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HSCP and Pharmacy in Critical Care: A Workforce Survey of the Irish Public System

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Abstract

Title: HSCP and Pharmacy in Critical Care: a workforce survey of the Irish public system

Introduction: National guidelines outline minimum standards for HSCP and pharmacy critical care workforce *(*HSE, 2014*).* The aim of this study was to establish current staffing levels, roles and responsibilities, recruitment and retention challenges, service delivery, education and training structures and monitoring and evaluation practices.

Method: An observational study using online surveys were distributed to 26 critical care units across the Republic of Ireland. Surveys consisted of seven profession specific surveys.

Results: 153 out of 182 (84%) responses were received from 26 critical care units. Of those that responded, 100% of units had input from Dietetics (DT) and Speech and Language Therapy (SLT), 96% from Physiotherapy (PT) and 88% from Pharmacy. Whereas only 58%, 52% and 18% had input from Occupational Therapy (OT), Medical Social Work (MSW) and Psychology (Psy) respectively. Staffing variance analysis identified all professions to have workforce gaps when compared to national and international workforce standards. Variance rates ranged from 14.3% for SLT, 22.5% for PT and 24.3% for DT, to 41.8% for Pharmacy, 78% for MSW and 88.6% for Psychology.

Discussion: There are significant gaps across the HSCP and Pharmacy workforce in critical care units across Ireland. Many units do not have access to MSW, OT and Psychology. All services fall below the minimum recommended staffing levels. Barriers to closing workforce gaps are multifactorial and span from generic profession-related barriers to critical care specific barriers. Using survey findings, seven key recommendations have been proposed to support the development of a HSCP and Pharmacy workforce plan in critical care. Recommendations include the revision of 2014 national workforce standards to bring them in-line with International standards, ensuring adequate investment in HSCP and pharmacy staff by service delivery units, increasing undergraduate numbers to ensure sustainable workforce supply, review of undergraduate programmes to increase critical care training, development of critical care rotations for junior staff to increase experience, development of a strategic education and training framework specific to critical care, and a career pathway review for HSCP and Pharmacy to ensure staff retention.

1 Introduction

1.1 Background

Health and Social Care Professions (HSCP) comprise 26 different disciplines and are the second largest clinical group in the Irish public health system, comprising 25% of the clinical workforce (HSE, 2021). The Model of Care (MOC) for Adult Critical Care, 2014, sets out minimum national standards for the medical and non-medical workforce. Encompassed by the non-medical workforce are 5 of the 26 HSCPs (DT, PT, OT, SLT, MSW) and pharmacy. Unfortunately, unlike medical and nursing colleagues, no critical care workforce plan or training programme exists to align with this national document (HSE, 2014). In addition to the 5 mentioned professions, the joint faculty of intensive care medicine in the UK have recently added Psychology to their national document; 'Guidelines for the Provision of Intensive Care Services' (GIPICS), which supports workforce planning in the UK (FICM, 2022).

HSCP and Pharmacists working in critical care are highly specialised and skilled clinicians. They have long been recognised internationally as a key pillar of care within intensive care units (ICUs) (Grenvik, 1974). Traditionally, outcome measures focused predominantly on ICU morbidity and mortality, however the importance of ICU survivorship has received increased attention over the last decade. HSCPs are in a unique position to improve survivorship by enabling recovery, rehabilitation, and facilitating return to usual activities (Connolly B *et al*., 2016). As the body of evidence for HSCPs to improve outcomes for ICU survivors continues to flourish, the workforce demand for HSCPs in critical care has never been greater *(*Philip, 2015).

In Ireland, in 2020, the Government approved the Critical Care Strategic Plan which is a multi-year plan to provide additional adult critical care capacity. An element of this is the commitment to add significant additional bed capacity in a 3-step phased approach. This study was therefore commissioned by Acute Operations to look at HSCP and pharmacy workforce in Critical Care in light of the Critical Care Strategic Plan to increase adult critical care capacity. The expectation is that this work would inform the workforce planning for the Phase 2 additional capacity.

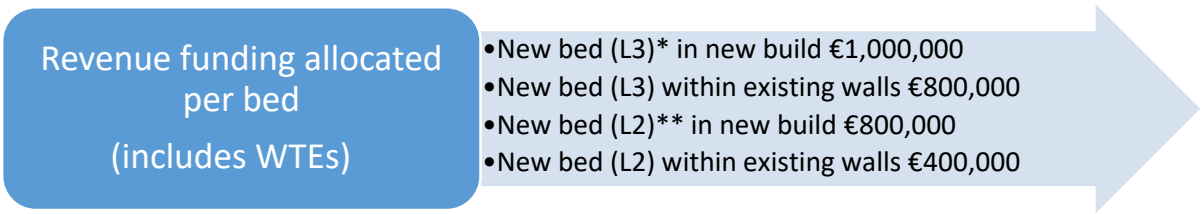
The aim of this survey-based study, therefore, was to explore the existing HSCP and pharmacy workforce which will inform the development of a HSCP and pharmacy workforce plan for critical care. The objectives were to gain information regarding staffing, service availability, recruitment, funding, workforce structure, roles and responsibilities, Continuing Professional Development (CPD) requirements, and monitoring and evaluation practices.

1.2 Provision of HSCP and pharmacy workforce to critical care across the public health system

Investment in new critical care units, follows the public spending code process within the HSE Capital and Estates, and the Department of Health (DoH). Pay and non-pay revenue costs are sought through the annual service planning process and approved by the DoH.

New bed capacity is funded by bed and includes funding for all pay and non-pay costs to open the bed and any required whole time equivalent (WTE) personnel. Approximate costs to open a new bed are shown in figure 1. WTEs are budgeted for as part of these costs and include medical, nursing, HSCP and pharmacy WTEs, as recommended by the MOC Guidelines 2014. Funding also includes non-medical WTEs such as porters / patient food services/domestic staff etc.

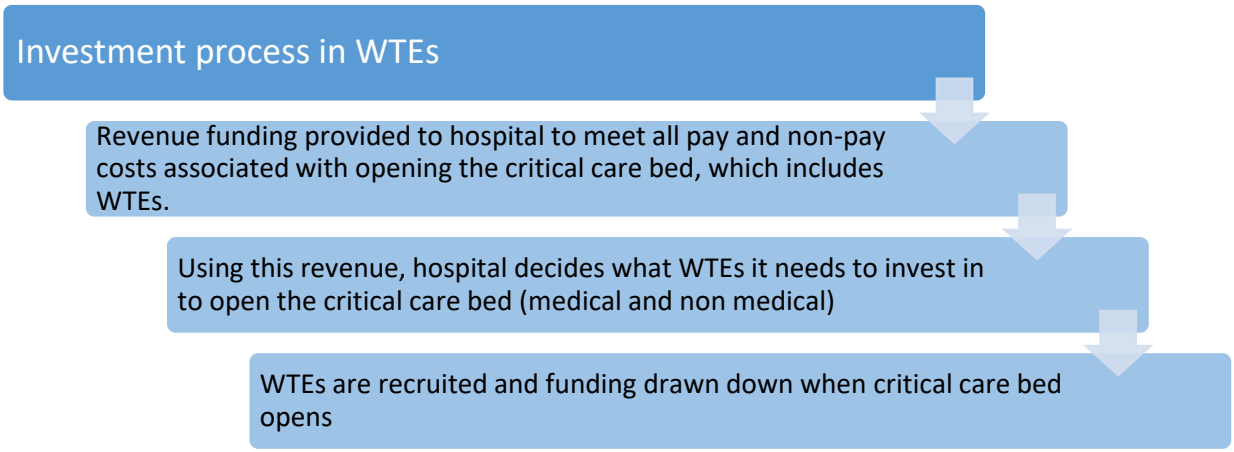
Figure 1: Approximate pay and non-pay costs to open a critical are bed



*Level 3 bed = Critical care management of two or more organ failures
**Level 2 bed = critical care management of one organ failure

While the revenue funding outlined in figure 1 is calculated based on a budget approved by the DoH, the final decision on the WTEs required to open the additional bed lies with the hospital and its service delivery unit having regard to its staffing at that time. They are then responsible for opening that bed. This process is outlined in figure 2. Funding for the bed is drawn down when the critical care bed opens. Hospitals are guided by the MOC for Critical Care 2014 in planning the WTEs required to open the bed.

Figure 2: Investment process in WTEs at hospital level



The governance and accountability for the service development rests with the hospital and the hospital group (HG). They are required to report on service developments to the HSE Acute Operations and DoH. Other mechanisms for oversight include national reporting processes and controls around drawing down the funding.

1.3 Defining the HSCP family in critical care

The HSCPs are the second largest clinical grouping of the healthcare workforce. There are 26 HSCPs providing interventions in therapeutic, rehabilitative, re-enablement, health and social care and diagnostic services. Of the 26 professions, 10 work routinely in critical care providing 'end of bed' therapy and 'interventional' therapy. This research was commissioned to focus primarily on the 'end of bed' therapy professions. Invitation for consultation will be provided to the 'interventional' therapy professions at a later stage.

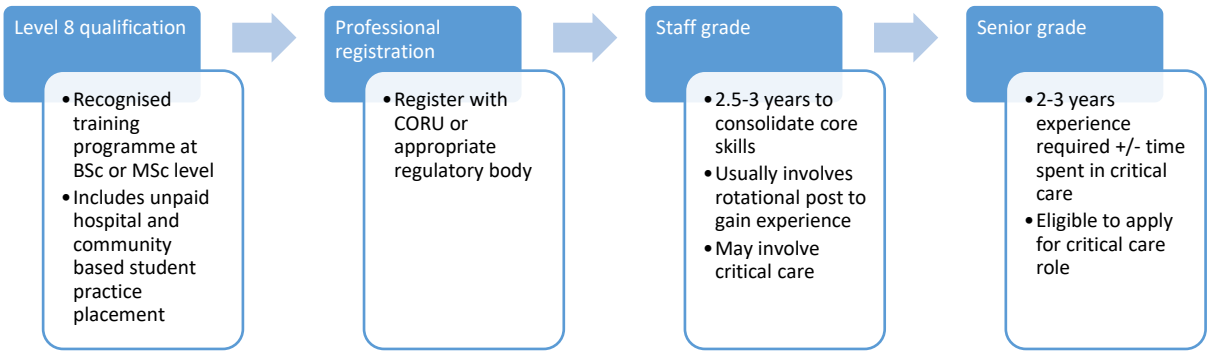
End of bed therapy professions	Interventional therapy professions
Physiotherapy (PT) Occupational Therapy (OT) Speech and Language Therapy (SLT) Dietetics (DT) Medical Social Work (MSW) Psychology (Psy)	Radiography Medical Scientist / Clinical Biochemist Clinical Engineering/ Clinical Medical Physicist Clinical Measurement Sciences

PT assistant, SLT assistant, OT assistant and Psy assistant are currently a grade in the Irish public healthcare system. These assistant roles are unregulated and do not fall under the remit of the HSCP office. Unlike the UK, there is no grade for DT assistant, or generic therapy assistant.

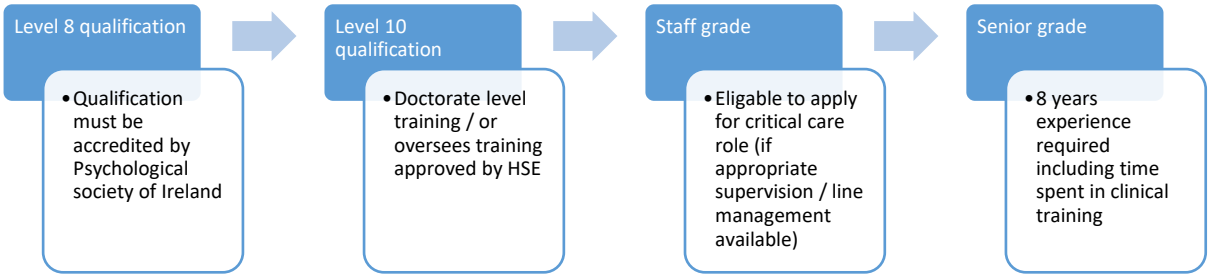
Essential requirements for a HSCP to apply for a role in critical care are outlined in figure 3. Aside from Psy, post-graduate qualifications are desirable but not essential. 2.5 to 3 years of clinical experience at staff grade is generally considered sufficient time to acquire the skills and knowledge required to apply for a senior role. Psychology requirements differ from other HSCPs, where a degree and post-graduate training is essential. HSCPs working in the HSE acute sector routinely provide a five day service (Monday to Friday) and this is in line with the MOC for adult critical care 2014. An exception to this is PT, where a 24/7 service is recommended as best practice due to their pivotal role in respiratory function and rehabilitation in an ICU setting. In recent years, evidence suggests improved patient outcomes when other HSCPs operate a seven day per week service in critical care. As a result, UK recommendations (commonly known as GIPICS) support moving towards a seven day service provision for HSCP in critical care, particularly for OT and SLT (FICM 2022). They state “Patients receiving rehabilitation must be offered therapy by the multi-professional team across a seven-day week and of a quantity and frequency appropriate to each therapy, in order to meet the clinical need and rehabilitation plan for an individual patient”.

Within an acute hospital, HSCP service delivery is often organised based on service priority and resources available within a department. Therefore, it is common practice for a HSCP to provide a service to a number of different clinical areas as opposed to being dedicated to one specific area. This typical service delivery style contrasts to the MOC 2014 which recommends staff should be dedicated to ICU, as this practice is associated with improved patient outcomes. Following the publication of the MOC Guidelines in 2014, there has been a strategic investment in critical care capacity which has resulted in dedicated Critical Care HSCP posts. At present, there are a mix of service delivery styles seen in ICU, which include non-dedicated WTE posts where revenue dates pre MOC 2014 and dedicated WTE posts where revenue dates post MOC 2014. Revenue streams established pre MOC 2014 are not always clearly outlined.

