DEXP3.1/3.2/3.3

IDENTIFYING AND DEFINING COMPETENCIES

Exploitation of results - recommendations on competency curriculum for professional pharmacists

2011

PHARMINE
Pharmacy Education in Europe

University of London (P3)
European Pharmaceutical Students' Association (EPSA) (P5)
Pharmaceutical Group of the European Union (PGEU) (P6)
European Association of Hospital Pharmacists (EAHP) (P7)
European Industrial Pharmacists Group (EIPG) (P8)

Table of Contents

List of Tables

List of Figures

List of abbreviations

ABPI	Association of the British Pharmaceutical Industry
ALF	Advanced Level Framework
CAP	Community-acquired Pneumonia
CE	Continuing Education
CPD	Continuous Professional Development
CTA	Clinical Training Agreement
CTD	Common Technical Document
CV	Cardiovascular
DH	Department of Health
EAFP	European Association of Faculties of Pharmacy
EAHP	European Association of Hospital Pharmacists
EFPIA	European Federation of Pharmaceutical Industries and Associations
EHEA	European Higher Education Area
EIPG	European Industrial Pharmacists Group
EMEA	European Medicines Agency
EPP	Expert Professional Practice
EPSA	European Pharmacy Students' Association
ESCP	European Society of Clinical *Pharmacy*
ET	Education and Training
ETD	Education Training and Development
EU	European Union
FIP	International Pharmaceutical Federation
FLF	Foundation Level Framework
FLO	Foundation Level Outcomes
GCP	Good Clinical Practice
GHTF	Global Harmonisation Task Force
GLF	General Level Framework
GLP	Good Laboratory Practice
GMP	Good Manufacturing Practice
HEI	Higher Education Institution
HIV	Human Immunodeficiency Virus
ICU	Intensive Care Unit
IMPD	Investigational Medicinal Product Dossier
ISO	International Standards Organization
IT	Information Technology
ITU	Intensive Therapy Unit
IV	Intravenous
L	Leadership
LLL	Life Long Learning
M	Management
MA	Marketing Authorization
MEDDEV	Medical Devices
MRSA	Methicillin-resistant Staphylococcus Aureus
NHS	National Health Service
NPC	National Prescribing Centre
OTC	Over The Counter
PGEU	Pharmaceutical Group of the European Union
PICU	Postoperative Intensive Care Unit
PIL	Patient Information Leaflet
PIPA	Pharmaceutical Information and Pharmacovigilance Association

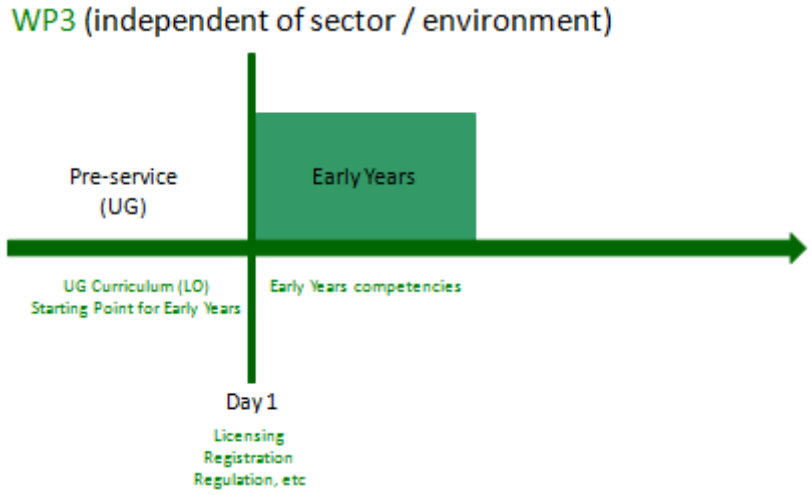
QP	Qualified Person
QRD	Quality Review of Documents
RD	Research and Development
RE	Research and Evaluation
REACH	Registration, Evaluation and Authorisation of Chemicals
REI	Research Evaluation and Innovation
RFID	Radio Frequency Infrared Device
RIP	Research Implementation Projects
SALF	Specialist and Advanced Level Framework
SOP	Standard Operating Procedures
SPC	Summary of Product Characteristics
TDM	Therapeutic Drug Monitoring
TOPRA	The Organisation for Professionals in Regulatory Affairs
TPN	Total Parenteral Nutrition
UK	United Kingdom
UKMI	United Kingdom Medicines Information
WP	Work Package

Preface

WP3 AIM

To provide recommendations on competency curriculum for professional pharmacists specifically aims to define a core scientific set of competencies required for modern practice, regardless of sector, which will equip a newly qualified practitioner for the early career years (Figure 1). These competencies will be shaped in the form of a framework that will describe the cognitive skills and knowledge for post-registration (post licensing); and logically form an outcome for the pre-service curriculum for professional pharmacists.

Figure 1. WP3 Diagram



DEXP 3.1. Report on agreed context following management team (Management Team Reporting)

1. WORK PACKAGE 3 CONTEXT

1.1. Competence, performance and practice

Extending and enhancing the quality of professional impact in public health systems and the medicines and pharmaceutical industries is an imperative for the profession. The gradual movement towards more extended pharmaceutical care roles and delivery is an identifiable policy trend from many EU states, and the available evidence suggests that enhancing pharmacy roles in this way has a benefit for public health in all both primary and secondary care settings and the associated professional sectors of practice (PGEU 2008; PGEU 2009; DoH 2009). WP3 does not intend to replicate this evidence, and takes the stance that education and continued life-long training is therefore a professional imperative.

The term lifelong learning/education is often thought of as a new since the United Nations Scientific and Cultural Organisation (UNESCO) adopted the term in 1970. The Council of Europe (CoE) indentified Life Long Learning as guiding professionals' ability to adjust to changes and it was recommended by the European Parliament (EP) and EU Council to establish a Europeans Qualifications Framework for lifelong learning (EP-CoE 2008).

The importance of education to continue outside of the formal setting has been recognized (Schon 1983; Spencer 1993; Barnet 1992; Knowles 1984; Atewell 2005; Rouse 2005; Silva 2007). When entering into profession, pharmacists, regarded as professionals must continually engaging with education (Bowden 2004; Rouse 2005; Silva 2007; Brussels 2007).

'Education must be regarded as continuum, While an appropriate, competency- based education can prepare a pharmacist to enter practice, no professional program can provide or develop all the knowledge, skills, attitudes and values that a pharmacist will ever need. These require a combination of an appropriate pre-service educational foundation, in-service training, hands-on work experience, and lifelong learning.' (Rouse 2005).

Continuing Education (CE) is generally understood to mean attendance at didactic lectures, which often results in the practitioner receiving some form of 'credit' or reward, which in some countries is a requisite to remain on a professional register or relicensing. It is important to enforce that CE is in fact a part of CPD that is systematic, on-going, self-directed approach and to highlight that the two are not synonymous (Grout 2001; IPD 1997). CE does not necessarily equate to adequate learning to attain the competence of the professional. Hence continuing professional development (CPD) is increasingly adopted by the profession world-wide as the way to ensure professional competence (Thompson 2002).

'CPD includes everything that a pharmacist learns which makes his or her better able to do his or her job. It is a cyclic process of reflection, planning, action and evaluation.'(RPSGB 2009)

In the National Health System (UK) CPD is defined as 'a process of lifelong learning for all individuals and teams which meets the needs of patients, delivers the health outcomes and health care priorities of the population, and which enables professionals to expand and fulfill their potential' (NHS 1998)

As part of the WP3 strategy the challenges facing professional pharmacy education in Europe are addressed, as a generic whole, whilst highlighting specific areas that will require a greater focus for agreement of concepts and collectivism for the greater good.

Chief amongst these is the challenge of public expectation, patient safety (with respect to medicines use) and effective use of highly qualified practitioners in acute and community sectors of practice. The driving force for professional evolution, in order to underpin the political imperative, must be a new engagement with contemporary approaches to professional education.

The key words in this imperative are performance, competence and quality. The underlying concepts are realistic and useful ways of engaging with the rhetoric of life-long learning, and providing practitioners with equally realistic and useful support for practitioner development processes and policies, without removing local autonomy and the non-negotiable attitude of a needs-based career map for professional pharmacy education.

The terminology often used remains confusing and somewhat arcane to many – both practitioners and policy-makers alike. PHARMINE WP3 attempts to provide a précis of terminology and concept that will inform the development of a core set of practitioner competencies, and an associated set of curriculum guides that support a competent workforce.

1.2. Models of Competence

A review of the literature, both academic and policy-based, shows that organisations tend to define "competence" in different ways; indeed, different sectors of the profession have a habit of adopting interchangeable definitions that are ultimately unhelpful when formulating educational policy. A qualitative analysis of available documentation suggests that in the (broad) sector of professional education, three principal models, or paradigms, of competence can be identified (Dreyfuss 1986; Leung 2002; Unwin 2004; Albanese 2007; Govaerts 2008).

a) An outcome (standards) model. These types of documents describe the likely expectations of an individual undertaking a particular area of work or work role. The model has its origins in occupational standards – often the regulated professions, but not exclusively - which form the basis of a range of vocational-based qualifications or assessments. A task-based activity is often referred to as "a competence" (or an item of competence), and assessment is criterion referenced (minimum standards, yes or no). Some documents mistakenly refer to "competency" (or "competencies") when describing these functional tasks (see below) which has added to confusion.

b) The Individual (behavioural) model. This model describes underlying attributes of an individual that result in effective performance. These attributes or qualities relate to knowledge, skills, motives and personal traits – learned behaviours. The model relies on behavioural indicators and is useful in self-assessment and individual development.

c) An educational model. Here, the model focuses on what an individual needs to know or be able to do by the end of a defined period of learning; these are usually formulated in the language "learning outcomes" and tend to be found mostly in formal programmes, although increasingly common in many education and training courses. Assessment is usually in the form of norm-referenced or grade-related tests and examinations; these, in turn, tend to be somewhat divorced from performance expectations.

A summary of the trends and principal features of these categories is presented in Table 1.

Table 1. Models of Competence Summary

Model	Mostly liked by	Characteristics
Outcome (standards)	Regulators; legal entities (usually non-practitioners & bureaucrats)	Strong tendency to be lists of tasks – especially tasks that can be easily identified. Functional in nature and lacking in depth. Reductionist in approach, aimed at minimum standards (criterion referenced – Y/N for example). Not developmental.
Individual (behavioural)	Practitioners, professional leadership bodies.	De-constructing the "tasks"; aims to describe how to perform or the attributes necessary for performance (often knowledge, skills, attitudes, values). Allows for identification of strengths and weaknesses, hence developmental in nature. Should, in theory, be the basis for CPD and LLL policies. As the name suggests, useful for personal development and continued education.
Educational	Educationalists (not always practitioners)	Usually written in the language of learning outcomes, which in turn have a strong tendency to be content or topic driven. Not always helpful for learning how to perform a task, and not always inherently "outcomes" based. Typical verb examples include "to understand", "to know about..." which leave many interpretative gaps for practitioners (what does "to understand..." mean?). A tendency to become syllabus lists (which they invariably do after summarisation). Very common in formal learning programmes and examinations. No direct link with performance.

Successful developmental frameworks tend to use a hybrid approach. While behavioural competencies help individuals (and their managers) look at how they do their job (and where continued training would be useful), the outcomes model identifies whether someone is effective in a particular area of work. Using this as a working basis, then some useful terminology can be derived:

The competence of a practitioner refers to the overarching capacity of that individual to perform. From the shared perspectives of patients, civil society and employers, "competence" suggests an expectation of effective, persistent behaviour of that health care professional.

A "competence" (plural competences) is a deconstructed item or functional task relating to the job of the health care professional. Collectively, competences represent the functional, the "what", of a particular professional's work.

A "competency" (plural competencies) represents the individual qualities or attributes of professional activity, the "how" of performance. They are learned behaviours, and thus

can be effectively incorporated into developmental programmes that require practitioners to apply learned behaviours (for example, pharmacy).

A flow diagram might show that an individual should learn a series of generic (core) competencies before they exhibit success for a particular competence; summed together, this might provide an insight into that individual's overall competence. However, this may not be the same as effective performance, which represents day to day, habitual success in job function. Successful job function (performance) is at the heart of the patient safety agenda and pharmaceutical care reforms that are sweeping across Europe. It is self-evident that new patient-focused roles (in all sectors) require demonstration of both competence and adequate performance. However, depending on whether one adopts a regulatory perspective, or a CPD/professional education perspective, will determine the approach towards measuring (regulatory, minimum standards) or striving for excellence (professional or aspirational education).

In keeping with the concepts and perspectives outlined above, Professional Competence has been well summarised in this definition:

"The habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served" (Epstein and Hundert 2002)

This particular definition has merit in that it incorporates the key features of a competency-based approach to education and training, namely the knowledge, skills, behaviours and values of practitioners. Moreover, it conveys competence as developmental (can be learned, or in some cases re-learned), impermanent (as the notions and expectations for competence can also change as professions develop) and context-dependent (as with all learning, context is everything).

If this syntax is mapped against the generalised models for competence, emergent correlations can be identified (Table 2).

Table 2. Mapped Models of competence

Model	Syntax	Comments
Outcome (standards)	Overall competence or a collection of competences. Characterised by functional tasks, but with little indication of how to get there.	Difficult to plan CPD or personal development with a functional task list.
Individual (behavioural)	Defined as a competency or collection of related competencies. One must possess the inherent components of knowledge, skills and attributes in order to exhibit a competency.	Better able to map gaps or weaknesses using this approach. Better still to use as a repeated, time-related method ("continuous").
Educational model	Learning outcomes rather than competence or competencies. Not usually an applied model of learning.	A necessary component of competency-based education, but deemed insufficient on its own to provide assured, safe, competence practise in

		individuals.

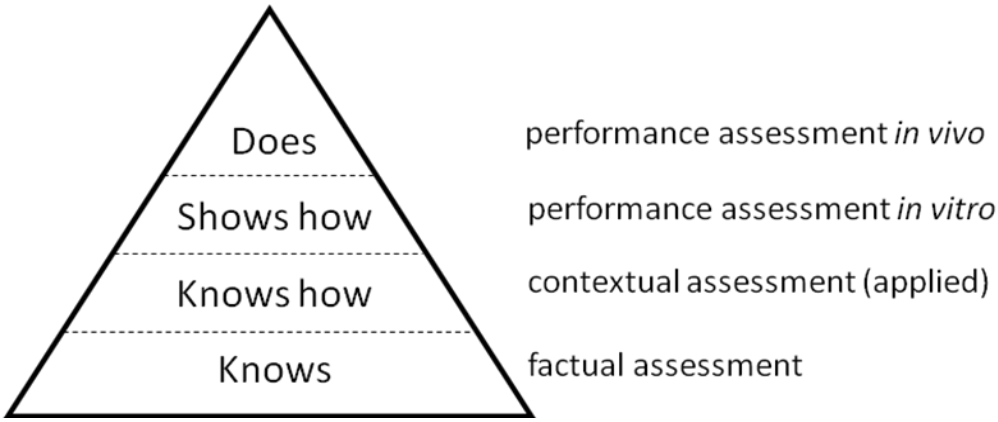
Some examples taken from existing frameworks demonstrate the differences (Table 3).

Table 3. Examples from existing competency frameworks

Model	Equivalent examples	Comments
Outcome (standards)	Task: selects medicine for individual patients Task: Undertakes medication review.	No indication of the "components" or how to do this. An individual cannot identify learning gaps.
Personal (behavioural)	Drug-disease interactions are always identified, always appropriately prioritised and appropriate action is always taken	Links the process ("how") with a pre-requisite or assumed knowledge base. Success in showing these behaviours means having a relevant knowledge base.
Educational model	The pharmacist must have a thorough understanding of ... the actions of medicines within living systems: molecular, cellular, biological and physical aspects;	Not linked with process or outcome (despite the name). Represents a syllabus listing, with no indication of application (for one's practise). The meaning of "thorough understanding" is relative.

