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Regulation and current status of patient safety content in pre-registration nurse education in 27 countries: Findings from the Rationing - Missed nursing care (RANCARE) COST Action project

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ABSTRACT

Patient safety, as a contemporary health care concern, must remain a priority for nurse educators. This on-line consultation, carried out within the RANCARE COST Action project, determined to establish how patient safety teaching is incorporated into pre-registration education of nurses across 27 countries. How nursing is regulated within countries was examined, along with national guidelines related to nurse education. HEIs were asked to provide details of pre-registration nurse training and how patient safety is taught within programmes.

The results confirm that the topic of patient safety is generally not explicitly taught, rather it remains a hidden element within the curriculum, taught across many subjects. Variation in how nursing is regulated exists across the countries also, with the professionalization of nursing remaining a challenge in some states. No guidelines exist at EU level which address how patient safety should be taught to nursing students, and as yet regulatory bodies have not put forward criteria on the subject. As a result individual HEIs determine how patient safety should be taught.

The WHO guidelines for teaching patient safety are currently underutilized in nurse education, but could offer a structure and standard which would address the deficits identified in this work.

1. Introduction

Contemporary healthcare policy development is driven by a global momentum to ensure that all consumers of healthcare are provided with safe, high quality care. The Institute of Medicine describes safe care as avoiding injuries to patients caused by the care that is intended to help them (Institute of Medicine, 2001). Over the last 25 years, highly publicized failures to provide safe patient care have caused outrage both within healthcare circles and across the wider public. International studies during that period state that between 4% and 16% of patients admitted to hospital experience an adverse event, at least half of which could be prevented (Brennan et al., 1991; Wilson et al., 1995; Kohn et al., 2000; Dept of Health, 2000; Baker et al., 2004, James, 2013, Makary and Daniel 2016, Rafter et al., 2009). Adverse events in healthcare are wide ranging and can be associated with costly consequences in terms of human suffering, in addition to financial costs in the context of global economic shortages, thus patient safety remains a priority for those who are serious about healthcare provision.

In 1999 the Institute of Medicine recommended that the topic of patient safety be integrated into the curriculum of all health professions. The extent to which this has been achieved across the professions is variable, with several high profile curriculum initiatives being developed to ensure patient safety and quality of care is being adequately addressed e.g. European Federation of Nurses (EFN) Competency Framework (2015), International Council of Nurses (2012), World Health Organisation (WHO) 2009 and 2011, European Network for Patient Safety, 2010, American Quality and Safety Education for Nurses (QSEN) competencies (Cronenwett et al., 2009), Canadian Patient Safety Institute (2009), Australian Commission on Safety and Quality in Health Care (2005). Patient safety, as a contemporary topic has been discussed in the literature since the 1990s, but in essence it embraces many of the core principles by which healthcare professionals,

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including nurses, have practiced for much longer than that.

A European Union COST Action project CA15208: Rationing - Missed Nursing care: An international and multidimensional problem (https://www.rancare-action.eu/) was funded in February 2016, for a 4 year period. The consortium includes representatives from 27 European countries in addition to near neighbour and international partner countries. While this project has an overall aim to examine the concept and relevance of rationing of nursing care across countries within a context of patient safety, another objective of the project is to examine the current nature of patient safety training in nurse education and the implications for the profession and for patients.

2. Background

Whereas components of "patient safety" have been written about, researched and modelled since the 1990s, and many countries expressly include the advancement of patient safety as a healthcare goal, the term itself is often ambiguous. It is frequently used as a catch-all for any healthcare safety concerns, as a verb or a noun, as a positive phenomenon or in the case of a patient safety incident, as another description for an adverse event. This lack of consistency in terminology and meaning is unhelpful. However in 2008 a meaningful and clear definition was established. Patient safety is defined as

> "A discipline in the health-care sector that applies safety science methods towards the goal of achieving a trustworthy system of health-care delivery. Patient safety is also an attribute of health-care systems; it minimizes the incidence and impact of, and maximizes recovery from, adverse events" (Emanuel et al., 2008)

Furthermore the authors insist that the locus of patient safety is *the point* at which care occurs and *the environment* in which that care occurs, with particular emphasis on the interaction between patient and caregiver. In hospitals and other healthcare environments, the nurse is very often found at this point which places the nurse as a key player in patient safety.

