



**MAPPING AND ASSESSMENT OF
DEVELOPMENTS FOR ONE OF
THE SECTORAL PROFESSIONS
UNDER DIRECTIVE 2005/36/EC
– NURSE RESPONSIBLE FOR
GENERAL CARE
(No 711/PP/GRO/IMA/
18/1131/11026)**

Final Study

This study was carried out for the European Commission by Spark Legal Network.



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Terminology

- **‘The Study’** refers to the present study: ‘Mapping and assessment of developments for one of the sectoral professions under Directive 2005/36/EC – nurse responsible for general care’.
- **‘Study Team’** refers to Spark Legal Network and its network of national experts.
- **‘Core team’** refers to Spark Legal Network.
- **‘The Directive’** refers to Directive 2005/36/EU of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications, as amended by Directive 2013/55/EU of the European Parliament and of the Council of 20 November 2013 amending Directive 2005/36/EC on the recognition of professional qualifications and Regulation (EU) No 1024/2012 on administrative cooperation through the Internal Market Information System.
- **‘Directive 2013/55/EU’** refers to Directive 2013/55/EU of the European Parliament and of the Council of 20 November 2013 amending Directive 2005/36/EC on the recognition of professional qualifications and Regulation (EU) No 1024/2012 on administrative cooperation through the Internal Market Information System.
- **‘Countries’** refers to the countries covered by the Study: EU Member States, EFTA States and the UK.¹
- **‘Training of nurses responsible for general care’** comprises both theoretical training during which trainee nurses acquire professional knowledge, insights and skills, and clinical training during which trainee nurses learn, as part of a team and in direct contact with a healthy or sick individual and/or community.

¹ Please note that during the data collection and consultation with stakeholders, the UK was still part of the European Union. Nevertheless, as the UK left the European Union (31/01/2020) before the finalisation of the study, the report refers to ‘countries’ instead of ‘EU Member States’ when it concerns the group of countries that is covered by the study.

- **‘Scientific and technical progress’** refers to *generally acknowledged scientific and technical progress*.²

Abbreviations

- | | |
|---|----------------------|
| ▪ EU: European Union | ▪ HU: Hungary |
| ▪ EFTA: European Free Trade Association | ▪ IE: Ireland |
| ▪ GoC: Group of Coordinators for Directive 2005/36/EU | ▪ IS: Iceland |
| ▪ AT: Austria | ▪ IT: Italy |
| ▪ BE: Belgium | ▪ LT: Lithuania |
| ▪ BG: Bulgaria | ▪ LI: Liechtenstein |
| ▪ CH: Switzerland | ▪ LU: Luxembourg |
| ▪ CY: Cyprus | ▪ LV: Latvia |
| ▪ CZ: Czech Republic | ▪ MT: Malta |
| ▪ DE: Germany | ▪ NL: Netherlands |
| ▪ DK: Denmark | ▪ NO: Norway |
| ▪ EE: Estonia | ▪ PL: Poland |
| ▪ EL: Greece | ▪ PT: Portugal |
| ▪ ES: Spain | ▪ RO: Romania |
| ▪ FI: Finland | ▪ SE: Sweden |
| ▪ FR: France | ▪ SI: Slovenia |
| ▪ HR: Croatia | ▪ SK: Slovakia |
| | ▪ UK: United Kingdom |

² Concepts used in Article 21(6) of Directive 2005/36/EC, as amended as the basis to empower the European Commission to update the requisite knowledge and skills to reflect the evolution of Union law. Those concepts will be further defined for the purposes of this study in Section 3.3.

Abstract

This report is the result of the study ‘Mapping and assessment of developments for one of the sectoral professions under Directive 2005/36/EC – nurse responsible for general care (No 711/PP/GRO/IMA/18/1131/11026)’ carried out by Spark Legal Network for the Commission’s Directorate-General Internal Market, Industry, Entrepreneurship and SMEs. The objective of the Study is to support the Commission in its assessment of whether to propose an adaptation of the minimum knowledge, skills and training subjects for the profession of nurse responsible for general care under Directive 2005/36/EC. To meet this objective, data was collected through literature review, desk research and stakeholder consultation. This report provides an overview of the relevant national requirements in all EU Member States, EFTA States and the UK regarding the theoretical and clinical training of nurses responsible for general care, the training subjects included in national curricula, and the knowledge and skills that students should acquire by such training. Particular focus is given to requirements that reflect an adaptation to scientific and technical progress. Furthermore, it assesses whether it would be appropriate for the EU to update the minimum knowledge, skills and training subjects under Directive 2005/36/EC and provides suggestions on possible updates to the Directive in that regard.

Résumé

Ce rapport est le résultat de l’étude sur « Le bilan et l’évaluation de l’évolution de l’une des professions sectorielles au titre de la Directive 2005/36/CE – infirmier responsable des soins généraux (No 711/PP/GRO/IMA/18/1131/11026) » menée par Spark Legal Network pour la Direction Générale Marché intérieur, industrie, entrepreneuriat et PME de la Commission européenne. Cette étude a pour objectif de soutenir la Commission dans son évaluation de l’opportunité de proposer une adaptation des connaissances, des aptitudes et des matières d’enseignement pour la profession d’infirmier responsable des soins généraux au titre de la Directive 2005/36/CE. Afin d’atteindre cet objectif, des données ont été collectées à travers une revue de la littérature, une recherche documentaire et une consultation des parties prenantes. Ce rapport dresse le bilan des exigences nationales en vigueur dans tous les Etats membres de l’UE, des Etats de l’AELE et du Royaume-Uni en ce qui concerne l’enseignement théorique et clinique des infirmiers responsables des soins généraux, les matières incluses dans les programmes nationaux d’études, ainsi que les connaissances et les aptitudes que les étudiants devraient acquérir à travers une telle formation. Une attention toute particulière est accordée aux exigences qui reflètent

une adaptation aux progrès scientifiques et techniques. En outre, l'étude évalue s'il serait opportun que l'UE actualise les connaissances, les aptitudes et les matières d'enseignement au titre de la directive 2005/36/CE et formule des suggestions sur les éventuelles mises à jour de la directive à cet égard.

Executive summary

INTRODUCTION AND CONTEXT

This document constitutes the Final Report for the study ‘Mapping and assessment of developments for one of the sectoral professions under Directive 2005/36/EC – nurse responsible for general care (No 711/PP/GRO/IMA/18/1131/11026)’ (also referred to as: the ‘Study’) carried out by Spark Legal Network for the Commission’s Directorate-General Internal Market, Industry, Entrepreneurship and SMEs.

Article 31 in combination with Annex V of Directive 2005/36/EC, as amended by Directive 2013/55/EU (also referred to as: the ‘Directive’) sets out the minimum training requirements for nurses responsible for general care. Only the minimum training requirements related to knowledge and skills (Article 31(6)) and training subjects (point 5.2.1. of Annex V) are subject to the delegated power that the Commission was granted in order to be able to introduce possible updates, to take account of (generally acknowledged) scientific and technical progress and reflect the evolution of Union law affecting nurses responsible for general care. Thus, only the minimum requirements that are related to these two areas are covered by the present study.

OBJECTIVES AND METHODOLOGY

The overall objective of the Study is to support the Commission in its assessment of whether to propose an adaptation of the minimum knowledge, skills and training subjects for the profession of nurse responsible for general care in order to take account of (generally acknowledged) scientific and technical progress. This was pursued through four main tasks: 1) Collection and presentation of data; 2) Comparative assessment of data; 3) Presentation of preliminary results and discussion with relevant stakeholders; and 4) Drafting of the final study. The Study therefore maps the current national requirements in all EU Member States, EFTA States and the UK with regard to the effective theoretical and clinical training of nurses responsible for general care, the training subjects included in the national curricula, and the knowledge and skills that students should acquire by such training. Additionally, the Study assesses whether it would be appropriate for the EU to update the minimum knowledge, skills and training subjects. Furthermore, the Study provides suggestions on possible updates to the Directive, on the basis of the research, assessment and interaction with relevant stakeholders.

Data collection

In order to meet the above-mentioned objectives, data was collected through literature review, desk research and stakeholder consultation. Through a literature review relevant information was gathered in relation to the national health systems, the effective theoretical and practical training, and the definitions and terminology associated with scientific and technical progress. Desk research was conducted by a team of national experts. They completed detailed research questionnaires, identifying and mapping current national requirements in their countries with regard to the effective theoretical and clinical training of nurses responsible for general care and the knowledge and skills that they should acquire by such training. The results were verified and complemented by the competent registration authorities.

Additionally, data was collected through stakeholder consultation. This included: 1) Stakeholder questionnaires completed by EU/EFTA-level stakeholders,³ national regulatory bodies, national associations and training institutions; 2) A workshop which brought together stakeholders from across Europe;⁴ and 3) A presentation to members of the Group of Coordinators for Directive 2005/36/EU.

Definitions and categorisation elaborated for the purpose of the Study

In order to assess whether there may be grounds for the Commission to adapt the required knowledge, skills and training subjects under the Directive, it is crucial to ascertain whether generally acknowledged scientific and technical progress requires such adaptation. However, neither Directive 2005/36/EC nor Directive 2013/55/EU provides a definition of ‘generally acknowledged scientific and technical progress’. Therefore, and for the purpose of the Study, the Study Team developed a broad and harmonised definition of ‘generally acknowledged scientific and technical progress’ in the framework of training of nurses responsible for general care that could be applied to the analysis of knowledge and skills, and training subjects identified during the Study, as follows:

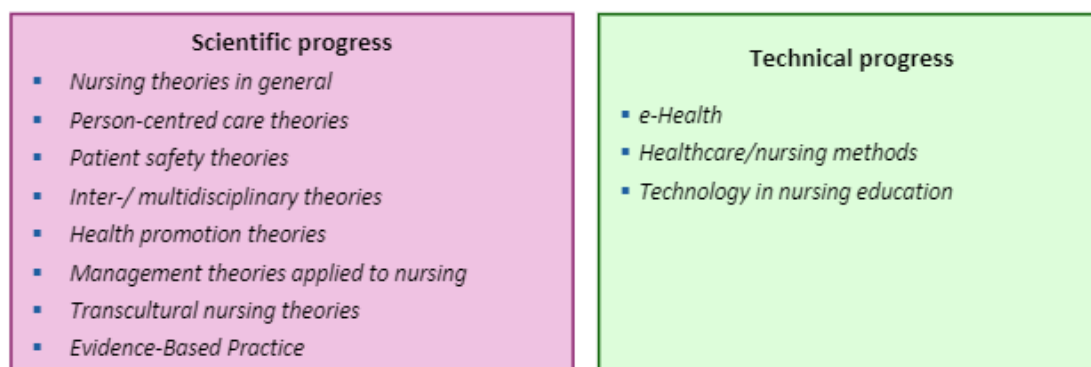
Scientific and technical advancements are considered to be ‘generally acknowledged’ when these advancements have had an impact on the practice, laws, teaching standards, administrative rules and/or curricula in a majority of

³ European Federation of Nurses Associations, European Nursing Student Association, EU Network of Nurse Regulators, European Federation of Educators in Nursing Sciences, European Specialist Nurses, European Nursing Council and European Nurse Directors Association.

⁴ National registration authorities, regulatory bodies, national associations, training institutions and representatives from EU/EFTA-level stakeholders.

countries. Taking into account that the present Study covers 32 countries (27 EU Member States, 4 EFTA States and the UK), and taking into account the specific situation of Liechtenstein,⁵ a majority is considered to be obtained when relevant advancements have been noted in at least 16 countries.

In addition, the Study Team elaborated a categorisation of scientific and technical progress in order to classify and assess the findings. The figure below shows this categorisation model:



DATA COLLECTED AT NATIONAL LEVEL VIA DESK RESEARCH

National educational systems

The Study includes general information on the educational systems for nurses responsible for general care in each of the countries covered. Specifically, it includes information on the admission to training of nurses responsible for general care, the level of nursing training and the differences between training institutions within the same country (where applicable).

Knowledge, skills and training subjects

The Study presents information in relation to the knowledge, skills and training subjects required for the training of nurses responsible for general care in the countries covered by the Study. In relation to the knowledge and skills, the Study identifies the knowledge and skills which appear to be required in the countries in order to cater for scientific and technical progress and classifies them following the categorisation model elaborated for the purpose of the Study. With regard to the training subjects, the Study presents the training subjects which appear to be included in the curricula of the countries, in order to cater for scientific and technical progress, and classifies them following the categorisation model elaborated for the purpose of the Study.

⁵ See footnote 31.

DATA COLLECTED FROM STAKEHOLDERS

Scientific and technical advancements

The Study presents the scientific and technical advancements affecting the profession of nurse responsible for general care in the last 5-10 years that were reported by stakeholders. The findings are classified following the categorisation elaborated for the purpose of the Study and specifying the countries where the findings have been noted.

Knowledge, skills and training subjects

The Study presents the knowledge, skills and training subjects reported by stakeholders which have been introduced in the training programmes over the last 10 years as a result of scientific and technical progress. Following the same approach as applied to the desk research results, the knowledge, skills and training subjects identified are classified following the categorisation elaborated for the purpose of the Study and specifying the countries where the findings have been noted.

ANALYSIS OF THE FINDINGS

In order to assess which of the identified advancements, knowledge, skills and training subjects can be considered to reflect generally acknowledged scientific and technical progress, the Study classifies all the findings following the above-mentioned categorisation and specifies in how many countries the data have been noted. These numbers are subsequently used to create a ranking, identifying advancements, knowledge, skills and training subjects that can be considered to reflect generally acknowledged scientific and technical progress (i.e. those identified in at least 16 of the 32 countries in relation to which the research was conducted). It should be noted that all the information gathered during the Study is considered as complementary and therefore presented and assessed as a whole.

Generally acknowledged scientific and technical advancements

The classification and ranking developed during the analysis of the findings reveal that the following scientific and technical advancements affecting the profession of nurses responsible for general care reflect generally acknowledged scientific and technical progress:

	Advancements
Scientific topics/ areas	Person-centred care theories: 22 countries
	Inter-/multidisciplinary theories: 16 countries

	Evidence-Based Practice: 24 countries
Technical topics/ areas	e-Health: 26 countries
	Healthcare/nursing methods: 21 countries

Knowledge, skills and training subjects reflecting generally acknowledged scientific and technical progress

In addition, the results of the analysis have shown that the following knowledge, skills and training subjects have been introduced as a result of generally acknowledged scientific and technical progress:

	Knowledge and skills	Training subjects
Scientific topics / areas	Person-centred care theories: 18 countries	Person-centred care theories: 22 countries
	Inter-/multidisciplinary theories: 22 countries	
	Management theories applied to nursing: 20 countries	Management theories applied to nursing: 20 countries
	Evidence-Based Practice: 18 countries	Evidence-Based Practice: 25 countries
Technical topics / areas		e-Health: 23 countries
	Healthcare/nursing methods: 16 countries	

ASSESSMENT OF WHETHER TO UPDATE THE DIRECTIVE AND HOW

Assessment of the findings under the current provisions of the Directive

Having identified the main advancements, knowledge, skills and training subjects reflecting generally acknowledged scientific and technical progress, the next step is to assess whether these advancements, knowledge, skills and/or training subjects are already (sufficiently) provided for by the current text of the Directive. In this context, the Study assesses each main category under scientific and technical progress that reached the threshold of at least 16 countries. A close look at the Directive shows that Inter-/multidisciplinary theories are already sufficiently covered in the Directive. Additionally, the assessment reveals that for some topics that are already mentioned in the Directive (Person-centred care theories, Management theories applied to nursing and Evidence-Based Practice) more emphasis could be given, considering for example, the apparent importance of these subjects across the countries. Finally, some of the topics identified in at least 16 countries seem not to be covered in the Directive, such as e-Health and Healthcare/nursing methods.

Suggestion to update the Directive

Having identified the potential gaps in the Directive with regard to generally acknowledged advancements across the countries covered by the Study, what follows

is the formulation of potential updates of the Directive. Having in mind the objective of adapting the training programme to the evolution of the nursing profession in the scientific and technical field, the Study Team recommends updating Article 31(6) on knowledge and skills and point 5.2.1 of Annex V as follows:⁶

Knowledge and skills	Training subjects
SCIENTIFIC PROGRESS	
<i>Person-centred care theories</i>	
To be added to Article 31(6): 'Ability to provide individualised nursing care and to empower patients, relatives and other relevant persons in relation to self-care and leading a healthy lifestyle.'	To be added to Annex V, V.2., 5.2.1., under A. a., after 'General principles of health and nursing': ' , including person-centred care theories'
	Indent to be added to Annex V, V.2., 5.2.1., under B., under the indent 'Nursing in relation to': ' - Person-centred approach'
	Replacement under Annex V, V.2., 5.2.1., under B., last indent of 'home nursing' with: ' - Nursing care in community settings'
<i>Inter- /multidisciplinary theories</i>	
No update needed	No updated needed
Management theories applied to nursing	
To be added to Article 31(6): ' - Ability to develop an effective leadership approach; decision-making skills.'	To be added to Annex V, V.2., 5.2.1., under A. c., after 'Principles of administration': ' - and management'
Evidence-Based Practice	
	To be added to Annex V, V.2., 5.2.1., under A. a: ' - Evidence-Based Nursing Practice and research'
TECHNICAL PROGRESS	
e-Health	
	To be added to Annex V, V.2., 5.2.1., under A. (under a new category d.) and B. (as a separate indent): "Science and Technology": ' - e-Health'
Healthcare/nursing methods	
To be added to Article 31(6):	

⁶ Furthermore, on the basis of the findings and suggestions for changes, the Study Team also proposes deleting superfluous and / or redundant text in the Directive, by merging and deleting text. For more information please see Sub-Section 7.3.

‘- Comprehensive knowledge of the technical innovations related to healthcare and nursing methods.’	
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Synthèse

INTRODUCTION ET CONTEXTE

Ce document constitue le rapport final de l'étude « Le bilan et l'évaluation de l'évolution de l'une des professions sectorielles au titre de la Directive 2005/36/CE – infirmier responsable des soins généraux (No 711/PP/GRO/IMA/18/1131/11026) » (ci-après « l'étude ») menée par Spark Legal Network pour la Direction Générale Marché intérieur, industrie, entrepreneuriat et PME de la Commission européenne.

L'article 31 en combinaison avec l'annexe V de la directive 2005/36/CE telle que modifiée par la directive 2013/55/UE (ci-après « la directive »), fixe les exigences minimales de formation pour les infirmiers responsables des soins généraux. Seules les exigences minimales de formation liées aux connaissances et aux aptitudes (en vertu de l'article 31, paragraphe 6) et aux matières d'enseignement (en vertu du point 5.2.1 de l'annexe V) font l'objet du pouvoir de délégation accordé à la Commission et qui consiste à introduire d'éventuelles mises à jour afin de tenir compte des progrès scientifiques et techniques (généralement reconnus) et de refléter l'évolution du droit de l'Union concernant les infirmiers responsables des soins généraux. Ainsi, seules les exigences minimales liées à ces deux domaines sont couvertes par la présente étude.

OBJECTIFS ET METHODOLOGIE

L'objectif global de l'étude est de soutenir la Commission dans son évaluation de l'opportunité de proposer une adaptation des connaissances, des aptitudes et des matières d'enseignement minimales pour la profession d'infirmier responsable des soins généraux afin de tenir compte des progrès scientifiques et techniques généralement reconnus. Cet objectif a été poursuivi à travers quatre tâches principales : 1) collecte et présentation des données ; 2) évaluation comparative des données ; 3) présentation des résultats préliminaires et discussion avec les parties prenantes concernées ; et 4) rédaction de l'étude finale. De ce fait, l'étude dresse le bilan des exigences nationales actuelles en vigueur dans tous les États membres de l'UE, les États de l'AELE et au Royaume-Uni en ce qui concerne l'enseignement théorique et clinique effectif des infirmiers responsables des soins généraux, les matières d'enseignement incluses dans les programmes nationaux d'études, ainsi que les connaissances et les aptitudes que les étudiants devraient acquérir à travers une telle formation. En outre, l'étude évalue s'il serait opportun que l'UE actualise les connaissances, les aptitudes et les matières d'enseignement minimales. De plus, l'étude fournit des suggestions sur les éventuelles mises à jour de la directive, et ce

sur la base des recherches menées, de l'évaluation ainsi que de l'interaction avec les parties prenantes concernées.

La collecte des données

Afin d'atteindre les objectifs susmentionnés, les données ont été collectées par le biais d'une revue de littérature, d'une recherche documentaire et d'une consultation des parties prenantes. Ainsi, à travers la revue de la littérature, des informations pertinentes ont été recueillies sur les systèmes de santé nationaux, l'enseignement théorique et clinique effectif, ainsi que les définitions et la terminologie se référant aux progrès scientifiques et techniques. La recherche documentaire a été menée par une équipe d'experts nationaux. Ces derniers ont rempli des questionnaires de recherche détaillés, en identifiant et dressant le bilan des exigences nationales actuelles dans leurs pays respectifs en ce qui concerne l'enseignement théorique et clinique effectif des infirmiers responsables des soins généraux ainsi que les connaissances et les aptitudes qu'ils devraient acquérir à travers cette formation. Les résultats ont été vérifiés et complétés par les autorités d'enregistrement compétentes.

En outre, des données ont été collectées lors de la consultation des parties prenantes. Cette dernière comprenait : 1) des questionnaires remplis par des parties prenantes au niveau de l'UE/AELE, des organismes nationaux de réglementation, des associations nationales et des établissements de formation ;⁷ 2) un atelier ayant réuni des parties prenantes de toute l'Europe ;⁸ et 3) une présentation aux membres du groupe des coordonnateurs de la directive 2005/36/UE.

Définitions et catégorisation élaborées aux fins de l'étude

Afin d'évaluer s'il y a lieu que la Commission adapte les connaissances, les aptitudes et les matières d'enseignement requises par la directive, il est essentiel de vérifier si une telle adaptation est nécessaire eu égard les progrès scientifiques et techniques généralement reconnus. Cependant, ni la directive 2005/36/CE ni la directive 2013/55/UE ne fournissent une définition des « progrès scientifiques et techniques généralement reconnus ». Par conséquent, et aux fins de l'étude, l'équipe d'étude a élaboré une définition large et harmonisée des « progrès scientifiques et techniques généralement reconnus » dans le cadre de la formation d'infirmiers responsables des

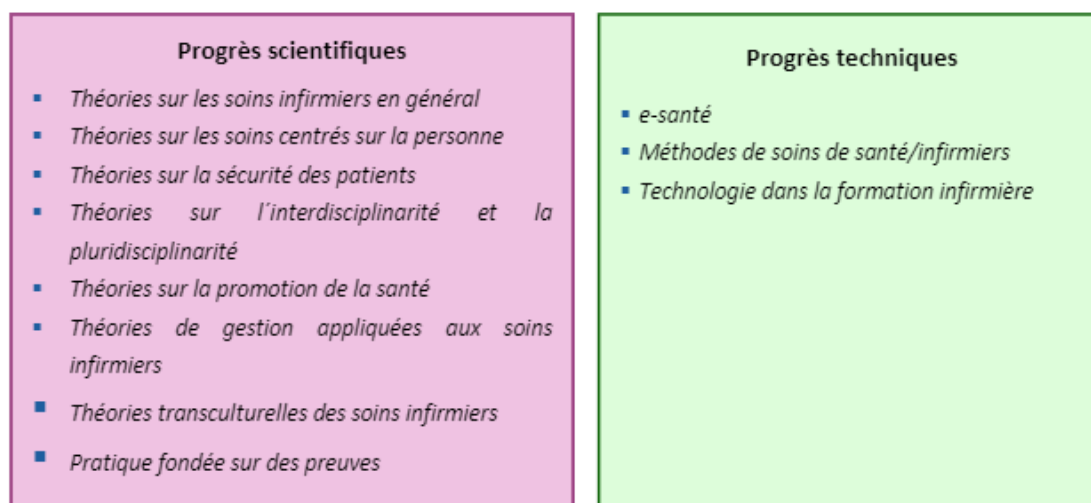
⁷ La Fédération européenne des associations d'infirmiers, l'Association européenne des étudiants infirmiers, le Réseau européen des régulateurs d'infirmiers, la Fédération européenne des enseignants en sciences infirmières, les Infirmiers spécialisés européens, le Conseil infirmier européen et l'Association européenne des infirmiers directeurs.

⁸ Les autorités nationales d'enregistrement, les organismes de réglementation, les associations nationales, les établissements de formation et les représentants des parties prenantes au niveau de l'UE/AELE.

soins généraux qui pourrait être appliquée à l'analyse des connaissances, des aptitudes et des matières d'enseignement identifiées au cours de l'étude ; cette définition est la suivante :

Les progrès scientifiques et techniques sont considérés comme « généralement reconnus » lorsque ces progrès ont eu un impact sur la pratique, les lois, les normes d'enseignement, les règles administratives et/ou les programmes d'études dans la majorité des pays. Étant donné que la présente étude couvre 32 pays (27 États membres de l'UE, 4 États de l'AELE et le Royaume-Uni), et compte tenu de la situation spécifique du Liechtenstein,⁹ une majorité est considérée comme obtenue lorsque des progrès pertinents ont été constatés dans au moins 16 pays.

De plus, l'équipe d'étude a élaboré une catégorisation des progrès scientifiques et techniques afin de classer et d'évaluer les résultats. La figure ci-dessous montre ce modèle de catégorisation :



LES DONNEES COLLECTEES AU NIVEAU NATIONAL A TRAVERS LA RECHERCHE DOCUMENTAIRE

Les systèmes de formation nationaux

L'étude comprend des informations générales sur les systèmes de formation des infirmiers responsables des soins généraux dans chacun des pays couverts par l'étude. Plus précisément, elle comprend des informations sur l'admission à la formation des infirmiers responsables des soins généraux, le niveau de la formation infirmière et les différences entre les établissements de formation d'un même pays (le cas échéant).

⁹ Voir note 31.

Connaissances, aptitudes et matières d'enseignement

L'étude présente des informations sur les connaissances, les aptitudes et les matières d'enseignement nécessaires à la formation des infirmiers responsables des soins généraux dans les pays couverts par l'étude. En ce qui concerne les connaissances et les aptitudes, l'étude identifie les connaissances et les aptitudes qui semblent nécessaires dans les pays pour répondre aux progrès scientifiques et techniques et les classe selon le modèle de catégorisation élaboré aux fins de l'étude. En ce qui concerne les matières d'enseignement, l'étude présente les matières d'enseignement qui semblent être incluses dans les programmes d'études des pays en réponse aux progrès scientifiques et techniques, et les classe selon le modèle de catégorisation élaboré aux fins de l'étude.

LES DONNEES COLLECTEES A TRAVERS LA CONSULTATION DES PARTIES PRENANTES

Progrès scientifiques et techniques

L'étude présente les progrès scientifiques et techniques qui ont touché la profession d'infirmier responsable des soins généraux au cours des 5 à 10 dernières années et qui ont été signalés par les parties prenantes. Les résultats sont classés selon la catégorisation élaborée aux fins de l'étude et en précisant les pays pour lesquels ces résultats ont été obtenus.

Connaissances, aptitudes et matières d'enseignement

L'étude présente les connaissances, les aptitudes et les matières d'enseignements rapportées par les parties prenantes et qui ont été introduites dans les programmes de formation au cours des 10 dernières années à la suite des progrès scientifiques et techniques. En suivant la même approche que celle appliquée aux résultats de la recherche documentaire, les connaissances, les aptitudes et les matières d'enseignement identifiées sont classées en fonction de la catégorisation élaborée aux fins de l'étude et en spécifiant les pays où les résultats ont été obtenus.

L'ANALYSE DES RESULTATS

Afin d'évaluer quels progrès, connaissances, aptitudes et matières d'enseignement identifiés peuvent être considérés comme reflétant des progrès scientifiques et techniques généralement reconnus, l'étude classe tous les résultats suivant la catégorisation susmentionnée et spécifie dans combien de pays ces données ont été obtenues. Ce nombre est ensuite utilisé pour créer un classement, identifiant les progrès, les connaissances, les aptitudes et les matières de formation qui peuvent être considérés comme reflétant des progrès scientifiques et techniques généralement

reconnus (c'est-à-dire ceux identifiés dans au moins 16 des 32 pays pour lesquels la recherche a été menée). Il convient de noter que toutes les informations recueillies au cours de l'étude sont considérées comme complémentaires et donc présentées et évaluées dans leur ensemble.

Les progrès scientifiques et techniques généralement reconnus

La classification et le classement élaborés lors de l'analyse des résultats révèlent que les progrès scientifiques et techniques touchant la profession d'infirmier responsable des soins généraux et qui reflètent des progrès scientifiques et techniques généralement reconnus sont les suivants :

	Progrès
Scientifique Sujets/ domaines	Théories sur les soins centrés sur la personne : 22 pays
	Théories sur l'interdisciplinarité et la pluridisciplinarité : 16 pays
	Pratique fondée sur des preuves : 24 pays
Technique Sujets/ domaines	E-santé : 26 pays
	Méthodes de soins de santé/infirmiers : 21 pays

Connaissances, aptitudes et matières d'enseignements reflétant des progrès scientifiques et techniques généralement reconnus

En outre, les résultats de l'analyse ont montré que les connaissances, les aptitudes et les matières d'enseignement suivantes ont été introduites à la suite de progrès scientifiques et techniques généralement reconnus :

	Connaissances et aptitudes	Matières d'enseignement
Scientifique Sujets domaines /	Théories sur les soins centrés sur la personne : 18 pays	Théories sur les soins centres sur la personne : 22 pays
	Théories sur l'interdisciplinarité et la pluridisciplinarité : 22 pays	
	Théories de gestion appliquées aux soins infirmiers : 20 pays	Théories de gestion appliquées aux soins infirmiers : 20 pays
	Pratique fondée sur des preuves : 18 pays	Pratique fondée sur des preuves : 25 pays
Technique Sujets domaines /		E-santé : 23 pays
	Méthodes de soins de santé/infirmiers : 16 pays	

EVALUATION DE L'OPPORTUNITE DE METTRE A JOUR LA DIRECTIVE ET COMMENT

Evaluation des résultats conformément aux dispositions actuelles de la directive

Après avoir identifié les principaux progrès, connaissances, aptitudes et matières d'enseignement reflétant des progrès scientifiques et techniques généralement reconnus, la prochaine étape consiste à évaluer si ces progrès, connaissances, aptitudes et/ou matières d'enseignement sont déjà (suffisamment) prévus par le texte actuel de la directive. Dans ce contexte, l'étude évalue chacune des principales catégories faisant l'objet de progrès scientifiques et techniques ayant atteint le seuil d'au moins 16 pays. Ainsi, un examen attentif de la directive montre que les théories sur l'interdisciplinarité/la pluridisciplinarité sont déjà suffisamment couvertes par la directive. De plus, l'évaluation révèle que pour certains sujets déjà mentionnés dans la directive (théories sur les soins centrés sur la personne, théories sur la gestion appliquées aux soins infirmiers et la pratique fondée sur des preuves), une plus grande importance pourrait leur être accordée, compte tenu, par exemple, de l'importance apparente de ces sujets à travers les pays. Finalement, certains des thèmes identifiés dans au moins 16 pays ne semblent pas être couverts par la directive, tels que la santé et les méthodes de soins santé/infirmiers.

Suggestions en vue de la mise à jour de la directive

Après avoir identifié les lacunes potentielles dans la directive en ce qui concerne les progrès généralement reconnus dans les pays couverts par l'étude, il a été procédé à la formulation de mises à jour potentielles de la directive. Tout en ayant à l'esprit l'objectif consistant en l'adaptation du programme de formation à l'évolution de la profession d'infirmier dans le domaine scientifique et technique, le groupe d'étude recommande de mettre à jour l'article 31, paragraphe 6, sur les connaissances et les aptitudes et le point 5.2.1 de l'annexe V comme suit :¹⁰

Connaissances et aptitudes	Matières d'enseignement
PROGRES SCIENTIFIQUES	
<i>Théories sur les soins centrés sur la personne</i>	
A ajouter à l'article 31(6):	A ajouter à l'annexe V, V.2., 5.2.1., sous A. a., après « principes généraux de santé et des soins infirmiers » : « , incluant les théories sur les soins centrés sur la personne »

¹⁰ En outre, sur base des résultats et des suggestions en vue de la mise à jour de la directive, l'équipe d'étude propose également d'ôter tout texte superflu et/ou redondant dans la directive, en fusionnant et supprimant du texte. Pour plus d'information, veuillez consulter la section 7.2 ci-dessous.

<p>« Capacité à fournir des soins infirmiers personnalisés et à habiliter les patients, les proches et les autres personnes concernées à prendre soin d'eux-mêmes et à mener une vie saine »</p>	<p>Alinéa à ajouter à l'annexe V, V.2., 5.2.1., sous B., sous l'alinéa « soins infirmiers en matière de » : « - Approche centrée sur la personne »</p> <p>Remplacer sous l'annexe V, V.2., 5.2.1., sous B., dernier alinéa « soins à domicile » avec : “- Soins infirmiers en milieu communautaire »</p>
<p><i>Théories sur l'interdisciplinarité/ la pluridisciplinarité</i></p>	
<p>Aucune mise à jour nécessaire</p>	<p>Aucune mise à jour nécessaire</p>
<p>Théories de gestion appliquées aux soins infirmiers</p>	
<p>A ajouter à l'article 31(6): « - Capacité à développer une approche de leadership efficace ; aptitudes à la prise de décision. »</p>	<p>A ajouter à l'annexe V, V.2., 5.2.1., sous A. c., après « principes d'administration » : « - et de gestion »</p>
<p>Pratique fondée sur des preuves</p>	
	<p>A ajouter à l'annexe V, V.2., 5.2.1., sous A. a : « - Pratique infirmière fondée sur des preuve et recherche »</p>
<p>PROGRES TECHNIQUES</p>	
<p>e-santé</p>	
	<p>A ajouter à l'annexe V, V.2., 5.2.1., sous A. (sous une nouvelle catégorie d.) et B. (en tant qu'alinéa à part) : « Science et technologie » : « - e-santé »</p>
<p>Méthodes de soins de santé/infirmiers</p>	
<p>A ajouter à l'article 31(6): '- Connaissances approfondies des innovations techniques liées aux méthodes de soins de santé/infirmiers.'</p>	

1. Introduction

This study, ‘Mapping and assessment of developments for one of the sectoral professions under Directive 2005/36/EC – nurse responsible for general care’ (the ‘Study’), was launched by the European Commission (the ‘Commission’) - Directorate General Internal Market, Industry, Entrepreneurship and SMEs (‘Commission - DG GROW’) and carried out by Spark Legal Network (EU) BVBA (the ‘Core Team’).

The main objective of this Study is to assist the Commission in its assessment of whether to propose an adaptation of the minimum knowledge, skills and training subjects for the profession of nurse responsible for general care under Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications, as amended (the “Directive”).¹¹ The objective of this study was pursued through four main tasks: 1) Collection and presentation of data; 2) Comparative assessment of data; 3) Presentation of preliminary results and discussion with relevant stakeholders; and 4) Drafting of final study. The present report is the result of these tasks and provides an overview of the data collected via desk research performed in each EU Member State, EFTA State and the UK; and consultations with stakeholders at EU/EFTA and national level. More specifically, the report presents the state of play at the time of execution of the Study for each of the countries concerned with respect to the education system, theoretical and practical training, knowledge and skills, as well as the training subjects included in the training of nurses responsible for general care. Particular focus is placed on the knowledge, skills and training subjects introduced as a result of or in view of ‘generally acknowledged’ scientific and technical progress within the meaning of the Directive,¹² which are analysed with the aim of identifying commonalities and divergences across the countries. Finally, the Report presents an assessment of whether it may be necessary to update the minimum knowledge, skills and training subjects laid down in the Directive and provides suggestions to that end.

As such, this report contains seven chapters. The current chapter presents the structure of this report. Chapter 2 provides an overview of the context of the Study.

¹¹ Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications (OJ L 255 30.9.2005, p. 22), as amended, consolidated version, available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1568901288609&uri=CELEX:02005L0036-20190415> (last accessed on 17/03/2020).

¹² Article 21(6) and Article 31(2) of Directive 2005/36/EC, as amended.

