



University Hospital Southampton NHS Foundation Trust

## Neurosciences Intensive Care Unit Multicare Report

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Development



# Background

- ❖ The Neurosciences Intensive Care Unit is a 13 bedded unit providing specialised intensive care for patients who have a severe illness or injury affecting their brain, spinal cord or peripheral nerves. Admitting 600-700 patients per year
- ❖ These patients due to the nature of their health conditions are some of the most physically dependant and challenging patients
- ❖ Require between three and five staff to safely turn them on a two hourly basis unless risk assessed that less frequent turns would be appropriate. The use of new software produced by Allocate and Healthroster that recorded acuity and workload v staffing numbers in Care Hours per Patient per Day (CHPPD) demonstrated a shortfall in staffing numbers to undertake the number of turns recorded.
- ❖ Turning patients is critical to ensure integrity of the skin and reduce pulmonary complications. Patients with altered neurology have adverse reactions to physical contact and manipulation due to hypersensitivity. Less contact during the turning process reduces the distress of turning two hourly or on demand.
- ❖ Due to workload pressure, advice from Moving and Handling lead and best care for patients we investigated the market for lateral rotation beds. Linet was chosen as the bed met our needs and the company willing to embark on a trail with partnership working.



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## Care Hours Per Patient Per Day (CHPPD) pre use of Linet beds

- ❖ The following graphs show a visual representation of Care Hours Per Patient Per Day (CHPPD); the bigger the gap between the blue and green lines, the bigger the shortfall in CHPPD.
- ❖ This graph relates to the 12 month period prior to the introduction of the beds. The gap between actual and required CHPPD indicates the shortfall i.e. fewer nursing hours available to care for the patients. The impact of this shortfall is on the nursing staff in absence, fatigue and stress levels impacting on overall health and wellbeing or patients are not turned two hourly compromising turnaround protocols.



## Healthroster data in Safecare post Linet beds

- ❖ This graph shows the same view but in the 12 month period following the introduction of the beds. **The two hourly turnaround protocol was achieved with less staff required for every turn, reducing the actual time for each turn (averaging 20 seconds).**
- ❖ Patients are disturbed less whilst undergoing two hourly turns to maintain skin integrity, chest care and haemostasis. **The reduction in CHPPD shortfall represented by the closer lines on the graph is clear to see.**



## CHPPD shortfall – Impact on staff health and well being

- Muscular-skeletal injury and absence
- Wear and tear, fatigue and stress through physical workload and ultimate drive to deliver best care to patients
- Retention of staff and contracted hours
- Reluctance to work additional hours
- Reluctance for agency workers to return



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## The Aim of the Study

- ❖ Release time for direct patient care
- ❖ Reduce sickness absence (overall) especially focused on musculoskeletal injuries
- ❖ Reduce stress and fatigue
- ❖ Reduce vacancy rate
- ❖ Increase staff satisfaction
- ❖ Increase patient satisfaction
- ❖ Reduce patient complications including Pressure ulcers, Ventilator Acquired Pneumonias and reduce overall length of stay

The equipment comprised of;

- ❖ 10 Multicare Intensive Care beds - 5 with i-drive
- ❖ 10 passive Clinicare Mattresses and 3 Virtuoso adjustable pressure mattresses.
- ❖ All mattresses changed to Clinicare 100 HF in line with Trust mattress contract during the trial
- ❖ Head ring attachment to safely perform portable CT scans



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## Methodology

- ❖ An audit tool was developed to monitor and record relevant data to assess the impact of the beds within the unit. Amendments were made to this tool as the collection of data progressed to ensure the data being collected was relevant.
- ❖ Data was collected for the period from Q1 2016/17 (prior to the bed installation) until Q1 17/18.

