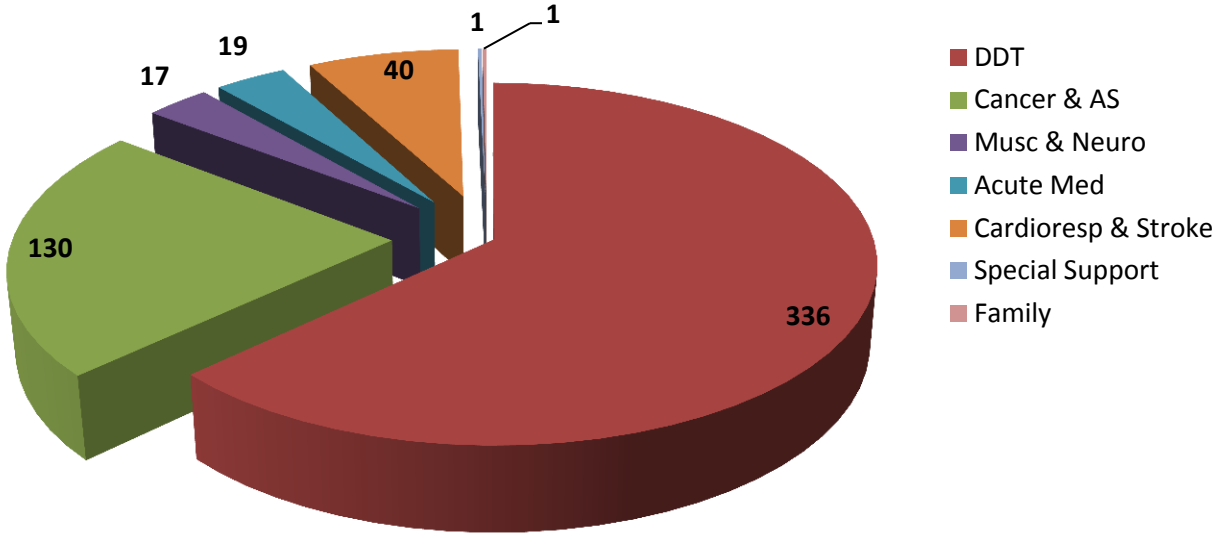
Staff	OT Contacts	PT Contacts	Total Contacts
1 Support worker	66	368	438
2 Support workers	12	107	119
1 support worker and 1 therapist	28	51	79
3 or more therapists of different professions	5	4	9

Table 2: Comparable data outcomes for April - July 2014-2015

Indicator	2014	2015	0utcome
Number patients days overall on CCD	198	230	14% increase
Advanced respiratory days	586	532	9% reduction
Level 3 bed days	634	588	8% reduction
Overall Mortality	18.1	9.7	4% reduced
Re-admission	17%	17%	Static
Average length of stay	4.7	3.8	0.9 reduction

54 patients seen on CCD alone with a 1 day overall reduction in length of stay. This leads to an estimated cost saving of £59,940 overall (based on a modest cost point of £1,100 per patient).

Figure 1: Number of contacts made by TSW by Directorate April–July 2015



The total number of contacts was 544. The Digestive Diseases and Thoracics (DDT) directorate was the highest user of the service (n = 336) contacts followed by Cancer & Associated Specialities (n= 130), 78 contacts were made in the other

Summary of outcome measures being used with Critical Care patients

C-PAX Score (Chelsea Critical Care Physical Assessment Tool) , score out of 50 , 1 the least improvement, 50 the best improvement after regular rehabilitation sessions . The C-PAX score is assessed on the following criteria : respiratory function, cough, movement within the bed, supine to sitting, dynamic sitting balance, standing balance, sit to stand , transfer from bed to chair, and grip strength using a hand dynamometer.

MMS Score (Manchester Mobility Score), scored out of 11, 1 being the least improvement and 11 being the most improvement from regular rehabilitation . The MMS is scored against physical indicators from passive movements to independent mobility.

These outcome measures are designed to assess the patient's level of function both with physical tasks, e.g. mobility and transfers , and respiratory function e.g. ability to cough and breathe.

The CPAx scores on initial assessment compared to assessment on discharge from critical care showed a mean improvement of 34.6% (range +10-+46%).

The MMS scores on initial assessment compared to assessment on discharge from critical care show a mean improvement of 7.2% (range -2 - +18%).

Patient, relative and staff feedback

Patient and relative satisfaction is being captured through feedback questionnaires. Information on service provision, goal setting, dignity and respect, support intervention, relative involvement and overall satisfaction is collated.

Staff, patients and carers have welcomed the service and feel it has been very beneficial to the critical care patients
Below are some quotes from staff, patients and carers.