The unique role the nurse plays in advancing patient safety is frequently acknowledged, and thought to result from their proximity to patients and families, and their central role in co-ordination and delivery of care. Nurses recognize and act on more potentially life threatening errors, than any other professional group (Rothschild et al., 2006). The RN4CAST consortium and others have identified nurse factors which impact on patient safety outcomes, such as staffing levels and skill mix, workload and burnout levels, the environment in which nurses work, missed or rationed care, and significantly nurse education (Aiken et al., 2012, 2014, 2017; Kirwan et al., 2013; Ball et al., 2014; MacPhee et al., 2017). Many recommendations have been made on how to enhance patient safety through addressing these factors. However it is clear that nurse education should be considered as an important starting point.

Nurse educators are ideally placed to link nursing sensitive factors to overall patient outcomes, through the pre-registration curriculum. This would ensure that newly qualified nurses would be equipped with the skills, knowledge and attitudes to sustain and advance the patient safety agenda into the future. However Tella et al. (2014), through an integrative literature review, revealed that patient safety, as an entity in itself, was largely absent from nursing curricula. Instead it formed part of a hidden or integrated curriculum, ostensibly included in several modules or subjects across the programmes. Studies carried out by Usher et al. (2017, 2018) demonstrate both a lack of key patient safety skills in student nurses and a similar integrated approach to patient safety teaching in Australian universities. The reasons behind this unstructured approach include a saturated curriculum, and a lack of knowledge, skills or confidence among faculty members (Cronenwett et al., 2009) leading to an ongoing lack of consensus on how patient safety might be effectively taught to pre-registration nursing students. There may also be a lack of clarity around available frameworks, guidelines and materials as they apply to nurses.

The challenge of including patient safety in pre-registration education programmes exists for other healthcare professions, particularly for medicine. However, unlike for nursing, the associated challenges for medical education are widely acknowledged in the medical literature, by regulatory bodies, and in many reports (Lucian Leape Institute, 2010). A recent joint report by the General Medical Council and the Medical Schools Council (2015) in the UK further underlines these challenges. The WHO Patient Safety Curriculum Guide (WHO 2009) was originally aimed at medical schools only, although since 2011 the curriculum guide is published as a Multi-Professional Edition (2011). The difference for the nursing profession, at least in Europe, is that this wider discussion is not taking place. Nurses role in patient safety is widely acknowledge by the profession and by regulatory bodies, but the challenges for nurse education are not widely discussed. In the US the development of Quality and Safety Education for Nurses (Cronenwett et al., 2009) has seen attention focused on patient safety training in nurse education. Many studies have evaluated the impact of teaching related to the QSEN framework on nursing students (Miller and La Framboise, 2009; Chenot and Daniel, 2010; Jones, 2013; Seibert, 2014) and its pilot evaluation has led to further roll out phases in schools of nursing in the US. In Europe the integration of the WHO Patient Safety Curriculum Guide: Multi-professional Edition (WHO 2011) has been evaluated by Mansour et al. (2015) in the UK, but no central examination of the nurse curriculum has taken place in relation to the inclusion of patient safety topics. In short nurse regulatory bodies and nurse education bodies in Europe have not responded to date in the same way as the medical profession. The Council of the European Union in 2009 (EU 2009) recommended that patient safety be embedded in both undergraduate and post graduate curricula of health professionals. But no guidelines for inclusion, specific to the nurse profession have been established.

With this in mind, the aim of the work presented here is to describe the results of a RANCARE consultation process which examines how patient safety is currently incorporated in pre-registration nurse education across 27 countries included in the RANCARE project. We will also outline the different reported approaches to nurse regulation in the participant countries. If a national syllabus or curriculum for pre-registration nursing exists in the included countries, we will describe how patient safety is integrated in those documents.