Criteria	Method	Source	Links to aim of the trial
Demand v actual staffing levels	Care Hours Per Patient Per Day	Safe care	A
Agency and bank shifts filled	Number/rate of those requested	Healthroster	A
Sickness absence (nursing staff); overall rate and musculoskeletal (%)	Overall rates (%) Monthly Quarterly	Healthroster	B
Bariatric bed hire	Number of days	Unit records	B
Registered nursing staff vacancy (%)	Overall rates (%) Monthly	Healthroster	C
Unregistered nursing staff vacancy (%)	Overall rates (%) Monthly	Healthroster	C
Staff feedback	Questionnaire to staff	Ward Based Survey	D
Patient feedback	Additional question on feedback survey	Current patient feedback process	E
Real length of stay	Monthly average days	Critical Care Minimum Data Set	F
Hospital Acquired Pressure Ulcers	Number/rate	Adverse Event Reporting System	F
Ventilator Acquired Pneumonias	Number/rate	Adverse Event Reporting System	F

# Findings

- ❖ Multicare facilitates less intervention during the turning process,
- ❖ Promoting sleep whilst maintaining skin integrity,
- ❖ Postural drainage
- ❖ Haemostasis

As a result there is the potential to reduce delirium due to sleep deprivation. The beds enable a seated position to promote visualisation and orientation.

- ❖ With the Linet beds patients can be turned by two nurses every two hours. This releases time to care and ensures timely provision of nursing care, promoting the maintenance of patient safety and observations at a 1:1 or 1:2 ratio.
- ❖ The nurse in charge can be less involved in all turns – focus on moving patients forward in their care pathway and operational challenges.
- ❖ Improving health and wellbeing of staff promotes retention, longevity and sustainability within the workforce.
- ❖ Bed spaces are restricted due to the amount of equipment and estates challenges on the unit (current bed spaces do not meet Hospital Building Notice standards). As a result staff report frequent musculoskeletal injuries, dissatisfaction with their working environment and ensuring adequate staff are available at the right time to assist with complex patient turns is ever challenging.



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# Staff Feedback

## Largely Positive -2 audits

- ❖ Audit 1 – Benefits for staff and patients as well as any disadvantages – grouped into themes

Reduction in back and other musculoskeletal injuries/aches and pains

- ❖ Fewer turns and overall bed functionality
- ❖ Fewer transfers between different beds
- ❖ Easier to move the bed (for example when transferring patient to theatre(i-drive))
- ❖ Releasing clinical time to provide care on the unit- turns are quicker and fewer staff needed
- ❖ Fewer staff required to turn patients so staff doing fewer turns overall
- ❖ Less physical moving and handling

Beds easier to use for

- ❖ Turning patients
- ❖ Transferring patients using the I-drive
- ❖ Positioning patients for procedures
- ❖ Weighing patients
- ❖ Bariatric patients
- ❖ Chest care

- ❖ Disadvantages - Need to change beds prior to transferring to the wards – Harder to change sheets !



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## Audit 2 – Summary – Positive Impact?

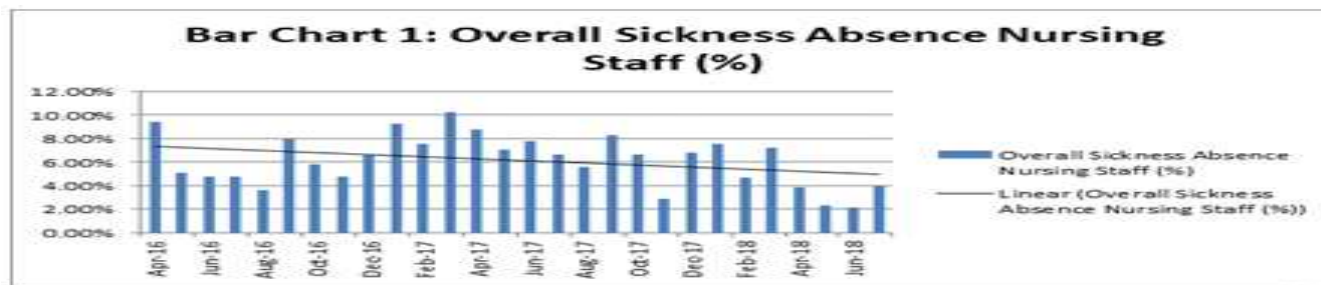
Linet Bed Audit				
Have the beds changed any of the following in a positive manner?				
Question	Yes		No	
	Actual numbers	%	Unanswered	%
Physical Health (i.e. Back pain)	45/46	98%	1/46	2%
Mental Health (i.e stress)	32/46	70%	14/46	30%
Time Management	45/46	98%	1/46	2%
Patient turn time	44/46	96%	2/46	4%
Patient Safety	31/46	67%	15/46	33%
Positioning of patient (VAP)	34/46	74%	12/46	26%
Chest care	26/46	57%	20/46	43%
Other				

- ❖ 100% of staff believe Multicare have improved their health and well being at work.
- ❖ 93% of staff believe a return to a non specialist bed, standard hospital bed will impact on their health and well being.