'Within a short space of time I have reached several goals, walking with a Zimmer to the toilet, having a wash, shaving and cleaning own teeth, walk with a stick and dress oneself. All of the above would not have been reached as quickly without the rehab team, they were very motivational' **Patient**

'Very encouraging and caring attitude really helped on the road to my recovery' **Patient**

'I'd like to say a big thanks .....without them I'd still be laying on my bed not able to move. I am now walking and using my arms I am very happy with all their help'
Patient

'My brother was in CCD for 4 weeks paralysed and sedated, we can't believe how quickly he got back on his feet this is all thanks to the care and support from the therapist....I don't think after this short time we would be taking him home, so this just proves how much the physio was needed and how much it helped him'
Patient's sister

'The rehab team have expedited rehab and ensured faster mobilisation. They have merged seamlessly with the team and are very beneficial to Critical Care'
Critical Care Consultant

'Great support, giving us time to care, money well spent, great for rehab'
Critical Care staff nurse

What this means for Critical Care and our patients

Since the project began, the ethos of the unit has moved more towards rehabilitation and a drive to motivate patients, engage relatives and utilise the TSW to facilitate activities of daily living.
Having TSW on critical care enables us to fulfil the NICE recommendations and meet rehabilitation requirements through developing individual patient centred goals. Working daily with the patient builds a rapport and provides excellent continuity of care with therapy sessions.
Sessions such as washing and dressing, upper limb function , grooming, reducing patient anxiety, massage, mobility practice aim to improve quality of life for patients on critical care. Siting patients out regularly, taking patients outside, and daily orientation sessions are performed to reduce the impact of delirium and psychological problems. Individually designed exercise programmes on the MOTOmed® cycle ergometer aim to increase exercise in bed bound patients to maintain range of movement and reduce the physical problems associated with immobility .

Future developments

1. Increase patient follow up visits on the ward to ensure the rehabilitation programme is being followed and that patient's goals are being achieved with the aim of reducing hospital length of stay
2. Evaluate if we are achieving our goal to reduce length of stay in critical care by one day for patients who stay over 10 days and by 4 days for patients who stay over 30 days
3. Implement the Functional Independence Measure (FIM) & Functional Assessment Measure (FAM) outcome measure with long-term patients (>10 days) to demonstrate patient's rehabilitation progression
4. Increase cognitive rehabilitation sessions to reduce delirium and psychological problems
5. Survey critical care and ward staff opinion of the service and it's impact.
6. Audit the frequency and intensity of input to assess if the ICS recommendations are being met for high need patients.

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Outcome measure	FIM	FAM	FIM+FAM
Average Fist ax score	18	12	30
Average discharge from CCD score	46	37.75	83.75
Average discharge from hospital score	89.75	58.6	148.3

The Functional Independence Measure (FIM) and Functional Assessment Measure (FAM) is a global measure of disability (physical and non-physical).
It has an ordinal scoring system for all 30 items from 1-7 (1=complete dependence and 7 fully independent).

Min score for FIM= 18 Max score for FIM= 126
Min Score for FAM= 12 Max score for FAM= 84
Min score for FIM+FAM= 30 Max score for FIM+FAM= 210

Enhanced Rehabilitation in Critical Care Dragons Den Project April – October 2015

Introduction: This report outlines the 6 month outcomes of the enhanced rehabilitation project in critical care (CC). The therapy support workers (TSW) role has integrated seamlessly in to the CC unit at NUH, City Campus, assisting a change in culture of the unit meaning rehabilitation has an increased profile and priority. The therapy team are now consistently meeting the recommendations of the NICE Critical Care Rehabilitation Guidelines, (2009) by providing 45 minutes of each appropriate therapy five days a week. At the recent CQC visit we were able to demonstrate our ability to fulfil this when asked how we deliver these recommendations. Cognitive rehabilitation is now an integral part of the patients therapy when previously this service was not provided. We have submitted an application for an NHS innovation rehabilitation acorn award, and have promoted the service at local and national level through a poster and a publication in a therapy journal.