Chapter 3 presents the objectives of the Study and the methodology applied. Furthermore, it contains, for the purpose of this study, definitions of relevant concepts and provides a categorisation of generally acknowledged scientific and technical progress which the Study Team has applied in order to classify the knowledge, skills and training subjects. Chapter 4 follows with a presentation of the data collected by a team of experts at national level through desk research. Chapter 5 presents the data collected through consultations with stakeholders at EU/EFTA and national level. This culminates in Chapter 6 which analyses the knowledge, skills and training subjects which, on the basis of our research, appear to have been introduced as a result of generally acknowledged scientific and technical progress. Chapter 7 provides a preliminary assessment of whether the Directive requires updating.

2. Context

2.1. Rationale for Directive 2005/36/EC

Recital 1 of Directive 2005/36/EC notes that, pursuant to Article 3(1)(c) of the Treaty establishing the European Community, the abolition of obstacles to free movement of persons and services is one of the objectives of the Community. This includes, in particular, the right to pursue a profession in a Member State other than the one in which they have obtained their professional qualifications.

Legislation on the recognition of professional qualifications has been developed with four objectives in mind:

1. Facilitating labour mobility;
2. Supporting professionals coming from a Member State where the profession is not regulated who are interested in establishment in a Member State where the profession is regulated;
3. Encouraging cross-border provision of services on a temporary and occasional basis in order to improve the competitiveness of the services market; and
4. Balancing the need for mobility with the legitimate public interest in the high quality of services and the protection of consumers and patients.¹³

The Directive sets out rules for the recognition of qualifications as well as EU-level harmonised minimum training requirements for seven sectoral professions (nurses responsible for general care, midwives, doctors, pharmacists, architects, veterinary surgeons, and dental practitioners). The present study is concerned with the profession of nurse responsible for general care. In that context, while Member States can set training requirements for nurses responsible for general care that go beyond the minimum requirements set in the Directive, they are bound to recognise automatically qualifications of professionals trained in other Member States, as long as they are in possession of evidence of formal qualifications referred to in Annex V, under V.2., point 5.2.2. to the Directive which satisfy the minimum requirements for training of nurses responsible for general care set out in Article 31 of the Directive.

2.2. Directive 2013/55/EU

The 2011 Green Paper on Modernising the Professional Qualifications Directive noted that:

“...some of the training conditions themselves date as far back as thirty years and many stakeholders call for the Directive to be modernised. A modernised Directive should retain the basic principles of automatic recognition as a starting point, with a flexible mechanism for updating the specific training requirements. This mechanism could then be used to gradually build the ongoing educational reforms into the automatic recognition regime. At the same time, the modernisation needs to take into account continuing scientific and technical progress.”¹⁴

The training requirements for nurses responsible for general care have been to a certain extent reviewed with the last revision of Directive 2005/36/EC, namely through Directive 2013/55/EU¹⁵. For example, conditions for the admission to training under Article 31(1) have been amended, the requirement of minimum years and hours of training under Article 31(3) became cumulative, a list of competences that nurses should acquire through their training has been added under Article 31(7). No major changes have been made however to the minimum skills and knowledge of professionals under Article 31(6) and no changes at all to the minimum training programmes listed under point 5.2.1. of Annex V to the Directive.

Instead, Directive 2013/55/EU has provided delegated powers to the Commission with a view to updating at a later stage, if necessary, the requisite knowledge, skills and training subjects to reflect the evolution of Union law affecting nurses responsible for general care. This delegated power is vested in Articles 21(6) and 31(2) of Directive 2005/36/EC, as amended by Directive 2013/55/EU. The Commission is empowered to adopt delegated acts to update, respectively, the knowledge and skills referred to in Article 31(6) of the Directive and the minimum content of the training programmes set out in point 5.2.1. of Annex V to the Directive.

With regard to the delegated power granted under Article 31(2) and Article 21(6), the purpose of possible amendments shall be the adaptation of the minimum training requirements to scientific and technical progress. Such updates shall not entail an amendment of existing essential legislative principles in Member States regarding the

¹⁴ Green Paper on Modernising the Professional Qualifications Directive, COM(2011) 367 final, p.15. Available at: <https://ec.europa.eu/transparency/regdoc/rep/1/2011/EN/1-2011-367-EN-F1-1.Pdf> (last accessed on 17/03/2020).

¹⁵ Directive 2013/55/EU of the European Parliament and of the Council of 20 November 2013 amending Directive 2005/36/EC on the recognition of professional qualifications and Regulation (EU) No 1024/2012 on administrative cooperation through the Internal Market Information System (‘the IMI Regulation’) OJ L 354, 28.12.2013, p. 132–170, available at <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32013L0055> (last accessed on 17/03/2020).

structure of professions as regards training and conditions of access by natural persons. Such updates shall respect the responsibility of the Member States for the organisation of education systems, as set out in Article 165(1) of the Treaty on the Functioning of the European Union (TFEU). Importantly, the relevant amendments introduced by Directive 2013/55/EU concerning the delegated power are not aimed at merely allowing for a one-off update to account for generally acknowledged scientific and technical progress subsisting at one single point of time, but rather to empower the Commission to adjust the requirements from time to time in order to reflect the generally acknowledged scientific and technical progress in the field.

It should also be noted that the Commission does not have the delegated power to amend the other minimum training requirements for the profession of nurse responsible for general care. In fact, conditions for the admission to training (under Article 31(1)), competencies (under Article 31(7)), the minimum length of training and the number of hours to be covered by the training as well as the ratio of clinical and theoretical part of the training (under Article 31 (3)-(5)) do not fall under the delegated power of the Commission to amend the Directive.¹⁶ However, any proposal for an update of Article 31(6) and point 5.2.1. of Annex V needs to remain coherent with the remaining minimum requirements under the Directive.

2.3. Minimum training requirements for the profession of nurse responsible for general care

Article 31 in conjunction with Annex V of the Directive sets out the minimum training requirements for nurses responsible for general care. These include conditions for the admission of nurses to training (Article 31(1)), the minimum length and number of hours to be covered by the training as well as the ratio of the clinical and theoretical parts of the training (Article 31(3)-(5)), minimum knowledge and skills that the nurses should have acquired during the training (Article 31(6)) as well as minimum competences that nurses shall be able to apply following the training (Article 31(7)). Article 31(2) refers to point 5.2.1. of Annex V where the minimum training programme is set out.

Only the minimum training requirements related to knowledge, skills and training subjects are subject to the delegated power that the Commission was granted in order

¹⁶ Article 21(6) and Article 31(2) of Directive 2005/36/EC, as amended.

to be able to introduce possible updates.¹⁷ Thus, only the minimum requirements that are related to these areas are covered by the present study.

Pursuant to Article 31(6) of the Directive, training for nurses responsible for general care shall provide an assurance that the following knowledge and skills are acquired:

- a) comprehensive knowledge of the sciences on which general nursing is based, including sufficient understanding of the structure, physiological functions and behaviour of healthy and sick persons, and of the relationship between the state of health and the physical and social environment of the human being;*
- b) knowledge of the nature and ethics of the profession and of the general principles of health and nursing;*
- c) adequate clinical experience; such experience, which should be selected for its training value, should be gained under the supervision of qualified nursing staff and in places where the number of qualified staff and equipment are appropriate for the nursing care of the patient;*
- d) the ability to participate in the practical training of health personnel and experience of working with such personnel;*
- e) experience of working together with members of other professions in the health sector.*

Point 5.2.1 of Annex V to the Directive sets out the minimum harmonised requirements of the training programmes for nurses responsible for general care, as follows:

“The training leading to the award of a formal qualification of nurses responsible for general care shall consist of the following two parts.

A. Theoretical instruction

a. Nursing:

- Nature and ethics of the profession*
- General principles of health and nursing*
- Nursing principles in relation to:*
 - general and specialist medicine*

¹⁷ Article 21(6) and Article 31(2) of Directive 2005/36/EC, as amended.

- *general and specialist surgery*
- *childcare and paediatrics*
- *maternity care*
- *mental health and psychiatry*
- *care of the old and geriatrics*

b. Basic sciences:

- *Anatomy and physiology*
- *Pathology*
- *Bacteriology, virology and parasitology*
- *Biophysics, biochemistry and radiology*
- *Dietetics*
- *Hygiene:*
 - *preventive medicine*
 - *health education*
- *Pharmacology*

c. Social sciences:

- *Sociology*
- *Psychology*
- *Principles of administration*
- *Principles of teaching*
- *Social and health legislation*
- *Legal aspects of nursing*

B. Clinical instruction

- *Nursing in relation to:*
 - *general and specialist medicine*
 - *general and specialist surgery*
 - *childcare and paediatrics*
 - *maternity care*
 - *mental health and psychiatry*
 - *care of the old and geriatrics*
 - *home nursing*

One or more of these subjects may be taught in the context of the other disciplines or in conjunction therewith.

The theoretical instruction must be weighted and coordinated with the clinical instruction in such a way that the knowledge and skills referred to in this Annex can be acquired in an adequate fashion."

It should be noted that the Directive does not provide further detail on what should be contained in the aforementioned modules, or on how they should be taught. The

Member States therefore have some freedom as to how organise and further set out their training programmes, always in line with the Directive.

2.4. Application of Directive 2005/36/EC to non-EU countries

The Directive applies to several non-EU countries on the basis of international agreements, which is the reason why this study also covers the non-EU countries concerned.

Directive 2005/36/EC as amended by 2013/55/EU is part of the EEA Agreement¹⁸, with few adaptations, and so applies to the following non-EU countries: Iceland, Liechtenstein and Norway. The minimum training requirements of nurses responsible for general care that are relevant for this study, namely knowledge and skills under Article 31(6) of Directive 2005/36/EC, as amended, and the training programmes under point 5.2.1. of Annex V, apply to Iceland, Liechtenstein and Norway in the same manner as in the EU Member States. The provisions on delegated powers are not applicable in the context of the EEA agreement. Any updates on the EU side will only apply to Iceland, Norway and Liechtenstein if they are subsequently made part of the EEA Agreement via specific procedures.

Directive 2005/36/EC is also part of the EU-Swiss Free Movement of Persons Agreement¹⁹, with some major differences in particular in the area of temporary provision of services. The amending Directive 2013/55/EU is not part of the Agreement and thus it does not apply to Switzerland. The minimum training requirements of nurses responsible for general care that are relevant for this study, namely knowledge and skills under Article 31(6) of Directive 2005/36/EC, apply in the version before amendments introduced by Directive 2013/55/EU. The requirements concerning minimum training programmes under point 5.2.1. of Annex V, apply in the same manner as in the EU countries and Switzerland as they have not been amended by Directive 2013/55/EU. The provisions on delegated powers are not applicable in

¹⁸ Agreement on the European Economic Area (OJ No L 1, 3.1.1994, p. 3). Directive 2005/36/EC and its amendments including Directive 2013/55/EU are referred to under point 1 of section A of Annex VII to the Agreement which can be consulted here in its current amended version: <https://www.efta.int/legal-texts/eea/annexes-to-the-agreement>.

¹⁹ Agreement between the European Community and its Member States, of the one part, and the Swiss Confederation, of the other, on the free movement of persons (OJ L 114, 30.4.2002, p.6), as amended by Decision N° 2/2011 of the EU-Swiss Joint Committee (OJ L 277, 22.10.2011, p. 20). Directive 2005/36/EC is referred to under point 1a of section A of Annex III to the Agreement.

the context of the EU-Swiss Free Movement of Persons Agreement. Any updates on the EU side will only apply to Switzerland if they are subsequently made part of the Agreement via specific procedures.

During the data collection and consultation with stakeholders, the UK was still part of the European Union. The UK left the European Union on 31 January 2020 but Directive 2005/36/EC, as amended, continues to apply to it until the end of the transitional period based on the Withdrawal Agreement²⁰. This period will last until at least 31 December 2020.

²⁰ Agreement on the withdrawal of the United Kingdom of Great Britain and Northern Ireland from the European Union and the European Atomic Energy Community 2019/C 384 I/01 (OJ C 384I , 12.11.2019, p. 1–177).

3. Objectives and methodology

3.1. Objectives

The main objective of this Study is to assist the Commission in its assessment of whether to propose an adaptation of the minimum knowledge, skills and training subjects for the profession of nurse responsible for general care under the Directive. Importantly, such an assessment should take account of generally acknowledged scientific and technical progress, within the limits of the delegated power granted to the Commission under the Directive.²¹

With this in mind, the specific objectives of the Study are to:

- Map the current national requirements in all countries with regard to the effective theoretical and clinical training of nurses responsible for general care, the training subjects included in the national curricula, and the knowledge and skills that students should acquire by such training;
- Assess whether it would be appropriate for the EU to update the minimum knowledge, skills and training subjects and, if so, to what extent; and
- Provide suggestions on possible updates to the Directive, on the basis of the research, assessment and interaction with stakeholders.

The objectives of this study have been pursued through four main tasks:

- **Task 0 - Inception:** The inception phase started with a kick-off meeting between the Study Team and the Commission and ended with an Inception Report which updated and refined the methodology for the data collection and analysis as well as the work plan.
- **Task 1 - Collection and presentation of data:** During the first phase of Task 1, data regarding the national requirements in all countries concerning the knowledge, skills and training subjects required for the profession of nurse responsible for general care was collected through literature review and desk research questionnaires. Furthermore, the Study Team also collected data from EU/EFTA-level stakeholders regarding the main scientific and technical

²¹ Article 21(6) and Article 31(2) of Directive 2005/36/EC, as amended.

advancements affecting the profession of nurse responsible for general care. This phase culminated with the Progress Report. Moreover, during Task 1, the Study Team also: 1) double-checked the information contained in the national reports with registration authorities to avoid incorrect conclusions; and 2) contacted relevant stakeholders (i.e. training institutions, national associations representing the interests of nurses responsible for general care and national regulatory bodies) to ensure that the data collected was complete.

- **Task 2 - Comparative assessment of data:** During Task 2, the Study Team assessed the findings of the desk research and the complete set of results from the stakeholder consultation questionnaires (at EU/EFTA and national level). This phase culminated with the Draft Study.
- **Task 3 - Presentation of results and discussion with relevant stakeholders (Workshop and GoC²² meeting):** The objective of Task 3 was to present the findings of the Study to stakeholders with the aim of receiving valuable input, enabling the Study Team to refine the findings further. This task culminated in a meeting with the Commission to discuss the Study findings and the feedback received.
- **Task 4 - Drafting of Final Study:** During Task 4, the Study Team finalised the present Final Study on the basis of the feedback received during Task 3.

3.2. Methodology

The identification and reporting of the national requirements in all countries with regard to the knowledge, skills and training subjects was performed with the important assistance of a team of national experts, coordinated by the Core Team.

Relevant data was collected via:

1. **Literature review** conducted in order to profit from the wealth of information already available from previous reports and studies. Specifically, during the first part of the literature review relevant information regarding the national health systems and the effective theoretical and practical training was gathered. This information contributed to the finalisation of the research

²² Group of Coordinators for Directive 2005/36/EU.

protocol and stakeholder questionnaires. Furthermore, during the second part of the literature review relevant information regarding scientific and technical progress, as well as the terminology associated therewith was gathered. Based on this information, the categorisation used in the present study was elaborated.

2. **Desk research**, based on a detailed questionnaire, identifying and mapping current national requirements in all countries with regard to the effective theoretical and clinical training of nurses responsible for general care and the knowledge and skills that they should acquire by such training.
3. **Stakeholder consultation**, during which data from stakeholders was collected through:
 - **Stakeholder questionnaires.** Specifically, three different questionnaires were sent to relevant stakeholders at EU/EFTA and national level. The first questionnaire was tailored to EU/EFTA-level stakeholders in order to identify the main scientific and technical advancements affecting the training of nurses responsible for general care. The second questionnaire was tailored to national regulatory bodies and national associations in order to identify the knowledge, skills and training subjects that are part of training programmes in their countries and that have been introduced as a result of the scientific and technical progress. The third questionnaire was tailored to training institutions in order to identify the knowledge, skills and training subjects included in their curricula as result of the scientific and technical progress.
 - **Discussion with relevant stakeholders during and after the workshop.** The Study Team welcomed 48 stakeholders²³ from across Europe which can be categorised as follows:
 - 9 representatives from national registration authorities responsible for the registration of nurses responsible for general care;

²³ 42 participants and 6 panel speakers.

- 11 representatives from regulatory bodies responsible for the regulation of the education and training of nurses responsible for general care;
- 10 representatives from national associations representing the interests of registered nurses responsible for general care;
- 11 representatives from nursing training institutions; and
- 7 representatives from EU/EFTA-level stakeholders.

Stakeholders provided their input: 1) through discussion during the workshop; 2) via dedicated feedback questionnaires that were distributed by the Study Team during the workshop; and 3) via email after the workshop.

- **Discussion with Members of GoC.** The Study Team attended a meeting of GoC, during which key members of the Study Team presented the preliminary Draft Study results to the national coordinators. Specifically, the coordinators were able to provide their input: 1) through discussion during the meeting; and 2) via email after the meeting.

Temporal scope of the research

The Study covers all EU Member States, EFTA States and the UK. In relation to the temporal scope, it is important to mention the cut-off dates for the data collection:²⁴

- Desk research: 5 April 2019.
- Stakeholder consultation:
 - Stakeholder questionnaires: 17 July 2019.
 - Stakeholder workshop: 22 November 2019.
 - GoC for Directive 2005/36/EU: 28 January 2020.

²⁴ In principle, any proposals for new laws or newly enacted legislation after the mentioned dates are not taken into account in this Study. Where the Study Team was (made) aware of any such 'new' developments during this project, these are referred to in footnotes when relevant.

Scope of the findings

Before starting the research at national level, the Core Team drafted and tested the research protocol. The research protocol is a very detailed instruction covering both the substance and the process of the work at national level. It consists of an introductory document, instructing the national experts, a questionnaire containing the questions to be answered and a model country report which is the result of pilot research carried out in respect of one country using the questions of the research questionnaire.

The national experts carried out desk research at national level and completed the research questionnaires, resulting in 32 comprehensive yet concise national reports. The national legal experts mapped, analysed and described the national requirements with regard to the effective theoretical and clinical training of nurses responsible for general care and the knowledge and skills that they should acquire by such training. Moreover, the desk research questionnaires, together with a detailed check list, were sent to the competent registration authorities to ensure the completeness of the data and to avoid incorrect conclusions.²⁵

With regard to the EU/EFTA-level stakeholder questionnaire, 7 stakeholders were requested to complete a questionnaire which included questions on the main scientific and technical advancements affecting the profession of nurse responsible for general care and the extent to which these advancements have been reflected in the training and practice of the profession in the countries. Particular focus was placed on the impact of these advancements in relation to the knowledge, skills and training subjects required for nurses responsible for general care.

In relation to the national stakeholder questionnaires, three categories of stakeholder were contacted in each country: 1) Regulatory body; 2) National association representing the interests of nurses responsible for general care; and 3) Training institutions. It should be noted that in some countries the registration authority is the same as the regulatory body or the relevant national association, thus in those cases the stakeholder was only contacted for the verification and completion of the desk research questionnaires. In this context, the stakeholders identified the main scientific

²⁵ It should be noted that in 5 countries (DE, HU, EL, LU, NO), the registration authorities were only able to provide input on the subjects under their competences. Furthermore, in one country (RO) no feedback was received from the registration authority.

and technical advancements affecting the profession of nurse responsible for general care, as well as the knowledge, skills and training subjects introduced as a result of the scientific and technical progress. The national stakeholder consultation resulted in 96 completed questionnaires: 22 national authority questionnaires, 24 national association questionnaires and 50 training institution questionnaires.

With regard to the feedback received from the workshop, the Study Team collected 30 feedback questionnaires (5 EU/EFTA-level stakeholders, 4 regulatory bodies, 4 national registration authorities, 11 national associations and 10 training institutions).²⁶ Furthermore, additional input from 5 countries was received via email after the workshop.

Lastly, in relation to the feedback received via GoC for Directive 2005/36/EU, the Study Team received input from 7 countries via email.

Therefore, the present study is based on:

- 1) 32 national reports, completed on the basis of desk research by a network of national experts;
- 2) 7 EU/EFTA completed stakeholder questionnaires;
- 3) 96 completed national stakeholder questionnaires;
- 4) 30 workshop feedback questionnaires and additional input received via email;
and
- 5) Input received from 7 countries via GoC.

3.3. Defining generally acknowledged scientific and technical progress

3.3.1. Introduction

In order to assess whether there may be grounds for the Commission to adapt the knowledge, skills and training subjects required under the Directive, it is crucial to

²⁶ Please note that certain participants represent different categories of stakeholders and, therefore, they have provided input from different perspectives (e.g. the participant from Austria represents the regulatory body and a training institution).

ascertain whether generally acknowledged scientific and technical progress requires such adaptation.

Firstly, it should be noted that neither Directive 2013/55/EU nor Directive 2005/36/EC provides a definition of ‘generally acknowledged scientific and technical progress’. Moreover, it should also be noted that the Commission’s delegated power to adapt the required knowledge and skills pursuant to Article 21(6) is limited to ‘generally acknowledged scientific and technical progress’, while with regard to adapting the list of training subjects Article 31(2) of the Directive only refers to ‘scientific and technical progress’:

- (1) in order to take account of generally acknowledged scientific and technical progress, the Commission is empowered to update the requisite knowledge and skills to reflect the evolution of Union law affecting nurses responsible for general care.²⁷
- (2) the Commission is empowered to adopt delegated acts concerning amendments to the list provided in point 5.2.1 of Annex V of the Directive, with a view to adapting it to scientific and technical progress.²⁸

Therefore, the wording of the Directive differs with regard to the description of the Commission’s delegated power to adapt the knowledge, skills (generally acknowledged scientific and technical progress) and training subjects (scientific and technical progress).²⁹ It could be contended that the intention of the legislator is to allow the Commission to adapt the knowledge, skills and training subjects applying the same criteria. However, there is no compelling evidence that this is the case. At the same time, it could be said that scientific and technical progress in the field of nursing would affect knowledge, skills and training subjects in a similar manner. What is more, as the training subjects that students follow during the general nursing training allow them to acquire specific knowledge and skills, it would seem artificial to only apply the ‘generally acknowledged’ criterion to knowledge and skills, and not to training subjects. For those reasons, and for the purpose of this study, the Study Team has developed a broad and harmonised definition of ‘generally acknowledged scientific and technical progress’ in the framework of training of nurses responsible

²⁷ Article 21(6) of Directive 2005/36/EC, as amended.

²⁸ Article 31(2) of Directive 2005/36/EC, as amended.

²⁹ Article 21(6) and Article 31(2) of Directive 2005/36/EC, as amended.

for general care that can be applied to the analysis of knowledge and skills, and training subjects (see Sub-Section 3.3.2).

Furthermore, while referring to existing literature, the Study Team aims to develop a benchmark of ‘generally acknowledged scientific and technical progress’ that is defined with sufficient breadth, is consistent with the wording of the Directive, and is detailed enough to allow for a well-grounded assessment of the findings of this study. Thus, the appropriate level of detail will be enhanced by the categorisation of aspects of generally acknowledged scientific and technical progress based on underlying concepts which can be found in the health care sector, including nursing care. This is done within a framework which will serve as a basis to assess whether there are grounds to update the knowledge, skills and training subjects listed in the Directive (see Sub-Section 3.3.3).

3.3.2. Generally acknowledged scientific and technical progress

The words ‘generally acknowledged’ could also be described as ‘widely recognised’ or ‘generally accepted’. In the context of the Directive, it could hence be interpreted very broadly (i.e. as accepted by the scientific community) or more narrowly (i.e. introduced in the curricula by a certain number of countries). As mentioned under Sub-Section 3.3.1, the Directive does not further specify what should be regarded as ‘generally acknowledged’ or ‘scientific and technical progress’. Taking into account that the Commission delegated power³⁰ should only be used when there are justified reasons, a too broad definition may not be appropriate for the purposes of this Study. Thus, the Study Team has developed a working definition of ‘generally acknowledged scientific and technical progress’ which will be applied in a harmonised way to the findings of the present Study:

Scientific and technical advancements are considered to be ‘generally acknowledged’ when these advancements have had an impact on the practice, laws, teaching standards, administrative rules and/or curricula in a majority of countries. Taking into account that the present Study covers 32 countries (27 EU Member States, 4 EFTA States and the UK) and taking into account the specific situation of Liechtenstein, the

³⁰ Article 21(6) and Article 31(2) of Directive 2005/36/EC, as amended.

*majority is considered to be obtained when relevant advancements have been noted in at least 16 countries.*³¹

Furthermore, it should be pointed out that scientific and technical progress are often interrelated. In fact, scientific developments may sustain or provide the basis for technical progress and vice versa. While, for the purpose of this Study, scientific and technical progress will be mostly assessed separately, their relevant interconnectivity will be fully considered.

Generally acknowledged scientific progress

In order to define generally acknowledged scientific progress, one should first focus on the meaning of ‘scientific knowledge’. Scientific knowledge can be defined as “a fluid mix of framed evidence and experience acquired by means of standardised methods of research following the principles of commensurability (definition of units of analysis that can be compared like-with-like), transparency for corroboration (including replicability and falsifiability) and transferability (including generalisability to broader contexts). It provides a framework for incorporating new information and experiences and for generating new research questions, causal explanations, empirical hypotheses and theories that allow for a better understanding and prediction of natural phenomena”.³² From this perspective, scientific progress refers to recent, current, and future scientific developments which enhance scientific knowledge. For the purpose of this Study, scientific progress in relation to healthcare professions generally, and therefore to nursing, refers to recent, current, and future scientific developments which enhance the knowledge acquired through research aiming at testing theories, explaining phenomena, providing understanding and predictions with the ultimate goal of enhancing healthcare generally and nursing care more specifically.

³¹ Please note that a majority of countries, taking into account that the present Study covers 32 countries, should be 17 countries (i.e. $(32 \div 2) + 1 = 17$). Nevertheless, throughout this Study, Liechtenstein will not be counted as one of the 32 countries with regard to “generally acknowledged scientific and technical progress” as it does not offer theoretical training for nurses responsible for general care. Therefore, the threshold has been set in 16 countries. Specifically, in Liechtenstein there is no training institution offering training of nurses responsible for general care, but a cooperation agreement with Switzerland. Information related to this agreement and the organisation of theoretical and clinical training have been gathered through desk research and phone interviews with the competent authority in Liechtenstein.

³² Salvador-Carulla et al., “Framing of scientific knowledge as a new category of healthcare research, *Journal of Evaluation in Clinical Practice*, 2014, 6, p.1046.

The following working definition will be applied to identify generally acknowledged scientific progress:

Scientific advancements are considered by the Study to be ‘generally acknowledged’ when these advancements have had an impact on the practice, laws, teaching standards, administrative rules and/or curricula of at least 16 countries.

Generally acknowledged technical progress

Closely linked to the above, generally acknowledged technical progress refers to recent, current, and future development with regard to the knowledge, machines, and/or methods used in science.³³ For the purpose of this Study, technical knowledge in relation to the healthcare profession generally (and thus to nursing) refers to technology and medical techniques which have been/ are being implemented/ developed in order to help enhance the care of patients.

The following working definition will be applied to identify generally acknowledged technical progress:

Technical advancements are considered by the Study to be ‘generally acknowledged’ when these advancements have had an impact on the practice, laws, teaching standards, administrative rules and/or curricula of at least 16 countries.

In order to enhance the above definitions, a categorisation of generally acknowledged scientific and technical progress will be made based on underlying concepts related to the healthcare sector generally and/or from nursing care specifically.

3.3.3. Categories of scientific and technical progress

3.3.3.1. Introduction

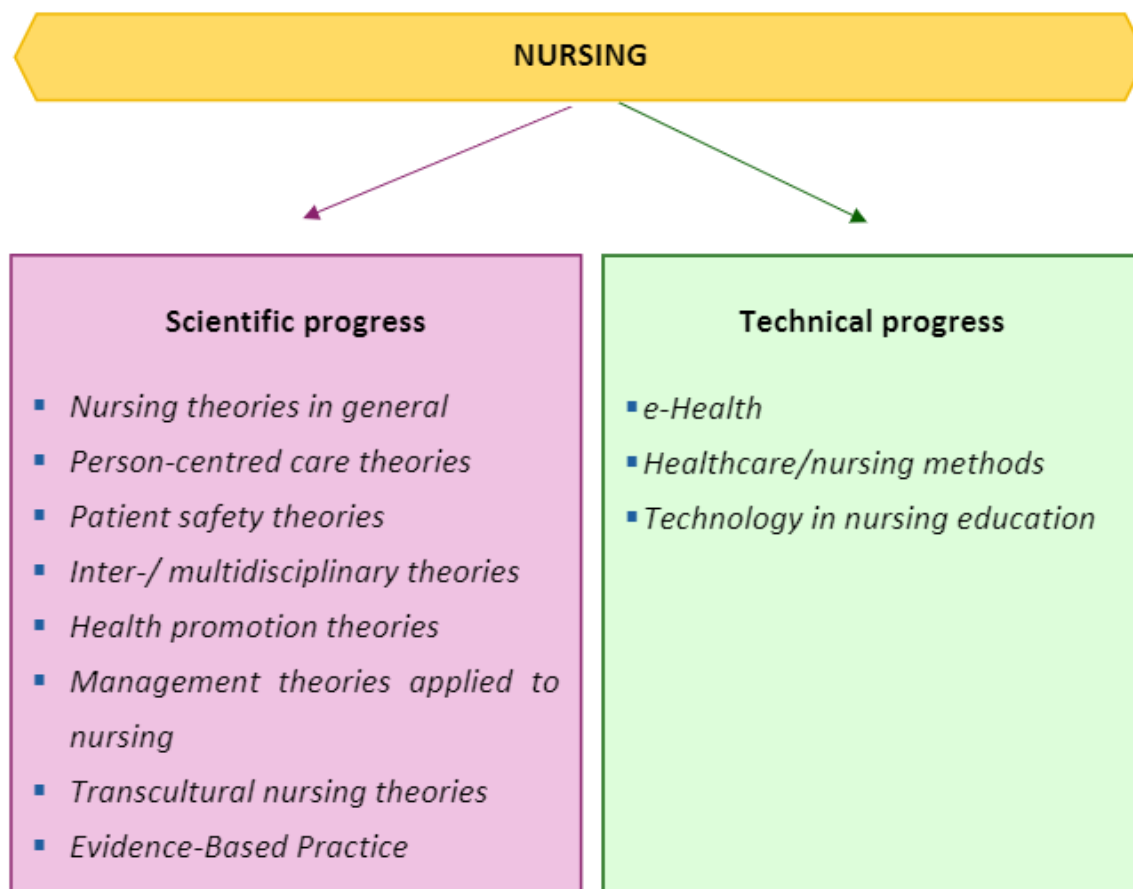
As mentioned above, the categorisation of scientific and technical progress helps the Study Team to apply the definition of ‘generally acknowledged scientific and technical progress’ to the results of our Study. These categories are based on recent (academic) literature and the results of the desk research and stakeholder consultation. They are framed quite broadly, aiming at giving a comprehensive picture of the scientific and

³³ Definition of “technical” in Cambridge dictionary, available at: <https://dictionary.cambridge.org/dictionary/english/technical> (last accessed on 17/03/2020).

technical progress in health care and more specifically nursing care, and allowing the classification of the results of our desk and field research.

For the purpose of the Study, scientific progress encompasses eight categories: nursing theories in general; person-centred care theories; patient safety theories; inter-/ multidisciplinary theories; health promotion theories; management theories applied to nursing; transcultural nursing theories and Evidence-Based Practice. Technical progress encompasses three categories: e-Health; healthcare/nursing methods; and technology in nursing education, as shown in figure 1 below. A description of each of these categories follows under Sub-Sections 3.3.3.2 and 3.3.3.3.

Figure 1: Categorisation of scientific progress and technical progress



3.3.3.2. Scientific progress

This sub-section aims to describe the concepts encompassed by scientific progress. On the basis of recent literature, and for the purpose of this Study, nursing theories and Evidence-Based Practice have been identified as concepts falling under scientific progress.

- ***Nursing theories in general***

Nursing theories encompass a holistic way of looking at nursing.³⁴ Under this category, the most relevant and new theories for the 21st century are person-centred care theories, patient safety theories, inter- and multidisciplinary theories, health

³⁴ For further details see Alligood et al., *Nursing theorists and their work*, 2006, Elsevier, Missouri, available at: <http://docshare01.docshare.tips/files/29843/298436680.pdf> (last accessed on 17/03/2020).

promotion theories, management applied to nursing theories, and transcultural theories.

▪ **Person-centred care theories:**

“Person-centred” is used as a term to indicate a made-to-measure approach in care.³⁵ It should be noted that in literature, two notions can be found that apply to a similar concept: person/people-centred care, but also patient-centred care. Whereas the notion “patient-centred” is still used in literature, the notion “person-centred” care seems to be predominant in recent literature.³⁶

The Patient Empowerment and Centredness Committee defines a patient-centred approach as one that:

- places the outcomes, interests and overall experience of patients at the centre of the healthcare system;
- takes into account patients’ medical needs, together with their social and psychological needs, as well as lifestyle preferences;
- requires healthcare professionals to have the knowledge, skills and attitudes to manage each patient’s individual needs;
- gives the patients a place at the ‘decision-making’ table alongside healthcare professionals, health stakeholders and policymakers.³⁷

Four categories of interpretation and usage of the notion “patient-centred”³⁸ :

- The “consumerist” model of patient autonomy in decision making which provides the patient with adequate decision aides and communication tools. The latter entails patient empowerment which can be defined as a process

³⁵ Van der Cingel, “Concepts of person-centred care: a framework analysis of five studies in daily care practices”, *International Practice Development Journal*, 2016,6(2) available at: https://www.fons.org/Resources/Documents/Journal/Vol6No2/IPDJ_0602_06.pdf (last accessed on 17/03/2020).

³⁶ For example: Price, *Delivering person-centred care in nursing*, Transforming nursing practice, SAGE, 2019.

³⁷ Bonsignore et al., “Patient Empowerment and Centredness”, *European Health Parliament*, 2017, available at: https://www.healthparliament.eu/wp-content/uploads/2017/09/EHP-papers_Patients-empowerment.pdf (last accessed on 17/03/2020).

³⁸ Wyer et al., « Relationship-centred care: antidote, guidepost or blind alley? The epistemology of 21st century health care”, *Journal of Evaluation in Clinical Practice*, 2014, 20, p.881.

that helps people gain control over their own lives and increases their capacity to act on issues that they themselves define as important.³⁹

- The pursuit of coordinated care and defragmentation of care for population defined by specific health conditions, e.g. chronic diseases.
- A construct incorporating humanistic, phenomenological and narrative values together with respect for scientific inquiry and empirical validation of policy and clinical practice.
- The “whole person” approach which incorporates Engel’s “biopsychosocial” model which encompasses the attention to psychological and social issues of the patient. In the latter context, personalised medicine entails “the customisation of individual health care using molecular analysis, with medical decisions, practices and/or products being tailored to the individual patient”. In this context, diagnostic testing is often employed for selecting appropriate, and optimal therapies based on the patient’s profile and their context. Genetic, genomic and other “omics” information plays a central role in aspects of personalised medicine.⁴⁰

Person-centred care, as opposed to patient-centred care, refrains from reducing the person to just their symptoms and/or disease.⁴¹ In fact, the notion of person calls for a more holistic approach to care that incorporates the various dimensions to whole well-being, including a person's context and individual expression, preferences and beliefs. In that context, the nurse needs to understand the patient in the context of their relationship with others such as their family.⁴² While there are many definitions of person-centred care in the literature, each promotes self-determination and a commitment to helping individuals lead the life they want.⁴³ Sharma et al. have

³⁹ European Patients Forum, “Background Brief: Patient Empowerment”, 2015, p. 4, available at: http://www.eu-patient.eu/globalassets/campaign-patient-empowerment/briefing_paperpatient-empowerment_final_external.pdf (last accessed on 17/03/2020).

⁴⁰ Martin et al., “Person-centred health care: a critical assessment of current and emerging research approaches”, *Journal of Evaluation in Clinical Practice*, 2014, 20(6), p.1056.

⁴¹ In line with Ekman et al.'s distinction between patient-centred care and person-centred care in Santana et al., “How to practice person-centred care: a conceptual framework”, *Health Expectations*, 2018, 21(2), p.430.