3. Methods

The objectives of the RANCARE project are carried out through four working groups (WGs). The consultation survey was agreed by the COST Action Core group and led by WG4. It was conducted using an online cross-sectional survey which aimed to gather both qualitative and quantitative data from RANCARE members in HEIs across all participating countries. The survey was developed by WG4 members including nurse educators and practicing nurses. The resulting instrument was intended to gather general information such as country, nurse regulatory body, and HEI type, in addition to whether the country had a national syllabus or a national curriculum for pre-registration nurse training. Information about the type and duration of nurse training was sought. More specifically for responding HEIs, information was to be sought on the approach to patient safety in the pre-registration nurse curriculum, in the local syllabus documents, and how the core topics of patient safety as recommended by the WHO (WHO 2011) are taught to pre-registration student nurses. The instrument was piloted in two universities and adjustments made according to feedback received.

The survey was conducted over four months in early 2017. The COST Action management committee members from 27 countries were contacted and requested to take part. Some members completed the survey personally on behalf of the HEI they represent, and others passed on the request to other HEIs within their countries.

3.1. Ethical considerations

Approval for this online consultation was given by the RANCARE project management committee core group. Agreement to consult with all participating RANCARE countries to address the central question about patient safety content in nurse curricula was considered vital to advancing the project overall. Formal ethical approval for this consultation process, outside of the core group approval, was not possible or necessary as the survey was judged to be a professional sharing of available information between the countries participating in the Action which would enable a cross-national comparison. Nonetheless normal ethical conventions were adhered to throughout the consultation process, through full disclosure regarding the overall project, the objective of the consultation process and a collegial method of inviting participation through RANCARE membership and affiliations. Participation was entirely voluntary and no HEIs are named in reports.

3.2. Sample

Only countries participating in the RANCARE COST Action project were included in this consultation. In total representatives from 83 HEIs from 27 countries participated in this process. Twenty-two partially completed the consultation survey, and 61 respondents completed the entire survey. At institutional level, 63 universities and 12 other nurse education colleges provided data, 8 did not identify the HEI type. The highest number of HEI responses per country came from Italy and Spain (Fig. 1.). Data are more reliable from countries where more than one HEI responded, although in some countries even a low number of responses can be deemed accurate as it reflects a large proportion of nurse education within the country, for example, 2 Estonian cases comprise 100 percent of possible responses and 3 Lithuanian cases comprise 37.5 percent.

3.3. Data analysis

The consultation survey was developed using Qualtrics software licensed for use through Dublin City University. Data were exported initially to an excel file and subsequently to SPSS version 23. Reported here are descriptive statistics of the quantitative data gathered during the consultation process. Limited inferential statistical tests were carried out to look for relationships between two categorical variables (Chi-square tests). Where free text was sought from respondents in relation to open ended questions, these responses were examined for similarities in words and meaning and were collapsed into categories where possible for reporting.

4. Results

4.1. Regulation of nursing

All countries who took part in the consultation process provided data on the body responsible for the regulation and registration of nursing and midwifery. Results are presented in Table 1.

4.2. Nurse qualifications

Sixty-two responding HEIs reported that the pre-registration nurse education offered leads to a Bachelor's Degree. Six lead to a Diploma in Nursing and two lead to a Certificate qualification. One HEI offers a pre-registration Masters level programme only. Other institutions did not provide an answer.

The duration of pre-registration nurse education as reported by HEIs in this consultation process is outlined in Table 2.

Although the data in Table 3 reflects only the programmes offered in the HEIs that contributed to the consultation process and may not be reflective of all programmes in the countries represented, it does provide an indication of the variation which exists across, and sometimes within countries. Differences within countries were sometimes explained by HEI type, where different institution types provided either a university programme or a vocational type training programme. However the type of HEI was not linked to course duration generally with both universities (traditional and applied sciences) and other colleges offering programmes of varying durations.

4.3. National nursing syllabus and curriculum

Table 3 contains data on the existence of either a national syllabus or national curriculum for pre-registration nurse education. Some countries provide neither a national syllabus nor curriculum.

