Chelsea and Westminster Hospital NHS
NHS Foundation Trust

Intensive Care Unit Annual Report April 2015-March 2016

THIS ANNUAL REPORT HAS BEEN PRODUCED BY THE STAFF WORKING ON THE INTENSIVE CARE UNIT AT THE CHELSEA AND WESTMINSTER HOSPITAL SITE

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FOREWARD

A time to reflect

"Time is free, but it's priceless. You can't own it, but you can use it. You can't keep it, but you can spend it. Once you've lost it you can never get it back."

How often in a day, do we say we haven't got time or I wish I had more time to do such and such? I know that I say this often and especially in the last year when my job has changed to cover the burns service and the critical care unit in West Middlesex. However, it is only when you stop and reflect that you evaluate what you did with that time. This is one of the reasons we continue to produce this annual report.

It gives us a chance to reflect on the activities in the unit in the last year. It is written and produced by staff on the unit so staff can gain skills in report writing. It also recognises staff achievements and involvement no matter what grade they are or job they do. It collates all the achievements and outlines our plans and developments for the coming year in an organised and structured way. In addition it can be used as a marketing tool to be distributed at conferences and in recruitment packs. Most importantly it showcases and markets the continuous commitment everyone has to continually developing the unit.

This annual report 2015/16 is divided up into sections under the themes of our values.

Under 'Respect' we outline the work we are doing with the quality group in relation to receiving feedback from our relatives and patients. We also have an established end of life group which is promoting the work of the Gold Standard Framework- see inside for more information.

Under 'Kindness' we talk about the weddings that occurred on the unit ,comments from our thank you cards and outcomes from VIC our Virtual Intensive Care Healthcare Professional.

'Safety' is covered by our fantastic multidisciplinary team, outcomes and themes from clinical incidents, infection control practices and safe staffing.

'Excellence' is demonstrated by our regular feature about inter team project groups and information and extracts on the educational, research and developmental opportunities on the unit.

This year's annual report also contains information about a new and extremely important group set up as a result of a clinical incident, our airway group. In additional there is a fascinating article on technology in the ICU and future advances that will affect how we treat and care for patients in the future.

I am really proud to work on this unit for two reasons. We try in an environment where technology and complexity of cases is part of everyday life, to ensure that the humanistic caring skills are equally important as the technical skills. Secondly the team approach ensures that all staff are inclusive and involved which means there are ample opportunities to develop, stretch and challenge one another.

I do like my quotes so I finish off by saying…

'You learn not by doing but reflecting on what you have done'

We hope you enjoy our reflection of what we have done in 2015/16.

Jane Marie Hamill

Lead Nurse ICU and Burns

Our Values on the ICU

RESPECTFULNESS

QUALITY GROUP

The Quality Project Group aims to ensure that staff on the ICU provide a high quality of clinical and non-clinical care to patients and their relatives. This is achieved through a number of different processes.

Relatives Satisfaction Survey

We have increased the response rate from the relatives' satisfaction survey from 24 respondents between January to June 2015 to 62 respondents between July to December 2105. This has been achieved through a concerted effort in directly mailing the questionnaire out with a stamped address envelope. In the last set of survey results 89% of respondents stated that the overall standard of care their relative received was excellent, very good or good. I need to thank our volunteer Caroline Fox for continuing to collate the responses from this survey.

Patient Focus Groups

We continue to run ex-patient and relative focus group meetings whereby a small number of ex-patients and their relatives meet with staff from the intensive care unit and share their experiences of the time they were in intensive care. These continue to provide valuable feedback on the service we provide and highlight a number of areas that we are seeking to further enhance the care we provide.

Primary Nursing Audit

The idea behind primary nursing is that one nurse and the other members in their team develop a therapeutic relationship with the patient they care for and their relatives. We aim that every patient when possible is cared for by their primary nurse and the other nurses within that team. To monitor this we undertake audits on the percentage of time a patient is looked after by their particular team. We are now undertaking this audit on a more regular basis in order to promote this particular model of nursing.

Plans for 2016/2017

The group has a number of objectives for this following year. We will continue to run three focus group meetings a year, undertake the primary audit, and look at providing the opportunity for visiting and providing more information to prepare patients who are having planned surgery that requires a post-operative stay within the intensive care or high dependency unit.

Ben Harold
Charge Nurse, Team Leader – Team F

RELATIVES SATISFACTION SURVEY

As a means of responding to the needs and concerns of patients' relatives and friends, the Chelsea and Westminster ICU produces a Relative's Satisfaction Survey twice a year. This is based on the results of a questionnaire of 35 questions. The survey is presented to the Quality Assurance group for discussion and action. It is now in its 16th year and has been in its current format for the past three years. After a decline in the numbers of surveys returned in 2014, the Quality Group made a concerted effort to improve the level of responses. This resulted in an increase in the number of surveys returned from 27 in 2014 to 86 in 2015. Possibly as a result of this increase there was more variety in the responses but overall the perception of the care given by the Unit remains very positive.

As in previous years the vast majority of responses have been very favourable but there are always areas that can be improved. By providing direct feedback from relatives the Relative Satisfaction Survey will continue to be one of the Unit's most useful tools in improving the services it offers to the public.

Below are a few comments from the returned 2015 surveys.

SP – There was nothing that you could of improved on. My wife and all our family were treated with dignity, respect and the care was fabulous. The nurses were kind, knowledgeable and considerate

MD – Fortunately my husband only required one night but my overall impression was lack of staff. I realise that the NHS requires more financial support hence my less than enthusiastic memory

CC – All your staff are very caring and very helpful and kind and my partner has had quite a few admissions to the ICU due to a long medical history. There is nothing I could fault about the care she has received.

RS – Better communication between staff (needed). Waited in waiting room for nearly 2 hours and no one passed on message to say we were there

CH – Very pleased to say a big thank you to all staff who treated my husband. Lots of staff had walked to work as it was a strike day on the underground but still remained professional and caring.

PC – They saved my son's life. What more can I say. We are still not out of the woods yet – but we can only hope!

HR – Much as I appreciated being with my daughter in ITU, I did not think that visitors were helping with the smooth running of the ward. In fact they seemed to be getting in the way a bit.

Caroline Fox
Volunteer

PATIENT DIARIES

We commence Patient Diaries for patients who are on our unit for 3 or more days. Patients can suffer memory loss and hallucinations, causing post-traumatic stress, after their stay in Intensive Care. Research has shown that Patient Diaries can help piece back together and make sense of this difficult time.

In the last year we have been trialling a new format of the Patient Diaries which allows the relatives to also write in the diaries. They do this in some other units already. We piloted this in two of our teams which showed that the relatives really liked the chance to write in the diaries. It gave them something positive to do at a time when they were feeling very powerless. We have had to produce a new format for the diaries because the relatives are not allowed to read the patient diary before it is returned to the patient. So we have made two separate booklets, one for the nursing staff and other members of the multi-disciplinary team (MDT) to write in and one just for the relatives and close friends.

We have been trying to encourage other members of the MDT to write in the dairies such as physiotherapists and faith leaders. The new format has 'Why did I come to the ICU?' as the start as we found that this often wasn't stipulated and jumped straight into day three of care. We have also set out a few key pointers such as "What's in the news today? Who visited me today? What's the weather like today? and Any changes in my condition?" There is also a blank space for the daily entry.

One of our main challenges is returning the diaries to patients or their relatives if they are deceased. Some patients contact us, others we ring to organise an appointment, sometimes when they are coming back to the hospital for other appointments. Others we post the diary to them. We always keep a copy in the patient notes, in case of any issues. We are also trying to link in with the Chaplains who are setting up a bereavement Group, for relatives who are struggling with the death of a loved one, to return the diary at this meeting.

