An Roinn Sláinte
Department of Health

Framework for Safe Nurse Staffing and Skill Mix in General and Specialist Medical and Surgical Care Settings in Adult Hospitals in Ireland 2018

Final Report and Recommendations by the Taskforce on Staffing and Skill Mix for Nursing

Office of the Chief Nurse


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Foreword by the Minister for Health

I am pleased to publish this Final Framework for Safe Nurse Staffing and Skill Mix in General and Specialist Medical and Surgical Care Settings, by the Taskforce on Staffing and Skill Mix for Nursing. The contribution to safe care and patient experience made by the nursing team is critical to our health services, and therefore determining the right nurse staffing resource is a vital component. This framework is the result of careful consideration of the totality of the nursing team with a firm focus on patient outcomes and sets out key guidance for services, on how to determine safe nurse staffing and skill mix in medical and surgical wards across our acute hospitals. Determining the right nursing resource is not an easy task. For these reasons, to ensure a robust, fit for purpose Framework, substantial developmental work using a broad evidence base has been undertaken. This Framework has been informed using bottom-up and top-down consultation with nurses throughout the health service, as well as many other key stakeholders in addition to evidence reviews.

Development went a step further, by testing the recommendations across three hospitals. The testing phase was underpinned by a programme of research. I am very pleased to be in a position to confirm that not only has this research informed the further development of the Framework, but has confirmed the approach taken in the Framework as applicable, relevant and fit for purpose .Importantly the research clearly demonstrates the positive impact on both patients and nurse staffing. Given the outcomes from this research, it is now time to press ahead with the national implementation to ensure the further stabilisation of the nursing resource and continue to impact positively on patient outcomes. I am particularly pleased to support the continued measurement of the Framework through the three year programme of research announced last year, and awarded to University College Cork.

I would like to thank all those involved. In particular I would like to acknowledge the work of the members of the Taskforce Steering Group, the Pilot Planning and Implementation Group and the Local Pilot Implementation Teams. I would like to pay particular tribute to Dr. Phillipa Ryan Withero, without whose commitment and vision this framework would not have been possible.

The approach to the development of this Framework through partnership both in its development and testing, is a best in class example of national policy development, and will undoubtedly ensure positive outcomes for patients, nursing teams and our services alike.

Simon Harris TD Minister for Health

Foreword by the Chair of the Steering Group

I am delighted to present this final report on the Framework for Safe Nurse Staffing and Skill mix in General, Specialist Medical and Surgical Care Settings. The extensive demands placed on health systems both in Ireland and internationally are challenging and continually test the resilience of our public services. Our goal must be the provision of the highest quality of patient care and outcomes. The work of the taskforce provides an innovative approach to addressing workforce planning requirements in this regard. This report provides a framework to help and solve the age old problem of how we staff our hospitals. It places the needs of the patient centre stage and recognises the relationship between nurse staffing arrangements and patient outcomes. Previous research and health inquiry reports have provided valuable lessons. They point to the importance of having strong clinical nursing leadership, the right mix of skills and knowledge combined with a positive proactive culture within our hospitals. This new approach to determining nurse staffing and skill mix is underpinned by evidence based on: assessment of individual patient need; monitoring patient outcomes; measuring staff experience and ward climate, as well as assessing the required nursing hours per patient day. Therefore the decision making framework for nurse staffing and skill mix sets out a whole hospital approach designed to ensure ward to board and board to ward accountability.

The most exciting part of policy making is seeing that policy take life and achieve the outcomes intended. The rigorous testing of this framework has demonstrated its capability and potential to deliver by enhancing patient outcomes and supporting the work of the nursing staff. The use of this framework is the first time that a research based approach has been applied concurrently with the piloting of a new workforce policy. This has resulted in the development of an evidence based framework tool. I would particularly like to thank all Nurses who gave so generously and enthusiastically of their time and expertise during the lengthy process of consultation and testing of the policy. The values of care, compassion and commitment are reflected throughout the framework which has the safety of patients at its core. A special word of thanks to Dr Phillippa Ryan Withero, Deputy Chief Nursing Officer, whose exceptional commitment drove the development of the framework and the delivery of this report.

In conclusion, as the first final report from the Office of the Chief Nurse, I am particularly pleased and proud that this report delivers on a core strategic objective of our work; to develop national policy that has a direct impact at the '*point where the service touches the patient*'. I believe that the Framework for Safe Nurse Staffing and Skillmix in General, Specialist Medical and Surgical care settings will continue to have a significant impact on healthcare provision for many years to come. I look forward to working with all our partners and stakeholders to achieve this aim.

Dr Siobhan O' Halloran
Chief Nursing Officer, Chair of the Taskforce on Staffing and Skill Mix for Nursing

Siobhán O'Halloran

Executive Summary

In April 2014, the then Minister for Health Dr James Reilly TD, approved the establishment of a Taskforce on Staffing and Skill Mix for Nursing. The Taskforce began its work in September 2014, and has continued to be supported by both successive Ministers for Health, Leo Varadkar and Simon Harris. The core objective of the Taskforce is to develop frameworks to support the determination of safe nurse staffing and skill mix (whereby nurse staffing refers to the nursing team including both the nurse and healthcare assistant roles) in a range of major specialities. The stimulus to establish the Taskforce included the recommendations from; 1) an increasing number of high profile health inquiry reports such as the Report of the Mid Staffordshire NHS Foundation Trust Public Inquiry (2013) and the HIQA Tallaght Hospital Report (2012b), and; 2) the increasing body of research evidence linking components of the nursing resource to patient outcomes. Simultaneously, the Irish health service was and continues to undergo some of the most radical reforms in its history, and collectively these changes and evidence acted as the catalyst to the establishment of the Taskforce. Phase I of the work of this Taskforce focused on the development of a framework for safe nurse staffing and skill mix in general and specialist, medical and surgical care settings.

This final report provides an overview of the approach to the development and testing of the Phase I Framework, and importantly sets out the key information to guide services on how to determine safe nurse staffing and skill mix in general and specialist medical and surgical care settings. In addition, there are a number of additional supporting evidence documents that are set out further below, and can be accessed at; http://health.gov.ie/office-of-the-chief-nursing-officer/our-policies/taskforce-on-staffing-and-skill-mix-for-nursing/

The objectives of the Taskforce were to;

- develop a staffing (nurse and healthcare assistant) and skill mix ranges framework related to general and specialist medical and surgical care settings in acute adult hospitals based on best available international evidence;
- set out clearly the assumptions upon which the staffing and skill mix ranges are determined;
- make recommendations around implementation and monitoring of the framework including the necessary education, training, and guidance required, and;
- present a written report to the Minister for Health.

On this basis this final report;

- provides an overview of the approaches taken to develop the framework, including key findings and summary recommendations from evidence and engagement. An overview of this is provided in Section 1; Chapter 2. The full evidence review report can be accessed at http://health.gov.ie/office-of-the-chief-nursing-officer/our-policies/taskforce-on-staffing-and-skill-mix-for-nursing/
- provides an overview of the approach to testing the Framework components in Section 1, Chapter 2. The full suite of Policy Impact Research Reports are can be accessed at http://health.gov.ie/office-of-the-chief-nursing-officer/our-policies/taskforce-on-staffing-and-skill-mix-for-nursing/
- outlines the Framework components, inclusive of a step-by-step guide to calculate the ward nurse staffing establishment (Section 2 Chapter 3)and;
- sets out a high level financial model to support national implementation.

A summary of the framework key recommendations are provided overleaf.

Summary of the National Overarching Framework Recommendations

1	It is recommended that a systematic, triangulated evidence based approach to determine nurse staffing and skill mix be applied consistently nationally. To do so it is recommended that the introduction of the recommendations in the Framework are implemented nationally and consistently on a phased basis. This national implementation should be supported by local pilot implementation teams; these were key to the successful implementation of the pilot.
2	It is recommended that a national workforce planning and workload management IT system be introduced to assist in decisions on nurse staffing and skill mix. This system must be capable of capturing all Framework components. It is also key that such a system integrates with organisational level patient information management systems to enable the development of nursing intensity weight based costing relative to patient Diagnostic Related Groups.
3	It is recommended that on-going quality research in an Irish context is undertaken, to add to the wealth of the current research being collected through the current 3 year Taskforce research programme on the relationship between nurse staffing, ward-level factors and patient and nurse staffing outcomes. At the end of this three year timeframe, it is recommended that a review of this research programme is undertaken with a view to considering the research into the longer term.

Summary of the Local and Regional Framework Recommendations

1	It is recommended that recruitment processes be streamlined to deliver timely recruitment to avoid gaps in staff replacement.
2	It is recommended, that the nurse/healthcare assistant grade mix is 80%/20%, once a safe nurse staffing level exists and is subject to the outcomes of the current national Health Care Assistant review.
3	It is recommended that a patient safety **Tipping Point** at ward level be determined and monitored locally in accordance with the guidance outlined in the framework.
4	It is recommended that the elements set out in the Framework influencing a positive organisational culture and ward climate form an integral part of the approach to safe nurse staffing decisions.
5	It is recommended that 100% of the CNM2 role and function is in a supervisory capacity in general and specialist medical and surgical wards. It is recommended that organisations invest in an appropriate resource of CNM1s to support the role and function of the CNM2 and provide effective succession planning.
6	It is recommended that ward and organisation wide mechanisms are put in place, to measure and monitor at a minimum nurse sensitive outcomes on patient falls, pressure ulcers, staff and patient experience. Consideration should be given to how further nurse sensitive outcomes can be incorporated into the measurement over time.
7	It is recommended that a day to day process, incorporated into the IT workload management system is used to assess, escalate and respond to missed care events (referred to as "**Safety CLUEs**") is put in place at ward and organisational level to indicate the adequacy of the nurse staffing resource.
8	It is acknowledged that the nursing team works as part of the wider multidisciplinary team in maintaining safe patient. It is recommended that the process of setting and maintaining safe nurse staffing levels is collaborative and involves Clinical Nurse Managers, Senior Nurse Managers and Directors of Nursing with support from Human Resources Management, Quality and Safety, and Finance.
9	It is recommended that the Director/Group Director of Nursing, based on the Framework, determines and brings forward evidence based recommendations on nurse staffing and skill mix requirements to the Senior Executive Management Team, and Board of Management at hospital and hospital group level.
10	It is recommended that nursing workforce governance arrangements to monitor and review nurse staffing and skill mix and their impact on patient outcomes are put in place. These should include at a minimum local implementation teams to commence implementation of the recommendations at local level.
11	It is recommended that the wider macro level factors (PESTLE) with potential to impact on nurse staffing and skill mix decisions should be considered annually at a minimum, and appropriate action taken as required, by the Senior Hospital Management Teams and Hospital Boards of Management.

Section 1

This section outlines the background and the approaches taken to provide the evidence and engagement to inform the development and testing of the Framework.

It also provides an overview of the outcomes from the pilot test of the Framework over the period 2016-2018.

Chapter 1 presents the background, context and objectives of the Taskforce on Staffing and Skill Mix for Nursing.

Chapter 2 provides a summary overview of the approaches taken to develop and test the Framework. This section includes key findings from evidence reviews and stakeholder engagement, along with the approach and recommendations from the pilot test of the Framework.

An Roinn Sláinte
Department of Health

Chapter 1 | Introduction and Background

1.1 Introduction

In April 2014, the then Minister for Health Dr James Reilly approved the establishment of a Taskforce on Staffing and Skill Mix for Nursing. The Taskforce began its work in September 2014, and has continued to be supported by successive Health Ministers', Leo Varadkar and Simon Harris. The core objective of the Taskforce is to develop frameworks to support the determination of safe nurse staffing and skill mix (whereby nurse staffing refers to the nursing team including both the nurse and healthcare assistant roles) in a range of major specialities. The stimulus to establish the taskforce included recommendations from; 1) an increasing number of high profile health inquiry reports such as the Report of the Mid Staffordshire NHS Foundation Trust Public Inquiry (2013) and the HIQA Tallaght Hospital Report (2012b), and; 2) the increasing body of research evidence linking components of the nursing resource to patient outcomes.

1.2 Context

The nursing and midwifery workforce is critical to the delivery of safe effective patient care. Within the context of our changing healthcare services, the Programme for Government, at the outset of the work of the Taskforce (2011-2016) outlined commitments for radical reform and restructuring of the health services in Ireland. These included: the planned shift from acute hospital care to primary care; establishment of clinical care programmes; introduction of free GP care; establishment of hospital trusts in addition to financial reform. There is a clear trend towards greater interdisciplinary integrated care underpinning these hanges. One of the key priorities in these reforms is the re-organisation of the acute hospital services into Hospital Groups as outlined in the report *The Establishment of Hospital Groups as a Transition to Independent Hospital Trusts* (2013). Since the HSE (Governance) Act 2013, large scale structural changes have been advanced through the creation of seven Hospital Groups and nine Community Healthcare Organisations (HSE Annual Service Plan 2018).

There are forty eight acute hospitals arranged into seven Hospital Groups providing the broad range of acute services (in-patient, out-patient, emergency and diagnostics) for a population of almost 4.6m. The HSE's National Service Plan (2018) outlines since 2014, the health service has established and resourced a national function to support long term transformation of the heath service and to take an evidence-led, consultative and outcomes focused approach to all changes that includes the new Hospital Group structures. In addition the recently published *Sláintecare Report* (2017) sets out the future longer term policy direction for Ireland's healthcare system. These reforms collectively have and continue to present diverse challenges and indeed opportunities for the nurse staffing workforce and provide the continued context for this report.

The subject of nurse staffing has been a topic of discussion for a number of years in Ireland, most notably since the publication of *The Report of the Commission on Nursing* (1998). Internationally the publication of research and public enquiries have clearly demonstrated the relationship between safe nurse staffing and patient experience and outcomes (Ball and Catton 2011; Francis Report 2013; Keogh Review 2013; Cavendish Review 2013; Berwick Report; Aiken et al 2014). Similarly from a regulatory perspective, the *National Standards for Safer Better Healthcare* (HIQA 2012a) include Standard 6 – Workforce, which outlines the necessity to determine workforce requirements to meet sustainable high quality safe care and support.

1.3 Objectives

This final report provides an overview of the current outcomes from Phase I of the Taskforce which focused on the development of a safe nurse staffing and skill mix framework for acute general and specialist medical and surgical in-patient care settings in adult hospitals.

The objectives of the Taskforce were to;

- develop a staffing (registered nurse and healthcare assistant) and skill mix ranges framework related to general and specialist medical and surgical care settings in acute adult hospitals based on best available international evidence;

- set out clearly the assumptions upon which the staffing and skill mix ranges are determined;
- make recommendations around implementation and monitoring of the framework including the necessary education, training, and guidance required, and;
- present a written report to the Minister for Health.

On this basis this final report;

- provides an overview of the approaches taken to develop the framework, including key findings and summary recommendations from evidence and engagement. An overview of this is provided in Section 1; Chapter 2. The full evidence review report can be accessed at http://health.gov.ie/office-of-the-chief-nursing-officer/our-policies/taskforce-on-staffing-and-skill-mix-for-nursing/
- provides an overview of the approach to testing the Framework components in Section 1, Chapter 2. The full suite of Policy Impact Research Reports are can be accessed at http://health.gov.ie/office-of-the-chief-nursing-officer/our-policies/taskforce-on-staffing-and-skill-mix-for-nursing/
- outlines the Framework components, inclusive of a step-by-step guide to calculate the ward nurse staffing establishment (Section 2 Chapter 3) and;

1.4 Purpose of the Framework

Central to any approach to determine optimum nurse staffing requirements is the necessity to measure their effectiveness and impact on patient care. To achieve this, systematic approaches need to be applied consistently to produce comprehensive data capable of informing the most appropriate decisions. The Report of the Irish RN4CAST Study (Scott et al. 2013) pointed to this lack of information on nursing staff profiles and the largely historically determined staffing complement that was not necessarily matched to patient acuity or dependency levels in medical and surgical in-patient wards across the acute hospital service. This presents significant challenges, not only to determining the most appropriate nurse staffing level and skill mix at local level, but equally to informing the most appropriate decisions in regard to nurse staffing workforce projections in the wider health service as a whole. This lack of information potentially impacts on efforts to determine the most appropriate deployment of the nurse staffing resource at hospital level along with the identification of appropriate skill mix at ward level (Scott et al. 2013).

Internationally, there is a plethora of nurse staffing decision support tools available to support nurse staffing decisions. The challenge with a number of these tools is their variability in terms of validation (Griffiths et al 2014). However, there is evidence of a number of variables used within these tools that may affect staffing requirements associated with outcomes such as: patient turnover, dependency/acuity and ward case mix. The more recently published *NICE Safe Staffing Guideline* (2014) contains recommendations that identify the organisational and managerial factors required to support safe staffing for nursing, along with indicators to measure the safety of the nursing care provided. NICE has since this publication endorsed nurse staffing decision support tools particularly where these tools are being used widely across the NHS.