In addition, a review of the literature has shown that the concept of professional competence has developed over the last 30 years from a one-element representing knowledge towards a more complex model which includes not only expertise but the application of the knowledge in the day-to-day work (Miller 1990) (Figure 2).

Figure 2. Miller's Pyramid – the basis for life-long education (Miller 1990)

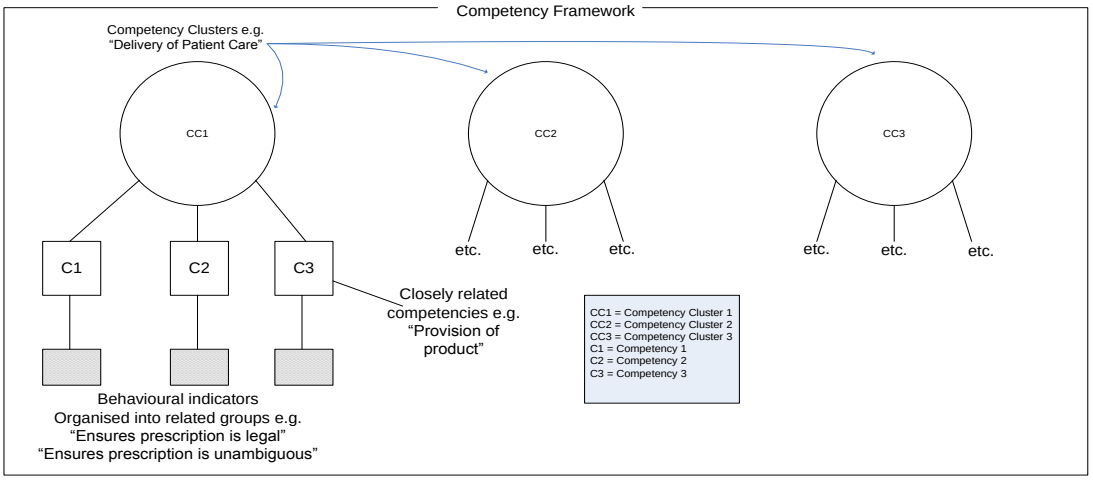


The competencies expected to ensure proficient performance in a certain work environment need to be clearly identified in order to perform a proper assessment of competence.

Even though providers of higher education are warned against the risk of a reduction of curriculum (Hyland 1994), competency frameworks are becoming very popular in the conventional setting. The purposes of such frameworks are diverse: some look for description of a hierarchy based on diverse competency thresholds; whereas others are more determining in nature and aim to promote practitioner competencies over time (McRobbie 2001).

Whiddett and Hollyforde (2000) describe competency frameworks as a collection of competencies fundamental for valuable performance. These types of frameworks are normally used in training and development and as means by which to measure fitness for purpose, as sketched out in Figure 4 The behavioural indicators are the base for the framework (Weightman 1984). The closely related behaviours are organised into competencies and similar competencies are grouped into clusters.

Figure 3. A typical competency framework structure (Whiddett and Hollyforde 2000)



It is difficult to see how students and novice practitioners can be assessed as competent, or how competency can become part of a curriculum. Indeed, the emerging competency frameworks in pharmacy represent a first attempt at making expertise explicit, albeit in specific, post-registration setting (Davies 2002; McRobbie 2001; UKMI 2001; NPC 2000).

The need for a seamless needs-based European pharmacy education was identified and therefore competency lists developed. Regular consultations, communication and meetings started to take place (EAHP, EIPG, PGEU) in London and Brussels (n= 8 meetings; n= 230 emails) in order to create a final version of the framework (named Foundation Level Framework) and an online survey to test its validation.

After a large number of iterations, new terminology was generated, a syntax was developed and the competencies used in the previous pilot study were rearranged and grouped based on partners consensus (Foundation Level Framework (Appendix 3)).

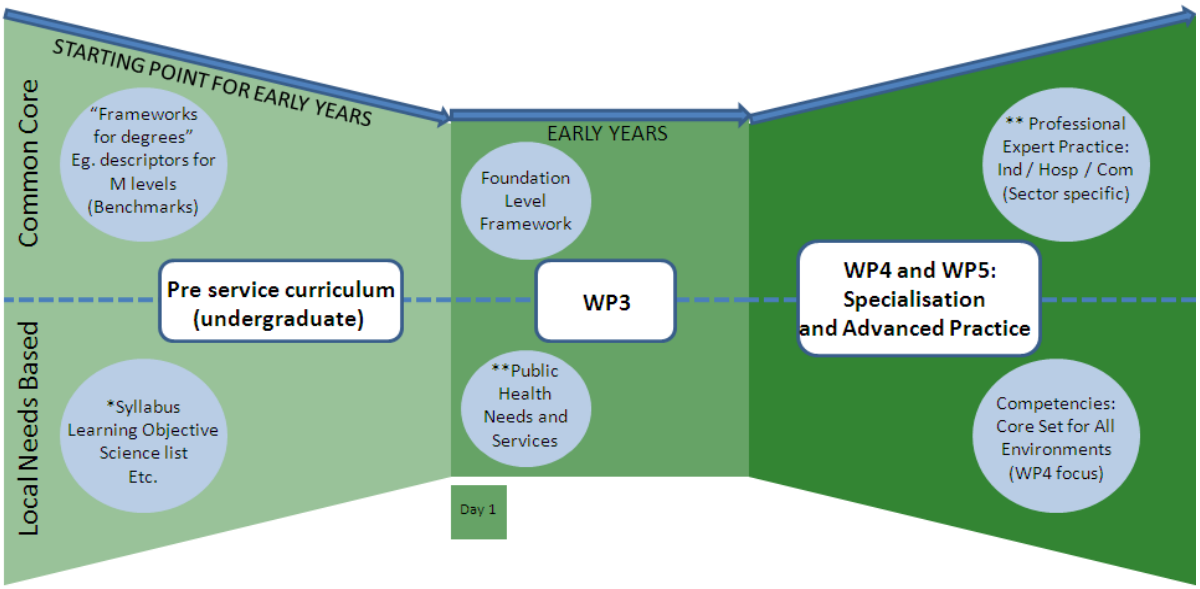
DEXP 3.2. Codifying competencies

2. WP3 - THE FOUNDATION LEVEL OUTCOMES

2.1. Seamless EU Education

A strategy is proposed here for seamless needs-based European pharmacy education (Figure 4 and 5).

Figure 4. Seamless European Education. Needs-based Pharmacy Education
*Variances by country
**Locally and sector determined



Current concerns are about the transition from "general" to "advanced" and the subsequent definitions of the "curriculum" for these states of practice. All EU member state pharmacists are registered (by which we mean "licensed") by an appropriate (local) body or agency (often termed a "chamber", "regulator", etc). Registration as a pharmacist happens after pre-service university education and a definable period of pre-service (pre-registration) supervised training. Hence anything after "Day 1" (registration) is by definition "advanced". This is a superficially persuasive, but dangerous, argument. It assumes that pre-service pharmacy education is adequate to produce a fully competent practitioner at Day 1. It is known this is untrue (just by observing a Day 1 practitioner) and that currently the pre-service university education has little directly patient-focused, pharmaceutical care driven components. In addition, it is difficult to find any engagement of the university sector in pre-registration training or post-registration education in the majority of EU states.

It should be acknowledged that continued education and development from Day 1 onwards must be seamless from the transition of graduation and licensing (Figure 4 and 5).

The PHARMINE approach is therefore:

To define a set of competencies at Day 1 that are aspirational for a period of continued professional development. These, by definition, can be mapped backward ("reverse engineering") to define pre-service learning outcomes – the undergraduate curriculum.

A draft of a professional development framework for pharmacists in their early years of practice has been produced by PHARMINE and provisionally named Foundation Level Framework (FLF).

An example from the Foundation Level Framework competencies is taken here:
"Selection of medicine:
Medicine – medicine interactions:
Medicine - medicine interactions are properly identified, prioritised and acted upon."

This competency, mapped onto a pre-service curriculum, would produce learning outcomes (Figure 4) such as:

i) Students will have an understanding of physico-chemical drug-drug interactions (eg. oral chelation of tetracyclines by calcium in antacids)
ii) Students will have an understanding of physiological factors in drug-drug interactions (eg. renal impairment caused by inappropriate use of aminoglycosides interfering with digoxin clearance).
iii) Students will have an understanding of pharmacological drug-drug interactions (eg. antagonism of desired effects of metoclopramide by concurrent use of opioids).

Each of these learning outcomes is similarly dependent on foundations of pharmaceutical chemistry, pharmacokinetics, applied/clinical pharmacology, and so on. All of which are already well defined in academic pre-service curricula. What is lacking at the moment is how these are applied upwards to Day 1 and beyond – general competencies in other words.

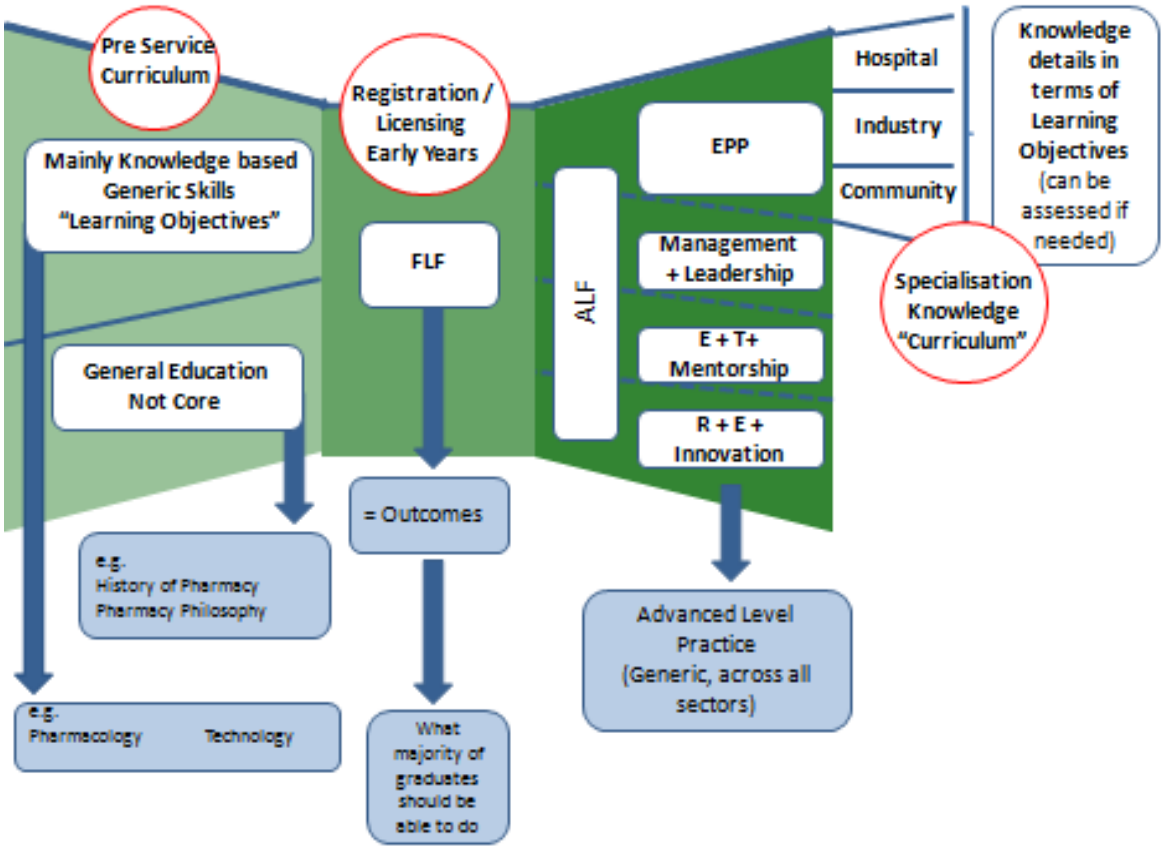
Taking another example from the FLF:
"Medicine Specific Issues:
Selection of formulation and concentration:
Ensures appropriate formulation and concentration of dosage."

Amongst other pre-service curriculum learning objectives (easily identifiable in curricula) the following would be included:

Students are able to understand the design, manufacture and performance of dosage forms and is able to critically appraise the inter-relationship between formulation, drug delivery and therapeutic effectiveness.

Again, this is about a translation of pre-service curriculum to be applied to general/foundation level (post Day 1) competencies.

Figure 5. Pharmacy Education in Europe



A draft of a professional development framework has been produced by PHARMINE and provisionally named Specialisation and Advanced Level Framework (SALF) (Appendix 12).

Professional competencies have been arranged in Core Clusters (Competencies which are common to all sectors of practice – WP4 focus) and Specialisation or Expert Professional Practice Clusters (Sector specific and locally determined) (Figure 5).

Core Clusters include competencies referred to the areas of 'Leadership', 'Management', 'Education, Training and Development' and 'Innovation and Evaluation' whereas Specialisation Clusters focus on Expert Professional Practice, Specialisation and Building working relationships.

The frameworks provide individuals with a tool to progress regardless of sector in their early years of practice, within her/his sector, starting within a specialized position and slowly acquiring more responsibilities and moving towards a mastery level in each of the domains.

With the frameworks structured this way, harmonization in all sectors of the profession will be attained keeping each individual's autonomy.

2.2. Competencies for early years' professional practice. Evidence

It was agreed by the consortium that competences (ie. Functional tasks; job descriptions) and competencies (learned behaviours) need to be differentiated, the latter being of direct (and generalisable) educational value.

After a long period of discussions and research by the consortium a draft framework for pharmacists in their early years of practice was developed using previous evidence (FPMM 2002; FNPP 2002; Leung 2002; Davies 2002; PCCP 2003; PSA 2003; RPSGB 2003; Davies 2004; Antoniou 2004; Meadows 2004; Austin 2004; Bates 2004; DoH 2004; Antoniou 2005; Mills 2005; Doh 2005; Taylor 2005; EFPIA 2007; PCNZ 2006; DoH 2008). A collection of competencies was drafted in order to describe the cognitive skills and knowledge for post-registration (post licensing). A pilot study was designed and an early version of the framework was tested in a sample of young practitioners and late year students (via EPSA). A summary of the findings from this study can be found in Appendix 1. The pilot revealed little variance across the sample (a good thing; n=496; countries n=31) and some issues with terminology.

The need for further research was identified and therefore the framework developed. Regular consultations, communication and meetings started to take place (EAHP, EIPG, PGEU) in London and Brussels (n= 8 meetings; n= 230 emails) in order to create a final version of the framework (named Foundation Level Framework) and an online survey to test its validation.

After a large number of iterations, new terminology was generated, a syntax was developed and the competencies used in the previous pilot study were rearranged and grouped based on partners consensus (Foundation Level Framework (Appendix 3)).

The FLO is based on a modern concept of behavioural (educational) driven competence which is already successfully applied in other industries such as banking, management, etc. This developmental framework has been developed by the PHARMINE leaders using a hybrid approach to competency as it merges both behavioural statements and outcomes.
The framework does not identify any particular pharmacy syllabus, but it does support the development of registered pharmacy practitioners from day 1 of practice at "foundation" level. The framework describes effective performance (during daily practice) of the practitioner when applying knowledge, skills, attitudes and values acquired during the education and training. Higher education institutions can therefore use the FLO to map the curricula to expected outcomes at registration/licensing levels (Figure 6).