⁴² McCormack et al., “Person-centredness in healthcare policy, practice and research, in McCormack et al., *Person-centred Healthcare Research*, London, Wiley-Blackwell, 2017, pt.1.

⁴³ Tracy, “Person-centred care (In nursing)”, in Higgs et al., *Health Practice Relationships*, Sense Publishers, Rotterdam, 2014, p.111.

reviewed existing literature in order to identify and define components of person-centred care,⁴⁴ which have been identified and defined as follows:

- A therapeutic relationship between the nurse and the patient: a rapport has been established and the patient feels confident in revealing their concerns, needs and hopes to the nurse.⁴⁵
- Shared responsibility: the patient and nurse share both power and responsibilities relating to planned care. In that context, the patient could become an expert on their illness.⁴⁶
- The patient will become well known to the nurse as a person rather than simply as a patient.⁴⁷ The fact of knowing the patient is not simply directed towards understanding them but to empowering them in order them to feel able to share decision-making responsibilities.

Consequently, based on recent literature and input received from stakeholders, the notion “person-centred care” (rather than patient-centred care) is being used in the present study as it covers a wider scope (e.g. recognition of people as individuals rather than patients, reflection of the crucial role played by people’s families, friends in their health and wellbeing).⁴⁸

▪ **Patient-safety theories**

Patient safety theories develop concepts of risk and safety. In particular, three theories could be mentioned which attempt to explain the management of risk and safety: normal accident theory, high reliability theory, and grid-group cultural theory.⁴⁹

⁴⁴ Sharma et al, “Person-centred care: an overview of reviews”, *Contemporary Nurse*, 2015, 51(2-3), p.107-120.

⁴⁵ Gabrielsson et al., “Person-centred care: clarifying the concept in the context of inpatient psychiatry”, *Scandinavian Journal of Caring Sciences*, 29(3), p.558.

⁴⁶ Leplege et al., « Person-centredness: conceptual and historical perspectives”, *Disability and Rehabilitation*, 2007, 29(20-21), p.1558.

⁴⁷ Doherty, Thompson, “Enhancing person-centred care through the development of a therapeutic relationship”, *British Journal of Community Nursing*, 2014, 19(10), p.504.

⁴⁸ The OECD uses predominantly the notion people-centred care (e.g. “Health literacy for people-centred care”, OECD Health Working Papers, 2018, No 107, <https://doi.org/10.1787/d8494d3a-en> (last accessed on 17/03/2020)).

⁴⁹ Cooke, “Theories of risk and safety: what is their relevance to nursing?” *Journal of Nursing Management*, 2019, 17(2), p.1.

▪ **Inter- and multidisciplinary theories**

Interdisciplinary/multidisciplinary collaboration can be defined as a “complex phenomenon that is often formed between two or more people from various professional fields to achieve common goals”.⁵⁰ Starting from the premise that care is a team effort, coordination, communication and working together are crucial for effective care. Within inter- and multidisciplinary theories, different models of collaboration have been drawn up which aim to provide a guide for nursing practice.⁵¹

Furthermore, in the field of nursing education and with the aim of preparing healthcare professionals for the team-based work environment that exists in healthcare systems today, some nursing faculties may consider collaborative, team-taught courses that integrate faculty and students from various disciplines.

▪ **Health promotion theories**

Health promotion theories focus mainly on the role of nurses in implementing health promotion activities. Nurses are considered as general health promoters - their health promotion activities are based on sound knowledge and giving information to patients.⁵²

▪ **Management theories applied to nursing**⁵³

Management theories applied to nursing exist for the purpose of describing, explaining, predicting or prescribing nursing acts⁵⁴ that facilitate the management of the environment in which registered nurses work, whatever that environment may be.⁵⁵ Management applied to nursing entails notions such as self-management, professional autonomy and leadership.

⁵⁰ Houldin et al., “Physician-nurse collaboration in research in the 21st century”, *Journal of Clinical Oncology*, 2004, 22(5), p. 774.

⁵¹ See for example, Green, Johnson, “Interprofessional collaboration in research, education, and clinical practice: working together for a better future”, *Journal of Chiropractic Education*, 2015, 29(1), p.1-10.

⁵² Kemppainen et al., “Nurses’ role in health promotion practice: an integrative review”, *Health Promotion International*, 2013, 28(4), available at: <https://doi.org/10.1093/heapro/das034> (last accessed on 17/03/2020).

⁵³ Different notions are used in literature (e.g. nursing management theories, management theories applied to nursing). Based on stakeholder feedback, the notion management theories applied to nursing is preferred.

⁵⁴ Meleis *Theoretical Nursing: Development and Progress*, 4th ed, Lippincott Williams & Wilkins, Philadelphia, 2007, p. 37.

⁵⁵ “Editorial”, *Journal of Nursing Management*, 2011, 19, available at: <https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1365-2834.2011.01334.x> (last accessed on 17/03/2020).

▪ **Transcultural theories**

“Transcultural nursing is both a specialty and a general practice area. It focuses on worldwide cultures and comparative cultural caring, health, and nursing phenomena.”⁵⁶

Madeleine Leininger, founder and leader of the field defines transcultural nursing as: *“a substantive area of study and practice focused on comparative cultural care (caring) values, beliefs and practices of individuals or groups of similar or different cultures. Transcultural nursing's goal is to provide culture specific and universal nursing care practices for the health and well-being of people or to help them face unfavourable human conditions, illness or death in culturally meaningful ways”*.⁵⁷

▪ **Evidence-Based Practice:**

The term Evidence-Based Practice (EBP) has developed from the term Evidence-Based Medicine (EBM) which was introduced into medical literature in 1991.⁵⁸ In 1998, McKibbon defined EBP as “an approach to health care wherein health professionals use the best evidence possible, i.e. the most appropriate information available, to make clinical decisions for individual patients. EBP values, enhances and builds on clinical expertise, knowledge of disease mechanisms, and pathophysiology. It involves complex and conscientious decision-making based not only on the available evidence but also on patient characteristics, situations, and preferences. It recognizes that health care is individualized and ever changing and involves uncertainties and probabilities. Ultimately EBP is the formalization of the care process that the best clinicians have practised for generations”.⁵⁹ More recently, van Patter Gale and Schaffer defined EBP as follows: “Evidence-Based Practice requires translating the research findings into useful components, presenting the evidence and practice change, championing the practice change, and supporting bedside staff in the

⁵⁶ Murphy, “Mapping the literature of transcultural nursing”, *Journal of Medical Library association*, 2006, available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1463039/> (last accessed on 17/03/2020).

⁵⁷ Leininger et al., *Transcultural nursing: concepts, theories, research and practice*, 1st ed. New York, NY: McGraw-Hill, 1995, p58

⁵⁸ Guyatt, “Evidence-based medicine” ACP J Club 1991 A-16:114 quoted by Sur, Dahm, “History of evidence-based medicine”, *Indian Journal of Urology*, 2011, 27(4), p.487.

⁵⁹ McKibbon, “Evidence-based practice”, *Bulletin of the Medical Library Association*, 1998, 86(3), p.396-401.

application of the changes to their patient care.”⁶⁰ EBP in nursing could be seen as comprising the following stages, based on Moule’s suggestions on the stages of implementing EBP: ⁶¹

- *Identify a problem from practice and turn it into a specific question;*
- *Find the best available evidence that relates to the question, usually by systematically searching the literature;*
- *Appraise the evidence;*
- *Identify the best evidence alongside the patient’s needs and preferences;*
- *Evaluate the effect of applying the evidence.*

In this category, scientific progress and technical progress are intrinsically linked. In fact, one of the challenges faced by nurses today is the effective and efficient management of an ever-increasing amount of clinical-related health information. A crucial dimension of that challenge is to ensure that pertinent information is accessible at times of decision-making.

3.3.3.3. Technical progress

This sub-section aims to describe the concepts encompassed by technical progress. On the basis of current literature, and for the purpose of this Study, e-Health, healthcare/ nursing methods and technology in nursing education have been identified as concepts falling under technical progress.

▪ e-Health:

Also called digital health, e-Health aims at “promoting, empowering and facilitating health and well-being of patients as well as at enhancing nursing practice through the use of information management (transmission, storage and sharing of information) and information and communication technology (ICT)”.⁶² e-Health includes, amongst other things:

⁶⁰ Van Patter Gale, Schaffer, “Organizational Readiness for Evidence-Based Practice”, *Journal of nursing administration*, 2009, 39(2), p.91.

⁶¹ Moule, *Making sense of research in nursing, health and social care*, 5th ed, Sage, London, 2015, quoted by Ellis, *Evidence-based practice in nursing*, 4th ed., SAGE, 2019, p.14-15.

⁶² Definition of “e-health” available at: <https://www.rcn.org.uk/clinical-topics/ehealth> (last accessed on 17/03/2020).

1. *Electronic medical records systems* which entail a big data component: ‘big data’ has emerged over the past decade to encompass the phenomenon of large amounts of data emerging from sensors, novel research techniques, and ubiquitous information technologies.⁶³ Big data technology can be used to extract, manage, analyse, and interpret large datasets and transform them into meaningful hypotheses that can be translated into practices. Large-scale, multi-channel, and diverse data can provide new methods and ideas for nursing practices and have application value in many areas.⁶⁴ In nursing, traditional data sources about patient reports could thus be complemented by other data sources to enhance understanding of the symptom experience and tailor intervention strategies. Electronic medical records systems may also contribute to a more widespread use of a standardised language.

2. *Electronic communication with patients and professionals, telehealth/ telecare which enable remote monitoring, video consultations, equipment management.* It can be understood as one of the consequences of the shift from hospital-based nursing to home care. One component of telehealth/ telecare is self-care which encompasses self-management and person-centred healthcare (see definition above).⁶⁵ Self-monitoring is linked to the use of digital applications (mobile data and wearables devices, smart devices which use Artificial Intelligence: intelligent algorithms messaging, automatisations) which enable patients to access and share their own health data, to measure their blood pressure, heart rate or glucose level (particularly useful for diabetes patients).

3. *Nursing informatics.* As defined by IMIA Special Interest Group on Nursing Informatics, “nursing informatics science and practice integrates nursing, its information and knowledge and their management with information and communication technologies to promote the health of people, families, and communities worldwide.”⁶⁶

⁶³ Brennan, Bakken, “Nursing needs big data and big data needs nursing”, *Journal of Nursing Scholarship*, 2015, 47(5), p. 478.

⁶⁴ Zhu et al., “The application of big data and the development of nursing science: a discussion paper”, *International Journal of Nursing Sciences*, 2019, 6, p.229.

⁶⁵ Duprey et al., “Self-management support by final year nursing students: a correlational study of performance and person-related associated factors”, *International Journal of Nursing Studies*, 2017, 74, p.120.

⁶⁶ Definition of “Nursing informatics” available at: <https://imianews.wordpress.com/2009/08/24/imia-ni-definition-of-nursing-informatics-updated/> (last accessed on 17/03/2020).

4. *Information governance* refers to system security, confidentiality and data protection.

5. *Biometrics* can be defined as the science of identifying people through a physical characteristic. It includes technologies that can differentiate people by analysing a fingerprint, palm print, retina scan, voice patterns or facial structure. Nurses may soon be using biometric log in procedures to access digitised patient information, as hospitals begin to move away from passwords, which can be used in unauthorised ways if they are shared or written down in an unsecure location. Many EMR systems will automatically time out, forcing nurses to log on repeatedly throughout the shift.⁶⁷

▪ **Healthcare/nursing methods:**

It refers to techniques which enhance patient care. It is a broad category which encompasses the following elements:

1. *The Internet of Things* refers to an ecosystem in which applications and services are driven by data collected from devices that sense and interface with the physical world. In the Internet of Things, devices and objects have communication connectivity, either a direct connection to the internet or mediated through local or wide area networks.⁶⁸ The amalgamation of various fields such as data acquisition, communication and data analysis offers continued connectivity for the objects to collect, exchange and combine data.⁶⁹ According to the specification and functionality of an Internet of Things based system to collect, transmit and process healthcare-related data, the architecture of the system can be specified in three layers, the perception layer, the gateway layer and the cloud layer.⁷⁰ More specifically with regard to nursing care, the Internet of Things could be implemented in the context of cuffless

⁶⁷ American Sentinel University, "Healthcare technology to watch", available at: <https://www.americansentinel.edu/assets/Tech-to-Watch/Tech-to-Watch.pdf> (last accessed on 17/03/2020).

⁶⁸ OECD Digital Economy Papers, "The Internet of Things: seizing the benefits and addressing the challenges, No 252, available at: <https://www.oecd-ilibrary.org/docserver/5j1lwvz28td0n-en.pdf?expires=1567086292&id=id&accname=guest&checksum=E424CF516F30C07059466810788539D0> (last accessed on 17/03/2020).

⁶⁹ Mieronkoski et al., "The Internet of things for basic nursing care- A scoping review", *International Journal of Nursing Studies*, 2017, 69, p.79.

⁷⁰ Al-Fuqaha et al., "The Internet of Things: a survey on enabling technologies, protocols, and applications", *IEEE*, 17(4), 2015, available at: <https://ieeexplore.ieee.org/document/7123563> (last accessed on 17/03/2020).

non-invasive methods to measure blood pressure by using pulse wave transit time as a part of a multifunctional device.⁷¹ Besides the measurement of blood pressure, this device also contains the following functions: continuous measurement of seven lead electrocardiography, respiration, temperature, peripheral capillary oxygen saturation, and the motion state of a patient in real time.⁷² The heart rate of a patient can also be detected using a wireless ring probe⁷³ or a versatile system which detects electrocardiography, heart rate, respiration waveform and rate, skin temperature and motion with a single wearable sensor.⁷⁴ The triggering algorithms are set to alarm for early recognition of patients requiring urgent attention. Hence, the Internet of Things is linked to new methods of diagnostics.

2. *New methods of treatment, new devices, equipment (medical software) e.g.* mobile information terminals, such as personal digital assistants, that could enhance Evidence-Based Practice (see Sub-Section 3.3.3.2) by bringing the most relevant information directly to the point of care,⁷⁵ less invasive techniques and procedures, modern wound care,⁷⁶ and alternative therapies.

- **Technology in nursing education:**

1. *Simulation training using technology* (i.e. robots, mannequin, etc.): it aims to provide students with opportunities to practice their clinical and decision-making skills through various real-life situational experiences.⁷⁷

⁷¹ Fang et al., "The 3AHCare Node: Health monitoring continuously", 2012, *IEEE 14th International Conference on e-Health Networking, Applications and Services*, Beijing, 2012, p.365.

⁷² Mieronkoski et al., "The Internet of Things for basic nursing care- A scoping review", *op. cit.*, p.79

⁷³ Huang et al., "Design and deployment of a heart rate monitoring system in a senior center", *IEEE*, 2013, available at: <https://ieeexplore.ieee.org/document/6644963> (last accessed on 17/03/2020).

⁷⁴ Donnelly et al., "Development of a ubiquitous clinical monitoring solution to improve patient safety and outcomes", *IEEE*, 2012, available at: <https://ieeexplore.ieee.org/document/6347378> (last accessed on 17/03/2020).

⁷⁵ Doran et al., "Supporting evidence-based practice for nurses through information technologies", *Worldviews on evidence-based nursing*, 2010, first quarter, p.5.

⁷⁶ Lindholm, Searle, "Wound management for the 21st century: combining effectiveness and efficiency", *International Wound Journal*, 13, S2, 2016, available at: <https://onlinelibrary.wiley.com/doi/full/10.1111/iwj.12623> (last accessed on 17/03/2020).

⁷⁷ Junghee et al., "Effectiveness of simulation-based nursing education depending on fidelity: a meta-analysis", *BMC Medical Education*, 2016, 16, available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4877810/> (last accessed on 17/03/2020).

Simulation-based clinical education in nursing refers to a variety of activities using patient simulators, including devices, trained persons, life-like virtual environments, and role-playing, not just handling mannequins.⁷⁸

2. *E-learning*: E-learning is defined as any educational intervention that is mediated electronically via the internet asynchronously.⁷⁹ Students can access a class through a website and participate in lectures and group discussion in real time. Materials may also be provided asynchronously (online documentation); students access the website, follow lectures or complete assignments according to their own schedules.⁸⁰
3. *3D Printing*: The use of 3D printing allows students to visualise anatomical and physiological concepts based on more realistic or individualised structures, rather than standardised models. It enables instructors to demonstrate anatomical differences between individuals, give visual examples of disease progression and provide more realistic models based on size or texture. Furthermore, rapid prototypes facilitate training for procedures in general, simulating conditions, diversity of tissues and other anatomical differences without risk to a patient. This practice may increase confidence in a learner before entering a clinical setting or performing a new procedure; the simulation of a specific and complex procedure provides a unique opportunity to determine the best strategy and to practice the steps to be taken.⁸¹

⁷⁸ Issenberg et al., "Features and uses of high-fidelity medical simulations that lead to effective learning: a BEME systematic review", *Medical Teaching*, 2005, 27(1), p. 11.

⁷⁹ Peter Sinclair et al., "The effectiveness of Internet-based e-learning on clinician behaviour and patient outcomes: a systematic review", *International Journal of Nursing Studies*, 2016, 57, p.71.

⁸⁰ Lahti et al., "Impact of e-learning on nurses' and student nurses knowledge, skills, and satisfaction: a systematic review and meta-analysis", *International Journal of Nursing Studies*, 2014, 51, p.137.

⁸¹ MedTech Boston, "3D Printing: the future of nursing and clinical education", available at: <https://medtechboston.medstro.com/blog/2019/01/18/3d-printing-the-future-of-nursing-and-clinical-education/> (last accessed on 17/03/2020).

4. Data collected at national level via desk research

4.1. Introduction

This chapter presents the data collected across all countries in a comparative manner. The data have been collected by a team of national experts through desk research at national level, on the basis of a detailed research questionnaire.⁸² To that end, the desk research questionnaire contains a series of targeted questions designed to accurately identify the relevant rules and to identify the knowledge, skills and training subjects for the training programmes leading to the profession of nurse responsible for general care. In order to enhance the completeness of the data gathered through desk research, the results were verified and complemented by the competent registration authorities.⁸³

It should be noted that this chapter only presents the factual data obtained through desk research. The data obtained through stakeholder consultation, which complement the information contained in this chapter, are presented in the following chapter (Chapter 5).

In this chapter, Section 4.2 describes the educational system in each country. Section 4.3 presents the knowledge and skills introduced at national level as result of scientific and technical progress. Finally, Section 4.4 presents the training subjects introduced at national level as a result of scientific and technical progress.

4.2. National educational systems for nurses responsible for general care

4.2.1. Introduction

This sub-section provides an overview of the national educational systems for nurses responsible for general care across the countries. It includes information on the admission to training of nurses responsible for general care (Sub-Section 4.2.2), the

⁸² The Study covers all EU Member States, EFTA States and the UK.

⁸³ It should be noted that in 5 countries (DE, HU, EL, LU, NO) the registration authorities were only able to provide input on the subjects under their competences. Furthermore, in one country (RO) no feedback was received from the registration authority.

level of nursing training (Sub-Section 4.2.3) and the differences between training institutions within the same country (Sub-Section 4.2.4).

It should be noted that in two countries (BE and DE), regions have certain regulatory competences and, therefore, the training requirements for nurses responsible for general care differ within these countries.

In BE, the Federal State has the competence to set out the knowledge and skills required from nurses responsible for general care. Moreover, the Federal State is also responsible for setting out the teaching standards and for the registration of nurses. Nevertheless, at regional level, the communities (French, Flemish, German-speaking) have the competences for the regulation of training of nurse responsible for general care. The competences attributed to the communities are established at national level. The authorities responsible for the regulation of education at regional level are:

1. French Community: *Administration Générale de l'Enseignement – AGE*.
2. Flemish Community: *Vlaams Ministerie van Onderwijs en Vorming*.
3. German-speaking Community: *Deutschsprachige Gemeinschaft, Bildung, Ausbildung und Beschäftigung*

In DE, the minimum requirements of nursing training are set at federal level. Furthermore, rules are further detailed through executive regulations in each Federal State. Hence, there are differences across the Federal States regarding the training subjects, competences, knowledge and skills required for nurses responsible for general care. In this context, each of the 16 Federal States determines the competent authority for the execution of the legislation set at federal level.

It should also be noted that in some countries (FI, IS, LT, NL, RO, SI, ES, SE, UK) training institutions have more freedom than in the others to shape their curricula (while respecting the minimum requirements set at national level). For those countries where the regions have certain regulatory competences and/or the training institutions have more freedom to shape their curricula, the information collected was completed through consultations with stakeholders (via questionnaires).

Finally, there is one country (LI) that does not offer theoretical training for nurses responsible for general care. In this case, there is a cooperation agreement with

Switzerland (“HFSV Höhere Fachschulvereinbarung der EDK”).⁸⁴ In practice, the theoretical training to become a nurse responsible for general care in Liechtenstein is held in a Swiss training school. However, whereas this cooperation agreement covers also the clinical training of nurses responsible for general care, the clinical training is performed in Liechtenstein as it offers three clinical training facilities called “internship companies”. In this context, an automatic recognition is awarded in Liechtenstein to Swiss diplomas in line with the Directive. The Office of Public Health in Liechtenstein issues professional practice permits based on the recognition of the Swiss registration authority and EU-Certificate of conformity, according to the Directive.⁸⁵ It should be noted that, due to the absence of theoretical nursing training in Liechtenstein, this country has not been included in the following chapters.

4.2.2. Admission to training for nurses responsible for general care

Article 31 of the Directive establishes that admission to training for nurses responsible for general care shall be contingent upon:

- 1) Completion of general education of 12 years, as attested by a diploma, certificate or other evidence or a certificate attesting success in an examination of an equivalent level and giving access to universities or to higher education institutions of a level recognised as equivalent; or
- 2) Completion of general education of at least 10 years, as attested by a diploma, certificate or other evidence or a certificate attesting success in an examination of an equivalent level and giving access to a vocational school or vocational training programme for nursing.⁸⁶

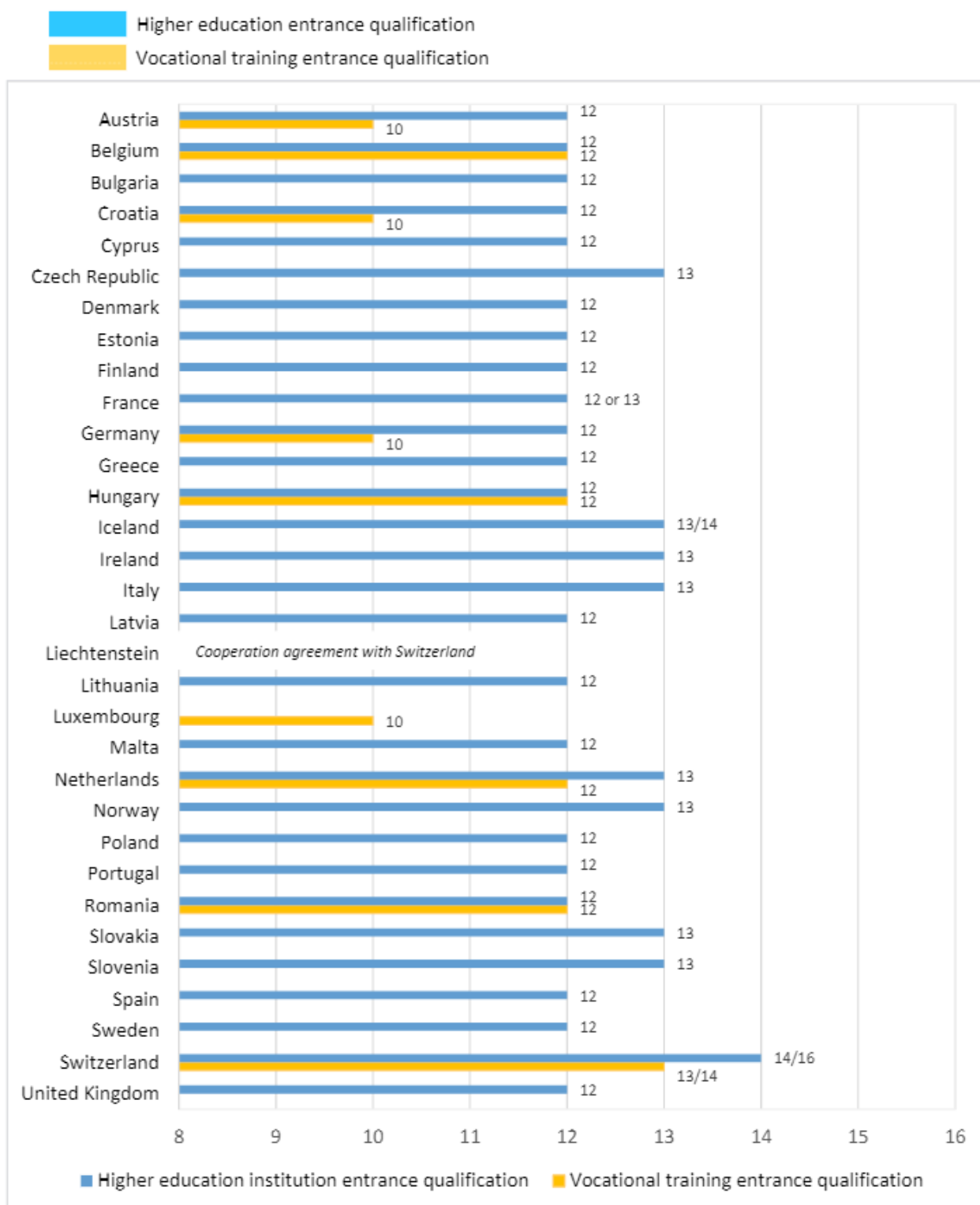
The following figure presents the information collected with regard to the admission requirements for training for nurses responsible for general care across the countries:

⁸⁴ Interkantonale Vereinbarung über Beiträge an die Bildungsgänge der höheren Fachschulen (HFSV), 22 March 2012, available at: <https://www.lexfind.ch/tolv/9633/de> (last accessed on 17/03/2020).

⁸⁵ The registration of nurses and the activities which they can lawfully exercise in Liechtenstein are regulated in Article 60 ff *Gesundheitsverordnung (GesV)*.

⁸⁶ Article 31(1) of Directive 2005/36/EC, as amended.



Figure 2: Admission requirements (years)



4.2.3. Level of nursing training

This sub-section specifies the level at which nursing training takes place in each of the countries (i.e. universities, higher educational institutions or non-higher educational institutions).

Table 1: Level of nursing training⁸⁷

 Higher educational level
 Non-higher educational level

Countries	Level of nursing training		
	Higher educational level		Non-higher educational level
	Universities	Professional higher educational institutions	
Austria		X (Universities of applied sciences - <i>Fachhochschule-Bachelorstudiengang</i>)	x (Vocational schools – <i>Fachhochschule – Diplomstudiengang</i>)
Belgium	x	x	x
Bulgaria	x	x	
Croatia⁸⁸	x	x	x
Cyprus	x		
Czech Republic	x	x (Higher professional nursing schools)	
Denmark		x (University college)	
Estonia		x (University college)	
Finland		x (University of applied sciences)	
France	x		
Germany⁸⁹	x (Universities – <i>Universitäten</i>)	x (Universities of applied sciences - <i>Hochschulen für angewandte Wissenschaften</i>)	x Vocational schools – <i>Berufsfachschulen</i>)

⁸⁷ As a result of the findings of the desk research, a distinction has been made between non-higher educational level of nursing training and higher educational level of nursing training. Non-higher educational level nursing training is offered in vocational school whereas higher educational level nursing training is offered in universities and other higher education institutions (e.g. universities of applied sciences, institutes of technology, higher vocational schools). It should be noted that although nursing education and training is offered at different levels in some countries, this does not mean that they are equally popular.

⁸⁸ In Croatia, nursing education and training is offered in 7 higher education institutions and 24 vocational schools.

⁸⁹ In Germany, the findings have revealed that the majority of nurses are trained in vocational schools.

Greece	x		
Hungary		x	x
Iceland	x		
Italy	x		
Ireland	x	x (Institutes of technology)	
Latvia	x (EQF 6)	x (College - EQF 5)	
Liechtenstein	<i>Cooperation agreement with Switzerland</i>		
Lithuania	x	x (Colleges)	
Luxembourg		x (Technical high school for the two last years)	x (Technical high school for the first two years)
Malta	x	x (Institutes of applied sciences)	
Netherlands		x (HBO – Higher education)	x (MBO – Vocational education)
Norway	x	x (College)	
Poland	x		
Portugal	x	x (Colleges, polytechnic institutes)	
Romania⁹⁰	x		x (Nursing technical schools)
Slovakia	x	x (Higher vocational education at secondary health school)	
Slovenia	x	x (Colleges)	
Spain	x		
Sweden	x	x (University colleges)	
Switzerland⁹¹		x (Universities of applied sciences)	X (Vocational schools)
United Kingdom	x		

As can be seen in the table above, training of nurses responsible for general care is offered at different levels across the countries. For the purpose of this study, two levels have been distinguished:

1. Higher educational level which comprises universities and professional higher

⁹⁰ In Hungary, it appears that nursing education and training is offered in 10 medical universities and in a large number of vocational schools.

⁹¹ With regard to the German-speaking part of Switzerland, the findings show that the majority of nurses are trained in vocational schools, whereas in the French-speaking and Italian-speaking parts, the majority of nurses are trained in universities.

educational institutions (*e.g.* universities of applied sciences, institutes of technology, higher vocational schools).

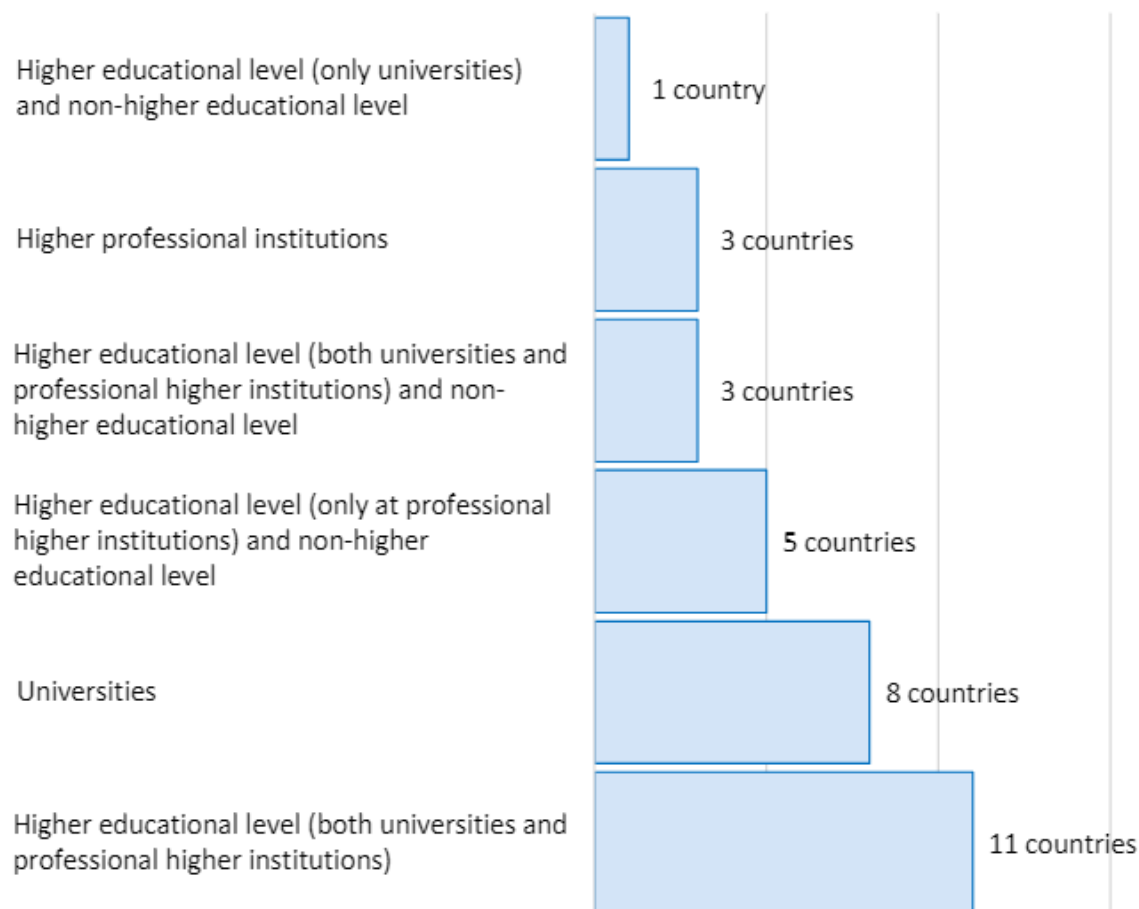
2. Non-higher educational level which comprises vocational schools which are not part of the higher educational level.

The assessment of the level of nursing training across the countries has led to the following observations:

1. **In 3 countries (BE, HR and DE)** training for nurses responsible for general care is offered at higher educational level (both universities and professional higher institutions) and non-higher educational level.
2. **In 11 countries (BG, CZ, IE, LV, LT, MT, NO, PT, SI, SK and SE)** training for nurses responsible for general care is offered only at higher educational level (both universities and professional higher institutions).
3. **In 5 countries (AT, LU, HU, NL and CH)** training for nurses responsible for general care is offered at higher educational level (only at professional higher institutions) and non-higher educational level.
4. **In 1 country (RO)** training for nurses responsible for general care is offered at higher educational level (only universities) and non-higher educational level.
5. **In 8 countries (CY, FR, EL, IS, IT, PL, ES and the UK)** training for nurses responsible for general care is offered only at universities.
6. **In 3 countries (DK, EE and FI)** training for nurses responsible for general care is only offered at higher professional institutions.

Therefore, some countries offer the training only at higher educational level, while others offer the training at higher educational level and non-higher educational level. Furthermore, within higher educational level, some countries offer the training at universities and higher professional institutions, while others only offer the training at universities or higher professional institutions.

Figure 3: Level of nursing training offered



4.2.4. Differences between training institutions within the same country

This sub-section considers whether differences exist between training institutions within the same country regarding the admission to training; the total number of years of study; the duration of the theoretical and clinical training; the training subjects included in the curriculum; the knowledge and skills acquired during the training; and the places where clinical training can be followed. The findings suggest that indeed, for each of the abovementioned subjects, differences are present between training institutions within the same country, as follows:

- Admission to training: 10 countries (AT, BE, CY, CZ, IS, LV, NL, PL, RO and SK);

- Total number of years of study: 8 countries (BE, CZ, HU, LV, LT, NL, PL and RO);
- Duration of the theoretical training: 11 countries (CZ, HU, IE, LV, LT, NL, NO, PL, PT, RO and SE);
- Duration of the clinical training: 10 countries (HU, IE, LV, LT, NL, NO, PL, PT, RO and SE);
- Training subjects included in the curriculum: 15 countries (BE, CZ, FI, DE, HU, IE, IT, LT, NL, NO, PT, RO, ES, SE and CH);
- Knowledge and skills acquired during the training: 9 countries (CY, CZ, DE, IT, LV, LT, NL, RO and SE);
- Places where clinical training can be followed: 12 countries (HU, IS, IE, IT, LV, LT, NL, NO, PT, SE, CH and UK).

4.3. Knowledge and skills required at national level

4.3.1. Introduction

As explained above (see Section 2.3), the Commission's competence to adopt delegated acts to amend the knowledge and skills listed under the Directive can only be exercised in order to take account of (generally acknowledged) scientific and technical progress. Hence, in order to assess whether an update of the knowledge and skills listed under the Directive is appropriate, particular focus should be placed on the knowledge and skills that have been introduced as a result of scientific and technical progress. The following sub-section sets out the skills and knowledge requirements introduced as result of the scientific and technical progress.