Fourteen countries (51%) confirmed the existence of a national nursing syllabus and were asked to outline the recommendations on patient safety education within that syllabus. Some respondents said that there are “no direct recommendations” on patient safety in the syllabus. Others provided answers which indicated that any reference to patient safety within the syllabus is either oblique in nature (“to enable the student to demonstrate competence and risk management for safe practice”); linked to specific areas such as infection control or medications (“patient identification and safe administration of medication”);

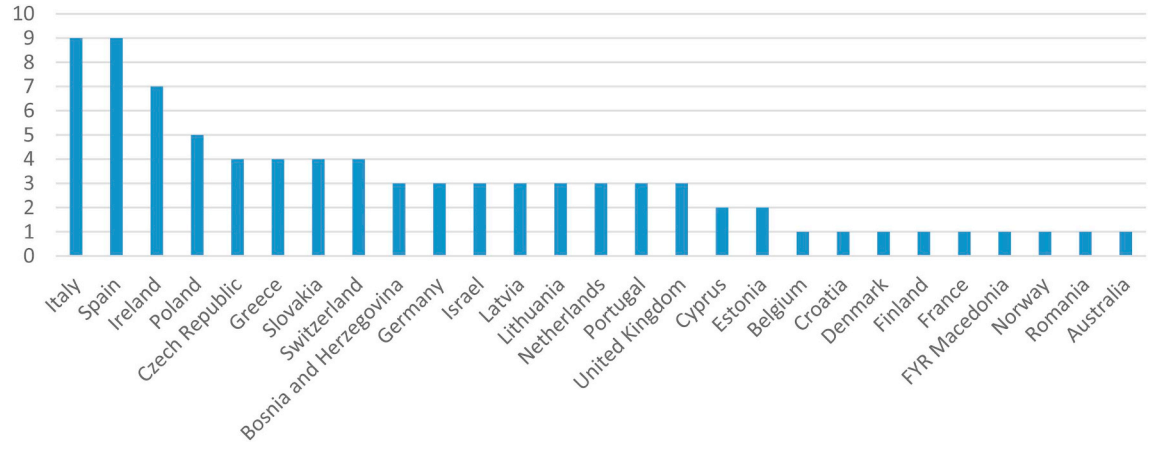

Fig. 1. Number of HEI responses per country.

Table 1
Body Responsible for Regulation and/or Registration of Nursing and Midwifery.

	Self-Regulatory professional body	National Ministry of Health	Sub-national/federal/regional authority	Other	Explanatory notes
Belgium		x			
Bosnia and Herzegovina	x	x			"National Ministry of Health" comprises of three ministries (Federation of BH, Republika Srpska and District of Brcko). Also a self-regulatory professional body
Croatia	x				
Cyprus	x				
Czech Republic		x			
Denmark		x			
Estonia				x	Nursing regulated by different authorities for education and registration purposes
Finland		x			
France		x			
FYR Macedonia		x			
Germany				x	Currently responsibility for regulation lies with sub-national/federal/regional authorities. Traditionally Germany has no registration system for nurses, although from January 2018 the self-regulatory professional body of one federal state commenced registration.
Greece	x		x		Both Self-Regulatory Professional body and Sub national authority
Ireland	x				
Israel		x			
Italy				x	National Board of Nursing is organised at both national and regional level. Provincial level is responsible for registration and regulation.
Latvia		x			
Lithuania		x			
Netherlands				X	Ministry of Education, Culture and Science
Norway		x			
Poland			x		
Portugal	x				
Romania	x	x	x		Self-regulatory professional body, National Ministry of Health, and Sub-national/federal/regional authorities all involved in regulation of nursing
Slovakia				x	Slovak Chamber of Nurses and Midwives (incuding regional chambers). Accreditation by Ministry of Health
Spain				x	Professional colleges or councils regulate the Professional activity of nurses. The Ministry of Health regulates grade, specialties etc.
Switzerland				x	In this multilingual and federally structured country the 26 cantons have the primary responsibility for education. There is no registration of nursing and midwifery, but a partial regulation by OdASanté and State Secretariat for Education, Research and Innovations
United Kingdom	x				
Australia			x		

Table 2
Duration of pre-registration nurse education programmes as reported by HEIs in the consultation process.

	3 years	3.5 years	4 years
Bosnia and Herzegovina	x		x
Croatia	x		
Cyprus			x
Czech Republic	x		
Denmark		x	
Estonia		x	
Finland		x	
FYR Macedonia			x
Germany			x
Greece			x
Ireland			x
Israel			x
Italy	x		
Latvia	x		
Lithuania		x	x
Netherlands			x
Poland	x		
Portugal			x
Romania			x
Slovakia	x		
Spain			x
Switzerland	x		x
United Kingdom	x		
Australia	x		

Table 3
National regulations for Pre-Registration nurse education.