The FLO is made up of the following components:
The three main areas of practice-based competence (competency clusters), which are:

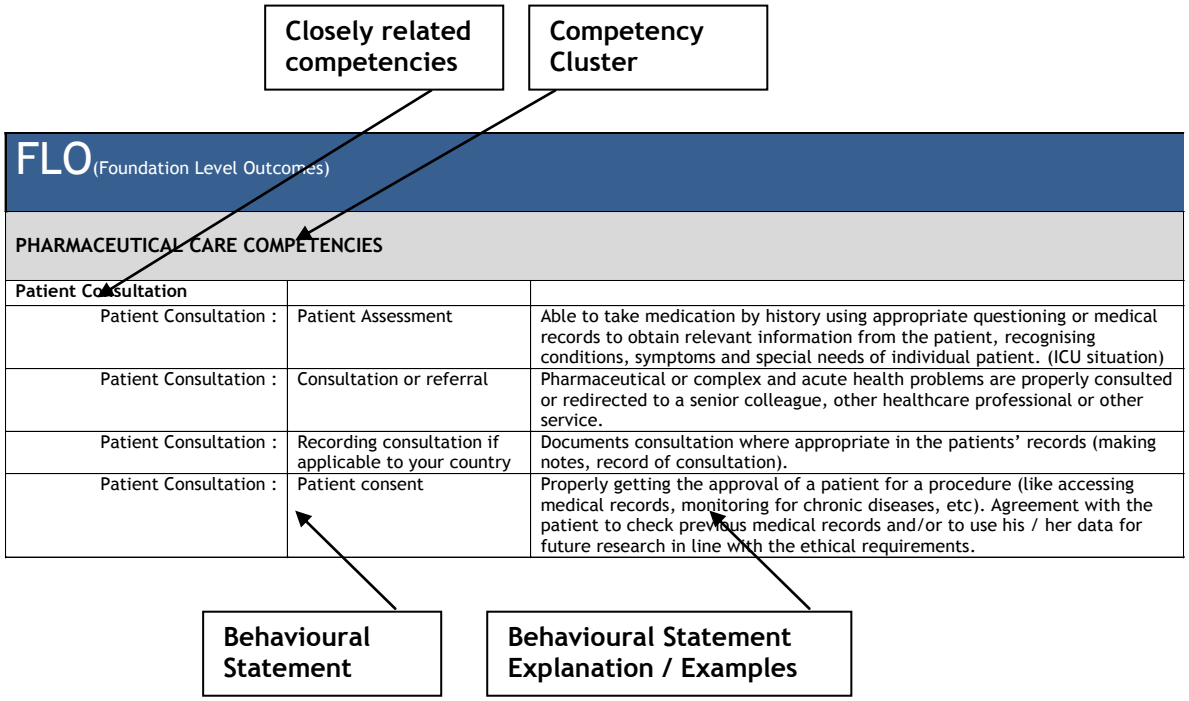
- Pharmaceutical Care Competencies
- Medicines Related Competencies
- Professional and Management Competencies

Each of these clusters contains closely related competencies. Using the Pharmaceutical Care Competencies cluster as an example, the competencies in this area pertain to:
Patient Consultation

Gathering, analysing and providing and acting on medicines Information
The need, selection and use for all medicines used by civil society
Medicine Information and Patient Education
Monitoring of Medicine Therapy
Evaluation of Outcomes of medicines therapy

Each of these competencies has a number of statements, known as behavioural statements that define how that competency would be recognised when effective performance is observed. Against these are short explanations of the behaviour.

Figure 6: Basic structure of the Foundation Level Outcomes



DEXP 3.3. Mapping competencies with Public Health Care Needs

3. OUTCOMES AND VALIDATION

Following a number of meetings, regular consultation and communication (n=8 meetings; n=230 emails) with EIPG, EAHP and PGEU (Appendix 1 and 2) , a final version of the framework was agreed and named Foundation Level Outcomes (Appendix 3) as it formed an outcome for the pre-service curriculum for professional pharmacists. Using Dreamweaver as a tool, a draft of a new online survey was developed and agreed. A dissemination strategy was discussed and consent. The consortium agreed for the online survey to be translated (via EPSA) into the main European languages (Appendix 4) in order to smooth the progress of understanding by all European member states and to foster

higher response rates. The online survey will be launched in February 2011 and will be to young professional and students through EPSA, FIP young pharmacists group, PGEU, ESCP/EAHP and EIPG. In order to validate the framework, analysis of online survey data will be conducted and partners reported on main findings.

As part of the FLO validation, a health needs policy research was conducted to ensure health policy congruity with educational requirements for pharmacy education (ie. A needs-based approach to development) (Appendix 5). The European Health Needs (focusing on pharmacy) were compiled using the European package for health needs in Europe, previous evidence, white papers and relevant articles and regular consultations with public health experts. Some of the main domains include: Patient safety, access to medicines issues, lifestyle, CV risk management, self-management of illness/health needs, public health policy directions.

5. CURRICULA MAPPING

As part of the WP3 developments, early years' competencies were mapped to European pre-service undergraduate education syllabuses, in consensus with PHARMINE partners and recommendations on competency curriculum for European professional pharmacists were outlined.

The Bourlioux report (Bourlioux 1995) was consulted and 12 pharmacy curricula from 12 European member states thoroughly examined in order to draft a common pharmacy curricula (Appendix 6).

Appendix 1. Summary of Results Piloting Framework

SURVEYING PHARMACY PRACTICE IN EUROPE

INTRODUCTION

European countries have an undeniable cultural diversity with differences in legislative and governmental systems as well as individuality and character of the citizens. That results in different health systems as well as pharmacy systems. Various factors, including mobility of patients and professionals, common public and governmental expectations for safe, effective and high quality care, and the increasing importance of self-care are grounds for increasing demand of highly competent healthcare workforce across the Europe.

There are no current unified European competency based standards for pharmacy practice. It is evident that for the future of pharmacy profession is essential to cooperate on a European level. International initiatives have showed that clearly defined standards of practice can be developed. Therefore it is important to have a consensus that pharmacy practice is not significantly different across Europe.

AIM

To survey perceived relevance of practice-based competencies among pharmacy students and recently registered practitioners in different European countries.

METHOD

- Literature search and evaluation in order to identify existing differences of practice standards, education and professional development tools in the different European countries.
- Construction of a set of likely competencies for early practice.
- Testing of a survey methodology for validity testing.

78 behavioural practice based competencies from the General Level Framework (GLF) were identified and grouped. An online survey tool was constructed. PGEU and EPSA partners were sampled. The 499 responses to the questionnaire responses from student and early year practitioners, representing 31 European Countries, were gathered an analysed.

RESULTS

There were very little variations of responses in association of students and practitioners or in association of liberalization index of countries.

For the n=499 respondents the levels of validity and relevance were high and the variance in practice was little.

Validity competencies	Responses
Not relevant	2%
Low relevance	11%
Relevant	42%
High relevance	45%

CONCLUSIONS

European countries have different political, healthcare systems and vary according to the perceived cultural identity and spoken languages. The pharmacy sector is regulated by different legislation acts, etc. but the results of this study suggest that pharmaceutical practice in the different settings across Europe has little variance, according to perceived relevance of practice-based competencies.

Therefore there is an opportunity to create a Generic European Competency Framework. Such framework would have a potential to be used as a tool to 'operationalise' existent continuing professional development CPD systems and provide a career path for pharmacists when developing towards advanced practice. The framework could serve as a common ground of quality assurance and practice standards across Europe.

Work is being undertaken at the moment in order to review the questionnaire terminology and syntax of the framework.

Full list of references used for this study available.

APPENDIX 3. PGEU Internal Memo for FLO consultations with members

PGEU GPUE Groupement Pharmaceutique de l'Union Européenne
Pharmaceutical Group of the European Union

Ref: 10.10.24E IM46

INTERNAL MEMO

Date:	24 October 2010
From:	Secretariat
To:	PGEU Members
Subject:	**PHARMINE: Foundation Level Framework**
Action	Information

1. Introduction

The PHARMINE[1] consortium works towards the development of a robust system for pharmacy education and training, taking into account the need for basic pharmaceutical competencies (mutual recognition of pharmacy qualifications) and the specialization needed in the three main areas of pharmaceutical expertise. The Foundation Level Outcomes (FLO) (The basic structure of the FLO is illustrated in Figure 1) is a key part of the WP3/WP4 of the PHARMINE project aiming to describe a set of core competencies that underpin 'day 1' pharmacy practice; the FLO outlines the expected levels of outcomes that follow a five-year university education and mandatory training. It is expected that this work will have a significant impact on the consistency, transparency, quality, and overall standing of pharmacy and pharmacy education in Europe.

European Association of Hospital Pharmacists (EAHP) and European Industrial Pharmacists Group (EIPG) have been engaged in the initial consultation with very limited involvement of PGEU until this stage.

2. Foundation Level Outcomes (FLO)

The FLO is based on a modern concept of behavioural (educational) driven competence which is already successfully applied in other industries such as banking, management,

[1]The PHARMINE consortium consists of four universities (Brussels, Nancy, London and Lisbon) members of the European Association of Faculties of Pharmacy and EU partner associations representing community (Pharmaceutical Group of the European Union), hospital (European Association of Hospital Pharmacists) and industrial (European Industrial Pharmacists Group) pharmacy, together with the European Pharmacy Students' Association and other interested bodies.

etc. This developmental framework has been developed by the PHARMINE leaders using a hybrid approach to competency as it merges both behavioural statements and outcomes.

The framework does not identify any particular pharmacy syllabus, but it does support the development of registered pharmacy practitioners from day 1 of practice at "foundation" level. The framework describes effective performance (during daily practice) of the practitioner when applying knowledge, skills, attitudes and values acquired during the education and training. Higher education institutions can therefore use the FLO to map the curricula to expected outcomes at registration/licensing levels.

The FLO is made up of the following components:

The three main areas of practice-based competence (competency clusters), which are:

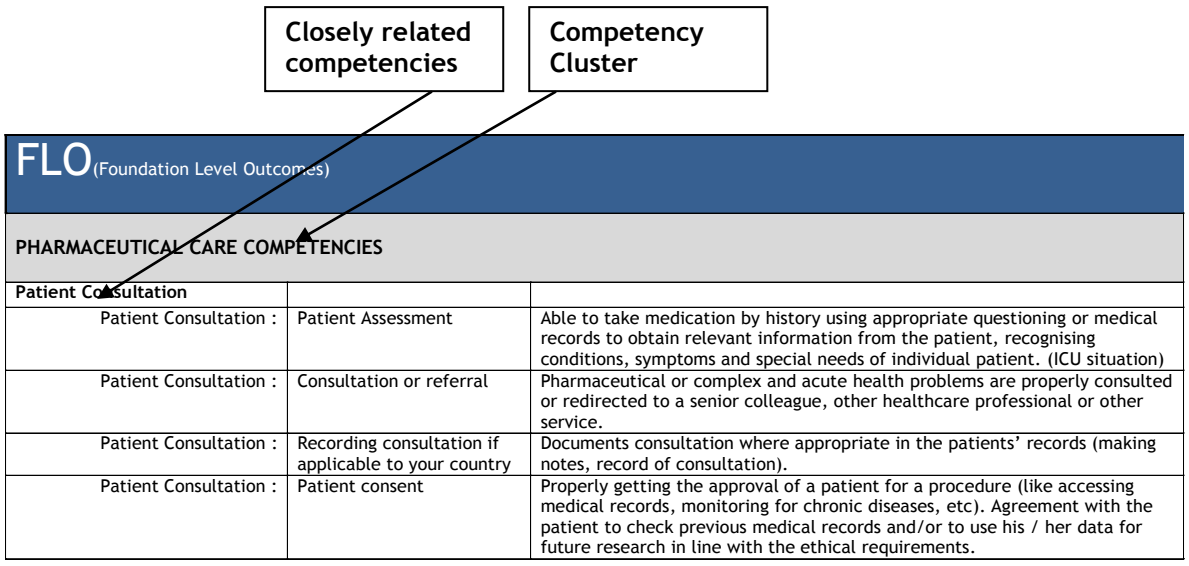
- Pharmaceutical Care Competencies
- Medicines Related Competencies
- Professional and Management Competencies

Each of these clusters contains closely related competencies. Using the Pharmaceutical Care Competencies cluster as an example, the competencies in this area pertain to:
Patient Consultation

- Gathering, analysing and providing and acting on medicines Information
- The need, selection and use for all medicines used by civil society
- Medicine Information and Patient Education
- Monitoring of Medicine Therapy
- Evaluation of Outcomes of medicines therapy

Each of these competencies has a number of statements, known as behavioural statements that define how that competency would be recognised when effective performance is observed. Against these are short explanations of the behaviour.

Figure 1: Basic structure of the Foundation Level Outcomes



Consultation

PGEU Members are invited to take part in a consultation process on the content and terminology of the framework. It is important to bear in mind that the competencies and related behaviour statements are expected outcomes of Pharmacy curriculum and training as described in directive 2005/36/EC and should map out pharmacy practice of a recently licensed pharmacist (up to 5 years). We ask you to assess relevance of individual competencies and behavioural statements to pharmacy practice in your country.

Once the final agreement on the content will be reached, the next potential step would be to disseminate the outline tool in the shape of a survey to European pharmacists in their early years of practice in order to assess the tool's wider validity and application in each country. The survey will be translated into different EU languages in order to facilitate greater engagement.

Appendix 3. Foundation Level Outcomes (FLO)

Foundation Level Outcomes (FLO)

PHARMACEUTICAL CARE COMPETENCIES		
Patient Consultation		
Patient Consultation :	Patient Assessment	Able to take medication history using appropriate questioning or medical records to obtain relevant information from the patient, recognising conditions, symptoms and special needs of individual patient. (Intensive Care Unit situation)
Patient Consultation :	Consultation or referral	Pharmaceutical or complex and acute health problems are properly consulted or redirected to a senior colleague, other healthcare professional or other service.
Patient Consultation :	Recording consultation	Documents consultation where appropriate in the patients' records (making notes, record of consultation).
Patient Consultation :	Patient consent	Obtaining the approval of a patient for a procedure (accessing medical records, monitoring for chronic diseases, etc). Agreement with the patient to check previous medical records and/or to use his / her data for future research in line with ethical requirements.
Gathering Information		
Gathering Information:	Accesses information	Is able to find and interpret relevant scientific and clinical information in databases including evidence-based literature and product sources relevant to local product supply. Is able to undertake a review of the appropriateness, safety and efficacy of the medicine.
Gathering Information:	Summarises information	Is able to evaluate/critically appraise evidence-based data for medicines use. Demonstrates the ability to summarize the information, extract key points that influence medicines use and if necessary pass on for referral.
Gathering Information:	Keeps up to date and interprets information	Keeps information needed on a day to day basis up to date. Is able to interpret clinical laboratory data and other types of data and information.
Analysing information		
Analysing information:	Evaluates information	Able to evaluate in an effective way any information gathered. Able to assess

		information for reliability of the source and relevance to patient care.
Analysing information:	Problem identification	Able to identify problems where they occur. Medicine related problems identification, prevention, solution.
Analysing information:	Appraises options	Considers various options available for problem solving. Considers possible outcomes of any action and recognises the pros and cons of the various options.
Analysing information:	Decision making	Demonstrates clear decision making. Identifies the most appropriate solutions and justifies the decision taken. Identifies ones own limits and seeks advice when necessary.
Analysing information:	Logical Approach	Demonstrates a logical process to work and problem solving.
Providing information		
Providing information:	Provides accurate information	Ensures information provided is accurate, validated and understandable. Accesses relevant sources, makes references to appropriate literature or to colleagues.
Providing information:	Provides relevant information	Provides information which is appropriate to the recipient's needs. This may include information and knowledge secure transfer to other Health Care Professionals.
Providing information:	Provides timely information	Provides information in a timely manner prioritizing information provision when it is needed.
Follow up		
Follow up:	Ensures resolution of problem	Ensures that an accurate problem is resolved promptly but not necessarily taking a direct action. Always ensures no harm comes to the patient. Seeks to follow up problems.
Need for the medicine		
Need for the medicine:	Medicines History	Documents an accurate and comprehensive medicine history when required.
Need for the medicine:	Relevant Patient Background	Retrieves ALL relevant and available information about patients' health and demographics from different sources. Able to engage with medicines reconciliation.
Selection of medicine		
Selection of medicine:	Medicine – medicine interactions	Medicine - medicine interactions are properly identified, prioritised and acted upon.
Selection of medicine:	Medicine - patient interactions	Medicine - patient interactions are properly identified, prioritised and acted upon.
Selection of medicine:	Pharmacoeconomics	Is able to identify the most cost effective medicine based on interpretation of relevant data.