Danielle Pinnock
Sister, Team Leader – Team J

END OF LIFE GROUP

It is a year since the Trust began the process of applying for accreditation for the Gold Standards Framework (GSF) in end of life care. Intensive Care was chosen as a pilot site. The GSF is a systematic evidence based approach to optimising the care for patients nearing the end of life and is increasingly being adopted by acute hospitals where nearly half of all deaths occur in England. The GSF cite the study by Clark et al (2014) who believe about 30% of patients in hospital at any one time are within the last year of their life.

The introduction in January 2016 of a weekly multidisciplinary meeting created a place for deeper discussions about where a patient is in their illness, to allow the identification of patients who are no longer responding to their treatment with the aim of avoiding inappropriate interventions and prolongation of futile treatment. Once this decision is reached a personal plan of care for that patient and support for their loved ones/carers can be developed taking into account any personal wishes, and using shared decision making. This requires a move to a palliative approach of care for that patient and their loved ones/carers, involving sensitive, compassionate and honest conversations. These practices are reiterated in the NICE Guideline (December 2015); *'Care of Adults in the last days of Life'.*

Ann Sorrie
Sister, Team Leader – Team H

ORGAN DONATION

Currently there are over 7,000 people on the UK national transplant waiting list and, during the last financial year, over 1,300 people either died whilst on the waiting list or became too sick to receive a transplant. This is because, despite more than 500,000 people dying each year in the UK, fewer than 5,000 people die in circumstances where they can become a donor. For this reason the Chelsea & Westminster Organ Donation Committee was set up in 2011 in response to the NHS Blood and Transplantation's (NHSBT) Organ Donation Taskforce and subsequent *"Taking Organ Transplantation to 2020"* with the aim of making organ and tissue donation a normal part of 'end-of-life' care and of maximizing the overall number of organs and tissues transplanted. The Committee is made up of staff from the NHSBT and the Chelsea and Westminster Hospital and currently has a lay chair.

Over the last three years the Chelsea & Westminster has helped to save or transform the lives of eight recipients. The Committee with the help of the Specialist Nurse Organ Donation (SNOD) and the Clinical Lead Organ Donation (CLOD) continues to raise the profile of organ donation and endeavours to ensure that the hospital offers the services of organ donation to all appropriate families. The Committee is responsible for

- Maintenance of Brain Stem Death Testing Rates

- Maintenance of potential organ donors referral rates and SNOD involvement
- Consistent and realistic increase in consent rates for organ donation
- Raise awareness of the need for transplants.
- Address misconception and beliefs, with sensitivity and respect.

In the light of changes within the Trust the status of the Committee is currently being reviewed and there was little activity in 2015. The Committee will reform once the merger has been completed.

Caroline Fox
Volunteer and Chair of the Organ Donation Committee

DELIRIUM

Delirium is an acute, reversible and sometimes the only manifestation of organ dysfunction in critically ill patients (See definition in table 1). Delirium is the most common hospital neuropsychiatric medical condition. It is also an independent predictor of death in the Intensive Care Unit (ICU) even when adjusted for other co-founding factors. Furthermore, delirium is predictive of three times higher reintubation rate in the ICU. Traditionally, the term "ICU psychosis" has been used to designate florid abnormalities of mood and behaviour in the ICU patients. This term implies a *cause-and-effect* relationship between being in the ICU and becoming psychotic. Early theorists drew on clinical and experimental data that suggested relationship between sleep deprivation and subsequent psychosis. They suggested that the ICU patients become psychotic because they were routinely deprived of sleep and exposed to either sensory deprivation overload of unfamiliar circumstances, or monotony leading to disengagement, disorientation and isolation.

Table 1: Definition of delirium by DSM-IV-TR

1.	**Altered consciousness: Reduced clarity of awareness of environment with reduced ability to focus, sustain or shift attention.**
2.	Change in cognition: disorientation, memory disturbance, problem solving impairment, development of perceptual disturbance.
3.	**Rapid onset (hours to days) and tendency to fluctuate during the day.**
4.	Evidence the condition is caused by physiological consequences of clinical condition or drug withdrawal/overdose.

The hallmarks of delirium are an acute onset of confusion and altered level of consciousness. Until the late eighties, delirium used to be referred as acute confusional state. The abnormal consciousness distinguishes delirium from dementia which is also characterized by confusion but is associated with a normal level of consciousness. Most cases of delirium have an acute onset. Although delirium is reversible within a period of days or weeks, some cases progress to irreversible brain failure. The electroencephalogram (EEG) of the delirium patient is characteristically abnormal, suggesting what has been referred to as a state of cerebral insufficiency, or failure of a normal metabolic processes of the brain.

The frequency of delirium depends on the nature and severity of the patient's illness, the type and treatment involved in the ICU and environmental factors. The highest incidence of delirium has been reported after general surgical procedures in elderly patients and critically unwell medical patients.

Although delirium is probably the commonest cause of agitation in the ICU, many other factors that compromise the patient's ability to tolerate the ICU environment can precipitate agitation, these include:

anxiety, pain, personality style, and limitations in one's ability to comprehend the nature and demand of the ICU (e.g. a sensory, cognitive, or language impairment).

There are several risk factors of delirium that appear to be associated to dysfunction in the perioperative period. Table 2 illustrates the main risk factors related to patient's pre-morbid conditions and hospital related risk factors

Table 2: Risk factors for developing delirium in the Intensive Care Unit. Reproduced with permission from the Oh's Intensive Care manual, 7th edition, chapter 56, page 611.

ICU delirium modifiable risk factors		Non-modifiable risk factors
Infection	Hyponatraemia	Age, especially over 65
Anticholinergic drugs	Sedative drugs	Cognitive impairment
Opiates	Hypoxia	Dementia
Pain	Hypercarbia	Depression
Immobility	Acidosis	Genetic factors
Dehydration or Constipation	Polypharmacy	Institutionalised residence
Use of physical restraints	Sleep disturbance	
Sensory impairment (visual/auditory)	Use of bladder catheter	