To date there are no nationally agreed or endorsed decision support tools recommended for use in Ireland. The evidence from the Report of the Irish RN4CAST (Scott et al, 2013) provides key insights on the lack of decision support tools or comprehensive data gathering to support decisions in either a systematic or consistent manner. Thus, the context in which this framework has been developed is one where there is limited experience in the Irish healthcare service of applying systematic approaches to determining nurse staffing and skill mix. Therefore, this framework is the first of its kind nationally and provides the basis upon which to recommend the implementation of a national systemic approach to determine nurse staffing and skill mix.

One of the primary purposes of this framework is to support the positive impact of safe nurse staffing on patient outcomes through the recommended use of systematic approaches to determine optimum nurse staffing and skill mix requirements. The framework is underpinned by key assumptions outlining the necessary elements for inclusion in safe nurse staffing and skill mix decisions, whilst recognising that the nursing care team is part of the wider healthcare team.

It also sets out the essential organisational responsibilities to ensure nurse staffing workforce governance to oversee the implementation and monitoring of nurse staffing and skill mix decisions and, in particular, their impact on patient outcomes. Furthermore, the framework outlines the wider consideration of external influencing factors potentially impacting on the nursing workforce at organisational level as a whole. Collectively integrating all of these elements, this framework sets out the essential ingredients to ensure consistent informed decision-making using a sound rational base. Critical to the success of the framework is the assessment of the impact on patient care, appropriately monitored and governed at organisational level.

The development of this framework is seen as the first step in a programme of work to develop, strengthen and advance systematic and comprehensive approaches to the determination of safe nurse staffing and skill mix to optimise positive patient outcomes arising from investment in the nurse staffing resource.

Chapter 2 | Approach to the development of the Framework

2.1 Introduction

The first critical step on the road to the development of the framework was the establishment of a Taskforce Steering Group with representation from key groups, both national and international. The membership of the Taskforce Steering Group reflected the focus of Phase I (i.e. general and specialist medical and surgical adult in-patient wards in acute hospitals) and is outlined in detail in Appendix 1.

The approach taken to the development of the framework can be described under two distinct stages; a) developmental stage, whereby the Taskforce published an ***Interim Report and Recommendations on a Safe Nurse Staffing and Skill Mix Framework*** and; b) a testing stage, whereby the Interim Framework was pilot tested across three hospitals nationally. The outcomes from this research subsequently informed the Final Framework and Recommendations contained in this report.

Figure 1.0 below outlines the approach to the development and testing of the framework.

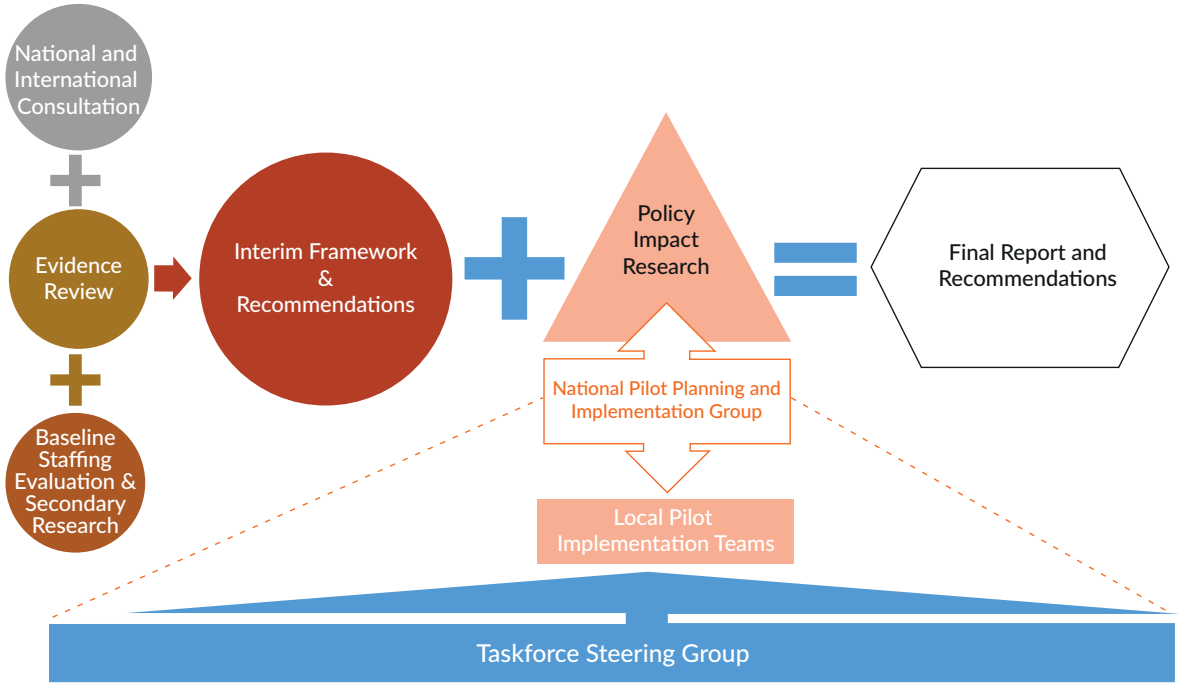
To inform the development of the interim framework and recommendations, the Steering Group engaged in a variety of activities that included; consultation and engagement with key stakeholders, presentations from national and international experts, evidence review, secondary research and a national baseline staffing evaluation. Based on this initial work, the Taskforce published an Interim Report and Recommendations in February 2016, which recommended proceeding to a pilot, to test the capability of the framework to deliver on its intended outcomes.

The following sections provide a summary of the;

a) Development Stage
   a. Literature review;
   b. National and international consultation;
   c. Secondary research;
   d. Baseline hospital and ward level staffing evaluation

b) Pilot Testing Stage
   a. Summary of the pilot test approach, findings and recommendations

Figure 1.0 Approach to development and testing



2.2 Literature Review

A systematic literature review examining relevant national and international literature, research evidence, systematic reviews and published reports was commissioned to inform the development of the framework and its recommendations. Using a modified PRISMA design, 71 peer reviewed papers relating to safe nurse staffing and patient outcomes were selected for inclusion in the final report. The results of the studies were grouped by 14 nursing variable topics.

The key outcomes of the review indicated that nursing variables were heterogeneously associated with patient safety. In other words different nursing variables were associated with different effects on differing indicators of patient safety, so no single nursing factor should necessarily be considered over others. Instead, each nursing factor and how it impacts different patient outcomes requires individual consideration. The findings however are to be interpreted with some caution due to limitations relating to an inability to establish cause and effect from most studies (as they used cross-sectional designs), variable study quality, and that the largely US-based international evidence may not be generalizable to an Irish context.

The factors outlined were summarised as;

- **Staffing numbers:** greater nurse staffing levels (all nursing staff) predict lower levels of inpatient mortality, rates of failure to rescue, and a shorter length of stay.
- **Hours:** a greater number of nursing hours is generally associated with lower inpatient mortality. Similarly there is evidence that a greater number of hours leads to a lower incidence of failure to rescue and missed care.
- **Shift characteristics:** the more adverse a shift was perceived to be (such as involving longer working hours) the greater incidence of patient mortality, pneumonia and sepsis. However the evidence about how this relates to missed care and other infections is unclear.
- **Turnover:** the evidence linking staff turnover to patient outcomes is mixed at best.
- **Absenteeism:** greater rates of hospital-acquired infections and missed care are associated with higher rates of registered nurses missing shifts, but no association was found for medication errors or falls.
- **Education:** the level of education of registered nurses was found to be linked to mortality and failure to rescue. The quality of registered nurse education was also found to be important for predicting patient mortality and failure to rescue rates, indicating that the quality of education may require consideration.
- **Experience:** There does not appear to be a strong link between registered nurse length of experience and the incidence of adverse patient outcomes. In particular the evidence is unclear about associations between experience and falls, hospital acquired infections and missed care, with no association found between experience and medication errors. There does appear to be some evidence of an association between experience and reduced length of stay however these results should be interpreted with caution as the study explored experience as part of a 'nurse value added' composite variable, where other factors could have been at play.
- **Skill mix:** The evidence surrounding skill mix and patient outcomes is variable. A number of studies have reported an association between a nursing skill mix that has a higher proportion of registered nurses and a reduction in adverse patient outcomes whereas other studies have identified no association between skill mix and patient outcomes.
- **Patient-Nurse ratio:** A greater number of patients per registered nurse is predictive of greater rates of failure to rescue and complications, and there is some evidence to suggest that this is also associated with increased patient mortality and missed care.
- **Staffing adequacy:** Poorer perceptions of staffing adequacy are linked to greater patient mortality and the incidence of falls, pressure ulcers, infections, medication errors and missed care.
- **Demands on nurses:** Increased perceived psychological strain on nurses is associated with greater patient mortality, falls, medication errors and deep vein thrombosis, but not infections.
- **Training:** Given reported improvements in the incidence levels of medication errors, pressure ulcers and falls, it may be worth considering whether elements of the Transforming Care at the Bedside and Northern Hospital Pressure Ulcer Prevention Plan can be implemented in an Irish context.
- **Environment:** Better overall ratings of the practice environment are linked to a lower incidence of failure to rescue and complications. Looking at different aspects of the care environment, better quality of care

is linked to fewer falls, infections and medication errors and better teamwork; nurse involvement in outcome evaluation and perceptions of safety are associated with fewer pressure ulcers, and quality of care is linked to falls, infections and medication errors.

2.2.1 Summary recommendations from the literature review

Four key recommendations were made by the research team, to be deliberated by the Taskforce. Three recommendations were in the context of the development of the framework, with a final macro recommendation related to the field of nurse staffing evidence in an Irish context. These are outlined in the box below.

2.3 National and International Consultation

The work of the Taskforce in developing the framework was underpinned by a strong focus on broad engagement both nationally and internationally. This approach saw engagement across all levels of service, cascading from front line staff to senior hospital managers to senior HSE management. National consultation took various forms including regional meetings, a web based survey and regular newsletters as an update on the work of the Taskforce. This provided an opportunity for significant engagement with front line nurses, nurse managers, Directors of Nursing, nurse academics, practice development, both locally and regionally, and managers in the HSE. Two rounds of regional consultation were conducted.

First round regional consultation ascertained key stakeholders' views on the assumptions to be included in the development of the draft framework. Second round regional consultation sought feedback on the Draft Framework document. Consultation also took place with other key stakeholders including, Regulatory bodies, Hospital Executive Management, Healthcare Professional Associations and Academic Institutions. Additionally, presentations and forum discussions were held directly between national and international experts and members of the Taskforce to inform decisions on the development of the framework and its recommendations.

Key recommendations

1. **Managing need through monitoring:** the collection and regular evaluation of Irish data through examining notable nurse variables such as nurse staffing numbers, and skill mixing, alongside the incidence of four key patient safety indicators: falls, pressure ulcers, medication errors and missed care. Such evaluations should also take into account ward case mix, acuity, dependency, patient turnover, and ward layout and size.

2. **Safe patient-nurse ratios:** One area where NICE guidelines are specific relates to avoiding unsafe patient to nurse ratios, where the guidelines advise of a known risk of patient harm associated with one nurse caring for more than eight patients on day shift. This is echoed in the results of the review, where nurses that managed four or fewer patients compared to those that managed eight or more were associated with better patient outcomes.

3. **Training:** the Transforming Care at the Bedside[1] and Northern Hospital Pressure Ulcer Prevention Plan should be considered as to whether elements of these can be adopted in an Irish setting, as these were found to be associated with a reduction in medication errors, pressure ulcers and falls.

4. **Further quality research in an Irish context:** further collaborative endeavours between policy makers and researchers, equally driving a need for further high quality research involving an Irish population and studied longitudinally.

[1] Transforming Care at the Bedside is a quality initiative by the Robert Wood Johnson Foundation and the Institute for Healthcare Improvement designed to address serious problems in healthcare quality. www.ihi.org/IHI/Programs/TransformingCareAtTheBedisde/

Table 1.0 outlines the range of engagement activities undertaken to consult on the development of the framework.

Table 1.0 Overview of engagement activities

Consultation Type	Consultation Description		
Regional Meetings	14 regional meetings, 7 sites repeated for each round. Galway, Sligo, Letterkenny, Dublin (Mater and St James'), Tullamore, and Cork.		
National and International Presentations & Discussion	9 presentations and discussion forums were facilitated	NICE Guidelines	
		NICE Evidence Review	
		RN4CAST	
		Workforce Planning	
		Nurse Staffing Levels and Outcomes	
		Care Rationing	
		Clinical Programmes	
		Medical Workforce Planning	
		Activity Based Funding	
Stakeholder Briefings	Stakeholder briefings were offered to 22 representative bodies, with 17 attending. Those unable to attend received the updates via newsletter.		
	Hospital CEOs (7)	Irish Patients Assoc.	NMBI
	HIQA	Irish Universities Assoc.	
	IMO	Irish Organisation of Technological Institutes	
	CORU	Irish Hospital Consultants Association	
	RCSI	Psychiatric Nurses Assoc.	
	DPER	HSE Leadership Team	
	National HR HSE	Acute Hospitals HSE	
Newsletter	5 Newsletters, at key project milestones, were circulated to all acute hospital Directors of Nursing, Staff Associations, and the stakeholders outlined above.		

2.3.1 Key outcomes

Throughout the consultation process, the feedback was consistently positive. The emerging themes from the first round of consultation were collated as follows:

- **Patient related factors:** matching nurse staffing to patient need through the measurement of acuity and dependency to reliably assess demand, was a key theme identified. Safe nurse staffing was identified as being more accurately determined through the measurement of individual patient needs rather than just applying a number.
- **Nurse staffing factors:** the skillset, competency and grade mix were identified as important factors affecting the optimum determination of the nursing resource. This included education and qualification level, effective recruitment processes, and adequate nursing hours per patient.
- **Organisational environment factors:** the organisational culture, and ward climate were identified as important factors affecting the ability to recruit and retain skilled members of the nursing team and equally important to delivering quality care. The importance of the supervisory role of the Clinical Nurse Manger 2 was emphasised, whereby time to lead in these roles, was viewed as critically important to patient safety and staff well-being and retention. Equally important was the organisational culture of support for educational and professional development.
- **Measuring patient and staff outcomes:** the measurement of patient and staff outcomes such as patient experience, falls, pressure ulcers, and staff experience, were identified as particularly important indicators of the appropriate nurse staffing resource. Care left undone, was recognised as a mechanism upon which to measure the adequacy of the nurse staffing resource.
- **Factors external to the ward environment:** factors outside of the ward environment, such as the national economic position, or regulatory changes were identified as macro level factors which should be considered in the wider context of the nurse staffing resource.
- **Governance of the nurse staffing workforce:** the autonomy of senior nursing roles to determine the use and influence the size of the nurse staffing resource, particularly in light of the emergence of the hospital group structures, was viewed as a critical function at executive level.

The emerging themes from the second round of consultation whereby feedback on the draft framework was sought:

- **Accountability:** to make explicit within the document recommendations on the authority of senior nursing roles to determine staffing, and to ensure at executive management and hospital board level ward to board and board to ward nurse staffing workforce planning.
- **Care Left Undone Events:** to provide greater detail on the CLUE (Care Left Undone Events) and its escalation.
- **Acuity and dependency measurement:** reduction in the recommendations on the number of measurement tools, and to include a guide on the selection of tools.
- ***Implementation:*** greater guidance and examples on the calculation of nurse staffing, along with greater detail supporting the supervisory role of the Clinical Nurse Manager 2.

2.3.2 Summary recommendations from consultation

The conclusions and recommendations from the two rounds of consultation resulted in the development of a framework with four overarching assumptions, macro level factors and a nurse staffing workforce governance structure. These are outlined in the box overleaf.

Key recommendations

1. **Assumption One:** Patient care needs differ.
2. **Assumption Two:** Nurse staffing number, profile and mix are key to ensuring safe, high quality care for patients.
3. **Assumption Three:** The organisational environment where patients receive care and staff deliver care has an impact on the ability to deliver safe effective care.
4. **Assumption Four:** Positive patient and staff outcomes are important indicators of the safety and quality of nursing care.
5. **Macro Level Factors:** Wider macro level factors are those related to: political, economic, sociocultural, technological, legal and environmental.
6. **Nursing Workforce Governance:** Autonomy of senior nurse managers is vital, within an organisational context of ward to board and board to ward accountability for nurse staffing workforce planning.