Selection of medicine:	Medicine - disease interactions	Medicine - disease interactions are properly identified, prioritised and acted upon.
Medicine Specific Issues		
Medicine Specific Issues:	Ensures appropriate dose	Ensures dose is appropriate using point of care diagnostics and relevant information.
Medicine Specific Issues:	Selection of dosing regime: Route	Understands the consequences of different routes of administration.
Medicine Specific Issues:	Selection of dosing regimen: Timing	Ensures appropriate time of dose and deals with missed doses.
Medicine Specific Issues:	Selection of formulation and concentration	Understands the full range of formulations available. Ensures appropriate formulation and concentration of dosage. Considering whether aids are required to ensure safe and effective administration. For example, GI tubes, epidural, intrathecal administration.
Medicines Information and patient education		
Medicines Information and patient education :	Health Needs	Takes into account patient's cultural, language and social background when assessing personal health needs.
Medicines Information and patient education :	Public Health	Provides lifestyle advice according to the needs of the patient and his readiness. Is aware of local services and initiatives.
Medicines Information and patient education :	Need for information is identified	Being aware of individual needs for information and facilitating them.
Medicines Information and patient education :	Medicines Information	Ensures the accuracy of medicine information, using appropriate resources and consulting appropriate colleagues if needed.
Medicines Information and patient education :	Provision of written information	Provides written information when necessary (including relevant leaflets available from other organisations or institutions, specific information for individual patients, etc)
Monitoring medicine therapy		
Monitoring medicine therapy:	Identification of medicines management problems	Identifies patients for which on going monitoring therapy is required. Identifies monitoring parameters and potential adverse effects. Establishes a plan for review of objectives and treatment outcomes. Ensures high risk drugs which require specialist knowledge are appropriately monitored.
Monitoring medicine therapy:	Prioritisation of medicines management problems	Prioritising medicines management problems of individuals and patient groups that one works with.
Monitoring medicine therapy:	Use of guidelines or protocols	Awareness of the current clinical guidelines / protocols available for the field one is working in. Applies current clinical guidelines as appropriate. Knows

		how to use them and is familiar with the advantages and disadvantages of using them.
Monitoring medicine therapy:	Resolution of medicines management problems	Ensures appropriate action when drug management problems occur is identified and implemented. Ensures that no harm comes to patient.
Monitoring medicine therapy:	Record of contributions if applicable in your country	If applicable to your country, documenting information to support one's contribution to patient care and ensuring information is available to other members of staff.
Monitoring medicine therapy	Spontaneous reporting of ADRs	Identifies and reports ADRs to the appropriate Authorities. Understands the national and European pharmacovigilance systems.
Evaluation of outcomes		
Evaluation of outcomes:	Assessing outcomes	Refers to patient care – monitoring or following up interventions and well as medicines advice. Recording contribution and, where it is possible, continuing to establish outcomes to one's own contribution and learning from the outcomes.
MEDICINES RELATED COMPETENCIES		
Knowledge		
Knowledge:	Pathophysiology and Anatomy	Is able to apply knowledge of pathophysiology relevant to the common therapeutic areas. Understands normal organ function and the effect of disease states and whether it affects medicines use, for example in rare and acute diseases such as stroke.
Knowledge:	Pharmacology	Is able to discuss how medicines that are routinely reviewed in the course of daily practice. Able to apply this knowledge for common therapeutics and use in relation to less common diseases.
Knowledge:	Side effects and Toxicology	Can describe the relationship between pharmacological science and the detection, assessment and prevention of adverse events. Applies benefit risk analysis and is able to propose alternative treatments.
Knowledge:	Interactions	Is able to describe the different mechanisms of medicine interactions and to identify which type of interaction applies.
Knowledge:	Microbiology and Infection Control	Is able to describe the interaction between bacteria, viruses, parasite and human including resistance mechanisms and anti-infective therapeutic agents (common examples include: CAP, MRSA, HIV, hospital acquired infections).
Knowledge:	Application of research methods	Is able to show relevance of appropriate research methodologies to scientific and practice related problems. This includes an understanding of the

		organisation and running of pre-clinical and clinical trials from Phase 1 clinical pharmacology to Phase IV post-marketing studies.
Development and Production of medicines		
Development and Production of medicines:	Formulation	Shows knowledge relevant to the design, manufacture and performance of dosage forms and is able to critically appraise the inter-relationship between formulation, drug delivery and therapeutic effectiveness.
Development and Production of medicines:	Development	Has an understanding of an integrated nature of the various disciplines that are involved in the development of a medicinal product.
Development and Production of medicines:	Standard Operating Procedures	Is able to show knowledge relevant to the quality requirements for manufacturing procedures for medicinal products on small, laboratory and industrial scale.
Development and Production of medicines:	Quality assurance of medicines for the public	Is able to show knowledge relevant to the relative importance of quality control testing and manufacturing controls for product quality.
Development and Production of medicines:	Distribution of medicines	Is able to show knowledge of the organisation and monitoring of the distribution of medicinal and other healthcare products including the regulations related to pharmaceutical marketing.
Analysis and control of medicines:		
Analysis and control of medicines:	Quality assurance of ingredients	Is able to show knowledge relevant to the main sources of active drug substance and the major excipients and the ways in which they are purified, characterised and analysed.
Analysis and control of medicines:	Analysis of available medicines	Ensures an appropriate understanding of the role and appropriate application of the various techniques for the analysis of medicinal products including the theory and practice of analytical method validation.
Analysis and control of medicines:	Qualified person	Understands the importance of the role and responsibilities of the Qualified Person.
Analysis and control of medicines:	Quality management systems	Demonstrates familiarity with the quality management systems applied to pharmaceutical products (GMP, ISO, 9000).
Provision of medicine product		
Provision of medicine product:	The prescription is clear	Ensures the prescription is clear and that the intentions of the prescriber are understandable.
Provision of medicine product:	The prescription is legal	Ensures the prescription is legal in the country in which it is being dispensed

		and accounts for any national regulations for the dispensing of prescriptions prescribed in another EU member country.
Provision of medicine product:	Labeling of the medicine	Ensures medicines are labeled accurately (e.g. with clear dosage, instructions and other required information) and that the label is appropriate for the patient.
PROFESSIONAL and MANAGEMENT COMPETENCIES		
Organisation		
Organisation:	Prioritisation	Prioritises work well and adjusts priorities to changing circumstances.
Organisation:	Punctuality	Ensures satisfactory completion of tasks with appropriate handover, recognizing the importance of punctuality and attention to detail.
Organisation:	Initiative	Demonstrates initiative in problem solving or taking new tasks. Demonstrating ability to work independently with one's own limitations.
Organisation:	Efficiency	Demonstrates a process of care using the time productively with minimum waste or effort.
Effective Communication Skills		
Effective Communication Skills:	Patient / Carer / Client	Communicates in a clear, precise and appropriate way verbally, electronically and in writing, and using appropriate language for a patient / carer / client. Communicates in a way that enables a shares decision between the pharmacist and the patient or client.
Effective Communication Skills:	Other Healthcare Professionals and Staff	Communicates with doctors, dentists, nurses, physiotherapists, occupational therapists, dieticians, opticians, paramedics and with other health staff such as managers, doctors, receptionists, clerks and medical secretaries in a clear, precise and appropriate way.
Effective Communication Skills:	Immediate Team	Communicates with other members of the team in a clear, precise and appropriate way, including the transfer of information to other members of the team.
Effective Communication Skills:	Mentor/tutor	Ensures time is allocated for discussion of progress, including strengths and weaknesses.
Effective Communication Skills:	Employing Organisation	Communicates with non clinical staff within an organisation such as administrators, human resources managers, and general managers (the organisation can be a pharmaceutical company, hospital, primary care setting, community pharmacy, etc)
Effective Communication Skills:	Linked Organisations	Communicates with other organisations that affects the delivery of patient care, especially involving the transfer of care.

Team work		
Team work:	Pharmacy Team	Recognises the value of team members and uses appropriate channels for referral. Understands the roles and responsibilities of team members, knowing how the team works, respecting skills and contributions of colleagues and directly-managed staff as well as recognising own limitations within the team.
Team work:	Multi-disciplinary team	Recognises the value of other healthcare professionals and seeks to establish co-operative working relationship with colleagues, based on the understanding of and respect for each other's roles.
Team work:	Organisational Team	Recognises the roles and skills of other non-clinical staff within the team.
Professionalism		
Professionalism:	Confidentiality	Maintains confidentiality. Respects individual's right to confidentiality maintains confidentiality and understands circumstances when information about the patient's condition can be shared with colleagues.
Professionalism:	Recognition of limitation	Knows one's own professional and personal limitations and seeks advice or refers when necessary.
Professionalism:	Quality and accuracy of documentation	Ensures that legally required information is documented in a timely manner - Completion of appropriate documentation and recording of information.
Professionalism:	Legislation	Is aware of and appropriately implements legislation that is directly linked to the delivery of a service to an individual patient (human rights, dispensing of controlled drugs, pharmacy supervision, medicines legislation and economics applied to the pharmaceutical industry, etc).
Professionalism:	Responsibility for own action	Takes responsibility for own action. Is prepared to give an account of own professional judgments, acts and omissions in relation to own professional role.
Professionalism:	Confidence	Inspires confidence so that patients, health professionals, colleagues and clients will be more likely to accept recommendations.
Professionalism:	Responsibility for patient care	Takes responsibility for patient care. Has a non-discriminatory attitude to all patients and recognises their needs as individuals. Recognises when to ask for advice and is willing to consult, identify and act upon.
Professionalism:	Responsibility for continuing professional development	Understands the need for continuing professional development and taking responsibility for it. Is able to engage with local CPD requirements, reflecting on performance. Is able to self-assess competence and performance. Engages with LLL. Identifies one's own learning needs. Evaluates one's own learning.

Clinical Governance		
Clinical Governance:	Clinical Governance issues	Understands issues surrounding clinical governance and continuous quality improvement.
Clinical Governance:	Quality Systems	Has an understanding of the Quality Systems including GCP and GLP.
Clinical Governance:	Department's Standard Operating Procedures	Uses relevant and up to date procedures to practice. Standard Operating Procedures (SOPs) are part of risk management and harm minimization strategies. The SOPs should cover the dispensing processes, but may also be required for other aspects such as use of controlled medicines management.
Clinical Governance:	Working Environment	Applies legal and professional requirements for a safe system of work, such as the Code of Ethics, Hygiene Standards, Health and Safety at Work.
Clinical Governance:	Risk Management (if applicable to your country)	Records patient safety incidents such as dispensing and prescribing errors and patient complaints in line with local and national policies. Forwards it to the relevant institutions (for example, pharmacovigilance reporting systems, National Medicines Agency, etc).
Management, Legislation and economics:		
Management, Legislation and economics:	Management of Tasks	Is able to demonstrate leadership and project management skills.
Management, Legislation and economics:	Patents	Able to show knowledge related to the principals of business economics and intellectual property rights including the basics of patent interpretation.
Management, Legislation and economics:	From development to market	Able to show knowledge of the steps needed to bring a medicinal product to the market including the safety, quality, efficacy and pharmacoeconomic assessments of the product.
Management, Legislation and economics:	Regulatory Affairs	Applies and understands Regulatory Affairs and the key aspects of medicinal product registration and legislation.
Management, Legislation and economics:	Marketing and sales	Shows understanding the role and function of the marketing and sales departments.
Service Provision		
Service Provision:	Quality of Service	Reviews services one provides to ensure they meet local and national standards and specifications. Understands and applies the knowledge related

		to the analysis and quality control of pharmaceutical products in the service.
Service Provision:	Service Development: Key drivers and new services	Identifies new services or new ways of working in relation to local plans (projects) and needs of local population. Ensures sustainability and availability of the service.
Budget setting, medicine costs and reimbursement systems		
Budget setting and reimbursement:	Service Reimbursement –	Uses relevant reference sources to ensure appropriate and accurate reimbursement. Claims reimbursement appropriately for services that were provided (Services include dispensing services, medication record review, etc).
Budget setting and reimbursement:	Prescribing budgets (if applicable)	Interprets how prescribing affects prescribing budgets.
Organisations		
Organisations:	Organisational structure	Understands the structure of employing organisation and / or professional body.
Organisations:	Linked Organisation	Understands the structure of key organisations (such as National Medicines Agency, professional unions, etc) and how they affect to service delivery.
Organisations:	All sectors	Able to interpret and apply national and local policies in relation to the hospital pharmacy, community pharmacy and pharmaceutical industry. Understand the legislation about relationship with medical staff and patients / pharmaceutical care; patients, medical staff and providers and / or medical representatives of pharmaceutical industry.
Training		
Training:	Pharmacy Staff	Ensures that staff under ones responsibility is competent to undertake tasks allocated to them. Makes arrangements for training when necessary.
Training:	Other healthcare professionals	Participates actively in training other healthcare professionals. Organises training events or uses an opportunistic conversation to facilitate training.
Staff Management		
Staff Management:	Performance management	Carries out staff appraisals on a regular basis. The purpose of the staff appraisal is to discuss achievements, expectations and outcomes related to work content, contribution, development and aspirations. The appraisal process should realise potential, monitor performance and recognise contribution.
Staff Management:	Staff development	Supports staff in their professional and personal development.
Staff Management:	Employment issues	Knows employment legislation. Such things include interviewing skills, statutory rights (annual leave, maternity leave, minimum wage) and

		disciplinary procedures.
Medicines Purchasing (Procurement)		
Medicines Purchasing (Procurement):	Pharmaceutical: Describe sourcing / Timely sourcing	Knows when medicines can be sourced or is able to suggest suitable alternatives. Sources pharmaceuticals in a timely manner.
Medicines Purchasing (Procurement):	Supply problems	Ensures patients receive the medicines they need in a timely fashion. When supply problems occur arranges alternative products for patients.
Medicines Purchasing (Procurement):	Stock management	Ensures effective stock management. Avoids excess and shortage of the medicines. Keeps track of expiry dates.
Medicines Purchasing (Procurement):	Cost effectiveness	When purchasing and dispensing stock and advising on prescribing choices, consideration must be given to effectiveness (e.g. dispensing generics, buying in blocks, selecting a product from several therapeutic equivalents, using the cheaper wholesaler offers).
Medicines Purchasing (Procurement):	Authentication	Ensures that dispensed medicine is sources from a licensed supplier and can authenticate medicine packs and content when necessary to ensure no counterfeit product reached the patient.

Useful definitions:

Behavioural competency: Typical behaviour observed when effective performers apply motives, traits or skill to job relevant tasks.

Clinical Governance: Clinical governance includes a quality system that requires: a policy and procedural framework, clear roles and responsibilities, training, the right quality culture, audit and the full panoply of lean / agile continuous improvement and risk management. A framework through which NHS organisations are accountable for continuously improving the quality of their services and safeguarding high standards of care by creating an environment in which excellence in clinical care will flourish.

Competence: Ability to carry out a job or task.

Competency: A quality or characteristic of a person related to effective or superior performance. It is made up of many things such as motives, traits and skills.

Continuing Education (CE): A structured process of education designed or intended to support the continuous development of pharmacists to maintain and enhance their professional competence. CE does not necessarily equate to adequate learning to attain the competence of the professional. Hence continuing professional development (CPD) is increasingly adopted by the profession world-wide as the way to ensure professional competence.

Continuing Professional Development (CPD): Self-directed, ongoing, systematic and outcomes-focused approach to learning and professional development.

Hospital: Licensed establishment primarily engaged in providing medical, diagnostic, and treatment services that include physician, nursing, and other health services to in-patients and the specialized accommodation services required by in-patients.

Life Long Learning: All learning activity throughout life, with the aim of improving knowledge, skills and competence, within a personal, civic, social and/or employment-related perspective.

Mentor: One who advises on how skills should be performed in the workplace.

National Priorities: Health care priorities identified in the Government's Public Service Agreement.

Outcome: Performance indicator based on standards that are measurable; often demonstrated through products or behaviours.

Peer Review Activities: Expert opinion is sought to undertake a review of published work(s) in the pharmacist's area of practice.

