



HSE NATIONAL SERVICE PLAN 2017 (Published 15th December 2016)

Of relevance to intensive care were:

1. Pre-Hospital Emergency Care “*Priorities and priority actions*” section – “*Continue the development of patient retrieval services (neonatal, paediatric and adult) in support of clinical networks and in line with national policy*”.
2. “*Increase critical care capacity*” section – “*Improve access to adult critical care services in Cork University Hospital*”.
3. “*Improve access to urgent and planned care by increasing efficiencies, streamlining processes and maximising capacity in hospitals*” section – “*Prepare for the implementation of the forthcoming policy on a trauma system in Ireland*”.

There was no capital allocation for required ICU/HDU builds.

As an input to DH/HSE Estimates/NSP2017 process, Critical Care Programme collated the agreed hub Hospital and Hospital Group intensive care capacity and capital requirements and furnished these as a bundle to a scheduled meeting with Deputy Secretary General, Department of Health 15/6/16 and to National Clinical Advisor, Acute Hospitals Division HSE. A meeting has been scheduled by ICSI with Minister Harris 9/2/17 which CCP will attend and will re-furnish the collated hub Hospital and Hospital Group intensive care requirements.

Pictured below at the launch of RCSI Hospital Group *Career Pathway* at Connolly Hospital 4th October 2016 were members of the RCSI Hospital Group Critical Care nursing workforce Planning Working Group – Catherine McArdle, Rinny Joseph, Eleanor Lowth, Melissa Bonifacid, Caroline O'Donnell, Kevin Sharkey, Derek Cribbin, Caroline Fitzpatrick, Sharon Leavy, Maria Dacalos, Sudha Thangaraj, Luxy Joseph, Janeth Barte and Una Quill



CRITICAL CARE NURSING WORKFORCE PLANNING *Career Pathway*

Critical Care Programme in collaboration with the ONMSD, has facilitated the implementation of a standardised Critical Care Nursing workforce Planning *Career Pathway* as recommended by the Model of Care for Adult Critical Care 2014 and the HSE/*Prospectus* Report 2009, *Career Pathway* builds on the work completed by expert groups chaired by Mary Frances O'Reilly, NMPDU Director and Marian Wyer, NMPDU Project Officer and in particular implements the standardised National Foundation Course for Critical Care Nursing postgraduate specialty professional education and training as recommended by the 2009 HSE/*Prospectus* Report. Critical Care Nursing Workforce Planning Working Groups have commenced in Hospital Groups to implement *Career Pathway* which is accessible to all Nurses at all stages of their careers.

Pictured at the launch of RCSI Hospital Group *Career Pathway* at Beaumont Hospital 4th October 2016 were members of the RCSI Hospital Group Critical Care nursing Workforce Planning Working Group – Alice O'Leary, Gerald Anicas, Natalie McEvoy, Leanne Grehna, Rincy Emmanuel, Aileen McCabe, Gillian O'Leary, Mary Cooney, Petrina Donnelly, Helen Keenan, Michelle Hussey, Karen Green, Caroline Fallon, Tara Zgaga, Una Quill, Derek Cribbin, Dr. Michael Power, Rincy Bijoy, Lybi Joseph Vevuicati. Inset – Ian Carter, CEO RCSI HG & Beaumont Hospital and Ann Kirwan, DCU Lecturer in Nursing



The annual national adult Critical Care Bed Capacity Census measures capacity as at 30th September 2016. The Census reports a capacity of 237 adult critical care (Level 3 ICU and Level 2 HDU) beds. Also, the 2016 Census reports an additional 10% of adult critical care bed capacity is fully funded but non-operational – 22 beds. To solve this problem, the Critical Care Nursing Workforce Planning Working Group of each Hospital Group and hub Hospital is now implementing the National Critical Care Nursing Workforce Planning *Career Pathway* that recruits graduates to commence standardised and accredited critical care nursing postgraduate specialty certification education and training in permanent pensionable full-time staff nurse posts.