	National nursing syllabus	National nursing curriculum
Belgium	x	
Bosnia and Herzegovina		
Croatia		x
Cyprus	x	
Czech Republic	x	x
Denmark	x	
Estonia		
Finland		
France	x	x
FYR Macedonia		x
Germany		
Greece		
Ireland	x	
Israel	x	
Italy	x	x
Latvia		
Lithuania	x	
Netherlands	x	
Norway	x	
Poland		x
Portugal		
Romania		
Slovakia		
Spain	x	x
Switzerland	x	
United Kingdom	x	
Australia		x

or linked to guidelines or protocols ("to increase awareness of risks and how to apply patient safety measures by using protocols"). Fewer countries (8) indicated that a national overall nursing curriculum exists. Again reference to patient safety in the national curriculum is often unspecific or can be interpreted through reference to 'awareness' of principles around medication, transfusions, infection control, or other areas, to 'identification of risks' and provision of 'safe care'. Where a national syllabus or curriculum exists it was reported that there appears to be no reference to, or recommendation for use of a recognised patient safety curriculum or framework.

4.4. Patient safety in pre-registration nurse curriculum

During the consultation survey process HEIs provided some detail on how patient safety is included in the pre-registration nurse curriculum. Fifty eight representatives reported that aspects of 'patient safety' are incorporated in several subjects throughout the course, but the topic is not directly addressed as a stand-alone subject. Eight HEIs report that patient safety is addressed directly as a subject in their programmes. In some of these cases this takes the form of an elective subject which students may choose to study, although at least two HEIs say that they offer a patient safety module online which is compulsory. Where on-line or face to face patient safety is taught there are no details about content or number of hours. Only two HEIs report that they use the WHO curriculum guidelines for patient safety education.

4.5. Patient safety related learning outcomes within HEI programmes

Representatives from the HEIs that contributed to the consultation process were asked to provide information on the learning outcomes for patient safety which exist in the pre-registration nurse training curriculum. Fifty nine HEIs provided data with 19 institutions specifically reporting that patient safety is incorporated within the learning outcomes. This inclusion ranges from defining patient safety, knowledge and use of principles, engaging in safe practice, to preventing errors. The remaining institutions (38) report variations on a general learning outcome that relates to safety in the clinical environment, but not explicitly to patient safety.

4.6. Exploration of the 11 WHO patient safety topics

The WHO identified 11 core patient safety topics to be included in the curriculum of health professionals (World Health Organisation 2009, 2011). During this consultation process we examined how these core topics are integrated in pre-registration education of nurses in participating countries. Of the 27 countries participating, representatives from 24 countries provided data related to for this section of the survey. These data came from up to 62 HEIs across these countries.

Respondents were asked to indicate for each of the 11 topics of WHO Multi-professional Patient Safety Curriculum Guide if the topic is included in the nurse curriculum for the HEI which they represent. The results for this can be found in Table 4 with most respondents agreeing that the topics are included in the nurse curriculum to varying degrees. While it is not unusual for more traditional patient safety issues such as medication safety, infection control and even introductory topics like 'what is patient safety?' to be taught as a stand-alone topic in a patient safety type module, more commonly the topics are not taught in this way but are integrated across the programme in various subjects. Furthermore respondents from several institutions indicated that although a topic is taught as a stand-alone subject, it is also integrated across the curriculum in other subjects.

The highest level of agreement that a topic is included in the curriculum was for Topic 9: Infection Prevention and Control, 98% of respondents indicated that this topic is included in the curriculum, however only 16 HEIs indicated that this is treated as a stand-alone subject, while 51 reported that the topic is integrated across the curriculum. Similar results can be seen with Topic 11: Improving Medication Safety, 91% agree that it is included in the nursing curriculum, with 17 indicating that it is included as a standalone subject, 49 say it is integrated across the curriculum. For Topic 5: Learning from Errors to Prevent Harm, only 74% agree that this is included in the nurse curriculum, but 11 of these indicate it is as a stand-alone subject, while 41 report that it is integrated across the curriculum (Table 2).