General management

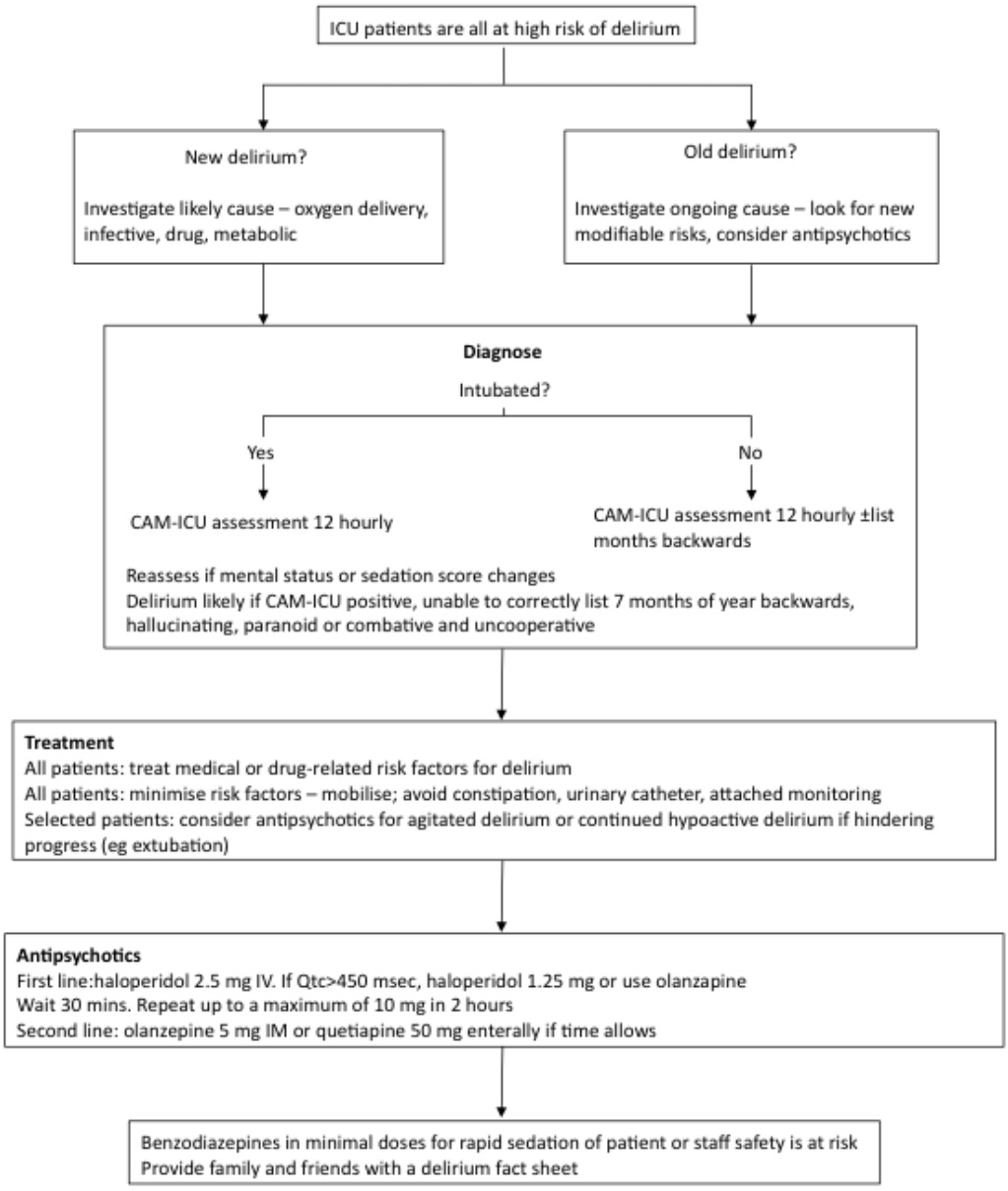
Initial management should aimed at correcting the cause of delirium. Necessary examination and investigations should be undertaken, remembering that there may be more than one precipitating cause.

Simple environmental measures are free from adverse effects and can be employed with the aim of preventing delirium or reducing its severity. These include clear and firm communication with frequent verbal orientation e.g. date, time, location. A relative being involved in care assists in giving the patient a sense of security and control, and can give the clinician information about the patient's normal mental status before illness. Other environmental factors include keeping noise to a minimum, correcting sensory

impairment with hearing aids or spectacles if worn, avoiding sleep disturbance by careful timing of treatments and interventions, and by promoting normal sleep-wake cycle.

Other measures such as controlling pain, correcting electrolytes, restoring oxygenation, controlling febrile episodes, maintaining blood pressure within patient's normal range and treating constipation may be sufficient to treat delirium. Physical restraints, rarely used in the UK, are known to increase the risk of delirium. They should be avoided. Medical restraints, including urinary catheters, ECG leads within other monitoring tools, which will also impact the mobility of patients should be removed as early as is prudent. A summary of management of delirious patient in the ITU is presented in table 3.

Table 3: Critical Care Unit Guideline for Treatment of Delirium. Reproduced with permission from the Oh's Intensive Care manual, 7th edition, chapter 56, page 611.



Delirium and patient's relatives

ICU admission is a distressing time for relatives and friends of patients and this is exacerbated by them witnessing the delirious patient. It is important to make the relatives aware that mental status changes in ICU are common, and inform them that, although delirium can lead to cognitive impairment, generally any acute psychosis is usually transient. It is often useful to provide a delirium information leaflet for relatives and reassure them that clinicians are looking for and addressing any treatable cause. Furthermore, it is important to continue to support the patient after recovery. This may involve them talking about their experience, in particular any hallucinations endured during the delirious episode.

In summary

Delirium is commonly encountered in the ICU, particularly in intubated and ventilated patients. Regular assessment of sedation and cognitive function will identify delirious patients' early, facilitating prompt management. Delirium primarily requires correction of likely causes (medical or drug related) and minimising known risks (mobilising, avoid constipation etc). First line treatment of agitated delirium consists of antipsychotics and other drugs. Keep friends and relatives, and, whenever possible, the patient informed.

Dr Marcella Vizcaychipi
Consultant Intensivist

KIND

WEDDINGS ON THE ICU

We have been privileged during the last year to see three weddings take place on the ICU. It is not an easy decision for many of our patients to make, as obviously it is not a venue or timing for a wedding that most people would choose. However the exchanging of vows is special for the couple where ever it takes place, and the staff on the unit have done everything possible to make the days as distinctive as possible.

For the staff working in ICU each wedding was an unusual, but extraordinary experience to be involved with and one that is unique in their professional careers. All of these weddings were organised is a very short space of time and it is a testament to all the individuals involved to ensure that they are able to be conducted and include so many personal touches.

Elaine Manderson
Clinical Nurse Specialist

THANKYOU CARDS

On the intensive care unit we collect and collate thank you cards and letters from visitors and patients. Thank you cards can give a valuable insight into the care that is being delivered and can be used to demonstrate what gives relatives and friends comfort when their loved one is critically ill. They can make staff feel appreciated and be used to support them when difficult decisions are made. These are some of the comments that have been written in the thank you cards over the past year:

"The incredible comfort + support + kindness you showed not only to him, but to all of us has continued to be a source of enormous strength & peace for us as we have faced our first Christmas without him" (Dec 15)

"I can't thank you enough for the tireless care and attention you have x over the last few weeks of his life"

"All the love, kindness and inspiration in the ICU ward is a spiritual healer alone, add that to your brilliance; the exemplar of NHs healthcare" (Dec 15)

"One of the most important things for us was the way you listened and involved us in her care and made it clear that it was important for us to work with you as team to get her better. we will be eternally grateful to you all" (Nov 15)

" Kia Kaha
Kia Joa
Kia Manawanui!"
A Maori Blessing (Oct 15)

Elaine Manderson
Clinical Nurse Specialist

VIC – our VIRTUAL INTENSIVE CARE Practitioner

VIC was introduced to the ICU a number of years ago. We started using VIC as an additional means for providing support to our patients and families especially after discharge from ICU. It is a simple email account askvic@chelwest.nhs.uk that people can email any questions, concerns or indeed compliments that they may have. The email account is monitored by two of the senior nurses and the senior physiotherapist, with the aim of responding with an answer within forty-eight hours.

Since we launched VIC, we have seen a small number of enquires, ranging from questions about medical conditions to help in finding the location of wards, demonstrating to us the need to have many different methods of patients and their loved ones to be able to contact the team,

VIC is advertised in our discharge booklet *"On the Road to Recovery" a*nd is given out to all families on admission as part of our admission packs. We hope that VIC will continue to get questions sent to them, and the ICU team continue to keep all our service users up to date.

Elaine Manderson
Clinical Nurse Specialist

SAFE

PHARMACY

The strength of any good team lies in the values of its leaders and the dedication of its members. The ICU team at C&W has demonstrated to be one of the most welcoming, appreciative and supportive groups that I have had the privilege to be part of and their commitment is truly inspiring.