The *National Standards for Adult Critical Care Services 2011*, Joint Faculty of Intensive Care Medicine of Ireland (JFICMI), the Office of Nursing and Midwifery Services Directorate (ONMSD), HSE and the Therapy Professionals Group, HSE define the medical, nursing and therapy professional staff requirements to commission a Critical Care Service. Accordingly, ONMSD has advised the critical care nursing staff workforce requirement to commission a Level 3 ICU bed and a Level 2 HDU bed is 5.6 x WTE and 2.8 x WTE respectively, at the least.

***Commissioned Critical Care Beds (funding allocated, not operational) 2016**

The Hospitals and the Hospital Groups in their Census returns report there are 22 adult critical care beds in Ireland, fully funded, not operational. The Hospital Group CEOs have approved an integrated Critical Care Nursing Workforce Planning Education and Training initiative, *Career Pathway*, currently operated by Hospital Groups and facilitated by CCP.

****Decommissioned Critical Care Capacity (since 2008)**

The HSE/*Prospectus* Report was published in 2009. The Report proposed a ‘hub and spoke’ critical care delivery framework subsequently adopted by the Critical Care Programme as its Critical Care Model of Care. In line with the subsequent HIQA ‘Ennis’, ‘Mallow’, ‘Tallaght’, ‘Galway’, and ‘Portlaoise’ Reports (x2) and in line with DH *Smaller Hospitals Framework* and the ‘Higgins’ Report, Critical Care Programme has supported the HSE decommissioning of the ICUs at Dundalk, Monaghan, Roscommon, Merlin Park Galway, St. John’s Limerick, Ennis, Nenagh, Bantry, Mallow, South Infirmary Victoria Hospital, St. Columcille’s Loughlinstown – 11 ICUs-conditional on redeployment of critical care staff resources to the corresponding receiving central or ‘hub’ hospitals. Thus, in line with ongoing HSE acute hospital system transformation, there has been centralisation of critical care service provision for critically ill patients.

Methodology Note 1 – On behalf of HSE Acute Hospitals Division, Critical Care Programme completes an annual Census and collates each Hospital’s critical care (ICU and HDU) bed capacity and staffing (medical and nursing) establishment as well as critical care activity profile measurement. Thus, the Census reports critical care bed capacity or bed stock (see table below) and critical care activity profile (see figure below), both as at 30th September 2016.

Methodology Note 2 – As part of the Census procedure, each hospital’s Census return is verified locally and countersigned by the Hospital’s CEO, Clinical Director, Director of Nursing, ICU Director, ICU CNMIII, Hospital Group CEO, Chief Clinical Director, and CDoN – eight signature verifications. This co-signed individual Hospital critical care capacity and activity profile report is collated, reconciled and validated centrally on behalf of AHD by CCP Census Working Group and subsequently approved by AHD for circulation. Thus the annual adult national critical (ICU and HDU) commissioned bed capacity and activity profile is ascertained by Critical Care Census.

Critical Care Bed Capacity Census at 30th September 2016

CRITICAL CARE BED CAPACITY CENSUS AT 30 TH SEPTEMBER 2016	CRITICAL CARE SERVICE Unit			Critical Care Bed Capacity 2016	Commissioned Critical Care Beds (funding allocated, not operational) 2016*	Bed spaces available (not resourced) 2016	Critical Care Bed Capacity 2015	Critical Care Bed Capacity 2008**
	Level 3s ICU Beds	Level 3 ICU Beds	Level 2 HDU Beds					
RCSI Hospital Group					7			
Cavan Hospital ICU		2	2	4		1	4	5
Drogheda Hospital ICU		5	3	8	1	6	7	6
Beaumont Hospital General ICU		8		8	2	2	8	10
Beaumont Hospital HDU			0			8	0	0
Beaumont Hospital Neuro ICU	7			7	3		7	10
Connolly Hospital ICU		4		4	1	1	5	5