Figure 3: Essential requirements for a HSCP to apply for a role in critical care



Essential requirements for psychology to apply for a role in critical care



1.3.1 Support and Governance of HSCP in Ireland

The National HSCP Office is a national strategic function for HSCP leadership and support. Its role is to strategically lead and support HSCP to maximise their potential and achieve the greatest impact for the design, planning, management and delivery of people centred, integrated care. They are also responsible for overseeing the development and implementation of a system of continuing professional development (CPD) for HSCP in Ireland.

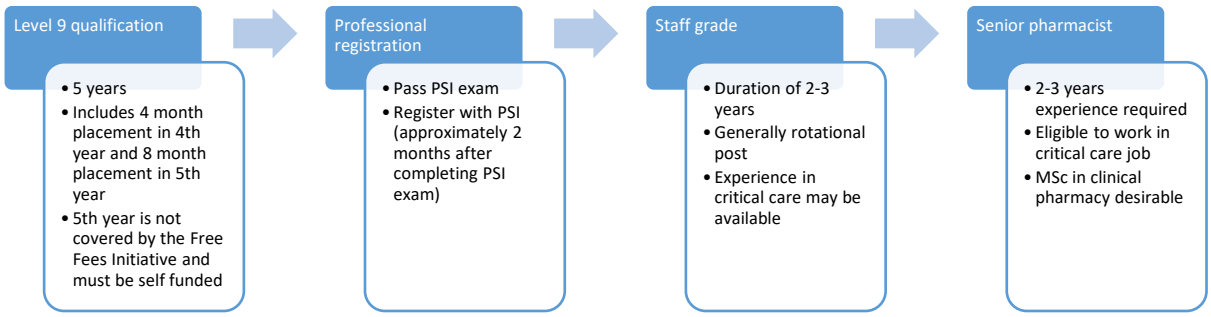
CORU is the Irish regulatory body for the listed HSCP professions within this study, except for Psychology. Psychology is not currently regulated in Ireland, but is projected to be eligible for registration with CORU by spring 2025.

1.4 Defining the Pharmacy family in critical care

In Ireland, hospital pharmacy staff include pharmacists and pharmaceutical technicians. The pathway for a pharmacist to be eligible to work in critical care is outlined in figure 4. Post-graduate qualifications are desirable but not essential. Within an acute hospital, pharmacy service delivery is often organised based on service priority and resources available within a department. Therefore, it is common practice for a clinical pharmacist to provide a service to a number of different clinical areas as opposed to being dedicated to one specific area. This typical service delivery style contrasts to the MOC 2014 which recommends staff should be dedicated to ICU, as this practice is associated with improved patient outcomes. Following investment in critical care capacity since 2014, which includes investment in critical care pharmacists, service delivery approach now favours a dedicated service delivery style where possible. At present, there is a mix of styles. Pharmacists in acute hospitals in Ireland routinely provide a five day service (Monday to Friday) with an on-call and weekend service provided at the discretion of the hospital. This differs to US and UK service delivery which recommends the provision of a seven day service as best practice in critical care (FICM, 2022; NHS England, 2016).

This study did not include pharmaceutical technicians.

Figure 4: Essential requirements for a pharmacist to apply for a job in critical care.



1.4.1 Support and Governance of Pharmacy in Ireland

There is no national Pharmacy office offering strategic leadership or support to professionals providing pharmacy services, who are directly employed by the HSE.

Within Corporate HSE, several units have Pharmacy teams to provide subject matter expertise. The Acute Hospital Drugs Management Programme (AHDMP) has programmes of work which cover Acute Operations and also reach out to pharmacy departments.

The Irish Institute of Pharmacy (IIOP) is responsible for overseeing the development and implementation of a system of continuing professional development (CPD) for pharmacists in Ireland. The IIOP is responsible for ensuring that these developments meet the emerging needs of patients and the wider healthcare system.

It oversees the management and support mechanisms for CPD, and accredits and commissions education and training programmes in line with national policy, evolving healthcare needs and the needs of the profession. The IIOP is funded by the DoH and the Pharmaceutical society of Ireland (PSI).The PSI is the Irish regulatory body for pharmacists. Pharmaceutical technicians are a recognised grade within the Irish healthcare system but do not fall under the remit of the IIOP. They are currently unregulated.

2 Methods

2.1 Design and Methods of Data Collection and Data Analysis

An observational study using an online survey was used to collect data.

2.2 Development of the surveys

Seven profession specific surveys were developed to capture information regarding HSCP and pharmacy roles. The national HSCP Lead for Critical Care (research lead) devised the surveys based on previous examples designed for a non-medical critical care workforce survey in the UK (CC3N, 2016). Each survey contained identical overarching questions. Once developed, all draft surveys were reviewed and adapted based on feedback from a National HSCP and Pharmacy Critical Care Advisory Group. All surveys were managed by the online survey platform, smart survey (https://www.smartsurvey.co.uk/).

2.3 Pilot study

A pilot study was completed within two hospitals, Tallaght University Hospital and St James's Hospital, to ensure the method of distribution and the survey content were appropriate. Feedback was sought on content, structure, and ease of use. Minor changes were subsequently made to the surveys.

2.4 Participants

Participants were HSCP and Pharmacy department managers and front-line staff working within the 26 HSE critical care units in Ireland. This study did not include pharmaceutical technicians. Assistant grade staff were asked to report WTE information only.

2.5 Distribution Method

The National Director, Acute Operations wrote to the CEOs of the Hospital Group and the CEOs and CCOs of Hospitals advising them of the planned survey and asking them to support the participation by their HSCP staff in the survey. Hospitals with at least one critical care unit were identified by the study lead, Critical Care, and a contact for each hospital CEO, ICU Director and HSCP Manager or Manager Representative was identified. The HSCP Lead contacted each named hospital contact and provided information regarding the survey, the process for distribution and electronic links to each survey. The HSCP manager or manager representative was asked to oversee survey dissemination and completion. Only one response was required per profession per hospital, irrespective of number of critical care units. Where a clinical service was not provided by a specific discipline, Department Managers were asked to complete an abbreviated version of the survey. The surveys were open for a 6-week period from Jan 2023 to March 2023. Reminders were sent at 2 and 4 weeks via email to the named hospital contacts.

2.6 Analysis

Survey data was analysed using the suite of reporting tools provided by the online survey database, Smart survey. Analysis was further completed using Excel (Microsoft Excel, 2013) and data was analysed descriptively and qualitatively. Information on critical care bed numbers and level of care (level 2 or level 3) was taken from the HSE monthly report on the implementation of the critical care strategic plan (Dec 2022,) to ensure accurate staff to patient ratios. One whole time equivalent (1.0 WTE) was defined as 35 hours/week.

3 Results

3.1 Demographics

Each of the identified 26 hospitals with critical care units across Ireland received 7 surveys each. Each survey was directed to the relevant profession manager within each hospital. 26 (100%) of hospitals responded to 5 or more of their 7 surveys. Out of 182 possible responses (7 professions in each of the 26 hospitals) a total of 153 responses were received out of 182 (84%).

3.2 Staffing

3.2.1 Survey Participation

Profession managers in each of the identified hospitals were asked to participate in the survey irrespective of service delivery to critical care. Survey participation ranged from 42% (Psy) to 100% (DT, PT, Pharm). Table 1 displays the number of surveys returned by each profession across the 26 hospitals.

Table 1: Demographics, service provision and therapist to Bed Ratios

	Number of responses	Of those who responded, percentage of units with provision	Of those with provision, percentage of units with ring fenced funding	Staff: bed number ratio (overall)	Staff: bed number ratio (funded by critical care)	MOC 2014 WTE:bed ratio	GIPICS v2.1 (2)	Limited weekend service provided
	% (N)	% (N)	% (N)	WTE:Bed	WTE:Bed	WTE:Bed	WTE:Bed	% (N)
SLT	92% (24)	100% (24)	45% (11)	1: 19.4	1:21	1: 16	1: 10	0% (0)
PT	100% (26)	96% (25)	36% (9)	1: 6.5	1:5.8	1: 4.8	1: 4	100% (25)
OT	81% (21)	71% (15)	60% (9)	1: 22.1	1:19	1: 8	1: 10	0% (0)
DT	100% (26)	100% (26)	54% (14)	1:11.2	1:10	1: 8.3	1: 10	0% (0)
MSW	73% (19)	53% (10)	70% (7)	1:47	1:37.2	1: 10*	-	0% (0)
Psy	42% (11)	18% (2)	100% (2)	1:163	1:33.5	1: 16**	1: unit	0% (0)
Pharmacy	100 % (26)	88% (23)	35% (8)	1:17.2	1:11.7	1: 10	1: 10	56% (13)

*Workforce ratio not specified in MOC 2014. No clearly delineated staff requirement in national or international guidelines. WTE:Bed ratio of 1:10 defined by expert consensus, MSW managers group, HSE.

**Workforce ratio not specified in MOC 2014. WTE:Bed ratio defined using UK benchmarking data published by the intensive care society (ICS 2022). 20% headroom added to provide WTE:Bed recommendation 1:16.

3.2.2 Critical care units providing a HSCP and Pharmacy service

Of the professions who responded to the survey, 100% of units provided a DT (n = 26) and SLT (n = 24) service. 96% (n=25) and 88% (n=23) of units provided a PT and Pharmacy service. A lower percentage of units provided an OT (71%, n=15), MSW (53%, n=10) or Psy (18%, n=2) service. Of units which

provided a service, the level of service provision ranged from a 'full service' defined by clinical indication to a 'limited service' or 'reduced service' due to inadequate staff availability or inadequate staff experience. For Pharmacy, a full service was defined as 'daily clinical review on the unit' and a limited service was defined as 'weekly clinical review on the unit'. Where funding was provided, it was sometimes insufficient to deliver a 'full service'. The number of units providing any service are presented in table 2. This is then broken down into the percentage of units providing a full versus limited service. For example, 24 units had a SLT service but only 56.5% (14 units) provided a full service. The remaining 43.5% (10 units) provided a limited service.

Table 2: Availability and type of service provided by critical care units

Profession	Units providing a service N (%)	Full service %	Limited service %
SLT	24 (100%)	56.5	43.5
PT	25 (96%)	53.8	46.2
OT	15 (71%)	47.4	52.6
DT	26 (100%)	100	0
MSW	10 (53%)	56.2	43.8
Psychology	2 (18%)	100*	0
Pharmacy	23 (88%)	77	23

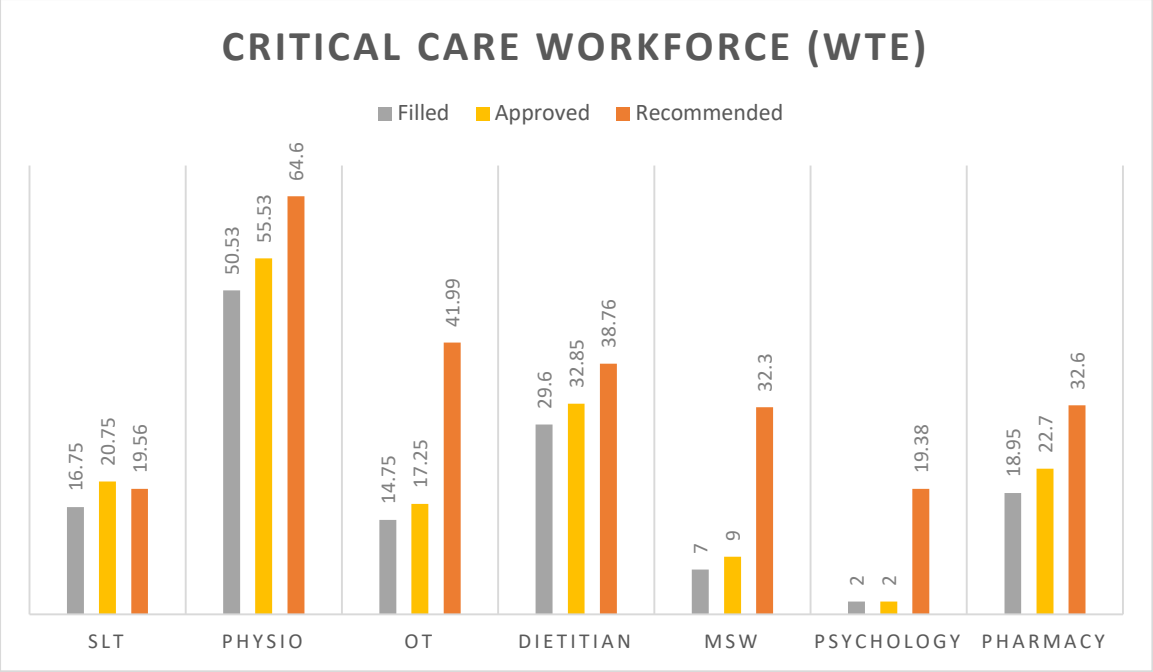
*Interpret with caution; Figure based on 2 filled posts. 24 units with 0 posts.