2.4. Secondary Research

The body of research data available from the previous Report of the Irish RN4CAST Study (Scott et al. 2013) was harnessed to undertake secondary analysis of this data to examine the basis on which to make recommendations on nurse staffing in Irish hospitals. The analysis was guided by the international literature. The availability of this data provided the opportunity to further examine evidence on the association between nursing and nurse characteristics and certain patient outcomes.

On completion of detailed work on the dataset, the researchers concluded that this national dataset was not sufficiently large to provide the basis for robust conclusions.

2.4.1 Summary recommendations

The researchers recommended that the international literature should be used to inform the development of the framework. As a number of the studies in the international literature base, such as those conducted as part of the RN4CAST project, contain Irish data, they are therefore particularly relevant to the work of the Taskforce.

2.5 Baseline Hospital and Ward Level Staffing Evaluation

A hospital and ward level staffing evaluation, undertaken across all medical and surgical wards in Irish acute hospitals to establish a baseline of current nurse staffing was commissioned to inform the work of the Taskforce. This data was collected to determine nurse staffing and skill mix across medical and surgical wards in 29 acute adult public hospitals. This data was used for the purposes of comparison with the previously published ward and hospital level nurse staffing data from the Report of the Irish RN4CAST Study (Scott et al. 2013) and further inform the development and implementation of the framework and its recommendations. The differences in data collection between the studies, makes some comparisons difficult to interpret. Responses were obtained from all medical and surgical wards in acute hospitals, however not all components of the ward and hospital level data were completed fully. Therefore the data findings should be considered reflective of data from a broad sample rather than a census.

2.5.1 Key findings

A summary of the key findings from the evaluation are included below:

- **Bed occupancy levels:** on average system wide occupancy levels have increased from 92% (RN4CAST) to 97%. 13/19 hospitals in the RN4CAST data and 20/23 in the current evaluation data reported occupancy rates above the 85% critical rate. The highest occupancy rate is evident in Model 4 hospitals, whereby the average occupancy rate is 104%.
- **Overall hospital staffing:** overall staff numbers across the hospitals have reduced since the RN4CAST survey. However of note, registered nurse levels and in particular staff nurse and nurse manager levels seem to be greatly impacted by this reduction (22% reduction for ward manager, and 11% reduction for staff nurses).
- **Patient to nurse ratios:** system wide patient to nurse ratios, on average across medical and surgical wards by comparison to the previously reported RN4CAST data appear to show limited variation. However it is more notable that on average Model 4 hospitals appear to have a higher patient to nurse ratio by comparison to the other model hospitals.
- **Nurse to HCA grade mix:** overall the nurse to HCA grade mix on average appears to have shifted from an average percentage of 85/15 to 75/25.
- **Clinical Nurse Manger supervisory time:** whilst there is some variation between hospital level and ward level reported data, on average 52% (medical wards) and 42% (surgical wards) of CNM 2 time is given to supervisory roles, with the remainder of their time given to assuming a direct patient caseload.
- **Registered nurse experience level:** with the exception of model 2 hospitals it appears that all hospitals report a less experience nursing workforce compared with the RN4CAST data. This is most evident in model 4 hospitals.

2.5.2 Summary conclusions from the evaluation

A summary of the key findings from the evaluation are included below:

Summary conclusions from the evaluation

1. **Nurse staffing level:** whilst the data appears to reveal an overall reduction in the nurse staffing levels, the overall patient to nurse ratio, appears to have remained largely static. This should be considered in the context of the reasons for this, which could be attributed to either: a) data issue as identified b) reduced bed number; c) use of supplemental nurse staffing (i.e agency/ overtime). This should be factored into the considerations on the pilot and overall financial estimates.
2. **Role of the Clinical Nurse Manager:** given the evidence on the impact on the role of the ward leader on quality and staff retention, the reduction in the supervisory time of this role currently in the system is worthy of specific consideration in the framework recommendations.
3. **Nurse experience level:** the reduction in the overall nurse experience level should be considered in the context of the recommendations on nurse staffing profiles where experience/competence is taken account of.

2.6 Policy Impact Research

In February 2016 the Interim Report was published along with a planned pilot test underpinned by a formal research evaluation commissioned by the Health Research Board. This was to be the first in a series of policy impact research, as a further 3-year programme of research was announced in mid-2017, and commissioned by the Health Research Board to develop and test and assess the longitudinal impact of framework implementation. This fulfilled the earlier recommendation from the literature review that recommended further collaborative endeavours between policy makers and researchers to drive further quality research involving an Irish population and studied longitudinally. The first of the activities under this research programme was the pilot test of the safe nurse staffing framework for Phase I of the Taskforce – general and medical surgical care settings. The below information outlines the approach and findings from the pilot test across three hospitals. The policy impact reports can be accessed in full athttp://health.gov.ie/office-of-the-chief-nursing-officer/our-policies/taskforce-on-staffing-and-skill-mix-for-nursing/ .

2.6.1 Approach to policy impact research – pilot test

The pilot of the framework implementation was undertaken across three hospitals of varying size (model 4, model 3 and model 2), and included 6 pilot wards. The aim of the policy impact research was to measure the impact of implementing the recommendations of the Framework for Safe Nurse Staffing and Skill Mix on nurse-sensitive patient outcome measures, staffing outcomes and organisational factors in three pilot sites. In addition, the evaluation measured the economic impact of implementing the Framework and provides an evidence-based assessment of the adoption and implementation of the initiative in practice to guide future national roll-out decisions. The objectives of the evaluation were to: examine the extent to which nurse sensitive patient outcome measures changed over time as a consequence of the introduction of the recommendations in the Framework; explore the impact of the intervention on adverse patient outcomes and care left undone events; examine the extent to which the Framework impacted on staff and patient experiences and; to measure the impact of the implementation of the Framework on organisational factors.

Three policy impact reports have been published to date that evaluated the pilot between July 2016 and June 2017: Evaluation of the Pilot Implementation of the Framework for Safe Nurse Staffing and Skill-Mix – Report 1 (Drennan et al. 2017a) and, Evaluation of the Pilot Implementation of the Framework for Safe Nurse Staffing and Skill-Mix – Report 2 (Drennan et al. 2017b). The key findings presented here, is a summary of the final report of the pilot that further evaluates the implementation of the recommendations in the Framework in six pilot wards from July 2017 to October 2017.

2.6.2 Key findings

A summary of the key findings from the policy impact research are included below;

Nursing Hours per patient Day, Agency Usage and Sickness Absence

- As a consequence of measuring patient acuity and dependency and introducing Nursing Hours Per Patient Day (NHPPD) as the method for identifying appropriate nurse staffing, there was an increase in whole time equivalents (WTEs) between Time 1 and Time 2 in those wards where a negative variance between NHPPD required and available was identified. The effect of the introduction of this systematic approach to determining RN and HCA staffing has been to stabilise the nursing workforce in these wards; this stabilisation has resulted in a number of improved patient, staff and organisational outcomes.
- The results show that the amount of time the CNM2 is spending in a supervisory role increased in line with the recommendations of the Framework. In many cases, due to the stabilisation of nursing staff in each of the sites, there is now the potential for CNM2s to undertake 100% of their role as supervisory.

- The skill mix on each of the wards that received an uplift in staff stabilised to an approximately 80% RN to 20% HCA skill mix on the total staffing model.
- One of the most significant results following implementation of the framework recommendations was the reduction in agency usage on the majority of wards that implemented the recommendations. In some cases there were substantial reductions with up to 95% fall in the use of agency staff to provide nursing care reported. Of note, is in wards that did not receive a staffing uplift, there was also a reduction in levels of agency usage. This was a feature of these wards using a systematic approach to determining nurse staffing through the use of NHPPD.
- Another notable result was that over the course of the research, the reductions in the number of hours provided by agency have not only reduced, but have been sustained. This points to greater ward stability and the potential for longer lasting stabilisation of the workforce as the majority of care is now provided by ward based staff.
- In Time 1 of the study the research identified that a relatively high proportion of nursing hours were provided by one-to-one specialling. Overall, in the pilot wards that received a staffing uplift, the requirement of one-to-one specialling for patients reduced substantially with percentage decreases ranging from approximately 74% to 88%.
- Overall absenteeism decreased from Time 1 through to Time 2 in the majority of wards included in the implementation of the recommendations in the Framework. The majority of wards in Time 2 reported sickness absence rates below the national average of 5% (HSE 2016). However, there was some variability related to seasonal factors.

Nursing Sensitive Patient Outcome Measures

- A number of patient outcomes sensitive to nursing care were measured through an analysis of data from the Hospital In-Patient Enquiry (HIPE) system. The time series analysis shows that counts of a nursing sensitive patient outcome (NSO) increased per day by 0.66% in Time 1 but decreased by 0.88% in Time 2.
- The analysis showed that the odds of developing an NSO began to decline in Time 2, which was also apparent after adjusting for case-mix.
- Data on nursing sensitive outcome measures, at this time, needs to be treated with caution. Further data collection and analysis is on-going as part of the longitudinal programme of research.

Nursing Work

- Measures of the nursing work environment also showed favourable results at Transition and Time 2 for a number of wards when compared to Time 1; this was particularly the case in wards that received a staffing uplift. Overall, there were increases in: staff perceptions of collegiality between doctors and nurses, nurse manager ability, leadership and support, nurse participation in hospital affairs and the ability to apply nursing foundations for the quality of care. In particular, in those wards that received a staffing uplift, there were significant increases in respondents' positive ratings of staffing and resource adequacy.
- There were overall improvements in the respondents' perceptions of the quality of care delivered to patients.
- In regard to the measurement of care left undone or care delayed in time 1, 75.6% of nurses reported that at least one necessary item of care was left undone due to lack of time on their last shift; this dropped to 31.8% in Time 2. Similarly, the mean number of items left undone also dropped substantially over the time period with an average of 2.51 care activities reported left undone per shift in Time 1 falling to 0.75 reported undone at Time 2.
- Care delayed was also measured. In comparison to care left undone, care delayed showed less of a decline; however, overall, the trend was downwards. In Time 1, 93.3% of staff reported at least one care task was delayed on their last shift whereas 84.1% reported one or more tasks delayed in Time 2. The mean number of care items delayed per shift also fell in Time 2 (4.92) compared to Time 1 (5.43).
- Job satisfaction and intention to leave remained relatively similar at the overall level but demonstrated differences at ward level. Generally, the prevalence of intention to leave was lower and job satisfaction higher at Transition and Time 2 time-points (i.e. following the introduction of the recommendations in the Framework) when compared to Time 1.

Patient Experience

- Overall, patients reported that they were satisfied with nursing care in both Time 1 and the Transition phase of the research.
- The majority of patients surveyed that they would recommend the hospital to family and friends.

Economic Analysis

- Overall, the monthly cost of implementing the uplift staff required (€79,574) was less than the agency savings realised (€82,480). Therefore, in implementing the recommendations of the Framework to date, there was a net monthly saving (€2,905) across the six pilot wards. The reduction in agency spend following the implementation of the recommendations was, on average, €82,480 per month.
- The economic impact of a patient experiencing an NSO were estimated using data on Diagnostic Related Groups and presence of an NSO collected from the six pilot wards. Controlling for age, gender, admission type, complexity, length of stay and time period, the presence of a nurse sensitive outcome increased the average in-patient case-mix cost per case by €2,397 (p=0.001) holding all else constant. This estimated impact of nurse sensitive outcomes on inpatient case-mix cost per case can be used to estimate the cost of nursing sensitive outcomes avoided.

The box below outlines the summary recommendations from the policy impact research;

Summary recommendations

1. **NHPPD:** NHPPD be introduced nationally on an incremental basis as the means for determining nurse staffing and skill-mix needs in medical, surgical and specialist settings.

2. **Governance and oversight:** Local Implementation Teams be introduced on a phased basis in clinical sites that are involved in the introduction of the safe nurse staffing and skill-mix programme in tandem with the national rollout. The role of these teams is to support the implementation and monitoring of the safe nurse staffing and skill-mix programme at local and group levels. It is further recommended that a dedicated resource to support the programme be considered at local/group level as recommendations in the Framework are implemented.

3. **Enhanced care:** a set of high-level key principles for enhanced care developed as part of the Pilot are included in the Framework.

4. **CNM2 supervisory role:** this recommendation in the Framework has a number of positive benefits and should continue to be implemented.

5. **Organisational culture and ward environment:** consideration be given to introducing organisational practices similar to that recognised by the Magnet programme as outlined in the Framework.

6. **Workforce planning and workload management system:** National implementation of a workforce planning and workload management system. This system should be capable of capturing all framework components.

7. **Nurse sensitive outcomes/ Tipping point:** Retention of the recommendation in the Framework that nurse sensitive outcome key performance indicators on patient falls, pressure ulcers, staff and patient experience be monitored from ward level data.

8. **Care left undone events:** The current recommendation in the Framework that a process to assess, escalate and respond to missed care events remains in place. It is further recommended that future software based workload planning or workload systems must have the facility to record this data at ward level.

9. **Skill mix:** Recommended that the skill mix ratio recommended in the Framework remains in place. This recommendation should be subject to on going review as roles and specialities develop.

10. **Patient experience:** Recommended that, as outlined in the Framework, patient experience is monitored at ward and hospital level. The introduction of the National Patient Experience Survey provides the opportunity to assess the quality of the patient experience at hospital level.

11. **National rollout:** Recommended that the introduction of the recommendations in the Framework are implemented nationally on a phased basis. This national implementation should be supported by local pilot implementation teams; these were key to the successful implementation of the pilot. This process should be supported and informed by an on-going programme of research.

2.7 Conclusion

Collectively this multi-pronged approach to engagement and evidence, along with policy impact research has provided a sound foundation upon which to develop the framework components and recommendation, along with making recommendations for national rollout. The next section of this final report outlines in detail the components of the framework that have been informed through engagement, evidence and research.

Section 2

This section outlines the Framework and next steps for national implementation.

Chapter 3 presents the components of the framework complete with recommendations and worked examples.

Chapter 4 provides the next steps to making the Framework happen, including key actions and recommendations for national rollout.

An Roinn Sláinte
Department of Health

Chapter 3 | The Framework

3.1 Scope of the Framework

The scope of this framework is **general and specialist medical and surgical in-patient care settings in acute adult hospitals**. The framework excludes intensive care, coronary care, high dependency, theatre, emergency departments, acute medical assessment/admission units, maternity, mental health, intellectual disability, children's and residential care. This framework identifies the assumptions, elements, external factors and nursing workforce planning governance structures to determine safe nurse staffing and skill mix for registered nurses and healthcare assistants. The use of the term nursing team denotes the inclusion of both registered nurses and healthcare assistants (excluding multi-task attendant) unless otherwise specified.

This framework is relevant to all those at national, regional and organisational level whose responsibility it is to ensure safe nurse staffing and skill mix in general and specialist medical and surgical in-patient settings. This framework is targeted at three core audiences covering the diverse range of roles and responsibilities at local, regional and national level.

The three target audiences are as follows;

1. Frontline nurses, middle and senior nurse managers, Directors of Nursing and Group Directors of Nursing, to guide and support a consistent approach to determine safe nurse staffing;
2. Senior hospital management teams and hospital boards of management to support the implementation of appropriate governance requirements at organisational and group hospital level to adequately monitor the impact on patient care outcomes secondary to investment in the nurse staffing resource;
3. Health Service Executive Managers/Directors, to support national service planning in the management of acute hospital services, nursing and midwifery services, clinical care programmes and strategy, quality and patient safety and human resources.