The results showed general agreement that if the topics are included in the curriculum they are more likely to be integrated across the curriculum in various subjects or modules, rather than treated as a stand-

Table 4
Extent of inclusion of WHO patient safety topics in nursing curriculum.

The WHO Curriculum Guide topics	Percentage of responding HEIs indicating that topic is included in the nursing curriculum	As a stand-alone subject (n)	Through integration in other subjects (n)
1. What is patient safety?	87%	16	56
2. Why applying human factors is important for patient safety?	75%	11	45
3. Understanding systems and the effect of complexity on patient care	78%	9	39
4. Being an effective team player	87%	8	47
5. Learning from errors to prevent harm	74%	11	41
6. Understanding and managing clinical risk	84%	8	46
7. Using quality-improvement methods to improve care	78%	9	44
8. Engaging with patients and carers	82%	8	49
9. Infection prevention and control	98%	16	51
10. Patient safety and invasive procedures	86%	13	53
11. Improving medication safety.	91%	17	49

alone subject, making the teaching of patient safety implicit rather than explicit within the nurse curriculum. However it is important to note that variation existed within countries as well as across countries with different HEIs in the same country providing differing information.

It was not possible to establish through Chi square tests or otherwise if the existence of a national syllabus or a national curriculum impacts the inclusion or otherwise of the WHO topics as no significant relationship was found. Furthermore the country or institution type (University or other HEI) does not seem to impact the results on whether the WHO guidelines are treated as a standalone subject or integrated across the curriculum.

Respondents who indicated that patient safety topics are integrated across many subjects or modules went on to list the subject areas. The subject lists for each topic were extensive and overlapping, with respondents naming large numbers of modules, courses and subjects. These ranged from general nursing or fundamentals of nursing modules to communications modules, specialist nursing modules or modules on leadership and management, or ethics and law.

5. Discussion

Regulatory acknowledgement of the role played by nurses in advancing patient safety, as well as support by professional bodies for the enhancement of patient safety education would seem necessary. However the regulation of nursing across European countries is far from standardized. Differences in approaches to regulation and to criteria required for registration are impediments to any efforts at standardization (Raholm et al., 2010). Cultural, social, political and economic differences across countries present challenges. Of the countries taking part in this consultation only five countries reported that regulation and registration is through a self-regulatory professional body only. In the cases of 10 countries, regulation and registration is handled by the Ministry of Health, but in all other countries responsibility is devolved to regional authorities or shared between several bodies. In the cases of three countries regulation and registration is shared between two or more bodies. This situation makes standardization difficult both within countries and across the EU. Collins and Hewer (2014) suggest that in particular in post-communist European countries nursing continues to be viewed as a practical, with the move towards university education for nurses sometimes viewed as an unnecessary extravagance. In such countries professionalization and regulation of nursing must be a primary focus in the first instance, leading to a standardized approach to nurse education.

Differences in approaches to nurse education both across the participating countries and within some countries are evident in Table 2. Nine countries have neither a national syllabus nor a national curriculum. This implies that all decision making around curriculum content is devolved to the HEIs. European Union standards for nursing and Midwifery (Directive, 2005/36/EC and updated in 2013 in Directive, 2013/55/EU) outline necessary theoretical and clinical instruction with minimum timeframes and numbers of hours. Meeting these minimum standards is likely to be a greater challenge in some countries, where cultural attitudes fail to recognize the need for change. Following the updated directive in 2013 countries were required to ensure that the standards were transposed into national law by the EU Member States by January 2016, however many member states have not yet done this. Although most of the HEIs consulted through this process offer a Bachelor's programme, some reported that they offer only certificate or diploma programmes. Differences in programme duration were also reported, further demonstrating a lack of standardization. The Bologna process which started with an agreement in 1999, was intended to increase standardization of higher education across Europe. Nurse education has benefitted from the Bologna process with the transition to higher education in many countries. However in other countries this transition is far from complete. This is in part due to a lack of graduate prepared nurse educators, but is nonetheless a challenge to any attempts to standardize curricula. Contemporary healthcare priorities such as the patient safety agenda may not have the same importance where the profession of nursing is still being established. It is imperative that the EU provides further guidance on regulation of the profession of nursing in order to ensure a more standardized approach. EU guidelines are currently focused on the movement of nurses between European countries, but do little to support the professionalization of nursing. Critically further guidance on the inclusion of patient safety in the core curriculum of nurses would help to ensure its place in the curriculum. Ryan (2012) in advance of the updated Directive 2013/55/EU was optimistic that tighter standards for education preparation for nurses would ensure a knowledgeable and competent workforce to address the care needs of those in need of healthcare across Europe. In relation to patient safety, the education standards and competencies required remain vague.