Pharmaceutical Care: The responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life.

Qualified Person: The Qualified Person (QP) is essential to the safe control of medicines and needs to have extensive training and in-depth critical understanding of all the aspects associated with pharmaceutical manufacturing. The primary legal responsibility of the Qualified Person (QP) is to certify batches of medicinal products prior to use in a clinical trial (human medicines products only) or prior to release for sale and placing on the market (human and veterinary medicinal products).

Role Model: One whose behaviour is copied by a learner Specialist Pharmaceutical

Sector: Major field of professional activity in a defined environment such as community, industry, hospital, administration and academia.

Team: The staff (pharmacy or multidisciplinary) or care group with which the pharmacist works most closely.

Appendix 4. Example of a Survey Translation

FRENCH EXAMPLE

ENGLISH	EU STATE MEMBER LANGUAGE: Français
Foundation Level Framework	**Foundation Level Framework**
The Foundation Level Framework (FLF) aims to provide guidance for professional and personal development of pharmacy students and young practitioners delivering general pharmacy services across Europe in any setting. The framework will facilitate continuing professional development, help individuals define gaps in knowledge and skills, and identify training and development needs. The FLF is based on evidence developed through the Competency Development & Evaluation Group (CoDEG: www.codeg.org), currently being used in several European and non-European countries. **This questionnaire aims to evaluate competencies, previously developed, in a broader European practice context. Your evaluation will be a valuable contribution.** The FLF is a developmental framework based on a modern concept of competence. A competency is a quality or characteristic of a person related to effective and sustained performance. It comprises knowledge, skills, behaviours and values. A competency describes typical behaviours observed when effective performers apply them to tasks. A competency framework is a collection of	**Le Foundation Level Framework (FLF)** a pour but de fournir des idées pour le développement professionnel et personnel des étudiants en pharmacie et des jeunes pharmaciens d'Europe. Ce FLF améliorera la formation professionnelle continue, aidera les personnes à définir leurs lacunes (en connaissances et/ou en compétences) et identifiera les formations nécessaires pour améliorer l'exercice européen. Le FLF est basé sur des preuves avancées par le Competency Development & Evaluation Group (CoDEG: www.codeg.org) qui est actuellement utilisé dans plusieurs pays européens et non-européens. **Ce questionnaire vise à évaluer les compétences acquises par les européens. Votre évaluation sera une contribution précieuse.** Le FLF est basé sur une liste globale de compétences reconnues par un grand nombre d'entités. Nous aimerions connaître quelles compétences sont pertinentes dans votre exercice de la pharmacie.

competencies that are thought to be central to effective performance. The framework consists of competencies which have a number of behavioural statements that define how that competency would be recognised. For example, the competency Patient Consultation consists of the behavioural statements patient assessment, consultation or referral, recording consultations and patient consent. Against these are short explanations of the behaviour. We would like to know which competencies are relevant to your pharmacy practice. This questionnaire is anonymous and should take no more than 15 minutes of your time. All your contributions are highly valued, and we appreciate your time and effort. This project is supported by the European Pharmacy Students Association (EPSA), the European Association of Faculties of Pharmacy (EAFP), CoDEG and the European Self-Medication Industry (AESGP). Thank you for you interest. For further information or if you have any enquiries about this questionnaire please contact Dr Laura Obiols	Ce questionnaire est anonyme et devrait prendre au maximum 15 minutes de votre temps. Votre contribution nous est très précieuse, et nous vous remercions pour le temps que vous allez nous consacrer. Ce projet est supporté par l'association européenne des étudiants en pharmacie (EPSA), l'association européenne des facultés de pharmacie (EAFP), le CoDEG et l'industrie européenne de l'auto-médication (AESGP) Merci encore une fois pour votre intérêt. Pour toute information concernant ce questionnaire, veuillez contacter le Dr Laura Obiols.
Instructions:	Instructions:
When completing the questionnaire please think about how relevant* that behaviour and competency is to the pharmacy practice and patient care in your country. There is no right or wrong answer, we ask you to be sincere when completing the	En complétant ce questionnaire, veuillez réfléchir à la pertinence* des comportements et des compétences citées, ceci dans l'exercice de la pharmacie pour le bien du patient dans votre pays. Il n'y a pas de réponse vraie ou fausse, nous vous demandons de bien vouloir remplir ce questionnaire de façon sincère.

questionnaire. *Relevance in this context refers to practical applicability, or usefulness to you as a pharmacist practitioner. Is the competency or behavior described useful to what is happening in your job as a pharmacist? (Please note that all fields must be completed to complete the questionnaire).	*la pertinence dans ce contexte se rapporte à une application pratique, à l'utilité que vous leur accordez en tant que pharmacien. Est-ce que la compétence ou le comportement décrit est très utile pour votre travail? (Veuillez noter que tous les champs doivent être complétés pour valider le questionnaire)
PERSONAL INFORMATION:	**INFORMATIONS PERSONNELLES:**
Age	Age:
Please select	Veuillez sélectionner:
Gender	Sexe
Male	Homme
Female	Femme
If you are a student: Year of Study	Si vous êtes étudiant: Année d'études :
N/A not applicable	N/A Non applicable
If you are a licensed practitioner: How long have you been practising?	Si vous êtes pharmacien: Depuis combien de temps exercez-vous?
Sector of work	Secteur d'exercice
My work is mostly based in hospital	Hôpital
My work is mostly based in community	Officine
My work is mostly based in industry (i.e. marketing representative, research, etc)	Industrie
Other	Autre
Please specify	Précisez
Job title	Poste
Country of Residence	Pays
Enter if not listed	Précisez si votre pays n'est pas cité
Do you routinely provide or have a professional interest in providing…	Est-ce que vous faites habituellement ou vous intéressez-vous au moyens de faire...
Diagnostic testing (i.e. monitoring cholesterol, monitoring glucose, etc)?	Du diagnostic (Tests de glycémie, de cholestérol,...)?
Healthy Living Counseling and Assessment (i.e. nutrition, smoking cessation, vascular risk assessment, etc)?	Des évaluations et du conseil relatifs aux règles hygiéno-diététiques à vos patients? (Nutritionnelles, arrêt du tabac, risques vasculaires...)

Sexual Education?	De l'éducation sexuelle?
Home Delivery?	De la dispensation à domicile ?
Needle Exchange Services?	De la récupération d'aiguilles usagées ?
Palliative Care Support?	Des soins palliatifs?
Medication Counseling	Du conseil en rapport aux médicaments?
Minor Ailment Service	De la prise en charge les patients avec des pathologies ou affections bénignes mineures ?
Out of hours access to medicines	Des gardes en dehors des heures d'ouverture
Other	Autre
Future Participation	Participation au projet
If you wish to be involved in the development of this project please enter your email address.	Si vous souhaitez participer au développement de ce projet, inscrivez votre adresse mail
Email address	E-mail:
1. PHARMACEUTICAL CARE:	**1. SOINS PHARMACEUTIQUES**
Competency	Compétence
Behaviour	Comportement
Relevance to your practice	Pertinence pour votre pratique
Relevant (core / essential)	Essentiel
Relevant (sometimes)	Pertinence moyenne
Not Relevant	Non pertinent
PATIENT CONSULTATION	**CONSULTATION DU PATIENT**
Patient Assessment	Evaluation du patient
Uses appropriate questioning to obtain relevant information from the patient, recognising conditions, symptoms and special needs of individual patient.	Usage de questions appropriées pour obtenir des informations sur le patient afin de déterminer son état, ses symptômes et ses besoins.
Consultation or Referral	Consultation ou orientation
Pharmaceutical or health problems are properly consulted or redirected to a senior colleague	Les problèmes relatifs à la pharmacie ou à la santé du patient sont convenablement étudiés ou redirigés vers un collègue plus ancien
Recording Consultations (if applicable to your practice)	Enregistrement des consultations (s'il est applicable à votre exercice)
Documents consultation where appropriate in the patients' records (making notes, record of consultation).	Les documents relatifs à la consultation sont appropriés dans le dossier du patient (prise de notes, rapport de la consultation)

Patient Consent	Consentement du patient
Properly getting the approval of a patient for a procedure (like accessing medical records, monitoring for chronic diseases, etc). Agreement with the patient to check previous medical records and/or to use his / her data for future research in line with the ethical requirements.	Obtenir le consentement du patient pour une procédure (accès à son dossier médical, contrôle des affections de longue durée...) Accord du patient pour l'utilisation de ses données médicales dans le cadre d'une recherche scientifique, tout en respectant les exigences éthiques.
GATHERING INFORMATION	**COLLECTE D'INFORMATIONS**
Access Information	Accès à l'information
Being able to use databases, information services, evidence-based literature and all sources relevant to local availability in the most time efficient manner in order to undertake a review of the appropriateness, safety and efficiency of the medicines prescribed.	Être capable d'utiliser des bases de données, des services d'information, la littérature et toutes les sources pertinentes disponibles de la manière la plus efficiente possible et en un minimum de temps, de façon à examiner la pertinence, la sécurité et l'efficacité des médicaments prescrits.
Summarise Information	Résumer les informations
Is able to evaluate/critical appraise evidence-based data for medicines use. Demonstrates the ability to summarize the information, extract key points that influence medicines use and necessary briefly pass on this information to another colleague.	Être capable d'évaluer/de critiquer des données probantes sur l'usage de médicaments. Démontrer sa capacité à résumer l'information, extraire les points clés influençant l'utilisation des médicaments et, si besoin, envoyer vers un autre collègue ~~mieux formé~~
Up to Date Information	Informations mises à jour
Keeps information needed on a day to day basis up to date.	Conserver les informations nécessaires sur une base de données mise à jour quotidiennement
KNOWLEDGE	**CONNAISSANCES**
Pathophysiology	Physiopathologie
Is able to apply an excellent knowledge of pathophysiology relevant to the therapeutic areas one is involved in. Understands normal organ function and the effect of disease states and if it effects medicines use.	Être capable d'appliquer ~~ses~~ connaissances en termes de physiopathologie. Comprendre les fonctions des différents organes, les effets des différents stades de la maladie et savoir si cela a un impact sur la médication.
Pharmacology	Pharmacologie
Is able to discuss how medicines that are routinely reviewed in the course of daily practice work. Able to apply this knowledge.	Être capable de discuter du pourquoi du comment des médicaments régulièrement utilisés. Être capable d'appliquer ces connaissances.
Adverse Effects	Effets indésirables
Is able to describe the common and major adverse effects profile of routinely used medicines.	Être capable de décrire les effets secondaires les plus fréquents des médicaments utilisés régulièrement
Interactions	Interactions

Is able to describe the different mechanisms of medicine interactions and identifying which type of interaction applies.	Être capable de décrire les différents mécanismes d'interactions médicamenteuses et d'identifier le type d'interaction mis en cause
ANALYSING INFORMATION	**ANALYSE D'INFORMATIONS**
Evaluates Information	Évaluer l'information
Able to evaluate in an effective way information gathered. Able to assess information for reliability of the source and relevance to patient care.	Être capable d'évaluer de façon efficace les informations recueillies. Être capable d'évaluer l'information en matière de fiabilité de la source et de pertinence dans le cadre des soins prodigués au patient.
Problem Identification	Identification des problèmes
Able to identify problems where they occur.	Être capable d'identifier les problèmes quand ils apparaissent
Appraises options	Savoir évaluer les options
Considers various options available for problem solving. Considers possible outcomes of any action and recognises the pros and cons of the various options.	Considérer toutes les options disponibles pour résoudre un problème. Considérer les enjeux possibles et peser le pour et le contre des diverses options
Decision making	Prise de décision
Demonstrates clear decision making. Identifies the most appropriate solutions and justifies the decision taken. Identifies ones own limits and seeks for advice when necessary.	Démontrer clairement une prise de décision. Identifier les solutions les plus appropriées et justifier la décision prise. Connaître ses propres limites et demander conseil si nécessaire
Logical Approach	Approche logique
Demonstrates a logical process to problem solving. Develops a logical approach to work. Using a logical process when reviewing a prescription and ensures that the process identifies the key action points that need to be addressed for a patient.	Démontrer un processus logique de résolution des problèmes. Développer une approche logique de travail. Utiliser un processus logique lors de l'examen d'une ordonnance et veiller à ce que le processus identifie les points d'action clés qui doivent être abordés pour un patient.
PROVIDING INFORMATION	**FOURNIR LES INFORMATIONS**
Provides accurate information	Fournir des informations précises
Ensures information provided is accurate. Accesses relevant sources, makes references to appropriate literature or to colleagues.	S'assurer que l'information fournie est exacte. Consulter des sources pertinentes, faire référence à une documentation appropriée ou à des collègues.
Provides relevant information	Fournir des informations pertinentes
Provides information which is appropriate to the recipient's needs.	Fournir des informations qui correspondent aux besoins du bénéficiaire
Provides timely information	Fournir des informations en temps convenable
Provides information in a timely manner prioritizing information provision when it is needed.	Fournir des informations en temps convenable en donnant la priorité à certaines informations si nécessaire

FOLLOW UP	**SUIVI**
Ensures Resolution of Problem	Assurer la résolution du problème
Ensures that an accurate problem is resolved not necessary taking a direct action. Always ensures no harm comes to the patient. Seeks to follow up problems.	Veiller à ce qu'un problème précis ~~est~~soit résolu sans forcément prendre des mesures. Toujours s'assurer qu'aucun mal n'arrive au patient. Effectuer un suivi des problèmes.
2. MEDICINES RELATED COMPETENCIES:	**COMPETENCES LIEES AU MEDICAMENTS**
NEED FOR THE MEDICINE	**INFORMATIONS NECESSAIRES A LA DISPENSATION DU MEDICAMENT**
Relevant Patient Background	Antécédents pertinents du patient
Retrieves ALL relevant and available information about patients' health and social status from different sources. Details may include age, gender, nationality, marital status, working conditions, etc.	Retrouver TOUTES les informations nécessaires et disponibles sur le patient concernant sa santé et son statut social. Informations pouvant inclure l'âge, le sexe, la nationalité, l'état matrimonial, les conditions de travail, etc
Medicine History	Historique médical
Documents an accurate and comprehensive medicine history when required.	Documenter l'historique médical du patient si nécessaire
SELECTION OF MEDICINE	**SELECTION DU MEDICAMENT**
Medicine-Medicine Interaction.	Interactions médicamenteuses
Medicine - medicine interactions are properly identified, prioritised and acted upon.	Ces interactions sont correctement identifiées, priorisées et prises en charge.
Medicine-Patient Interaction	Interactions patient-médicament
Medicine - patient interactions are properly identified, prioritised and acted upon.	Ces interactions sont correctement identifiées, priorisées et prises en charge.
Medicine-Disease Interaction	Interactions médicament-maladie
Medicine - disease interactions are properly identified, prioritised and acted upon.	Ces interactions sont correctement identifiés, priorisées et prises en charge.
MEDICINE SPECIFIC ISSUES	**QUESTIONS SPECIFIQUES AU MEDICAMENT**
Ensures appropriate dose	S'assurer que la dose est appropriée
Assesses the prescription when needed to ensure dose is appropriate.	Évaluer la prescription si besoin pour s'assurer du bon dosage
Selection of dosing regimen: route and timing.	Sélection de posologie: heures de prise et voie d'administration
Adjusts route of administration when needed. Ensuring appropriate time of dose.	Ajuster la voie d'administration du médicament si besoin. S'assurer de la bonne heure de prise
Selection of formulation and concentration.	Sélection de la formulation et de la concentration
Ensures appropriate formulation and concentration of dosage. Considering whether aids are required to ensure safe and effective administration.	S'assurer que la formulation, la concentration et la posologie sont adéquates. Considérer qu'une aide peut-être nécessaire pour assurer une administration

	efficace et sans danger.
Recording Consultations if applicable to your country.	Enregistrement dans le système informatique du passage du patient si applicable dans votre pays
Recording consultation in the medical record of the patient if applicable to your country.	Enregistrement dans le dossier médical (Dossier pharmaceutique) si applicable dans votre pays
PROVISION OF MEDICINE PRODUCT	**DELIVRANCE DU MEDICAMENT**
The Prescription is Clear	La prescription est claire
Ensures the prescription is clear and that the intentions of the prescriber are understandable.	S'assurer que la prescription est claire et que les intentions du prescripteur sont compréhensibles
The Prescription is Legal	La prescription est légale
Ensures the prescription is legal in the country is being dispensed and accounting for any applicable national regulations for the dispensing of prescriptions prescribed in another EU member country.	S'assurer que la prescription est légale dans le pays où l'on dispense et de la compatibilité avec les réglementations nationales applicables en matière de délivrance des ordonnances prescrites dans un autre pays membre de l'UE.
Labelling of the Medicine	Étiquetage du médicament
Ensures medicines are labelled accurately (e.g. with clear dosage, instructions and other required information) and that the label is appropriate for the patient.	Garantir que le médicament est bien étiqueté (c'est à dire avec un dosage clair, la notice...) et que l'étiquetage est approprié pour le patient
MEDICINES INFORMATION AND PATIENT EDUCATION	**INFORMATION SUR LE MEDICAMENT ET EDUCATION DU PATIENT**
Public Health	Santé publique
Provides lifestyle advice according to the needs of the patient and his readiness. Is aware of local services and initiatives.	Prodiguer des conseils de mode de vie, selon les besoins du patient et de sa volonté. Être au courant des services et des initiatives locales.
Health Needs	Besoins sanitaires
Takes into account patient's cultural, language and social background when assessing his personal health needs.	Prendre en compte la culture du patient, sa langue et son contexte social lors de l'évaluation de ses besoins sanitaires personnels.
Need of Information is Identified	Le besoin d'informations est identifié
Being aware of individual needs for information and facilitating them.	Être au courant des besoins d'informations des patients et les aider à les obtenir
Medicines Information	Information sur les médicaments
Ensures the accuracy of medicine information, using appropriate resources and consulting appropriate colleagues if needed. Delivers information in an appropriate and understandable way to the patient.	S'assurer de l'exactitude des informations médicales, en utilisant les ressources appropriées et en consultant des collègues en cas de besoin. Fournir des informations d'une manière appropriée et compréhensible pour le patient.
Provision of Written Information	Fournir des informations écrites