3.2.3 Whole time equivalents (WTEs)

Based on the responses to the survey questions, figure 5 compares the total number of approved, filled and recommended WTEs in critical care. Recommended WTE calculations were defined using the MOC 2014. Where the MOC 2014 did not specify a WTE requirement (i.e. for MSW and Psychology), UK recommendations from the 'Guidelines for the provision of intensive care services 2.1' or alternative references were used and are outlined in table 1. Psychology had the largest variance in WTE posts with recommendations (n=-17.38, 90%), followed by MSW (n=-25.3, 78%) and OT (n=-27.24, 42%). SLT had the lowest variance in WTE posts (n=-2.8, 14%) followed by physiotherapy (n=-14.07, 22%), Pharmacy (n=-13.65, 42%) and dietetics (n=-9.16, 24%). According to professions that provided a service, there was variation as to whether revenue for these services came from investment in critical care capacity following MOC 2014 or from elsewhere. HSCP groups which are relatively new to critical care (OT, MSW and Psychology) were most frequently funded as a result of investment in critical care capacity (60%, 70%, 100%), while the revenue for HSCP groups with a long-standing history of service delivery to critical care (Pharmacy, Physiotherapy) came from alternative sources and not directly from critical care (35%, 36%).

Therapist to bed number ratios are shown in table 1, with comparison of those sites with services directly funded by critical care units. For all professions except for SLT, services directly funded by critical care had better staff to patient ratios. This was particularly apparent for Psychology, Pharmacy and MSW, although none were compliant with minimum staffing standards outlined in the MOC 2014, or elsewhere where national standards were not available (i.e MSW and Psy).

Figure 5: Comparison of WTE posts approved, filled and recommended


CRITICAL CARE WORKFORCE (WTE)
Filled
Approved
Recommended
16.75
20.75
19.56
50.53
55.53
64.6
14.75
17.25
41.99
29.6
32.85
38.76
7
9
32.3
2
2
19.38
18.95
22.7
32.6
SLT
PHYSIO
OT
DIETITIAN
MSW
PSYCHOLOGY
PHARMACY

3.2.4 7-day service

DT, OT, SLT, Psychology and MSW reported no official weekend service in 100% of critical care units. Physiotherapy provided a service 7 days a week across all sites (100%). Weekend service was limited to on-call and emergency duty rotas. 38.5% of Pharmacy departments provided some form of service 6 or 7 days a week. Of those that provided a 7-day service, 0% provided a full service over the 7 days. Weekend service varied from '2 hours on a Saturday morning and bank holiday Monday in the dispensary' to an 'out of hour's emergency contact phone number'. Weekend service was limited to 'medication supply only' in 15.4% of units or an 'on call service' in 3.8% of units.

3.2.5 Grade

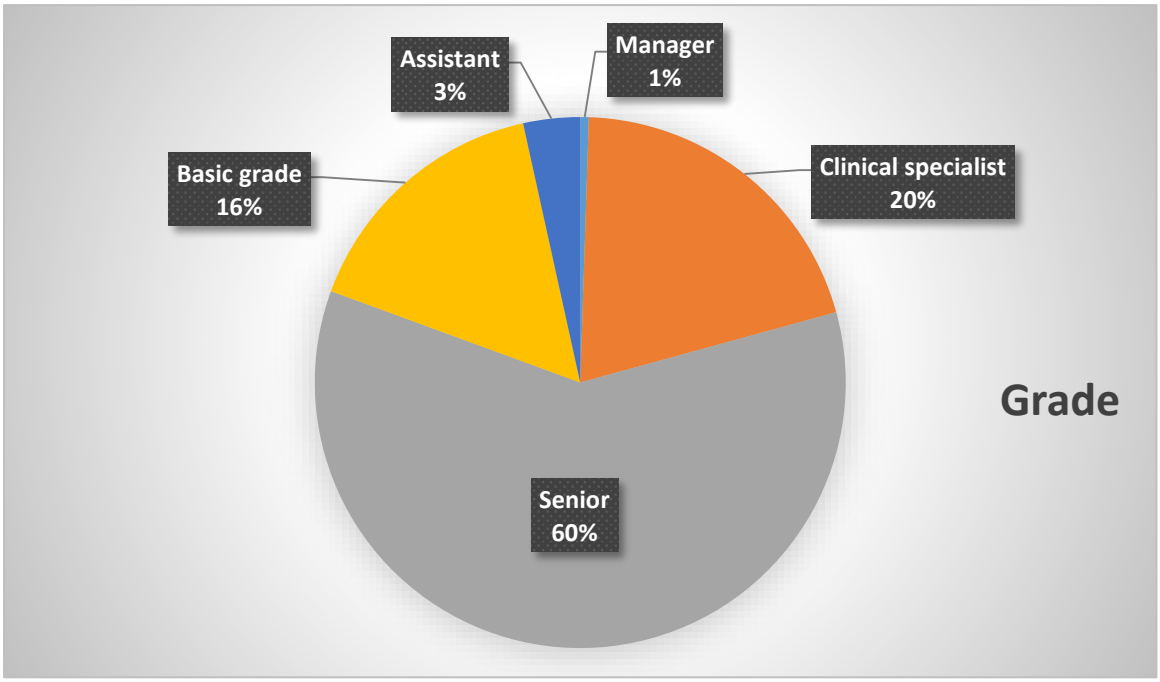
Further analysis was completed on the breakdown of grade of staff employed in critical care. SLT, PT, OT and DT share an identical grading structure whereas MSW, pharmacy and psychology follow a profession specific grading structure. Table 3 presents the full breakdown of grade across each profession. Overall, Senior (60%) and clinical specialist (20%) grade made up the majority of HSCP and Pharmacy working in critical care. Manager (1%) and assistant grade (3%) had the least presence. Figure 6 presents the percentage of staff based on grade across all professions combined.

Table 3: Percentage of staff (WTE) based on grade

Grade	SLT (n=16.75) N (%)	PT (n =52.83) N (%)	OT (n =14.75) N (%)	DT (n =29.6) N (%)
Manager	0.5 (3)	0 (0)	0 (0)	0.25 (0.8)
Clinical Specialist	2.25 (13)	10 (19)	4.5 (30.5)	4 (13.5)
Senior	13.25 (79)	24.9 (47)	7.5 (51)	23.75 (80)
Staff Grade	0.5 (3)	16.93 (32)	1.75 (12)	1.65 (5.5)
Assistant	0.25 (1.5)	1 (1.8)	1 (6.7)	0.25 (0.8)

Grade	MSW (n=7) N (%)
Manager	0 (0)
Senior	5.5 (78.5)
Practitioner	1.5 (21)
Assistant	0 (0)
Grade	Pharmacy (n= 18.95) N (%)
Chief I / manager	0 (0)
Chief II	2 (10.5)
Senior	16.2 (85.5)
Staff Grade	0.75 (4)
Pharmacy Technician	Not assessed
Grade	Psychology (n = 2) N (%)
Manager	0 (0)
Principal specialist	1 (50)
Senior	1 (50)
Staff grade	0 (0)
Assistant	0 (0)

Figure 6: Percentage of staff based on grade across HSCP and pharmacy combined.



3.3 Recruitment

3.3.1 Vacant posts

A combined total of 20.5 WTE funded posts were reported as vacant by this survey. Table 4 presents the individual vacancy rate across each profession as reported by survey participants. Vacancies were greatest in SLT (19%), MSW (22%) and OT (14%) when compared to posts approved.

Comparing posts which were filled to national workforce recommendations, a combined workforce gap of 114.98 WTE posts was identified by this survey. Variance of posts filled with the recommended WTEs is outlined in table 4.

Table 4: Vacant posts

	Posts vacant (total) compared to number approved N (%)	Variance between total number of posts filled and recommended WTEs N (%)
SLT	4 (19%)	-2.8 (14)
PT	5 (9%)	-14.07 (22)
OT	2.5 (14%)	-27.24 (42)
DT	3.25 (10%)	-9.16 (24)
MSW	2 (22%)	-25.3 (78)
Psychology	0 (0)	-17.38 (90)
Pharmacy	3.75 (16.5%)	-13.65 (42)
Total	20.5	114.98

3.3.2 Barriers to recruitment

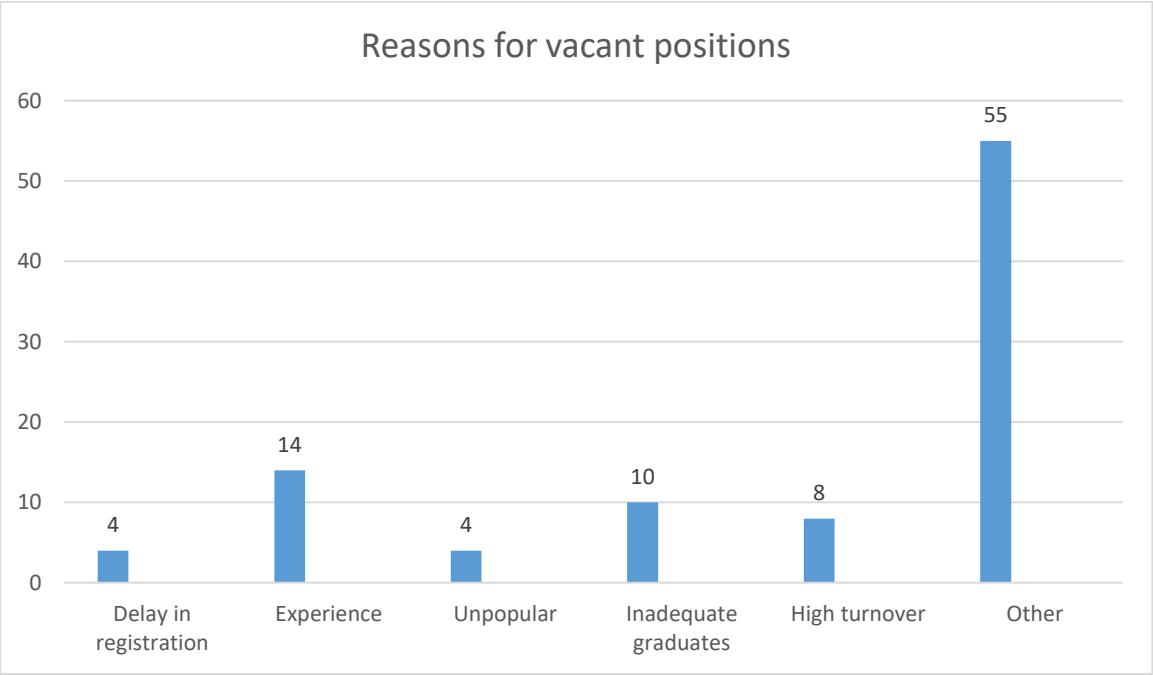
Those who reported vacant positions were asked to record the reasons for this. Reported reasons were grouped into 6 main categories and their contribution to vacant positions were calculated. The category 'other' was defined by the following list: 'Difficult to fill temporary positions', 'Maternity leave difficult to fill', 'Unpaid careers leave not backfilled', 'Redeployment', 'Promotion to other area and unable to back fill', 'Lack of accommodation /transport issues / cost of living associated with Dublin hospitals', 'Delays in employment procurement process', and 'Unable to recruit to <0.5 WTE positions'.

The category 'other' (55) was reported by the most number of participants as the greatest reason for vacant positions, followed by inadequate 'critical care experience' (14) and 'lack of college graduates' (10). Table 5 presents the 6 categories and their reported contribution towards vacant posts in each profession. Figure 7 presents the reasons for vacant positions for all professions combined.

Table 5: Reasons for vacant positions

	SLT	**PT**	**OT**	**DT**	**MSW**	**Psy**	**Pharm**	**Total**
	N (%)							
Delay in CORU/PSI registration	1 (9.1)	1 (11)	0	2 (16.7)	0	NA	0	4
Inadequate critical care experience	3 (27.3)	3 (33.3)	1 (11.1)	2 (16.7)	0	NA	5 (31.3)	14
Critical care is not a popular area	0 (0)	3 (33.3)	0	0	0	NA	1 (6.3)	4
Lack of college graduates	0 (0)	2 (22.2)	0	6 (50)	0	NA	2 (12.5)	10
High turnover / unable to retain staff	1 (9.1)	5 (55.6)	0	1 (8.3)	0	NA	1 (6.3)	8
Other	11 (100)	6 (66.7)	9 (100)	9 (75)	7 (100)	NA	13 (81.3)	55

Figure 7: Number of participants who reported reasons for vacant positions across HSCP and Pharmacy combined



3.4 Direct Roles and Responsibilities

Participants were asked how often they used pre-defined treatment modalities in critical care including those carried out with other professionals. The highest seven reported are shown in table 6.

Table 6: Highest frequency interventions completed per profession

Profession	Interventions
Speech and Language Therapy	1. Rehabilitation of Swallow, Voice & Upper Airway 2. Cuff deflation trials for restoration of airflow to support verbal communication and swallow 3. One-way valve use 4. Active involvement in decisions regarding tracheostomy weaning 5. Active involvement in decannulation decisions 6. Communication assessment 7. Routine tracheostomy care 8. Support patients' decision-making and participation in care
Physiotherapy	1. Airway clearance strategies 2. Rehabilitation strategies 3. Lung recruitment strategies 4. Tracheostomy weaning 5. Positioning or splinting 6. Initiation of high flow oxygen therapy (HFOT) 7. Ventilatory weaning

Profession	Interventions
Dietetics	1. Estimating energy and protein targets 2. Developing EN feeding regimens 3. Developing PN feeding regimens 4. Assessment of the timing of EN and PN delivery 5. Assessing the impact of biochemistry on nutritional requirements 6. Frequency of monitoring EN 7. Frequency of monitoring PN
Medical Social Work	1. Counselling and emotional support to patients 2. Counselling and emotional support to families 3. Psychosocial assessments 4. Crisis intervention 5. Assessing family's perception of illness 6. Practical / financial assistance 7. End of life care
Occupational Therapy	1. Risk assessment to determine suitability for OT treatment 2. Positioning / Disability management 3. Pressure Care 4. Transfers 5. Sitting on edge of the bed 6. Sitting out in a chair 7. Seating - provision of specialised seating
Psychology	1. Provide psychological assessment and interventions to inpatients on critical care 2. Provide psychological assessment and interventions to inpatients at ward level post critical care 3. Provide psychological assessment and interventions to patients post hospital discharge at post intensive care outpatients follow up clinic 4. Input into MDT multicomponent management of delirium 5. Provide psychological support to family members of critical care patients 6. Input into ongoing CPD and teaching for ICU MDT 7. Staff wellbeing
Pharmacy	1. Supply of medication 2. Drug chart review 3. Medication reconciliation on admission to ICU 4. Participation in microbiology ward rounds on ICU 5. Medicines information provision 6. Medication safety reporting and follow-up 7. Provision of IV monographs

3.5 Indirect Roles and Responsibilities

Table 7 displays the frequency that therapy staff are involved (response either ‘sometimes’, ‘often’ or ‘always’) in indirect roles including critical care departmental meetings. For all professions except

pharmacy, multidisciplinary team (MDT) meetings were most frequently attended (range 68% to 100%), followed by complex case meetings (range 47% to 100%) and family meetings (range 19% to 100%). Pharmacy most frequently attended quality and audit meetings (50%), clinical guideline meetings (48%) and ward rounds (46%). Attendance at clinical incident meetings and tracheostomy rounds was least reported.