4.3.2. Knowledge and skills introduced as a result of scientific and technical progress

This sub-section classifies the knowledge and skills introduced as result of the scientific and technical progress into two main categories: scientific knowledge and skills (which are further classified into nursing theories in general, person-centred care theories, patient safety theories, inter-/ multidisciplinary theories, health promotion

theories, management theories applied to nursing, transcultural nursing theories, and Evidence-Based Practice) and technical knowledge and skills (which are further classified into e-Health, healthcare/nursing methods and technology in nursing education). It should be noted that the aforementioned categorisation has been created for the purpose of this study (for more information about the definitions and categories, please see in Section 3.3):

Figure 4: Categorisation of knowledge and skills introduced as a result of the scientific and technical progress

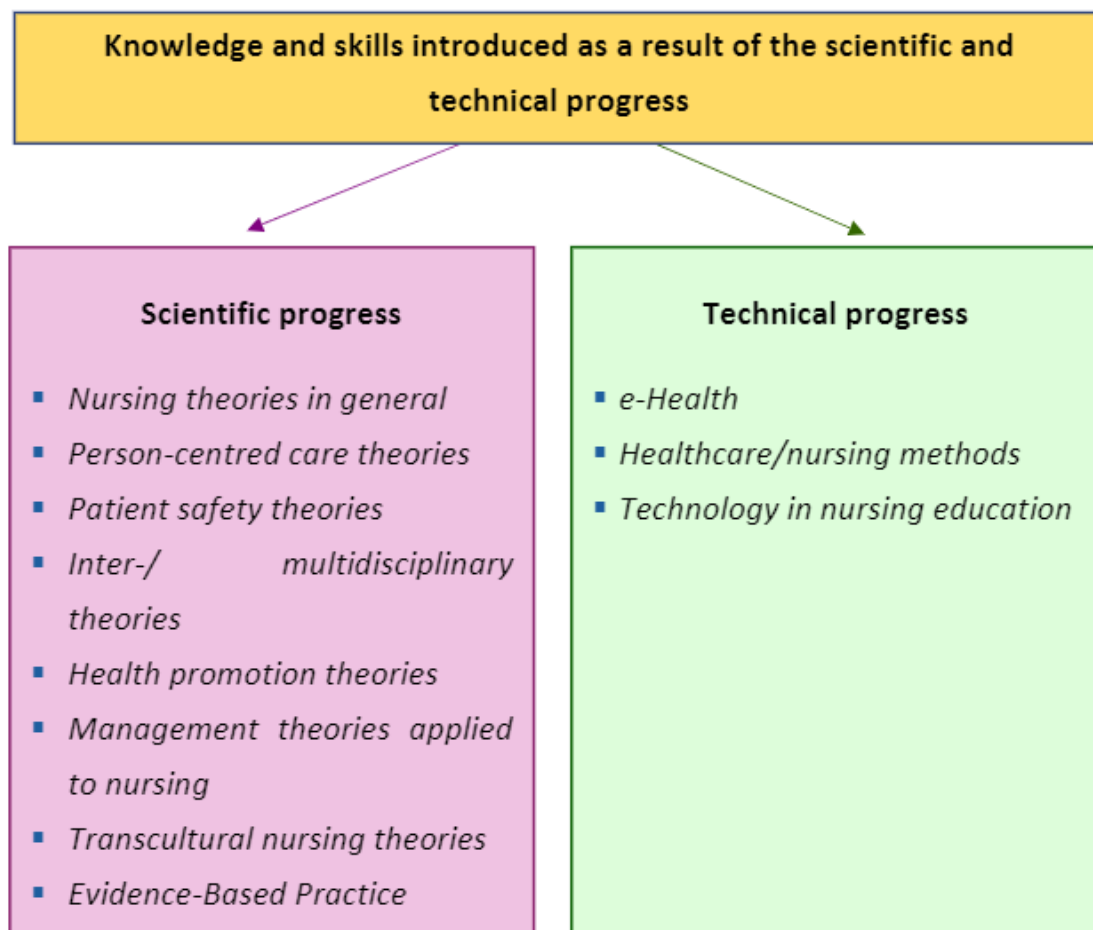


Table 2 presents the knowledge and skills which, based on our desk research, appear to be required in the countries in order to cater for scientific and technical progress. The data obtained through stakeholder consultation which complements this information will be presented in the next chapter (Chapter 5).

**Table 2: Knowledge and skills introduced as result of scientific and technical progress
(desk research)**

Knowledge and skills	Countries
SCIENTIFIC PROGRESS	
<i>Nursing theories in general</i>	
N/A	
<i>Person-centred care theories</i>	
Demonstrate knowledge of genomics	UK
Demonstrate knowledge of the wider determinants of health, illness and wellbeing and apply this to an understanding of global patterns of health and wellbeing outcomes	UK
Demonstrate the ability to accurately process all information gathered during the assessment process to identify needs for individualised nursing care	UK
Assess the psychosocial requirements of the respective field of action and thus handle it constructively	AT
<i>Patient safety theories</i>	
Act and react quickly, safely and flexibly in routine situations	AT
<i>Inter- /multidisciplinary theories</i>	
Have an integrative attitude and an integrative understanding and can think and act across disciplines, linking various elements Recognise one's own professional and personal possibilities and limits, and to apply personally effective coping strategies when strained Be aware of one's own role in the context of professional development and actively contribute to the further development of the profession	AT
<i>Health promotion theories</i>	
Demonstrate knowledge of epidemiology	UK
<i>Management applied to nursing</i>	
Maintain competence to develop and enhance the capacity for leadership	IE
<i>Transcultural nursing theories</i>	

Demonstrate knowledge of demography	UK
<i>Evidence-Based Practice</i>	
<p>Personally effective learning and work strategies using different problem solving, decision making and creativity techniques</p> <p>Reflect on own values and norms as well as one's own behaviour and actions and orient the attitude as well as the behaviour on the internationally recognised professional code of conduct; be a positive role model through their behaviour</p> <p>Reflect on occupational and care situations conceptually and theoretically, draw conclusions for further professional action; independently make informed decisions and responsibly represent their own decisions externally</p> <p>Take responsibility for their own decisions, actions and their consequences; be able to learn from personal experience and meet the requirements of lifelong learning and continuing professional development through continuous adaptation of professional activities to nursing science, medical science and social science</p>	AT
<p>Apply evidence from an appraisal of research studies relevant to the division of nursing to the practice of nursing</p> <p>Critical questioning and decision-making skills</p> <p>Maintain competence to develop and enhance the capacity for self-awareness, reflective practice and professional scholarship</p>	IE
To contribute to the social development and profiling of the profession through vision development, substantiation and implementation of nursing practice on the basis of Evidence-Based Practice	NL
Use of evidence-based data	CH
Develop person-centred evidence-based plans for nursing interventions with agreed goals	UK
Evidence-Based Nursing, searching in databases	IT
Ability to review, assess and use relevant information critically and to discuss new data, phenomena and issues with various audiences and so contribute to the development of the profession and professional practice	SE
Ability to initiate methodological improvements and quality assurance	SE

Ability to speak English	PL
TECHNICAL PROGRESS	
<i>e-Health</i>	
<i>Electronic medical records systems</i>	
Use of the computerised patient file	CH
<i>Electronic communication with patients and professionals</i>	
N/A	
<i>Nursing informatics</i>	
Effectively and responsibly use a range of digital technologies to access, input, share and apply information and data within teams and between agencies	UK
Knowledge about the e-Health information system (i.e. to know the safety regulations of devices used in learning and professional environment; to know the necessary medical equipment used in professional work; and to be familiar with different e-Health information systems)	EE
<i>Information governance</i>	
N/A	
<i>Biometrics</i>	
N/A	
<i>Healthcare/nursing methods</i>	
<i>Internet of Things</i>	
N/A	
<i>New methods of treatment, new devices, equipment</i>	
Knowledge about the technological tools used in healthcare	EE
Independently handle technologies in the execution and development of care and treatment	DK
Informatic technologies	IT
<i>Technology in nursing education</i>	
<i>e-learning</i>	
Interactive learning and testing methods	EE
<i>Simulation</i>	

Use of simulation techniques	CH
3D Printing	
N/A	

4.4. Training subjects required at national level

4.4.1. Introduction

The Directive provides that the training leading to the award of a formal qualification of nurses responsible for general care shall consist of two parts: theoretical training and clinical training. Furthermore, point 5.2.1 of Annex V to the Directive lists the minimum training subjects that should be included in each of the aforementioned parts.

Specifically, point 5.2.1 of Annex V to the Directive, divides the theoretical training into three main sections (nursing, basic sciences and social sciences) and lists the minimum training subjects that should be included in each of the sections:

NURSING

- Nature and ethics of the profession
- General principles of health and nursing
- Nursing principles in relation to:
 - general and specialist medicine
 - general and specialist surgery
 - childcare and paediatrics
 - maternity care
 - mental health and psychiatry
 - care of the old and geriatrics

BASIC SCIENCES

- Anatomy and physiology
- Pathology
- Bacteriology, virology and parasitology
- Biophysics, biochemistry and radiology
- Dietetics
- Hygiene:
 - preventive medicine
 - health education
- Pharmacology

SOCIAL SCIENCES

- Sociology
- Psychology
- Principles of administration
- Principles of teaching
- Social and health legislation
- Legal aspects of nursing

Furthermore, in relation to the clinical training, paragraph 5.2.1 of Annex V to the Directive lists the following training subjects:

NURSING IN RELATION TO:

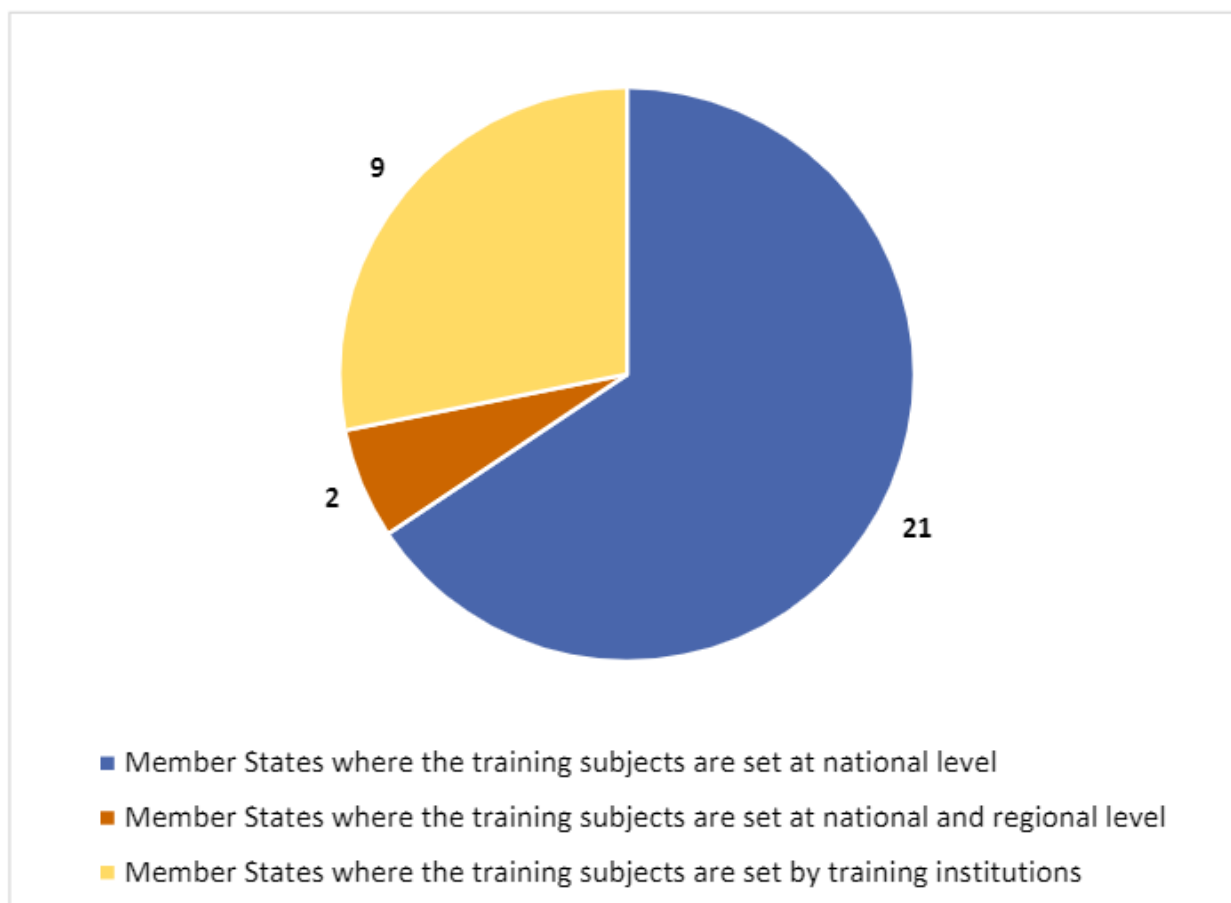
- general and specialist medicine
- general and specialist surgery
- childcare and paediatrics
- maternity care
- mental health and psychiatry
- care of the old and geriatrics
- home nursing

It should be mentioned that the Directive allows one or more of the subjects to be taught in the context of other disciplines or in conjunction therewith. Therefore, even though some training subjects have not been identified in the curricula of certain countries, it may be that these subjects are taught in the context of other training subjects and, therefore, they are still part of the training programme. Moreover, countries are bound to reflect the aforementioned training subjects in their training programme, but they can also add additional subjects to the national training programmes going beyond this minimum.

Furthermore, it should be noted that in some countries (BG, CY, CZ, DK, EE, FR, EL, IE, IT, LV, MT, NO, PL, PT, SK, AT, CH, HR, HU, LU, RO⁹²) the training subjects included in the curricula are set at national level, while in other countries (FI, IS, LT, SI, ES, SE, NL, RO, UK) training institutions have autonomy to draft their own curricula respecting the requirements set at national level. Finally, as mentioned previously (see Section 4.2), in BE and DE, some general requirements are set at national level, but the regions are also competent to regulate the training of nurses responsible for general care and, therefore, the training subjects included in the curricula.

⁹² Please note that in RO, at higher educational level, training institutions decide the training subjects included in the curricula taking into account the general requirements provided at national level. However, at non-higher educational level, there is an official unitary curriculum that training institutions must respect.

Figure 5: Division of competences with regard to training subjects



In this context, Sub-Section 4.4.2 presents specific training subjects going beyond the minimum under the Directive and which have been introduced to cater for scientific and technical progress.

4.4.2. Training subjects introduced as a result of scientific and technical progress

In order to assess whether an update of the training subjects listed under the Directive is necessary, particular focus should be placed on the training subjects that have been introduced as a result of scientific and technical progress. Following the same approach as for the knowledge and skills (see Sub-Section 4.3.2), this sub-section classifies the training subjects that appear to be included in the curricula as a result of scientific and technical progress into two main categories: scientific training subjects (which are further classified into nursing theories in general, person-centred care theories, patient safety theories, inter-/ multidisciplinary theories, health promotion

theories, management theories applied to nursing, transcultural nursing theories, and Evidence-Based Practice) and technical training subjects (which are further classified into e-Health, healthcare/nursing methods and technology in nursing education). For more information about the definitions and categories, please see Section 3.3.

Figure 6: Categorisation of training subjects introduced as a result of scientific and technical progress

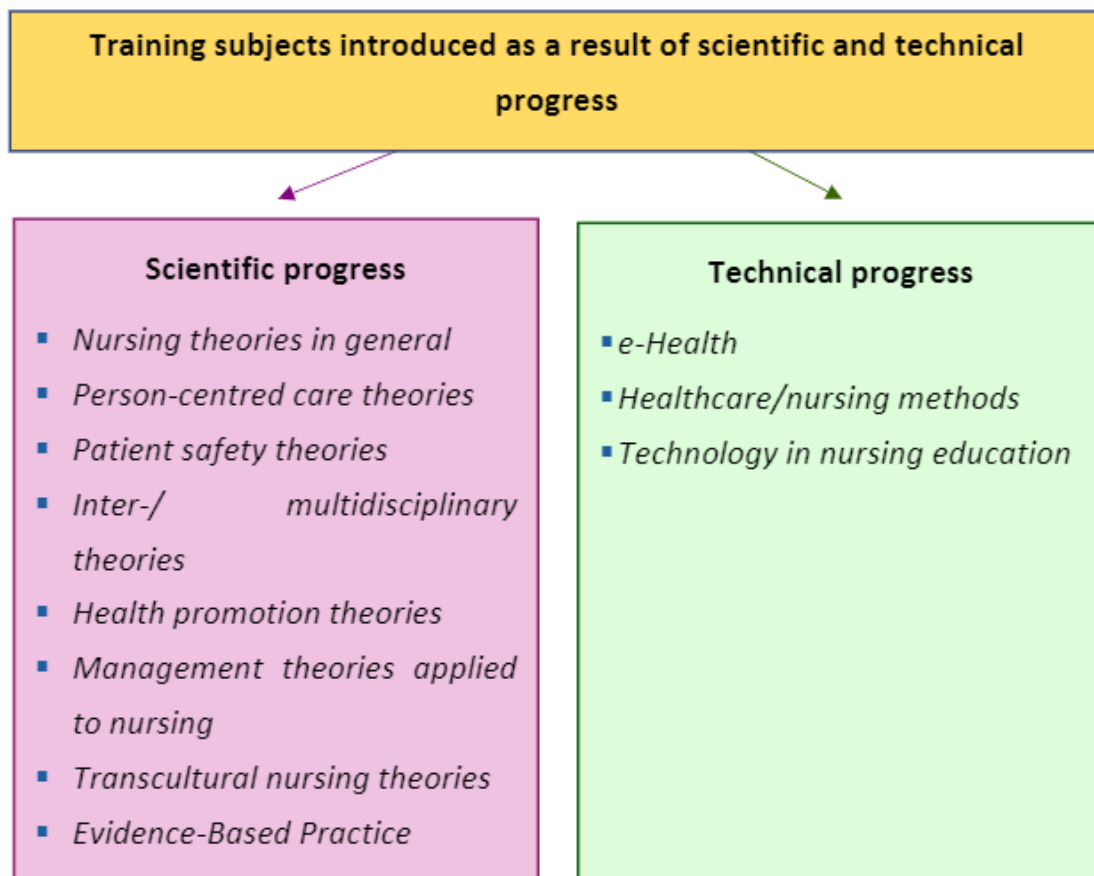


Table 3 presents the training subjects which, on the basis of our desk research, appear to be included in the curricula of the countries, in order to cater for scientific and technical progress. In the case of certain countries where the training subjects are not set at national level, but by the training institutions themselves, complementary information received from stakeholders is presented in the next chapter (see Chapter 5).

**Table 3: Training subjects introduced as a result of scientific and technical progress
(desk research)**

Training Subjects	Countries
SCIENTIFIC PROGRESS	
<i>Nursing theories in general</i>	
N/A	
<i>Person-centred care theories</i>	
Patient-centred care	UK
<i>Patient safety theories</i>	
N/A	
<i>Inter- / multidisciplinary theories</i>	
Interprofessionality	CZ
<i>Health promotion theories</i>	
N/A	
<i>Management applied to nursing</i>	
N/A	
<i>Transcultural nursing theories</i>	
N/A	
<i>Evidence-Based Practice</i>	
Evidence-Based Nursing	CH, EL, NO
Research methodology	CH, DK, EL, FR, HU, IE, MT, PL, SK
Appraising and evaluating scientific evidence	MT
International Classification of Diseases	CY
English	AT, BE, FR,
Decision Support Systems in Health	CY
Technical progress	
<i>e-Health</i>	

e-Health	CH, EE
Electronic medical records systems	
Electronic data processing	AT, BG
Electronic patient records	CY
Electronic communication with patients and professionals	
Picture Archiving and Communication System	CY
Patient portals	CY
IT in nursing	DK, EE, HR, IT, MT
Nursing informatics	
Specific Computer Science	AT
IT in nursing	DK, EE, HR, IT, MT
Informatics	BG, CY, EL, IE, MT
Information governance	
Safety in using information from the internet	CY
Biometrics	
N/A	
Healthcare/nursing methods	
Internet of Things	
N/A	
New methods of treatment new devices, equipment	
N/A	
Technology in nursing education	
Simulation	
N/A	
e-learning	
N/A	
3D Printing	
N/A	

5. Data collected from stakeholders

5.1. Introduction

This chapter presents the data collected from EU/EFTA-level stakeholders and national stakeholders. Specifically, the information presented in this chapter has been collected through:⁹³

- 1. Stakeholder questionnaires (Task 1):** During this phase, the Study Team collected 103 questionnaires, completed by 7 EU/EFTA-level stakeholders, 22 national authorities, 24 national associations and 50 training institutions.
- 2. Discussion with relevant stakeholders during and after the workshop (Task 3):** During and after the workshop, the Study Team collected 30 feedback questionnaires (5 EU/EFTA-level stakeholders, 4 regulatory bodies, 4 national registration authorities, 11 national associations and 10 training institutions).⁹⁴ Furthermore, additional input from 5 countries was received via email after the workshop.
- 3. Discussion with GoC (Task 3):** The Study Team received input from 7 countries via email after the meeting.

The tables below present the input received from EU/EFTA-level stakeholders (table 4) and the input received for each country from the different categories of national stakeholders (table 5).

Table 4: Input received from EU/EFTA-level stakeholders

EU/EFTA level	
Stakeholder questionnaires	Workshop
European Federation of Nurses Associations (EFN)	European Federation of Nurses Associations (EFN)
EU Network of Nurse Regulators	EU Network of Nurse Regulators

⁹³ For more information, please see Section 3.2.

⁹⁴ Please note that certain participants represent different categories of stakeholders and, therefore, they have provided input from different perspectives (e.g. the participant from Austria represents the regulatory body and a training institution).

European Nursing Student Association (ENSA)	European Nursing Student Association (ENSA)
European Federation of Educators in Nursing Sciences (FINE)	European Federation of Educators in Nursing Sciences (FINE)
European Specialist Nurses (ESNO)	Tuning Educational Structures in Europe (Tuning group)
European Nursing Council (ENC)	
European Nurse Directors Association (ENDA)	
7	5

Table 5: Input received from national stakeholders

National	
Countries	Stakeholder questionnaires ⁹⁵
Austria	<ul style="list-style-type: none"> ■ Regulatory body: 2.⁹⁷ ■ National association: 1. ■ Training institution: 1 (out of 2 training institutions contacted).
Belgium	<ul style="list-style-type: none"> ■ Regulatory body: 1. ■ National association: 1. ■ Training institution: 13 (out of 16 training institutions contacted).
Bulgaria	<ul style="list-style-type: none"> ■ Regulatory body: 1. ■ National association: The registration authority and national association are vested in a single national authority. The

⁹⁵ In each of the countries covered by this Study the following stakeholders were contacted: interests of nurse responsible for general care; and 4) At least two training institutions. The number of training institutions contacted was determined by the following factors: 1) Different levels of education; 2) Regional differences; and 3) Autonomous curricula. Furthermore, when no input was received from certain training institutions, other training institutions were contacted.

⁹⁶ Please note that the response rate varied across countries. Hence, the weight or relevance of the input received from the stakeholders varies.

⁹⁷ Please note that the national authority from AT provided input through a letter and completed the questionnaire.

	<p>authority has been contacted in its capacity of registration authority.⁹⁸</p> <ul style="list-style-type: none"> ■ Training institution: 1 (out of 3 training institutions contacted).
Croatia	<ul style="list-style-type: none"> ■ Regulatory body: 1. ■ National association: 1. ■ Training institution: 2 (out of 8 training institutions contacted).
Cyprus	<ul style="list-style-type: none"> ■ Regulatory body: No input received. ■ National association: 1. ■ Training institution: 1 (out of 2 training institutions contacted).
Czech Republic	<ul style="list-style-type: none"> ■ Regulatory body: 2.⁹⁹ ■ National association: 1. ■ Training institution: 1 (out of 4 training institutions contacted).
Denmark	<ul style="list-style-type: none"> ■ Regulatory body: 1. ■ National association: 1. ■ Training institution: 1 (out of 2 training institutions contacted).
Estonia	<ul style="list-style-type: none"> ■ Regulatory body: 1. ■ National association: 1. ■ Training institution: 1 (out of 2 training institutions contacted).

⁹⁸ Please note that in some countries the roles of registration authority and national association have been contacted in its capacity of registration authority with a request to verify the information.

⁹⁹ Please note that two questionnaires have been received from the Czech Ministry of Education, Youth and Sports and a second questionnaire from the Accreditation Commission for Tertiary Education.

Finland	<ul style="list-style-type: none"> ■ Regulatory body: 1. ■ National association: 1. ■ Training institution: 1 (out of 3 training institutions contacted).
France	<ul style="list-style-type: none"> ■ Regulatory body: No input received. ■ National association: 1. ■ Training institution: 1 (out of 5 training institutions contacted).
Germany	<ul style="list-style-type: none"> ■ Regulatory body: No input received. ■ National association: 1. ■ Training institution: 1 (out of 1 training institutions contacted).¹⁰⁰
Greece	<ul style="list-style-type: none"> ■ Regulatory body: No input received. ■ National association: 1. ■ Training institution: 1 (out of 2 training institutions contacted).
Hungary	<ul style="list-style-type: none"> ■ Regulatory body: The registration authority and the regulatory body are vested in a single national authority. The authority has been contacted in its capacity of registration authority.¹⁰¹ ■ National association: 1.

¹⁰⁰ Please note that the organisation contacted (National Conference of Deans of Nursing Science

¹⁰¹ Please note that in some countries the role of registration authority and regulatory body are
contacted in its capacity of registration authority, with a request to verify the information collected

	<ul style="list-style-type: none"> ■ Training institution: 2 (out of 6 training institutions contacted).
Iceland	<ul style="list-style-type: none"> ■ Regulatory body: 1. ■ National association: 1. ■ Training institution: 1 (out of 2 training institutions contacted).
Ireland	<ul style="list-style-type: none"> ■ Regulatory body: The registration authority and the regulatory body are vested in a single national authority. The authority has been contacted in its capacity of registration authority. ■ National association: 1. ■ Training institution: 1 (out of 5 training institutions contacted).
Italy	<ul style="list-style-type: none"> ■ Regulatory body: No input received. ■ National association: 1. ■ Training institution: 1 (out of 4 training institutions contacted).
Latvia	<ul style="list-style-type: none"> ■ Regulatory body: 1. ■ National association: 1. ■ Training institution: 1 (out of 2 training institutions contacted).
Liechtenstein	<ul style="list-style-type: none"> ■ Regulatory body: 1. ■ National association: No input received. ■ Training institution: There is no training institution.
Lithuania	<ul style="list-style-type: none"> ■ Regulatory body: 1. ■ National association: 1. ■ Training institution: 2 (out of 4 training institutions contacted).

Luxembourg	<ul style="list-style-type: none"> ■ Regulatory body: 1. ■ National association: No input received. ■ Training institution: 1 (out of 1 training institutions contacted).
Malta	<ul style="list-style-type: none"> ■ Regulatory body: The registration authority and the regulatory body are vested in a single national authority. The authority has been contacted in its capacity of registration authority. ■ National association: 1. ■ Training institution: 1 (out of 2 training institutions contacted).
Netherlands	<ul style="list-style-type: none"> ■ Regulatory body: 1. ■ National association: 1. ■ Training institution: 1 (out of 4 training institutions contacted).
Norway	<ul style="list-style-type: none"> ■ Regulatory body: 1. ■ National association: 1. ■ Training institution: 1 (out of 4 training institutions contacted).
Poland	<ul style="list-style-type: none"> ■ Regulatory body: No input received. ■ National association: No input received. ■ Training institution: 2 (out of 2 training institutions contacted).
Portugal	<ul style="list-style-type: none"> ■ Regulatory body: 1. ■ National association: The registration authority and national association are vested in a single national authority. The

	<p>authority has been contacted in its capacity of registration authority.</p> <ul style="list-style-type: none"> ■ Training institution: 1 (out of 4 training institutions contacted).
Romania	<ul style="list-style-type: none"> ■ Regulatory body: No input received. ■ National association: No input received. ■ Training institution: 2 (out of 6 training institutions contacted).
Slovakia	<ul style="list-style-type: none"> ■ Regulatory body: 1. ■ National association: The registration authority and national association are vested in a single national authority. The authority has been contacted in its capacity of registration authority. ■ Training institution: 1 (out of 7 training institutions contacted).
Slovenia	<ul style="list-style-type: none"> ■ Regulatory body: 1. ■ National association: The registration authority and national association are vested in a single national authority. The authority has been contacted in its capacity of registration authority. ■ Training institution: 2 (out of 2 training institutions contacted).
Spain	<ul style="list-style-type: none"> ■ Regulatory body: Input received via GoC.¹⁰²

¹⁰² Please note that the Study Team contacted the *Ministry of Science, Innovation and Universities* Decree 432/2008 of 12 April, which sets out the organisation of ministerial departments and

	<ul style="list-style-type: none"> ■ National association: The registration authority and national association are vested in a single national authority. The authority has been contacted in its capacity of registration authority. ■ Training institution: 2 (out of 4 training institutions contacted).
Sweden	<ul style="list-style-type: none"> ■ Regulatory body: 1. ■ National association: 1. ■ Training institution: 2 (out of 4 training institutions contacted).
Switzerland	<ul style="list-style-type: none"> ■ Regulatory body: 1. ■ National association: 1. ■ Training institution: 1 (out of 6 training institutions contacted).
United Kingdom	<ul style="list-style-type: none"> ■ Regulatory body: The registration authority and the regulatory body are vested in a single national authority. The authority has been contacted in its capacity of registration authority. ■ National association: 1. ■ Training institution: No input received. (8 training institutions contacted).¹⁰³
Total	96

verification of official university degrees entitling the holders to exercise the profession of nursing. The requirements of the training programme which provides access to the nursing profession. The verification phase. Nevertheless, after the consultation phase, the Study Team was informed that the *Ministry of Health, Consumer affairs and Social welfare*. Subsequently, the *Ministry of Health, Consumer affairs and Social welfare*.

¹⁰³ Please note that the Study Team has not received any responses from training institutions from the deadline to complete and submit the questionnaires was provided. Nevertheless, no input was received.

5.2. Scientific and technical advancements

The scientific and technical advancements affecting the profession of nurse responsible for general care in the last 5-10 years that were reported by stakeholders are captured in the table below. The first column presents the specific scientific and technical advancements while the second column specifies the countries where the advancements have been noted. Furthermore, the second column indicates if the data was obtained through:

- 1) Stakeholder questionnaires (marked white);
- 2) Workshop (marked blue); or
- 3) GoC (marked green).

Table 6: Main scientific and technical advancements identified by stakeholders

Advancements	Stakeholders
SCIENTIFIC ADVANCEMENTS	
<i>Nursing theories in general</i>	
Nursing theories and concepts in general	DE, EU/EFTA-level stakeholders ¹⁰⁴ , ES ¹⁰⁵
<i>Person-centred care theories</i>	
Person-centred approach with regard to elderly people, chronic diseases, multipharmacology/ multimorbidity, etc	DK, NL, NO, BE, CH, DE, EL, ES, FR, HR, IE, LU, PL, IS ¹⁰⁶ , RO ¹⁰⁷

White = Stakeholder questionnaires

Blue = Workshop

Green = GoC

¹⁰⁴ European Federation of Nurses Associations.

¹⁰⁵ The competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008) were reviewed and added to the table where relevant. Please note that this information has been provided by the Spanish registration authority and national association via the workshop feedback questionnaire.

¹⁰⁶ Information provided by the Icelandic nurses association via the workshop feedback questionnaire.

¹⁰⁷ Information provided by the Romanian Ministry of Education and Research via GoC.

Whole patient approach including well-being, humanisation of care, empathy	EE, ES, UK ¹⁰⁸
Personalised care	NO, FR, BE, SE, SI
Patient empowerment	BE, NL, DE, FI, FR, IE, EU/EFTA-level stakeholders ¹⁰⁹ , UK ¹¹⁰ , ES ¹¹¹
Patient autonomy	DE, BE, NO, EU/EFTA-level stakeholders ¹¹²
Self-care/ Self-management	PT, CH, NL, IE, EU/EFTA-level stakeholders ¹¹³ , ES ¹¹⁴
Therapeutic education of patients	BE
Nursing care in community settings	BE, DK, DE, FI, BG, HR, IE, LU, NL, SE, PT, IS ¹¹⁵ , UK ¹¹⁶
Home care	BE, FI, IE,
Primary healthcare	BE, ES ¹¹⁷
Genetics and Genomics	PT, ES, SI, UK ¹¹⁸
Pharmacogenomics	PT
<i>Patient safety theories</i>	
Safe management of medicines and prescription	BE, EU/EFTA-level stakeholders ¹¹⁹
Risk management	IT, IE

¹⁰⁸ Information provided by the UK regulatory body after the workshop via email.

¹⁰⁹ EU Network of Nurse Regulators, European Federation of Nurses Associations, European Nursing Council.

¹¹⁰ Information provided by the UK regulatory body after the workshop via email.

¹¹¹ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

¹¹² EU Network of Nurse Regulators, European Federation of Nurses Associations.

¹¹³ European Federation of Nurses Associations, European Nursing Council.

¹¹⁴ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

¹¹⁵ Information provided by the Icelandic nurses association via the workshop feedback questionnaire.

¹¹⁶ Information provided by the UK regulatory body after the workshop via email.

¹¹⁷ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

¹¹⁸ Information provided by the UK regulatory body after the workshop via email.

¹¹⁹ European Federation of Nurses Associations.

Recognise vital risk situations	ES ¹²⁰
Safety and quality issues	LT, SK, DE, LV, BE, DK, IE, IS, SI, EU/EFTA-level stakeholders ¹²¹ , UK ¹²² , ES ¹²³
New methods of monitoring the patient's clinical condition	LV, RO
Inter- /multidisciplinary theories	
Communication and teamwork	IE, PT, SI, EU/EFTA-level stakeholders ¹²⁴ , UK ¹²⁵ , ES ¹²⁶
Multidisciplinary practice and science	LT, BE, FI, NL, BE, NO, UK ¹²⁷ , ES ¹²⁸
Interprofessional collaboration	CH, DK
Teaching	FR, EU/EFTA-level stakeholders ¹²⁹
Independent and continuing learning	CY, EU/EFTA-level stakeholders ¹³⁰
Health education methodologies	PT
Health promotion theories	
Health promotion and prevention	BE, CH, DE, FI, NL, UK, BG, SI, EU/EFTA-level stakeholders ¹³¹ , UK ¹³² , ES ¹³³
Management theories applied to nursing	

¹²⁰ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

¹²¹ European Federation of Nurses Associations; European Nurse Directors Associations.

¹²² Information provided by the UK regulatory body after the workshop via email.

¹²³ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

¹²⁴ EU Network of Nurse Regulators, European Federation of Nurses Associations.

¹²⁵ Information provided by the UK regulatory body after the workshop via email.

¹²⁶ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

¹²⁷ Information provided by the UK regulatory body after the workshop via email.

¹²⁸ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

¹²⁹ EU Network of Nurse Regulators.

¹³⁰ *Ibid.*

¹³¹ EU Network of Nurse Regulators, European Federation of Nurses Associations.

¹³² Information provided by the UK regulatory body after the workshop via email.

¹³³ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

Decision-making process, entrepreneurship, leadership	BE, CH, DK, ES, SI, EU/EFTA-level stakeholders ¹³⁴ , UK ¹³⁵
New methods of care management	CH
New methods of medicine management	DK
Prescribing independently	EU/EFTA-level stakeholders ¹³⁶
Dealing with violence	IS
Transcultural nursing theories	
Intercultural approach	LT, BE
Multi-cultural care	BE, IE, IS, SI, SK, UK ¹³⁷
Evidence-Based Practice	
Nursing Research/ Science	HR, LT, PT, BE, CZ, DE, FI, IS, MT, SE, CH, CY, DK, NL, EU/EFTA-level stakeholders ¹³⁸ , UK ¹³⁹
Evidence-Based Nursing	BE, HR, PT, SK, DE, DK, FI, FR, IS, NO, CH, CY, CZ, HU, IT, LV, NL, SE, SI, EU/EFTA-level stakeholders ¹⁴⁰ , RO ¹⁴¹ , UK ¹⁴²
Clinical reasoning	BE, UK ¹⁴³ , ES ¹⁴⁴
Decision-making support systems	PT
Base nursing interventions on scientific evidence	ES ¹⁴⁵

¹³⁴ EU Network of Nurse Regulators; European Federation of Nurses Associations, European Nursing Council.

¹³⁵ Information provided by the UK regulatory body after the workshop via email.

¹³⁶ EU Network of Nurse Regulators.

¹³⁷ Information provided by the UK regulatory body after the workshop via email.

¹³⁸ European Federation of Educators in Nursing Science.