The results of this cross country consultation confirm the findings of Tella et al. (2014) that the subject of patient safety, as an entity in itself, is largely absent from nursing curricula. Its inclusion in the curriculum continues to be as an ‘integrated’ or ‘hidden’ topic across the programme, with little or no consistency about timing or subject matter. This would suggest that nurse academics continue to believe that patient safety is a topic which does not warrant specific direction through inclusion in the curriculum, beyond what Steven et al. (2014) describe as a series of statements, rather than a distinct theme. In that 2014 study researchers found that while academic staff felt it unnecessary to provide specific modules on patient safety, preferring to embed the concept across the programme, newly qualified staff nurses could remember very little training specifically about patient safety. Other literature would suggest that where patient safety is not comprehensively taught as a specific subject the overall message is at risk of being lost

completely (Smith et al., 2007; Chenot and Daniel, 2010; Vaismoradi et al., 2011). Variation within and across countries in this consultation shows an inconsistent approach to patient safety teaching. This may be expected given the lack of strong national guidelines on curriculum or syllabus development. It is possible that the small sample size in this consultation impacted the likelihood of relationships being identified where they might have been expected. The presence or otherwise of a national syllabus or curriculum did not impact on whether the WHO topics were included in the nurse curriculum or not. How patient safety is addressed within these national documents may be a key factor. The autonomy of institutions around curriculum development is reflected in the results as no relationship could be established between how patient safety is taught either within countries, or across countries or institution type.

This consultation does not provide us with detail on how different approaches to patient safety in nurse curricula impact student learning. However Tella's review (2014) found that at the end of nurse training where patient safety is integrated across many subjects, rather than taught as a discrete entity, student nurses knowledge of the subject is not necessarily enhanced. Ginsburg et al. (2012) reported that confidence around important patient safety skills such as team work was reduced in newly graduated nurses, recommending an increased focus on patient safety skills in undergraduate education. Similarly in Australia Usher et al. (2017) report how nursing students are more confident with the tangible aspects of patient safety such as medication safety and infection prevention, however they lacked confidence overall in key skills such as communication within a team. This supports the approach reported to nurse education in this paper where nurse educators focus on the more tangible skills such as medication safety and infection control. Usher et al., (2017) suggest that the patient safety voice in nursing graduates is currently not evident and that the nurse curriculum should endeavor to address this deficit. Attree et al. (2008) were clear that the lack of success of an integrated approach to patient safety across a curriculum does not necessarily mean that educators do not provide accurate information, but rather that students are unable to make the connections themselves. Therefore the authors recommend that patient safety becomes a major explicit theme in the nurse curriculum across the duration of the undergraduate programme. While patient safety teaching in pre-registration nurse curricula remains hidden, this consultation indicates the difficulties in knowing the extent to which it is incorporated and the quality of the training. The fact that some respondents found it difficult to quantify when the topics were introduced in the curriculum, and to be specific about which modules cover the topics, demonstrates this lack of clarity. A recent examination of patient safety within nurse education in Australian universities revealed similar results to this consultation (Usher et al., 2018). Nurse educators again report the inclusion of patient safety education across the curriculum rather than as an explicit entity in itself.

The implicit integration of important topics in the curricula of health professionals is often encouraged through the so-called spiral curriculum (Harden and Stamper, 1999). This involves a structured revisiting of topics throughout the education programme with an increasing deepening of understanding. They suggest that 'compartmentalising' subjects within the curriculum for professionals could in fact de-contextualise the subject from real-life practice. This idea supports a more implicit approach to patient safety teaching, rather than explicit but presupposes that educators are committed and informed. Cronenwett et al. (2007) suggest that nurse educators remain unclear on how to teach and assess patient safety, and Lee et al. (2016) suggest that there is a shortage of expertise in patient safety in nurse faculties. In view of the evidence it seems clear that explicit patient safety teaching is required in pre-registration nursing programmes, along with integration throughout the programme which would ensure a deeper understanding.