Dublin Midlands Hospital Group					3			
Naas Hospital ICU		3	1	4	1		4	4
Portlaoise Hospital ICU		2		2			2	4
Tullamore Hospital ICU		4		4		3	4	4
AMNCH Tallaght ICU		9	2	11			11	9
AMNCH Tallaght PACU			3	3			3	
St James Hospital Burns ICU	2			2			2	4
St James ICU/HDU		18	0	18	2	4	19	19
St James Hospital Cardiothoracic ICU	6			6			6	4
Ireland East Hospital Group					3			
Mater University Hospital ICU/HDU	15		12	27	2	7	28	30
Mullingar Hospital ICU		5	1	6			6	2
Navan Hospital ICU		2	4	6			6	4
St Vincent's University Hospital ICU/HDU		9	6	15	1		15	8
Kilkenny Hospital ICU		4		4			4	4
Wexford Hospital ICU		5		5			5	5
South-South West Hospital Group					4			
Clonmel Hospital ICU		4		4	1		4	5
Waterford University Hospital ICU		5	4	9	1		8	6
Cork University Hospital Cardiothoracic ICU	6			6		4	6	6
Cork University Hospital General ICU		9		9	1	7	9	10
Cork University Hospital General HDU			0			12		0
Mercy University Hospital ICU		5		5	1	3	5	6
Tralee Hospital ICU		5		5			5	5

Saolta Hospital Group					5			
Letterkenny Hospital ICU		5		5			5	5
Ballinasloe Hospital ICU		2	2	4		1		
Castlebar Hospital ICU		2	2	4			4	4
Sligo Hospital ICU		5		5	1	1	5	5
University Hospital Galway Cardiothoracic ICU	4			4	2		4	6
University Hospital Galway General ICU/HDU		9	8	17	2		17	12
University of Limerick Hospital Group								
University Hospital Limerick ICU/HDU		8	8	16	0	12	16	13
TOTAL				237	22*	72	234	255
Decommissioned Critical Care Bed Capacity since 2008 **								
St. Johns/Ennis/Nenagh								11
Roscommon/Merlin Park								5
Bantry/Mallow/SouthVicuH								13
Dundalk/Monaghan								3
Loughlinstown								3
								Total ICU Capacity Decommissioned 35

CRITICAL CARE ACTIVITY MEASURE 2016

HSE Acute Hospitals Directorate requests an annual profile of critical care activity in all adult ICUs in Ireland using the comparator – invasive ventilatory support. CCP Census repeated this survey as part of Census 2016. This measure reports just over 7,320 critically ill adult patients received invasive ventilatory support in Ireland in 2016. It should be noted the measure is a crude comparator as non-invasive ventilatory support and other invasive organ supports (e.g. continuous renal replacement therapy, pharmacologic and mechanical circulatory supports, nutritional supports etc.) are also delivered to critically ill patients and for long durations in ICUs in Ireland).

In summary, the 10 central hospitals deliver 79% of critical care activity in Ireland with the remaining 14 hospitals delivering 21% of the activity.