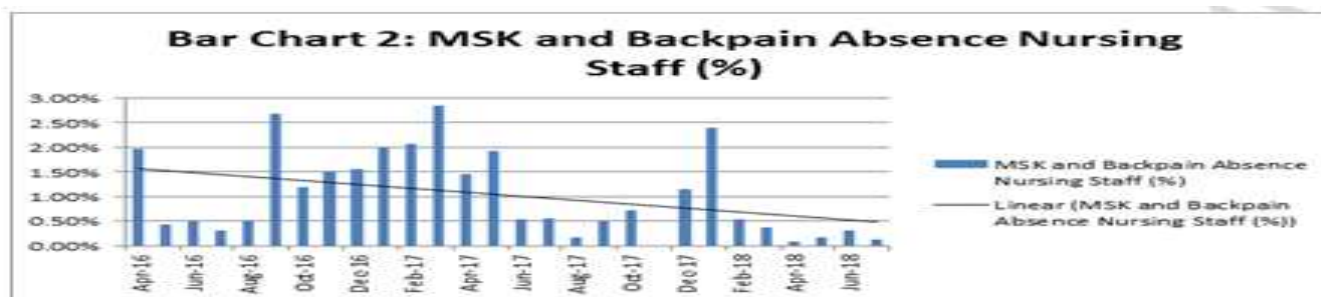
## Aim:

### Reduce Sickness Absence, Overall Rate and Muscular – Skeletal %

- ❖ An overall decline in nursing sickness absence was noted although its not possible to attribute this directly to the use of the beds.



- ❖ There was however a greater decline in the reduction of sickness absence due to MSK and back pain/injuries



## Aim - Agency shifts filled / change in staff profile

- ❖ A Trust initiative is to encourage employees to work additional hours on the NHS professional's staff bank (NHSP) as multi post holders to reduce reliance on agency workers and thereby reduce temporary staffing costs.
- ❖ All vacant shifts are released to the nursing bank (£30 per hour approximately.). Shifts which are not filled are released to agencies for external (non-Trust) staff (£62 per hour/variable but always higher than NHSP). In extreme circumstances shifts are released to a very high cost agency (£100 per hour approximately) which the Trust endeavours not to use unless essential to maintain patient safety.
- ❖ The table below indicates the temporary staffing data for the year preceding the introduction of the beds and the year following introduction of the beds.

	Agency %	Agency hours	Bank %	Bank hours	Hours variance	Total agency nursing spend	Total bank nursing spend	Total spend on agency and bank
7/8/16-6/8/17	7.06%	5745	5.7%	4684		£262,368	£165,025	£427,393
7/8/17-6/8/18	6.04%	5078	7.47%	6286		£252,741	£251,947	£504,688
<b>Difference (hours)</b>		<b>-667</b>		<b>1602</b>	<b>935</b>			
<b>Difference (spend)</b>						<b>-£9627</b>	<b>£86,922</b>	<b>£77295</b>

The overall agency and bank worker demand in the second year when Linet beds in use increased by 935 hours compared to previous year, equating to 0.48 whole time nurses per week.

Bank hours in year 2 also increased by 1602 hours, equating to 0.82 whole time nurses per week.

**This suggests substantive staff are more willing to work additional hours - indicating a positive impact from the beds.**



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## Aim - Bariatric Bed Hire

- ❖ In the 16 months which proceeded the introduction of MC, bariatric beds were hired for a total of 32 bed days
- ❖ @£65 per day 32x65=£1760
- ❖ August 2017 – June 2018 – No beds hired. Also noted a physical benefit due to staff not having difficulties in manoeuvring patients and the barriers in providing personal care.