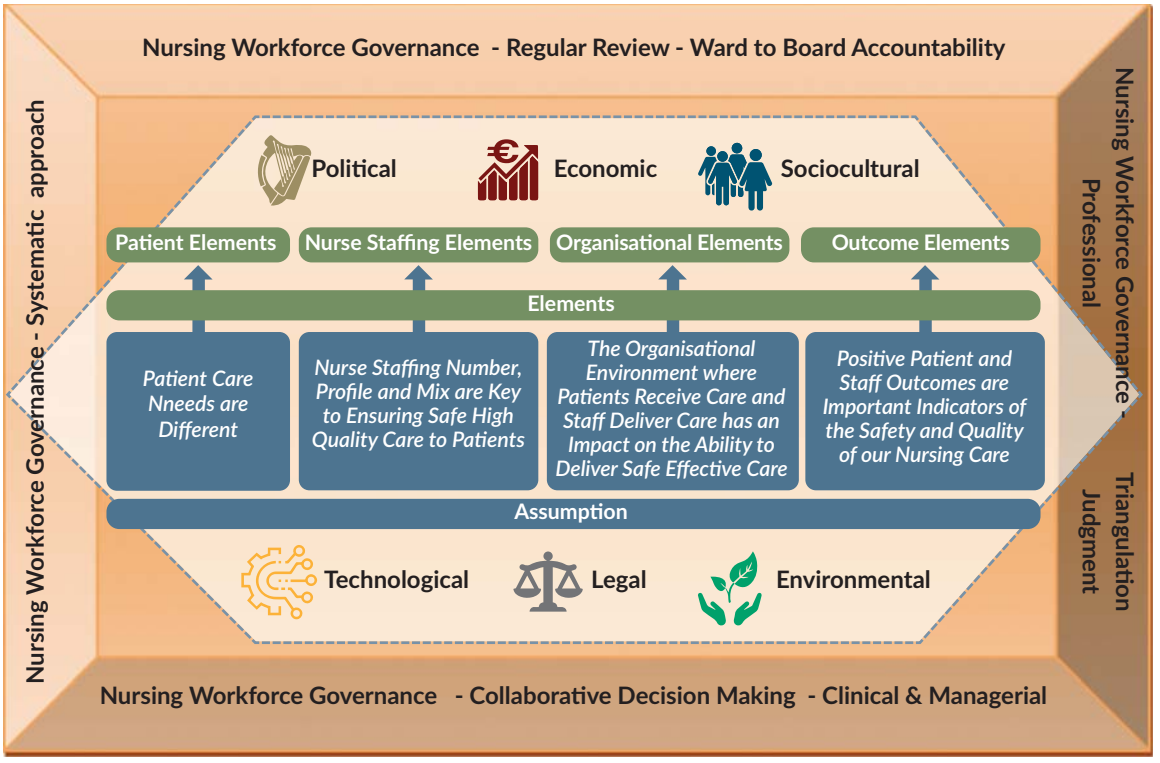
3.2 Structure of the Framework

The evidence to inform the framework identified no single "one size fits all" approach to determining safe nurse staffing and skill mix for use across general and specialist medical and surgical in-patient acute adult hospital settings. The evidence supports the systematic assessment of a range of elements to determine safe nurse staffing and skill mix requirements. This reflects the complexity of a dynamic equation to determine safe nurse staffing and skill mix whereby the estimation will vary across and within organisations due to the changing dynamic of patients, nursing roles and profiles, and the environment. Equally the evidence highlighted the necessity of any approach to be underpinned by professional judgement which has been incorporated into the framework. Hence this framework has been designed to support the most appropriate decisions reflecting a constantly evolving dynamic equation to ensure safe nurse staffing levels and skill mix.

The framework is structured into three distinct yet linked sections that take account of not only these elements but equally the necessary governance requirements to ensure safe nurse staffing and skill mix decisions.

The association between each section of the framework is diagrammatically represented in Figure 2.0 overleaf and detailed in the subsequent sections.

Figure 2.0 Framework



3.2.1 Assumptions

Derived from the evidence and the policy impact research four assumptions describe the beliefs underpinning the core elements used to determine safe nurse staffing and skill mix at ward level. These are listed in the above Figure 2.0.

3.2.2 Elements

Underpinned by the assumptions, are the elements that directly influence the determination of safe nurse staffing and skill mix and therefore need to be systematically assessed and monitored at ward and organisational level. These elements take account of the impact of nurse staffing and skill mix on patient care to ensure appropriate and immediate escalation and action to safeguard patients. Whilst there is the potential for the inclusion of a large number of factors, only those elements identified as having the greatest impact on patient outcomes in addition to being supported by research evidence have been incorporated.

3.2.3 Macro Level Factors

In addition to the elements that influence the determination of safe nurse staffing and skill mix at ward level, are the macro level factors. These factors are those that are outside the immediate control of the ward environment but nonetheless should be considered at organisational level in the wider context of the health service. These are described using PESTLE (Political, Economic, Sociocultural, Technological, Legal and Environmental) factors.

3.2.4 Nursing Workforce Governance

A primary goal of this framework is to safeguard patient safety and positive outcomes through appropriate nurse staffing and skill mix decisions at ward and organisational level. A fundamental safeguard to assurance lies in an appropriate governance structure in which nurse staffing and skill mix decisions are systematically monitored and reviewed. This framework outlines (Section 4.0) the components of a nursing workforce governance structure, (whereby nursing workforce governance includes the nursing care team inclusive of both registered nurses and healthcare assistants), necessary to ensure ward to board accountability for safe patient care outcomes.

3.2.5 Assumptions and Elements

In this section each of the assumptions and their corresponding elements are outlined in greater detail, inclusive of specific recommendations for implementation in practice.

ASSUMPTION 1

Patient care needs are different

PATIENT ELEMENTS

This first assumption is underpinned by the belief and evidence that all patients are not the same and therefore their care needs are different. Thus the elements influencing the determination of safe nurse staffing and skill mix are those directly related to the patient. Consequently, to determine the right staffing and skill mix, requires the measurement of patient care needs systematically and consistently. The *HIQA National Standards for Safer Better Healthcare* (HIQA 2012a) include Standard 6 – Workforce, outlines the requirement for services to plan their workforce needs to take account of the assessed needs of the population being served, the changes in workload and the size, complexity and specialities of the service being provided. The results of the policy impact research, undertaken in the pilot test (Drennan et al 2018) demonstrated that assumptions 1 and 2 were evident; that is patient care needs differ and nurse staffing numbers, profile and skill-mix are key to ensuring safe, high quality care for patients. Furthermore, it was found that using a systematic approach to determining nurse staffing and skill-mix (in this case NHPPD), resulted in the stabilisation of the nursing workforce over the period of the research. The use of this approach enabled, in association with clinical judgement, an informed decision-making process to be put in place. The evaluation also identified that NHPPD measured in the pilot study broadly matched the NHPPD ranges outlined in this framework later.

What this means in practice

1. It is recommended that organisations decide on an evidence based tool that can be used to consistently and systematically measure patient **dependency and acuity** at ward level. There are a wide range of tools available to measure dependency and acuity, with many now incorporating the use of this data to calculate total staff needed (Smith et al 2009). Whilst it is beyond the scope of this framework to recommend any one specific tool[2], it is recommended that Directors of Nursing decide on the most appropriate tool, validated where possible through research for use in the acute care setting. Appendix 2 provides guidance to assist decision-making on the selection of an acuity and dependency tool.
2. A key success factor to the accurate and consistent measurement of patient acuity and dependency at ward level is support for measurement at management level. The recommended **minimum** frequency of patient acuity and dependency measurement is a daily measurement on all patients for one month, and subsequently at two intervals per annum (Quarter 1 and Quarter 3). More frequent measurement may be required for example if there is a change/redesign of the service during this time. Consideration should be given to the use

[2] The development and validation of acuity and dependency tools continues to be an emerging science. Therefore further validated tools may emerge over time thus negating the recommendation for any one specific tool at this point.

of a workforce planning and workload management system. This system should be capable of capturing not only this component, but all components of the recommendations in this Framework. It is also key that the system integrates with organisational level patient information management systems to enable the development of nursing intensity weight based costing relative to patient Diagnostic Related Groups.

3 In some circumstances, there may be the requirement for additional nursing supervision or intervention due to specific patient needs. Ideally these specific patient requirements should be captured in the dependency and acuity tool in use. If not, then this data must be captured to inform the safe nurse staffing requirements. These examples can include:

- the requirement for one-to-one care/ close and constant supervision (often referred to as one-to-one special)/Enhanced Care
- increased risk of clinical deterioration as evidenced by the patient's National Early Warning Score
- increased care needs to manage psychological, mental health or intellectual disability needs

4 It is recommended that the use of patient dependency/acuity tools are used in conjunction with professional judgement to determine safe nurse staffing and skill mix requirements in general and specialist medical and surgical in-patient settings.

5 Bed occupancy and bed utilisation measurements are another important element to capture in determining safe nurse staffing. International guidelines suggest a bed occupancy rate above 85% is likely to impact on quality of care and hospital functioning (Scott et al. 2013). According to Scott et al. (2013), 68% of Irish hospitals reported bed occupancy levels over 85%, thereby indicating that this measure is an important factor in an Irish context. In the policy impact research undertaken to test the interim framework (Drennan et al 2018) bed occupancy rates in the pilot wards ranged from 89.73% to 101.11% in Time 1 and from 87.8% to 105.3% in Time 2. Thus bed occupancy/ bed turnover, which identifies the number of admissions, discharges and transfers in a 24 hour-period is a vital component to consider, as it identifies the additional nursing workload generated, yet not captured by bed occupancy. Therefore, it is recommended to factor **bed occupancy** and **bed utilisation** rates at ward, hospital and hospital group level, and to use this information in decisions on setting safe ward nurse staffing and skill mix requirements. It should be noted that these are factored into the calculations in section 3.5.

6 The competence required to safely care for patients in a ward with planned and unplanned multiple specialties/distinctive groups of patients adds to the staffing and skill mix requirements in these wards. The first step is to identify the ward's **core speciality/specialities** (i.e. agreed designated speciality/specialities), recognising that some wards may provide nursing care to a range of patient groups across multiple specialties. Once identified, the number of non-core speciality admissions to a ward can be monitored. This information is useful to ascertain the degree of diversity in core and non-core specialities, which adds to the staffing and skill mix requirements. To determine the diversity on a longer-term scale and to support future nurse forecasting requirements, the HIPE (Hospital In-Patient Enquiry) system, provides a useful data source to identify trends in patient level diversity and complexity.

7 Capturing the above data on occupancy, dependency and acuity and core specialities, provides important information on the profile of the ward, the number of patient presentations and the overall activity level. In analysing the data, patterns of predictable higher acuity may become apparent, for example days with increased numbers of complex surgeries. Therefore, it is recommended that this information is used to interpret possible patterns of predictable demand over the spectrum of the week/month/year, and to allocate the nurse staffing resource according to these patterns.

8 Activity Based Funding (ABF) represents a fundamental change in how healthcare will be funded in Ireland and therefore these changes should be taken into consideration in the wider context of the nurse staffing resource. The potential to inform activity based funding on nurse staffing requirements through the recommendations in the framework on the capture of information related to patient acuity and dependency along with calculation of nursing hours is significant into the future. Through ABF there will be a fundamental shift from funding facilities and settings to funding episodes of care, for which the implementation of the recommendations within this framework will be key. Based on the findings and recommendations of the policy impact research, it is key that any workload management system integrates with organisational level patient information management systems to enable the development of nursing intensity weight based costing relative to patient Diagnostic Related Groups (DRG's).

9 It is recommended that the data and information outlined should be used to provide trend and benchmark data on patient elements within and across wards in addition to across hospitals in the newly establishing hospital groups; this approach will facilitate the use of robust evidence to inform decisions.

Box 1 Patient elements summary

- Acuity and /dependency measurement
- Bed utilisation and bed occupancy measurement
- Assessment of ward specialty/specialities
- Use of data to inform predictable patterns to support allocation of resources
- Integration of organisational level patient information management system data to enable the development of intensity weight based costing relative to DRG's

ASSUMPTION 2

Nurse staffing number, profile and mix are key to ensuring safe, high quality care to patients

NURSE STAFFING ELEMENTS

This assumption is underpinned by the belief and the evidence that the size and skill mix of the nursing care team is important to delivering high-quality, safe care to patients (Aiken et al 2014, Kane et al 2007). The elements influencing the determination of nurse staffing and skill mix are those directly related to the nursing care team across general and specialist medical and surgical adult in-patient settings in acute hospitals.

What this means in practice

1 Collation of information on ward nurse staffing **staff profiles** to take account of education level, skill set, competence and grade mix is required. The association between education level of nursing staff and patient outcomes is reported in the literature; however, nurse staffing profiles in Irish hospitals are not well established which is likely to weaken attempts to determine both the appropriate skill mix and the most effective way to deploy nurse staffing at ward level (Scott et al 2013).

2 Once collected, information on staff profiles can be used to target education and continuing professional development to meet current and emerging patient needs at ward level.

3 The average grade mix of nurses to healthcare assistants, through data collected during 2009/2010 across Irish hospitals, was 85%/15% (Scott et al. 2013). Other jurisdictions outside of Ireland have advised lower minimum nurse to health care assistant grade mix ranging from 65%/35% (RCN 2012) to 70%/30% (DHSSPSNI 2014) as examples. It should however be noted that in these jurisdictions there are somewhat more clearly defined education paths, roles and responsibilities for this healthcare worker to ensure consistency of care planning and delivery, informed delegation and clearer intra professional boundaries. For example, in the NHS there are defined healthcare assistant grades, categorised into bands that range from band 1 to 4. A recent review of the future education and training of registered nurses and care assistants in England (Health Education England 2014) has clearly set out the educational pathway for care assistant roles. In tandem with this review is the publication of a strategic framework for the

development of the support workforce across the NHS. This report outlines the core competencies and role specific standards, in addition to the introduction of a national values-based care certificate to be undertaken by all healthcare assistants (Health Education England 2014).

In determining the most appropriate and safe grade mix therefore the interface between the evolving role of nursing and that of other healthcare professionals, included that of the healthcare assistant roles are a feature that must be considered. The changing role of the nurse for example, impacts not only on the nursing/HCA interface but equally the interface between nursing and the other health professionals and in particular the medical profession. The nursing role is one which is constantly expanding and extending in response to changes in the wider health service, for example in response to changing patient expectations, new technologies and changes in the roles of other healthcare professionals.

There are many factors that can influence the nursing role. One recent example is the change to junior doctors' hours under the European Working Time Directive, that may influence the scope of the role. This demonstrates the need to factor this element into decisions on determining appropriate nurse staffing and grade mix. As the interface between nursing roles and that of the other health professions evolves in response to service need, the necessary impact and required competencies in nursing to deliver on these changes needs to be taken into account to ensure safe and effective care. It should however be noted that the current process that is already in place relating to the 4 tasks (being examined under task transfer) is beyond the scope of this framework.

There is much to be learned from the work undertaken in other jurisdictions on the role of the care assistant as described earlier. There is currently a national group undertaking a review of the Health Care Assistant role. It is therefore recommended that an initial nursing/HCA grade mix of 80%/20% (once a safe nurse staffing level exists) is recommended for use in the current environment, and that this is the subject of ongoing review, with a view to shifting towards the international norms of 75%/25% based on the outcomes of the national review group and as roles and specialties develop into the future.

4 A stable and sustainable workforce with the requisite education, training, skills and competence is vital to the delivery of safe patient care. Thus effective management of **recruitment** is critical to ensure prompt staff replacement. The Director of Nursing, in collaboration with local/national human resources personnel, must lead on this at hospital level. This should include the active monitoring of staff turnover rates and recruitment times at ward, hospital and hospital group level in order to ascertain the effectiveness of current processes to maintain safe staffing levels. Mechanisms to support effective collaboration, communication and feedback at all levels of the health service (from local hospital, hospital group and National Recruitment Service (NRS)) are also required to ensure an effective bottom up and top down approach to recruitment that is equally timely and appropriate. This requires direct channels of communication between the Director of Nursing /local human resources, the Group Director of Nursing and the NRS. The aim is to ensure that service needs are met at local level in a timely fashion, and that appropriate and responsive action can be taken in the event that recruitment processes are identified as less than optimal, and potentially impacting on the ability to provide safe effective care.

5 Planned and unplanned absences are a reasonable expectation from any staffing resource. Planned absence is defined as expected absence such as annual leave, maternity leave and mandatory education leave. Unplanned absence is unexpected absence such as sickness absence. Allowing for a **planned and unplanned absence percentage** is essential to determine nurse staffing and skill mix requirements. The current percentage allowance in Ireland is 20%, however this is subject to ongoing review, to reflect any future changes, for example such as changes to mandatory education requirements. As maternity leave rates can vary considerably between organisations, this 20% figure does not include maternity leave, and therefore must be added. The setting of an absence allowance at organisational level is recommended as organisations will need to increase the allowance to take account of maternity leave rates in their individual organisation. The absence of this data intelligence at organisational level may lead to a lack of appropriate investment in the nurse staffing

resource with resultant negative patient and staff outcomes and increased costs through temporary nursing staff usage.

A recommendation emanating from the policy impact research is the capture of absenteeism rates as an indicator of the impact of the framework in practice.