Table 7: Frequency of involvement in indirect roles

		SLT	PT	OT	DT	MSW	Psychology	Pharmacy
		%	%	%	%	%	%	%
Clinical care	Morning report / handover with the MDT	38	62	39	31	33	50	20
	Ward rounds	33	54	22	46	33	50	46
	Tracheostomy rounds	38	46	6	4	0	0	4
	MDT meetings	71	69	68	73	86	100	40
	Rehabilitation ward rounds	21	38	17	15	25	100	17
	Complex case meetings	67	69	47	54	87	100	13
	Family meetings	58	50	53	19	86	100	0
	Discharge meetings	38	42	42	19	67	50	8
	Meetings with outside professionals	29	50	33	27	64	0	21
	Meetings with product representatives	42	69	44	69	NA	0	21
Clinical Governance	Morbidity and mortality meetings	13	27	6	15	NA	50	17
	Clinical governance meetings	46	21	11	38	17	50	46
	Business meetings	21	17	11	31	NA	50	29
Research, audit & Quality improvement	Research meetings	17	13	11	27	8	50	25
	Clinical incidence meetings	13	8	6	15	17	50	25
	Quality or audit meetings	8	46	39	38	27	50	50
	Clinical guidelines	21	19	11	42	8	100	48
	Bereavement follow-up meetings	NA	NA	NA	NA	46	NA	NA
	Safeguarding meetings	NA	NA	NA	NA	83	NA	NA

3.6 Service delivery

Five questions on service delivery were asked owing to their impact on workforce planning. Questions included.

1. As part of your role in critical care, are you required to cover clinical areas outside of ICU?
2. Is cover provided during periods of planned leave (e.g., annual leave, study leave, or paid carers leave)?
3. Can you avail of remote working opportunities?
4. Do you require a formal referral prior to seeing a patient?
5. Are rotational posts* or rotational opportunities available in critical care in your department?

**A rotational post is common practice for a staff grade HSCP. It is defined as the movement from one specialist area to another within the same organisation in order to gain experience. E.g. A pharmacy/HSCP role may include a 6 month rotation in each of the following areas; surgery, respiratory medicine, orthopaedics and oncology.*

While service delivery varied across the 7 professions, nearly all professions were required to cover clinical areas outside of ICU. This ranged from 50% for Psychology to 100% for Pharmacy and Physiotherapy. For 6 out of the 7 professions, full cover was not guaranteed during periods of planned leave. This indicated the recommended 20% headroom was not included in the WTE calculation. Remote working opportunities were available for MSW (57%), Psychology (50%) and Pharmacy 36%), but not for SLT, PT, OT, or DT. The majority of Psychology (100%), SLT (91.7%), and MSW (86.7%) services require a formal referral prior to assessment, whereas PT (11.5%) and DT (11.5%) do not. Rotational posts which include a rotation in critical care are commonly available across the physiotherapy profession (92.3%) and to a lesser extent the OT profession (26.3%). All other professions do not routinely offer critical care rotations.

Full results of service delivery are presented in table 8.

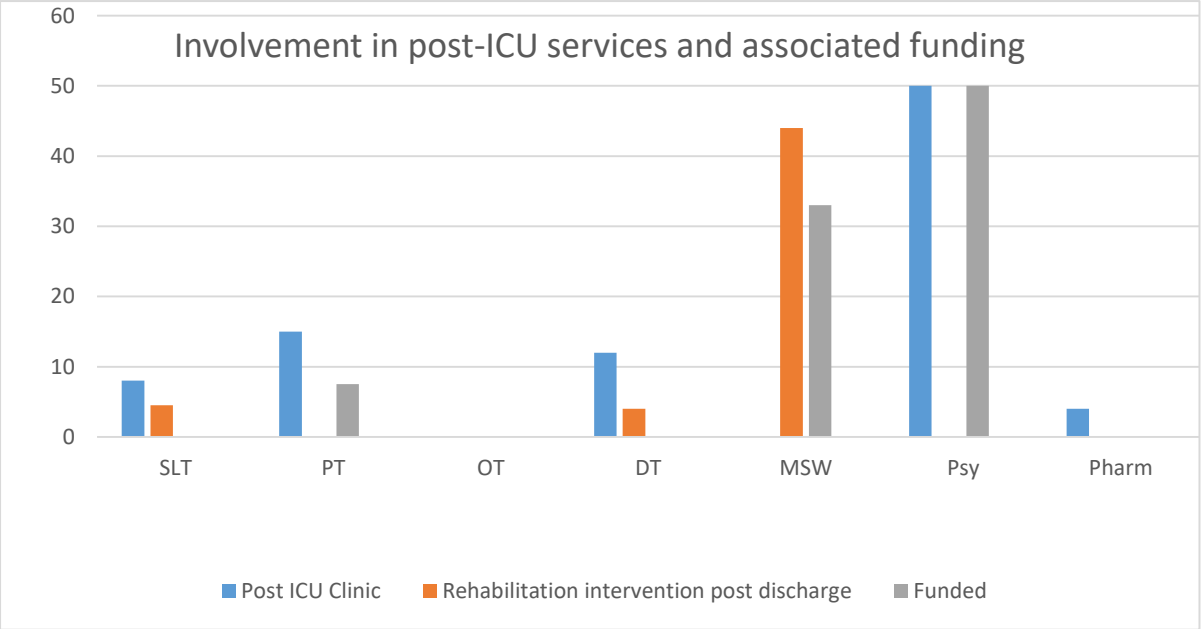
Table 8: Five aspects of service delivery reported by 7 professions in critical care

	SLT	PT	OT	DT	MSW	Psychology	Pharmacy
Required to cover clinical areas outside of ICU	98.7%	100%	84.2%	84.6%	80%	50%	100%
Cover provided during periods of planned leave	78.3%	100%	70.6%	92.3%	64.3%	0%	52.2%
Remote working opportunities	0%	0%	0%	0%	57%	50%	36%
Formal referral required	91.7%	11.5%	52.6%	11.5%	86.7%	100%	0%
Rotation in critical care available	8.7%	92.3%	26.3%	11.5%	NA	0%	15.4%

3.7 Critical care follow-up and post hospital discharge rehabilitation intervention

There was wide variation in involvement ('routine' or 'sometimes') in critical care follow up clinics and post hospital discharge rehabilitation Intervention. Interventions could include exercise classes, rehabilitation classes, education sessions or bereavement support. Availability of dedicated funding was variable. Figure 8 shows the percentage of professions who were involved in post-ICU clinic and/or rehabilitation intervention post discharge. Where involvement was reported, figure 3 also demonstrates the percentage of this involvement that was funded.

Figure 8: Percentage of professions involved in post-ICU services and associated funding.

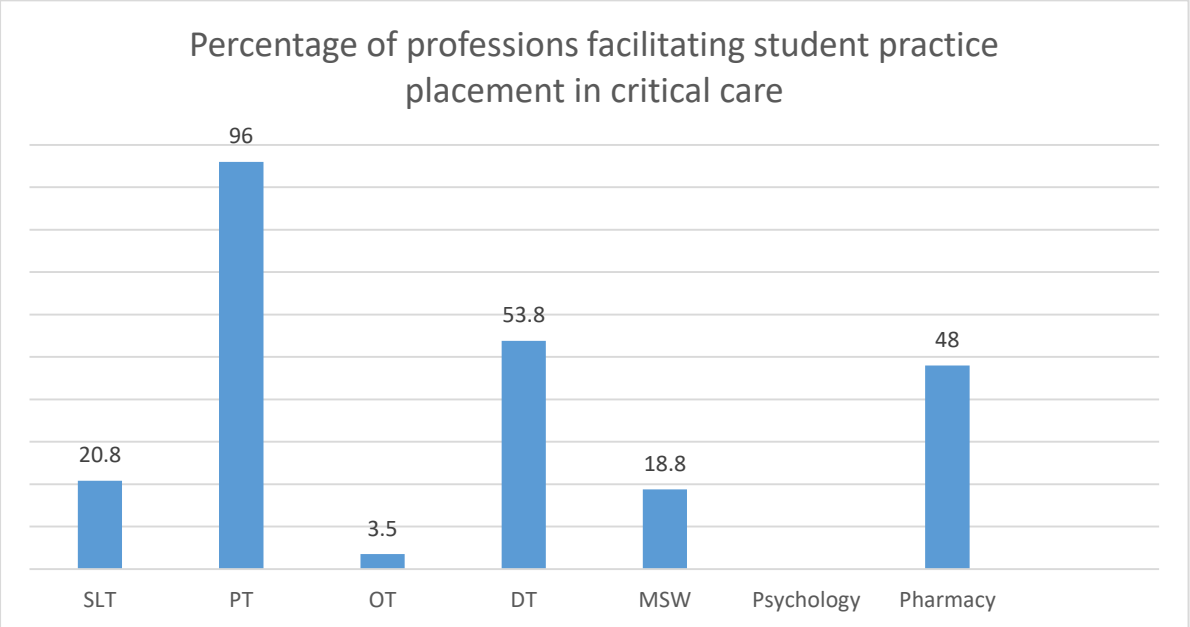


3.8 Education and training structures

3.8.1 Student practice placement

Facilitation of student practice placement (PP) in critical care varied across the 7 professions. It ranged from 0% (Psychology) to 96% (Physiotherapy). Figure 9 presents the percentage of professions facilitating student PP in critical care.

Figure 9: Percentage of professions facilitating student practice placement in critical care



Professions who facilitated student PP most often, took the largest number of students for PP. Physiotherapy (117) and dietetics (46) took the highest number of students annually. Pharmacy (21),

SLT (12) and OT (8) also took students, albeit at a lower number. Medical social work (3) and Psychology (0) took the least number of students for PP annually. Participants were asked to list the barriers to facilitation of student PP in critical care. Barriers were grouped under 3 headings: 'staff', 'suitability of environment' and 'funding'. Some barriers are specific to critical care while others relate to the student training infrastructure within an individual profession. Frequency of barriers reported are listed in table 9.

Table 9: Barriers to facilitation of student practice placement in critical care.

Staff	• Lack of critical care expertise available to provide training • No dedicated post in place to adequately educate and supervise a student
Suitability of environment	• Limited service provided to critical care and therefore limited exposure would be available • Patients are too complex, and it limits exposure to general ward care • Students are unable to work independently and therefore require more supervision / time • No critical care competencies available to support and guide student training in critical care
Funding	• Staff shortages • No student PP tutor • No funding available to offer pharmacy students (this is usually a paid placement)

3.8.2 Provision of multi-professional teaching/ training for other staff

Participants were asked to report their participation in the delivery of multi-professional teaching and/or training for other members of the critical care staff. These included other HSCP, Pharmacy, doctors, or nurses. DT and PT reported the greatest participation in education delivery (88.5% and 84.6%) while MSW and SLT reported the least (64.3% and 66.7%). Of those who did support multi-professional training, MSW and SLT provided it most often within a 12-month period. Table 10 presents the full results of multi-professional training delivery provided by the 7 professions.

Table 10: Percentage of HSCP and pharmacy who delivery multi-professional teaching / training and the frequency at which they deliver it.

	Support multi-professional training (%)	Provided 'a few times' a year (%)
SLT	66.7	83.4
PT	84.6	78.3
OT	68.4	53.9
DT	88.5	72
MSW	64.3	88.9
Psychology	100	100
Pharmacy	66.7	84

3.8.3 Continuous professional development

Participants were asked three questions relating to continuous professional development (CPD) in critical care.

1. Are there core competencies (essential or desirable) relating to their role in critical care that require dedicated learning? Answer Yes or No.
2. Are there barriers that limit access to CPD? Answer Yes or No
3. Should this CPD be accredited by a professional organisation? Answer Yes or No

Excluding Pharmacy, over 80% of all HSCPs reported that dedicated learning was required to meet their core competencies for critical care. 80.8% to 100% of all professions reported barriers to accessing the required CPD. 47.4 to 100% of all professions felt that CPD in critical care should be accredited by a professional organisation. Full results of these questions are presented in Table 11.

Table 11: Assessment of CPD requirements and preferences in critical care.