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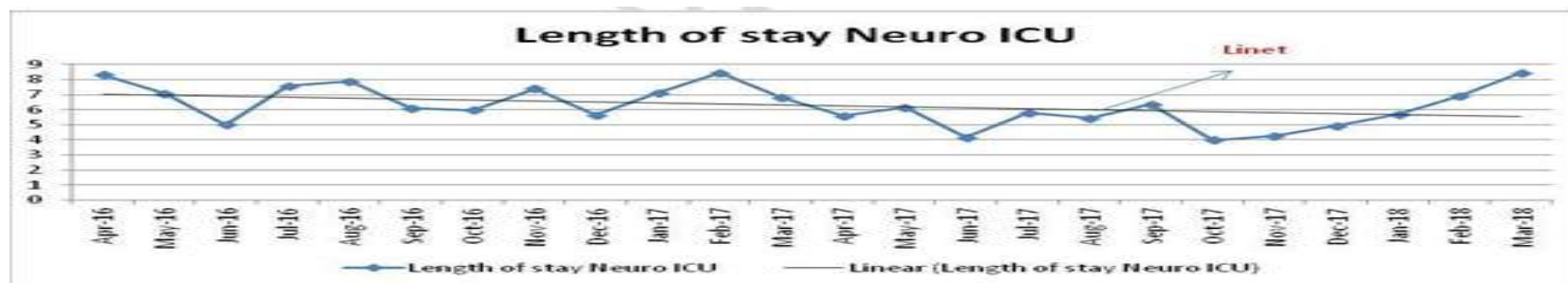
# Aim - Reduction in Patient Complications

## Hospital Acquired Pressure Ulcers

- ❖ The unit has a good record of pressure ulcer prevention with only one grade 2 ulcer in the 16 months which preceded the implementation of the beds. **There have been no Hospital Acquired Pressure Ulcers since the beds were introduced.**

## Real Length of Stay

- ❖ There has been an overall reduction in length of stay prior to the introduction of Multicare due to the Early Mobilisation Programme led by the Physio team, so its not possible to say with certainty if MC has had an impact. The below increase is due to a high number of long stay pts.



## Results / Findings / Discussion

### AIM - Release time for direct patient care (demand v actual staffing levels)

- ❖ Current staffing models are based on Care Hours per Patient per Day (CHPPD). In critical care this is 24 hours for 1:1 and 12 hours for 1:2 level.
- ❖ When you factor the need to perform two hourly turns (maximum 156 turns in 24 hours on a unit of 13 patients with between three and five nurses required) there is a shortfall of CHPPD. This is demonstrated in the following data from the system used (SafeCare) where three, four and five person turns are recorded three times a day.
- ❖ Prior to the introduction of the beds the data was based on two hourly turns, each turn averaging eight minutes with between two and five nurses.



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## Conclusion

- ❖ Qualitative feedback was extremely positive and staff overwhelmingly did not want them to be removed from the unit. The difference in shortfall of care hours per patient per day is powerful evidence of the impact of the beds, as is the reduction in sickness absence for musculoskeletal and back injuries, increase in bank work and reduction in higher cost agency
- ❖ Recruitment has improved from 25% vacancy to virtual full recruitment. Staff actively seeking employment regardless of recruitment advertisements. Improved staff experience for staff moving across the critical care units.
- ❖ Movement of beds and transfer of patients to other departments is easier with the iDrive facility.
- ❖ After presenting the Neuro ICU Multicare report to Trust management the 10 Multicare beds with mattresses have been purchased plus 2 beds purchased in lieu of the report. A further 7 have been purchased for Neuro ICU and General ICU using charitable funds. Cardiac ICU are in the process of assessing their own need.
- ❖ Standard practice has changed and patients are turned on the bed two hourly with minimal disturbance and handling. Patients with neuropathic pain benefit from this as turning manually can cause distress from pain on handling. A full turn every four hours ensures that pressure areas are checked. Patients can be risk assessed and turned more frequently if required for comfort, pressure care management or chest care.



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## Challenges

- Transfer of beds to theatres where staff have not been trained. Training provided to local areas but transfer of theatre staff unfamiliar with the beds has been a challenge
  
- Breakages –
  - A need to be aware of surroundings and limited space in bed area
  - Lack of care and attention – 3 to turn when required.
  - Staff who are not trained but continue to operate the bed resulting in breakage.
  - Screen cover – flaps open on rotation and cover breaks
  
- No shelf to use for linen
  
- Block bags in limited space.



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Thank You

Any Questions?



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