6 A "Tipping Point" is used to denote the nurse staffing point at which there is a known increased likelihood of care becoming unsafe. It is important that each ward/hospital/hospital group determines their individual known "Tipping Point", as there is no "one size fits all" to determining nurse staffing and skill mix requirements. The tipping point, which is dependent upon local factors, may vary for each ward/hospital/hospital group and therefore must be determined locally to inform safe nurse staffing and skill mix. Research evidence suggests there is a known increased risk of patient harm associated with one nurse caring for more than eight patients on a day shift. It is critically important to understand that this is an "**Unsafe Staffing Zone**". It **does not represent a safe nurse staffing level**. A safe nurse staffing level can only be determined locally based on local data to inform a known tipping point. The locally determined tipping point will take account of additional local factors related to skill mix, organisational environment and ward climate for example. Coupled with the measurement and monitoring of patient outcomes (for example Safety CLUEs) and nurse outcomes this collective information will provide the locally known tipping point. Of note to the research evidence in this area, is that it did not include data from Irish hospitals whereby jurisdictional variances exist, for example Irish hospital occupancy rates. This reinforces the necessity for a locally determined tipping point.

The policy impact research undertaken to test the framework supports this recommendation, and for data to be collected at ward level to inform decision making.

Box 2 Nurse staffing elements summary

- Systematic assessment of ward staff profiles
- Initial Nurse / HCA grade mix of 80%/20% subject to ongoing review, once a safe staffing level exists
- Recruitment process management
- Planned and unplanned absence allowance – monitoring of data on absence to inform impact of policy
- Integration of multiple information sources to determine nurse staffing level and skill mix

ASSUMPTION 3

This assumption is underpinned by the belief and the evidence that features of the organisational. The organisational environment where patients receive care and staff deliver care has an impact on the ability to deliver safe effective care

ORGANISATIONAL ELEMENTS

This assumption is underpinned by the belief and the evidence that features of the organisational environment, such as the ward climate, organisational culture, ward/organisational care processes and, ward size and layout has a direct impact on the ability of the nursing team to deliver safe effective care (See evidence review report). The more positive the organisational culture and ward climate are, where staff are respected, supported, developed and listened to, the better the outcomes for both patients and staff (Kapinos et al 2012; West and Lyubovnikova 2013; West and Dawson 2012).

What this means in practice

1 **An organisational culture** and **ward climate** that:

- fosters a culture of patient safety and quality improvement;
- fosters transformational leadership as the model for clinical leadership;

- facilitates empowerment;
- recognises and supports staff development;
- as a hospital, supports education at all levels from pre-registration to post registration;
- encourages and supports staff to perform their job to their maximum potential;
- cultivates exemplary practice; values staff and has open and transparent processes to facilitate and encourage staff to raise concerns;
- promotes innovation and improvement,
- recognises, invests in and supports the key role the ward leader plays in creating and sustaining a positive ward environment

The policy impact research highlighted the consideration by organisations of the Magnet hospital principles (Aiken et al 2000) that resonate with the above considerations for a positive ward and organisational climate and that impact on patient outcomes (Lake et al 2010).

2 **Ward leadership** is an important factor to creating and sustaining a positive ward environment which, in turn has an impact on patient outcomes. Ward leaders play a significant role in patient safety as they lead and manage a workforce which has the highest level of contact and the most diverse range of interactions with patients (Riley 2009). Across a broad range of clinical settings, this role has demonstrated positive associations with patient outcomes (Wong et al 2013). Positive workplace environments are built and sustained by strong nurse leaders (Duffield et al 2011, Malloy and Penprase 2010). Similarly the policy impact research (Drennan et al 2018) reported increased staff perceptions of the extent to which they were supported by nursing leadership whereby supervisory roles were in place or had increased. For these reasons, it is recommended that organisations invest in ward leader capacity by ensuring that 100% of the role of the CNM2 is safeguarded to fulfil his/her supervisory and leadership role. Notwithstanding that this acknowledges the balance to be maintained between clinical and professional credibility and managerial functions, to create and sustain a positive, high quality ward environment for patients and staff. As outlined in the Commission on Nursing Report (1998), there is a need for an additional post in the management of a ward. This is described as the CNM1 as required by the activity and complexity of the nursing/midwifery service, with clearly defined roles and responsibilities, in addition to assuming charge of the ward in the absence of the CNM2. It is therefore recommended that organisations investment in the role of the CNM1, in recognition not only of their supportive role to the CNM2, but equally for their importance as a necessary provision for CNM2 succession planning across the organisation.

3 Adoption of **care processes** and **models of care delivery** across general and specialist medical and surgical adult in-patient settings, that foster patient centred care (The Health Foundation 2014)[3], team work and team support in addition to supporting safe, effective and efficient care delivery. Examples of these could include:

- Productive Ward series- a ward based quality improvement programme under the Releasing time to care initiative to empower nurses, and multidisciplinary teams to streamline work processes (collaborative initiative by the Quality Improvement Division and the Clinical Strategy and Programmes division, Office of the Nursing and Midwifery Services Director, HSE). This includes initiatives such as clinical handover using the ISBAR (Identify, Situation, Background, Assessment and Recommendations) to communicate patient information safely, effectively and efficiently.
- Careful Nursing Philosophy of Professional Practice Model (Meehan 2003) – a professional practice model underpinned by a philosophy framed by three principles; 1) the nature and inherent dignity of the human person; 2) infinite transcendent reality in life processes; and 3) health as human flourishing; and four practice dimensions: 1) the therapeutic milieu; 2) practice competence and excellence; 3) management of practice and influence in health systems; and 4) professional authority. This model includes in its focus the impact on patient outcomes.

[3] supports people to make informed decisions about successfully managing their own health and care, and choose when to invite others to act on their behalf

- Safety Pause- a practice initiative by the Quality Improvement Division (2013), that raises awareness by all teams to be more proactive about the challenges faced in providing safe, high quality care. This is undertaken in practice through questioning at every opportunity "what patient safety issues do we need to be aware of today?" The four 'Ps' act as examples to prompt the discussion (Patients, Professionals, Processes and Patterns).
- Ward size and layout are features of the ward environment that are taken into account in the assessment of care delivery processes such as the Productive Ward – equally they should be taken account of in nurse staffing decisions whereby, for example single rooms can affect patient surveillance capacity.

Box 3 Organisational elements summary

- Positive organisational culture
- CNM2 100% supervisory status
- Positive ward climate as a reflection of effective clinical leadership
- Adoption of care process and models of care delivery to foster team work and safe, effective and efficient care delivery
- Factoring in ward size and layout

ASSUMPTION 4

Positive patient and staff outcomes are important indicators of the safety and quality of our nursing care

OUTCOME ELEMENTS

This assumption is based on the belief and the evidence that the nurse staffing and skill mix resource has a direct impact on patient and staff outcomes (Aiken et al 2014; Aiken et al 2012; Duffield et al 2011; Griffiths et al 2014; Simon et al 2014). Therefore, monitoring staff and nurse sensitive patient outcomes is necessary to determine if the nurse staffing and skill mix resource is at a safe level and is capable of adequately meeting patients' needs. Similarly, missed care interventions and rationing of care have been described in the evidence to denote the inability to carry out necessary care or decide upon which care interventions to ration/leave undone due to inadequate nurse staffing level or skill mix (Ausserhofer et al 2013; Ball et al 2013; Schubert et al 2013, 2012, 2008). Monitoring missed care/care left undone events provides key insights into the adequacy of the nurse staffing level and skill mix across general and specialist medical and surgical adult in-patient settings.

Importantly the policy impact research report (Drennan et al 2018) noted a number of patient outcomes sensitive to nursing care were measured through an analysis of data from the Hospital In-Patient Enquiry (HIPE) system. The time series analysis showed that the odds of developing an NSO began to decline after the implementation of the suite of recommendations from the framework which was also apparent after adjusting for case-mix. This demonstrates the importance of the collection of data on nurse sensitive patient outcomes.

What this means in practice

1 It is recommended that organisations put in place mechanisms to measure nursing sensitive key performance indicators systematically and consistently to identify if the nurse staffing resource is capable of adequately meeting patient needs. Indicators can be used to measure structures, processes and outcomes. The KPI's recommended in this section are those measuring outcome. The recommended nursing sensitive Key Performance Indicators as identified through the evidence as sensitive to the nurse staffing resource and included for collection in an Irish context are as follows:

- Falls incidence
- Pressure ulcers

HIPE data was identified as being of utility in measuring the association between nurse staffing and nursing sensitive outcomes. Nationally the Office of the Nursing and Midwifery Services Director is implementing the Nursing & Midwifery Quality Care-Metrics to provide a systematic approach to the capture of nursing process KPIs known also a nursing metrics. The development of these will have utility in monitoring the association

between nurse staffing and outcomes as they are incorporated at ward level. Both indicators were been included for KPI reporting in the HSE National Service Plan for 2015 (HSE 2015), which will support organisations that are not currently collecting this data to begin the process. The outcomes to be evaluated are falls with injury, and Hospital Acquired Pressure Ulcers stage 2 to 4 and structure and process indicators (i.e. service variables that are controlled by the hospital and important for benchmarking purposes) as well as basic patient characteristics to contrast patient populations. This data provides evidence that is critically important for all hospitals to have access, to performance benchmark data to understand comparative performance on patient outcomes, in order to prioritise nurse performance improvement and resources. Measurement and monitoring of event occurrences in hospitals to delineate required resources and change in practice is essential for an effective performance improvement programme. Leaders must also understand the systems around care delivery i.e. staffing, skill mix the amount of time nurses and other providers spend in direct patient care, the use of evidenced-based interventions and risk assessment activities (Storer Brown, Donaldson, Burnes Bolton and Aydin 2010).

This data should be monitored at ward, hospital and hospital group level for comparison with nurse staffing and skill mix data as an indicator to inform decisions on the adequacy of the nurse staffing resource to meet patient needs.

2 As previously referred to KPI's can be used to measure structure, process and outcome. This section outlines recommendations on the measurement of process KPIs. The measurement of nursing process KPIs provide valuable indicators of nursing processes. Nationally the Office of the Nursing and Midwifery Services Director is implementing the Nursing & Midwifery Quality Care-Metrics to provide a systematic approach to the capture of nursing process KPIs known also a nursing metrics. Foulkes (2011) defined metrics as "performance quality indicators that provide a framework for how fundamental nursing care can be measured". A core suite of nursing and midwifery process metrics were developed based on established standards from both the professional (NMBI) and organisational regulators (HIQA, Mental Health Commission); and from evidence of best practice for implementation across acute services, midwifery care, intellectual disability, and mental health, with development work on-going in children's nursing. The focus of the metrics for acute care are:

- Pressure ulcer assessment, falls assessment; National Early Warning Score/Observations; medication storage and custody; medication administration and nursing documentation (including discharge planning and medical device review).

3 The evidence linking nurse staffing with patient satisfaction demonstrates the value of measuring patient experience of nursing care as an outcome measure (Aiken et al 2012). Measuring patient experience of nursing care is recommended as a patient outcome measure at ward level, and can be undertaken/ incorporated within the wider context of patient experience surveys at hospital level to ascertain patients' views on the experience of care. The introduction of the National Patient Experience Survey provides the opportunity to assess the quality of the patient experience at hospital level and should be given consideration by hospitals as a mechanism to measure patient experience in this instance.

4 The impact of the work environment on nurse staffing is well documented (Estabrooks et al 2005; Friese et al 2008). Therefore measurement of staff experience is recommended to capture information on the work environment as a key component to nurse staffing. Ascertaining information on levels of job satisfaction, intention to leave, professional development and career opportunities, support and engagement can provide important insights of staff experience at both ward and hospital level. Measuring this data a minimum of biannually by the CNM2 is recommended.

5 The withholding or failure to carry out certain aspects of care due to inadequate/limited resources

is often referred to as care left undone/missed care/care rationing. Potential causes of care rationing have been reported as nurse-patient workload and communication barriers (Papastavrou et al 2013). More importantly, it has been identified as a predictor of patient outcomes (Schubert et al 2008), including patient falls, nosocomial infection and low patient satisfaction levels, in addition to nurse related outcomes including low job satisfaction (Papastavrou et al 2013).

Capturing missed care/care left undone activities on a shift-by-shift basis provides the opportunity to identify, escalate and respond to immediate patient safety concerns directly related to staffing adequacy. Missed care/care left undone are referred to as "Safety CLUEs" (Care Left Undone Events). An example of some of the key activities to be monitored as a first line of enquiry into staffing adequacy are included in Box 4 below. It is recommended that these are monitored on a shift-by-shift basis by the Clinical Nurse Manager or his/her designate, with a clearly defined reporting, escalation and response protocol developed at organisational level. Additional CLUEs to those outlined below may be agreed at organisational level.

Box 4 Safety CLUEs

- Inability to provide adequate patient surveillance – e.g. post-operative or post procedure or patients who are disoriented/ at risk of fall;
- Inability to carry out vital observations in accordance with the parameters set out by the National Early Warning Score;
- Delay or unplanned omission in providing patient medications;
- A delay or unplanned omission in supporting patients with necessary physical needs such as toileting, washing, mobilising/repositioning, eating and drinking;
- Missed meal breaks by staff;
- Delay or omission in recording clinical practice/developing and updating care plans

3.3 Macro Level Factors

It is acknowledged that there are many elements and factors influencing the appropriate determination of the required nurse staffing and skill mix level to provide safe, effective patient care. In the previous sections the elements related to patients, nurse staffing, organisational and patient outcomes have been discussed as those most pertinent for review when setting the ward nurse staffing requirement. There are however wider elements, described here as the macro level factors which should be considered by those at senior organisational level responsible for the overall governance of the nurse staffing workforce. Figure 3.0 outlines the macro level factors that organisations should be aware of potentially impacting on the nurse staffing resource. The factors are presented using a PESTLE (Political, Economic, Sociocultural, Technological, Legal and Environmental).

Figure 3.0 Macro Level Factors

3.4 Nursing Workforce Governance

Senior hospital management and hospital boards of management, as demonstrated through high profile reports on patient safety (Francis Report 2013, HIQA Tallaght Hospital Report 2012b), take full responsibility for the governance of patient care including the nurse staffing capacity and capability to deliver safe care. The key principle for governance in this context is the assurance that patients receive safe effective care across the hospital and in each individual ward, delivered by the optimum nursing workforce (whereby the nursing workforce in this context refers to registered nurses and healthcare assistants). Therefore, the governance arrangements must provide the assurance that there is sufficient staffing capacity and capability informed by robust evidence based systems and processes to ensure patients receive the care they need in the ward where they are located. In the context of setting nurse staffing and skill mix levels, appropriate governance to assure autonomy, authority and accountability needs to be in place at various points in the system to take account of the day-to-day nurse staffing decisions in addition to the wider governance of the nursing workforce.

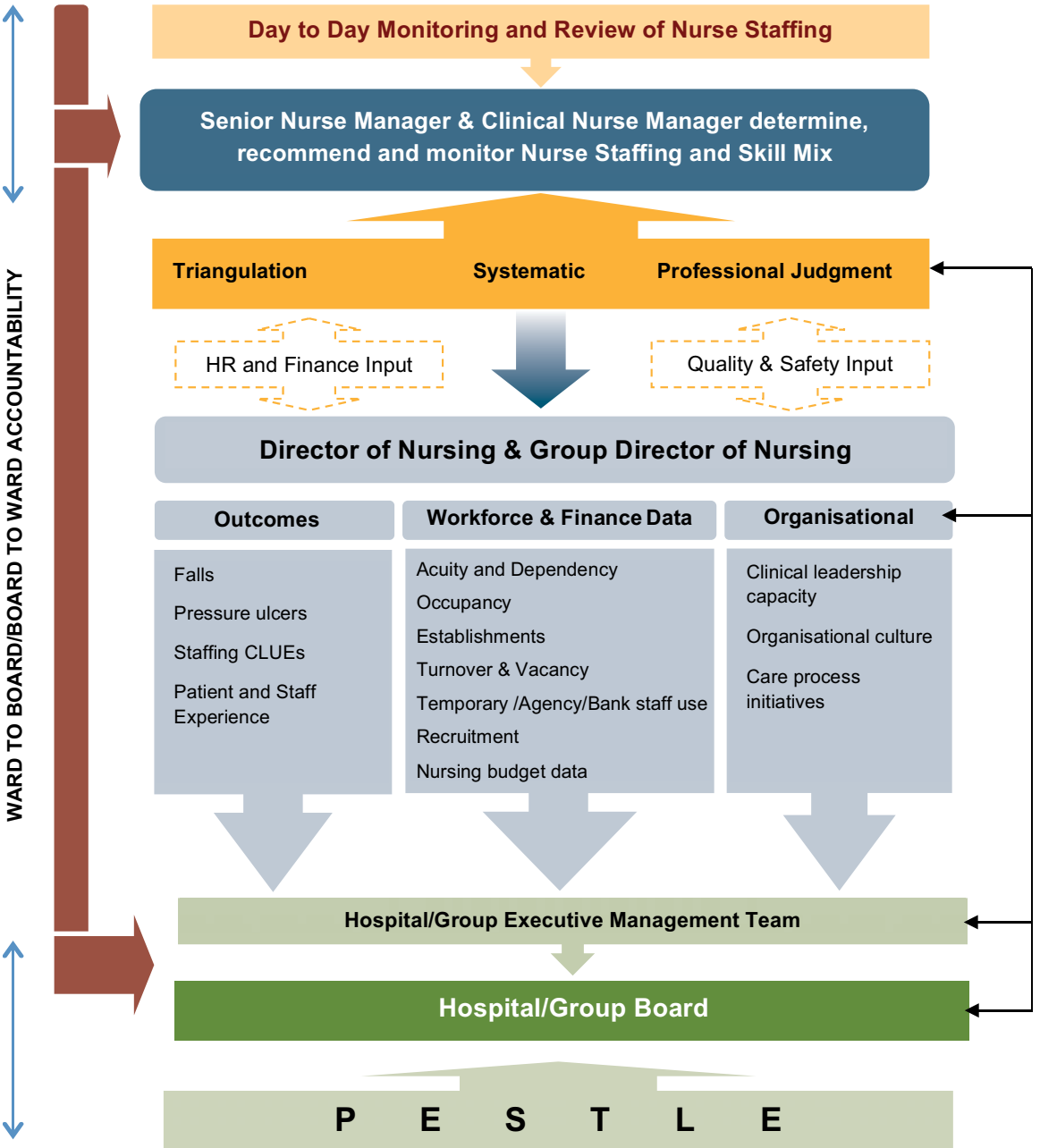
3.4.1

Central to this in practice is the recommendation for the autonomy of the Group Director/Director of Nursing to determine safe staffing and skill mix levels across the hospital/hospital group, as part a member of the management team. In order to fulfil this function safely, effectively and efficiently the Group Director/Director of Nursing, as a member of the management team needs to determine, control and influence the size and utilisation of the nursing budget. Notwithstanding that this is undertaken within the context of an overarching pay framework, recognising that as a member of the management team there are often competing demands on the overall hospital budget. A pre-requisite to managing this budget, is the collaborative support of the Finance Director to provide regular data, detail and advice on nursing expenditure, to support informed decisions on managing the nursing budget to respond to variation in patient needs and staffing.