I have never before worked in an ICU where the contributions from all disciplines are so equally respected and taken on board to provide the best possible care for our patients. We all learn from each other and have an understanding of each other's perspectives and rationale for recommendations. The multidisciplinary team ward rounds have been one of the most comprehensive and inclusive that I have had the pleasure to attend. This is the secret to its success and long may it continue.

2015 - 2016 has been a challenging year for the planned care pharmacy team. We have the smallest group of pharmacists compared to any other directorate but have a clinical commitment that covers more than half the hospital. This will continue to increase with the new ICU expansion plans next year and the opening of the Surgical Assessment Unit in August 2016.

TPN activity is rising year on year. Within the last two years, activity has more than doubled. £96,000 was spent on TPN alone from April 2015 to March 2016 compared to £60,000 during Apr 2013 to March 2014. The top three indications in descending order were gastrointestinal obstruction, ileus and fistulae. In September, the TPN team looks forward to a newly appointed consultant gastroenterologist becoming our medical representative on the MDT ward rounds. His presence will hopefully reduce the number of potentially inappropriate referrals.

Another previously unheard of development is the discharging of patients directly home from the ICU due to lack of available beds on the general wards. Last financial year, this amounted to 17 discharges and this financial year is estimated to be more than 22. This reflects the extent of bed pressures that ICU face on a daily basis which appears to becoming normal practice.

Pharmacy has been invited and contributed to the MDT rehabilitation ward rounds for long stay patients. Again, this is an area that I hope to develop further as it highlights how each discipline is interlinked and how obstacles can be overcome more easily with collaboration.

It has been an interesting year, full of clinical and financial challenges. I look forward to see what 2017 has to offer.

Chris Chung
Lead Pharmacist Imaging & Anaesthetics

PHYSIOTHERAPY

Leaving ICU is just the beginning .....

Patients in the ICU often have multi-organ failure and require mechanical ventilation. This in conjunction with medications, sedation and prolonged bed rest can lead to rapid muscle loss and significant deterioration of physical function. Patients who have a long stay on the ICU can face disability for months and even years after discharge from the unit. Intensive rehabilitation following critical illness is vital to optimise recovery, speed discharge from hospital and get patients back to their normal activity levels. We aim to start active rehabilitation as soon as possible in the ICU to maintain function and liberate patients from mechanical ventilation.

The key to successful ICU rehabilitation is close multidisciplinary team (MDT) working. This is a core value of the unit here at Chelsea and Westminster Hospital, which the Physiotherapy Team are extremely proud to be a part of. This year one focus has been developing a weekly multidisciplinary meeting where we discuss rehabilitation goals for our long stay patients to make sure we address all of their needs, normalising their day where possible. This may involve trips off the unit if well enough.

The Physiotherapy Team provide a 24/7 service to ICU and patients receive rehabilitation in compliance with the *NICE guidance for Rehabilitation after Critical Illness (2009),* and often more. We have access to a wide range of rehabilitation equipment and are hoping to improve the rehabilitation environment with the expansion of the ICU facilities and also improve access to the outdoors.

To maintain the skill of the physiotherapists working on ICU, we provide annual training with our colleagues in the Centre for Clinical Practice, which uses high fidelity simulation to train staff in complex tasks using real-life scenarios. This course is now entering its fifth year and has proved to be a great success with candidates as well as being recognised by the CQC during their last visit. Also noted was the Chelsea Critical Care Physical Assessment tool (CPAx), a functional assessment that monitors recovery of patients in an objective way and helps them view their progress. This tool is now used in 50% of ICU's in England as well centres across 15 countries worldwide.

This year has seen significant transition. Following our merger with West Middlesex we are looking at how we can use opportunities to improve the service we provide and build links across both sites. We were also sorry to say goodbye to our team lead Eve Corner in April 2016, after 9 years at the trust. She is taking up an academic research post at Brunel University and is hoping to improve links between the university and the hospital and continue with her research.

Georgina Davies
Clinical Lead Physiotherapist (Acting up) (Respiratory and Critical Care)

DIETETICS

The dietitians have had a busy year on ICU and continue to hold a strong presence on the unit, coupled with their other clinical responsibilities Trust wide. In addition to seeing patients on ICU, they continue to carry out NPSA safety audits and strive to improve the delivery of enteral feeding on the unit.

They have also implemented the use of the Cortrak machine – an electromagnetic visual guidance method of inserting bedside NG and NJT's. Traditional methods of placing feeding tubes may incur clinical risk and financial costs. This new technique reduces delays in feeding, the need for X-ray exposure, endoscopy time and the use of parenteral nutrition. The dietitians have arranged a training programme for senior nurses to ensure they become skilled in this new area and the unit is striving to eliminate the use of CXR for enteral tube feeding placement. The will bring Chelsea to the forefront of enteral feed delivery in hospitals across London.

Emer Delaney
Specialist Dietician – ICU and Burns

ACTIVITY AND PERFORMANCE

ICU - 2015 - 2016

Activity	Admittance		Occupancy				Discharges			
	Admissions	Refused admissions	LOS	Occupancy	Target	Variance	Total Discharges	% Discharges< 24 hours	Target	Variance
BURNS	29	1	7.5	64%	75%	-11%	29	100%	100%	0%
BARIATRIC	23	0	2	N/A	75%	N/A	22	100%	100%	0%
ICU- Level 2	373	19	3	134%	75%	59%	369	84%	100%	-16%
ICU - Level 3	140	0	5	72%	75%	-3%	137			
TOTAL:	565	20	.-	.-			557	95%	100%	-5%

Last year saw an increase in activity across all our services, particularly with our level 2 admissions (up by 93 patients). This is due to an increase in the need for critical care beds post operatively; as significant chronic illnesses rise so does the need for closer monitoring post-surgery. Also, an expansion of the trust's A&E department has impacted on the amount of patients being admitted to the hospital and those requiring critical care beds.

ICNARC

ICNARC (Intensive Care National Audit & Research Centre) was introduced to provide 'information/feedback about the quality of care to those who work in critical care' [icnarc.org/About/Overview]. ICNARC makes information about the quality of care available to the public through the Annual Quality Report.

We have now been contributing to ICNARC for 12 months. The experience from then to now has certainly been challenging. Challenging in that it does require a great deal of data entry into our local database (which already requires a lot of data entry). The first data submission to ICNARC came back with around 50 pages of queries to be validated. At this point it was hard to see the added value for participation, due to the time it took to input the required data. I am pleased to say that after an initial hiccup the ICU has embraced ICNARC (although it still does require a lot of data entry) and find the reports that it provides very helpful in benchmarking, service and performance review and business planning.

Jason Tatlock
Assistant Service Manager

MORBIDITY AND MORTALITY MEETINGS

The intensive care unit has been running quarterly morbidity and mortality meetings for over 10 years. These are multidisciplinary last for hour and a half, and are chaired by the consultant on a rotational basis.

The format consists of reviewing the deaths of the patients who have died in the intensive care unit in that quarter. Each patient on admission to the unit is given an apache score (severity score) Any patient that scores less than 20 but dies, the consultant will review and identifies patient cases which will be presented at the meeting . There are usually two case studies presented. A discussion occurs and any learning is identified

The second part of the meeting encourages discussion on future treatments, practices and ensures different staffing groups are updated with what is happening on the unit and are able to give their opinions and suggestions in a constructive way. Topics discussed this past year include:

- Citrate dialysis
- Difficult airway management
- Ward rounds and how to improve them
- Introducing MDT rounds
- Improving the use of technology in intensive care

The meetings are minuted and are sent to all staff. It is a very useful, informative way of discussing issues, concerns and suggestions in a practical and engaged way.