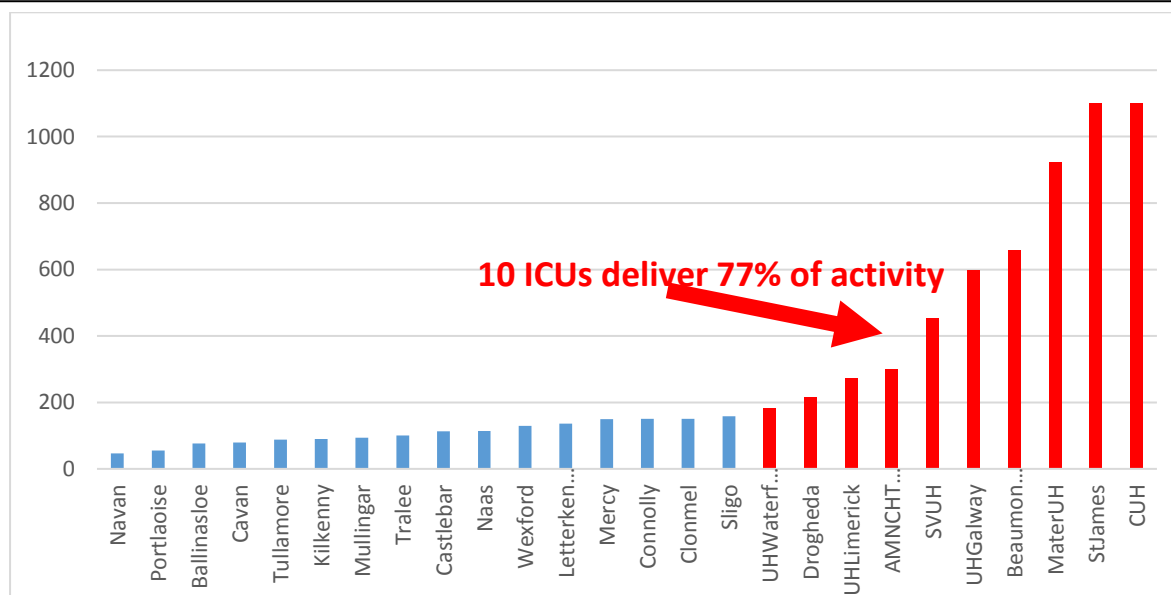


Fig. Profile of Adult Critical Care Activity in Ireland Sept 2016 – Total 7,320
Annual volume of critically ill adult patients receiving invasive ventilatory support

Overall Critical Care Activity in Ireland

Assuming at least as many critically ill patients (or more) require Level 2 Critical Care support, an estimate of between 10,000 and 15,000 critically ill adult patients require critical care in ICUs and HDUs each year in Ireland. In addition to outcome information, the National Critical Care Audit, National Office of Clinical Audit (NOCA) has the capability to provide critical care activity information.

Critical Care Programme V1.2 8/2/17.

Evidence of ISO-Resource Inefficiency

There is a twenty three (x23)-fold variance in iso-resource activity across the ICUs- the same resource input (iso-resource) is required out-of-hours for a critical care activity output of either 47 patients or for 1,101 patients pa. In other words, 5-7 Junior Doctor WTE posts are required to provide one on-site 24/7/52 service roster in an acute hospital ICU. Such high iso-resource consumption and very low activity output variance is inefficient. Similarly, comparison of the activity output and resource input of the 16 lower volume ICUs with the 10 higher volume ICUs shows an activity-resource disparity. The lower volume ICUs deliver 23% activity with 29% of resource while the higher volume ICUs deliver 77% activity with 71% of resource. Of note 6% of the workforce equates to approx. 81 WTE critical care staff nurse posts.