3.4.2

Figure 4. 0 outlines the necessary nursing workforce governance from ward to board and board to ward, that senior hospital management and/or hospital boards of management must ensure is in place. In its simplest form, the setting of nurse staffing and skill mix requirements occurs at two levels: 1) ward level and; 2) hospital level.

Figure 4.0 Nursing workforce governance structure



3.4.3

At its first level, a key principle is the determination, recommendation and monitoring of nurse staffing and skill mix requirements at ward level. This is undertaken by the Clinical Nurse Manager and the Senior Nurse Manager, using the approach outlined in the section five. At this point in the process, the Clinical Nurse Manager and Senior Nurse Manager determine, recommend and monitor nurse staffing and skill mix levels in her/his individual clinical area. This is undertaken, in the first instance a minimum of twice yearly using the approach outlined in section five with their recommendations on the total nurse staffing and skill mix requirements (i.e. establishment) advised and recommended to the Group Director/Director of Nursing. In addition, the Clinical Nurse Manager and Senior Nurse Manager undertake the day to day monitoring of nurse staffing and skill mix with escalation as necessary of ***Safety CLUEs*** as a mechanism to prompt a repeated nurse staffing and skill mix review as required. It is recommended therefore that Clinical Nurse Managers and Senior Nurse Managers are responsible for the collection and interpretation of data related to patient need, nurse staffing and skill mix, organisational elements and patient outcomes in order to make informed decisions on the setting of nurse staffing and skill mix requirements.

3.4.4

At hospital level, the Group Director/Director of Nursing provides key data and reporting on the nursing workforce at senior hospital level. Reporting at this level will integrate the recommendations by his/her Clinical Nurse Managers/Senior Nurse Managers on the nurse staffing and skill mix requirements and organisational features, along with key data on outcomes, workforce and the nursing budget with the support of the Director of Finance, Human Resources (HR) and Quality and Safety. Therefore, it is recommended that Group Directors/Directors of Nursing monitor and review the staffing and skill mix requirements based on their collaborative engagement with Senior Nurse Managers, HR, Finance and Quality and Safety. It is recommended that Directors/Group Directors of Nursing have the autonomy to present staffing reports which detail ward level outcomes, organisational and workforce data, along with the necessary budgetary implications to advise and provide direction on the review and monitoring responsibility by the hospital senior management team and/or boards of management.

3.4.5

Senior hospital management must be assured that this data has been gathered using robust evidence based methods that are applied consistently, and includes triangulation of methods inclusive of professional judgment.

3.4.6

Each Hospital/Hospital Group must put in place a mechanism to communicate the outcomes from the discussion on the nursing workforce to complete the board to ward accountability loop. One example may include a nursing workforce bulletin communicated at key points throughout the year to disseminate the wider workforce decisions. Similarly, the quality and safety walk-rounds, advocated by the Quality and Safety Directorate (2013) allow executive/senior management team members to have a structured conversation around safety with frontline staff and patients. They are also a way of demonstrating visible commitment by listening to and supporting staff when issues of safety are raised. The walk-round can be focused on any location or service that may affect patient care and safety of the organisation, for which the nurse staffing resource plays a significant part, and therefore can contribute to these discussions at ward level, fostering ward to board and board to ward accountability.

3.4.7

The review and monitoring of nurse staffing and skill mix reports by senior hospital management teams and/or boards of management, and hospital group boards, ensures ward to board accountability and provides the assurance of appropriate nursing

workforce governance. It is recommended that each management team/board of management/hospital group board meeting should include a standing item agenda on workforce management and planning – including the nursing workforce. This provides the opportunity for senior management to monitor:

- the systematic use of robust methods coupled with triangulation and professional judgment;
- the application of collaborative decision making by those at clinical level (Clinical Nurse Managers) with their nurse managers at Senior Nurse Manager and Director of Nursing level;
- the effectiveness of investment at local hospital and hospital group levels in nurse staffing level and skill mix through data on patient outcomes and Safety CLUEs;
- the trends at local and hospital group levels on patient, staffing, organisational, nurse and patient outcomes, which will drive review of staff education investment;
- the potential influences of PESTLE factors on nurse staffing and skill mix;
- current or emerging issues and/concerns with appropriate responsive decisions and actions.

3.4.8

The policy impact research report (Drennan et al 2018) noted the establishment of local pilot implementation teams to oversee the pilot test. It was noted that these structures were central to ensuring that the reallocation of staff and the staffing resources were put in place as the recommendations from the framework were implemented. The role of these teams was to support the implementation and monitoring of the safe nurse staffing and skill-mix programme at local and group levels. This approach is therefore recommended for consideration as a tried and tested approach to governance.

3.5 Calculating the Ward Staffing Establishment

This section outlines the series of steps that should be undertaken when calculating a safe ward staffing establishment incorporating the guidance outlined in the previous sections in addition to the use of Nursing Hours per Patient Day (NHpPD). Nursing Hours per Patient Day (NHpPD) is a systematic method used to both measure and monitor the required direct care nursing hours to guide the most appropriate, safe and effective nurse staffing model.

Guiding principles on NHpPD for specific clinical settings are defined in this section to provide both the guidance on these hours in addition to providing the mechanism for benchmarking of services. This section must be read in conjunction with the previous sections to factor the essential elements influencing the nurse staffing and skill mix requirements. It should also be noted that a core component to calculating the safe ward staffing establishment is the integration of professional judgment which is equally highlighted in this section. The following sections outline the series of steps to be undertaken along with scenario examples.

When calculating the Nursing Hours per Patient Day (NHpPD) a minimum of two months data is to be used (i.e. Quarter 1 and Quarter 3 data as a minimum).

Step One	Measurement Each ward/unit provides one month's data outlined below twice yearly (Q1 & Q3) at a minimum (or more frequently if clinical judgment indicates changes in the ward environment) to inform the decisions on safe nurse staffing requirements. The tool in Appendix 4 should be used in conjunction with this section.
Acuity and dependency	Acuity and dependency is measured daily on all patients for one month twice yearly (Q1 and Q3). This data provides an acuity and dependency profile for the ward/unit (see appendix 2 for further details).
	The data should be presented as percentages for the overall ward/unit per acuity/dependency category.
Bed Occupancy	Calculate the average daily bed occupancy percentage for each month (Q1 & Q3), twice yearly. This data is gathered as part of hospital administrative data for ward/unit level. Note additional beds, not usually part of the normal ward complement are to be factored into the calculation on bed occupancy.
Nurse Staffing Hours	Calculate for each month (Q1 and Q3), twice yearly, the total Staffing Whole Time Equivalents (WTE) used. This must include a breakdown of total hours for registered nurses, health care assistants/multi-task attendants and nursing intern students, inclusive of additional resources such as agency and bank nursing and HCA hours. Calculate the total WTE used for each month, twice yearly.
	Use this data to inform an accurate grade mix profile; i.e. Nurse/Healthcare Assistant/Multi-task Attendant/Nursing Intern Student mix.
Nurse Staffing Profile	Over each month (Q1 and Q3), undertake a staff survey to determine the current education and skills of the ward/unit nursing team. Use this data to inform HR recruitment and retention strategies; this will facilitate understanding of education level, specialist skills and competence to deliver safe care.
Calculate Nursing Hours per Patient Day (Direct Care)	Using the process and tools outlined in Appendix 3, calculate the Nursing Hours per Patient Day for the ward/unit.
	If there are a regular number of patients requiring one-to-one nurse special/supervision in your ward/unit, it is advisable to separate these patients from the calculation of NHpPD, as they are likely to skew the data. Alternatively, treat these patients as a split ward category as outlined in the NHpPD scenarios (see below).
	The guiding principles on NHpPD in Step 3 are to be used to inform decisions on safe nurse staffing and how they relate to the calculated NHpPD(see below).
Calculate indirect nursing care hours	NHpPD captures the direct care provided to patients. The additional demand on nursing time for example: supervision and assessment of learners, inter-professional communication, attendance at operational meetings etc., must also be calculated per day. This requires the professional judgment of the Clinical Nurse Manager.
	The calculation of indirect nursing care hours, can also take into account the impact on nursing time, from geographical ward/unit layout. For example an additional 0.72 nursing hours (3% of total 24hours) may be factored for a ward/unit with mainly single rooms.
Calculate Absence Rate	The baseline absence rate is 20%, exclusive of maternity leave. The actual maternity leave must be calculated in conjunction with HR at hospital level and added to the baseline to determine an accurate absence rate.

Step Two	Ward Category	Calculating the Ward/Unit Safe Nurse Staffing Establishment The following scenarios demonstrate the steps to calculate the ward/unit safe nurse staffing establishment.
Scenario 1	**Ward Descriptor**	Low complexity, general medical ward in a Model 2 Hospital
	NHpPD	The NHpPD was calculated to be 4.3.
	Acuity & Dependency	*Categories: Low (89%), Medium (0%), High (11%), Very high (0%).
	Number of Beds	21
	Bed Occupancy	95%
	Nurse Staffing	Current nurse staffing establishment is: CNM2=1; RN = 16.1, Nursing Intern = 0.5; HCA = 2.5. Total WTE = 20 2.5 HCAs are supplementary staff through the Bank
	Indirect Care Hours	5.6
Calculation Formula	Calculate average hours per day	4.3 NHpPD x 19.95 (95% Occupancy) + 5.6 (Indirect Hours) = 91.3
	Calculate hours per year	91.3 x 365 (yearly hours required) = 33,355.5
	Calculate WTE	33,355/ 2028 (52 weeks x 39 hours) = 16.4WTE
	Calculate absence WTE	16.4 / 100 X 22 (22% absence rate) = 3.6 WTE
	Calculate total WTE	16.4 + 3.6 = 20 WTE 20 + 1 (CNM2 @100% Supervisory) **Total WTE = 21**

*The acuity and dependency categories have been generically listed, rather than to reflect any one specific tool categories. The categories are used in this instance to reflect incremental increases in acuity and dependency along a spectrum.

Interpreting the recommended Total WTE

The above example reveals a newly recommended nursing team WTE of 34.8, where 1WTE is safeguarded for the role of the CNM2. Whilst this is a marginal increase, once again the most significant change will be a shift to a more **stable workforce** whereby the previous transient 4 WTE HCA posts, will now form part of the core nursing team on this ward.

Step Two	Ward Category	**Calculating the Ward/Unit Safe Nurse Staffing Establishment** **The following scenarios demonstrate the steps to calculate the ward/unit safe nurse staffing establishment.**
Scenario 2	**Ward Descriptor**	Moderate complexity, general medical ward in a Model 3 Hospital
	NHpPD	The NHpPD was calculated to be 4.9.
	Acuity & Dependency	*Categories: Low (44%), Medium (56%), High (0%), Very high (0%).
	Number of Beds	31
	Bed Occupancy	98%
	Nurse Staffing	Current nurse staffing establishment is: CNM2=1; CNM1=1; RN = 16; HCA= 14 Total WTE = 32
		4 HCAs are supplementary staff through the agency
	Indirect Care Hours	5.6
Calculation Formula	Calculate average hours per day	4.9 NHpPD x 30.3 (98% Occupancy) + 5.6 (Indirect Hours) = 154.07
	Calculate hours per year	154.07 x 365 (yearly hours required) = 56,235.5
	Calculate WTE	56,235.5/ 2028 (52 weeks x 39 hours) = 27.7WTE
	Calculate absence WTE	27.7 / 100 X 22 (22% absence rate) = 6.1 WTE
	Calculate total WTE	27.7 + 6.1 = 33.8 WTE 33.8 + 1 (CNM2 @100% Supervisory) **Total WTE = 34.8**

Interpreting the recommended Total WTE

The above example reveals a newly recommended nursing team WTE of 34.8, where 1WTE is safeguarded for the role of the CNM2. Whilst this is a marginal increase, once again the most significant change will be a shift to a more **stable workforce** whereby the previous transient 4 WTE HCA posts, will now form part of the core nursing team on this ward.

Step Two	Ward Category	Moderate – High Complexity Care, Mixed Respiratory/ Nephrology Ward in a Model 4 Hospital. Ward has a 4 bedded high observation ward
Scenario 3	**NHpPD**	The NHpPD was calculated to be 5.2 on average, with a NHpPD of 7 for the patients in the high observation ward.
	Acuity & Dependency	Categories: Low (45%), Medium (25%), High(21%), Very High(9%)
	Bed Number	22
	Occupancy	104%
	Nurse Staffing	Current nurse staffing establishment is: CNM2-1; CNM = 1; RN-18, Nursing Intern- 1; HCA- 11. Total WTE = 32
		2 WTE RN and 10WTE HCA are supplementary staff through the Agency and Bank
	Indirect Care Hours	5.6
Calculation Formula	Calculate average hours per day	a) 5.2NHpPD x 18.8 (104% Occupancy of 18 beds)) + 5.6 (Indirect Hours) = 103.3 b) 7NHpPD x 4 (High Obs Beds) + 5.6 = 33.6
	Calculate hours per year	a) 103.3 x 365 (yearly hours required) = 37,704.5 b) 33.6 X 365 (yearly hours required) = 12,264
	Calculate WTE	a) 37,704.5/ 2028 (52 weeks x 39 hours) = 18.5 b) 12,264 / 2028 (52 weeks x 39 hours) = 6.0
	Calculate absence WTE	a) 18.5 / 100 X 22 (22% absence rate) = 4.0 WTE b) 6.0 /100 x 22 (22% absence rate) = 1.3WTE
	Calculate total WTE	a) 18.5 + 4.0 = 22.5 WTE b) 6.0 + 1.3 = 7.3 WTE c) Total = 22.5 + 7.3 = 29.8WTE d) 29.8 + 1 (CNM @ 100%Supervisory) **e) Total WTE = 30.8**

Interpreting the recommended Total WTE

The above example reveals a newly recommended nursing team WTE of 30.8, where 1WTE is safeguarded for the role of the CNM2. Whilst this is a marginal decrease, the most significant change is the shift towards a more substantially **stable workforce**. In this example, over one third of the current nursing team is unstable, as it is supplied through a transient workforce of 12WTE agency and bank. The newly recommended WTE will provide for 100% team stability.