Activity Data: Figures 1 and 2 represent the breakdown of contacts by the TSW and the cost by directorate April-October 2015

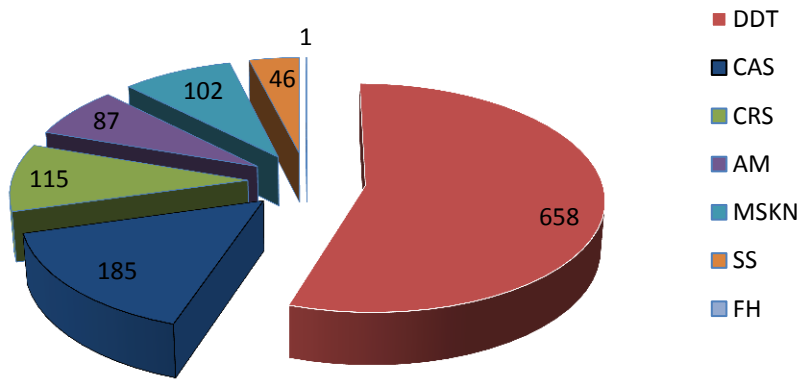

Figure 1: Number of contacts by directorate April - October 2015

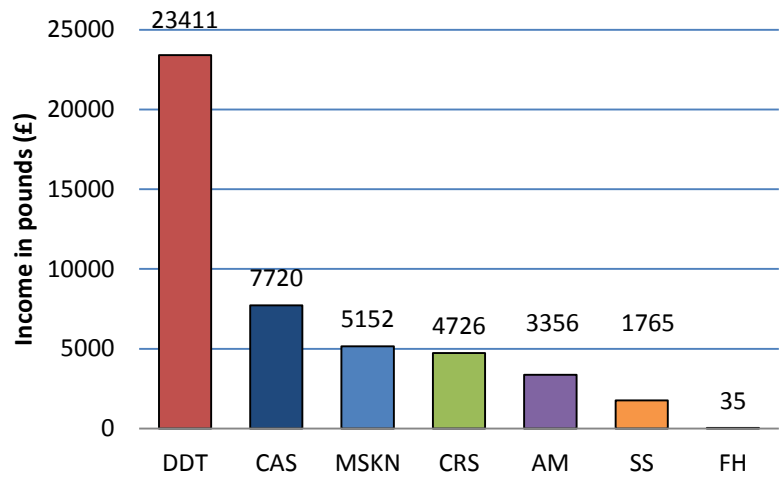

Figure 2: Income (in £) by Directorate April - October 2015 based on internal trading tariffs

The total number of contacts was 1,194. The Digestive Diseases and Thoracics (DDT) directorate was the highest user of the service (n=658)

Patient Outcomes

Outcome measure	FIM	FAM	FIM+FAM
Average First assessment score	18	12	30
Average discharge from CCD score	46	37.75	83.75
Average discharge from hospital score	89.75	58.6	148.3

Table 1: FIM & FAM Scores at first assessment, CC discharge & discharge from hospital

Table 1: shows the Functional Independence Measure (FIM) and Functional Assessment Measure (FAM) is a global measure of disability (physical and non-physical).
The criteria is for long-term patients who have been mechanically ventilated for > 10 days (n=10)
It has an ordinal scoring system for all 30 items from 1-7
Minimal score = 30 and Maximum = 210
Table 1 demonstrates a **mean improvement score of 118.3** from first assessment to discharge from hospital

The Chelsea Critical Care Physical Assessment Tool (CPAx) is an outcome measure for physical morbidity in adult CC.
Minimum score= 0 and maximum score = 50. Patient cohort includes those identified as having ongoing rehab needs whilst in CC (n=20).
Mean First assessment score = 6.3 Mean score on discharge from CC score = 25.1.

Length of Stay

Length of stay	2014	2015
0 – 10 days	n = 345 (84.1%)	n = 406 (89%)
11 – 29 days	n = 45 (11%)	n = 31 (6.7%)
30+ days	n = 7 (1.7%)	n = 11 (2.4%)

Table 2: Comparison of LOS in CC 2014 compared to 2015

Table 2: One of the aims of the project was to reduce overall length of stay in the longer stay groups e.g. 11-29 days and >30 day stay. The data demonstrates the movement in length of stay to the 0-10 day bracket with an increase from 84% of patients to 89%. It can be hypothesised that these patients have moved from the 11 – 29 day stay bracket which has reduced from 11% to 6.7%. ***NB*** *the data does not capture 100% of patients (97% for 2014 and 98% for 2015), this is due to patients still being in-patients from one period to the next.*

Indicator	CCD 2014	CCD 2015	Outcome	QMC 2014	QMC 2015	Outcome
Patients treated this period	410	457	11.5% increase	467	693	48.4% increase
Average length of stay	5.1	4.2	17.6% reduction	4.9	4.9	Static

Table 3: Comparison of LOS in QMC CC to City Campus 2014/2015

Table 3: Demonstrates a comparison of data between City and QMC using QMC as the control group. (It is noted the patient group is different, however, the units share many comparable services with the exception of the TSW). City campus has demonstrated a reduction in length of stay were the QMC length of stay has remained static.

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