Provides written information when necessary (including related leaflets available from other organisations or institutions, specific information for individual patients, etc)	Fournir des informations écrites si nécessaire (brochures provenant de l'industrie, du conseil de l'ordre, d'associations...)
MONITORING MEDICINE THERAPY	**SURVEILLANCE DE LA THERAPIE**
Identification of Medicines Management Problems	Problèmes de gestion liés à l'identification du médicament
Identifies patients for who on going monitoring therapy is required. Identifies monitoring parameters and potential adverse effects. Establishes a plan for review of objectives and treatment outcomes.	Identifier les patients pour lesquels le suivi thérapeutique est nécessaire. Identifier les paramètres de surveillance et les effets indésirables potentiels. Établir un plan pour la révision des objectifs et des résultats du traitement
Prioritisation of Medicines Management Problems	Établir une priorité entre ces problèmes de gestion
Prioritising medicines management problems of individuals and patient groups that one works with.	Donner la priorité à des problèmes de gestion de médicaments pour des personnes en particulier ou pour des groupes de patients
Use of Guidelines or Protocols	Utilisation de procédures ou de protocoles
Awareness of the current clinical guidelines / protocols available for the field one is working in. Applies current clinical guidelines as appropriate. Knows how to use them and is familiar with the advantages and disadvantages of using them.	Sensibilisation aux procédures cliniques actuelles / aux protocoles disponibles dans son domaine d'activité. Appliquer les procédures cliniques courantes de rigueur. Savoir les utiliser et être familier avec les avantages et les inconvénients de leur utilisation.
Resolution of Medicines Management Problems	Résolution des problèmes de gestion des médicaments
Ensures appropriate action when drug management problems occur is identified and implemented. Ensures that no harm comes to patient.	Assurer une action appropriée en cas de problèmes de gestion des médicaments. Veiller à ce qu'aucun préjudice ne soit fait au patient.
Record of Contributions if applicable to your country	Compte-rendu des contributions, si applicable à votre pays
If applicable to your country, documenting information to support one's contribution to patient care and ensuring information is available to other members of staff.	Si c'est applicable à votre pays, documenter l'information pour appuyer sa contribution aux soins des patients et s'assurer que l'information est disponible pour les autres membres du personnel.
EVALUATION OF OUTCOMES	**EVALUATION DES RESULTATS**
Assessing Outcomes of Contributions	Évaluation des résultats des contributions
Refers to patient care - monitoring or following up interventions and well as medicines advice. Recording contribution and, where it is possible, continuing to establish outcomes to one's own contribution and learning from the outcomes.	Se rapporter aux soins des patients - la surveillance ou le suivi des interventions sur les médicaments ainsi que les conseils. Enregistrer sa contribution et, si possible, continuer d'établir les résultats de sa propre contribution et s'améliorer à partir des résultats.
3. PROFESSIONAL COMPETENCIES	**COMPETENCES PROFESSIONELLES**

ORGANISATION	**ORGANISATION**
Prioritisation	Etablir des priorités
Prioritises work well and adjusts priorities to changing circumstances (knowing which patient / task takes priority, etc).	Bien prioriser le travail et modifier les priorités en fonction de l'évolution des circonstances (en sachant quel patient ou quelle tâche est prioritaire, etc.)
PUNCTUALITY	**PONCTUALITE**
Ensures satisfactory completion of tasks with appropriate handover, recognising the importance of punctuality and attention to detail.	Assurer l'achèvement satisfaisant des tâches avec un transfert approprié des résultats, reconnaitre l'importance de la ponctualité et le souci du détail.
INITIAVE	**INITIATIVE**
Demonstrates initiative in problem solving or taking new tasks. Demonstrating ability to work independently with one's own limitations	Prendre des initiatives pour résoudre des problèmes ou effectuer de nouvelles tâches. Prouver sa capacité à travailler seul.
EFFICENCY	**EFFICACITE**
Demonstrates a process of care using the time productively with minimum waste or effort.	Réussir à obtenir des résultats satisfaisants en utilisant un minimum de temps et d'efforts
EFFECTIVE COMMUNICATION SKILLS	**COMPETENCES NECESSAIRES EN COMMUNICATION**
Patient and Carer	Patient et personnel soignant
Communicates in a clear precise and appropriate way verbally	Communication dans un langage clair, précis et adapté
Medical Staff	Équipes médicales
Communicates with doctors and / or dentists in a clear, precise and appropriate way.	Communication claire, précise et de façon appropriée avec les médecins et / ou dentistes
Nurses	Infirmières
Communicates with nurses in a clear, precise and appropriate way.	Communication claire, précise et de façon appropriée avec les infirmières
Other Healthcare Professionals	Autres professionnels de santé
Communicates with other health professionals like physiotherapists, occupational therapists, dieticians, opticians, paramedics in a clear, precise and appropriate way.	Communication avec les autres professionnels de santé tels que les physiothérapeutes, les ergothérapeutes, les diététiciens, les opticiens, les paramédicaux... claire, précise et de façon appropriée
Other Health Staff	Autres équipes de santé
Communicates with other health staff like pharmacy manager, doctors, receptionist, clerks, and medical secretaries in a clear, precise and appropriate way.	Communication claire, précise et de façon appropriée avec les autres membres de l'équipe, comme les managers, les réceptionnistes, les secrétaires médicales...
Immediate Pharmacy Team	Equipe pharmaceutique environnante

Communicates with other members of the pharmacy team in a clear, precise and appropriate way, including the transfer of information to other members of the pharmacy team.	Communication claire, précise et de façon appropriée avec les autres membres de l'équipe pharmaceutique, incluant le transfert d'informations.
Mentor / Tutor	Mentor / Tuteur
Ensures time is allocated for discussion of progress, including strengths and weaknesses.	S'assurer que du temps est alloué pour la discussion sur les progrès, les forces et les faiblesses
Employing Organisation	Organisation des emplois
Communicates with non clinical staff within an organisation such as administrators, human resources managers, and general managers. The organisation can be a hospital, primary care setting, community pharmacy, etc.	Communiquer avec le personnel non médical d'une organisation tel que les administrateurs, les gestionnaires des ressources humaines, les directeurs généraux... L'organisation peut être un hôpital, un établissement de premiers soins, une pharmacie d'officine, etc
Linked Organisations	Organisations en lien avec la votre
Communicates with other organisations that affects the delivery of patient care, especially involving the transfer of care.	Communiquer avec les autres organisations qui jouent un rôle dans la prestation de soins aux patients, en particulier concernant le transfert des soins.
TEAM WORK	**TRAVAIL EN EQUIPE**
Pharmacy Team	Equipe pharmaceutique
Recognises the value of team members and uses appropriate channels for referral. Understands the roles and responsibilities of team members, knowing how the team works, respecting skills and contributions of colleagues and directly-managed staff as well as recognising own limitations within the team.	Reconnaître le mérite de membres de l'équipe et utiliser des moyens appropriés pour le communiquer. Comprendre les rôles et responsabilités des membres de l'équipe, en sachant comment fonctionne l'équipe, en respectant les compétences et les contributions des collègues et du personnel directement géré ainsi que reconnaître ses propres limites au sein de l'équipe.
Multi-Disciplinary Team	Équipes multi-disciplinaires
Recognises the value of other healthcare professionals and seeks to establish co-operative working relationship with colleagues, based on the understanding of and respect for each other's roles.	Reconnaître la valeur des autres professionnels de santé et chercher à établir une coopération avec ses collègues, basée sur l'entente et le respect de chacun
Organisational Team	Organigramme
Recognises the roles and skills of other non-clinical staff within the team.	Reconnaissance des rôles et des compétences des membres non-médicaux au sein de l'équipe
PROFESSIONALISM	**PROFESSIONALISME**
Confidentiality	Confidentialité
Maintains confidentiality. Respects individual's right to confidentiality maintains	Maintenir la confidentialité. Respecter les droits individuels à ce sujet et

confidentiality and understands circumstances when information about the patient's condition can be shared with colleagues.	comprendre les circonstances dans lesquelles les informations sur l'état du patient peuvent être partagées avec les collègues.
Recognition of Limitation	Reconnaissance des limitations
Knows one's own professional and personal limitations and seeks advice or refers when necessary.	Connaître ses limites personnelles et professionnelles et demander l'avis ou se référer aux autres si besoin.
Quality and Accuracy of Documentation	Qualité et pertinence de la documentation
Ensures that legally required information is documented in a timely manner - Completion of appropriate documentation and recording of information.	Veiller à ce que les informations légalement requises soient documentées et ce dans les meilleurs délais - Compléter la documentation appropriée et enregistrer les informations.
Legislation	Législation
Is aware of and appropriately implements legislation that is directly linked to the delivery of a service to an individual patient (human rights, dispensing of controlled drugs, pharmacy supervision, etc).	Etre conscient de la législation liée directement à la prestation d'un service à un patient (droits de l'homme, dispensation de médicaments contrôlés, direction de pharmacie, etc.) et l'appliquer convenablement.
Responsibility of Own Action	Responsabilité de ses propres actes
Takes responsibility for own action. Is prepared to give an account of own professional judgments, acts and omissions in relation to own professional role.	Prendre la responsabilité de ses propres actions. Être préparé à décrire son jugement professionnel, ses actes et ses omissions en relation avec sa profession
Confidence	Confiance
Inspires confidence. Patients and health professionals will be more likely to accept recommendations.	Inspirer la confiance. Les patients et les professionnels de santé seront plus aptes à accepter des recommandations.
Responsibility for Patient Care	Responsabilité dans les soins du patient
Takes responsibility for patient care. Has a non-discriminatory attitude to all patients and recognises their needs as individuals. Recognises when to ask for advice and is willing to consult, identify and act upon.	Assumer sa responsabilité dans les soins aux patients. Avoir une attitude non-discriminatoire envers tous les patients et reconnaître leurs besoins particuliers. Savoir quand demander des conseils et être prêt à se concerter, identifier et agir en conséquence.
Responsibility for Continuing Professional Development	Responsabilité de la Formation Professionnelle Continue
Understands the need for continuing professional development and taking responsibility for it. Is able to engage with local CPD requirements, reflecting on performance. Is able to self-assess competence and performance. Engages with LLL. Identifies one's own learning needs. Evaluates one's own learning.	Comprendre les besoins de continuer son développement professionnel et en prendre la responsabilité. Être capable de s'engager par rapport aux besoins locaux en CPD (Career Professional Development), ceci se reflète sur la performance. S'engager sur les mauvaises connaissances en langues. Identifier les besoins de chacun. Évaluer ses propres connaissances.
4. MANAGEMENT AND ORGANISATION COMPETENCIES	**COMPETENCES EN MANAGEMENT ET EN ORGANISATION**

CLINICAL GOVERNANCE (PHARMACOVIGILANCE)	Amélioration Continue de la Qualité et de la Gestion des Risques (**PHARMACOVIGILANCE)**
Clinical Governance Issues	Enjeux de l'Amélioration Continue de la Qualité et de la Gestion des Risques
Understands issues surrounding clinical governance and continuous quality improvement. Clinical governance consists of processes as continuing professional development, evidence-based practice, auditing, dealing with poor performance, managing risk, monitoring clinical care and patient involvement.	Comprendre les enjeux entourant l'Amélioration Continue de la Qualité et de la Gestion des Risques . Elle consiste en des processus comme la formation professionnelle continue, l'audit, l'amélioration des mauvaises performances, la gestion des risques, la surveillance des soins cliniques et la participation du patient.
Departments' Standard Operating Procedures	Les procédures opérationnelles permanentes
Uses relevant and up to date procedures to practice. Standard Operating Procedures (SOPs) are part of risk management and harm minimization strategies. The SOPs should cover the dispensing processes, but my also be required for other like use of controlled medicines or management.	Utiliser des procédures pertinentes et à jour pour la pratique. Les Standard Operating Procedures (SOP) font partie de la gestion des risques et des stratégies de réduction des préjudices. Les SOP doivent couvrir les processus de distribution, mais peuvent également être requises pour d'autres fins telles que l'utilisation d'autres médicaments contrôlés ou la gestion.
Working Environment	Environnement de travail
Implements legal and professional requirements for a safe system of work, such as the Code of Ethics, Hygiene Standards, Health and Safety at Work, etc.	Mettre en œuvre des exigences légales et professionnelles pour un système de travail sûr, tel que le code de déontologie, les normes d'hygiène, de santé et de sécurité au travail, etc
Risk Management (if applicable to your country)	Gestion du risque (si applicable)
Records patient safety incidents such as dispensing and prescribing errors and patient complaints in line with local and national policies. Forwards it to the relevant institutions (for example, pharmacovigilance reporting systems, National Medicines Agency, etc).	Faire des comptes-rendus des incidents de sécurité patients tels que les erreurs de prescription et de dispensation ainsi que les plaintes de patients en conformité avec les politiques locales et nationales. Transmission aux institutions concernées (par exemple, les systèmes de déclaration de pharmacovigilance, l'AFSSAPS, etc.)
SERVICE PROVISION	**MISE A DISPOSITION DE SERVICES**
Quality of Service if applicable to your country	Le service qualité, si il existe dans votre pays
Reviews services one provides to ensure they meet local and national standards and specifications.	Examiner les services fournis pour s'assurer qu'ils répondent aux normes et aux spécifications locales et nationales.
Service Development: Key drivers and new services	Développement des services: facteurs clés et nouveaux services
Identifies new services or new ways of working in relation to local plans (projects) and needs of local population. Ensures sustainability and availability of the service.	Mettre en place de nouveaux services ou de nouvelles façons de travailler en rapport aux plans locaux (projets) et aux besoins de la population locale. Assurer

	la pérennité et la disponibilité des services.
BUDGET SETTING, MEDICINE COSTS AND REIMBURSEMENT SYSTEMS	**PARAMETRES DU BUDGET, COUT DES MEDICAMENTS ET SYSTEMES DE REMBOURSEMENT**
Service Reimbursement	Remboursement des services
Uses relevant reference sources to ensure appropriate and accurate reimbursement. Claims reimbursement appropriately for services that were provided (Services include dispensing services, medication record review, etc).	Utiliser des sources de référence pertinentes pour assurer un remboursement adéquat et précis. Demander des remboursements de manière appropriée pour les services qui ont été fournis (services incluant les services de dispensation, l'examen des registres de médicaments, etc.)
Prescribing Budgets	Budget de la prescription
Interprets how prescribing affects prescribing budgets. Uses generic substitutions where possible.	Interpréter comment la prescription affecte le budget. Utiliser des substitutions si possible. (Génériques...)
ORGANISATIONS	**ORGANISMES**
Organisational structure	Structure organisationnelle
Knows the structure of employing organisation and / or professional body.	Connaître la structure de l'organisme employeur et/ou du corps professionnel
Linked Organisation	Organisations liées
Knows key organisations (such as National Medicines Agency, professional unions, etc) and their structure that affect service delivery.	Connaître les organisations majeures (telles que l'AFSSAPS, les syndicats,...) et leurs prestations de services
Pharmaceutical Industry	Industrie pharmaceutique
Knows national and local policies in relation to the pharmaceutical industry. Knows legislation about relationship with medical representatives of pharmaceutical industry.	Connaître les politiques nationales et locales en ce qui concerne l'industrie pharmaceutique. Connaître la législation sur les relations avec les représentants médicaux de l'industrie pharmaceutique.
TRAINING	**FORMATION**
Pharmacy Staff	Équipe pharmaceutique
Ensures that staff under ones responsibility are competent to undertake tasks allocated to them. Makes arrangements for training when necessary.	S'assurer que les équipes sous votre responsabilité sont compétentes pour effectuer les tâches qui leurs sont allouées. S'arranger pour organiser des formations si nécessaire.
Other Healthcare Professionals	Autres professionnels de santé
Participates actively in training other healthcare professionals. Organises training events or uses an opportunistic conversation to facilitate training.	Participer activement à la mise à niveau des autres professionnels de santé. Organiser des formations ou utiliser des opportunités pour discuter avec l'équipe et faciliter la formation.
STAFF MANAGEMENT	**MANAGEMENT DE L'EQUIPE**