¹³⁹ Information provided by the UK regulatory body after the workshop via email.

¹⁴⁰ European Federation of Educators in Nursing Science; European Federation of Nurses Associations.

¹⁴¹ Information provided by the Romanian Ministry of Education and Research via GoC.

¹⁴² Information provided by the UK regulatory body after the workshop via email.

¹⁴³ *Ibid.*

¹⁴⁴ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

¹⁴⁵ Please note that ES is marked blue and green because the information was provided by workshop participants and by the Spanish Ministry of Health, Consumer affairs and Social welfare via GoC.

Systematised and approved routines and procedures	NO
Standardised nursing terminology	RO
Nursing documentation	SK, ES
TECHNICAL ADVANCEMENTS	
<i>e-Health</i>	
E-Health in general	EL, FI, NL, BE, DK, EE, FR, LT, NO, SE, EU/EFTA-level stakeholders ¹⁴⁶ , IS ¹⁴⁷ , AT ¹⁴⁸ , UK ¹⁴⁹ , ES ¹⁵⁰
<i>Electronic medical records systems</i>	
Digitalisation in nursing documentation	BE, LV, NO, UK, CY, DK, ES, IE, LT, LU, PL, PT, RO, EU/EFTA-level stakeholders ¹⁵¹ , IS ¹⁵²
<i>Electronic communication with patients and professionals</i>	
Telehealth/ telecare	LV, CH, DK, FR, IT, PT, NO, IE, PL, UK ¹⁵³
ICT	NL, BE, LV, PT, UK, HR, PL, EU/EFTA-level stakeholders ¹⁵⁴
Remote healthcare support	PT
Smartphone/ computer applications	AT, ES, PT
Smart technology	IE
Smart devices	IS
e-Health tools (e.g. ENS4care EU guideline Prevention, smart-care/HER)	EU/EFTA-level stakeholders ¹⁵⁵
<i>Nursing informatics</i>	

¹⁴⁶ European Federation of Educators in Nursing Science; European Federation of Nurses Associations.

¹⁴⁷ Information provided by the Icelandic nurses association via the workshop feedback questionnaire.

¹⁴⁸ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

¹⁴⁹ Information provided by the UK regulatory body after the workshop via email.

¹⁵⁰ Information provided by the Spanish Ministry of Health, Consumer affairs and Social welfare via GoC.

¹⁵¹ European Nursing Council.

¹⁵² Information provided by the Icelandic nurses association via the workshop feedback questionnaire.

¹⁵³ Information provided by the UK regulatory body after the workshop via email.

¹⁵⁴ European Federation of Nurses Associations, European Nursing Council.

¹⁵⁵ EU Network of Nurse Regulators, European Federation of Nurses Associations.

Health informatics	EL, UK ¹⁵⁶
Health care information and communication technologies and systems	ES ¹⁵⁷
IT in nursing	LT, CZ, MT, PL, SE
Nursing information systems	BE, PT, EU/EFTA-level stakeholders ¹⁵⁸
Information governance	
N/A	
Biometrics	
N/A	
Healthcare/nursing methods	
Internet of Things	
N/A	
New methods of treatment, new devices, equipment	
Wound treatment	PT, SK, BE, HU, UK ¹⁵⁹
Less invasive and non-invasive procedures	NO, FR, LT, HR, IE, EU/EFTA-level stakeholders ¹⁶⁰ , UK ¹⁶¹
Surgical techniques	PT, LT, IE, EU/EFTA-level stakeholders ¹⁶² , UK ¹⁶³
Artificial Intelligence	LT, PT, BE
Robotics	PT, BE, IT
Nursing care/ healthcare digital technologies	NO, PT, FR, BE, EE, ES, SI, UK ¹⁶⁴
Development of digital tools	EU/EFTA-level stakeholders ¹⁶⁵

¹⁵⁶ Information provided by the UK regulatory body after the workshop via email.

¹⁵⁷ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

¹⁵⁸ EU Network of Nurse Regulators, European Federation of Nurses Associations.

¹⁵⁹ Information provided by the UK regulatory body after the workshop via email.

¹⁶⁰ European Specialist Nurses Organisations.

¹⁶¹ Information provided by the UK regulatory body after the workshop via email.

¹⁶² European Specialist Nurses Organisations.

¹⁶³ Information provided by the UK regulatory body after the workshop via email.

¹⁶⁴ *Ibid.*

¹⁶⁵ European Federation of Educators in Nursing Science.

Medical treatments	LU, PL, IS, UK ¹⁶⁶
Technology in medical treatment	IS
Digital devices	BE, EU/EFTA-level stakeholders ¹⁶⁷
Care related devices	LV
Care equipment in hospitals and other nursing settings	BE, DK, NL, MT, HU, NO, PL, PT
Diagnostics technologies	EU/EFTA-level stakeholders ¹⁶⁸ , PT, UK, IE, IT, PL, RO
Monitoring based on technological advancements	IS
New tools for work ergonomics and safety at work	DE, EU/EFTA-level stakeholders ¹⁶⁹
New techniques for elderly care and dementia	EU/EFTA-level stakeholders ¹⁷⁰
Nurse prescribing tools	DE, IE, PL, EU/EFTA-level stakeholders ¹⁷¹ , UK ¹⁷²
Technology in nursing education	
e-learning	
Online learning techniques	BE, AT, DE, LV, LT, SI, EU/EFTA-level stakeholders ¹⁷³ , UK ¹⁷⁴
Online documentation	EU/EFTA-level stakeholders ¹⁷⁵
Simulation	
Serious game and 3D virtual techniques	EU/EFTA-level stakeholders ¹⁷⁶
Skill laboratories	DE, EU/EFTA-level stakeholders ¹⁷⁷

¹⁶⁶ Information provided by the UK regulatory body after the workshop via email.

¹⁶⁷ European Federation of Educators in Nursing Science.

¹⁶⁸ European Specialist Nurses Organisations.

¹⁶⁹ EU Network of Nurse Regulators, European Federation of Nurses Associations.

¹⁷⁰ European Nurse Directors Associations.

¹⁷¹ EU Network of Nurse Regulators, European Federation of Nurses Associations.

¹⁷² Information provided by the UK regulatory body after the workshop via email.

¹⁷³ EU Network of Nurse Regulators, European Nurse Directors Associations.

¹⁷⁴ Information provided by the UK regulatory body after the workshop via email.

¹⁷⁵ European Nurse Directors Associations.

¹⁷⁶ European Federation of Educators in Nursing Science.

¹⁷⁷ EU Network of Nurse Regulators.

Simulation scenarios	BE, PT, SE, EE, LU, NO, EU/EFTA-level stakeholders ¹⁷⁸ , HU ¹⁷⁹ , LT ¹⁸⁰ , UK ¹⁸¹ , IE ¹⁸²
3D Printing	
N/A	

¹⁷⁸ European Federation of Educators in Nursing Science.

¹⁷⁹ Information provided by the Hungarian training institution via the workshop feedback questionnaire.

¹⁸⁰ Information provided by the Lithuanian training institution via the workshop feedback questionnaire.

¹⁸¹ Information provided by the UK regulatory body after the workshop via email.

¹⁸² Information provided by the Nursing Midwifery Board of Ireland via GoC.

5.3. Reflection of scientific or technical advancements in the practice of the profession

Based on the identification of scientific and technical advancements, stakeholders at EU/EFTA and national level described their reflection in nursing practice as follows:

Table 7: Reflection of scientific or technical advancements in the training and practice of the profession

Reflection in practice	Stakeholders
SCIENTIFIC ADVANCEMENTS	
<i>Nursing theories in general</i>	
Development of care theories in health institutions	CH, PT
<i>Patient-centred care theories</i>	
Development of patient-centred approach	BE, SE, IS
Development of self-management	IE
Development of patient empowerment	DE, BE, IE, IS
Development of patient education	DE, SE, SI
Shift of nursing care towards well-being	DE
Nursing care shifts more to nursing care in community settings	SE, FR, IE, IS
Complexity of nursing care due to multipharmacology/ multimorbidity/chronic diseases/ care for the disabled and the elderly	NL, BE, EL, ES, IE, IS, SE
Development of patient-centred approach	BE, SE, IS
<i>Patient safety theories</i>	
Increased focus on patient safety	IS, LV, BE, IE, SK, EU/EFTA-level stakeholders ¹⁸³

¹⁸³ European Nurse Directors Association.

<i>Inter-/ multidisciplinary theories</i>	
Improved competences in Communication and teamwork	PT, IS, SE
Cross-professional communication and coordination	DK
<i>Health promotion theories</i>	
New patterns of infectious diseases to deal with	PT
New forms of healthcare promotion activities	BE, ES, PT
<i>Management applied to nursing</i>	
Improved competences in autonomy, entrepreneurship, leadership	BE, DK, SE, SK
Improved competences in decision making process	FI
Prescriptive authority for limited cases of illnesses	IE, PL, EU/EFTA-level stakeholders ¹⁸⁴
Improved competences in emergency related issues	PT, HR
<i>Transcultural nursing theories</i>	
Improved understanding of multicultural care	ES
Improved understanding of transcultural nursing	PT, IE
<i>Evidence-Based Practice</i>	
Strengthening Evidence-Based Nursing	BE, PT, DK, HR, LT, SE, SK, CZ, IS, EU/EFTA-level stakeholders ¹⁸⁵
Development of critical thinking	BE, PT, HU, NL

¹⁸⁴ European Nursing Student Association.

¹⁸⁵ European Federation of Educators in Nursing Science.

Development of clinical reasoning	BE, PT
Online documents and communication: Speed of digital tools, communication transfer, access to online libraries	BE
Nursing research	CH, CY, HR, SK
Nursing Science	IS
Focus on nursing documentation in front of computers and less time spent with patients	EU/EFTA-level stakeholders ¹⁸⁶
Reflection in practice	Stakeholders
TECHNICAL ADVANCEMENTS	
<i>e-Health</i>	
e-Health in general	LV, DK, FI, NO, EL, IE, PL
e-Nursing	AT
<i>Electronic medical records systems</i>	
Use of patient record, computerised patient record	BE, CZ, IE
Communication and registration: Using software to communicate and register clinical practice	BE, EU/EFTA-level stakeholders ¹⁸⁷
<i>Electronic communication with patients and professionals</i>	
Development of ICT	LV, PT, BE, FI, IS, FR, ES
Increased use of software	BE
Increased use of telemedicine/ telenursing	LV, PT, IE
Increased use of e-prescription	BE
Increased use of SBAR communication	SK

¹⁸⁶ European Nursing Student Association.

¹⁸⁷ European Federation of Educators in Nursing Science.

<i>Nursing informatics</i>	
Homogeneity of the implementation of information systems through a standardised language and standardised terminology	PT
Increased use of health information systems	PT, PL
Information management	LV
<i>Information governance</i>	
N/A	
<i>Biometrics</i>	
N/A	
<i>Healthcare/nursing methods</i>	
<i>Internet of Things</i>	
N/A	
<i>New methods of treatment, new devices, equipment</i>	
Use of less invasive techniques and procedures	IE
Increased use of less invasive surgical techniques	IE
New procedures in nursing care	HR, PL
<i>Technology in nursing education</i>	
<i>e-learning</i>	
N/A	
<i>Simulation</i>	
N/A	

3D Printing

N/A

5.4. Knowledge and skills introduced as a result of scientific and technical progress

This section presents the knowledge and skills reported by stakeholders and which have been introduced in the training programmes over the last 10 years as a result of scientific and technical progress.

Following the same approach as in previous sections, the knowledge and skills identified have been classified into two main categories: scientific knowledge and skills (which are further classified into nursing theories in general, person-centred care theories, patient safety theories, inter-/ multidisciplinary theories, health promotion theories, management theories applied to nursing, transcultural nursing theories, and Evidence-Based Practice); and technical knowledge and skills (which are further classified into e-Health, healthcare/nursing methods and technology in nursing education). For more information about the definitions and categories, please see Section 3.3.

Table 8 provides the main skills and knowledge introduced at national level in order to cater for scientific and technical progress (column 1) and the countries where such knowledge and skills have been noted (column 2). Furthermore, column 2 also indicates if the data was obtained through:

- 1) Stakeholder questionnaires (marked white);
- 2) Workshop (marked blue); or
- 3) GoC (marked green).

It should be mentioned that stakeholders have generally indicated the topics in relation to which knowledge and skills to cater for scientific and technical progress have been introduced, but they have not specified the literal wording of the knowledge and skills. In this context, the table below presents the topic noted by the stakeholders.

Table 8: Knowledge and skills introduced as a result of scientific and technical progress (stakeholder consultation)

Knowledge and skills	Countries
SCIENTIFIC PROGRESS	
<i>Nursing theories in general</i>	
Theoretical models	ES ¹⁸⁸
<i>Person-centred care theories</i>	
Person-centred care	SE, IE, UK ¹⁸⁹ , ES ¹⁹⁰
Patient education / counselling / skills in relation to empowering individuals, families and groups towards healthy lifestyles / self-care	DE, FI, PT, RO, EU/EFTA-level stakeholders, UK ¹⁹¹ , ES ¹⁹²
Independently providing advice, instructing and supporting persons needing care / patient coaching / guidance / teaching	DE, FI, FR, PT, RO, SE, SI, EU/EFTA-level stakeholders, ES ¹⁹³
Analysis of human condition	BG
Implementation of individual approach	BG
Assessment expertise	NO, RO
Management of patients with multiple chronic conditions and integrated care models	IT
Create nursing plan and educational program for a patient	LT, ES ¹⁹⁴

White = Stakeholder questionnaires

Blue = Workshop

Green = GoC

¹⁸⁸ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

¹⁸⁹ Information provided by the UK regulatory body after the workshop via email.

¹⁹⁰ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

¹⁹¹ Information provided by the UK regulatory body after the workshop via email.

¹⁹² Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

¹⁹³ *Ibid.*

¹⁹⁴ *Ibid.*

Nursing in developmental transitions	PT
Skills as patient advocates and consultants	CZ
Nursing care in community settings	BE, SK, DE, PT, EL, SI, LT, UK ¹⁹⁵
Primary healthcare	BE, DE, PT, EL, ES ¹⁹⁶
Genetics and genomics	UK ¹⁹⁷
Patient safety theories	
Patient safety / safe care / risk assessment in relation to the patient safety	DK, FI, IS, LT, LV, SE, SK, IE, UK ¹⁹⁸ ES ¹⁹⁹
Recognise vital risk situations	ES ²⁰⁰
Ensuring quality of nursing care / evaluating and analysing in view to improve the professional practice	BE, DE, FI, LT, RO, SE, EU/EFTA-level stakeholder ²⁰¹ , ES ²⁰²
Inter- /multidisciplinary theories	
Communication and teamwork	UK, SI, ES ²⁰³
Working together effectively with other actors in the health sector	DE, FI, ES ²⁰⁴
Communication skills/ Interprofessional communication/ Socio-communicative skills/ situational communication / in cross professional communications and coordination	AT, DK, FI, LU, LV, RO, SE, SK, LT, HR, CH, FR, IS, PT, SI, BG, EU/EFTA-level stakeholders, ES ²⁰⁵
Multidisciplinary practice and science	UK ²⁰⁶

¹⁹⁵ Information provided by the UK regulatory body after the workshop via email.

¹⁹⁶ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

¹⁹⁷ Information provided by the UK regulatory body after the workshop via email.

¹⁹⁸ *Ibid.*

¹⁹⁹ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

²⁰⁰ *Ibid.*

²⁰¹ European Nursing Student Association.

²⁰² Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

²⁰³ Please note that ES is marked blue and green because the information was provided by workshop participants and by the Spanish Ministry of Health, Consumer affairs and Social welfare via GoC.

²⁰⁴ *Ibid.*

²⁰⁵ *Ibid.*

²⁰⁶ Information provided by the UK regulatory body after the workshop via email.

Situation, Background, Assessment, recommendation (SBAR) communication (communication model)	SK
Solving interpersonal conflicts	CZ
Professional identity and visibility / autonomy and independent nurse role	LU
More practical training with other health professional / cross-professional training / Team training	SE, NO, EU/EFTA-level stakeholder ²⁰⁷
Co-teaching with students from other health sciences	EL, SE
Peer teaching between professions	SE
Health promotion theories	
Health promotion / prevention	NL, SE, SI, UK ²⁰⁸
Promote healthy lifestyles	ES ²⁰⁹
Management applied to nursing	
Emergency management / carrying out measures in crises and disaster situations	AT, DE, EL, FI, PT, RO, HU, EU/EFTA-level stakeholders ²¹⁰
Decision-making process, entrepreneurship, leadership	UK ²¹¹
Airway, Breathing, Circulation, Disability, Exposure (ABCDE) assessment	SK
Increasing independent diagnosing	FI, RO
Independent initiative life-preserving measures	HR, FI, RO
Case management	CZ
Clinical management, care management	ES ²¹²

²⁰⁷ European Federation of Nurses Associations.

²⁰⁸ Information provided by the UK regulatory body after the workshop via email.

²⁰⁹ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

²¹⁰ European Nurses Directors Association, European Federation of Educators in Nursing Science.

²¹¹ Information provided by the UK regulatory body after the workshop via email.

²¹² Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

Group management techniques	ES ²¹³
Managerial function of nursing services	ES ²¹⁴
Establish evaluation mechanisms	ES ²¹⁵
Leading teams / delegating tasks / improved competences in clinical leadership	CH, CZ, DK, FR, IS, LT, LV, NO, PT, SE
Prescriptions and order diagnostic checks	LU, PL
Transcultural nursing theories	
Care provision in the multicultural environment / raising awareness of cultural environment / transcultural nursing	EL, ES, LT, PT, SE, EU/EFTA-level stakeholder ²¹⁶ , UK ²¹⁷
Evidence-Based Practice	
Nursing science	EU/EFTA-level stakeholder ²¹⁸
Evidence-Based Practice/ Evidence-Based Nursing	BE, DK, IS, LT, LU, SE, SI, SK, EU/EFTA-level stakeholders ²¹⁹ , UK ²²⁰
Skills-based and scientific data-based approach	CH
Base nursing interventions on scientific evidence	ES ²²¹
Scientific theory / research methodology	DK, EL, LT, PT, SE
Critical thinking	LT, LU, LV, UK ²²² , ES ²²³
Clinical judgement	ES ²²⁴

²¹³ *Ibid.*

²¹⁴ *Ibid.*

²¹⁵ *Ibid.*

²¹⁶ European Nurse Directors Association.

²¹⁷ Information provided by the UK regulatory body after the workshop via email.

²¹⁸ European Federation of Educators in Nursing Science.

²¹⁹ European Nurses Directors Association, European Nursing Council.

²²⁰ Information provided by the UK regulatory body after the workshop via email.

²²¹ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

²²² Information provided by the UK regulatory body after the workshop via email.

²²³ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

²²⁴ *Ibid.*

Analyse data collected in an assessment, prioritise the adult patient's problems, establish and execute the care plan and carry out its assessment	ES ²²⁵
Problem-solving ability	PT
Research in nursing science	ES, LU, UK ²²⁶
Clinical decision making	DK, LU, SE
Clinical decision making in nursing simulation	LT
Reorganisation of clinical practice to reflect population needs (e.g. healthy ageing, palliative care, additional clinical placement as an elective subject)	EL
Apply nursing model for real clinical case	LT
Development of the reflective approach	BE
Use of validated scales	BE
Foreign language learning	FI
TECHNICAL PROGRESS	
<i>e-Health</i>	
e-Health in general	EE, LT, IE, EU/EFTA-level stakeholder ²²⁷ , UK ²²⁸ , AT ²²⁹
<i>Electronic medical records systems</i>	
Electronic report	DK, FI
Management of the patient's folder	FR
Digitalisation in nursing documentation	UK ²³⁰
<i>Electronic communication with patients and professionals</i>	

²²⁵ *Ibid.*

²²⁶ Information provided by the UK regulatory body after the workshop via email.

²²⁷ European Federation of Educators in Nursing Science.

²²⁸ Information provided by the UK nurses association via the workshop feedback questionnaire.

²²⁹ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

²³⁰ Information provided by the UK regulatory body after the workshop via email.

Telemedicine / telenursing	IT, SK, UK ²³¹
Health care information and communication technologies and systems	ES ²³²
Nursing informatics	
Nursing informatics	FI, EU/EFTA-level stakeholder ²³³ , UK ²³⁴
Use of database / knowledge management and databases	ES, FI, SE
Project to digitalise care procedures	BE
New information techniques	FR
Information governance	
Data safety, reporting and learning systems	LV
Biometrics	
N/A	
Healthcare/nursing methods	
Internet of Things	
N/A	
New methods of treatment, new devices, equipment	
Technical advancement in diagnostic techniques	IE
Technical advancement in surgical techniques including advancement of less invasive techniques and procedures	IE
Innovation and service development and technology	NO, DK, ES, IS, IT, LU, LV, PT, SK
Digitalisation/ Digital skills in healthcare	SI, LV, CH
Technology in patient care	HU

²³¹ Information provided by the UK regulatory body after the workshop via email.

²³² Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

²³³ European Nursing Council.

²³⁴ Information provided by the UK regulatory body after the workshop via email.

Development of technology and different digital tools	CH, NL
Wound treatment	UK ²³⁵
Medical treatments	UK ²³⁶
Less invasive and non-invasive procedures	UK ²³⁷
Surgical techniques	UK ²³⁸
Nursing care and digital technologies	UK ²³⁹
Diagnostics technologies	UK ²⁴⁰
Nurse prescribing tools	UK ²⁴¹
Technology in nursing education	
e-learning	
Learning platform	AT
Online learning techniques	UK ²⁴²
Simulation	
Simulation training/ Acquisition of practical skills is held in modern simulation centres equipped with high-technology tools/ Scenario training / Simulations in the nursing education/ Simulation used as a strategic tool for improving clinical and technical skills/ Training with high-fidelity mannequin	BE, ES, FR, IS, LV, NO, SE, SI, EE, SE, LU, NO, HU, UK ²⁴³
3D Printing	
N/A	

Finally, the table below presents the knowledge and skills reported by stakeholders which appear to be already covered by the Directive.

²³⁵ Information provided by the UK regulatory body after the workshop via email.

²³⁶ *Ibid.*

²³⁷ *Ibid.*

²³⁸ *Ibid.*

²³⁹ *Ibid.*

²⁴⁰ *Ibid.*

²⁴¹ *Ibid.*

²⁴² *Ibid.*

²⁴³ *Ibid.*

Table 9: Other knowledge and skills identified by stakeholders

<i>Knowledge and skills that appear to be covered by the Directive</i>	
Participation of the nursing students in the practical training of health personnel to experience working with such personnel; practical training with members of other professions in the health sector, professional and practice competencies related to medical-scientific references e.g. emergency management, scientific skills: nursing sciences, socio-communicative skills, personal competencies	AT
Ethical issues	BE
Surgery nursing, caring for the child, caring for elderly people, caring in neonatology, caring for children and elderly people	BG
Understanding of the role as a healthcare professional	DK
Ethics and core values, nursing care (theoretical education, clinical education and training), core competences in nursing	SE

5.5. Training subjects introduced as a result of scientific and technical progress

This section presents the training subjects noted by stakeholders which have been introduced at national level in order to cater for scientific and technical progress.

Following the same approach as for the knowledge and skills (see Section 5.4), table 10 classifies the training subjects that appear to be included as a result of the scientific and technical progress into two main categories: scientific training subjects (which are further classified into nursing theories in general, person-centred care theories, patient safety theories, inter-/ multidisciplinary theories, health promotion theories, management theories applied to nursing, transcultural nursing theories, and

Evidence-Based Practice); and technical training subjects (which are further classified into e-Health, healthcare/nursing methods and technology in nursing education). For more information about the definitions and categories, please see Section 3.3.

The first column of table 10 presents the specific scientific and technical training subjects, while the second column specifies the countries where the training subjects have been noted. Furthermore, the second column also indicates if the data was obtained through:

- 1) Stakeholder questionnaires (marked white);
- 2) Workshop (marked blue); or
- 3) GoC (marked green).

Table 10: Training subjects introduced as a result of scientific and technical progress (stakeholder consultation)

Training Subjects	Countries
SCIENTIFIC PROGRESS	
Nursing theories in general	
Development of nursing theory	PT
Nursing models	LT
<i>Person-centred care theories</i>	
Family-centred care	CH
Person-centred care	IE, SE
Patient's needs and the nursing process	SK
Nursing process and human needs	CZ
Medical humanities	IT
Organisation and delivery of nursing care and nursing assessment	EL

White = Stakeholder questionnaires
 Blue = Workshop
 Green = GoC

Self-care	EU/EFTA-level stakeholders ²⁴⁴
Empower individuals, families and groups towards healthy lifestyles	EU/EFTA-level stakeholders ²⁴⁵
Skilled and self-initiated care	CY
Guidance and teaching skills and support for self-care	FI
Basics and methods of counselling	AT ²⁴⁶
Empowerment	IE
Self-management	IE
Empowering patients and relatives in relation to self-care	MT
Management of therapeutic self-care	PT
Self-care deficit and family carers	PT
Self-efficacy	SE
Independently give advice to, instruct and support persons needing care (coaching)	EU/EFTA-level stakeholders ²⁴⁷
Education	AT
Health education	BE, LU
Health education in the practice of nurse	BG
Home care and therapeutic education	CH
Clinical education of patients and their relatives	LT
Guidance and teaching	SE
Community care	CZ, IE, SE, ES ²⁴⁸

²⁴⁴ European Network of Nurses Regulators and European Federation of Nurses Associations.

²⁴⁵ European Network of Nurses Regulators and European Federation of Nurses Associations.

²⁴⁶ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

²⁴⁷ European Network of Nurses Regulators and European Federation of Nurses Associations.

²⁴⁸ Please note that ES is marked white and green because the information was provided by stakeholders via questionnaires and by the Spanish Ministry of Health, Consumer affairs and Social welfare via GoC.

Nursing in the community/primary healthcare	EL, MT
Community health approach	FR
Community nursing theory	HU
Community health nursing, including School nursing	IS
Community nursing	IT, SK, SI
Community and family nursing clinical training	LT
Health, family and community	PT
Nursing care in patient's home	EU/EFTA-level stakeholder ²⁴⁹
Home care	AT
Nursing home care	BE, CH
Home nursing	HR, RO
Complementary care	AT ²⁵⁰
Clinical and theoretical family nursing	IS
Home and family care	SE
Nursing care in primary care	BG
Long term nursing and rehab	AT
Special nursing care for people with long term illness	IS
Rehabilitation nursing	SI
Chronicity and long-term care planning	CH
Chronic illness trajectory	IE
Chronic diseases	PT
Self-management of chronic illness and therapeutic regimens	PT

²⁴⁹ European Nursing Council.

²⁵⁰ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

Nursing care with persons and children with disabilities	HR
Rehabilitation and nursing of the disabled	PL
Gender issues	PT
Ageing	PT
Obesity	PT
Addictology	HU
Drug addiction	PT
Substance abuse nursing	FI
HIV/AIDS	PT
Sexual and reproductive health	ES
Genetics	BE, EL, IE, IT, UK
<i>Patient safety theories</i>	
Risk management / patient safety	DK
Patient and consumer safety	FI
Risk management and quality	FR
Culture of safety	IE
Patient safety	IS, SK
Patient safety and nursing quality	LT
Safe care (patient safety)	SE
Analyse the care quality to improve own professional practice	EU/EFTA-level stakeholders ²⁵¹
Evaluate nursing care	EU/EFTA-level stakeholders ²⁵²
Independently assure quality of nursing care	EU/EFTA-level stakeholders ²⁵³
Quality	BE, CH
Quality assurance	FI, NL

²⁵¹ European Network of Nurses Regulators and European Federation of Nurses Associations.

²⁵² *Ibid.*

²⁵³ *Ibid.*

Quality, entrepreneurial and innovation methods	DK
Risk management and quality	FR
Quality improvement	IE, SE
Auditing	IE
Monitoring	AT ²⁵⁴
Quality and safety of nursing care	SK
Nursing tools for patient safety and clinical nursing	FI
<i>Inter- / multidisciplinary theories</i>	
Work effectively with other actors/professionals in the health sector	EU/EFTA-level stakeholders ²⁵⁵
Helping relationship and corporality	EU/EFTA-level stakeholder ²⁵⁶
Participation in the practical training of health personnel	EU/EFTA-level stakeholders ²⁵⁷
Interprofessional collaboration	CH, SI
Interprofessional elements	DK
Multiprofessionalism	FI, AT ²⁵⁸
Interprofessionalism / work organisation and interprofessional cooperation	FR
Inter-disciplinary cooperation in health sciences	IS
Team & collaboration	SE
Comprehensively communicate professionally	EU/EFTA-level stakeholders ²⁵⁹

²⁵⁴ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

²⁵⁵ European Network of Nurses Regulators and European Federation of Nurses Associations.

²⁵⁶ European Federation of Educators in Nursing Science.

²⁵⁷ European Network of Nurses Regulators and European Federation of Nurses Associations.

²⁵⁸ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

²⁵⁹ European Network of Nurses Regulators and European Federation of Nurses Associations.

Communication skills	EL, HR, EU/EFTA-level stakeholder ²⁶⁰
Communication	FI, SE, SK
Basics of communication and conflict resolution	AT ²⁶¹
Professional communication	BE
Communication in nursing	CZ
Collaboration and communication	IS
Therapeutic communication and helping relations in nursing	PT
Behaviour and relationships	PT
Health ecology	LT
Climate changes	PT
Sustainable development	SE
Health promotion theories	
Health promotion	BE, EL, FI, IE, IT, EU/EFTA-level stakeholder ²⁶²
Methods of health education and promotion	HR
Public health, health promotion and education	LU
Promotion of mental health	PL
Health promotion and prevention	SE, AT ²⁶³
Didactics of health education	SI
Methodology of health education and health promotion	SI

²⁶⁰ European Nursing Council.

²⁶¹ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

²⁶² European Nursing Student Association.

²⁶³ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

Infection prevention and control	EU/EFTA-level stakeholder ²⁶⁴
Epidemiology	IT
Fundamental epidemiology and preventive medicine	LT
Nosocomial infections	PL
Management applied to nursing	
Management of patient path	FR
Case and care management	AT ²⁶⁵
Patient management	HU
Stress management	LV, PT
Health management	PT
Delegation to other healthcare professionals	EU/EFTA-level stakeholder ²⁶⁶
Management skills	EU/EFTA-level stakeholder ²⁶⁷
Leadership	BE, IE, NO, SE
Project management	BE, AT ²⁶⁸
De-escalation management	AT ²⁶⁹
Wound management	AT ²⁷⁰
Organisation and leadership	CH
Nursing management	CZ
Leadership and employee competence	FI
Supervision of care professionals	FR

²⁶⁴ European Nursing Student Association.

²⁶⁵ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

²⁶⁶ European Nurse Directors Association.

²⁶⁷ European Nursing Council.

²⁶⁸ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

²⁶⁹ *Ibid.*

²⁷⁰ *Ibid.*

Organisation of nursing practice and innovation	LT
Leadership in nursing	LT
Management	MT
Management in nursing	SK
Organisation and management in Nursing	SI
Supervision in nursing	SI
First aid	BE, CZ, SK
CPR for children and adult	SE
Theory of ECG	HU
Behaviour of nurse in emergency cases	BG
Tasks of the nurse in early intervention for children	BG
Acute and short-term care	CH
Critical patient care and nursing	HU
Emergency nursing	IS
Emergency and intensive care	LU
Fundamentals of immediate care	MT
Basics of emergency medical service	PL
Person in critical condition	PT
Critical care nursing	SI
Carry out measures in crises and disaster situations	EU/EFTA-level stakeholders ²⁷¹
Emergency and disaster	PT
Solving complex care problems	CH
Critical care nursing	SI

²⁷¹ European Network of Nurses Regulators and European Federation of Nurses Associations.

Prevention of aggression	BG
Violence against women	SE
Dealing with critical situations and learning how to de-escalate potentially violent situations	EU/EFTA-level stakeholder ²⁷²
Transcultural nursing theories	
Interculturality	EU/EFTA-level stakeholder ²⁷³
Dealing with cultural issues	EU/EFTA-level stakeholder ²⁷⁴
Identity and otherness in professional practice	CH
Transcultural nursing	CZ, PT, AT ²⁷⁵
Transcultural healthcare	EL
Cultural diversity	IS
Cross-cultural care provision	MT
Culture	SE
Multicultural nursing	ES, SK
Religion in nursing	LT
Evidence-Based Practice	
Evidence-Based Nursing	IT, LT, EU/EFTA-level stakeholder ²⁷⁶ , AT ²⁷⁷
Evidence-Based Practice	FI, NL, SE, EU/EFTA-level stakeholder ²⁷⁸ , AT ²⁷⁹

²⁷² European nurse Directors Association.

²⁷³ European Federation of Educators in Nursing Science.

²⁷⁴ European Nurse Directors Association.

²⁷⁵ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

²⁷⁶ European Federation of Educators in Nursing Science.

²⁷⁷ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

²⁷⁸ European Nursing Council.

²⁷⁹ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

Concept of evidence in nursing	BE
Evidence-Based Nursing practice	EL
Evidence based and cost-effective care	IE
Clinical propaedeutics	SK
Research leadership	EU/EFTA-level stakeholder ²⁸⁰
Research methodology	BE, CH, DK, EL, IE, LT, LU, NO
Nursing sciences and healthcare research	AT ²⁸¹
Methodology and use of the scientific research results	BE
Research inquiry	CY
Decision-making and documentation in nursing	FI
Introduction to the research process / initiation to research	FR
Research work basics	HR
Observational practice – Introduction to health science	HU
Stages of the research process to enable Evidence-Based Practice	MT
Basic research skills	NL
Scientific research in nursing	PL
Research Process	PT
Health research	PT
Nursing research	SK, ES ²⁸² , RO ²⁸³
Research and leadership	SE
Research and informatics in nursing	SI

²⁸⁰ European Federation of Educators in Nursing Science.

²⁸¹ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

²⁸² Please note that ES is marked white and green because the information was provided by stakeholders via questionnaires and by the Spanish Ministry of Health, Consumer affairs and Social welfare via GoC.

²⁸³ Information provided by the Romanian Ministry of Education and Research via GoC.

Methodology	IS
Decision-making	EU/EFTA-level stakeholder ²⁸⁴
Clinical decision making in nursing simulation	LT
Clinical decision-making	SE
Bobath concept	AT ²⁸⁵
Reflective approach and goal setting	BE
Clinical approach	BE
Nursing roles	FR
Clinical judgment	CY
Role of a nurse in successful ageing	HR
Biostatistics	EL, LT,
Statistics	IT, LV, PT
Introduction to scientific study	AT ²⁸⁶
Scientific writing	AT ²⁸⁷
Healthcare terminology	HU
Medical Latin	HU
Classification for nursing practice	FI
English	AT, BE, FR
Languages	FI, PL
Basics of foreign language	HU
English for nurses	LU
Foreign language (English or German)	SI

²⁸⁴ European Federation of Educators in Nursing Science.

²⁸⁵ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

²⁸⁶ *Ibid.*

²⁸⁷ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

TECHNICAL PROGRESS	
e-Health	
e-Health	BE, DK, EE LT, PT, UK ²⁸⁸ , AT ²⁸⁹
Electronic medical records systems	
Use of database	FI
Computerisation of patient folders	FR
Electronic communication with patients and professionals	
Health information systems and ICT	PT
ICT	ES
Nursing informatics	
Informatics in nursing	EU/EFTA-level stakeholder ²⁹⁰
Health informatics	EL
Nursing informatics	FI
Informatics	IT
Principles of informatics	SE
Research and informatics in nursing	SI
IT	AT, MT
IT solutions used in hospitals	EE
IT in nursing	HR
IT in medicine	LT
IT systems in nursing	PL
IT in nursing, ICT and informatics	RO ²⁹¹
Information governance	
Safety and informatics	SE
Biometrics	
N/A	

²⁸⁸ Information provided by the UK nurses association via the workshop feedback questionnaire.

²⁸⁹ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

²⁹⁰ European Nursing Council.

²⁹¹ Information provided by the Romanian Ministry of Education and Research via GoC.