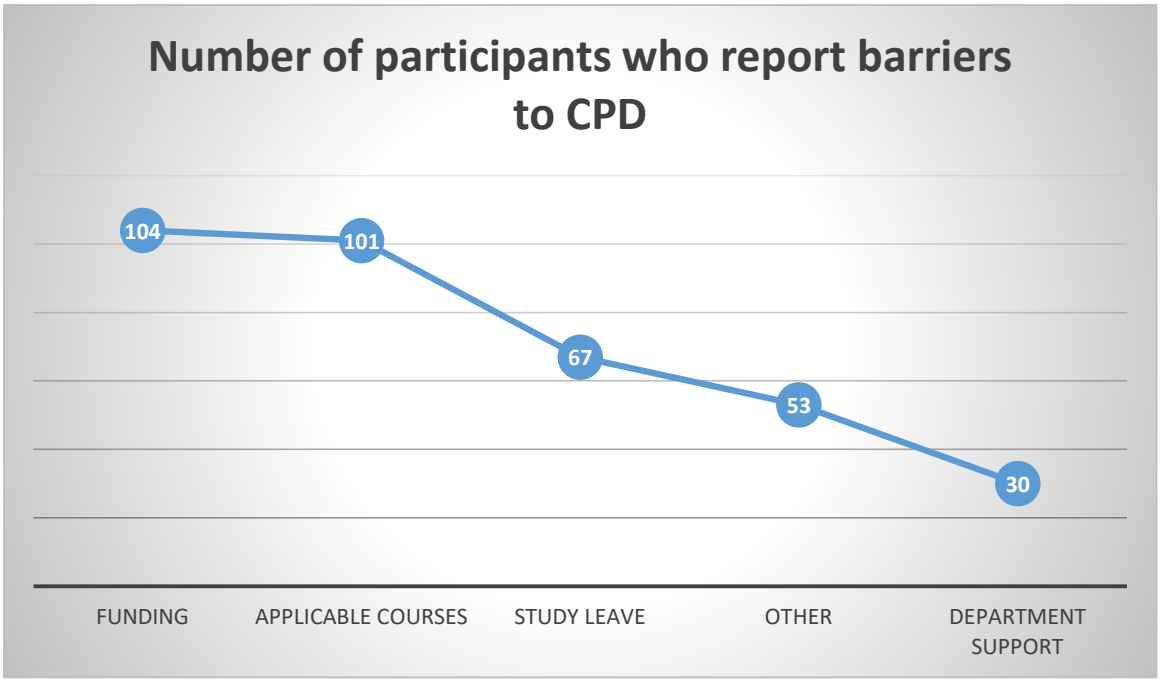
	Are there Core competencies requiring CPD? (% who said yes)	Are there barriers that limit access to CPD? (% who said yes)	CPD should be accredited by a professional organisation (% who said yes)
SLT	91.7	87.5	70.8
PT	96.2	80.8	100
OT	100	100	76.2
DT	84.6	92.3	73.1
MSW	94.7	100	47.4
Psy	100	100	NA
Pharm	57.7	100	92.3

Barriers to obtaining the required CPD were further explored with each profession. Participants were presented with 5 options and asked if it was a barrier ('funding', 'study leave', 'department support', 'availability of applicable courses' and 'other, please specify'). Where the option 'other, please specify' was selected, participants listed 'staff shortages' and 'no backfill available' as the barrier. Table 12 presents the barriers reported by each profession individually. Figure 10 presents the barriers for the 7 professions combined. Funding and lack of applicable courses were identified as barriers by the most number of participants (104 and 101)

Table 12: Barriers to CPD reported by each profession

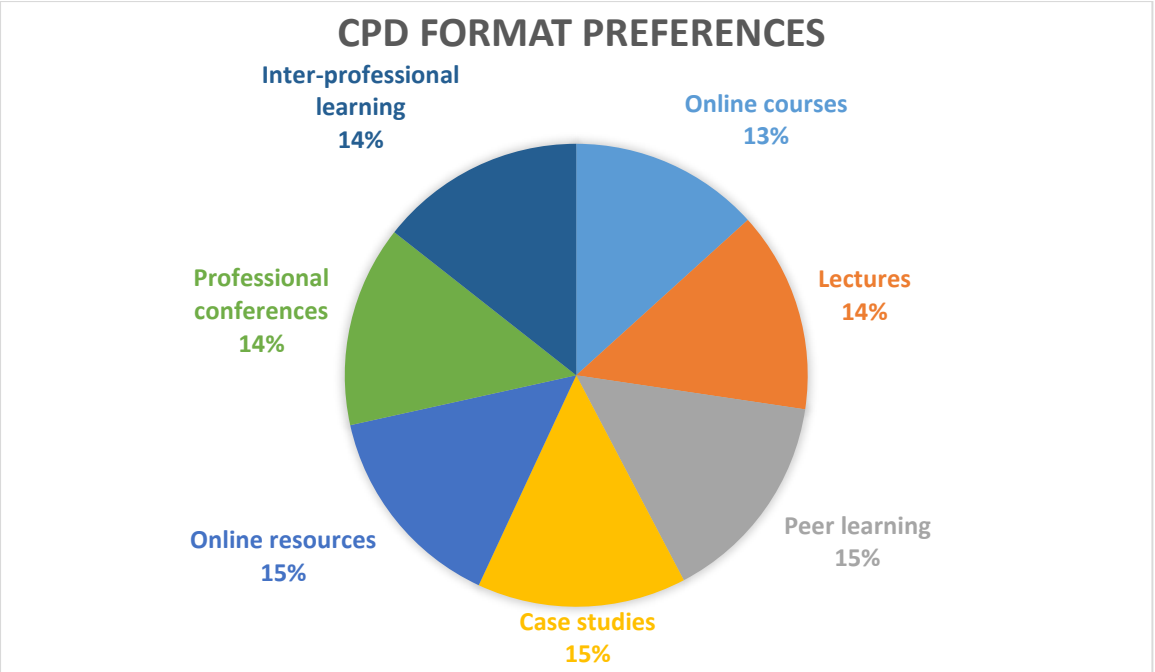
	Funding % (N)	Study Leave % (N)	Department Support % (N)	Applicable Courses % (N)	Other % (N)
SLT	62.5 (15)	37.5 (9)	20.8 (5)	70.8 (17)	33.3 (8)
PT	65.4 (17)	42.3 (11)	3.8 (1)	53.8 (13)	50 (14)
OT	85.7 (18)	42.9 (9)	14.3 (3)	85.7 (18)	71.4 (15)
DT	73.1 (19)	53.8 (14)	19.2 (5)	69.2 (18)	46.2 (12)
MSW	68.4 (13)	42.1 (8)	42.1 (8)	73.7 (14)	15.8 (3)
Psy	100 (2)	0 (0)	0	50 (1)	50 (1)
Pharm	80 (20)	56 (14)	32 (8)	80 (20)	0

Figure 10: Barriers to CPD access across HSCP and Pharmacy combined



Participants were asked to rank their preferred learning format for CPD using a 6-point scale ranging from 'very interested' to 'very uninterested'. Respondents who identified a learning format as either 'very interested' or 'somewhat interested' were combined and the results displayed in figure 11. Overall, the primary preference was assigned equally to 'online resources', 'case studies' and 'peer learning'. 'Online courses' were the least preferred format for CPD. The comments section identified that online courses were least preferred as they were often not granted protected time to complete them and were expected to 'squeeze them in' alongside a clinical caseload.

Figure 11: Overall preference for 7 different CPD delivery formats.



3.9 Monitoring and evaluation practices

3.9.1 Service evaluation, audit, and research

Where a service to critical care was provided, participants were asked if they were involved in service evaluation, audit, or research. Table 13 presents the percentage of HSCP and pharmacy that undertake service evaluation, audit, or research. Overall, participants were most likely to participate in audit (n = 71) and service evaluation (n=67) but least likely to participate in research (n=31).

Table 13: Participation in service evaluation, audit, and research

	SLT % (N)	PT % (N)	OT % (N)	DT % (N)	MSW % (N)	Psy % (N)	Pharm % (N)
Service evaluation	100 (15)	65.4 (17)	75 (9)	61.5 (16)	25 (2)	100 (2)	40 (10)
Audit	66.7 (10)	61.5 (16)	66.7 (8)	69.2 (18)	37.5 (3)	100 (2)	56 (14)
Research	26.7 (4)	34.6 (9)	25 (3)	26.9 (7)	0 (0)	50 (1)	28 (7)

3.9.2 Activity and quality metrics

To assess monitoring and evaluation practices across all groups, 3 questions were put to participants;

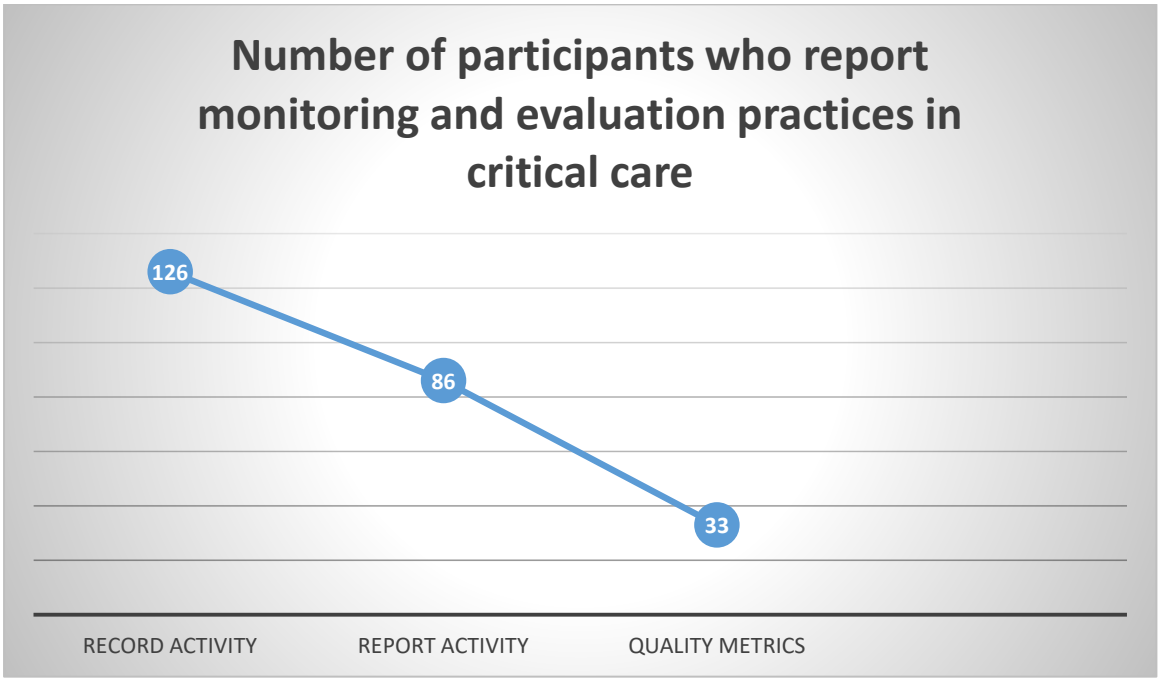
1. Do you record activity?
2. Do you (or your manager) report activity?
3. Do you have quality metrics (QM) specific to critical care?

Overall, 126 participants answered 'yes' to recording their daily activity, 86 answered 'yes' to reporting their activity and only 33 answered 'yes' to having pre-defined quality metrics specific to critical care. Individual profession results for each of these questions are presented in table 14. Combined results for all the 7 professions are presented in figure 12.

Table 14: Participation in monitoring and evaluation practices reported by professions in critical care

	Professions who answered ''yes' to recording activity?	Professions who answered ''yes' to reporting activity?	Professions who answered ''yes' to having QMs?
	% (n)		
SLT	87.5 (21)	54.2 (13)	25 (6)
PT	100 (26)	73.1 (19)	34.6 (9)
OT	100 (21)	85.7 (18)	38.1 (8)
DT	92.3 (24)	69.2 (18)	23.1 (6)
MSW	89.5 (17)	57.9 (11)	5.3 (1)
Psychology	100 (2)	100 (2)	50 (1)
Pharmacy	57.7 (15)	19.5 (5)	3.8 (1)

Figure 12: Number of participants who report monitoring and evaluation practices in critical care



4 Discussion

The aim of this survey was to explore the existing HSCP and pharmacy workforce to inform the development of a HSCP and pharmacy workforce plan for critical care. The responses to the survey indicate that the numbers of HSCP and pharmacy staff working in critical care do not meet the national minimum staffing recommendation outlined in the MOC for Adult Critical Care (2014). Many critical care units do not provide key HSCP or pharmacy services, particularly OT, MSW, and Psy. Where services do exist, they were often in a limited capacity, and none met the suggested therapist to patient ratios. This survey sought the views of participants on the factors contributing to this shortfall. Several of these challenges are not specific to critical care but rather relate to the profession as a whole. Several of these challenges have been highlighted elsewhere, most recently, in the HSE resourcing strategy April, resourcing our future (2023) which sets out 27 specific actions to improve resourcing for HSCPs across the HSE. In the absence of Pharmacy leadership at a strategic level, Pharmacy were not part of this HSE HR resourcing strategy April 2023. Resourcing challenges for HSE pharmacists have been outlined in a separate briefing document prepared for internal HSE stakeholders in 2023 and findings from this survey align with these challenges (AHDMP, 2023).

In addition to resourcing challenges, since the MOC (2014) guidelines were published, the role of the HSCP and pharmacy in critical care has evolved (Hartman-Shea K et al.,2011; Algeo 2019; ICS-UK, 2022). This has resulted in an increase in staffing recommendations internationally (FICM, 2022). In this context, the staffing deficits presented in this survey could underestimate the required workforce.

2 of the 7 professions (MSW, Psy) included in this survey do not have specific staffing recommendations outlined in our national guideline. Engagement with relevant stakeholders is required to help support a review of absent professions and review current staffing recommendations.