Performance Management	Gestion des performances
Carries out staff appraisals on a regular basis. The purpose of the staff appraisal is to discuss achievements, expectations and outcomes related to work content, contribution, development and aspirations. The appraisal process should realise potential, monitor performance and recognise contribution.	Effectuer des évaluations du personnel régulièrement. Le but de l'évaluation du personnel est de discuter des réalisations, des attentes et des résultats relatifs au contenu du travail, de la contribution, du développement et des aspirations. Le processus d'évaluation devrait souligner le potentiel, surveiller le rendement et reconnaître la contribution de chacun
Staff Development	Epanouissement de l'équipe
Supports staff in their professional and personal development.	Aider l'équipe dans leur développement professionnel et personnel
Employment Issues	Questions relatives à l'emploi
Knows employment legislation. Such things include interviewing skills, statutory rights (annual leave, maternity leave, minimum wage) and disciplinary procedures.	Connaitre la législation de l'emploi. Ceci inclut les aptitudes à l'entretien, les droits juridiques (congés annuels, congés maternité, salaire minimal) et les procédures disciplinaires.
MEDICINES PURCHASING (PROCUREMENT)	**ACHAT DES MEDICAMENTS (APPROVISIONNEMENT)**
Pharmaceutical: Describe sourcing / Timely sourcing	Produits pharmaceutiques: Décrire les sources d'approvisionnement / Délais d'approvisionnement convenables
Knows when medicines can be sourced or is able to suggest suitable alternatives. Sources pharmaceuticals in a timely manner.	Savoir quand les médicaments peuvent être reçus ou être en mesure de proposer des solutions de remplacement appropriées. Ceci dans les meilleurs délais.
Supply Problems	Ruptures de stock
Ensures patients receive the medicines they need in a timely fashion. When supply problems occur arranges alternative products for patients.	S'assurer que les patients reçoivent les médicaments nécessaires dans les meilleurs délais. En cas de problème d'approvisionnement proposer un produit de substitution au patient
Stock Management	Gestion du stock
Ensures effective stock management. Avoids excess and shortage of the medicines. Keeps track of expiry dates.	Assurer une gestion de stock efficace. Éviter les excédents ou les manques en médicaments. Surveiller les dates de péremption.
Cost Effectiveness	Efficacité/Prix
When purchasing and dispensing stock and advising on prescribing choices, consideration must be given to effectiveness (e.g. dispensing generics, buying in blocks, selecting a product from several therapeutic equivalents, using the cheaper wholesaler offers).	Lors de l'achat et de la dispensation du stock et lors du conseil sur les choix de prescription, il faut tenir compte de l'efficacité (par exemple, l'achat de stocks en gros donc moins cher, la dispensation des génériques, en sélectionnant un produit dans plusieurs équivalents thérapeutiques).
Please feel free to add any comments that you consider useful.	Vous êtes libre d'ajouter un commentaire.

(…characters…) left	(...caractères...) restants
Please click to submit	Veuillez cliquer pour valider
Submit	Soumettre
For further information or if you have any enquiries about this questionnaire please contact Dr Laura Obiols Albiñana	Si vous souhaitez plus d'informations ou si vous avez des questions concernant ce questionnaire, veuillez contacter le Dr Laura Obiols Albiñana
Your data has been processed - Thank you very much for your time	Vos données ont été sauvegardées – Merci beaucoup pour votre temps
If you would be willing to give your opinion on another set of competencies, please go to one of the following links:	Si vous souhaitez donner votre opinion sur d'autres domaines de compétences, veuillez cliquer sur un des liens suivants
Additional File links	Liens vers d'autres fichiers
Form1 - flf1.htm - about topic 1 - Pharmaceutical Care	Form1 - flf1.htm - about topic 1 - Pharmaceutical Care
Form 2 - flf2.htm - about topic 2 - Professional Competencies	Form 2 - flf2.htm - about topic 2 - Professional Competencies
Form 3 -flf3.htm - about topic 3 - Medicines Related Competencies	Form 3 -flf3.htm - about topic 3 - Medicines Related Competencies
Form 4 - flf4.htm - about topic 4 - Management and Organisation Competencies	Form 4 - flf4.htm - about topic 4 - Management and Organisation Competencies
Thank you for your contribution.	Merci pour votre contribution
Thank you for agreeing to complete these questions for us. Your responses are entirely confidential and anonymous.	Nous vous remercions d'avoir accepté de compléter ce questionnaire. Vos réponses resteront confidentielles et anonymes.
Please click on this link to go to the questionnaire page	Cliquez sur ce lien pour accéder au questionnaire
Click here to return to the FLF Introduction page	Cliquez ici pour retourner à la page d'accueuil du FLF
Thank you for your time and effort.	Merci encore pour votre temps et vos efforts.
For further information or any enquires about these questionnaires please contact Dr Laura Obiols Albiñana	Si vous souhaitez plus d'informations ou si vous avez des questions concernant ces questionnaires, veuillez contacter le Dr Laura Obiols Albiñana

Appendix 5. Health Needs and Pharmaceutical Service Provision

European countries have achieved major gains in population health over recent decades. Life expectancy at birth in European Union (EU) countries has increased by six years since 1980, while premature mortality has reduced dramatically. Improvements in living and working conditions and in some health-related behaviours have contributed greatly to these longevity gains, but progress in medical care also deserves much credit. Health systems are of growing size and complexity in European countries, and spending on health care has never been higher, consuming an ever-increasing share of national income.
A list of health indicators has been developed by the European Commission to guide the development and reporting of health statistics (European Commission, 2010a) European Community Health Indicators (ECHI).

Health at a Glance: Europe 2010 (European Commission 2010b) presents evidence of wide variations across European countries in population health status, risk factors for health, the inputs, outputs and outcomes of health care systems, and levels of health expenditure and financing sources.

Health status has improved dramatically in European countries, although large gaps persist
● Life expectancy at birth in EU has increased by 6 years since 1980, reaching 78 in 2007.
● Whether the gains in life expectancy involve additional years of life lived in good health has important implications for health and long-term care systems in Europe. Healthy life years at birth is defined as the number of years of life in which a person's day-to-day activities are not limited by a condition or health problem.
● It is difficult to estimate the relative contribution of the numerous medical and non-medical factors that might affect variations in (healthy) life expectancy. Higher national income is generally associated with higher life expectancy across European countries, although the relationship is less pronounced at higher levels of national income, suggesting a "diminishing return" after a certain level. Other determinants of health also play an important role.

Risk factors to health are changing
● Many EU countries have achieved remarkable progress in reducing tobacco consumption, although it is still a leading cause of early death. Much of this decline can be attributed to policies at national and EU level promoting public awareness campaigns, advertising bans and increased taxation.
● Alcohol consumption has also fallen in many European countries over the past three decades. Curbs on advertising, sales restrictions and taxation have proven to be effective measures to reduce alcohol consumption. Traditional wine-producing countries such as Italy, France and Spain have seen their alcohol consumption per capita drop substantially since 1980. On the other hand, consumption rose significantly in a number of countries including Ireland, the United Kingdom and some Nordic countries.
● More than half of the total adult population across the European Union are now overweight or obese. This is also true in 15 of the 27 EU countries. The rate of obesity has more than doubled over the past 20 years in most EU countries for which data are

available. Because obesity is associated with higher risks of chronic illnesses, it is linked to significant additional health care costs. A recent study in England estimated that total costs linked to overweight and obesity could increase by as much as 70% between 2007 and 2015, and be 2.4 times higher by 2025 (Foresight, 2007).

Shortages of health workers is a concern in many countries

● There are concerns in many European countries about shortages of doctors. In nearly all countries, the balance between general practitioners and specialists has changed over past decades, with the number of specialists increasing much more rapidly. As a result, there are more specialists than generalists in most countries, except Romania and Portugal. This may be explained by a reduced attractiveness in the traditional mode of practice of general/family practitioner, as well as a growing remuneration gap.

● Concerns exist about shortages of nurses in many European countries. Since 2000, the number of nurses per capita has increased in all countries, except Lithuania and Slovakia. The increase was particularly large in Portugal, Spain, France and Switzerland.

Growing health expenditure puts pressure on government budgets

● Health expenditure has risen in all European countries, often increasing at a faster rate than economic growth, resulting in a rising share of GDP allocated to health. Health expenditure per capita tends to be positively correlated with GDP per capita, although the association is stronger among European countries with low GDP per capita. Even for countries with similar levels of GDP per capita, there can be substantial differences in health expenditure. For example, Spain and France have similar GDP per capita, but Spain spends less than 80% of the level of France on health. Health systems are sometimes criticised for being overly focused on "sick care": for treating the ill, but not doing enough to prevent illness. Only around 3% of current health expenditure is spent on prevention and public health programmes on average in EU countries.

Health Needs in Europe

● Health promotion and Public Health policy needs, for example:
  - Vascular Risk
  - Diabetes
  - Asthma / COPD
  - Sexual Health (Chlamydia / EHC)
  - Smoke Cessation
  - Obesity
● New and extended pharmaceutical care services
  - Medicines reviews / disease management
  - Joint working / physician
  - Prescribing (current in the UK) – Also on the agenda of many European countries.
● Core Services
  - Management of supply chain
  - Drugs / Prescription monitoring (i.e. identify interactions, follow up, etc)
  - Access to medicines (including de-regulation (OTC) self-care etc

Mapping the Foundation Level Framework against European Pharmaceutical Care Needs

FOUNDATION LEVEL FRAMEWORK	IDENTIFIED HEALTH NEEDS and PHARMACEUTICAL SERVICE PROVISION		
	Health promotion and Public Health policy needs (ie. Vascular Risk, Diabetes, Asthma / COPD, Sexual Health (Chlamydia / EHC), Smoke Cessation, Obesity)	**New and extended pharmaceutical care services** (Medicines reviews / disease management, Joint working / physician, Prescribing)	**Core Services** (Management of supply chain, Drugs / Prescription monitoring (i.e. identify interactions, follow up, etc), Access to medicines (including de-regulation (OTC) self-care etc)
PHARMACEUTICAL CARE COMPETENCIES			
Patient Consultation	✓	✓	✓
Gathering Information	✓	✓	✓
Analysing information	✓	✓	✓
Providing information	✓	✓	✓
Follow up	✓	✓	✓

Need for the medicine	✓	✓	✓
Selection of medicine	✓	✓	✓
Medicine Specific Issues	✓	✓	✓
Medicines Information and patient education	✓	✓	✓
Monitoring medicine therapy	✓	✓	✓
Evaluation of outcomes	✓	✓	✓
MEDICINES RELATED COMPETENCIES			
Knowledge	✓	✓	✓
Development and Production of medicines	✓	✓	✓
Analysis and control of medicines	✓	✓	✓

Provision of medicine product	✓	✓	✓
PROFESSIONAL and MANAGEMENT COMPETENCIES			
Organisation	✓	✓	✓
Effective Communication Skills	✓	✓	✓
Team work	✓	✓	✓
Professionalism	✓	✓	✓
Clinical Governance	✓	✓	✓
Management, Legislation and economics	✓	✓	✓
Service Provision	✓	✓	✓
Budget setting, medicine costs and reimbursement systems	✓	✓	✓

Organisations	✓	✓	✓
Training	✓	✓	✓
Staff Management	✓	✓	✓
Medicines Purchasing (Procurement)	✓	✓	✓

Appendix 6. Common European Curricula

Evidence Based European Pre-Service Syllabus Development

Cluster heading (ie. Cluster 3. Pharmacology and Medicinal Science (MED)		
Syllabus heading (ie. Pharmacology)		
Learning Objectives by Country	UK / Spain / France / Portugal / Netherlands / Finland / Hungary / Germany / Denmark	*Core Syllabus (removing redundancies)*

Notes:

1. Clusters / Syllabus / Learning Objectives can be organised any way locally. The documents presented here represent a list, consistently grouped for documentation only = consensus grouping only.
2. No weighting is put on any heading
3. They all connect / map to Foundation Level Outcomes
4. How pre-service trainees reach FLO is not PHARMINE – this is locally determined

Evidence Based European Pre-Service Syllabus List of Clusters and Syllabus Headings

Cluster 1. Pharmaceutical Chemistry and Pharmaceutical Biochemistry [Chemical Science] (CHEM)

Analytical Chemistry
Biochemistry
Chemistry (General / Organic and Inorganic, Including Radiochemistry and Spectrometry)
Pharmaceutical Chemistry / Pharmacopeial Analysis
Physicochemistry [Medicinal Physicochemistry / Physical Chemistry / Structure Activity Relationships (SAR) / Drug Design]
Radiochemistry (separate?)