Elaine Manderson
Clinical Nurse Specialist

STAFFING ON THE INTENSIVE CARE UNIT

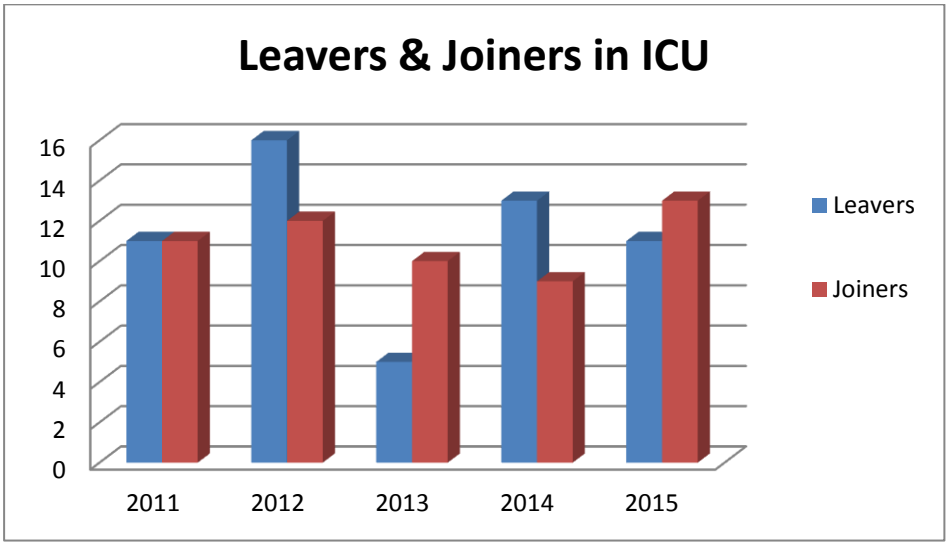
While staffing is the single biggest cost in an intensive care unit, in fact a hospital, it is the most important. If staff feel valued, nurtured, listened to, developed and trusted it results in patients getting expert, compassionate care. This links with how we get staff to work here and stay here.

On Chelsea and Westminster Intensive Care Unit the staff provide expert nursing care to look after patients on the general and burns intensive care unit. Currently the unit consists of six level3(intensive care beds) and four level2 (high dependency beds), as well as two level3 adult burns intensive care beds. These can be used flexibly depending on the needs of the patient. We also have a policy of not refusing any admissions unless the staffing levels are such that patient safety is compromised.

Recruitment

It is extremely important therefore to keep on top of recruitment and be aware that the process can take a minimum of 6 weeks and maximum 4 months. On the unit we capture the number of leavers and joiners that occur in the year and over the previous years, see table 1. This helps us to identify if there are any trends.

TABLE 1: Leavers and Joiners in ICU in 2011-2015



In 2015/16 we had 11 staff that left the unit.

Time spent on the unit

Less than two Years	Two Years- Five years	More than 5 Years
3	5	3

Staff left the unit for a variety of reasons. The three members of staff who stayed longer than three years, left because one retired, one took up a career with paediatric patients and one went in to full time education. Other staff wanted to move out of London, other job opportunities and in some cases ICU was not the place they wanted to work.

We retain staff on the unit because we have very good training packages for staff. We run study days, courses, project groups so there are lots of opportunity for staff to develop themselves and the service. Each new recruit to the intensive of care unit are placed on a pathway relevant to their band. For example a

new Band 5 nurse will commence the Band 5 pathway which involves completing the foundations programme which will lead to the intensive care course. After a period of consolidation they may undertake the mentorship course. These pathways give the staff structure on how to develop their knowledge and skills through formalized courses, project work and mentoring and helping others.

The aim of these structured pathways is to produce competent, confident expert nurses with excellent observational skills. This is important because the effective use of critical care nurses can greatly improve patient care, and reduce the incidence of complications for patients. Their observations skills can reduce the impact of sudden patient decline, for example and their holistic approach to care can change the experience of care for both patients and their families.

On our intensive care unit we want the critical care nurse to develop skills in stepping up and stepping down care, interventions and treatments so that we intervene when the patient requires more support but equally speed up the process of discharge.

In addition the structured pathways encourage and retain staff so that they are exposed to different situations and develop different skills. For example at Band 6 level the staff on the unit are expected to have active participation in interteam projects. One project is the off duty. Exposing staff to learning how to create a rota and balancing the needs of the unit with individual requests gives insight into the complexity of this task and indirectly helps the individual to gain skills in conflict management.

Recruitment of staff in London will always bring its challenges in critical care with plans to expand the unit we have to be creative and visionary for the workforce of the future. Working with West Middlesex Critical Care unit the next plan is how to we harmonise the education and training needs of all staff safely on both sites.

Jane Marie Hamill
Lead Nurse ICU and Burns

INFECTION CONTROL LINK PROFESSIONAL PROJECT

The Infection Control team is dedicated to improving practice to reduce the incidence of infections acquired in hospital. This group is an important resource for the health care team in terms of providing support and advice on the management of suspected outbreaks of infections. As well as educating, training, producing policies and guidelines and auditing. All nurses are responsible for following the Infection control policies and procedures, and must have a basic knowledge of prevention of control-cross infection.

This year I completed Infection Control Link Professional Course run by Trust which empowered me to be more confident and gave me knowledge on how to teach other members of my team and to take part of auditing. It also inspired me to contribute in a project which can improve Infection control practice in my unit.

I was aware that when a central venous catheter is inserted, the nursing and medical teams are responsible for completing an audit document which gives details of the date the catheter was inserted, and confirming their identity and that correct infection control procedure was followed. However, this document is sometimes mislaid or not fully completed. As a result, it was decided to enter all this data onto the computer system rather than using a paper document. This will enable easy access for audit and ensure that accurate records are maintained. According to evidence based practice it is important for the healthcare professional to document details of insertion so other professionals are able to access the information when required.

My project is about improving patient safety and care through the reliable application of care bundles and following recommendation and guidance to prevent spreading infection. I have chosen this subject as my project because I felt it would provide an improvement in our current practice.

Ewa Sobolewska
Staff Nurse, Team H

AIRWAY GROUP

We have set up a new multidisciplinary airway group for the ICU, which includes doctors (consultants and registrars from Intensive Care, Anaesthesia and Surgery), nurses and physiotherapists. We aim to perform airway quality improvement projects within the ICU to improve the care of our patients.

Our first meetings occurred in June 2015 and so far we have achieved the following:

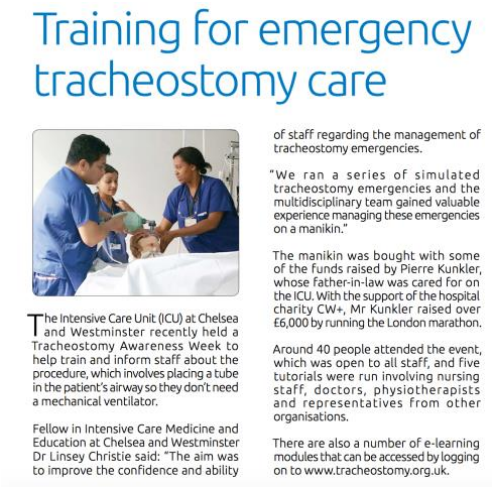
1. National Tracheostomy Safety Project tracheostomy signs printed and displayed above the head of the bed of all patients with a tracheostomy in our ICU
2. Initial part of the tracheostomy audit completed to assess staff knowledge and confidence regarding tracheostomies and the National Tracheostomy Safety Project emergency algorithm. A huge thank you to the 51 staff that completed the questionnaire. All your responses have been read and analysed.
3. Tracheostomy emergency algorithm laminated and displayed
    a. At the bedside of patients with a tracheostomy
    b. In bedside tracheostomy bag
    c. In the guidelines at a glance folder at the main station
    d. Attached to the difficult airway trolley
4. Tracheostomy awareness week ran in September 2015- see picture below
5. Tracheostomy WHO style checklist created to improve tracheostomy insertion safety
6. Tracheostomy ICU guidelines updated

We also aim to improve the perioperative care of patients with a known difficult airway with multi-disciplinary input and planning pre-operatively, intra-operatively and post-operatively. This will include

airway alert signs and bedside plans to guide emergency airway management. These signs can additionally be used for patients with an unanticipated difficult airway.