Healthcare/nursing methods	
Internet of Things	
N/A	
New methods of treatment new devices, equipment	
Innovative practices in nursing	BG, PL
Service system and guidance services	FI
Innovation and service development and technology	NO
Nursing techniques	SK
Modern wound care	LU, PT
Laboratory and diagnostic tests	HU
Digital technology	EU/EFTA-level stakeholder ²⁹²
Dealing with new technologies	EU/EFTA-level stakeholder ²⁹³
Integration of digital means	CH
Digital health	IE
Digital skills in healthcare	LV
Health technology	NO
Gerontechnology	FI
Complementary and alternative therapies	EL
Aromatherapy, music-therapy, phytotherapy, traditional Chinese medicine, yoga, Ayurveda, tropical medicine, kinaesthetic	LU
Sport for health	LV
Technology in nursing education	
e-learning	
N/A	
Simulation	

²⁹² European Federation of Educators in Nursing Science.

²⁹³ European Nurse Directors Association.

Simulation training	CH, EE, ES, FI, LV, SE, SI, AT ²⁹⁴
Simulation technology	LU
Learning in simulated setting	PT
3D Printing	
N/A	

Finally, some stakeholders mentioned certain training subjects which are already covered by the Directive (e.g. General Nursing, Nature and ethics of the profession, Sociology, Economy of health, Principles of teaching, etc.) and, therefore, have not been included in the table above.

²⁹⁴ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

5.6. Suggestions to update the minimum knowledge, skills and/or the list of minimum training subjects harmonised on EU level

This section presents the changes to the nursing training programmes that stakeholders consider should be introduced in the nurses training curricula in the countries in order to reflect the scientific and technical progress affecting the nursing profession.

Table 11 presents the changes (additions to the nurses training curriculum) suggested by EU/EFTA and national stakeholders. Specifically, the first column presents the proposed amendment to be introduced, while the second column mentions the countries where the changes were proposed. Moreover, the second column also indicates if the data was obtained through:

- 1) Stakeholder questionnaires (marked white);
- 2) Workshop (marked blue); or
- 3) GoC (marked green).

Once again, the suggested changes have been classified following the categorisation presented in Sub-Section 3.3.3: scientific changes (which are further classified into nursing theories in general, person-centred care theories, patient safety theories, inter-/ multidisciplinary theories, health promotion theories, management theories applied to nursing, transcultural nursing theories, and Evidence-Based Practice); and technical changes (which are further classified into e-Health, healthcare/nursing methods and technology in nursing education).

Table 11: Suggested changes to the nursing training programmes

White = Stakeholder questionnaires
 Blue = Workshop
 Green = GoC

Suggestions	Countries
SCIENTIFIC PROGRESS	
<i>Nursing theories in general</i>	
Extend the rules of nursing in the following fields of medicine and specialist nursing: internal medicine and internal medicine nursing; obstetrics, gynaecology and obstetrics and gynaecological nursing; anaesthesiology and nursing in danger of life; neurology and neurological nursing; basics of rehabilitation; palliative care; long-term care nursing; and basics of emergency medical services	PL ²⁹⁵
Biosciences and humanities/behaviour as they apply to nursing rather than a medical approach	UK ²⁹⁶
Nursing science, theories and concepts	EFN ²⁹⁷
Ethical and bioethical principles, codes of conduct and philosophy of nursing, human rights	EFN ²⁹⁸
Legal aspects of health care and the profession, social and healthcare legislation	EFN ²⁹⁹
Confidentiality and disclosure	EFN ³⁰⁰

²⁹⁵ Information provided by the Polish Ministry of Health (Department of Nurses and Midwives) and the Supreme Chamber of Nurses and Midwives via GoC.

²⁹⁶ Information provided by the Government of the United Kingdom (Department for Business, Energy and Industrial Strategy) via GoC.

²⁹⁷ EFN and EU Network of Nurse Regulators Proposal for a Delegated Act to Revise Annex 5.2.1 of Directive 2005/36/EC, as amended by Directive 2013/55/EU, available at: <http://www.efnweb.be/wp-content/uploads/Proposal-for-Delegated-Act-FINAL-281016-1.pdf> (last accessed on 17/03/2020).

²⁹⁸ *Ibid.*

²⁹⁹ *Ibid.*

³⁰⁰ *Ibid.*

Bioethics is missing as scientific advancement	PT ³⁰¹
Add “nursing sciences and shared theories” to “comprehensive knowledge of the sciences on which general nursing is based”	FINE ³⁰²
More emphasis needed on medico-legal aspects	IE ³⁰³
Health/population behaviours and trends	Tuning group ³⁰⁴
New models of care delivery	Tuning group ³⁰⁵
Funding of health services, new providers, new settings of care delivery	Tuning group ³⁰⁶
PASTLE impacts- political, economic, ethical, social, technological, legal and environmental developments and changes	Tuning group ³⁰⁷
Include the word “families”	ES ³⁰⁸
Person-centred care theories	
Nursing in self-care	CH, PT
Special education programs for family health nurses, living with chronic illness	AT, IS, IT
Self-management of chronic illness and therapeutic regimes	PT
Health assessment	IS, BG
Community health nursing	IS, PT

³⁰¹ Information provided by the Portuguese training institution via the workshop feedback questionnaire.

³⁰² Information provided by FINE via the workshop feedback questionnaire.

³⁰³ Information provided by the Irish registration authority via the workshop feedback questionnaire.

³⁰⁴ Information provided by Tuning group via the workshop feedback questionnaire.

³⁰⁵ *Ibid.*

³⁰⁶ *Ibid.*

³⁰⁷ *Ibid.*

³⁰⁸ Information provided by the Spanish training institution via the workshop feedback questionnaire.

A revision/update of home nursing in respect of clinical instruction	IE ³⁰⁹
Nursing care in community settings (including community care)	PT, ES
Genetics and genomics	PT
Genetics	PL ³¹⁰
Women's health	PT
Sexual and reproductive health	PT
Long-term care	DE, EL, PL ³¹¹
Communication skills with disabled people	HU
Care of people with learning disabilities	UK ³¹²
Additional focus on person-centred care across the lifespan and all settings rather than thinking across specialities or age groups	UK ³¹³
Nursing process, diagnosis and evaluation, person-centred care and documentation	EFN ³¹⁴
Patient autonomy, rights and self-management	EFN ³¹⁵
Patient guidance and health education	EFN ³¹⁶
Citizens' empowerment and involvement	EFN ³¹⁷
Disability and care for people with disabilities	EFN ³¹⁸

³⁰⁹ Information provided by the Nursing Midwifery Board of Ireland via GoC.

³¹⁰ Information provided by the Polish Ministry of Health (Department of Nurses and Midwives) and the Supreme Chamber of Nurses and Midwives via GoC.

³¹¹ *Ibid.*

³¹² Information provided by the Government of the United Kingdom (Department for Business, Energy and Industrial Strategy) via GoC.

³¹³ *Ibid.*

³¹⁴ EFN and EU Network of Nurse Regulators [Proposal for a Delegated Act](#).

³¹⁵ *Ibid.*

³¹⁶ *Ibid.*

³¹⁷ *Ibid.*

³¹⁸ *Ibid.*

Geriatrics and care for the elderly	EFN ³¹⁹
Primary health and community care	EFN ³²⁰
Long-term care	EFN ³²¹
Palliative care, end of life and pain management	EFN ³²²
Add nurses' offices, nurses' consultation (diabetology, daily wound) within scientific advancements	EFN ³²³
More emphasis needed on nursing in non-hospital settings requiring integrated care between the hospital and the home	IE ³²⁴
More emphasis needed on empowering people	IE ³²⁵
Add the notion of primary care	UK ³²⁶ and EFN ³²⁷
Add the notion of learning disabilities and disability and care for people with disabilities	UK ³²⁸ , IE ³²⁹ and EFN ³³⁰
Add acute and emergency care; long-term care rehabilitation; older person care including frailty and dementia; palliative care; end of life care	IE ³³¹
More emphasis on family care models, supporting older adults and complex patient groups	IE ³³²

³¹⁹ *Ibid.*

³²⁰ *Ibid.*

³²¹ *Ibid.*

³²² *Ibid.*

³²³ Information provided by EFN via the workshop feedback questionnaire

³²⁴ Information provided by the Irish registration authority via the workshop feedback questionnaire.

³²⁵ *Ibid.*

³²⁶ Information provided by the UK nurses association via the workshop feedback questionnaire.

³²⁷ Information provided by EFN via the workshop feedback questionnaire.

³²⁸ Information provided by the UK nurses association via the workshop feedback questionnaire.

³²⁹ Information provided by the Irish registration authority via the workshop feedback questionnaire.

³³⁰ Information provided by EFN via the workshop feedback questionnaire.

³³¹ Information provided by the Irish registration authority via the workshop feedback questionnaire.

³³² *Ibid.*

More emphasis on self-management support	IE ³³³
Personalised and precision medicine	Tuning group ³³⁴
Critical care at home, regulation, risk assessment and strategies	Tuning group ³³⁵
Palliative care, long-term care	SI ³³⁶
Holistic care across the lifespan	UK ³³⁷
Experience care across a range of settings	UK ³³⁸
Focus on person-centred holistic care, individualised, evidence-based person-centred care	UK ³³⁹
Population health to include prevention, treatment and management of chronic disease and complex co-morbidities	IE ³⁴⁰
Primary health care and community nursing	PT ³⁴¹ , AT ³⁴² FINE ³⁴³
Patient safety theories	
Information security and patient safety / risk management	DK, FI, FR, LT, SK EFN ³⁴⁴
Measures directed at increasing patient safety	CY, HR, IS, LV, PT, SK, ES
Health and safety, quality assurance, best practice	CY

³³³ *Ibid.*

³³⁴ Information provided by Tuning group via the workshop feedback questionnaire.

³³⁵ *Ibid.*

³³⁶ Information provided by the Slovenian nurses association via the workshop feedback questionnaire.

³³⁷ Information provided by the UK registration authority via the workshop feedback questionnaire.

³³⁸ *Ibid.*

³³⁹ *Ibid.*

³⁴⁰ Information provided by the Irish registration authority via the workshop feedback questionnaire.

³⁴¹ Information provided by the Portuguese training institution via the workshop feedback questionnaire.

³⁴² Information provided by the Austrian training institution via the workshop feedback questionnaire.

³⁴³ Information provided by FINE via the workshop feedback questionnaire.

³⁴⁴ EFN and EU Network of Nurse Regulators [Proposal for a Delegated Act](#).

Innovation and quality improvement in nursing	EFN ³⁴⁵
Acute and emergency care	EFN ³⁴⁶
Work ergonomics and safety at work	EFN ³⁴⁷
Principles of safe, competent, person-centred nursing care across the life cycle and in all settings	EFN ³⁴⁸
Quality of care - evaluation of performance and outcome	EFN ³⁴⁹
More emphasis on safety of the person	IE ³⁵⁰
Quality, standards, audit, accreditation generational differences	Tuning group ³⁵¹
Patient safety, safety, quality and compassion care	EE ³⁵² , CZ ³⁵³ , RO ³⁵⁴
Inter-/ multidisciplinary theories	
Cross-professional training, peer learning	DK, LU, NO, PT, SE
Communication skills	DK, HR, IS, HU, LT, LV, PT, RO ³⁵⁵
Communication skills and teamwork	NO ³⁵⁶ , IE ³⁵⁷
Societal and intersectoral perspective and influence	EFN ³⁵⁸
Knowledge transfer	EFN ³⁵⁹

³⁴⁵ *Ibid.*

³⁴⁶ *Ibid.*

³⁴⁷ *Ibid.*

³⁴⁸ *Ibid.*

³⁴⁹ *Ibid.*

³⁵⁰ Information provided by the Irish registration authority via the workshop feedback questionnaire.

³⁵¹ Information provided by Tuning group via the workshop feedback questionnaire.

³⁵² Information provided by the Estonian training institution via the workshop feedback questionnaire.

³⁵³ Information provided by the Czech nurses association via the workshop feedback questionnaire.

³⁵⁴ Information provided by the Romanian training institution via the workshop feedback questionnaire.

³⁵⁵ *Ibid.*

³⁵⁶ Information provided by the Norwegian Ministry of Education and Research via GoC.

³⁵⁷ Information provided by the Nursing Midwifery Board of Ireland via GoC.

³⁵⁸ EFN and EU Network of Nurse Regulators [Proposal for a Delegated Act](#).

³⁵⁹ *Ibid.*

Integrating health and social care	EFN ³⁶⁰
Ecological principles	CY
More emphasis needed on collaborative working	IE ³⁶¹
Scientific and pharma advancements/trends	Tuning group ³⁶²
New and emergent health care and system trends	Tuning group ³⁶³
Changing acuity, complex and complicated patients	Tuning group ³⁶⁴
More emphasis on referral pathways liaison with interdisciplinary team	IE ³⁶⁵
Collaborative skills	IE ³⁶⁶
Communication and counselling	AT ³⁶⁷
Health promotion theories	
Preventive measures	BG, CH
Infectious diseases, vaccination and antibiotic resistances	CH
Infections in nursing practice	PL ³⁶⁸
Epidemiology	CY
Additional focus on health promotion, health education and health protection of individuals and communities	UK ³⁶⁹

³⁶⁰ *Ibid.*

³⁶¹ Information provided by the Irish registration authority via the workshop feedback questionnaire.

³⁶² Information provided by Tuning group via the workshop feedback questionnaire.

³⁶³ *Ibid.*

³⁶⁴ *Ibid.*

³⁶⁵ Information provided by the Irish registration authority via the workshop feedback questionnaire.

³⁶⁶ *Ibid.*

³⁶⁷ Information provided by the Austrian training institution via the workshop feedback questionnaire.

³⁶⁸ Information provided by the Polish Ministry of Health (Department of Nurses and Midwives) and the Supreme Chamber of Nurses and Midwives via GoC.

³⁶⁹ Information provided by the Government of the United Kingdom (Department for Business, Energy and Industrial Strategy) via GoC.

Principles of health and sickness	EFN ³⁷⁰
Public health and health promotion and prevention, community and primary care	EFN ³⁷¹
Hygiene, asepsis, prevention of infections, infection control	EFN ³⁷²
Microbiology and biochemistry	EFN ³⁷³
Consumer and public expectations: safety, risk and regulation	Tuning group ³⁷⁴
Add the notion of health promotion	UK ³⁷⁵
Add the notion of prevention	EFN ³⁷⁶
More emphasis on population health initiatives, health and well-being cultural awareness	IE ³⁷⁷
Health and wellbeing, public health – health promotion, health education, health protection	UK ³⁷⁸
Public and preventative health priorities: related global, European and national trends	Tuning group ³⁷⁹
Management applied to nursing	
Medical emergencies and first aid	IS, RO
Leadership, entrepreneurship and management skills	CY, DE, DK, LT, PT EFN ³⁸⁰

³⁷⁰ EFN and EU Network of Nurse Regulators [Proposal for a Delegated Act](#).

³⁷¹ *Ibid.*

³⁷² *Ibid.*

³⁷³ *Ibid.*

³⁷⁴ Information provided by Tuning group via the workshop feedback questionnaire.

³⁷⁵ Information provided by the UK nurses association via the workshop feedback questionnaire.

³⁷⁶ Information provided by EFN via the workshop feedback questionnaire.

³⁷⁷ Information provided by the Irish registration authority via the workshop feedback questionnaire.

³⁷⁸ Information provided by the UK registration authority via the workshop feedback questionnaire.

³⁷⁹ Information provided by Tuning group via the workshop feedback questionnaire.

³⁸⁰ EFN and EU Network of Nurse Regulators [Proposal for a Delegated Act](#).

Additional focus on nursing leadership, multidisciplinary teamwork and management	UK ³⁸¹
Clinical governance, risk management and quality improvement	UK ³⁸²
Organisation and management of nursing	DE
Decision-making	IE ³⁸³ , EFN ³⁸⁴
Organisation of nursing work	PL ³⁸⁵
Health management	PT
Infection outbreak management	LT
Creative and entrepreneurial thinking, planning own work	CY
Nursing in emergency and disaster	PT
Basic of emergency medical services	PL ³⁸⁶
Anti-violence measures	IS
Advice, supervision and education of healthcare professionals and healthcare assistants	
Safe management of medicines and prescribing	EFN ³⁸⁷
Conflict management	EFN ³⁸⁸
Nursing leadership and management	EFN ³⁸⁹

³⁸¹ Information provided by the Government of the United Kingdom (Department for Business, Energy and Industrial Strategy) via GoC.

³⁸² *Ibid.*

³⁸³ Information provided by the Nursing Midwifery Board of Ireland via GoC.

³⁸⁴ EFN and EU Network of Nurse Regulators [Proposal for a Delegated Act](#).

³⁸⁵ Information provided by the Polish Ministry of Health (Department of Nurses and Midwives) and the Supreme Chamber of Nurses and Midwives via GoC.

³⁸⁶ *Ibid.*

³⁸⁷ EFN and EU Network of Nurse Regulators [Proposal for a Delegated Act](#).

³⁸⁸ *Ibid.*

³⁸⁹ *Ibid.*

Organisation of healthcare services	EFN ³⁹⁰
Preparedness for disasters and critical situations	EFN ³⁹¹
To monitor, assess and ensure body-vital activity, first aid and resuscitation	EFN ³⁹²
Research based final project, growth and development throughout the lifespan	IS
More emphasis needed on record management	IE ³⁹³
Environmental issues, disasters, injury and conflict	Tuning group ³⁹⁴
Nursing process with a range of clients and settings	Tuning group ³⁹⁵
More emphasis needed on leading a team and leadership skills	IE ³⁹⁶
More emphasis on managing difficult situations	IE ³⁹⁷
Role in conflict, violence, injury, and environmental pollution, sustainable practices	Tuning group ³⁹⁸
Emphasis on autonomy, accountability and responsibility	UK ³⁹⁹
Leadership, team working and management	UK ⁴⁰⁰
Leadership linked to decision-making	RO ⁴⁰¹
Transcultural nursing theories	

³⁹⁰ *Ibid.*

³⁹¹ *Ibid.*

³⁹² *Ibid.*

³⁹³ Information provided by the Irish registration authority via the workshop feedback questionnaire.

³⁹⁴ Information provided by Tuning group via the workshop feedback questionnaire.

³⁹⁵ *Ibid.*

³⁹⁶ Information provided by the Irish registration authority via the workshop feedback questionnaire.

³⁹⁷ *Ibid.*

³⁹⁸ Information provided by Tuning group via the workshop feedback questionnaire.

³⁹⁹ Information provided by the UK registration authority via the workshop feedback questionnaire.

⁴⁰⁰ *Ibid.*

⁴⁰¹ Information provided by the Romanian training institution via the workshop feedback questionnaire.

Intercultural communication, transcultural nursing	CY, IS, EL, LT, LT, PT, PT, ES, and EU/EFTA-level stakeholder ⁴⁰²
Add topics about human rights, and awareness to cultural diversity within the scientific advancements	PT ⁴⁰³
Health with vulnerable people	ES
Political beliefs	ES
Interdisciplinary and multidisciplinary work	EFN ⁴⁰⁴
Interpersonal and multicultural communication with individuals, families and groups	EFN ⁴⁰⁵
Add multicultural context of care	IE ⁴⁰⁶
More emphasis on cultural awareness and diversity	IE ⁴⁰⁷
Migrant health, cultural care	Tuning group ⁴⁰⁸
Multicultural care	CY ⁴⁰⁹
Evidence-Based Practice	
Nursing science	AT
Evidence-Based Nursing and care	DK, HR, IS, HU, LT, LV, PT, NL
Nursing research, research methodology	AT, CY, DK, EL, FR, IS, MT, NL, PT, RO, SK, ES
Assessment, evaluation, documentation	CY
Allowing nursing students to participate in designing, implementing, evaluating and	EL

⁴⁰² European Nursing Students Association.

⁴⁰³ Information provided by the Portuguese training institution via the workshop feedback questionnaire.

⁴⁰⁴ EFN and EU Network of Nurse Regulators [Proposal for a Delegated Act](#).

⁴⁰⁵ *Ibid.*

⁴⁰⁶ Information provided by the Irish registration authority via the workshop feedback questionnaire.

⁴⁰⁷ *Ibid.*

⁴⁰⁸ Information provided by Tuning group via the workshop feedback questionnaire.

⁴⁰⁹ Information provided by Cypriot nurses association via the workshop feedback questionnaire.

disseminating research projects that will contribute to advancing clinical care	
Clinical decision making	DK, FI, LT
Critical thinking	CY, LT
Training through research: through literature review and analysis of situations and care activities in internships, critical reading of articles, recommendations for good clinical research practices	FR
Knowledge about the efficient use of resources	PT
Inquiry-based learning (IBL) approach (a form of active learning that starts by posing questions, problems or scenarios)	HR
Use of educational methods (PBL, Case Study,) that support the achievement and practice of new professional competencies	HU
Problem-solving	CY EFN ⁴¹⁰
Statistics and their use in nursing	MT, PT
Foreign languages	CY, LT
Additional focus on evidence-based person-centred care	UK ⁴¹¹
Evidence-based nursing and good practice Evidence-Based Nursing – Nursing theories: the holistic approach	EFN ⁴¹²

⁴¹⁰ EFN and EU Network of Nurse Regulators [Proposal for a Delegated Act](#).

⁴¹¹ Information provided by the Government of the United Kingdom (Department for Business, Energy and Industrial Strategy) via GoC.

⁴¹² EFN and EU Network of Nurse Regulators [Proposal for a Delegated Act](#).

Basics of research, methodology and terminology	EFN ⁴¹³
Evidence-Based emphasis	ES ⁴¹⁴
Evidence-Based Practice applied to everything a nurse does	UK ⁴¹⁵
TECHNICAL ADVANCEMENTS	
<i>e-Health</i>	
e-Nursing, e-Health	LT, FR
Focus on digital, technological science advances	UK ⁴¹⁶
e-Health and ICT, health and nursing information systems	EFN ⁴¹⁷ , SE ⁴¹⁸
Emerging technology and science: nature and implications	Tuning group ⁴¹⁹
Add ICT and e-Health	BE ⁴²⁰
Add e-Health, including digitalisation and technological developments	DK ⁴²¹
Focus for digital, technological and medical and healthcare sciences advances as they apply to nursing and health	UK ⁴²²
Disruptive technologies and emerging technologies	Tuning group ⁴²³

⁴¹³ *Ibid.*

⁴¹⁴ Information provided by the Spanish registration authority and nurses association via the workshop feedback questionnaire.

⁴¹⁵ Information provided by the UK registration authority via the workshop feedback questionnaire.

⁴¹⁶ Information provided by the Government of the United Kingdom (Department for Business, Energy and Industrial Strategy) via GoC.

⁴¹⁷ EFN and EU Network of Nurse Regulators [Proposal for a Delegated Act](#).

⁴¹⁸ Information provided by the Swedish nurses association via the workshop feedback questionnaire.

⁴¹⁹ Information provided by Tuning group via the workshop feedback questionnaire.

⁴²⁰ Information provided by the Belgian regulatory body via the workshop feedback questionnaire.

⁴²¹ Information provided by the Danish nurses association via the workshop feedback questionnaire.

⁴²² Information provided by the UK registration authority via the workshop feedback questionnaire.

⁴²³ Information provided by Tuning group via the workshop feedback questionnaire.

Biostatistics and bioinformatics should be used for e-Health	RO ⁴²⁴
Electronic medical records systems	
Accurate data input using devices	Tuning group ⁴²⁵
Electronic communication with patients and professionals	
ICT	PT
Communication with technology	Tuning group ⁴²⁶
Information and communication technology and technical innovation related to nursing care	IE ⁴²⁷
Changes in modes of communication and service delivery, rise in virtual technologies and learning with concomitant use of big data	Tuning group ⁴²⁸
Nursing informatics	
IT in nursing	LT
Knowledge management and databases	ES
Tools to access information	CY
Health information systems	PT
Nursing informatics	UK ⁴²⁹
Information governance	
N/A	
Biometrics	
N/A	
Healthcare/nursing methods	

⁴²⁴ Information provided by the Romanian training institution via the workshop feedback questionnaire.

⁴²⁵ Information provided by Tuning group via the workshop feedback questionnaire.

⁴²⁶ *Ibid.*

⁴²⁷ Information provided by the Irish registration authority via the workshop feedback questionnaire.

⁴²⁸ Information provided by Tuning group via the workshop feedback questionnaire.

⁴²⁹ Information provided by the UK nurses association via the workshop feedback questionnaire.

Internet of Things	
N/A	
New methods of treatment, new devices, equipment	
Less invasive procedures e.g. Pharmacotherapy and medical calculations	FI
Artificial Intelligence	LT
Understanding and increasing the use of new technology, ICT, digital skills	CH, CY, DK, ES, IT, LV, MT, NL, PT, ES, RO
Technology in nursing education	
e-learning	
Add the use of technology in nursing education which encompasses: interactive video conferencing, computer assisted instruction and interactive distance learning	FINE ⁴³⁰
Simulation	
Using high-fidelity simulation in training	HU, LU, LU, NO, ES
Add the use of technology in clinical learning which encompasses: virtual reality simulation and low-fidelity and high-fidelity simulation	FINE ⁴³¹
Importance of simulation pedagogy, simulation has to be recognised as an efficient learning process and as ensuring patient safety	FI ⁴³²
3D Printing	
N/A	

⁴³⁰ Information provided by FINE via the workshop feedback questionnaire.

⁴³¹ *Ibid.*

⁴³² Information provided by the Finnish nurses association and training institution after the workshop via email.

It should be noted that only the suggestions reported by stakeholders which do not appear to be already covered by the Directive have been included in the above table.

In addition, table 12 provides the details of other suggested changes which fall outside the scope of the Commission’s delegated power under the Directive.⁴³³

Table 12: Remaining suggested changes which fall outside the scope of the Commission’s delegated power under the Directive⁴³⁴

Suggested changes which fall outside the scope of the Commission’s delegated power under the Directive	
Knowledge and skills alone are not sufficient. The minimum level required should be explicitly named as level EQF6	BE
A more comprehensive understanding of the role of a healthcare professional; scientific theory; change the way paediatrics are covered; make it possible to obtain the clinical training in relation to general and specialist medicine and surgery in the primary sector	DK
Adequate clinical experience: experience selected for its training value, gained under the supervision of qualified nursing staff and in places where the number of qualified staff and equipment are appropriate for the nursing care of the patient	PT
Regularly update the teachers’ knowledge and promote active learning, link theory and practice to	PT

⁴³³ Article 21(6) and Article 31(2) of Directive 2005/36/EC, as amended.

⁴³⁴ Article 21(6) and Article 31(2) of Directive 2005/36/EC, as amended.

help learners understand the usefulness of theoretical content and maintain their interest in learning	
Diverse teaching strategies to be used both in theoretical and practical part of the education	HR
Revision of the volume of practical training, increasing the volume of theoretical training (55-60%) at the expense of practical training (e.g. 40-45%)	EE
Measuring the training in the number of supervised hours is no longer appropriate. Instead, the competence should be evaluated and measured, and the lengths of the traineeships should depend on the competence of students	FI
Update the syllabus every 3-5 years in line with the education standards	UK
The study period to be prolonged to four years, introducing of a mentorship model: 1 (clinical mentor): 1 (student) in order to ensure a higher level of theoretical and practical knowledge	SI
Clinical training in new scenarios: companies, publishers, engineering	ES
Change the time in clinical hours and include simulation in clinical hours	IS (Training institution) ⁴³⁵
Definition of 'understanding' of clinical training (including simulation)	DE (Nurses association) ⁴³⁶

⁴³⁵ Feedback received via questionnaires during and after the workshop.

⁴³⁶ *Ibid.*

Delete vocational education in the nursing professions	DE (Nurses association) ⁴³⁷
Admission to training for nurses after 12 years	FR (National association representing training institutions - CEFIEC) ⁴³⁸
Adequate clinical experience and not only simulation	FR (National association representing training institutions - CEFIEC) ⁴³⁹
Definition of practical and clinical training, especially regarding simulation	NL (Regulatory body) ⁴⁴⁰
Update the whole Directive and not just article 31.6	HR (Registration authority) ⁴⁴¹
Think how to implement changes in countries	HR (Registration authority) ⁴⁴²
Simulation seems to be currently interpreted in different ways among Member States. This might need a survey and clarification to interpret it in a similar way. Furthermore, we need to look for the evidence to investigate whether in future parts of clinical training could be done in the simulation environment and if the definition of clinical training should then be reformulated in the Directive.	FI (Nurses association) ⁴⁴³

It is worth noting that certain stakeholders did not make any suggestions in relation to the possible amendments to the content of the nursing training programmes, for various reasons. Some stakeholders believed the question went beyond the scope of their competences or because they are not involved in determining the content of the nursing education, some did not have the required scientific expertise or were of the

⁴³⁷ *Ibid.*

⁴³⁸ *Ibid.*

⁴³⁹ *Ibid.*

⁴⁴⁰ *Ibid.*

⁴⁴¹ *Ibid.*

⁴⁴² *Ibid.*

⁴⁴³ *Ibid.*

opinion that if the EU rules and prescribed standards are obeyed, no further updates are required at this point. Finally, some stakeholders did not answer the question regarding possible update suggestions, without stating the reason.

6. Analysis of the findings

6.1. Introduction

In order to take account of (generally acknowledged) scientific and technical progress, the Commission has the delegated power to update the knowledge, skills and training subjects under the Directive to reflect the evolution of Union law affecting nurses responsible for general care.⁴⁴⁴

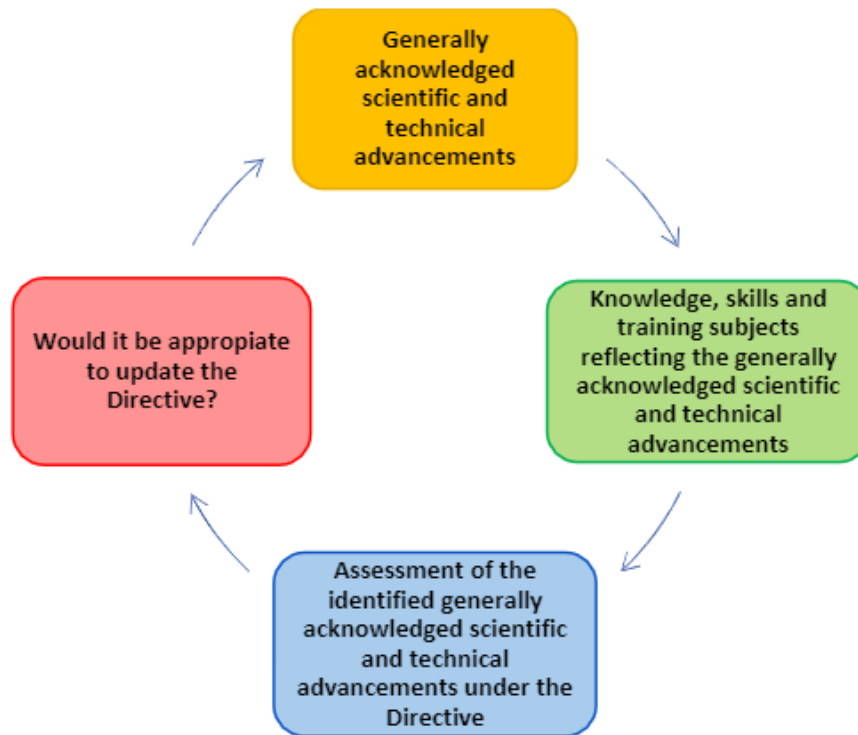
The previous chapters present the knowledge, skills and training subjects that, according to our research (desk research, see Chapter 4 and stakeholder consultation, see Chapter 5), were introduced at national level to cater for scientific and technical progress.

In this context, Section 6.2 aims to assess which of these knowledge, skills and training subjects have been identified in at least 16 countries (meaning that, for the purpose of the Study, they can be considered to reflect generally acknowledged scientific and technical progress). Furthermore, Section 6.3 presents the conclusion of the present chapter.

The outcomes of this current Chapter 6 will help the Study Team to assess in Chapter 7 whether it would be appropriate to update the Directive and what the details of such updates could be in light of the Study results and of the current wording of the Directive.

⁴⁴⁴ Article 21(6) and Article 31(2) of Directive 2005/36/EC, as amended.

Figure 7: Analysis of the findings



Before doing so, the following considerations should be taken into account:

Firstly, as presented in previous chapters, information on the training of nurses responsible for general care across the countries has been collected through desk research (see Chapter 4) and consultation with stakeholders (see Chapter 5). This information, which forms the basis of the present chapter, has previously been presented separately in order to provide a clear picture of the desk research data and the information and views furnished by relevant stakeholders. Nevertheless, it should be noted that for the purpose of this chapter these data will be considered as complementary.

Secondly, in order to ensure the completeness of the data, the information gathered covers different levels (EU/EFTA and national level) and sources (laws, teaching standards, training programmes, etc):

1. Desk Research: the findings of the desk research have identified the knowledge, skills and training subjects required by laws, administrative rules and teaching standards in each of the countries covered by the present study.

2. Stakeholder consultation: stakeholders have reported scientific and technical advancements, knowledge, skills and training subjects through three different ways: 1) Stakeholder questionnaires; 2) Stakeholder workshop and 3) Group of Coordinators for Directive 2005/36/EU.

6.2. Generally acknowledged scientific and technical advancements

In order to assess whether there are grounds for the Commission to adapt the knowledge, skills and training subjects required for nurses responsible for general care, it is crucial to:

1. Assess which of the advancements identified (Section 5.2) can be considered to be generally acknowledged scientific and technical progress.
2. Assess which of the knowledge and skills identified (Section 4.3 and 5.4) can be considered to reflect generally acknowledged scientific and technical progress.
3. Assess which of the training subjects identified (Section 4.4 and 5.5) can be considered to reflect generally acknowledged scientific and technical progress.

In our assessment, we apply the following working definition for ‘*generally acknowledged scientific and technical advancements*’, as developed under Sub-Section 3.3.2.:

Scientific and technical advancements, as well as the knowledge, skills and training subjects introduced as result of those advancements, are considered by the Study to be ‘generally acknowledged’ when they have had an impact on the practice, laws, teaching standards, administrative rules and/or curricula in a majority of countries. Taking into account that the present study covers 32 countries (27 EU Member States, 4 EFTA States and the UK), and taking into account the specific situation of Liechtenstein,⁴⁴⁵ a majority will be obtained when relevant advancements, knowledge, skills and/or training subjects have been noted in at least 16 countries.

⁴⁴⁵ See footnote 31.

6.2.1. Generally acknowledged scientific and technical advancements in the past 5-10 years

During the consultation with stakeholders, they were asked to report on the main scientific and technical advancements affecting the profession of nurse responsible for general care in the last 5-10 years (see Section 5.2). The results of the consultation have revealed that several scientific and technical advancements affecting the profession have taken place.

It should be noted that certain scientific and technical advancements reported by stakeholders are broader than others. Therefore, some of the advancements identified have been grouped within a broader category of advancements, which is illustrated by the table below:

Table 13: Advancements included within a broader category

Advancements	Advancements included within a broader category
Person-centred approach	Personalised care
Nursing care in community settings	Community care; home care; primary healthcare
Patient empowerment	Patient autonomy; self-care; therapeutic education of patients
e-Health	Digitalisation in nursing documentation remote healthcare support; smartphone; computer applications; smart devices
IT in nursing and ICT	Health informatics in general; nursing information systems
Nursing care/ healthcare digital technologies	Care-related devices; monitoring based on technological advancements; technology in medical treatment; other development of digital tools
Simulation scenario	Serious game and 3D virtual techniques; skill laboratories

In line with the previous chapters, the main scientific advancements have been classified within eight categories: nursing theories in general, person-centred care theories, patient safety theories, inter-/ multidisciplinary theories, health promotion theories, management theories applied to nursing, transcultural nursing theories, and Evidence-Based Practice. Moreover, the main technical advancements have been classified within three categories: e-Health, healthcare/nursing methods and technology in nursing education.

The table below presents in how many countries specific scientific and technical advancements have been noted by the stakeholders. These numbers are subsequently used to create a ranking, identifying advancements that can be considered to reflect generally acknowledged scientific and technical progress (i.e. advancements identified in at least 16 countries).