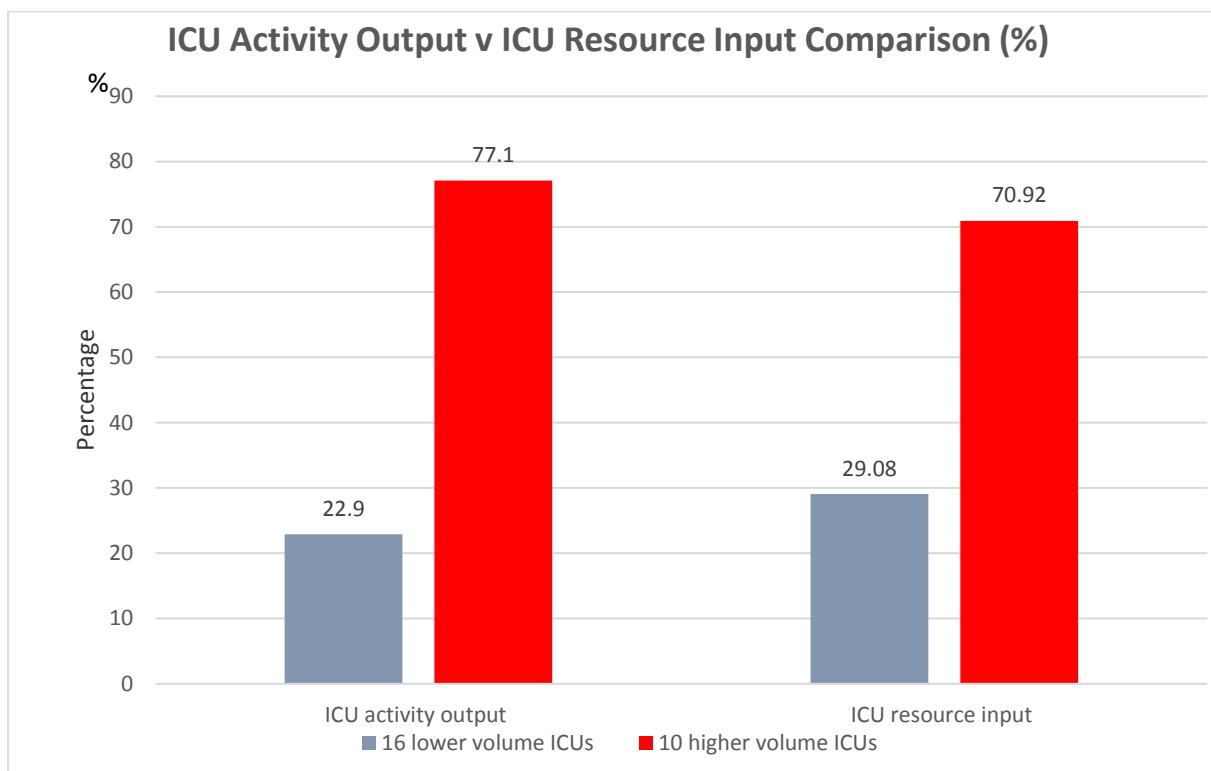


Table – Activity output v. resource input comparison

Critically Ill Adult Patients with Confirmed Influenza 2015-2016

HSE/Health Protection and Surveillance Centre (HPSC) completes the annual ICU Influenza Surveillance programme (adults and children) and has issued the report- Brief Summary Report on the Enhanced Surveillance of Confirmed Influenza Cases in Critical Care–2015/2016 season. In this past influenza season (2015/16), a total of 127 critically ill adults were admitted to ICUs in Ireland with confirmed viral influenza. Several patients were transferred to Mater Hospital for Extra-Corporeal Life Support (ECLS). The volume of 127 adult critically ill patients was a huge 133% increase over the previous years (2014/15) ICU volume. This is a huge increase. An explanation forwarded was decreased uptake of influenza vaccination by the general population. Of the adults, 89 (70%) were confirmed Influenza A(H1N1)pdm09. Of all these critically ill patients, adults and children, 47 patients died- all-cause mortality (29%).

There was a late influenza-season surge of Influenza A(H1N1) in 2016 that placed a burden on ICU capacity and staff, a fact recorded in Ireland and UK. The late surge of Influenza A(H1N1) cases had an implication for all critically ill patients in Ireland at this time with access delays for critically ill patients arising from known ICU capacity deficits with the known implication that access delay adversely affects the outcome of the critically ill patient. This Influenza A(H1N1) 2016 surge confirms the need for increased ICU capacity provision.

National Adult Critical Care Retrieval Service (NACCRS) National Transport Medicine Programme

Ms Anna-Marie Murphy completed a survey of critically ill adult patient inter-hospital transport activity in Ireland and published this at the CAI Congress May 2016. The annualised adult critically ill patient transport volume is 822 critically ill adult patient transports p.a.

The cohorts of critically ill adult patients transferred/transported across the acute hospital system include 1. Time-critical transports e.g. critically ill adults with acute severe traumatic brain injury, 2. Same-day transports e.g. transfer of a critically ill adult patient from a referring hospital to Mater Hospital for extra-corporeal life support e.g. ECMO, 3. Next-day transports i.e. escalation of complex specialty care of a critically ill patient e.g. severe major trauma. 4. Reverse-flow transport i.e. “repatriation” of a specialty critically ill adult patient following specialty interventions and the acute phase now in the recovery phase back to the base referring hospital.

The agreed NACCRS Adult Retrieval Model of Care defines a Service of three hubs, Dublin, Cork and Galway, operating a 7-day-a-week, 8am-8pm, 52 weeks a year Retrieval Service. This service provision is designed to delivery connectivity including for the cohorts defined above.

The Mobile Intensive Care Ambulance Service (MICAS) continues to operate its 5-day-a-week, 9am-5pm, Dublin-only Service. On average MICAS delivers approx. 70 transports p.a. In 2013, a “new money” allocation of 19.5 WTEs, medical, nursing and paramedic resources, was delivered in the Service Plan to commence three Adult Retrieval hub Services.