We welcome anyone interested in joining this group and also any suggestions for quality improvement.

Dr Linsey Christie
Fellow in Intensive Care Medicine and Education



Training for emergency tracheostomy care

The Intensive Care Unit (ICU) at Chelsea and Westminster recently held a Tracheostomy Awareness Week to help train and inform staff about the procedure, which involves placing a tube in the patient's airway so they don't need a mechanical ventilator.

Fellow in Intensive Care Medicine and Education at Chelsea and Westminster Dr Linsey Christie said: "The aim was to improve the confidence and ability of staff regarding the management of tracheostomy emergencies.

"We ran a series of simulated tracheostomy emergencies and the multidisciplinary team gained valuable experience managing these emergencies on a manikin."

The manikin was bought with some of the funds raised by Pierre Kunkler, whose father-in-law was cared for on the ICU. With the support of the hospital charity CW+, Mr Kunkler raised over £6,000 by running the London marathon.

Around 40 people attended the event, which was open to all staff, and five tutorials were run involving nursing staff, doctors, physiotherapists and representatives from other organisations.

There are also a number of e-learning modules that can be accessed by logging on to www.tracheostomy.org.uk.

CLINICAL INCIDENTS

It is vital for patient and staff safety that any clinical incident or clinical risk is quickly identified and acted upon so that lessons can be learned and changes made to practice to prevent anything happening in the future. Common risks for any intensive care unit are:

- Medication errors
- Pressure damage (pressure sores) developing while in ICU; is is often due to the equipment used in ICU
- Delayed discharge from ICU; this can impact on patients needing admission to ICU following surgery, or as an emergency.
- Equipment problems.
- Staffing not being at recommended levels.

In the ICU two of the senior nurses investigate all clinical incidents that are reported. This allows for very quick pick up of issues and quick changes introduced. There is also a quarterly incident review meeting, which is open to all of the MDT, that reviews all reported clinical incidents and makes reccomendations for

changes in practice. From the past year the incident review group has implemented the following changes to practice:

- A body map with high risk areas for pressure damage, and what can be done to reduce risk has been introduced
- 'Pain Buster' is included in the pain study day for all new starters.
- Nasogastric tube securing has been changed to reduce pressure on the nares
- Signs indcating a 'speaking valve' is in use with a patient are now displayed at the patient's bed.

In January 2016, the trust has moved over to using the DATIX reporting system for clincial incidents. This brings the hospital inline with West Middlesex Univeristy hospital and allows for much easier comparisms to be made across departments and the organisation.

Elaine Manderson
Clinical Nurse Specialist

EXCELLENT

INTER-TEAM PROJECTS GROUPS

The inter-team project groups in the ICU have always been used as a mechanism for all staff on the ICU to become involved in practice development, project management and enable changes to be implemented for the benefit of patients and staff members. The groups also enable staff members who work in our primary nursing teams to work alongside other colleagues. You have already had the opportunity to read about the work of our patient diaries, quality and end of life groups earlier in the report, below you can read about our other groups.

Elaine Manderson
Clinical Nurse Specialist

OFF DUTY PLANNING TEAM

The aim of the Off-Duty Planning team (ODPT) is to adequately staff the Intensive Care Unit with the appropriate number of staff and skill mix. The purpose of the ODPT is to provide the staff nurses with guidance and support that facilitates self-rostering on the unit. Self-rostering is a system whereby nurses undertake responsibility for their working days and days off. The ODPT overseas this self-roster system and ensures that the unit is covered with the correct level of appropriately qualified staff to ensure that quality nursing care is maintained at all times.

The ODPT recognises the importance of the home/work life balance. Therefore, negotiation is the key to the success of the self-rostering system and also a degree of flexibility. To ensure fairness self-rostering requires an agreement regarding the number of night and weekend shifts in a four week period as well as a set number of guaranteed requests.

The roster is created two-months in advance and a template is displayed for staff to complete ahead of time. There is also a separate template for band 6 and 7 staff to complete. This creates flexibility with the rota but also allows the ODPT to see where shift changes need to be made. The aim is to have three band 6/7 per shift.

The senior members of the ODPT are trained in completing the final unit rota, using a computerised rostering system called Healthroster. This is done in turns on a three month basis. Healthroster has become a useful tool as it highlights the number of staff and co-ordinators on a shift at any one time plus provides quick access to the skill mix of a shift. The system automatically calculates staff working hours making it easy for shortfalls to be addressed and rectified. In addition, the system records study leave, sickness and annual leave (A/L) which is also monitored and managed by the ODPT.

To guarantee fairness and compliance with the A/L requests, there are set number of staff allowed on A/L at any one time. This is to ensure patient safety and maintain quality nursing care. Staff are required to send an email to the ODPT with their A/L request on a first come basis. The ODPT then charts the requests on a monthly excel planner. This enables quick access for staff to see other A/L requests to help them plan accordingly. In addition, a new colour coding system has also been added to the monthly planner to highlight accepted A/L requests and those pending to avoid disappointments.

The ODPT consists of a member of staff from each nursing team. They meet on a monthly basis to review progress and challenges in relation to the off-duty and allocate roles within the team. I have gained valuable skills whilst working within the ODPT, I have been responsible for both the hour keeping and the A/L requests and I look forward to learning how to complete the roster in future.

Nneoma Ezeh
Senior Staff Nurse, Team E

TISSUE VIABILITY GROUP

The purpose of the Tissue Viability Inter team Project group is to provide education and support for the nursing team in reducing the incidence of pressure ulcers and provision of research based guidance in wound care in conjunction with the Trust's Tissue Viability Specialist Nurse.

Over the last year we have focussed on maintaining the progress and standards of care developed to prevent avoidable pressure ulcers. Much of this work requires good communication within the nursing team to ensure new staff are aware of our assessment and prevention strategy, using our skin care bundle, maintaining meticulous observation and recording care using paper and electronic records. We also complete audits of our documentation to ensure that the assessment and care is taking place.

In order to further enhance communication, the group is devising a small leaflet, intended for newly appointed and temporary nursing staff, which will briefly detail the specific care required for our vulnerable patients. This leaflet will link with the Unit pressure ulcer prevention guideline, and is intended as a handy reference.

In addition, members of the Project Group take turns in providing a presentation which includes pressure ulcer prevention for nursing staff who undertake the Foundations of Critical Care course, this teaching session has also been updated and includes the Trust's pressure ulcer reporting procedure.

As always the challenges in maintaining skin integrity and high quality, research based wound care are on-going and requires energy and commitment by all members of the MDT but particularly by the nursing team, our aim over the next year is to continue to develop our practice but in particular we hope to reduce the number of avoidable pressure ulcers to zero in the coming months.