Table 14: Main scientific and technical advancements according to their prominence

White = Desk research and stakeholder questionnaires Blue = Workshop Green = GoC	
SCIENTIFIC PROGRESS	
<i>Nursing theories in general</i>	
Nursing theories and concepts in general	2 countries DE, ES ⁴⁴⁶ EU/EFTA-level stakeholders ⁴⁴⁷
<i>Person-centred care theories</i>	
<u>Person-centred approach</u> - Person-centred approach with regard to elderly people, chronic diseases, multipharmacology/ multimorbidity, etc.	19 countries

⁴⁴⁶ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

⁴⁴⁷ European Federation of Nurses Associations.

<ul style="list-style-type: none"> - Person approach including well-being, humanisation of care and empathy - Personalised care 	<p>15: DK, NL, NO, BE, CH, DE, EL, ES, FR, HR, IE, LU, PL, IS⁴⁴⁸, RO⁴⁴⁹</p> <p>3: EE, ES, UK⁴⁵⁰</p> <p>5: NO, FR, BE, SE, SI</p>
<p><u>Patient empowerment</u></p> <ul style="list-style-type: none"> - Patient empowerment - Patient autonomy - Self-care - Therapeutic education of patients 	<p>11 countries</p> <p>8: BE, NL, DE, FI, FR, IE, EU/EFTA-level stakeholders⁴⁵¹, UK⁴⁵², ES⁴⁵³</p> <p>3: DE, BE, NO, EU/EFTA-level stakeholders⁴⁵⁴</p> <p>5: PT, CH, NL, IE, EU/EFTA-level stakeholders⁴⁵⁵, ES⁴⁵⁶</p> <p>1: BE</p>
<p><u>Nursing care in community settings</u></p> <ul style="list-style-type: none"> - Nursing care in community settings in general 	<p>14 countries</p> <p>13: BE, DK, DE, FI, BG, HR, IE, LU, NL, SE, PT, IS⁴⁵⁷, UK⁴⁵⁸</p>

⁴⁴⁸ Information provided by the Icelandic nurses association via the workshop feedback questionnaire.

⁴⁴⁹ Information provided by the Romanian Ministry of Education and Research via GoC.

⁴⁵⁰ Information provided by the UK regulatory body after the workshop via email.

⁴⁵¹ EU Network of Nurse Regulators, European Federation of Nurses Associations, European Nursing Council.

⁴⁵² Information provided by the UK regulatory body after the workshop via email.

⁴⁵³ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

⁴⁵⁴ EU Network of Nurse Regulators, European Federation of Nurses Associations.

⁴⁵⁵ European Federation of Nurses Associations, European Nursing Council.

⁴⁵⁶ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

⁴⁵⁷ Information provided by the Icelandic nurses association via the workshop feedback questionnaire.

⁴⁵⁸ Information provided by the UK regulatory body after the workshop via email.

- Home care	3: BE, FI, IE
- Primary healthcare	2: BE, ES ⁴⁵⁹
Genetics and Genomics	4 countries PT, ES, SI, UK ⁴⁶⁰
Pharmacogenomics	1 country PT
<i>Patient safety theories</i>	
Safety and quality issues	11 countries LT, SK, DE, LV, BE, DK, IE, IS, SI, 2 EU/EFTA-level stakeholders ⁴⁶¹ , UK ⁴⁶² , ES ⁴⁶³
Risk management	2 countries IT, IE
New methods of monitoring the patient's clinical condition	2 countries LV, RO
Safe management of medicines and prescription	1 country BE, EU/EFTA-level stakeholders ⁴⁶⁴
Recognise vital risk situations	1 country ES ⁴⁶⁵
<i>Inter- /multidisciplinary theories</i>	
Communication and teamwork	5 countries

⁴⁵⁹ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

⁴⁶⁰ Information provided by the UK regulatory body after the workshop via email.

⁴⁶¹ European Federation of Nurses Associations, European Nurse Directors Associations.

⁴⁶² Information provided by the UK regulatory body after the workshop via email.

⁴⁶³ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

⁴⁶⁴ European Federation of Nurses Associations.

⁴⁶⁵ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

	IE, PT, SI, 2 EU/EFTA-level stakeholders ⁴⁶⁶ , UK ⁴⁶⁷ , ES ⁴⁶⁸
Multidisciplinary practice and science	8 countries LT, BE, FI, NL, BE, NO, UK ⁴⁶⁹ , ES ⁴⁷⁰
Interprofessional collaboration	2 countries CH, DK
Co-teaching with students from other health sciences	2 countries EL, SE
Teaching	1 country FR, EU/EFTA-level stakeholders ⁴⁷¹
Peer teaching between professions	1 country SE
Independent and continuing learning	1 country CY, EU/EFTA-level stakeholders ⁴⁷²
Health education methodologies	1 country PT
Health promotion theories	
Health promotion and prevention	9 countries BE, CH, DE, FI, NL, UK, BG, SI, EU/EFTA-level stakeholders ⁴⁷³ , ES ⁴⁷⁴
Management applied to nursing	
Decision-making process, entrepreneurship, leadership	6 countries

⁴⁶⁶ EU Network of Nurse Regulators, European Federation of Nurses Associations.

⁴⁶⁷ Information provided by the UK regulatory body after the workshop via email.

⁴⁶⁸ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

⁴⁶⁹ Information provided by the UK regulatory body after the workshop via email.

⁴⁷⁰ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

⁴⁷¹ EU Network of Nurse Regulators.

⁴⁷² *Ibid.*

⁴⁷³ EU Network of Nurse Regulators, European Federation of Nurses Associations.

⁴⁷⁴ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

	BE, CH, DK, ES, SI, EU/EFTA-level stakeholders ⁴⁷⁵ , UK ⁴⁷⁶
New methods of care management	1 country CH
New methods of medicine management	1 country DK
Dealing with violence	1 country IS
Prescribing independently	EU/EFTA-level stakeholders ⁴⁷⁷
Transcultural nursing theories	
Multicultural care	7 countries BE, IE, IS, SI, SK, UK ⁴⁷⁸
Intercultural approach	LT, BE
Evidence-Based Practice	
Evidence-Based Nursing	21 countries BE, HR, PT, SK, DE, DK, FI, FR, IS, NO, CH, CY, CZ, HU, IT, LV, NL, SE, SI, EU/EFTA-level stakeholders ⁴⁷⁹ , RO ⁴⁸⁰ , UK ⁴⁸¹
Nursing research / science	15 countries HR, LT, PT, BE, CZ, DE, FI, IS, MT, SE, CH, CY, DK, NL, EU/EFTA-level stakeholder ⁴⁸² , UK ⁴⁸³
Nursing documentation	2 countries SK, ES
Clinical reasoning	3 countries

⁴⁷⁵ EU Network of Nurse Regulators, European Federation of Nurses Associations, European Nursing Council.

⁴⁷⁶ Information provided by the UK regulatory body after the workshop via email.

⁴⁷⁷ EU Network of Nurse Regulators.

⁴⁷⁸ Information provided by the UK regulatory body after the workshop via email.

⁴⁷⁹ European Federation of Educators in Nursing Science, European Federation of Nurses Associations.

⁴⁸⁰ Information provided by the Romanian Ministry of Education and Research via GoC.

⁴⁸¹ Information provided by the UK regulatory body after the workshop via email.

⁴⁸² European Federation of Educators in Nursing Science.

⁴⁸³ Information provided by the UK regulatory body after the workshop via email.

	BE, UK ⁴⁸⁴ , ES ⁴⁸⁵
Decision-making support systems	1 country PT
Systematised and approved routines and procedures	1 country NO
Standardised nursing terminology	1 country RO
Base nursing interventions on scientific evidence	1 country ES ⁴⁸⁶
TECHNICAL PROGRESS	
<i>e-Health</i>	
<u>e-Health</u> - e-Health in general	16 countries 14: EL, FI, NL, BE, DK, EE, FR, LT, NO, SE, EU/EFTA-level stakeholders ⁴⁸⁷ , IS ⁴⁸⁸ , AT ⁴⁸⁹ , UK ⁴⁹⁰ , ES ⁴⁹¹
- Smartphone/ computer applications; smart technology, smart devices	5: AT, ES, PT, IE, IS
<i>Electronic medical records systems</i>	
Digitalisation in nursing documentation	14: BE, LV, NO, UK, CY, DK, ES, IE, LT, LU, PL, PT, RO, EU/EFTA-level stakeholder ⁴⁹² , IS ⁴⁹³
<i>Electronic communication with patients and professionals</i>	
Telehealth/ telecare	10 countries

⁴⁸⁴ Information provided by the UK regulatory body after the workshop via email.

⁴⁸⁵ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

⁴⁸⁶ *Ibid.* Furthermore, this information was also provided by the Spanish Ministry of Health, Consumer affairs and Social welfare via GoC.

⁴⁸⁷ European Federation of Educators in Nursing Science, European Federation of Nurses Associations.

⁴⁸⁸ Information provided by the Icelandic nurses association via the workshop feedback questionnaire.

⁴⁸⁹ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

⁴⁹⁰ Information provided by the UK regulatory body after the workshop via email.

⁴⁹¹ Information provided by the Spanish Ministry of Health, Consumer affairs and Social welfare via GoC.

⁴⁹² European Nursing Council.

⁴⁹³ Information provided by the Icelandic nurses association via the workshop feedback questionnaire.

	LV, CH, DK, FR, IT, PT, NO, IE, PL, UK ⁴⁹⁴
Remote healthcare support	1 country PT
<i>Nursing informatics</i>	
<u>Information Technology</u> - Information Technology (IT) in nursing - Information Communications Technology (ICT) - Nursing information systems	13 countries 6: LT, CZ, MT, PL, SE, EL 8: NL, BE, LV, PT, UK, HR, PL, EU/EFTA-level stakeholders ⁴⁹⁵ , ES ⁴⁹⁶ 2: BE, PT, EU/EFTA-level stakeholders ⁴⁹⁷
<i>Information governance</i>	
N/A	
<i>Biometrics</i>	
N/A	
<i>Healthcare/nursing methods</i>	
<i>Internet of Things</i>	
N/A	
<i>New methods of treatment, new devices, equipment</i>	
Care equipment in hospitals and other nursing settings	8 countries BE, DK, NL, MT, HU, NO, PL, PT
Nursing care/ healthcare digital technologies	8 countries NO, PT, FR, BE, EE, ES, SI, UK ⁴⁹⁸
Diagnostics technologies	6 countries

⁴⁹⁴ Information provided by the UK regulatory body after the workshop via email.

⁴⁹⁵ European Federation of Nurses Associations, European Nursing Council.

⁴⁹⁶ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

⁴⁹⁷ EU Network of Nurse Regulators, European Federation of Nurses Associations.

⁴⁹⁸ Information provided by the UK regulatory body after the workshop via email.

	PT, UK, IE, IT, PL, RO, EU/EFTA-level stakeholder ⁴⁹⁹
Less invasive and non-invasive procedures	6 countries NO, FR, LT, HR, IE, EU/EFTA-level stakeholder ⁵⁰⁰ , UK ⁵⁰¹
Wound treatment	5 countries PT, SK, BE, HU, UK ⁵⁰²
Nurse prescribing tools	4 countries DE, IE, PL, EU/EFTA-level stakeholders ⁵⁰³ , UK ⁵⁰⁴
Surgical techniques	4 countries PT, LT, IE, EU/EFTA-level stakeholder ⁵⁰⁵ , UK ⁵⁰⁶
Artificial Intelligence	3 countries LT, PT, BE
Robotics	3 countries PT, BE, IT
Medical treatments	4 countries LU, PL, IS, UK ⁵⁰⁷
Technology in medical treatment	1 country IS
New tools for work ergonomics and safety at work	1 country DE, EU/EFTA-level stakeholders ⁵⁰⁸
Monitoring based on technological advancements	1 country IS

⁴⁹⁹ European Specialist Nurses Organisations.

⁵⁰⁰ *Ibid.*

⁵⁰¹ Information provided by the UK regulatory body after the workshop via email.

⁵⁰² *Ibid.*

⁵⁰³ EU Network of Nurse Regulators, European Federation of Nurses Associations.

⁵⁰⁴ Information provided by the UK regulatory body after the workshop via email.

⁵⁰⁵ European Specialist Nurses Organisations.

⁵⁰⁶ Information provided by the UK regulatory body after the workshop via email.

⁵⁰⁷ *Ibid.*

⁵⁰⁸ EU Network of Nurse Regulators, European Federation of Nurses Associations.

Care related devices	1 country LV
Digital devices	1 country BE, EU/EFTA-level stakeholders ⁵⁰⁹
Development of digital tools	EU/EFTA-level stakeholders ⁵¹⁰
New techniques for elderly care and dementia	EU/EFTA-level stakeholders ⁵¹¹
Technology in nursing education	
e-learning	
Online learning techniques	7 countries BE, AT, DE, LV, LT, SI, EU/EFTA-level stakeholders ⁵¹² , UK ⁵¹³
Online documentation	EU/EFTA-level stakeholders ⁵¹⁴
Simulation	
Simulation scenarios	10 countries BE, PT, SE, EE, LU, NO, EU/EFTA-level stakeholder ⁵¹⁵ , HU ⁵¹⁶ , LT ⁵¹⁷ , UK ⁵¹⁸ , IE ⁵¹⁹
Skill laboratories	1 country DE, EU/EFTA-level stakeholders ⁵²⁰
Serious game and 3D virtual techniques	EU/EFTA-level stakeholders ⁵²¹
3D Printing	

⁵⁰⁹ European Federation of Educators in Nursing Science.

⁵¹⁰ *Ibid.*

⁵¹¹ European Nurse Directors Associations.

⁵¹² EU Network of Nurse Regulators, European Nurse Directors Associations.

⁵¹³ Information provided by the UK regulatory body after the workshop via email.

⁵¹⁴ European Nurse Directors Associations.

⁵¹⁵ European Federation of Educators in Nursing Science.

⁵¹⁶ Information provided by the Hungarian training institution via the workshop feedback questionnaire.

⁵¹⁷ Information provided by the Lithuanian training institution via the workshop feedback questionnaire.

⁵¹⁸ Information provided by the UK regulatory body after the workshop via email.

⁵¹⁹ Information provided by the Nursing Midwifery Board of Ireland via GoC.

⁵²⁰ EU Network of Nurse Regulators.

⁵²¹ European Federation of Educators in Nursing Science.

N/A	
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As can be observed in the table above, stakeholders have identified several scientific and technical advancements. The following figure presents the number of countries in which the main advancements have been noted:

Figure 8: Main scientific and technical advancements according to their prominence



6.2.2. Knowledge and skills reflecting generally acknowledged scientific and technical advancements

This sub-section analyses whether the knowledge and skills identified under this Study (Sections 4.3 and 5.4) can be considered to reflect generally acknowledged scientific and technical progress. In particular, knowledge and skills will be considered to reflect generally acknowledged scientific and technical progress when they have been noted in a majority of countries, hence in at least 16 countries.

It should be recalled that countries are obliged to reflect in their national curricula the minimum knowledge and skills covered under the Directive. However, countries can also add additional knowledge and skills going beyond this minimum.

In relation to the information gathered through the desk research,⁵²² it should be noted that the findings reveal that the knowledge and skills required for nursing training are usually drafted very differently among the countries. Moreover, sometimes the descriptions of certain knowledge and skills are particularly long). On the other hand, with regard to the information gathered through stakeholder consultation, it should be mentioned that stakeholders have generally indicated the topics in relation to which knowledge and skills to cater for scientific and technical progress have been introduced, but they have not included the literal wording of the knowledge and skills. Taking these issues into account, in order for the Study Team to perform a comparative analysis of the findings of the desk research and stakeholder consultation among the countries, it was necessary to identify the topics to which the knowledge and skills identified relate, in order to classify and analyse them.

The table below specifies in how many countries knowledge and skills have been identified, with the aim of identifying which knowledge and skills have been noted in at least 16 countries and therefore, can be considered to reflect generally acknowledged scientific and technical progress.

Table 15: Knowledge and skills according to their prominence

SCIENTIFIC PROGRESS	
Advancements	Knowledge and skills introduced
<i>Nursing theories in general</i>	
Theoretical models	1 country <ul style="list-style-type: none"> ▪ The evolution of the central concepts that make up the nursing discipline, as well as the most relevant theoretical models (ES⁵²³)

White = Desk research and stakeholder questionnaires
 Blue = Workshop
 Green = GoC

⁵²² The findings of the desk research identify the knowledge and skills required by laws, administrative rules and teaching standards in the countries.

⁵²³ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

Person-centred care theories	
<p><u>Person-centred approach</u></p> <ul style="list-style-type: none"> - Person-centred approach regarding elderly people, chronic diseases, multipharmacology/ multimorbidity - Whole patient approach including well-being, humanisation of care, empathy - Personalised care 	<p>6 countries</p> <ul style="list-style-type: none"> ▪ Person-centred care (SE, IE, ES⁵²⁴) ▪ Implementation of individual approach (BG) ▪ Demonstrate the ability to accurately process all information gathered during the assessment process to identify needs for individualised nursing care (UK) ▪ Management of patients with multiple chronic conditions and integrated care models (IT)
<p><u>Patient empowerment</u></p> <ul style="list-style-type: none"> - Patient autonomy - Self-care/ Self-management - Therapeutic education of patients 	<p>10 countries</p> <ul style="list-style-type: none"> ▪ Patient education / counselling / skills in relation to empowering individuals, families and groups towards healthy lifestyles / self-care (DE, FI, PT, RO, EU/EFTA-level stakeholders⁵²⁵, UK⁵²⁶, ES⁵²⁷) ▪ Independently providing advice, instructing and supporting persons needing care / patient coaching / guidance / teaching (DE, FI, FR, PT, RO, SE, SI, EU/EFTA-level stakeholders⁵²⁸, ES⁵²⁹) ▪ Create Nursing plan and Educational program for a patient (LT)
<p><u>Nursing care in community settings</u></p> <ul style="list-style-type: none"> - Nursing care in community settings - Home care - Primary healthcare 	<p>9 countries</p> <ul style="list-style-type: none"> ▪ Nursing in other settings (including community care) (BE, SK, DE, PT, EL, SI, LT, UK⁵³⁰) ▪ Primary healthcare (BE, DE, PT, EL, ES⁵³¹)

⁵²⁴ *Ibid.*

⁵²⁵ EU Network of Nurse Regulators, European Federation of Nurses Associations.

⁵²⁶ Information provided by the UK regulatory body after the workshop via email.

⁵²⁷ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

⁵²⁸ EU Network of Nurse Regulators, European Federation of Nurses Associations.

⁵²⁹ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

⁵³⁰ Information provided by the UK regulatory body after the workshop via email.

⁵³¹ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

Genetics and Genomics	<p>1 country</p> <ul style="list-style-type: none"> ▪ Demonstrate knowledge of genomics (UK)
Other knowledge and skills	<p>8 countries</p> <ul style="list-style-type: none"> ▪ Analysis of human condition (BG) ▪ Implementation of individual approach (BG) ▪ Assessment expertise (NO, RO) ▪ Management of patients with multiple chronic conditions and integrated care models (IT) ▪ Create Nursing plan and Educational program for a patient (LT, ES⁵³²) ▪ Nursing in developmental transitions (PT) ▪ Skills as patient advocates and consultants (CZ)
Patient safety theories	
Safety and quality issues	<p>14 countries</p> <ul style="list-style-type: none"> ▪ Act and react quickly, safely and flexibly in routine situations (AT) ▪ Ability to initiate methodological improvements and quality assurance (IE) ▪ Patient safety / safe care / risk assessment in relation to the patient safety (DK, FI, IS, LT, LV, SE, SK, IE, UK⁵³³, ES⁵³⁴) ▪ Ensuring quality of nursing care / evaluating and analysing in view to improve the professional practice (BE, DE, FI, LT, RO, SE, EU/EFTA-level stakeholder⁵³⁵, ES⁵³⁶) ▪ Recognise vital risk situations (ES⁵³⁷)

⁵³² *Ibid.*

⁵³³ Information provided by the UK regulatory body after the workshop via email.

⁵³⁴ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

⁵³⁵ European Nursing Student Association.

⁵³⁶ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

⁵³⁷ *Ibid.*

Inter- /multidisciplinary theories	
Communication and teamwork	<p>21 countries</p> <ul style="list-style-type: none"> ▪ Communication and teamwork (UK, SI, ES⁵³⁸) ▪ Communication skills/ Interprofessional communication/ Socio-communicative skills/ situational communication / in cross professional communications and coordination (AT, DK, FI, LU, LV, RO, SE, SK, LT, HR, CH, FR, IS, PT, SI, BG, EU/EFTA-level stakeholders⁵³⁹, ES⁵⁴⁰) ▪ Solving interpersonal conflicts (CZ) ▪ Situation, Background, Assessment, recommendation (SBAR) - communication (communication model) (SK) ▪ Working together effectively with other actors in the health sector (DE, FI, ES⁵⁴¹)
Multidisciplinary practice and science	<p>2 countries</p> <ul style="list-style-type: none"> ▪ Have an integrative attitude and an integrative understanding and can think and act across disciplines, linking various elements (AT) ▪ Multidisciplinary practice and science (UK⁵⁴²)
Inter-/ multidisciplinary in training	<p>3 countries</p> <ul style="list-style-type: none"> ▪ More practical training with other health professionals / cross-professional training / Team training (SE, NO, EU/EFTA-level stakeholder⁵⁴³)

⁵³⁸ *Ibid.* Furthermore, this information was also provided by the Spanish Ministry of Health, Consumer affairs and Social welfare via GoC.

⁵³⁹ EU Network of Nurse Regulators, European Federation of Nurses Associations.

⁵⁴⁰ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

⁵⁴¹ *Ibid.*

⁵⁴² Information provided by the UK regulatory body after the workshop via email.

⁵⁴³ European Federation of Nurses Associations.

	<ul style="list-style-type: none"> ▪ Co-teaching with students from other health sciences (EL, SE) ▪ Peer-teaching between professions (SE)
Health promotion theories	
Health promotion and prevention	<p>5 countries</p> <ul style="list-style-type: none"> ▪ Demonstrate knowledge of epidemiology (UK) ▪ Health promotion / prevention (NL, SE, SI, UK⁵⁴⁴) ▪ Promote healthy lifestyles (ES⁵⁴⁵)
Management applied to nursing	
Decision-making process, entrepreneurship, leadership	<p>19 countries</p> <ul style="list-style-type: none"> ▪ Maintain competence to develop and enhance the capacity for leadership (IE) ▪ Leading teams / delegating tasks / improved competences in clinical leadership (CH, CZ, DK, FR, IS, LT, LV, NO, PT, SE) ▪ Recognise one's own professional and personal possibilities and limits, and to apply personally effective coping strategies when strained (AT) ▪ Be aware of one's own role in the context of professional development and actively contribute to the further development of the profession (AT) ▪ Professional identity and visibility / autonomy and independent nurse role (LU) ▪ Emergency management / carrying out measures in crises and disaster situations (AT, DE, EL, FI, PT, RO, HU, EU/EFTA-level stakeholders⁵⁴⁶) ▪ Decision-making process, entrepreneurship, leadership (UK⁵⁴⁷)

⁵⁴⁴ Information provided by the UK regulatory body after the workshop via email.

⁵⁴⁵ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

⁵⁴⁶ European Nurses Directors Association, European Federation of Educators in Nursing Science.

⁵⁴⁷ Information provided by the UK regulatory body after the workshop via email.

	<ul style="list-style-type: none"> ▪ Clinical management, care management (ES⁵⁴⁸) ▪ Group management techniques (ES⁵⁴⁹) ▪ Managerial function of nursing services (ES⁵⁵⁰) ▪ Establish evaluation mechanisms (ES⁵⁵¹)
Transcultural nursing theories	
Multicultural care	<p>6 countries</p> <ul style="list-style-type: none"> ▪ Care provision in the multicultural environment / raising awareness of cultural environment / transcultural nursing (EL, ES, LT, PT, SE, EU/EFTA-level stakeholder⁵⁵², UK⁵⁵³)
Evidence-Based Practice	
Nursing research/ science	<p>8 countries</p> <ul style="list-style-type: none"> ▪ Nursing science (EU/EFTA-level stakeholder⁵⁵⁴) ▪ Scientific theory / research methodology (DK, EL, LT, PT, SE) ▪ Research in nursing science (ES, LU, UK⁵⁵⁵)
Evidence-Based Nursing	<p>14 countries</p> <ul style="list-style-type: none"> ▪ Apply evidence from an appraisal of research studies relevant to the division of nursing to the practice of nursing (IE) ▪ Evidence-Based Practice/ Evidence-Based Nursing (BE, DK, IS, LT, LU, SE, SI, SK, EU/EFTA-level stakeholders⁵⁵⁶, UK⁵⁵⁷)

⁵⁴⁸ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

⁵⁴⁹ *Ibid.*

⁵⁵⁰ *Ibid.*

⁵⁵¹ *Ibid.*

⁵⁵² European Nurse Directors Association.

⁵⁵³ Information provided by the UK regulatory body after the workshop via email.

⁵⁵⁴ European Federation of Educators in Nursing Science.

⁵⁵⁵ Information provided by the UK regulatory body after the workshop via email.

⁵⁵⁶ European Nurses Directors Association, European Nursing Council.

⁵⁵⁷ Information provided by the UK regulatory body after the workshop via email.

	<ul style="list-style-type: none"> ▪ Skills-based and scientific data-based approach (CH) ▪ Use of validated scales (BE) ▪ Evidence-Based Nursing, searching in databases (IT) ▪ To contribute to the social development and profiling of the profession through vision development, substantiation and implementation of nursing practice on the basis of Evidence-Based Practice (NL) ▪ Develop person-centred evidence-based plans for nursing interventions with agreed goals (UK) ▪ Use of evidence-based data (CH) ▪ Base nursing interventions on scientific evidence (ES⁵⁵⁸)
Clinical reasoning	<p>9 countries</p> <ul style="list-style-type: none"> ▪ Critical questioning and decision-making skills (IE) ▪ Personally effective learning and work strategies using different problem solving, decision making and creativity techniques (AT) ▪ Reflect on occupational and care situations conceptually and theoretically, draw conclusions for further professional action; independently make informed decisions and responsibly represent their own decisions externally (AT) ▪ Critical thinking (LT, LU, LV, UK⁵⁵⁹, ES⁵⁶⁰) ▪ Clinical judgement (ES⁵⁶¹) ▪ Apply nursing model to real clinical case (LT)

⁵⁵⁸ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

⁵⁵⁹ Information provided by the UK regulatory body after the workshop via email.

⁵⁶⁰ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

⁵⁶¹ *Ibid.*

	<ul style="list-style-type: none"> ▪ Problem-solving ability (PT) ▪ Reorganisation of clinical practice to reflect population needs (e.g. healthy ageing, palliative care, additional clinical placement as an elective subject) (EL) ▪ Assess the psychosocial requirements of the respective field of action and thus handle it constructively (AT) ▪ Demonstrate knowledge of the wider determinants of health, illness and wellbeing and apply this to an understanding of global patterns of health and wellbeing outcomes (UK) ▪ Analyse data collected in an assessment, prioritise the adult patient's problems, establish and execute the care plan and carry out its assessment (ES⁵⁶²)
TECHNICAL PROGRESS	
Advancements	Knowledge and skills
<i>e-Health</i>	
e-Health in general	5 countries e-Health in general (EE, LT, IE, EU/EFTA-level stakeholder ⁵⁶³ , UK ⁵⁶⁴ , AT ⁵⁶⁵)
<i>Electronic medical records systems</i>	
Digitalisation in nursing documentation	7 countries <ul style="list-style-type: none"> ▪ Use of the computerised patient file (CH) ▪ Electronic report (DK, FI) ▪ Management of the patient's folder (FR) ▪ Use of database / knowledge management and databases (ES, FI, SE)

⁵⁶² *Ibid.*

⁵⁶³ European Federation of Educators in Nursing Science.

⁵⁶⁴ Information provided by the UK nurses association via the workshop feedback questionnaire.

⁵⁶⁵ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

	<ul style="list-style-type: none"> ▪ Digitalisation in nursing documentation (UK⁵⁶⁶)
Electronic communication with patients and professionals	
Telehealth/ telecare	3 countries <ul style="list-style-type: none"> ▪ Telemedicine / telenursing (IT, SK, UK⁵⁶⁷)
Nursing informatics	
IT in nursing, ICT and health informatics	7 countries <ul style="list-style-type: none"> ▪ Informatic technologies (IT) ▪ Nursing informatics (FI, EU/EFTA-level stakeholder⁵⁶⁸, UK⁵⁶⁹) ▪ New information techniques (FR) ▪ Project to digitalise care procedures (BE) ▪ Effectively and responsibly use a range of digital technologies to access, input, share and apply information and data within teams and between agencies (UK) ▪ Knowledge about the e-Health information system (i.e. to know the safety regulations of devices used in learning and professional environment; to know the necessary medical equipment used in professional work; and to be familiar with different e-Health information systems) (EE) ▪ Health care information and communication technologies and systems (ES⁵⁷⁰)
Information governance	
Information governance	1 country <ul style="list-style-type: none"> ▪ Data safety, reporting and learning systems (LV)
Biometrics	
N/A	

⁵⁶⁶ Information provided by the UK regulatory body after the workshop via email.

⁵⁶⁷ *Ibid.*

⁵⁶⁸ European Nursing Council.

⁵⁶⁹ Information provided by the UK regulatory body after the workshop via email.

⁵⁷⁰ Competences that Spanish training institutions must respect when drafting their curricula (Orden CIN/2134/2008).

Healthcare/nursing methods	
Internet of things	
N/A	
New methods of treatment, new devices, equipment	
Wound treatment	1 country <ul style="list-style-type: none"> ▪ Wound treatment (UK⁵⁷¹)
Less invasive and non-invasive procedures	2 countries <ul style="list-style-type: none"> ▪ Technical advancement in surgical techniques including advancement of less invasive techniques and procedures (IE) ▪ Less invasive and non-invasive procedures (UK⁵⁷²)
Surgical techniques	2 countries <ul style="list-style-type: none"> ▪ Technical advancement in surgical techniques including advancement of less invasive techniques and procedures (IE) ▪ Surgical techniques (UK⁵⁷³)
Artificial Intelligence	N/A
Robotics	N/A
Nursing care/ healthcare digital technologies	15 countries <ul style="list-style-type: none"> ▪ Technology in patient care (HU) ▪ Digitalisation/ Digital skills in healthcare (SI, LV, CH) ▪ Innovation and service development and technology (NO, DK, ES, IS, IT, LU, LV, PT, SK) ▪ Knowledge about the technological tools used in healthcare (EE) ▪ Development of technology and different digital tools (CH, NL) ▪ Nursing care and digital technologies (UK⁵⁷⁴)
Medical treatments	1 country

⁵⁷¹ Information provided by the UK regulatory body after the workshop via email.

⁵⁷² *Ibid.*

⁵⁷³ *Ibid.*

⁵⁷⁴ *Ibid.*

	<ul style="list-style-type: none"> Independently handle technologies in the execution and development of care and treatment (DK)
Care equipment in hospitals and other nursing settings	N/A
Diagnostics technologies	<p>2 countries</p> <ul style="list-style-type: none"> Technical advancement in diagnostic techniques (IE) Diagnostics technologies (UK⁵⁷⁵)
New techniques for elderly care and dementia	N/A
Nurse prescribing tools	<p>1 country</p> <ul style="list-style-type: none"> Nurse prescribing tools (UK⁵⁷⁶)
Technology in nursing education	
e-learning	
Online learning techniques	<p>3 countries</p> <ul style="list-style-type: none"> Learning platform (AT) Interactive learning and testing methods (EE) Online learning techniques (UK⁵⁷⁷)
Simulation	
Simulation scenarios	<p>13 countries</p> <ul style="list-style-type: none"> Use of simulation techniques (CH) Simulation training/ Acquisition of practical skills is held in modern simulation centres equipped with high-technology tools/ Scenario training / Simulations in the nursing education/ Simulation used as a strategic tool for improving clinical and technical skills/ Training with high-fidelity mannequin (BE, ES, FR, IS, LV, NO, SE, SI, EE, LU, HU; UK⁵⁷⁸)

⁵⁷⁵ Ibid.

⁵⁷⁶ Ibid.

⁵⁷⁷ Ibid.

⁵⁷⁸ Ibid.

3D Printing	
N/A	

The following figure presents the topics or areas in relation to which knowledge and skills to cater for scientific and technical progress have been introduced and in how many countries they have been noted:

Figure 9: Knowledge and skills according to their prominence



6.2.3. Training subjects reflecting generally acknowledged scientific and technical progress

This sub-section analyses whether the training subjects identified under this Study (Section 4.4 and 5.5) can be considered to reflect generally acknowledged scientific

and technical progress. To do so, the table below specifies in how many countries training subjects have been identified, with the aim of identifying which training subjects have been noted in at least 16 countries.

Table 16: Training subjects according to their prominence

White = Desk research and stakeholder questionnaires
Blue = Workshop
Green = GoC

SCIENTIFIC PROGRESS	
Advancements	Training subjects
<i>Nursing theories in general</i>	
Nursing theories and concepts in general	<p>3 countries</p> <ul style="list-style-type: none"> ▪ Development of nursing theory (PT) ▪ Nursing models (LT) ▪ Introduction to scientific study (AT⁵⁷⁹) ▪ Scientific writing (AT⁵⁸⁰)
<i>Person-centred care theories</i>	
<p><u>Person-centred approach</u></p> <ul style="list-style-type: none"> - Person-centred approach regarding elderly people, chronic diseases, multipharmacology/multimorbidity - Whole patient approach including well-being, humanisation of care, empathy - Personalised care 	<p>12 countries</p> <ul style="list-style-type: none"> ▪ Patient-centred care (UK) ▪ Person-centred care (IE, SE) ▪ Family-centred care (CH) ▪ Patient's needs and the nursing process (SK) ▪ Nursing process and human needs (CZ) ▪ Medical humanities (IT) ▪ Nursing care with persons and children with disabilities (HR) ▪ Ageing (PT) ▪ Obesity (PT) ▪ Addictology (HU) ▪ Drug addiction (PT) ▪ HIV/AIDS (PT) ▪ Rehabilitation and nursing of the disabled (PL) ▪ Special nursing care for people with long term illness (IS)

⁵⁷⁹ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

⁵⁸⁰ *Ibid.*

	<ul style="list-style-type: none"> ▪ Chronicity and long-term care planning (CH) ▪ Chronic illness trajectory (IE) ▪ Chronic diseases (PT) ▪ Gender issues (PT)
<p><u>Patient empowerment</u></p> <ul style="list-style-type: none"> - Patient autonomy - Self-care/ Self-management - Therapeutic education of patients 	<p>7 countries</p> <ul style="list-style-type: none"> ▪ Empower individuals, families and groups towards healthy lifestyles (EU/EFTA-level stakeholders⁵⁸¹) ▪ Empowerment (IE) ▪ Empowering patients and relatives in relation to self-care (MT) ▪ Independently give advice to, instruct and support persons needing care (coaching) (EU/EFTA-level stakeholders⁵⁸²) ▪ Clinical education of patients and their relatives (LT) ▪ Guidance and teaching (SE) ▪ Community and Family Nursing Clinical training (LT) ▪ Health, Family and Community (PT) ▪ Self-care (EU/EFTA-level stakeholders⁵⁸³) ▪ Guidance and teaching skills and support for self-care (FI) ▪ Self-management (IE) ▪ Self-care deficit and family carers (PT) ▪ Self-efficacy (SE) ▪ Self-management of chronic illness and therapeutic regimens (PT) ▪ Management of therapeutic self-care (PT) ▪ Basics and methods of counselling (AT⁵⁸⁴)

⁵⁸¹ European Network of Nurses Regulators and European Federation of Nurses Associations.