4.1 Staffing

This is the first national workforce review of HSCP and pharmacy in critical care public services in Ireland.

The Strategic Workforce Planning and Intelligence Unit of the HSE reports on overall workforce statistics in the public system, but reporting capacity is high-level in categories of 'acute' or 'community' and is not reported in service details such as critical care. In January 2023, the HSE reported employing 806 pharmacy and 10,256 HSCP WTEs (SLT, PT, OT, DT, MSW, and Psychology), 33.8% (3744) of which were employed across the acute services.

National staffing recommendations for critical care are defined by the level of support a bed can provide to a patient. A 'Level 2' bed refers to critical care management of primarily single organ failure. A 'Level 3' bed refers to critical care management of two or more organ failures. The response to this survey indicates a figure of 139.18 WTEs (1.2% of the HSCP and 2.3% of the pharmacy HSE Acute WTEs) are employed in critical care alone. When compared to the national staffing recommendations for critical care, this presents a workforce gap of 114.98 WTEs based on the current 323 critical care level 2 and level 3 bed capacity, which was reported to the DoH in December 2022. This figure likely underestimates the true workforce gap, as this calculation is based on 2014 staffing recommendations and does not consistently include a headroom calculation of 20%.

In 2023, a UK-wide workforce survey for five therapy professionals (DT, OT, SLT, PT, Psy) in critical care was published. They reported >90% of units with access to DT, PT and SLT, but much lower levels of access to OT and Psy. This survey found similar results, overall finding the lowest level of access to the less well-established professions; OT, MSW and Psychology. In this survey, the availability of a service did not always infer a gold-standard service based on patient clinical need, with 6 of the 7 professions restricted to offering a limited service due to staff availability or lack of experience. Identical to the UK workforce survey, this survey identified that services with funding specific to critical care investment had the highest staff to patient ratio, although none were compliant with the national standards for minimum staffing outlined in the MOC for adult critical care, 2014.

Using the MOC (2014) guidelines for staffing, funding for each new critical care bed is approved by the DoH and allocated to service delivery units. Investment in HSCP and pharmacy is then made at the discretion of the service delivery unit. Unfortunately, and as this study demonstrates, this investment does not always align with the MOC (2014) staffing recommendations, with less familiar professions often receiving the least investment. Improving service delivery unit's knowledge on the role and value which HSCPs and pharmacy bring to the critical care MDT may help ensure appropriate investment is made. Additionally, reviewing the oversight of the investment process to ensure alignment with the MOC staffing recommendations may be advantageous.

National standards for staffing in critical care recommend that HSCP and pharmacy working in critical care be of Senior or Clinical Specialist grade and have previous experience. This survey identified that 16% of HSCP and pharmacy staff are below this grade (staff grade). In the UK, staff grading structures do not align with those in Ireland, making comparison difficult. However, based on approximate level of experience used to develop both the UK and Irish grading structures (Senior = band 6, Clinical specialist = band 7, Band 8 = manager), staff frequencies in critical care for PT, OT, SLT and DT are of a higher grade in the UK in comparison to Ireland. Differences in reporting formats (head count v WTE) makes direct comparison difficult, however, greater than 98% of units in the UK have access to a PT, OT, SLT and DT at band 7 grade (clinical specialist) and 25% of PT and SLT have at least one member of staff at band 8a (manager) or above. In comparison, only 20% of PT, OT, SLT and DT staff working

in critical care units in Ireland are at clinical specialist level and 1% at manager level. The consequences of less clinical specialist grade staff primarily results in less clinical experience, research and service development. Both HSCP and Pharmacy in Ireland are currently undergoing a career structure review. This review may result in a change to the grade recommendations of those working in critical care. Once these career structure reviews are completed and implemented, workforce plans for HSCP and Pharmacy in critical care may need to be reviewed and updated.

PT assistant, SLT assistant, OT assistant and Psy assistant are currently a grade in the Irish public healthcare system. There is no grade for DT assistant or generic therapy assistant. All of these 'assistant' roles are currently unregulated in Ireland. Despite this, assistant grade staff in critical care are becoming increasingly recognised in the UK owing to their ability to support HSCP to rehabilitate critically ill patients and by doing so, free up valuable HSCP/pharmacy time resulting in cost saving benefits (FICM, 2022). 2.5 (3%) of the reported critical care WTEs are therapy assistant grade in Ireland in comparison to 103 (HC) therapy assistants in the UK, the majority of which are PT assistants. The MOC (2014) does not include therapy assistant grade staff within the staffing recommendations. Given the growing appreciation for the role that therapy assistant grade staff can play in critical care, it may be beneficial to consider including them in national staffing recommendations in the future.

Pharmaceutical technicians were not included in the scope of this survey. Similar to Assistant grade staff, their role within critical care warrants consideration in national staffing recommendations.

This research was commissioned to focus on the 'end of bed' HSCP therapy professions and pharmacy. Consequently 'interventional' HSCP professions were outside the scope of this survey. Interventional HSCP professions often undertake roles 'behind the scenes' of the critical care unit. Examples include twice daily analysis and interpretation of blood samples by a Clinical Scientist, ECHO examinations/ teaching and cardiac rhythm management by a cardiac physiologist, daily imaging such as x-rays, CT scans and MRIs by radiography and setting up and maintenance of complex medical equipment such as nitric oxide machines or dialysis machines by clinical engineering. These HSCPs play a pivotal role in critical care and without their expertise, a high quality critical care service cannot be delivered. A critical care workforce plan should ensure inclusion of interventional HSCP professions, at a minimum, Radiography, Clinical Scientist, Clinical Measurement and Clinical Engineering.

4.2 Recruitment

In March 2023, the HSE published a quarterly staff turnover report. It highlighted *'In Acute Services the reported Turnover Rate is 2.2%. At hospital group level Dublin Midlands Hospital Group is reporting the highest turnover rate this quarter at 2.7%. At Staff Category level Health & Social Care Professionals recorded the highest turnover rate at 3.1%'* (HSE, 2023). This staff category level also included pharmacy. The results of this survey found similar difficulties with recruitment and retention, with almost 15% (20.5 WTE) of funded posts vacant, the largest vacancies experienced by MSW, SLT and OT. The largest barriers to recruitment included difficulty recruiting to temporary or part-time posts, high cost of living and lack of accommodation in Dublin, inability to back-fill posts if internal promotions occur, lack of relevant experience and inadequate supply of college graduates. In a recent supply/demand review undertaken by the National HSCP Office in September (2022), they reported that seven times more DT graduates, triple the OT graduates and twice the PT, medical scientist, radiography and psychology graduates were needed to meet the demand across the HSE. The HSE resourcing strategy 2023 states that demand is projected to be particularly acute for HSCP and identifies significant gaps between the supply of qualified HSCPs from domestic programmes and the demand for HSCPs across the services (HSE, 2023). These challenges have been previously defined by the national HSCP office in the HSE HR resourcing strategy (2023) and work is ongoing between the

National HSCP office, professional bodies and HEIs to increase graduate numbers. Progress is limited due to the under-resourced infrastructure for clinical placements for college students. Pharmacy are similarly experiencing challenges with supply/demand disparity as highlighted by these survey findings. Similar to HSCP, these challenges are not confined to critical care and are highlighted in the recent Workforce Intelligence Report (PSI, 2023)

4.3 Roles and responsibilities

In Ireland, there are no pre-defined national minimum standards for clinical practice by HSCP and pharmacy in critical care. However, professional groups in this survey reported regular use of interventions previously recognised within the literature (Twose,*et al.,* 2023; Borthwick *et al.,* 2023). These results can be used as a baseline for future research, and also help support the development of education and training support structures and pathways.

HSCP and Pharmacy in Irish critical care units are also involved in indirect roles, albeit to varying extents. Indirect roles are all those outside of direct patient contact (and direct staff support as delivered by Psy) and can involve facilitation of learning, leadership, research, audit and quality improvement. Despite its reported importance internationally by Twose *et al*., (2023) and Borthwick *et al.,* (2023) in the UK and incorporation into professional development framework documents and critical care standards in the UK (ICS, 2018; FICM, 2022), pre-defined national minimum standards on indirect roles for HSCP and pharmacy have not been set.

In Ireland, HSCP and pharmacy are organised differently to deliver their care. This survey explored the roles and responsibilities which relate to critical care specifically, but many of these also relate to ward based practices too. Within and outside critical care, both HSCP and pharmacy are core members of the MDT. However, in general, HSCP play a more active role rehabilitating patients. Similar to ward-based practices, this survey found that critical care HSCP regularly attend MDT meetings, complex case meetings and family meetings. In contrast to this, and in keeping with general ward based practice, critical care pharmacists do not usually attend MDT meetings or complex case meetings. Critical care pharmacists reported taking a more active role in ward rounds, research meetings, and audit and quality improvement meetings. In the comments section of this survey, time, experience, and resources were all listed as barriers to undertaking more indirect roles within the ICU unit. Where there is limited availability of resources, clinical duties must be prioritised. This reduces their ability to engage with and contribute to indirect areas of activity which in turn impacts on the overall quality of the service.

It is likely that current roles and responsibilities may change on the completion and implementation of the career structure review due to be undertaken for HSCPs and Pharmacy. This is likely to impact workforce plans for critical care in the future and should be considered.

4.4 Service delivery

The theme of inadequate time, experience and funding follows through to service delivery. As recommended, Irish nursing colleagues calculate an additional 20% staffing level for planned unavailability or 'headroom' (Drake, 2020). The majority of professions in this survey do not calculate headroom and reported 'no funded cover' during periods of planned leave. This lack of cover for planned unavailability has been previously reported by others (Critical Care Committee of the UK Clinical Pharmacy Association, 2022). Instead, they must provide 'cross cover' and/or a limited service. Staff are not always dedicated to ICU and are required to cover multiple clinical areas. Their ability to dedicate time specifically to critical care MDTs / ward rounds/ research meetings and other indirect roles will therefore be limited. 'Cross cover' of clinical areas is not specific to critical care, nor is it specific to

periods of planned leave. It is also a result of the 'style' of service being operated by a given HSCP/Pharmacy department because of how it developed. This contrasts to Irish national standards for critical care which recommends staff should be 'dedicated 'to critical care, as it has been shown to lead to better patient outcomes (Shulman *et al*., 2015; Algeo, 2019; Soguel *et al*., 2012). Changing a department's service delivery style to become 'dedicated' to a specific area would have implications across the services, not just for critical care. However, this study indicates that 'cross cover' is impacting on service delivery and therefore warrants further consideration.

Working conditions are often inflexible with 4 of the 7 professions not having the flexibility to work remotely. While remote working may be an employment incentive, it is not always possible for these professions given the nature of the service that they deliver (patient-facing). Where remote working was specifically requested, and given that critical care medical notes are almost all electronic, many non-clinical duties could be performed remotely, such as virtual meetings, research or audit.

The MOC guidelines recommends that HSCP staff should operate a five day service except for PT staff who should operate 24/7 service. Findings from the survey found 100% compliance with this recommendation. There is no recommendation for pharmacy with respect to provision of a five or seven day service in Ireland. UK-based guidelines for critical care recommend that HSCP and Pharmacy staff should consider operating a seven day service and this recommendation has started to come into effect in the UK where PT, OT, SLT and Psy reported delivery of a seven day service (97.2%, 7.7%, 6.5%, and 1.6%) (FICM, 2022; NHS England, 2016; Twose *et al.,* 2023).

Similar to this study, UK clinical pharmacists have recently highlighted the lack of weekend service provision in UK hospitals as a major problem, reporting that '2.7% of all UK pharmacist time is deployed at weekends' (Broderick *et al.,* 2023). These findings contrast to the 2016 report published by NHS England which clearly outlines the importance of implementing a seven day clinical pharmacy service in the acute setting (NHS England, 2016). It also contrasts with UK guidelines for the provision of intensive care services which recommends 'Patients receiving rehabilitation must be offered therapy by the multi-professional team across a seven-day week and of a quantity and frequency appropriate to each therapy, in order to meet the clinical need and rehabilitation plan for an individual patient'. In the presence of labour shortages in Ireland and the workforce gap we currently have in critical care, this scenario is unlikely to be achievable in the short term. Regardless, as a gold standard, it should be considered in any revision of national staffing recommendations.

4.4.1 Critical care rotations for staff grade staff

The MOC staffing guidelines recommends senior or higher grade HSCP and pharmacy staff to be employed in critical care. This recommendation is due to the complex skillset that critical care patients require from senior and clinical specialist experienced staff. Despite this, results from this survey found 16% of HSCP and pharmacy staff employed in critical care to be staff grade. The majority of these are PT. This survey did not assess the level of training or support that these staff grade staff receive from senior colleagues. Critical care is not routinely offered as a rotation for staff grade posts across the other 6 professions due to its complexity and lack of training supports/infrastructure. In the presence of a workforce gap, restricting roles to senior or clinical specialist grade will limit critical care competency within a department, limit the pool of staff who can 'cross cover' or provide out of hours service provision. It also limits the pool of staff eligible to apply for a critical care post in the future as they often require critical care experience. While it would not be safe to consider that a new graduate would be clinically competent to care for a critically ill patient autonomously or possess the leadership / research / education skills required to lead a critical care service, facilitation of critical care training in a supported and controlled manner may be advantageous. This Introduction of critical care as a

rotation for many of the HSCP professions would be a change of practice. It would require the development of an education and training infrastructure, including an education facilitator, to ensure the delivery of a safe and quality service. Any change in grade recommendations would need to be considered for inclusion in the MOC guidelines, which currently recommends senior grade staff or higher to work in critical care.