In 2016 Cork commenced its three-day-a-week Adult Retrieval pilot. Dublin was ready-to-go with the medical and nursing rosters for its Retrieval hub in 2015 but NAS resource was not available. It is anticipated Dublin will commence its hub in Q1 2017. Galway also plans to commence its three-day-a-week hub pilot also in Q1 2017. There remains a gap between Retrieval activity (supply) and Retrieval need (demand). Timely access to critical care both intra-hospital and inter-hospital is associated with outcome and survival for the critically ill adult patient.

Model of Care input – Home Ventilation Care Pathway for the Long-Term Fixed Ventilation-Dependent Neuro-Rehabilitation Patient – Critical Care Programme input to National Neuro-Rehabilitation Policy Strategy

In response to the National Steering Group for the National Implementation Framework of the National Policy and Strategy for the Provision of Neuro-Rehabilitation Services in Ireland, the Critical Care Programme was pleased to provide a clinical strategy input, a Model of Care, the Home Ventilation Care Pathway, for the ventilation-dependent Neuro-Rehabilitation Patient to the Strategy. A long-term fixed ventilation-dependent neuro-rehabilitation patient with capacity may opt to continue home or domiciliary ventilation. This Strategy Model of Care spans the healthcare and the social care sectors across the settings of the acute specialist hospital, the specialist Rehabilitation Hospital and the Community Rehabilitation Team to provide a care pathway for the long-term fixed ventilation-dependent neuro-rehabilitation patient.

Care Pathway for the Critically Ill Adult Patient with Severe Brain Injury

The Neurology Model of Care of the National Clinical Programme for Neurology was published

2016. It contains a recommended clinical pathway for the critically ill adult patient with severe brain injury.

Recommendation. *In line with current evidence, the National Clinical Programme for Critical Care recommends all critically ill patients with acute severe brain injury are immediately referred for Level 3(s) Neuro-Critical Care, as appropriate, with Neurosurgery and Neuro specialty interventions, as appropriate, to a supra-regional or national Neuro-specialty centre. Currently, in Ireland, Beaumont Hospital and Cork University Hospital both provide Level 3(s)*

Neuro-Critical Care in their ICUs. Adequate Level 3(s) Neuro-Critical Care capacity and transport resource is required to meet the needs of neuro-critical care patients. (p90)

ICU Audit Update

ICU Audit is now live in 5 major hospitals (Beaumont, Mater, Tallaght, Drogheda and Limerick) and data collection will commence in two others on January 1 2017.

It is planned to implement the Audit in three further major hospitals in 2017; Cork University Hospital, Waterford and St Vincents. It is also hoped to extend to a number of the regional hospitals during 2017, subject to support from the Hospital Groups.

Data from the Audit to date is reassuring in terms of the clinical outcomes which are within acceptable limits and broadly comparable to outcomes in UK Units.

Rory Dwyer, Clinical Lead, ICU Audit

Bed Information System

The IT system for the ICU Audit has the potential to populate a “BedBureau” website with live data on the bed status in Units participating in the ICU Audit. This would fill a significant deficit in information required by clinicians who wish to transfer patients to another ICU and by the HSE in terms of live information on the National ICU bed status (especially during surges in demand and in the event of a Major Disaster).

This project has received strong support from the Clinical Programmes and Mr Liam Woods, Director Acute Hospitals Division, who is sponsoring the project. A Business Plan is being prepared and when funded can be implemented.

Rory Dwyer, Clinical Lead, ICU Audit

Metric for ICU Accessibility (time elapsed)

The national shortage of ICU beds commonly leads to significant delays in accessing an ICU bed. This is compounded by the prioritisation of patients in ED for ward beds when these are vacated so that patients only leave ICU when another patient needs the bed. Delays in admission to ICU lead to worsened outcome and put huge pressure on the area they are cared for while awaiting ICU admission. The Intensive Care Society has proposed a target for time to ICU access i.e. 80% of patients should be admitted within 1 hour of a decision to admit and 100% within 4 hours.