Caroline Younger
Sister, Team B

RESEARCH GROUP

The Research Group Inter-team Project meets every third Tuesday of the month. The Team is dedicated to investigating new evidence-based practices within the network and beyond with the aim of maintaining high standards and developing guidelines in collaboration with the Northwest Critical Care Network and our Clinical Nurse Specialist.

Over the past year the team has been busy updating old protocols and developing new ones; that for the Hypothermia after Cardiac Arrest can now be viewed on the hospital information system -DATIX. The BIS (Bispectral index monitoring) and VAP (Ventilator associated pneumonia) guidelines are in their final drafts ready for approval by the Clinical Governance Group.

As a group, we are committed to keeping up to date with the latest relevant research. We liaise with research nurses and doctors who are invited to attend our meetings. Examples of current projects include participation in the Delirium Study and continued activity with the VAP study.

Our merging with The West Middlesex Hospital will see collaboration with the construction of evidenced-based guidelines that will help deliver a uniform care throughout the Trust.

Jiji Evans
Sister, Team Leader - Team E

RESEARCH STUDY - VAPRAPID-2

VapRapid-2 is a randomised controlled trial of biomarker-based exclusion of VAP to improve antibiotic stewardship. The aim is to identify which patients need antibiotics and which don't. Chelsea and Westminster Hospital (Critical care Unit) was initiated 14th October 2013.

The study aims to recruit 210 participants nationally until March 2016. There are 168 patients recruited from 17 hospitals including Chelsea and Westminster. Our site remains the top recruiter locally. We have recruited 24 patients in total. Many thanks to all involved for enabling us to achieve this.

Jaime Carungcong
Senior Research Associate

Technology in the Intensive Care Unit or humanising the Intensive Care Unit with technology

There have been multiple changes in the Intensive Care Unit over the last half-century. From medical conditions to ways that health professionals capture patients' information in medical records. There has been an explosion of technology to support clinicians to improve the delivery of care and improve critically ill patients' survival. Unfortunately, in the process we have dehumanised our patients, as we were not used to have them awake and fully supported by the breathing machines or on continuous haemofiltration. Patients became more aware of their environment since we changed the way we sedate and manage their clinical conditions but we continue introducing new technology to enhance their management. On the other hand, we have not noticed they were there not just patients but as human beings with needs and wishes. There has been increasing awareness of our patients' human side and healthcare organisations have started listening and helping us to develop tools to reach the human side of our patients.

From the Netherlands we learnt that the Intensive Care Unit is like a cinematographic performance with front stage and back stage actors. In the initial phase or ***crisis phase*** of the Intensive Care Unit, the healthcare professionals are the front stage actors as medical decisions and management will have a direct impact in patients' life. Then on a second stage or ***turning point phase*** patients and relatives move to the front stage and take a more active role. This second phase is a transition phase where patients and healthcare professionals become more aware of each other. On the final phase or ***normalisation phase***, patients and relatives switch roles with healthcare professionals. Patients take an active role and become

the front stage actors while healthcare professionals return to the back stage, as they are passive in the normalisation phase.

Journey of critically ill patients in the Intensive care unit. Phase 1: Crisis, Phase 2: turning point and Phase 3: Normalisation.

During the crisis phase of the critically ill patient, multiple events happen at once. The multidisciplinary team managing the sickest and more complex patients in hospital often find difficulties in localising all relevant pieces of information and documentation in real time becomes challenging. To overcome this particular issue integrated electronic systems were introduced in the Intensive Care Units. Our Intensive Care Unit was one of the first Intensive Care Units to introduce an electronic documentation system for doctors and then a second electronic system for nurses. Unfortunately, these systems even though useful they are aging, as they do not have integrative capabilities to interphase patients' monitors, infusion pumps amongst other equipment commonly used in the intensive care unit.

It has been evident that there are two key issues to be addressed in the Intensive Care Unit over the next decade. These two issues are integration of all patients care pathways throughout the healthcare system and making our patients and their relatives' active in the process by not only listening about their needs but also by addressing their wishes.

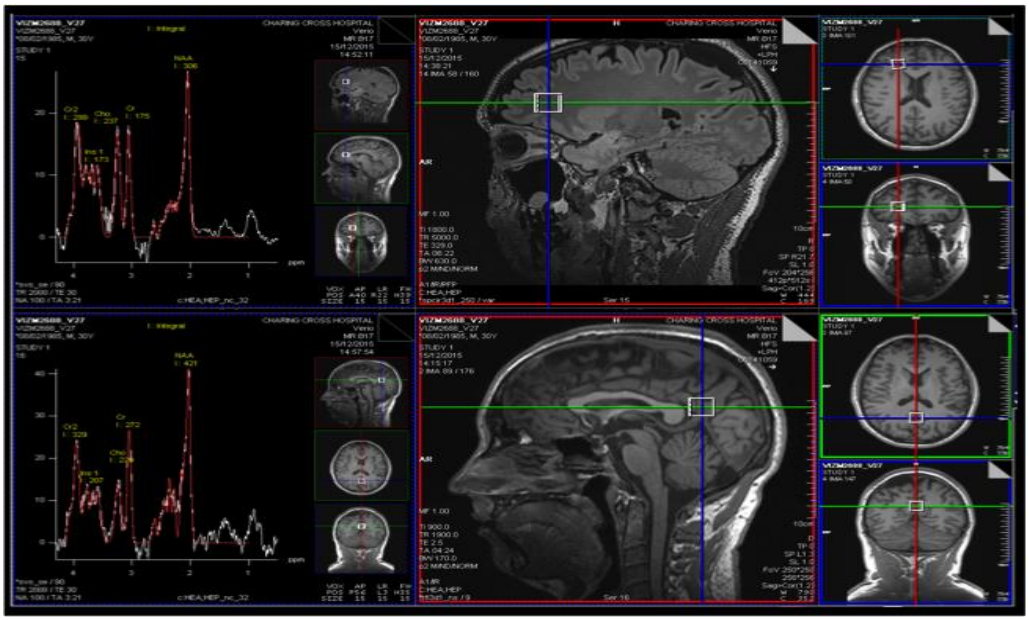
We have done some background research to gain information of healthcare professionals understanding of delirium. Then we looked at the use of socially assistive robot technology in elderly care and the needs of setting up a neurocognitive and psychology rehabilitation clinic. To this end, we have reviewed patients'

diaries and current management of post-traumatic stress symptoms in critically ill patients, patients' relatives and the Intensive Care Unit personnel.

After a brainstorming session at Imperial College London I started collaborating with professor Yiannis Demeris lead of the Personal Robotics laboratory at the Intelligent Systems and Networks group, doing research in artificial intelligence, human-robot interaction, machine learning amongst other areas of robotics. Yiannis once said *"we live in a crazy world, we try to make robots more humans whilst the NHS expects humans to behave more like robots".* This statement made me realised that it is time for us to use technology to make ourselves more humans. Technology can be used to do routine and automatic work while allowing healthcare professionals genuinely interact with our patients. We now are co-supervising Ahmed Al-Hindawi on a study considering "machine learning for medical monitoring and prediction in Intensive Care Units".

The perioperative Research into Memory (PRiMe) study gave us insights on patients' long-term quality of life and their neuropsychological and cognitive deficiencies. In collaboration with the department of Neuro-imaging at Imperial College Healthcare NHS Trust we setout to investigate neuroinflammation with advanced MR Imaging. The findings led us to work closely with Dr Istvan Nagy, Academic Anaesthetic Scientist at Imperial College and together we are co-supervising Edward Watson PhD on identification of the role of systemic inflammation and hypermetabolism on long-term cognitive dysfunction.