4.5 Rehabilitation services

With an ageing population and advancements in critical care medicine, demand for critical care is increasing while ICU mortality is improving. The Government strategic plan set out in 2020 to increase critical care bed capacity in Ireland aligns with this rising demand. In addition to the rising demand for critical care beds, survivorship is emerging as a major concern for critical care medicine in recent years. Consequently, the number of ICU survivors is rising, creating an urgent need to address survivorship. Post ICU survival is associated with equally complex and challenging rehabilitation requirements. Recent research and international guidelines clearly outline the importance of HSCP and pharmacy involvement following discharge from ICU, both at ward level and following hospital discharge (NICE, 2017; FICM, 2022). At present, the MOC for adult critical care (2014) does not include recommendations on post-ICU rehabilitation for critical care patients in Ireland.

As the concept of ICU rehabilitation is still emerging in Ireland, and in the absence of national guidelines to support it, service structures and funding is limited. According to survey results, 0-20% of critical care units provide an OT, DT, PT, SLT or pharmacy follow up service post-ICU. Some of these services are on a short term research basis only and others stem from COVID-related funding. While MSW and Psychology had the largest workforce gaps across all professions, and a service was only funded in a limited number of units, outpatient follow up was available and reported as 'funded' most often post-ICU, but this likely relates to their role scope (scope includes ICU AND follow up care) as opposed to investment specifically for ICU rehabilitation (MSW: 10 of 26 units provided an ICU service. 3 units were funded to provide MSW rehabilitation post-ICU discharge. 2 of 26 units provided a Psychology ICU service. 1 unit was funded to provide ICU rehabilitation post discharge).

Overall, access to all professions in the post-ICU period was lower than that in the UK (Twose *et al., 2023*). ICU rehabilitation is still emerging in Ireland. International guidelines highlight the importance of rehabilitation in improving ICU survivorship. Given the growing number of ICU survivors with complex rehabilitation needs, consultation between the national clinical programme for rehabilitation medicine and national clinical programme for critical care may be useful to explore the role of ICU rehabilitation in the Irish public system.

4.6 Education and training

Education and training encompass both the receiving and delivering of education. In terms of receiving education, or education needs, the medical and nursing critical care workforce have a clearly outlined post-graduate education and training strategic plan and have sought investment to develop this to support recruitment and retention. In comparison, HSCPs and pharmacy staff working in critical care currently have no post-graduate education pathway or strategic plan, although this study provides a high-level view of their needs (this excludes Psy who require a post-graduate doctorate). Additionally, there are no formal national competencies for HSCP or pharmacy in critical care to form a framework for education and training. While there is no education strategic plan in place, national standards recommend CPD +/- specialised post-graduate training. HSCPs who qualified oversees may need to complete post-graduate training to demonstrate competence if they did not graduate with the core skills deemed essential for the role in Ireland. In this survey a clear need for an education strategic

plan was identified, with over 80% of HSCPs reporting that dedicated learning is required to meet core competencies for critical care.

This survey explored the role of education and training in relation to the HSCP and pharmacy workforce in critical care. Key themes identified included;

1. *"Lack of critical care experience/knowledge as a major barrier to recruitment"*
2. Apart from physiotherapy, "*students do not routinely undertake practice placement in critical care as it is too complex/ requires more tutor time/ no practice placement tutors / no competency framework to support the student in critical care"*
3. Apart from physiotherapy, "*junior rotational posts in critical care are not common practice across HSCP as there is no experienced staff member to train junior staff / no time to train junior staff / no competency framework to support the training of junior staff"*
4. Rotational posts for psychology are not practical or feasible due to the operational structure of the department. Doctorate level professional training (an essential prerequisite to working in critical care) only facilitates one specialist training placement during the course of the training. Given the highly specialist nature of critical care and the relative lack of posts in the area (2 WTE nationally), it is unlikely to be an attractive area for a psychologist to specialise in.

In the absence of a critical care workforce plan for HSCP and pharmacy, the HSE have not been in a position to seek investment in CPD like other professions such as nursing and medicine. This survey demonstrates the need for a focus on CPD for HSCP and pharmacy working in critical care and the development of a workforce plan that considers appropriate CPD. Ring fenced funding should be sought on the basis of a business case clearly outlining the need for the investment as identified by this survey

Respondents of this survey reported a deficit of applicable courses available in Ireland. Where relevant post-graduate training is available, they tend to be "*short weekend courses which are not accredited and content not standardised*". Staff who choose to enrol in an applicable course often do so at their own expense while leaving departments short-staffed on days away. Unlike the career pathway outlined for doctors and nurses that allow them to progress through their education and training in critical care, there is no similar equivalent career pathway for HSCP or pharmacy in critical care. The benefits of CPD have been clearly outlined previously in a statement published by the national HSCP CPD subgroup; "it benefits the service user, individual profession, service provider and the larger profession" (National HSCP office, 2017). The education and training structure for HSCP and pharmacy in critical care would benefit from a review. The ability to avail of CPD and additional skills training, education and qualifications can provide incentives to staff to work in critical care and to remain within the service.

A recent framework on advanced practice published by the national HSCP Office stated "*many skilled HSCP are lost to clinical practice due to severely limited role promotions other than management roles. Recognition of career progression pathways to include advanced practice can only have a positive impact on recruitment and retention of HSCP"* (National HSCP office, 2023). Without addressing these shortfalls, the workforce gap across HSCP and pharmacy in critical care will continue to grow (National HSCP office, 2017).

A key element of the HSCP and pharmacy roles in general is to deliver education to other members of the MDT. The value which a doctor or nurse may place on a HSCP or pharmacist in critical care often

relates to their knowledge and understanding of their role, and how it relates to patient outcomes. Knowledge can be improved with regular education sessions for each new rotation of staff which occurs every three to six months. Education was delivered by 64-88% of professions in this study, annually or more often, to the wider MDT. MSW delivered the least amount of education (64%). This survey found that Irish hospital ICU units have the least input from MSW and Psychology. Where input is available, education is provided to the hospitals they work in, whereas units without their input may be unaware of their value due to a lack of exposure and understanding of the role. It is likely that critical care investments are made by hospitals in familiar skillsets such as medical and nursing rather than unfamiliar HSCPs. This is evidenced by the lack of investment and huge workforce gaps found in this survey for these professions. Capacity to deliver education by the critical care MSW and Psy professions is limited due to limited specialist numbers in Ireland (7 MSW WTEs, 2 Psychology WTEs). Consideration should be given on how their role and value can be promoted to the wider MDT, specifically in the area of education and research.

4.7 Monitoring and evaluation

Audit is a function which the National Office for Clinical Audit (NOCA) carries out on behalf of the HSE through the office of the CCO. NOCA measures the quality of care in each ICU through audit, benchmarking against international standards. They measure activity within participating ICUs to help improve the standard of critical care within hospital groups and across the country. At present, NOCA do not audit any data directly relating to HSCP or Pharmacy. ICU audit co-ordinators collect data indirectly relating to these professions such as body weight and route of feeding but no information is collected which could be benchmarked against a standard.

There is also the National Quality and Patient Safety Directorate (NQPSD) within the office of the CCO. Quality metrics provide an indication of the quality of care provided. In the presence of a workforce gap, recording and reporting of quality metrics would likely highlight a decrease in patient care. In this survey, only 33% of the workforce had pre-defined quality metrics. This likely represents an absence of time, resource availability and research skills. There are no nationally defined quality metrics for HSCP or pharmacy in critical care.

Engagement with NOCA and the NQPSD is needed to review the quality structures in place for HSCP and pharmacy to support the development of performance measures and quality measures across critical care to include HSCP and pharmacy.

5 Conclusion

Critical care services in Ireland are expanding. Unlike nursing and medical colleagues, no national workforce plan for HSCP and pharmacy in critical care exists. This research was therefore commissioned by Acute Operations to inform the future workforce plan, for HSCP and pharmacy, to support the Phase 2 additional capacity for critical care services in Ireland.

Despite best practice recommendations and the long standing recognition of the role of HSCP in critical care, 24 of 26 ICU units in Ireland have no Psy service, 14 out of 26 units have no MSW service and 11 of 26 units have no OT service.

The combined HSCP and pharmacy workforce in critical care in Ireland is currently at 139.18 WTE (1.2% of the HSCP and 2.3% of the pharmacy HSE Acute WTE employees). 20.5 WTE funded positions are currently vacant due to recruitment/retention challenges which stem from a combination of profession related barriers (e.g. low graduate numbers/limited career progression) and critical care specific barriers (e.g. lack of education and training supports). A HSE workforce report for Quarter 1 2023 highlighted the highest turnover rate of 3.1% among HSCP and pharmacy in comparison to other

staff categories, and this was highest within the Dublin Midlands Hospital Group (HSE, 2023). While this is not specific to critical care, it will negatively impact the recruitment capacity to new critical care posts in the Dublin Midlands region.

A workforce plan focused on recruitment and retention will be necessary to meet the current and future workforce requirements for critical care. This survey identified a number of challenges which will negatively impact recruitment and retention of HSCP and pharmacy to critical care;

- Challenges filling existing funded posts (20.5 WTE vacancies currently)
- Existing workforce gap due to lack of investment in HSCP roles (additional 114.98 WTE required to meet MOC for Critical Care 2014 minimum standards)
- High staff turnover rates amongst HSCP/Pharmacy in Dublin (3.1%) where majority of critical care beds are located
- Service expansion and increased demand (additional 105.6 WTEs required to open 106 new critical care beds in 2025/2026)

This Irish workforce analysis of HSCP and pharmacy in critical care identified a number of challenges which will negatively impact the sustainability of a HSCP and pharmacy workforce:

- Inadequate investment in HSCP and pharmacy working in critical care
- Lack of critical care experience/knowledge as a major barrier to recruitment
- Students do not routinely undertake practice placement in critical care, limiting experience
- Critical care rotations for junior members of staff are not common practice, limiting training and experience

These findings demonstrate that achieving the minimum standards for staffing in critical care will be challenging and requires commitment from operational and strategic stakeholders both within and outside the critical care remit.

Seven key recommendations have been developed using the results of this survey. Each recommendation is designed to support the development of a HSCP and Pharmacy workforce plan for critical care. Recommendations which have implications across the services, not just for critical care, are framed as ‘generic to the profession’. Several of these recommendations have been previously identified by the National HSCP Office and link to the ‘HSE HR resourcing strategy April 2023, resourcing our future’. These recommendations will require the need to work with stakeholders to progress high service impact actions previously identified by the national HSCP office, such as increasing graduate numbers, improving the infrastructure to support clinical placements, enabling early recruitment of graduates, increasing the number of trainee psychologists and addressing challenges arising with professional registration processes. As Pharmacy were not part of the HSE HR resourcing strategy April 2023 progressing recommendations may be more challenging until an approach to provide for pharmacy representation at leadership level is identified.

6 Key Recommendations

As noted above, the aim of this survey was to explore the existing HSCP and pharmacy workforce to inform the development of a workforce plan for these health professions in critical care. The findings of the survey suggest that some of the challenges identified are not specific to critical care but are challenges for the HSCP and pharmacy workforce as a whole. The recommendations are presented below in that context with reference to the internal and external stakeholders with whom it will be necessary to engage to address these challenges and identify work already in train which can inform and support the work in critical care.

6.1 Workforce

Generic to the profession

- The survey results indicate a need to develop an overarching integrated workforce strategy for HSCPs and pharmacists to include staff planning and forecasting across the health service to include critical care.

Critical care specific

- Provide data and information about the role and impact on patient outcomes of HSCP and pharmacy in critical care to hospitals, hospital groups and stakeholders
- Work with commissioners of services, hospital groups and hospitals to ensure alignment with the Critical Care Model of Care staffing including HSCP and Pharmacy roles in developing business cases for investment in increased critical care capacity.
- Work with commissioners of services, hospital groups and hospitals, to ensure consideration of the following when seeking investment:-
    - Ensuring capacity for staffing services when staff take leave
    - Consider development opportunities by providing a mix of rotational junior staff and at least 1 dedicated senior / clinical specialist member of staff.
    - Explore/develop the role of assistant therapy grade staff in critical care in Ireland
- National clinical critical care programme to consider review of the MOC guidelines 2014 to;
    - Incorporate missing HSCP professions and update WTE recommendations on included professions.
    - Recalculate WTE ratios to include 20% headroom
    - Grade recommendation: WTEs should continue to be Clinical Specialist/ Senior grade, but consider addition of at least 1 rotational junior staff member
    - Explore/develop the role of therapy assistant grade staff in critical care in Ireland
- Ensure consideration of interventional therapy professions in future workforce plans for critical care and in submissions for investment

6.2 Ensuring a supply of appropriately skilled HSCP professionals

Generic to the profession

- Work with Higher Education bodies and professional bodies to develop and resource increased training places to ensure current and future demand can be met
- Develop and resource additional practice placements within the system to allow the increased numbers to be fully trained

- Increase international recruitment to attract new talent and encourage the return of Irish students from abroad
- Explore incentives to attract candidates and to support early career HSCPs/Pharmacy e.g. link with stakeholders re possibility of location specific supports

Critical care specific

- HR review of employment T&Cs around remote/flexible working opportunities where currently not being offered.
- Work with Higher Education bodies and professional bodies to incorporate critical care into student training and practice placement schedules if not currently included.
- Work with Higher Education bodies and professional bodies to develop a competency framework to support student training and staff grade training in critical care.
- Where critical care training has not been provided, work with investment stakeholders to recruit staff 3 months ahead of beds opening to allow for competency based structured training to be completed.