This target has been taken on board by the HSE and is going through the process of being accepted as a Key Performance Indicator -hopefully. We believe this will increase the priority given to ICU discharges and will highlight areas of particular difficulty with ICU access.

Rory Dwyer, Clinical Lead, ICU Audit

Critical Care Activity Based Funding

In line with DH White Paper, Future Health, Activity Based Funding (ABF) approaches are being developed by Healthcare Pricing Office (HPO) as part of the Money-Follows-The-Patient (MFTP) initiative. Accordingly, CCP has engaged with Acute Hospitals Division with the HPO ABF Clinical Advisory Group to provide input on critical care complexity measures as part of a structured approach to critical care reimbursement.

In the interim, the ad-hoc HIPE DRG intensive care costing model continues. Complexity is measured using an ad-hoc model including “four severity splits” (A Multiple Major problems / Catastrophic problems, B Major Problems, C Other problems, D Without problems, Z No split/standalone DRG and severity level) and six “Further Clinical Complexity levels” (S Severe, C Catastrophic, CCC Catastrophic Complication of Comorbidity, SCC Severe Complication or Comorbidity, CCCC (Either) Catastrophic or Severe Complication or Comorbidity). This ad-hoc complexity measure of “splits” and “levels” omits length of stay i.e. per diem costs currently being met through a top-down bloc grant funding mechanism.

Intensive Care “Severity splits” and “Clinical Complexity levels” are not an adequate nor an appropriate measure of intensive care complexity, acuity, severity and duration. In line with ABF CAG ToR 2 (d) (p4), CCP requests that critical care HIPE complexity funding based on “splits” and “levels” ceases now and is replaced now by intensive care HPO ABF based on National Critical Care Audit NOCA activity information with agreed tariffs arising to reimburse providers. This complexity funding models complements the DRG diagnostic code.

Critical Care Programme Welcomes New Member of Staff



Derek Cribbin was appointed to the Critical Care Programme in December last year. Derek trained in London and qualified in 1999, commencing work in Intensive Care in September of that year. Derek also has a post graduate degree in Critical Care Nursing and he is currently studying for a Masters in Healthcare Management.

“I have worked in numerous Intensive Care Units, both at home and abroad and have thoroughly enjoyed my time as a Critical Care Nurse, spanning back 16 years. I joined the Critical Care Programme on the 14th Dec 2015. I feel that the Clinical Programmes are in a prime position to exert influence, based on the real time requirements of our front line staff, in my case nursing in critical care. I have a particular interest in professional development of critical care nurses”



Una Quill and Derek Cribbin attending the Nursing Careers Fair at the DCU School of Nursing

Hand Hygiene Research Project Funded

The Health Research Board will fund a three year Health Research Award to develop a research-based approach to hand hygiene in the Irish health service. This research will provide theoretical valid and practical tools and methodologies for improving hand hygiene compliance in Irish Intensive Care Units. The aim of the proposed research project is to use implementation science to provide a unified approach to hand hygiene in the Irish health service, with input from all relevant stakeholders. The research will identify the macro and micro level facilitators and barriers to effective hand hygiene practices; and appropriate intervention options, and the policies requirements necessary to support the long-term implementation of the proposed intervention.

The proposed approach ensures that limited resources are being used effectively. It provides direction to regulators, health service managers, and health service providers on 'how' standards can be achieved rather than only defining 'what' standards must be achieved.

This research will be led by: Paul O'Connor (NUI Galway), Michael Power (Lead of the HSE Critical Care Programme), Molly Byrne (NUI Galway), Jenny McSharry (NUI Galway), Christine Domegan (NUI Galway) and Janet Squires (University of Ottawa).



Paul O'Connor started as a Lecturer in Primary Care in January 2013 after coming to NUI Galway as a Research Methodologist in July 2010. He is also an Associate Director of the Whitaker Institute. His research is concerned with improving human performance and safety in high risk work environments. He has carried out research in a wide range of high risk industries (e.g. civil aviation, nuclear power generation,

Off shore oil production), and the military (e.g. aviation, special forces). More recently he has been carrying out research in healthcare with the aim of improving patient safety and quality of care through addressing the human factors that contribute to poor performance.