MR Spectroscopy was carried out using single voxel spectroscopy (SVS) in a region of right frontal white matter (top row) and in the posterior cingulate gyrus (bottom row). The analysis in these regions include comparing levels of choline (Cho), creatine (Cr) and N-acetyl-aspartate (NAA). Elevated values Cho/Cr may be indicative of neuro-inflammation. Images produced by M Grech-Sollars and Mary Finnegan.



The PRiMe study has also led us to explore at new brain monitoring systems in the Intensive Care Units. Initially we have introduced BIS monitoring to assess depth of sedation and currently we are evaluating continues EEG monitoring for all our patients in the Intensive Care Unit. We have been looking at new use friendly technology to monitor central core temperature and continuous metabolic rate. This type of technology will facilitate early signs of patients' clinical deterioration which would trigger a prompt response and management, hence better outcomes.

We have also been working with the Royal College of Art on the "Future ICU". Gabriela Meldaikyte and Gianpaolo Fusari looked at *"How can people-centred design improve patient experience in the Intensive Care Unit whilst improving setting for the clinical staff"*. Based on ex-patients experiences and medical staff insights Gabriella has identified key areas to improve the patient experience and orientation in intensive Care. Gabriela found that the disorientation combined with continuous interruptions can cause sleep deprivation which leads to disengagement and poor participation of patients on their daily physical activities. Gabriela's work has led to the development of an app that provides a personalised sensory experience for the patient. In the event of planned admission, the patient would fill in a preoperative assessment, noting down sensory preferences from particular sounds and smells to relaxing videos and photos. This would help the medical team to personalise the experience and allow the patient to understand the Intensive Care unit in advance of their admissions. The App has capabilities to generate daily routines which supports patients throughout their stages in the intensive care unit.

Finally, Trystan Hawking, Director for Patient Environment at CW plus has been looking at innovative technology to facilitate patients' engagement in the process of recovery from critically illness. Trystan has been looking at the Clear project to reduce delirium in the Intensive care Unit. This project is led by the Experience lab in Eindhoven, The Netherlands (https://www.youtube.com/watch?v=bpnDLpb0U9s) while improving the work environment for the Intensive Care Team.

My ultimate goal is to be patients' companion until they are fully neuropsychological, cognitive and physical rehabilitated and they regain their autonomy and engage in their normal daily activities. In the meantime, we will continue to find solutions and bring together patients' care, technology, and artificial intelligence to humanise our Intensive Care Units.

Dr Marcela Vizcaychipi
Consultant Intensivist and Anaesthetist
Planned Care Divisional Research Lead

NORTH WEST LONDON CRITICAL CARE NETWORK (NWLCCN)

The ICU continues to work with the NWLCCN in developing intensive care services throughout North West London. NWLCCN is a professional group that functions through a combination of strategic programs, working groups, and large multidisciplinary governance and professional development events with the aim of developing services within the hospitals in North West London.

Some of the work over the past year has continued to focus on making the often necessary transfer of critically patients between hospitals to improve access, efficacy and safety. One of the big developments made by the network has been the launching of an app to support staff undertaking these transfers, with links to checklists, education videos and a log book. The app is called STrApp and a number of staff from Chelsea and Westminster were involved in its development

Other exciting developments from the network include the design of a network wide transfer bag, so that staff who rotate around the different ICU's in North West London (such as junior doctors and agency staff), will all be familiar with its contents and layout, making it safer to use. It is hoped that this will introduced into use by September 2016.

Further details of the network activity can be found on the networks website:
http://www.londonccn.nhs.uk

Elaine Manderson
Clinical Nurse Specialist

STAFF DEVELOPMENT AND EDUCATION

We have an on-going commitment to staff development and education; this past year has a number of the unit staff to continue to do this by undertaking further study. The unit supports a number of courses that staff may undertake. These are outlined in the table below:

Courses	Details	Number of staff undertaking course
Foundations of Critical Care	Six month course which aims to provide a structured learning experience that enables nurses new to the intensive care environment to develop the knowledge and skills necessary to safely and competently care for critically ill patients.	12
Physiology for Nursing Practice	A course consisting of four study days run by Kings College London which develops the knowledge and skills related to the altered physiology of the critically ill patient.	12
Intensive Care Nursing	This is a twelve week course run by Kings College London which builds upon the development of knowledge and skills from the Foundations of Critical Care and physiology modules	12
Mentorship	Three month course that prepares staff members for the role of coaching and supporting staff in the clinical environment	4

Our pre-registration nursing provider university, Kings College London, continue to send student nurses to the unit for placements. The placements last between four and twelve weeks and have been very positively evaluated by students and staff alike.
Our mentorship programmes continue to run with in the trust and accredited Kings College University. This prepares our staff to support all learners in the intensive care environment.

We have also support medical students from Imperial College London, who join us for two week placements. During their placement they develop an appreciation of intensive care through spending time with our medical and nursing staff.

The development of staff is of paramount importance to the unit and is made explicit through the unit's values. It is hoped that through the continued development of our staff we will be able to deliver effective, patient-centred care.

Elaine Manderson
Clinical Nurse Specialist

REDEVELOPMENT PLANS

The ICU/HDU at Chelsea and Westminster is now over 20 years old and as our activity demonstrates, the unit has been seen increasing numbers of patients each year. As a result of these two factors, plans are now being put in place to redesign and expand the ICU/HDU from the current eleven bed areas to around twenty bed areas. A fundamental aspect of the redevelopment of the unit will be to maximise the environment for our patients and families.

There is an increasing amount of research that has been undertaken into the effects that environment, noise and lighting can have on the psychological and physiological health of patients and staff. The aim of the redevelopment will be to increase the bed capacity of the ICU/ HDU, while improving the physical environment for all.

It is hoped that the plans for the redevelopment will be created during the year 2016-2017, with a view to starting the work in 2017- 18. See below for a potential plan of the redeveloped ICU/HDU.

Elaine Manderson
Clinical Nurse Specialist

Staff in Post: April 2016

Dr Rick Keays
Consultant Anaesthetist & Intensivist- Clinical Director
Dr Marcella Vizcaychipi
Consultant Anaesthetist & Intensivist
Dr Brijesh Patel
Locum Consultant Intensivist

Dr Michelle Hayes
Consultant Anaesthetist & Intensivist
Dr Suveer Singh
Consultant Intensivist and Respiratory Medicine
Dr Berge Azadian
Consultant Microbiologist

All our junior doctors who have worked with us from April 2015 to March 2016, including Dr Linsey Christie, Dr Adam Spong, Dr Ed Watson and Dr Ahmed Al-Hindawai, our research fellows

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Toyin Ajayi
Eunice Mwiti
Stefania Favro
Nicola Quinn
Priya Sahni

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Imelda San Miguel
Nerissa Verdejo
Marita Kilroe
Ben Mills
Fran Keeley

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Leigh Paxton
Janice Blandin
Soawanit Kampinij
Kirsty Deda
Sue Forester
Tapiwa Hatitye

Team D
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Pilar Riquero
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Ruth Reina

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Team J
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Gerry Fitzgerald O'Connor
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Lennie Buslay
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Lead Nurse – Critical Care and Burns

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Mark Costello
Chief Technician

Amanda Dixon
Staff Development Sister

Jane Hughes
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Dr Berge Azadian, Consultant Microbiologist

The Planned Care and Clinical Support Divisional Management Team: Claire Painter – Divisional Nurse, **Peter Dawson** – Divisional Medical Director and **Shola Adegoroye** – Divisional Director of Operations

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