Step Three	Nursing Hours per Patient Day Guiding Principles The following guiding principles are to be used to inform decisions on the most applicable NHpPD related to a ward/unit. Two categories may be used where there are clearly differing patient requirements in the same ward.		
NHpPD	**Category**	**Clinical Setting Description**	Nurse Staffing Range – Increasing complexity - Increasing Intervention Level ↑
6 or greater	A	**Very High Complexity** Very high dependency & acuity level Very high intervention level: e.g. acute post-operative neurosurgical unit in a surgical ward Model 4 Hospital Care Setting	
5.5 – 5.9	B	**High Complexity** High intervention level Special Unit/Ward (e.g. high observation unit within a ward) Model 4 Hospital Care Setting	
5 - 5.4	C	**Moderate - High Complexity Care** Moderate - High intervention level Acute Ward/Unit Increasing complex medical/surgical care e.g. post complex urological surgery (prostatectomy) Typically Model 4 Hospital Care Setting	
4.5 – 4.9	D	**Moderate Complexity Care** Moderate intervention level Acute Ward/Unit General medical/surgical e.g. general respiratory, gynaecological surgery, elective and emergency admission Typically Model 3 Hospital Care Setting	
4 - 4.4	E	**Low – Moderate Complexity Care** Sub-acute Ward/Unit General medical/surgical/ rehabilitation ward/unit Typically Model 2 Hospital Care Setting	

Another area to consider when identifying the staffing complement is the provision of one-to-one care; also known as one-to-one specialling or enhanced care. Enhanced care refers to the requirement to provide care to patients outside the normal staffing level and applies to patients deemed at risk; for example, patients who may be disorientated, are experiencing an alteration in cognition or behaviour or require close observation. The aim of providing enhanced care is to safeguard patients by ensuring that the appropriate level of observation is in place while they are in the acute care setting. Although the provision of one-to-one specialling is important, it is associated with increased staffing costs (Rochefort 2011); therefore, it is important that nursing staff clinically assess the need for specialling on a daily or shift-by-shift basis (Rausch & Bjorklund 2010). There is evidence that when systematic clinical assessments are implemented with patients who require one-to-one specialling (for example, assessments for delirium, dementia, and fall risk), they result in better patient outcomes and the appropriate use of the staffing resource (Colella, 2017).

Undoubtedly this is a complex area and outlined in the policy impact research report (Drennan et al 2018) there was a larger than expected prevalence of one-to-one specialling across all three pilot sites when data was collected at Time 1 (baseline). However, as the workforce stabilised the requirement for one-to-one specialling reduced substantially. This provides evidence of the balance between stabilization of the nursing resource as a key step to identifying the scale of one to one demand. One-to-one specialling was reflective of different levels of patient dependency and the profile of the wards across all sites. It is acknowledged, in some cases, the prevalence of one-

to-one specialling matched the NHPPD range for specialist wards; however, the extent of one-to-one specialling identified in non-specialist wards required extensive resources to match demand. Previous research suggests that many acute hospitals are not equipped with the skills and resources to provide quality one-to-one specialling to patients who require this level of care. To address this, active assessment and management of one-to-one care through a process of enhanced care should be put in place. The research recommended that a set of high level key principles for enhanced care, that were developed as part of the pilot be included in this Framework. To explicitly reflect this point; a more structured, patient-centered approach (enhanced care) to one-to-one specialling would significantly reduce costs, as well as improving the quality of care patients receive and enhance the patient experience.

Therefore the below key principles (4 key principles) for enhanced care are those developed as part of the pilot, for enhanced care delivery by Health Care Assistants, and those recommended for be put in place at an organisational level, taking local processes into account, whereby the roles and responsibilities of all staff engaged in one-to-one specialling be clearly identified. In addition each of the components for each principle is provided for guidance.

Table 2 Key Principles for Enhanced Care	
1	Organisations gather intelligence on Enhanced Care demand and supply
2	The development of guidelines/ protocols regarding Enhanced Care
3	Education and development of staff involved in the delivery of Enhanced Care
4	Governance for Enhanced Care

Key Principle One – Organisations gather intelligence on Enhanced Care demand and supply	
1.1	Each site undertakes an assessment of the demand and supply of Enhanced Care.
1.2	Intelligence should be collected surrounding: • The demand for Enhanced Care (i.e. hours required); • The supply for Enhanced care (i.e hours available, grade supplied, supply source – ward staff/agency/overtime/bank); • The reasons for Enhanced Care
1.3	This data should be used to identify trends and patterns of Enhanced Care demand and supply.
1.4	Additional risk management data should be incorporated into the above data sources, to identify outcomes from Enhanced Care need.
1.5	The data should be used to identify the current cost of Enhanced Care.
1.6	Collectively the data is to be used to inform the most safe, effective and efficient Enhanced Care approaches, site specific. Such approaches can include or be a combination of for example; 1. Enhanced Care Teams 2. Close Observations Units 3. Video monitoring – similar to telemetry approaches 4. Therapeutic Activities – e.g. Activity boxes, arts and crafts etc. 5. Involvement of Family – structured approach 6. Specific training and education programmes

Key Principle Two - The development of Enhanced Care guidelines	
2.1	Each organisation will develop a Guideline to support the decision making process in regard to Enhanced Care requirements. It should be noted that this guideline should work in conjunction with and complement other initiatives, such as 'what matters to me'.
2.2	The guideline will outline the categories of patients that can safely be cared for by a Health Care Assistant, specifically trained for the role of Enhanced Care.
2.3	The guideline will outline the key steps to be undertaken to both assess and deliver Enhanced Care.
2.4	The steps will include: 1. Patient assessment by a Registered Nurse of need for enhanced care – this step will identify the reason for enhanced care, based on a comprehensive clinical assessment of the patient, inclusive of tailored tools and risk assessments to take account of the risk level in relation to safety, communication and cognition. In this step, referral to other HealthCare Professionals/teams may be identified, e.g. Falls team, Mental Health team. The advice of these teams will be used to inform the need and level of Enhanced Care. Additionally, underlying causes, such as infection, pain and dehydration, will be identified and their treatment included in the patient's overall plan of care. 2. Enhanced Care should be an integral part of the overall therapeutic care plan, to ensure the sensitive monitoring of the patients behaviour and mental state and identify factors that may exacerbate or inhibit challenging behaviours, whilst at the same time fostering a positive therapeutic relationship and using the least restrictive means to maintain safety. 3. Continuous reassessment of patient's Enhanced Care need is required particularly where underlying causes are being treated. This step will also include, as appropriate, assessment by other healthcare professionals/teams. 4. Integral to the initial and on-going assessment is the need to identify and recommend the Enhanced Care level and type, e.g. close observation, constant observation or cohort Enhanced Care. The guideline will specify the broad levels of Enhanced Care, with the option to tailor Enhanced Care to individual patients.
2.4	The Enhanced Care guideline should clearly identify the role and responsibilities of all staff engaged in the care of the patient requiring Enhanced Care. The role of the HCA in Enhanced Care is one that must be incorporated into the wider health team on the ward.
2.5	The guideline should outline all necessary documentation to be completed, both in the assessment/reassessment phases and for on-going monitoring at a minimum. It is also recommended that organisations develop patient and family and staff information leaflets on Enhanced Care. In the case for staff, this information should be tailored, particularly for transient staff providing Enhanced Care.
2.6	The guideline should clearly outline the request process for Enhanced Care, which must include on-going review in tandem with patient reassessment as outlined above.
2.7	Data on patient outcomes and staff experience of Enhanced Care approaches should be gathered in addition to the data collection processes in section 1.0 above to inform the on-going approach to Enhanced Care.

Key Principle Three - Education and development of staff involved in the delivery of Enhanced Care	
3.1	Using the data intelligence as outlined in section 1, each site will identify their training needs based on their reasons for Enhanced Care. It is recommended that training programmes would include components such as: falls assessment and management, dementia training, delirium management, managing behaviours that challenge and the management of violence and aggression. The specific training and education should be provided with the purpose of enabling the Health Care Assistant to manage the patient group safely and appropriately under the direction and supervision of a Registered Nurse and the Ward nursing team.
3.2	Training programmes should be delivered with input from the wider healthcare team to provide a comprehensive approach to education.
3.3	Training programmes will be reviewed and amended where demand on the services alters, e.g. reasons for requiring enhanced care may change.
3.4	A database of training and education completed should be developed by the organisation in order to target continuous professional development, along with identifying the current capability of the HCA team in the organisation to fulfil these roles.

Key Principle Four - Governance of Enhanced Care	
4.1	The governance for enhanced care must be specified in the guidelines to take account of the local processes.
4.2	Overarching governance, in the context of safe nurse staffing, falls under the Taskforce on Nursing and Staffing Skill Mix for Nursing, whereby the data and outcomes are monitored at all levels as part of this element of the framework.

3.6 Conclusion

In the previous sections, the Framework assumptions, macro level factors, nursing workforce governance, along with a practice step-by-step guide have been outlined in order to provide a comprehensive approach underpinned by evidence to determine the optimum nurse staffing resource.

The recommendations set out in this framework represent a significant shift in the way in which current nurse staffing resources are determined. This therefore will require hospitals and hospital groups to commit to a structured plan, involving nurses at all levels, in different roles to engage and lead on the implementation of this framework. The key learning from the policy impact research (Drennan et al 2018) provides the evidence on the impact of implementing the framework and the benefits. It is therefore recommended that the framework be rolled out nationally on a phased basis. The following section addressed the future rollout.

4 The Way Forward

In 2014, on the establishment of the Taskforce for Safe Nurse Staffing and Skill Mix, the core objective was to develop a framework to support the determination of safe nurse staffing and skill mix across general and specialist medical and surgical wards in acute hospitals. Against the backdrop of the years of the economic downturn, that required some of the most challenging decisions for our country and in particular for its nursing workforce, this work has been critical. This framework puts in place a radical new approach to the age old problem of determining safe nurse staffing levels in our hospitals, and recognises the relationship as demonstrated not only through international research, but now Irish research, on the relationship between nurse staffing arrangements and patient and nurse staffing outcomes.

The approach taken to the development of this framework has been one underpinned by evidence and research, not only in its development but equally in testing its capability to deliver in practice. It is this evidence on delivery in practice that has informed the way forward. This section of the Framework, sets out the key proposition established at the outset of this work, and demonstrates through evidence and research, the key benefits of framework implementation, in the context of a national implementation plan. It focuses on the key building locks to delivering national implementation along with the evidence on why we are confident of the approach to national implementation. It is important that the focus now shifts to harnessing the benefits of the small scale pilot for national implementation and benefits.

4.1 Key Proposition

Apparent from the evidence review, are the key benefits to the introduction of a systematic approach to the determination of safe nurse staffing and skill mix. These include but are not limited to better patient and staff outcomes, along with better organisational outcomes. Undeniably the single most important justification for this approach is safer better outcomes for patients, that simultaneously delivers a safe working environment for staff. As a consequence, there are equally wider value improvements across the health system that are achievable as demonstrated through the pilot outcomes, that collectively with the patient and staff outcomes, demonstrate the justification for this policy approach. At the outset of this work, a key proposition established, based upon a high level review of the current level of investment in the nursing resource at acute hospital level, inclusive of investment in agency, proposed that greater value for investment could be made through the application of the framework using the totality of the current investment in the nursing team (nursing and healthcare assistants). Based on this high level review, it was proposed that the required level of investment to underpin the framework implementation could for the most part be resourced through the current totality of the nursing investment along with the additional efficiencies that would be realised through for example better patient outcomes. That is not to say there is no investment cost, but rather the way investment is made requires a move away from the traditional model of funding, as outlined further on. It was on this basis that the testing of the framework focused on the capability of the system to deliver on this proposition, which has been demonstrated through the pilot test with the associated benefits.

4.2 Key Benefits

A fundamental principle of any investment is the assurance of key benefits, or more simply a return on one's investment. This has been a key focus of the pilot test, whereby the overriding emphasis has been to focus on not only the practical implementation, but more importantly the key benefits. In short, the pilot test has provided key insights on the benefits of the framework introduction that have included;

1. Patient benefits: reduced odds of developing nurse sensitive outcomes, reduced levels of care left undone/delayed;
2. Efficiency benefits: efficiency savings through reduced agency cost and improvement savings identified through reductions in nurse sensitive outcomes;

3. Workforce stability: sustained reduced agency reliance, improved and more efficient skill mix, improved leadership outcomes;
4. Staff benefits: increased ratings of staffing and resource adequacy by staff, increased perceptions of care quality, lower prevalence of intention to leave and higher job satisfaction in wards with higher level of intervention.

The scale of the pilot is a notable feature, and therefore the future rollout model is one that must be realistic and deliverable in the context of the current pressures across the health service.

4.3 Key Building Blocks – Move away from the traditional model of funding

The pilot of the framework has proven itself to be a key building block in shaping the approach to the future national rollout. The pilot has not only demonstrated a radically new way of determining safe nurse staffing, but equally has provided the evidence base for a move away from the traditional model of funding to one that demonstrates initial investment, yielding returned benefits both in the short and medium to longer term.

To better understand this as one of the key building blocks, it is necessary to examine the way in which the pilot has delivered on this and to determine based on this, the approach to the future national rollout and the implications of this in practice.

The approach to the pilot was one of testing the capability of the framework to deliver on its intended outcomes. As stated earlier in this document, six wards across three hospitals of varying size were selected to participate in the pilot.

Of the 6 wards included in the pilot the following was evident;

- 3 wards required an investment with an increase in staffing along with the conversion of agency in addition to stabilisation of the skill mix on each ward;
- 1 ward required an investment with minimal scope for agency conversion, but with improved stabilisation of the skill mix on this ward;
- 2 wards required no investment, but revealed scope for agency saving in addition to improved skill mix, all being managed through a dedicated project on enhanced care;
- The total level of investment for the pilot across the 6 wards (for which 2 wards required no direct investment) was 21.2 WTE. In addition, a further 15.1 WTE resource was identified through agency conversion. Therefore the totality of the required WTE was 36.3 WTE;
- Based on this the average direct cost WTE investment was 3.5WTE per ward, with agency conversion investment at 2.5WTE per ward;
- The annual cost of the direct investment was €954,893, which based over 6 wards was an average cost per ward of €160,000;
- In June 2017, based on the cost of investment less the saving on agency costs, the pilot was costing €14,722 per month/ €176,664 per year;
- As the pilot continued, the return on investment has continued to accrue through sustained agency conversion, and therefore the cost of the investment is now yielding a return with a saving of €2,905 per month/ €34,860 per year;
- The pilot has been extended to include a further 13 wards. Of interest the share of direct investment in WTE (i.e. cost to the DoH) has reduced substantially with a corresponding substantial increase in the WTE for agency conversion. These new 13 wards require a total of 57WTE. Of this 21.5WTE will be directly funded by the DoH, with 35.5 WTE identified through agency conversion. Therefore the rate of agency conversion to direct investment in this further rollout has inverted. In simple terms, per ward, the average direct WTE investment is 1.65WTE compared to an average 2.7WTE through agency conversion.

Summarising the pilot the above findings demonstrate a number of important building blocks for future rollout as follows;

1. Up front investment has been required to yield efficiencies- the pilot commenced with a budget to pay for incremental costs of new staff;
2. It has identified in the implementation phase, the delivery of better patient and staff outcomes, along with a mechanism to convert and sustain agency conversion;
3. The return on investment is over time rather in the initial period of investment, and is dependent for example on recruitment timelines;
4. As the pilot has scaled up further investment continues to be required, yet the longer-term balance of investment versus efficiency return (i.e. direct investment versus agency conversion) is shifting;
5. It has also demonstrated the ability to convert agency to substantive posts, however the savings from these conversions were not used to fund the new staff, but were instead used for other initiatives/ running costs at local hospital level;
6. Importantly the pilot demonstrated the release of funding overall, which is of benefit to the overall health service, although these are not released at system level, but rather used at local hospital level;
7. Mix of high agency use wards has yielded efficiency opportunities;
8. Invest to improve principle is most critical, as the above economic data is exclusive of the patient outcome opportunity costs that are equally important.

Based on the findings of the pilot, a further building block is the move away from the traditional funding model, to an approach of 'invest to save' model. The reference to "save" in this context is the widest definition that includes efficiency savings along with improvement savings, for example safer better outcomes for patients which is the fundamental focus of the framework. This is a model whereby funding at the outset is provided to support initial investment upon which to then extract savings/efficiencies at a later stage as wards are stabilised. The rationale for this is on the basis of learning from the current pilot, whereby agency conversion along with investment has been required, along with investment matched by reform.

In the context of this approach, another key feature is the current growth in the nursing workforce which year on year shows signs of regrowth based on the Health Service Personnel Census whereby this resource is growing year on year by 1.9%. This coupled with the reducing implementation costs as the pilot was extended makes overall costing of the framework challenging to accurately determine.