6.3 Retention

Generic to the profession

- Explore incentives to support staff with cost of living issues e.g. link with stakeholders re possibility of location specific supports
- Develop and submit business case for investment to increase the number of clinical specialist roles and support implementation of the HSCP Advanced Practice framework and Advanced Specialist Pharmacist grade, to allow career progression and improve retention rates
- Utilise existing HR policies to provide flexible working opportunities including flexi-time and remote working opportunities

Critical care specific

- Develop clinical competency framework for HSCP in critical care
- Develop professional competency framework for HSCP in critical care to include the 4 pillars of advanced practice; clinical practice, leadership and management, education and facilitation of clinical learning and evidence research and development
- Develop business case to seek investment in CPD funding for HSCPs and pharmacy staff working in critical care

6.4 Service delivery

Critical care specific

- Review the model by which HSCP services are currently provided with specific attention given to
    - Dedication of senior and clinical specialist staff to critical care
    - Implementation of a 7 day service

6.5 Rehabilitation services

Critical care specific

- The national clinical programme for critical care should consider an assessment of the need for ICU rehabilitation and post ICU rehabilitation services in Irish hospitals. Where a need is identified, a business case for investment in dedicated staffing to support this service would need to be developed.

6.6 Education and training

Specific to critical care

- Develop a business case for investment in HSCP critical care education to enable;
    - Recruitment of a HSCP critical care education lead
    - Development of a strategic education and training framework for HSCP in critical care to include a short; medium; and long-term plan
    - Development of a competency framework to support student training and staff grade supervision in critical care
    - Review of undergraduate curriculum to incorporate a module on critical care
    - Review of doctorate level professional psychology training to include teaching on the psychological impact of critical illness
    - Review of student practice placement policies to include exposure to critical care where possible
    - Adequate practice placement tutor posts to support students training in critical care
    - Ring fenced funding for CPD specific to critical care
    - Work with the Joint faculty of intensive care medicine (JFICM) and association of critical care nurses (ACCN) to develop and deliver standardised education sessions on the role and value of the MDT in critical care.
- Work with HSCP and Pharmacy professional bodies to develop communities of practice to promote and support shared learning across critical care sites

6.7 Monitoring and evaluation

Critical care specific

- Engage with NOCA and the National Quality and Patient Safety Directorate to review the quality structures in place for HSCP and pharmacy to support the development of performance measures and quality measures across critical care to include HSCP and pharmacy.
- Data collected and audited in critical care should include the audit of data directly relating to HSCP and pharmacy in critical care
- Develop national quality metrics for HSCP in critical care and report annually
    - HSCP WTEs in critical care against MOC 2014
    - Service delivery provided by HSCP WTEs in critical care (limited versus full)
    - HSCP turnover rates in critical care
- Develop local quality metrics for HSCP in critical care and report annually
    - Compliance with clinical competency framework
    - Compliance with professional competency framework

7 Action plan

Domain	Aim	Quality metric	Action
Workforce	There should be adequate workforce numbers to support the optimal running of existing and new critical care beds/services	HSCPs represented in critical care HSCP WTEs who are dedicated to critical care HSCP grade distribution in critical care	Generic to the profession • Develop an overarching integrated workforce strategy for HSCPs and pharmacists to include staff planning and forecasting across the health service to include critical care Critical care specific • Provide data and information about the role and impact on patient outcomes of HSCP and pharmacy in critical care to hospitals, hospital groups and stakeholders • Work with commissioners of services, hospital groups and hospitals to ensure alignment with the Critical Care Model of Care staffing including HSCP and Pharmacy roles in developing business cases for investment in increased critical care capacity. • Work with commissioners of services, hospital groups and hospitals, to ensure consideration of the following when seeking investment:- ○ Ensuring capacity for staffing services when staff take leave ○ Consider development opportunities by providing a mix of rotational junior staff and at least 1 dedicated senior / clinical specialist member of staff. ○ Explore/develop the role of assistant therapy grade staff in critical care in Ireland

			• National clinical critical care programme to consider review of the MOC guidelines 2014 to;
			  ○ Incorporate missing HSCP professions and update WTE recommendations on included professions.
			  ○ Recalculate WTE ratios to include 20% headroom
			  ○ Grade recommendation: WTEs should continue to be Clinical Specialist/ Senior grade, but consider addition of at least 1 rotational junior staff member
			  ○ Explore/develop the role of therapy assistant grade staff in critical care in Ireland
			• Ensure consideration of interventional therapy professions in future workforce plans for critical care and in submissions for investment

Supply	Supply of appropriately skilled HSCP professionals should be available for recruitment and sustainable	Vacant funded posts	Generic to the profession • Work with Higher Education bodies and professional bodies to develop and resource increased training places to ensure current and future demand can be met • Develop and resource additional practice placements within the system to allow the increased numbers to be fully trained • Increase international recruitment to attract new talent and encourage the return of Irish students from abroad • Explore incentives to attract candidates and to support early career HSCPs/Pharmacy e.g. link with stakeholders re possibility of location specific supports Critical care specific • HR review of employment T&Cs around remote/flexible working opportunities where currently not being offered.

			• Work with Higher Education bodies and professional bodies to incorporate critical care into student training and practice placement schedules if not currently included. • Work with Higher Education bodies and professional bodies to develop a competency framework to support student training and staff grade training in critical care. • Where suitable candidates do not have critical care experience, work with investment stakeholders to recruit staff 3 months ahead of beds opening to allow for competency based structured training to be completed.
Retention	Retention of suitable HSCP / pharmacy workforce should be prioritised A career in critical care should exist which allows the HSCP/Pharmacist to continually advance within their role. Staff working in critical care should be clinically and professionally competent	Staff turnover rate Compliance with clinical competency framework for HSCP in critical care (to be developed) Compliance with professional competency framework for HSCP in critical care (to be developed)	Generic to the profession • Explore incentives to support staff with cost of living issues e.g. link with stakeholders re possibility of location specific supports • Develop and submit business case for investment to increase the number of clinical specialist roles and support implementation of the HSCP Advanced Practice framework and Advanced Specialist Pharmacist grade, to allow career progression and improve retention rates • Utilise existing HR policies to provide flexible working opportunities including flexi-time and remote working opportunities Critical care specific • Develop clinical competency framework for HSCP in critical care • Develop professional competency framework for HSCP in critical care to include the 4 pillars of advanced practice;

			clinical practice, leadership and management, education and facilitation of clinical learning and evidence research and development • Develop business case to seek investment in CPD funding for HSCPs and pharmacy staff working in critical care

Service delivery	All critical care patients should receive a quality service from an experienced member of staff, when indicated.
	
	There should be ongoing development and review of the service in line with evidence research.
		At least 1 member of the team is senior grade or higher and dedicated to ICU.	Critical care specific
			• Review the model by which HSCP/Pharmacy services are currently provided with specific attention given to
			  ○ Dedication of senior and clinical specialist staff to critical care
			  ○ Implementation of a 7 day service

Rehabilitation service	The need for a critical care rehabilitation service for critically ill survivors should be assessed	Post-ICU rehabilitation service supported by HSCP/Pharmacy if required	Critical care specific • The national clinical programme for critical care should consider an assessment of the need for ICU rehabilitation and post ICU rehabilitation services in Irish hospitals. Where a need is identified, a business case for investment in dedicated staffing to support this service would need to be developed.
Education and training	All critical care HSCP and pharmacy staff should	Recruitment of HSCP education lead, critical care	Specific to critical care • Work with HSCP and Pharmacy professional bodies to develop communities of practice to promote and support shared learning across critical care sites

	have training in critical care, including integrated assessment, goal setting and the use of validated assessment and outcome measures.	Undergraduate curriculum includes critical care education Student practice placement includes critical care exposure Critical care rotations are offered and supported to those in staff grade posts Applicable CPD courses for HSCP in critical care are identified Funding available for critical care CPD Practice placement tutor dedicated to critical care Nursing and doctor education curriculum includes education session from HSCP and pharmacy every 6 months.	• Develop a business case for investment in HSCP critical care education to enable; ○ Recruitment of a HSCP critical care education lead ○ Development of a strategic education and training framework for HSCP in critical care to include a short; medium; and long-term plan ○ Development of a competency framework to support student training and staff grade supervision in critical care ○ Review of undergraduate curriculum to incorporate a module on critical care ○ Review of doctorate level professional psychology training to include teaching on the psychological impact of critical illness ○ Review of student practice placement policies to include exposure to critical care where possible ○ Adequate practice placement tutor posts to support students training in critical care ○ Ring fenced funding for CPD specific to critical care ○ Work with the Joint faculty of intensive care medicine (JFICM) and association of critical care nurses (ACCN) to develop and deliver standardised education sessions on the role and value of the MDT in critical care.
Monitoring and evaluation	Provide and report on a service which is quality assured	National QM: 1. HSCP WTEs in critical care against MOC	Critical care specific • Engage with NOCA and the National Quality and Patient Safety Directorate to review the quality structures in place

		recommendations; WTEs and grade 2. Service delivery provided by HSCP/Pharmacy WTEs in critical care 3. HSCP/Pharmacy turnover rates in critical care Local QM: 1. Compliance with clinical competency framework (to be developed) 2. Compliance with professional competency framework (to be developed)	for HSCP and pharmacy to support the development of performance measures and quality measures across critical care to include HSCP and pharmacy. • Data collected and audited in critical care should include the audit of data directly relating to HSCP and pharmacy • Develop national quality metrics for HSCP in critical care and report annually ○ HSCP WTEs in critical care against MOC 2014 ○ Service delivery provided by HSCP/Pharmacy WTEs in critical care ○ HSCP/Pharmacy turnover rates in critical care • Develop local quality metrics for HSCP in critical care and report annually ○ Compliance with clinical competency framework ○ Compliance with professional competency framework

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9. Appendix

9.1 Acknowledgements

The HSCP and Pharmacy critical care workforce report has been developed with and by representatives from across our health service. 15 HSCP and Pharmacy representatives formed the critical care advisory group. They brought their insight and expertise from their professions and individual grade categories. The National HSCP office and Acute Operations division, HSE, provided strategic direction and support throughout the process. Participating hospital sites and hospital personnel facilitated data collection which made analysis possible. I would like to sincerely thank all of these colleagues who contributed significantly to this report.

9.1.1 HSCP & Pharmacy Critical Care Advisory Group Members

Profession	ICU Senior/Clinical Specialist representative	Hospital	Manager representative	Hospital
Occupational therapy	Rachel Collins	SVUH	Johanne Kelly	UHG
Speech and language therapy	Aine Murphy	MUH	Jacinta Curley	WGH
Pharmacy	Denise Leamy	CUH	Mary Coyle	TUH
Medical social work	Eimear O Connor	MUH	Paula Markey	SJH
Medical social work	Nicola Flynn	SVUH		
Psychology	Melanie Ryberg	TUH	Sinead Mulhern	MUH
Physiotherapy	Eimear Mc Cormack	TUH	Eimear Walsh	TUH
Dietitian	Jenny Caffrey	SVUH	Sandra Brady	SJH

9.1.2 Strategic direction and support

Name	Role	Department	Contribution
Prof Mary Day	National Director	Acute operations, HSE	Strategic oversight
John Smith	Assistant National Director	Acute operations, HR	Operational oversight
Catherine Clarke	Assistant National Director	Acute Operations	Strategic Oversight
Carol Ivory,	General manager	Acute operations, HSE	Strategic oversight
Ruth Kilcawley	Development manager	National HSCP office	Operational oversight
Jackie Reid	General manager	National HSCP office	Strategic oversight
Dr Mike O Connor	NCAGL	Acute operations, HSE	Strategic oversight

Fiona Melia	Development manager	National HSCP office	Operational oversight
Mary O' Dwyer Baggot	National ICU Audit Manager	NOCA, HSE	Consultation
Dr Philippa Ryan Withero	Assistant National Director	Strategic Workforce Planning & Intelligence Unit, HSE	Consultation
Derek Cribbin	Critical Care Nurse Lead	Critical care Workforce planning, HSE	Operational oversight
Dr Martina Healy	Clinical lead	National Clinical Programme Critical Care	Operational oversight
Dr Enda O Connor	Chair Training Committee JFICMI	Critical care Workforce planning, HSE	Operational oversight
Paul Twose	Clinical specialist physiotherapist	University Hospital of Wales, Cardiff, UK	Consultation
Mark Borthwick	Consultant Pharmacist, Critical Care	Oxford University Hospitals NHS Foundation Trust	Consultation

9.1.3 Survey facilitation

HOSPITAL SITES	
RCSI Hospital Group	Cavan General Hospital
	Our Lady of Lourdes Hospital, Drogheda
	Beaumont Hospital
	Connolly Hospital Blanchardstown
Ireland East Hospital Group	Our Lady's Hospital, Navan
	Mater Hospital
	St Vincent's University Hospital
	St. Luke's General Hospital, Kilkenny
	Wexford General Hospital
	Midland Regional Hospital Mullingar
Dublin Midlands Hospital Group	Naas Hospital
	Midland Regional Hospital Portlaoise
	Midland Regional Hospital Tullamore
	Tallaght University Hospital
	St James's Hospital
Saolta Hospital Group	Letterkenny General Hospital
	Mayo General Hospital
	Sligo University Hospital
	University Hospital Galway
	Portiunula Hospital
South South West Hospital Group	Cork University Hospital General ICU
	Mercy University Hospital
	University Hospital Kerry

	University Hospital Waterford
	Tipperary University Hospital
Limerick University Hospital Group	University Hospital Limerick

HOSPITAL PERSONNEL
Hospital group CEOs
Hospital CEOs
ICU Directors
HSCP managers and HSCP manager representatives, acute hospitals
Department managers Clinical HSCP and pharmacy staff, ICU