⁵⁸² *Ibid.*

⁵⁸³ *Ibid.*

⁵⁸⁴ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

<p><u>Nursing care in community settings</u></p> <ul style="list-style-type: none"> - Home care - Primary healthcare 	<p>17 countries</p> <ul style="list-style-type: none"> ▪ Community care (CZ, IE, SE, ES⁵⁸⁵) ▪ Nursing in the community/primary healthcare (EL, MT) ▪ Community health approach (FR) ▪ Community nursing theory (HU) ▪ Community health nursing, including School nursing (IS) ▪ Community nursing (IT, SK, SI) ▪ Home care and therapeutic education (CH) ▪ Nursing care in patient's home (1 EU/EFTA-level stakeholder⁵⁸⁶) ▪ Home care (AT) ▪ Nursing home care (BE, CH) ▪ Home nursing (HR, RO) ▪ Home and family care (SE) ▪ Complementary care (AT⁵⁸⁷)
<p>Genetics and genomics</p>	<p>5 countries</p> <ul style="list-style-type: none"> ▪ Genetics (BE, EL, IE, IT, UK)
<p><i>Patient safety theories</i></p>	
<p>Safety and quality issues</p>	<p>12 countries</p> <ul style="list-style-type: none"> ▪ Risk management / patient safety (DK) ▪ Patient and Consumer safety (FI) ▪ Culture of safety (IE) ▪ Patient safety (IS, SK) ▪ Patient safety and nursing quality (LT) ▪ Safe care (patient safety) (SE)

⁵⁸⁵ This information was provided by stakeholders via questionnaires and by the Spanish Ministry of Health, Consumer affairs and Social welfare via GoC.

⁵⁸⁶ European Nursing Council.

⁵⁸⁷ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

	<ul style="list-style-type: none"> ▪ Analyse the care quality to improve the own professional practice (EU/EFTA-level stakeholders⁵⁸⁸) ▪ Independently assure quality of nursing care (EU/EFTA-level stakeholders⁵⁸⁹) ▪ Quality (BE, CH) ▪ Quality assurance (FI, NL) ▪ Quality, entrepreneurial and innovation methods (DK) ▪ Risk management and quality (FR) ▪ Quality improvement (IE, SE) ▪ Quality and safety of nursing care (SK) ▪ Nursing tools for patient safety and clinical nursing (FI) ▪ Auditing (IE) ▪ Monitoring (AT⁵⁹⁰)
Inter- /multidisciplinary theories	
Communication and teamwork	<p>10 countries</p> <ul style="list-style-type: none"> ▪ Team & collaboration (SE) ▪ Communication skills (EL, HR, EU/EFTA-level stakeholder⁵⁹¹) ▪ Communication (AT, FI, SE, SK) ▪ Professional communication (BE) ▪ Communication in Nursing (CZ) ▪ Collaboration and communication (IS) ▪ Therapeutic Communication and Helping Relations in Nursing (PT) ▪ Comprehensively communicate professionally (EU/EFTA-level stakeholders⁵⁹²)

⁵⁸⁸ European Network of Nurses Regulators and European Federation of Nurses Associations.

⁵⁸⁹ *Ibid.*

⁵⁹⁰ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

⁵⁹¹ European Nursing Council.

⁵⁹² European Network of Nurses Regulators and European Federation of Nurses Associations.

	<ul style="list-style-type: none"> ▪ Basics of communication and conflict resolution (AT⁵⁹³)
Multidisciplinary practice and science	<p>11 countries</p> <ul style="list-style-type: none"> ▪ Multiprofessionalism (FI, AT⁵⁹⁴) ▪ Interdisciplinary cooperation in health sciences (IS) ▪ Health ecology (LT) ▪ Climate changes (PT) ▪ Sustainable development (SE) ▪ Interprofessionality (CZ) ▪ Work effectively with other actors/professionals in the health sector (EU/EFTA-level stakeholders⁵⁹⁵) ▪ Interprofessional collaboration (CH, SI) ▪ Interprofessional elements (DK) ▪ Interprofessionalism / work organisation and interprofessional cooperation (FR) ▪ Delegation to other healthcare professionals (EU/EFTA-level stakeholder⁵⁹⁶)
Health promotion theories	
Health promotion and prevention	<p>12 countries</p> <ul style="list-style-type: none"> ▪ Health promotion (BE, EL, FI, IE, IT, EU/EFTA-level stakeholder⁵⁹⁷) ▪ Methods of health education and promotion (HR) ▪ Public health, health promotion and education (LU) ▪ Promotion of mental health (PL) ▪ Health promotion and prevention (SE, AT⁵⁹⁸)

⁵⁹³ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

⁵⁹⁴ *Ibid.*

⁵⁹⁵ European Network of Nurses Regulators and European Federation of Nurses Associations.

⁵⁹⁶ European Nurse Directors Association.

⁵⁹⁷ European Nursing Student Association.

⁵⁹⁸ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

	<ul style="list-style-type: none"> ▪ Didactics of health education (SI) ▪ Methodology of health education and health promotion (SI) ▪ Infection prevention and control (EU/EFTA-level stakeholder⁵⁹⁹) ▪ Epidemiology (IT) ▪ Fundamental epidemiology and preventive medicine (LT) ▪ Nosocomial infections (PL)
Management applied to nursing	
Decision-making process, entrepreneurship, leadership	<p>7 countries</p> <ul style="list-style-type: none"> ▪ Decision-making and documentation in nursing (FI) ▪ Decision-making (EU/EFTA-level stakeholder⁶⁰⁰) ▪ Clinical decision making in nursing simulation (LT) ▪ Clinical decision-making (SE) ▪ Leadership (BE, IE, NO, SE) ▪ Organisation and leadership (CH) ▪ Leadership and employee competence (FI) ▪ Leadership in nursing (LT)
Management	<p>17 countries</p> <ul style="list-style-type: none"> ▪ Management of patient path (FR) ▪ Patient management (HU) ▪ Stress management (LV, PT) ▪ Health management (PT) ▪ Delegation to other healthcare professionals (1 EU/EFTA-level stakeholder⁶⁰¹) ▪ Management skills (EU/EFTA-level stakeholder⁶⁰²)

⁵⁹⁹ European Nursing Student Association.

⁶⁰⁰ European Federation of Educators in Nursing Science.

⁶⁰¹ European Nurse Directors Association.

⁶⁰² European Nursing Council.

	<ul style="list-style-type: none"> ▪ Project management (BE, AT⁶⁰³) ▪ Case and care management (AT⁶⁰⁴) ▪ De-escalation management (AT⁶⁰⁵) ▪ Wound management (AT⁶⁰⁶) ▪ Nursing management (CZ) ▪ Supervision of care professionals (FR) ▪ Organisation of nursing practice and innovation (LT) ▪ Management (MT) ▪ Management in nursing (SK) ▪ Organisation and management in nursing (SI) ▪ Supervision in nursing (SI) ▪ Behaviour of nurse in emergency cases (BG) ▪ Emergency nursing (IS) ▪ Emergency and intensive care (LU) ▪ Basics of emergency medical service (PL) ▪ Emergency and disaster (PT) ▪ Critical care nursing (SI) ▪ Solving complex care problems (CH) ▪ Prevention of aggression (BG) ▪ Violence against women (SE) ▪ Carry out measures in crises and disaster situations (EU/EFTA-level stakeholders⁶⁰⁷) ▪ Dealing with critical situations and learning how to de-escalate potentially violent situations (EU/EFTA-level stakeholder⁶⁰⁸)
Other training subjects	<p>10 countries</p> <ul style="list-style-type: none"> ▪ First aid (BE, CZ, SK) ▪ CPR for children and adult (SE) ▪ Theory of ECG (HU)

⁶⁰³ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

⁶⁰⁴ *Ibid.*

⁶⁰⁵ *Ibid.*

⁶⁰⁶ *Ibid.*

⁶⁰⁷ European Network of Nurses Regulators and European Federation of Nurses Associations.

⁶⁰⁸ European nurse Directors Association.

	<ul style="list-style-type: none"> ▪ Tasks of the nurse in early intervention for children (BG) ▪ Acute and short-term care (CH) ▪ Critical patient care and nursing (HU) ▪ Person in critical condition (PT) ▪ Critical care nursing (SI) ▪ Fundamentals of immediate care (MT)
Transcultural nursing theories	
Multi-cultural care	<p>11 countries</p> <ul style="list-style-type: none"> ▪ Interculturality (EU/EFTA-level stakeholder⁶⁰⁹) ▪ Dealing with cultural issues (EU/EFTA-level stakeholder⁶¹⁰) ▪ Identity and otherness in professional practice (CH) ▪ Transcultural nursing (CZ, PT, AT⁶¹¹) ▪ Cultural diversity (IS) ▪ Culture (SE) ▪ Religion in nursing (LT) ▪ Transcultural healthcare (EL) ▪ Cross-cultural care provision (MT) ▪ Multicultural nursing (ES, SK)
Evidence-Based Practice	
Nursing research/ science	<p>22 countries</p> <ul style="list-style-type: none"> ▪ Research methodology (CH, DK, EL, FR, HU, IE, MT, PL, SK) ▪ Research methodology (BE, CH, DK, EL, IE, LT, LU, NO,) ▪ Methodology and use of the scientific research results (BE) ▪ Research inquiry (CY) ▪ Introduction to the research process / initiation to research (FR)

⁶⁰⁹ European Federation of Educators in Nursing Science.

⁶¹⁰ European Nurse Directors Association.

⁶¹¹ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

	<ul style="list-style-type: none"> ▪ Research work basics (HR) ▪ Basic research skills (NL) ▪ Scientific research in nursing (PL) ▪ Research process (PT) ▪ Health research (PT) ▪ Nursing research (SK, RO⁶¹², ES⁶¹³) ▪ Research and leadership (SE, EU/EFTA-level stakeholder⁶¹⁴) ▪ Research and informatics in nursing (SI) ▪ Stages of the research process to enable Evidence-Based Practice (MT) ▪ Nursing sciences and healthcare research (AT⁶¹⁵)
Evidence-Based Nursing	<p>14 countries</p> <ul style="list-style-type: none"> ▪ Evidence-Based Nursing (CH, EL, NO, IT, LT, EU/EFTA-level stakeholder⁶¹⁶; AT⁶¹⁷) ▪ Appraising and evaluating scientific evidence (MT) ▪ Evidence-based and cost-effective care (IE) ▪ Concept of evidence in nursing (BE) ▪ Evidence-Based Practice (FI, NL, SE, EU/EFTA-level stakeholder⁶¹⁸; AT⁶¹⁹) ▪ Stages of the research process to enable Evidence-Based Practice (MT) ▪ Biostatistics (EL, LT) ▪ Statistics (IT, LV, PT)

⁶¹² Information provided by the Romanian Ministry of Education and Research via GoC.

⁶¹³ This information was provided by stakeholders via questionnaires and by the Spanish Ministry of Health, Consumer affairs and Social welfare via GoC.

⁶¹⁴ European Federation of Educators in Nursing Science.

⁶¹⁵ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

⁶¹⁶ European Federation of Educators in Nursing Science.

⁶¹⁷ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

⁶¹⁸ European Nursing Council.

⁶¹⁹ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

Clinical reasoning	<p>4 countries</p> <ul style="list-style-type: none"> ▪ Clinical judgment (CY) ▪ Clinical approach (BE) ▪ Reflective approach and goal setting (BE) ▪ Solving complex care problems (CH) ▪ Bobath concept (AT⁶²⁰)
TECHNICAL PROGRESS	
Advancements	Training subjects
<i>e-Health</i>	
e-Health in general	<p>8 countries</p> <p>e-Health (BE, DK, LT, PT, CH, EE, UK⁶²¹, AT⁶²²)</p>
<i>Electronic medical records systems</i>	
Digitalisation in nursing documentation	<p>5 countries</p> <ul style="list-style-type: none"> ▪ Electronic data processing (AT, BG) ▪ Electronic patient records (CY) ▪ Use of database (FI) ▪ Computerisation of patient folders (FR)
<i>Electronic communication with patients and professionals</i>	
Telehealth/ telecare	N/A
<i>Nursing informatics</i>	
IT in nursing, ICT and health informatics	<p>18 countries</p> <ul style="list-style-type: none"> ▪ IT in nursing (DK, EE, HR, IT, MT) ▪ Specific computer science (AT) ▪ IT (AT, MT) ▪ IT solutions used in hospitals (EE)

⁶²⁰ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

⁶²¹ Information provided by the UK nurses association via the workshop feedback questionnaire.

⁶²² Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

	<ul style="list-style-type: none"> ▪ IT in medicine (LT) ▪ IT systems in nursing (PL) ▪ Nursing informatics (FI, EU/EFTA-level stakeholder⁶²³) ▪ Research and informatics in nursing (SI) ▪ Picture archiving and communication system (CY) ▪ Health information systems and ICT (PT) ▪ ICT (ES) ▪ Informatics (BG, CY, EL, IE, MT, IT) ▪ Principles of informatics (SE) ▪ IT in nursing, ICT and informatics (RO⁶²⁴)
Information governance	
N/A	
Biometrics	
N/A	
Healthcare/nursing methods	
Internet of things	
N/A	
New methods of treatment, new devices, equipment	
Wound treatment	2 countries <ul style="list-style-type: none"> ▪ Modern wound care (LU, PT)
Less invasive and non-invasive procedures	2 countries <ul style="list-style-type: none"> ▪ Innovative practices in nursing (BG, PL)
Surgical techniques	N/A
Artificial Intelligence	N/A
Robotics	N/A

⁶²³ European Nursing Council.

⁶²⁴ Information provided by the Romanian Ministry of Education and Research via GoC.

Nursing care/ healthcare digital technologies	<p>5 countries</p> <ul style="list-style-type: none"> ▪ Digital health (IE) ▪ Digital skills in healthcare (LV) ▪ Health technology (NO) ▪ Innovation and service development and technology (NO) ▪ Digital technology (EU/EFTA-level stakeholder⁶²⁵) ▪ Dealing with new technologies (EU/EFTA-level stakeholder⁶²⁶) ▪ Nursing techniques (SK) ▪ Integration of digital means (CH)
Medical treatments	<p>2 countries</p> <ul style="list-style-type: none"> ▪ Complementary and alternative therapies (EL) ▪ Aromatherapy, music-therapy, phytotherapy, traditional Chinese medicine, yoga, Ayurveda, tropical medicine, kinaesthetic (LU)
Care equipment in hospitals and other nursing settings	N/A
Diagnostics technologies	<p>1 country</p> <ul style="list-style-type: none"> ▪ Laboratory and diagnostic tests (HU)
New techniques for elderly care and dementia	<p>1 country</p> <ul style="list-style-type: none"> ▪ Gerontechnology (FI)
Nurse prescribing tools	N/A
Technology in nursing education	
e-learning	
Online learning techniques	N/A
Simulation	
Simulation scenarios	10 countries

⁶²⁵ European Federation of Educators in Nursing Science.

⁶²⁶ European Nurse Directors Association.

	<ul style="list-style-type: none"> ■ Simulation training (CH, EE, ES, FI, LV, SE, SI, AT⁶²⁷) ■ Simulation technology (LU) ■ Learning in Simulated Setting (PT)
3D Printing	
N/A	

The following figure presents the topics or areas in relation to which training subjects have been introduced in view of scientific and technical progress and in how many countries they have been noted:

Figure 10: Training subjects according to their prominence



⁶²⁷ Information provided by the Austrian regulatory body and training institution via the workshop feedback questionnaire.

→ Technology in nursing education: 10 countries

6.3. Conclusions

6.3.1. Generally acknowledged scientific and technical advancements

Nursing research science is advancing nursing practice. Furthermore, research and technology have enabled numerous advancements in medicine which have significant implications for nursing (e.g. Evidence-Based Practice, new methods of treatment, electronic communication with patients and professionals, etc.). In addition to scientific and technical progress, other factors such as the rapidly changing demographics in Europe, including an ageing population, low birth rates, and changing family structures and migration⁶²⁸ are also having a major impact on the nursing profession. Moreover, easier access to the internet is changing the knowledge and attitudes of the public towards their health and illness.

The findings of this Study indicate that all the above drivers have or are being taken into consideration in the general education of nurses responsible for general care across the EU Member States, EFTA States and the UK; a lot of changes in the national training programmes seem to have occurred recently at national level. However, the extent of the response to and coverage of these changes appears to vary considerably across the countries.

In addition, it should be noted that some of the scientific and technical advancements relevant for nurses responsible for general care identified are broader than others. Hence, certain advancements could be included within some of the broader advancements. For instance, in relation to scientific progress, *nursing care in community settings* could include *home care and primary healthcare*. Similarly, regarding technical progress, *e-Health* could include other technical advancements such as *digitalisation in nursing documentation* and *smart devices*. This aspect is taken into account by the Study Team when assessing the necessity to update the Directive and, more precisely, when suggesting (if needed) the knowledge, skills, and/or training subjects that could be added to the Directive in order to adapt it to scientific and technical progress.

⁶²⁸ See Eurostat figures, for example at https://ec.europa.eu/eurostat/statistics-explained/index.php/People_in_the_EU_-_statistics_on_demographic_changes (last accessed on 17/03/2020).

The findings indicate that the following advancements can be considered to have taken place, reflecting generally acknowledged scientific and technical progress across the EU Member States, EFTA States and the UK (i.e. advancements identified in at least 16 countries).

Table 17: Conclusion - Advancements reflecting generally acknowledged scientific and technical progress

	Advancements
Scientific topics/ areas	Person-centred care theories: 22 countries
	Inter-/multidisciplinary theories: 16 countries
	Evidence-Based Practice: 24 countries
Technical topics/ areas	e-Health: 26 countries
	Healthcare/nursing methods: 21 countries

Lastly, it should be recalled that scientific and technical progress are often interrelated. In fact, scientific developments may sustain or provide the basis of technical progress and vice versa. For instance, *Nursing care in community settings* is of growing significance and one of the main changes in how nursing care is being provided. This has been enabled by scientific developments where research evidence has changed medical and nursing practices, and by fast-developing technologies which allow complex nursing interventions to be provided in people’s homes, nursing homes or other community settings. New technologies are also enabling the growth in self-care which require less support, but potentially more guidance, from the nurse e.g. telecare. Therefore, the interconnectivity between scientific and technical advancements should not be ignored when it comes to assessing the main scientific and technical advancements, and how they could be translated into knowledge, skills or training subjects.

6.3.2. Knowledge, skills and training subjects reflecting generally acknowledged scientific and technical progress

The findings of the Study reveal that certain scientific and technical advancements identified have been reflected in the training programme of nurses responsible for general care. What is more, countries have included in their laws, administrative rules, teaching standards and/or training programmes specific knowledge, skills and training

subjects going beyond the Directive and catering for generally acknowledged scientific and technical progress.

Taking into account the number of stakeholders that have reported specific knowledge, skills and training subjects, it should be noted that certain advancements seem more likely to be reflected through knowledge and skills (e.g. inter/multidisciplinary theories), while other advancements appear more likely to be reflected through training subjects (e.g. e-Health). Furthermore, other advancements appear to be reflected similarly through both forms: knowledge and skills, and training subjects (e.g. management theories applied to nursing).

Moreover, it must be stressed that the findings of the Study indicate that varying terms are used among countries to express identical concepts. Bearing in mind that the present conclusions are based on the input received from stakeholders, who were given considerable freedom to formulate their responses, further standardisation of concepts may be necessary to achieve a common understanding.

The findings indicate that the following knowledge, skills and training subjects can be considered to reflect generally acknowledged scientific and technical progress (i.e. knowledge, skills and training subjects identified in at least 16 countries).

Table 18: Conclusion – Knowledge, skills and training subjects introduced as a result of generally acknowledged scientific and technical progress in at least 16 countries

	Knowledge and skills	Training subjects
Scientific topics / areas	Person-centred care theories: 18 countries	Person-centred care theories: 22 countries
	Inter-/multidisciplinary theories: 22 countries	
	Management theories applied to nursing: 20 countries	Management theories applied to nursing: 20 countries
	Evidence-Based Practice: 18 countries	Evidence-Based Practice: 25 countries
Technical topics / areas		e-Health: 23 countries
	Healthcare/nursing methods: 16 countries	

Certain knowledge, skills and training subjects did not reach the minimum threshold of 16 countries, nevertheless they deserve merit. These are knowledge, skills and training subjects that were identified in at least 10 countries and therefore represent advancements that are close to being regarded as generally acknowledged. In this context it should be noted that the Study relies heavily on input from stakeholders, and that the input may vary between countries. These knowledge and skills and training subjects are captured in table 19 below.

Table 19: Knowledge, skills and training subjects noted in at least 10 countries

	Knowledge and skills	Training subjects
Scientific topics / areas	Patient safety theories: 14 countries	Patient safety theories: 12 countries
		Inter-/multidisciplinary theories: 15 countries
		Health promotion theories: 12 countries
		Transcultural nursing theories: 11 countries
Technical topics/ areas	e-Health: 15 countries	
		Healthcare/nursing methods: 12 countries
	Technology in nursing education: 14 countries	Technology in nursing education: 10 countries

7. Assessment of whether to update the Directive and how

7.1. Introduction

In Chapter 6, as a result of our research, we have seen what the main scientific and technical advancements of the last 5-10 years in the health sector, and the nursing care specifically are, and how these have been reflected in the countries. Subsequently, we have singled out those knowledge and skills and training subjects that were introduced in a majority of countries on the basis of scientific and technical advancements, which can consequently be regarded as ‘generally acknowledged’.

The next step is to perform an assessment of whether the text of the Directive should indeed be updated and how this could be done. In order to do this, we first need to check the abovementioned singled-out advancements, knowledge and skills and training subjects against the current text of the Directive. This will reveal those areas that are not covered or only partly covered by the Directive, and that thus may need to be introduced in the text of the Directive or may benefit from more comprehensive coverage. On that basis we are able to suggest textual amendments in line with the aforementioned analysis, with the aim to reflect the evolution of Union law directly affecting the professionals concerned.

7.2. Assessment of the identified generally acknowledged advancements under the current provisions of the Directive

The following table summarises the advancements, knowledge and skills, as well as the training subjects which have been found to have been introduced in at least 16 countries in view of scientific and technical progress and therefore can be considered to reflect generally acknowledged scientific and technical progress:

Table 20: Advancements, knowledge, skills and training subjects identified in at least 16 countries

	Advancements	Knowledge and skills	Training subjects
Scientific topics / areas	Person-centred care theories: 22 countries <ul style="list-style-type: none"> Person-centred approach: 19 countries 	Person-centred care theories: 18 countries <ul style="list-style-type: none"> No specific topics have been identified in at least 16 countries 	Person-centred care theories: 22 countries <ul style="list-style-type: none"> Nursing care in community settings: 17 countries
	Inter-/multidisciplinary theories: 16 countries <ul style="list-style-type: none"> No specific topics have been identified in at least 16 countries 	Inter-/multidisciplinary theories: 22 countries <ul style="list-style-type: none"> Communication and teamwork: 21 countries 	
		Management theories applied to nursing: 20 countries <ul style="list-style-type: none"> Decision-making process, entrepreneurship, leadership: 19 countries 	Management theories applied to nursing: 20 countries <ul style="list-style-type: none"> Management: 17 countries
	Evidence-Based Practice: 24 countries <ul style="list-style-type: none"> Evidence-Based Nursing: 21 countries 	Evidence-Based Practice: 18 countries <ul style="list-style-type: none"> No specific topics have been identified in at least 16 countries 	Evidence-Based Practice: 25 countries <ul style="list-style-type: none"> Nursing research/science: 22 countries
Technical topics / areas	e-Health: 26 countries <ul style="list-style-type: none"> E-health in general: 16 countries 		e-Health: 23 countries <ul style="list-style-type: none"> Nursing informatics: 18 countries
	Healthcare/nursing methods: 21 countries <ul style="list-style-type: none"> New methods of treatment, new devices, equipment: 21 countries 	Healthcare/nursing methods: 16 countries <ul style="list-style-type: none"> New methods of treatment, new devices, equipment: 16 countries 	

Having identified the main advancements, knowledge, skills and training subjects reflecting generally acknowledged scientific and technical progress, the next step is to assess whether these advancements, knowledge, skills and/or training subjects are already (sufficiently) provided for by the current text of the Directive. Each main category under scientific and technical progress that reached the threshold of at least 16 countries will be assessed. The specific topics that fall under these categories will also be covered under the assessment.

The following sub-sections will present our assessment which is divided into two sub-sections; the first (Sub-Section 7.2.1.) deals with the areas falling under scientific progress and the second (Sub-Section 7.2.2.) with the areas falling under technical progress. We summarise the outcomes of this exercise under Sub-Section 7.2.3 (Conclusions).

7.2.1. Scientific progress

Person-centred care theories - *Person-centred approach*

Article 31(5) provides that the trainee nurse shall learn to organise overall nursing care, including health education for individuals and small groups. The wording ‘health education for individuals and small groups’ may be interpreted as a form of person-centred approach; the overall nursing care should not just be directed at a general group, but it should include health education focussed on individuals or small groups.

Under Article 31(6), none of the listed knowledge and skills specifically relate to ‘person-centred care’. However, under Article 31(7), some of the competences that are listed seem to cover certain aspects that appear related to person-centred care. Firstly, Article 31(7) (c) refers to ‘competence to empower individuals, families and groups towards healthy lifestyles and self-care on the basis of the knowledge and skills acquired (...)’. It then continues, under (e): ‘competence to independently give advice to, instruct and support persons needing care and their attachment figures’.

With regard to the requirements pertaining to the training programme as laid down in the Directive (Point 5.2.1. of Annex V), firstly ‘person-centred care’ could fall under A. Theoretical Instruction, a. Nursing, second indent: ‘General principles of health and nursing’ respectively. This could be made more specific, for example by adding ‘person-centred care theories’ as a sub-category.

Furthermore, under point B. Clinical instruction, 5.2.1. of Annex V sets out various required areas with regard to the clinical part of the training programme. Amongst these are some areas that could be regarded as related to ‘person-centred care’, such as ‘childcare and paediatrics’, ‘maternity care’, ‘care of the old and geriatrics’ and ‘home nursing’. Each of these areas, except for ‘home nursing’, are clearly linked to medical specialisations, which require care skills that are connected to the relevant category of patient and their attachment figures.

Hence, person-centred care could be regarded as only partly covered under point A. and B. of 5.2.1. of Annex V. Taking into account the importance of this area in the countries, it may be appropriate to make some small textual changes to bring the text up to date with the generally acknowledged scientific and technical progress.

Person-centred care theories - Nursing care in community settings

Article 31(5) provides that: ‘Clinical training is that part of nurse training in which trainee nurses learn, as part of a team and in direct contact with a healthy or sick individual and/or community, to organise, dispense and evaluate the required comprehensive nursing care, on the basis of the knowledge, skills and competences which they have acquired.’ It further states that the training shall take place in hospitals and other health institutions and in the community.

Furthermore, point 5.2.1. of Annex V to the Directive specifically mentions ‘Nursing in relation to home nursing’ as part of minimum training subjects that should be part of the training programmes of nurses responsible for general care. However, home nursing or care does not comprehensively cover nursing care in community settings. Conversely, the wording ‘community settings’ rather suggest a broader coverage; the community refers to a group or a place that is considered together with its inhabitants, and as such could include home settings.

Hence, it appears that although ‘nursing care in community settings’ is sufficiently covered under the current text of the Directive generally and in respect of knowledge and skills and competences, with regard to training subjects it could be said that point 5.2.1. of Annex V insufficiently covers the aspect of ‘community settings’.

Inter-/multidisciplinary theories - Communication and teamwork

Article 31(6) (d) and (e) of the Directive provide that the training for nurses responsible for general care shall provide an assurance that nurses acquire respectively the following knowledge and skills:

- ability to participate in the practical training of health personnel and experience of working with such personnel;
- experience of working together with members of other professions in the health sector.

In addition, Article 31(7)(b) of the Directive provides that nurses responsible for general care shall provide evidence that the professional is able to apply the competence to work together effectively with other actors in the health sector. Article 31(7)(g) adds the competence to comprehensively communicate professionally and to cooperate with members of other professions in the health sector.

The required parts of the training programme under point 5.2.1 of Annex V do not include any aspects related to inter- or multidisciplinary theory or practice. This is not expected to cause too many issues, as the area is so well covered under knowledge and skills (Article 31(6) and competences (Article 31(7))). This may explain why no such training subjects were reported in a majority of countries as being introduced as a result of scientific and technical progress.

Management theories applied to nursing – Decision-making process, entrepreneurship, leadership / Management

The Directive specifies that trainee nurses shall learn not only how to work in a team, but also how to lead a team and organise overall nursing care, including health education for individuals and small groups, within the health institute or in the community (see Article 31(5)).

It further follows from Article 31(7) (a) of the Directive that nurses responsible for general care upon their training should be able to apply the competence to independently diagnose the nursing care required using current theoretical and clinical knowledge and to plan, organise and implement nursing care when treating patients on the basis of the knowledge and skills acquired in order to improve

professional practice.⁶²⁹ The word ‘independently’ refers to a level of leadership and as such would require management skills, including the ability to form and take well-founded decisions. This would apply in a similar fashion to the competences listed under Article 31(7) (d), (e) and (f), which require nurses to ‘independently’ initiate life-preserving measures and to carry out measures in crises and disaster situations; to give advice to, instruct and support persons needing care and their attachment figures and to assure the quality of, and to evaluate, nursing care.

No mention is made of any aspects of management / decision-making process, entrepreneurship, leadership as part of the training programme requirements under point 5.2.1. of Annex V.

So, whereas the Directive requires the training of nurses to ensure that the professional in question is able to lead a team, organise nursing care and (indirectly) apply certain leadership skills, this could be emphasised. This could be done by strengthening the knowledge and skills under Article 31(6) and amending the requirements of the training programme under point 5.2.1 of Annex V, to align and complement the competences required under Article 31(5) and (7).

Evidence-Based Practice - Evidence-Based Nursing/ Nursing research/ science

Article 31(5) of the Directive mentions that, as part of the clinical training, trainee nurses should learn, amongst other things, to evaluate the required comprehensive nursing care on the basis of the knowledge, skills and competences which they have acquired. It could be contended that such evaluation could fall under the heading of Evidence-Based Practice and nursing research, as it would require nurses to be able to assess their care then apply their findings to practice change, supporting better patient care.

Article 31(7)(a) furthermore includes the competence to diagnose the nursing care required using current theoretical and clinical knowledge and to plan, organise and implement nursing care when treating patients on the basis of the knowledge and skills acquired in accordance with points (a), (b) and (c) of paragraph 6 in order to improve professional practice. Using theoretical and clinical knowledge to diagnose

⁶²⁹ Article 31(7)(a) refers to the knowledge and skills acquired in accordance with points (a), (b) and (c) of paragraph 6.

the appropriate nursing care could be seen as a form of Evidence-Based Practice. Other competences that may be relevant in this regard are the competence to independently ensure the quality of, and to evaluate, nursing care (Article 31(7) (f)) and to analyse the care quality to improve his or her own professional practice as a nurse responsible for general care (Article 31(7) (h)). However, the manner in which this should take form is not further specified in the Directive.

The training programme requirements listed under point 5.2.1. of Annex V do not include any aspects related to Evidence-Based Practice or nursing research/science, while our research shows that a majority of countries appear to have included nursing research/ science as a training subject in response to scientific and technical progress.

Taking the above into account, it appears that Evidence-Based Practice is not comprehensively, or evidently covered under the current text of the Directive. Considering that our research has detected this as an area of importance in the overwhelming majority of countries, it appears that there is good reason to put more focus on Evidence-Based Practice in the wording of the Directive.

7.2.2. Technical progress

e-Health - Nursing informatics

e-Health in general, or any specific topic falling under e-Health such as electronic medical records systems, electronic communication with patients and professionals and nursing informatics, is not covered under the current text of the Directive. Our research nevertheless reveals that countries have introduced e-Health in their training subjects as a result of scientific and technical progress. Within this category, nursing informatics has proven to be a subject that a majority of countries have introduced into their training programmes. The Study Team therefore recommends including e-Health under point 5.2.1. of Annex V as part of the required parts of the national training programmes.

Healthcare/nursing methods - New methods of treatment, new devices, equipment

Our study has discovered that the category healthcare / nursing methods, which in short refers to technologies which enhance patient care, is regarded as a relevant technical advancement, and/or resulted in newly introduced knowledge and skills in

a majority of countries. Within this category, particularly ‘new methods of treatment, new devices, equipment’ appears to be relevant in the majority of countries. These areas are however not covered under the current text of the Directive. It follows that such subjects should be introduced in the Directive, potentially by amending or adding some text to Article 31(6) on knowledge and skills, in line with the findings at national level.

7.2.3. Conclusions

A close look at the Directive shows that certain knowledge, skills and training subjects are already covered in the Directive, while others are not. Moreover, some of the knowledge, skills and training subjects mentioned in the Directive seem to be sufficiently covered while for others more emphasis could be needed.

Figure 11: Assessment of the identified generally acknowledged advancements under the current provisions of the Directive

<p>Scientific progress</p> <ol style="list-style-type: none">1. Person centred care theories - More emphasis needed2. Inter-/multidisciplinary theories - Sufficiently covered3. Management theories applied to nursing - More emphasis needed4. Evidence-Based Practice - More emphasis needed <p>Technical progress</p> <ol style="list-style-type: none">5. e-Health - Not mentioned in the Directive6. Healthcare/nursing methods - Not mentioned in the Directive
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7.3 Suggestions for a potential update of the Directive

Having identified the potential gaps in the Directive with regard to generally acknowledged advancements across the countries covered by this report, what follows is the formulation of potential updates of the Directive. With the objective of adapting the training programme to the evolution of the nursing profession in the scientific and technical field in mind, the Study Team recommends updating Article

31(6) on knowledge and skills and point 5.2.1 of Annex V on the required training programme.

While drafting such amendments, the Study Team has endeavoured to maintain a balance between the general principle of proportionality (too much detail would not leave enough room for the countries concerned to create their training programmes), and the objective of the Directive to abolish obstacles to the free movement of persons (too much freedom at national level may lead to too much variation between countries). Firstly, we present the proposed amendments in table 21 below. What follows are suggestions for possibly deleting some of the text that, as a result of the amendments, may become superfluous or redundant.

Table 21: Suggestions on how to update the Directive

Knowledge and skills	Training subjects
SCIENTIFIC PROGRESS	
<i>Person-centred care theories</i>	
<p>To be added to Article 31(6):</p> <p>‘Ability to provide individualised nursing care and to empower patients, relatives and other relevant persons in relation to self-care and leading a healthy lifestyle.’</p>	<p>To be added to Annex V, V.2., 5.2.1., under A. a., after ‘General principles of health and nursing’:</p> <p>‘, including person-centred care theories’</p>
	<p>Indent to be added to Annex V, V.2., 5.2.1., under B., under the indent ‘Nursing in relation to’:</p> <p>‘- Person-centred approach’</p>
	<p>Replacement under Annex V, V.2., 5.2.1., under B., last indent of ‘home nursing’ with:</p>

	'- Nursing care in community settings'
Inter- /multidisciplinary theories	
No update needed	No update needed
Management theories applied to nursing	
To be added to Article 31(6): '- Ability to develop an effective leadership approach; decision-making skills.'	To be added to Annex V, V.2., 5.2.1., under A. c., after 'Principles of administration': '- and management'
Evidence-Based Practice	
	To be added to Annex V, V.2., 5.2.1., under A. a: '- Evidence-Based Nursing Practice and research'
TECHNICAL PROGRESS	
e-Health	
	To be added to Annex V, V.2., 5.2.1., under A. (under a new category d.) and B. (as a separate indent): "Science and Technology": ' - e-Health'
Healthcare/nursing methods	

<p>To be added to Article 31(6):</p> <p>‘- Comprehensive knowledge of the technical innovations related to healthcare and nursing methods.’</p>	
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On the basis of the findings and the abovementioned suggestions for changes, the Study Team proposes the following further amendments and deletions of superfluous and / or redundant text:

Table 22: Further amendments and deletions

Knowledge and skills
<p>(d) and (e) under Article 31(6) could be merged as follows:</p> <p>‘(d) the ability to participate in the practical training of health personnel and experience of working with such personnel and with members of other professions in the health sector.’</p>
Training subjects
<p>Under Annex V, V.2., 5.2.1., under A. a., merge the first two indents:</p> <p>‘- Nature, ethics and general principles of health and nursing, including person-centred care theories’</p>
<p>Under Annex V, V.2., 5.2.1., under A. b., replace the title ‘Basic sciences’ with ‘General health sciences’</p>
<p>Under Annex V, V.2., 5.2.1., under A. c., merge ‘principles of administration’ and ‘management’:</p> <p>‘- Principles of administration and management’</p>

The Study Team stresses however that there are other important knowledge and skills and training subjects that appear to have been incorporated by a large number of countries as a result of scientific and technical advancements, while not reaching the majority threshold. These knowledge and skills and training subjects (presented in

Sub-Section 6.3.2, table 19) deserve attention as it may turn out that they are relevant enough to be taken into account while amending the Directive.

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