Therefore, based on the evidence to date, the proposed approach to fund the ongoing implementation plan, is one of invest to save. This would require an initial 'seed investment fund' operated on the basis of a centrally managed fund by the HSE, subject to on-going Government commitment to fund the implementation of the Framework, based on year on year formal evaluation of the utilisation, impact and outcomes from the invest to save model. It is recommended that the HSE develop an implementation plan taking into consideration the following principles;

- The principle of an invest to save requires initial up-front investment through the operation of the seed investment fund whereby the fund is used to invest in order to generate efficiencies and better patient outcomes. One of the core components of the initial investment must also take into account the separate investment required for a national ICT workload management system as demonstrated in the pilot;
- The development of the plan should take into consideration the overall financial and staffing landscape to deliver in the context of the pay and numbers strategy and the value improvement programme;
- The operation of the fund should be such that as efficiencies are generated, these are to be used to reinvest in the nursing resource as required within for example a hospital group so as to extend the life of the investment fund in so far as is reasonably practicable. A whole hospital/ hospital group implementation approach should be pursued to achieve this. This recognises that given the potential for an uneven supply/ demand for nursing resource there may be an unequal investment versus efficiency outcomes or indeed a lag time in the achievement of efficiencies (for example through reductions in NSO's) that will inevitably require top-up of the seed investment fund;

- Formal and on-going evaluation on an annual basis of the utilisation and impact of the seed investment fund, to determine, justify and obtain future investment requirements/top up of the fund;

Based on the development of an implementation plan by the HSE, a seed investment fund should be provided to commence incremental implementation across Model 4 Hospitals, in tandem with the rollout of a national ICT system for workload measurement as recommended in the framework. Implementation should be reviewed mid-2019, with proposals prepared for further seed investment fund requirements based on current data and evidence on further rollout requirements.

Section 3

This section outlines Glossary of Terms and Acronyms used in the Report, provides the list of present and past members of the Taskforce and provides examples of data collection tools used in the Framework.

Chapter 5 presents the Glossary of Terms and Acronyms and the list of References.

Appendix 1 provides the list of Taskforce members.

Appendix 2 presents the Acuity and Dependency Measurement Tools.

Appendix 3 presents the tools used to calculate NHpPD, Acuity and Dependency and Nurse Staffing Hours.

An Roinn Sláinte
Department of Health

Glossary of Terms

Bed occupancy	The number of beds that are occupied over a 24hour period.
Bed utilisation	The number of patients that are cared for in a ward over a 24 hour period, including the number of patients admitted, discharged and transferred in or out of the ward.
Core specialty/specialties	Designated clinical speciality or specialties within a ward. For example: core speciality for a ward may be neurosurgery.
HCA (Health Care Assistant)	Health Care Assistant is an unregistered healthcare worker, providing patient care under the direct guidance and supervision of a registered nurse.
Grade Mix	The mix of individual grades within the workforce. For example the mix of staff nurses, clinical nurse managers and healthcare assistants.
Skill Mix	The mix of education, training, skills and experience within the nursing care team that includes both registered nurses and healthcare assistants.
Nurse staffing	Nurse staffing in this framework refers to the nursing care team that is inclusive of both registered nurses and healthcare assistants unless otherwise specified.
Staffing requirements	This term is used to describe the nursing care team staff number and skill mix inclusive of both registered nurses and healthcare assistants required to provide care to patients on a ward.
Patient Acuity	Acuity is a term used to describe the severity of patient illness, and the degree of risk that their condition may deteriorate further.
Patient Dependency	This is described as the degree for which a patient is dependent upon support with his/her care needs for example: mobilisation, hygiene needs, eating and drinking etc.

Person Centred Care	Person centred care supports people to make informed decisions about, and to successfully manage, their own health and care, able to make informed decisions and choose when to invite others to act on their behalf (The Health Foundation, 2014).
Registered Nurse	A registered nurse is a nurse whose name is entered in the nurses division of the register of Nurses and Midwives by the Nursing and Midwifery Board of Ireland (NMBI 2014).
Safety CLUEs	This acronym is used to describe Care Left Undone Events and also missed care events. Care left undone is described as patient care that was required but was not done. Missed care event is care that was required and was given but was delayed.
Senior Nurse Manager	Senior Nurse Manager is used to describe nurse manager roles across acute hospitals such as those at Assistant Director of Nursing, Divisional Nurse Manager, or Directorate Nurse Manager level.
Staffing Complement/Staffing Establishment	This is the total registered nurse and healthcare assistant staffing and skill mix requirement set/ funded for a clinical area to deliver care. For example: 24WTE (20WTE Nursing, 4WTE Health Care Assistant)
Tipping Point	Tipping point is a term used in this document to describe the nurse staffing point at which there is an increased likelihood of care becoming unsafe.
WTE	Whole Time Equivalent – Calculation of total staff delivering 39hrs per week.

Acronyms

ABF	Activity Based Funding
CEO	Chief Executive Officer
CORU	Health and Social Care Professionals Council
DPER	Department of Public Expenditure and Reform
NMBI	Nursing and Midwifery Board of Ireland
RCSI	Royal College of Surgeons in Ireland

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Appendix 1 – Taskforce Membership

Name	Title	Organisation
Dr Siobhan O'Halloran	Chief Nursing Officer, Department of Health (Chair)	Department of Health
Dr. Philippa Ryan Withero	Deputy Chief Nursing Officer	Department of Health
Ms Sinead Lardner	Nursing Project Officer	Department of Health
Joan Regan	Principal Officer, Acute Hospitals	Department of Health
Gabrielle Jacob	Assistant Principal, Workforce Planning	Department of Health
Helen Byrne	Head of Planning and Performance, Acute Hospitals	Health Service Executive
John Delamere	Head of Corporate Employee Relations	Health Service Executive
Dr Michael Shannon	Director, Nursing and Midwifery Services	Health Service Executive
Mary Wynne	Area Director, ONMSD	Health Service Executive
Dr Garry Courtney	Clinical Lead, National Clinical Programme for Acute Medicine	Health Service Executive
Margaret Gleeson	Director of Nursing Lead, National Clinical Programme for Acute Medicine	Health Service Executive
Catherine Farrell	Programme Manager, National Clinical Programme for Orthopaedics (representing the National Clinical Programme for Surgery)	Health Service Executive
Avilene Casey	Director of Nursing	Irish Association of Directors of Nursing
Sheila Mc Guinness	Director of Nursing	Irish Association of Directors of Nursing
Kevin Figgis	Health Division	Services, Industrial, Professional and Technical Union
Liam Doran	General Secretary	Irish Nurses and Midwives Organisation
Prof. P. Anne Scott	Professor of Nursing	Dublin City University
Prof. Jonathan Drennan	Professor of Healthcare Research	University of Southampton, UK

Appendix 1 – Taskforce Membership (continued)

Name	Title	Organisation
Ann Donovan	Group Director of Nursing	Ireland East Hospital Group, HSE
Bridie O'Sullivan	Group Director of Nursing	South/South West Hospital Group, HSE
John McCamley		SIPTU
Rory Farrelly	Group Director of Nursing	RCSI Hospital Group, HSE
Liz Roche	Area Director, Nursing and Midwifery	Planning and Development Unit, HSE
Martina Burns	ICT Project Manager	Office of the Chief Information Officer, HSE
PJ Hathaway	Assistant National Director of Finance	HSE
Raymonde O'Sullivan	Assistant Chief Financial Officer	HSE
Therese Dalchan	General Manager	Planning and Performance, HSE
Lindsay Maidment		National HR Unit, Department of Health
Ms Phil Ni Sheaghdha	General Secretary	Irish Nurses and Midwives Organisation

Appendix 2 Acuity and Dependency Measurement Tools

There are many acuity and dependency measurement tools available for use across a wide variety of settings. What is of importance to note in their use, is the extent to which such tools are validated for use in the specific area they are intended. Two validated tools deemed suitable for use in acute care settings are specifically outlined below. These validated tools, whilst tested and used in jurisdictions outside of Ireland, are the most likely suitable validated tools to use in Ireland. It should however be noted that this is an emerging science, and further data on validation in regard to other tools may emerge over time.

The two tools outlined below are examples of those which have been in practice in the acute care setting. Therefore these tools are particularly suitable in the context of these settings. It is noteworthy that the first tool presented below, was recently endorsed by NICE for use across adult in-patient wards in acute hospitals.

- The Safer Nursing Care Tool, is a recently endorsed tool by NICE. This tool is organised into two parts; a) an acuity and dependency tool, and b) nurse sensitive indicators, incorporating staffing multipliers to determine the staffing requirement (NICE 2014). Whilst the staffing multipliers are tailored for use in the UK healthcare setting (for example with inbuilt leave and nurse/healthcare support worker mix) the acuity and dependency tool provides an efficient and effective way to capture patient acuity and dependency consistently.
- The RAFAELA tool is a system of patient classification comprised of three parts: (1) The Oulu Patient Classification (OPC) instrument; (2) a file on nurse resources, and (3) the Professional Assessment of Optimal Nursing Care Intensity Level (PAONCIL). Using part 1 &2 the daily nursing care intensity, expressed as OPC points per nurse, can be calculated. The existing nursing care intensity can then be compared with the optimal by using the third instrument to determine the staffing requirement (Rauhala & Fegerstrom, 2004).

Whilst the above two tools are those more commonly used, this is an emerging science, and therefore as further validated tools emerge, these may be worthy of consideration. Thus, should organisations deem it necessary to use alternative tools, the choice of alternative tool should be made using a robust decision making process. To support the decision making process the following factors should be considered;

1. Is the purpose of the tool clearly stated?
2. Is the setting in which the tool has been designed for clearly stated?
3. Is the information on how the tool was developed clearly identified?
4. Are the authors of the tool clearly identified, along with information on their credentials and background?

5. Consider the currency/relevance of the tool, and whether it has been modified to reflect current developments in healthcare, by comparison to when the tool was originally designed and tested for use.
6. Has the tool been designed for use specifically for the clinical setting in which it is intended for use in your organisation?
7. Are there multiple versions of the tool for use in different clinical settings?
8. Is the information on the process of how to use the tool clear and easy to follow?
9. Is there robust research evidence endorsing the validity and reliability of the tool. i.e. has the tool been tested specifically for evidence of validity and reliability? Consider the testing of the tool specific to the clinical setting for use in your organisation.
10. Consider if there are any indicators either in the tool design itself, or in the research evidence supporting the testing of the tool.
11. Consider the resource implications in using the tool; for example the necessary expertise if the tool is complex; or the necessary investment if there are cost implications.

Appendix 3 – Tools to calculate Nursing Hours per Patient Day, Acuity and Dependency and Nurse Staffing Hours

The following information is designed to support the nursing team to gather and collate his/her data on Nursing Hours per Patient Day, patient acuity and dependency and nurse staffing hours, to inform safe nurse staffing decision making.

1. All data is collected over one month, twice yearly in Quarter 1 and Quarter 3 as a minimum.
2. All patient data is collected on every patient daily, including those patients whom are extra to the normal ward capacity. Ideally the data is to be collected at the same time each day: preferably 15.00pm
3. The nurse staffing data is collected daily.
4. To routinely measure the average amount of nursing time required through a 24period for each of the wards patients, the measurement should take into account the nursing care activities outlined in the Table overleaf. It will provide the basis for the calculation of the total and average nursing hours per patient to ensure nursing staffing establishments are derived from individual patient needs. (*Kindly reproduced with permission from NICE (2014) Safe staffing for nursing in adult inpatient wards in acute hospitals*). Each activity for an individual patient is allocated care minutes, which are then totalled for each patient and converted into hours. The total hours for the ward are then calculated with a calculated mean to determine the hours in conjunction with the Table in section 3 on page 61: calculating the nurse staffing establishment.
5. The data collection tool later in this section, provides the tool to capture the data in relation to the nursing hours per patient, along with additional information on the daily nurse staffing levels, individual patient's acuity and dependency score and the identification of patients requiring 1-1 specials. Al of this data is analysed over the monthly period to determine the average nursing hours per patient day, acuity and dependency profile in addition to the current nurse staffing establishment.

Nursing hours per patient day Activities			
Ongoing nursing activities that affect nurse staff requirements[4]			
	Routine Nursing Care	**Additional Nursing Care Needs (approx.. 20-30mins per activity)**	**Significant nursing care needs (approx. more than 30mins per activity)**
Care planning (Plan)	Simple condition and care plan	Complex condition or care plan (such as multiple comorbidities)	Attending multidisciplinary meetings
Direct contact and communication (COMM)	Providing information and support to patients, including all emotional and spiritual needs.	Complex multiple health needs	Difficulties with communication including sensory impairment or language difficulties
Eating and drinking (EAT)	Ensuring food and drink provided and consumed	Assistance with eating and drinking	Parenteral nutrition
Fluid management (FLUID)	8-hourly IV fluids	IV fluids more frequently than 8 hourly or blood components	Complex fluid management (such as hourly or requiring monitoring in millilitres)
Management of equipment (EQUIP)	Simple intermittent (such as catheters, IV access)	Central lines, drains, stomas	Multiple lines, drains, ventilator support
Medication (MEDS)	Regular oral medication	IV medication or frequent PRN medication	Medication requiring complex preparation or administration, or 2 nursing staff
Mobilisation (MOVE)	No assistance needed	Assistant needed (such as post-op or during out of hours periods)	Mobilisation with assistance of 2 nursing staff
Observations (OBS)	4-6 hourly	2-4hourly	More frequent than 2 hourly
Oral care (ORAL)	No assistance needed	Assistance needed	Intensive mouth care needed (such as patient receiving chemotherapy)
Skin and pressure area care (SKIN)	Less frequent than 4hourly	2-4hourly	More frequent than 2hourly or requiring 2 nursing staff
Toileting needs (ELIM)	No assistance needed	Assistance needed	Frequent assistance or 2 nursing staff needed
Washing or bathing and dressing (CLEAN)	Minimal assistance with washing, dressing and grooming	Assistance with some hygiene needs by 1 member of the nursing staff	Assistance with all hygiene needs, or needing 2 nursing staff

Note: these activities are only a guide and there may be other ongoing activities that could be considered.

[4] Nursing Care Activities original table and contents reproduced with the express permission of NICE from their published Safe Staffing Guideline 1 (SG1) Safe staffing for nursing in adult inpatient wards in acute hospitals https://www.nice.org.uk/guidance/sg1

Nursing hours per patient day Activities			
One-off nursing care activities that affect nursing staff requirements			
	Routine Nursing Care	**Additional Nursing Care Needs (approx.. 20-30mins per activity)**	**Significant nursing care needs (approx. more than 30mins per activity)**
Admission (ADM)		Admission assessment	Complex admission assessment
Care after death (DYING)			Arrangements after the death of a patient, including support for relatives and carers
Discharge planning (D/C)	Simple follow –up and transfer home	Co-ordination of different services	Organising complex services, support or equipment
Patient and relative education and support (Ed)	Routine teaching about condition, routine post-op care	Teaching about a significant new condition (such as diabetes, heart disease or cancer)	Teaching about a new complex or self-managed conditions (such as dialysis, colostomies), or to patient or their carers or relatives who have difficulties with communication including sensory impairment or language difficulties.
Patient escorts (Esc)	Routine escorts or transfers for procedures	Escorting a patient off a ward for 20-30 minutes	Escorting a patient of a ward for more than 30 minutes
Procedures and treatments (Proc)	Simple wound dressings, specimen collection	Catheterisation, nasogastric tube insertion, multiple wound dressings	Complex wound dressings (such as vacuum-assisted closure), tracheostomy care

Note these activities are only a guide and there may be other one off activities that also could be considered.

Data Collection Tool

Date		Start time of data collection	
Ward Name		Finish time of data collection	
Ward Size (bed Number)		Number of patients on the ward at time of data collection	
Indicate the Patient Number/s for those patients that have a 1-1 special			
Indicate the Patient Number/s for those patients that have a cohort special (e.g. HCA for 6 patients)			

Number of staff on duty on the day. If shift hours are not 12 hours, include the hours of duty per staff member. Include **ALL** staff (i.e. agency, bank etc, in addition to those on duty for specific patients e.g. 1-1 special)

Include number (and hours if not working a 12 hour shift)	**CNM 2**	**CNM1**	**RN**	**Nursing Intern**	**HCA / Multi-task Attendant**	**Clerical Staff**
Day Shift						
Night Shift						
Of the staff you have noted above as "on duty today" what number and grade of staff are additional to meet patient needs for example due to extra beds or 1-1 specials						

Record care in minutes per patient activity over 24hour period. Please note if the patient requires a one-to-one special by including either 1-1 or if cohort include the number of patients in the cohort; for example 1-6 or 1-5 etc.

															Note these are one-off activities					
Patient Number	Special	Dep/Acuity Category	Plan	Comm	Eat	Fluid	Equip	Meds	Move	Obs	Oral	Skin	Eilm	Clean	Adm	Dying	D/C	Ed	Esc	Proc
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