For nurse educators who may lack confidence in teaching patient safety to pre-registration nurses it would appear that the WHO Multi-professional Patient Safety Curriculum Guide provides a ready-made solution. However Robson et al. (2013) found awareness of the WHO curriculum guide to be low, and recommended that greater use of the guidelines would facilitate a more coordinated and ultimately standardized approach across university programmes. The findings of this consultation suggest a similar result. Mansour (2013) in a qualitative study reported the views of nursing students and nurse educators on patient safety teaching and the WHO topics. He found the topics were either not addressed at all (example human factors) or were taught in a manner which failed to make the link to patient safety. The author recommends that the guide might be redeveloped to include issues relevant to the nurse's role in patient safety such as empowerment, workplace culture and interprofessional relationships. This redevelopment of the guidelines could happen within the HEI where nurse 'issues' are mapped onto the existing 11 topics. This should include nurse factors such as those identified by RN4CAST researchers and others e.g. staffing levels and skill mix, workload and burnout levels, the environment in which nurses work and significantly missed or rationed care. The role of nurse educators must be to set the standard in terms of patient safety and to help students unpick their experiences in the clinical areas. The WHO Multi-professional Patient Safety Curriculum Guide allows educators to develop a more structured approach to this teaching.

For policy-makers who define and update national syllabus and national curriculum development it would seem that more than a series of statements relating to patient safety is required. An endorsement of the WHO guidelines with mention of the 11 topics would be more likely to impact on how patient safety education is delivered in the HEIs. Explicit teaching in addition to integration throughout the programme is needed to ensure pre-registration nursing students become truly engaged and therefore prepared to sustain a culture of safety.

6. Conclusion

Patient safety is a concern for all health care providers and nurses play a vital role in this process. How patient safety is taught to pre-registration students is a growing concern, with a current lack of guidelines, standardization and support. In the absence of EU or national directives or curriculum guidelines on how patient safety training should be incorporated into the nurse curriculum, HEIs retain autonomy in this area. This autonomy translates into an unstructured, vague and non-standardized approach which is not advancing the patient safety agenda. Despite attempts to standardize nurse regulation and registration practices across Europe, great variation continues to exist. This may contribute to an apparent lack of interest amongst policy makers or regulatory bodies in addressing patient safety teaching for pre-registration nursing students.

The WHO Multi-professional Patient Safety Curriculum Guide (World Health Organisation, 2011) is an underutilized resource in pre-registration nurse education. If used effectively and linked to nurse factors it can assist nurse educators in ensuring that patient safety teaching is explicit within the curriculum and therefore nurses are adequately prepared for practice in contemporary times. Those who develop pre-registration nurse syllabus and curriculum must cease to use unclear language around patient safety teaching and make explicit recommendations for teaching. The WHO guidelines are an appropriate framework for consideration and the 11 topics can be redefined to reflect nurse issues.

7. Further investigation

It is clear that patient safety teaching in nurse education is far from adequately represented. While we recommend that educators and policy makers look to the WHO Multi-professional Patient Safety Curriculum Guide when developing the topic of patient safety as an

explicit area of the nurse curriculum, we do not suggest this as an end in itself. Tools exist to measure competency after training and we recommend that these be identified and used to ensure that learning has taken place. These tools included the Health Professional Education in Patient Safety Survey (H-PEPSS) which has been validated for use either at the end of the health professionals training or the beginning of their independent practice (Ginsburg et al., 2012), or the Healthcare Professionals Patient Safety Assessment Curriculum Survey (HPPSACS) a tool adopted initially by Chenot and Daniel (2010) and tested by Mansour (2015) to examine student nurses awareness, skills and attitudes towards patient safety education. Although further refinement of the tool was recommended it did provide some clarity around how patient safety education is contextualized in nurse training.

Conflicts of interest

The author(s) declare no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

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Appendix A. Supplementary data

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