Cluster 2. Maths and Physics (MATH)

Physics
Mathematics (including Statistics)

Cluster 3. Pharmacology and Medicinal Science (MED)

Dermatology
Human Physiology and Anatomy
Immunopharmacology [Immunology] (including Haematology)
Pharmacognosy, Plant Physiology , Phytotherapy and Homeopathy
Botanics?
Pharmacology
Pathophysiology (including Citology and Histology)

Cluster 4. Pharmaceutics / Technology / Formulation (PHAR)

Pharmaceutical Technology
Pharmaceutics and Galenics Formulation
Pharmacokinetics and Biopharmacy [Drug disposition and metabolism / Drug Delivery]
Quality Assurance in Pharmaceutical industry [Quality Assurance in Production]
Toxicology and Environmental Chemistry

Cluster 5. Biological Sciences (BIO)

Anti-infective Therapy [Bacteriology / Virology / Parasitology / Microbial Pathology / Chematotherapy] (together with Microbiology?)
Biological Analysis and Lab Diagnosis
Biotechnology
Genetics
Microbiology
Molecular Biology [Molecular aspects of the action of drugs and their targets]
Nutrition and Bromatology (including Food Hygiene and Technology)

Cluster 6. Pharmacy Practice / Pharmaceutical Care / Clinical Pharmacy / Law and Social Pharmacy

Clinical Pharmacy [Pharmacotherapy / Pharmaceutical Care] (PRAC)
Dispensing Process, drug prescription, prescription analysis (detection of adverse effects and drug interactions) – some countries
Ethics [Professional Ethics / Deontology]
Legislation [Pharmacy Law]
Management and Pharmaceutical Planning
Management, Legislation and Economics applied to the Pharmaceutical Industry
Pharmacy Practice
Public Health

Cluster 7. Generic (GEN)

Communication and Transferrable Skills
Computer Science
History of Pharmacy
Languages

Evidence Based European Pre-Service Syllabus

Example

Cluster 1. Pharmaceutical Chemistry and Pharmaceutical Biochemistry [Chemical Science] (CHEM)

Code	Syllabus List	Source	CORE Syllabus, removing redundancies
Analytical Chemistry (including Spectrometry – some countries (ie. Por) under Chemistry or (ie Hun) under Physics)			
CHEM	List in correct order the effective polarity of a range of solvents used in extraction. Differentiate between miscible and immiscible solvents. Recognise the importance of the polarity and solubility of the solute molecule in determining extraction behaviour and predict polarity from functional group structure. Write an appropriate equation for the partition of a solute between two solvents and define the value of a partition coefficient. Carry out in the laboratory the quantitative extraction of a pharmaceutical from a simple mixture and, using appropriate analytical techniques, evaluate the efficiency of this extraction and the purity criteria of the sample.	UK	An understanding of the range of functionality found in modern medicinal compounds. An understanding of the chemical and physical properties, including reactivity and solubility, of a range of acidic, basic and neutral pharmaceuticals.

	Define the principles of chromatography and describe the common mechanisms of chromatographic separation including adsorption, chemiadsorption, physical adsorption, partition, ion-exchange, diffusion including size exclusion and electrophoresis. Compare and select appropriate chromatographic methods for a particular separation from; thin layer chromatography, paper chromatography, gas-liquid chromatography, ion-exchange chromatography, size exclusion chromatography, high performance liquid chromatography and electrophoretic methods. Plan, execute and write up in detail a laboratory experiment for the separation and quantification of components in a natural product, chemical mixture of formulated pharmaceuticals utilising chromatography techniques. Describe the fundamental principles of spectroscopy. Describe the relationship between molecular structure and UV-visible absorption. Define the Beer-Lambert law and appreciate its limitations. Perform BP type calculations using UV-visible spectroscopic data. Describe the fundamental principles of infra-red spectroscopy. Perform simple IR spectral interpretation and recognise groups such as OH, CO, NO2. Describe the principles of flame emission and atomic absorption spectroscopy. Perform calculations using calibration curves, single standard addition and multiple		Will be able to explain the stability of medicinal substances in terms of their structure. Will be able to manipulate techniques for the identification and analysis of medicinal compounds in terms of their structure. A working knowledge of chromatographic methods for the isolation and identification of medicinals. A working knowledge of a wide range of spectroscopic methods used in the characterisation of medicinals. Will be able to apply techniques of infra-red spectroscopic analysis to

	Describe luminescence processes and distinguish between the mechanisms of fluorescence and phosphorescence. Describe the relationship between chemical structure and fluorescence and list the factors affecting the intensity of fluorescence. Perform quantitative calculations based on fluorimetric data. Describe the principles of electroanalytical techniques including voltammetry and coulometry. Perform quantitative calculations based on electrochemical techniques. Describe the principles and practical basis of mass spectrometry. Describe the principles and practical basis of nuclear magnetic resonance spectroscopy. The importance of chemical and physical properties in an understanding of the design and use of medicinal compounds will be explored in terms of: Lead identification, screening and chemical development Chemical structures and properties of synthetic and natural drugs and excipients Isolation, identification and biological characterisation of active materials Rational design Structure activity relationships		typical medicinal samples. Will be able to apply techniques of ultra-violet spectroscopic analysis to typical medicinal samples. Will be able to apply techniques of nuclear magnetic resonance spectroscopic analysis to typical medicinal samples. Will be able to apply techniques of mass spectroscopic analysis to typical medicinal samples. An understanding of the principles of drug design from pharmacological, synthetic or natural product leads. Will be able to describe the

	Analysis, stability and contamination of drugs Detailed studies of the medicinal chemistry of a small number of selected classes of drug substances Students will be able to:- -describe the range of functionality found in modern medicinal compounds. -describe the chemical and physical properties, including reactivity and solubility, of a range of acidic, basic and neutral pharmaceuticals. -explain the stability of medicinal substances in terms of their structure. -manipulate techniques for the identification and analysis of medicinal compounds in terms of their structure. -comment on chromatographic methods for the isolation and identification of medicinals. -comment on a wide range of spectroscopic methods used in the characterisation of medicinals. -apply techniques of infra- red spectroscopic analysis to typical medicinal samples. -apply techniques of ultra-violet spectroscopic analysis to typical medicinal samples. -apply techniques of nuclear magnetic resonance spectroscopic analysis to typical medicinal samples.		principles of quantitative structure activity relationship determination QSAR and the application of the technique to the rationalisation of biological activity and the efficient development of novel therapeutic substances. Will be able to describe the details of the structure, synthesis and analysis in a particular series of medicinals, eg antihistamines. Will be able to describe the details of the structure, synthesis and design development of a series of medicinals eg H-2 antagonists. Will be able to describe the details of the isolation, analysis, modification and use of a series of naturally derived medicinals eg steroids. Will be able to design analytical essays in order to quantitatively determine the ingredients of a sample.

	-apply techniques of mass spectroscopic analysis to typical medicinal samples. -explain the principles of drug design from pharmacological, synthetic or natural product leads. -describe the principles of quantitative structure activity relationship determination QSAR and the application of the technique to the rationalisation of biological activity and the efficient development of novel therapeutic substances. -describe the details of the structure, synthesis and analysis in a particular series of medicinals, eg the antihistamines. -describe the details of the structure, synthesis and design development of a series of medicinals eg the H-2 antagonists. -describe the details of the isolation, analysis, modification and use of a series of naturally derived medicinals eg the steroids.		Will be able to choose the best method amongst all the range of methods found in the literature review in order to conduct the quantitative analysis. Will be able to solve theoretical and practical problems of quantitative analytical chemistry. A working knowledge of the basics of a wide range of laboratory techniques used in both qualitative and quantitative analysis in Pharmacy. Will be able to appropriately run the lab techniques as well as correctly interpret the obtained results.
CHEM	Spectrometry: General principles of absorption spectrometry; Chromospheres; Connectivity; Sensibility. Mass spectrometry. UV and visible spectrometry. Nuclear magnetic resonance. Infrared spectrometry. Carbon13 Nuclear magnetic resonance. Conocimientos: Conocer los criterios y procedimientos para la toma y tratamiento de una muestra representativa. Aprender los fundamentos de los métodos químicos, volumétricos y gravimétricos, para la determinación de los componentes de una muestra. Responder a la	SPA	An understanding of the general principles of absorption spectrometry: chromospheres, connectivity, sensibility. An understanding of the general principles of mass spectrometry. An understanding of the general principles of UV and visible spectrometry. An understanding of the general principles of nuclear magnetic

	pregunta ¿Cuánto hay? Conocer las normas y directrices que regulan las determinaciones analíticas. Adquirir nociones básicas relacionadas con la naturaleza de la radiación electromágnética y su interacción con diferentes medios materiales. Entender los principios básicos en los que se basan las técnicas espectroscópicas. Estudiar el fundamento de la cromatografía en sus diferentes modalidades, y su aplicación en Farmacia Entender el fenómeno de la radiactividad. Adquirir conocimientos básicos sobre el empleo de isótopos radiactivos y algunos de los más importantes métodos radiactivos para la detección y cuantificación de radiofármacos. Habilidades: Saber elegir los métodos más adecuados, entre los varios posibles, para la resolución de problemas concretos Interpretar correctamente los procedimientos y métodos, descritos en la bibliografia, para realizar el análisis químico de un analito en muestras de distintas matrices Aprender a elegir y utilizar el material adecuado para la realización de un método de acuerdo con la exactitud y precisión requerida. Adquirir las destrezas manuales necesarias para realizar con soltura las operaciones que requiere el analisis químico, así como discutir los resultados, sacar las		resonance incluing Carbon13 nuclear magnetic resonance. An understanding of the general principles of infrared spectrometry.

	conclusiones finales y presentar el informe final. Familiarizarse con el empleo de algunas de las tecnicas instrumentales, espectroscopicas, cromatograficas, etc. habituales en un laboratorio farmaceutico. Resultados del aprendizaje Ser capaz de diseñar ensayos analíticos para la determinación cuantitativa de los componentes de una muestra. Aprender a poner a punto el mejor método, entre los encontrados en la revisión bibliográfica, para la realización de análisis cuantitativo. Resolver problemas teóricos y prácticos de Química Analítica Cuantitativa. Adquirir nociones básicas sobre el fundamento de algunas técnicas de laboratorio empleadas en el análisis cualitativo y cuantitativo en Farmacia. El estudiante debe ser capaz de manejar correctamente las técnicas de que se dispone en el laboratorio e interpretar resultados experimentales obtenidos. Lección 1.- Las técnica Analíticas y su relación con otras áreas de conocimiento.- Clasificación de los métodos de análisis.- Análisis cualitativo: marchas analíticas y ensayos específicos.- Análisis cuantitativo: métodos gravimétricos y métodos volumétricos.- Análisis Intrumental: clasificación. Lección 2.- Toma de muestra.- Operaciones preparatorias.- Disolución y		

	disgregación.- Selección del método. Lección 3.- Errores en Química Analítica.- Tratamiento estadístico.- Cifras significativas.- Bibliografia.- Presentacion de resultados e informes Lección 4.- Volumetrías ácido - base.- Curvas de valoración.- Indicadores.- Sustancias tipo primario y reactivos de valoración.- Aplicaciones de las volumetrías ácido - base.- Valoración de mezclas básicas.- Metodo de Kjeldhal. Lección 5.- Valoraciones ácido - base en disolventes no acuosos.- Valoración en disolventes ácidos.- Valoración en disolventes básicos. Lección 6.- Volumetrías de formación de complejos.- Constantes condicionales.- Curvas de valoración.- Indicadores.- Método de Liebig.- Valoraciones con EDTA y similares.- Aplicaciones. Lección 7.- Volumetrías de precipitación.- Curvas de valoración.- Indicadores.- Soluciones patrón y reactivos de valoración.- Aplicaciones. Lección 8.- Gravimetrías.- Operaciones generales de los métodos gravimétricos.- Precipitantes orgánicos.-Métodos gravimétricos escogidos. Lección 9.- Volumetrías redox.- Curvas de valoración.- Indicadores.- Tipos primarios.- Reactivos de valoración.- Reacciones previas.- Aplicaciones.- Yodimetrías y yodometrías.- Determinaciones con otros compuestos derivados de halogenos.- Determinación de compuestos orgánicos. Lección 10.- Principios básicos de la radiación electromagnética e interacción con la materia. El espectro electromagnético. Espectros de absorción y emisión. Componentes básicos de la instrumentación espectroscópica.		

	Lección 11.- Espectroscopía de absorción molecular en el ultravioleta-visible. Aspectos teóricos y aplicaciones al análisis farmacéutico. Ley de Lambert-Beer. Lección 12.- Espectroscopía de emisión de fluorescencia. Fundamento. Rendimiento cuántico y procesos de desactivación molecular. Aplicaciones en Farmacia. Lección 13.- Espectroscopía de absorción y emisión atómica en el UV-visible. Aplicaciones Lección 14.- Principios generales de la cromatografía. Cromatografía de adsorción, reparto, intercambio iónico, exclusión y afinidad. Cromatografía plana: papel y capa fina. Aplicaciones. Lección 15.- Cromatografía en columna. Parámetros cromatográficos. Cromatografía de gases y cromatografía líquida de alta resolución. Aplicaciones en Farmacia. Lección 16.- Técnicas isotópicas. Isótopos radiactivos. Cinética de la desintegración radiactica. Actividad radiactiva. Detección de las radiaciones. Aplicaciones. Radiofármacos		
CHEM	1. Méthodes de séparation fondées sur l'extraction (solide-liquide et liquide-liquide). 2. Spectrophotométries d'émission et d'absorption atomiques. 3. Spectrophotométrie d'absorption moléculaire UV-visible. 4. Spectrofluorimétrie moléculaire. 5. Méthodes chromatographiques: chromatographie en phase gazeuse ; chromatographie liquide (exclusion-diffusion, échange d'ions, partage).	FRA	

	6. Méthodes électrophorétiques y compris les principes des détections. 7. Méthodes redox électrochimiques d'analyse y compris les principes des détections : potentiométrie, ampérométrie. 8. Pression osmotique: osmolarité, osmolalité. 9. Analyse des composés chiraux. 10. Principales propriétés structurales et physico-chimiques des fonctions organiques : alcool, phénol, amine, thiol, aldéhyde, cétone et acide carboxylique. Applications à la dérivatisation. Stéréo-isoméries. 11. Rayons X et rayonnements émis par les principaux radio-isotopes utilisés in vivo et in vitro. 12. Les ions en solution : - Equilibre acide-base en solution aqueuse, pH, pK, solutions tampons. - Réactions et équilibres de complexation. 13. Protométrie en milieu non aqueux. 14. Critères de validité d'une méthode d'analyse : précision, exactitude, linéarité, spécificité, limites de détection et de quantification. 15. Méthodes utilisant la réaction antigène-anticorps. 16. Statistique descriptive : estimation des paramètres d'une population, intervalle		

	de confiance d'une moyenne et d'une proportion. 17. Tests paramétriques de comparaison : - Comparaison unilatérale ou bilatérale : . De deux variances observées . D'une moyenne observée à une valeur théorique . De deux moyennes observées - Comparaison unilatérale ou bilatérale dans le cas de grands échantillons : . D'une proportion observée à une proportion théorique . De deux proportions observées 18. Tests de liaison : - Régression linéaire : estimation et intervalle de confiance de la pente et de l'ordonnée à l'origine. Comparaison à une valeur théorique de la pente et de l'ordonnée à l'origine. - Corrélation linéaire : estimation et test du coefficient de corrélation (r). - Test du Chi-deux d'indépendance.		
CHEM	Os assuntos que constam da aprendizagem dos estudantes incluem os processos químicos de ácido-base, precipitação, complexação e oxidação-redução. As aplicações destes procedimentos são efectuadas por volumetria e por gravimetria.	POR	

CHEM	Knowledge on chemical processes and application of these to practice. Learning to start scientific qualitative and quantitative research, to carry this out and write reports. Developing the ability to create relevant developments, monitor and, where necessary, translate them to the pharmaceutical practice. Developing the ability to systematically resolve specific and often complex chemistry problems. to To evaluate scientific data concerning medicines. To understand the processes that happen in the lab and the most common analytical methods.	NL	
CHEM	To strengthen the basics of natural scientists specially to understand the physico chemical and biological properties of medical ingredients and excipients and medicinal products, and to learn about how medicines are produced and their quality control.	FIN	
CHEM	Micro- and submicrospeciation on bio- and drug molecules, providing currently the most profound characterization of protonation processes, that are of primary importance in absorption, receptor binding and metabolism at the molecular level. Natural alkaloids, their synthetic analogues and condensed heterocycles with potential drug-like activity are synthesized. The separation of enantiomers, structurally related compounds and biomolecules by chiroptical methods and high performance hyphenated separation techniques (HPLC, TLC, GC, HPCE). High field nuclear magnetic resonance (NMR) methods to analyze metabolites and to	HUN	

	characterize the structure of bio- and drug molecules and their interactions. New investigation methods and tests for the European and Hungarian Pharmacopoeias.		
CHEM	Grundlagen der pharmazeutischen Analytik Die in der pharmazeutischen Analytik gebräuchlichen, grundlegenden Methoden; Grundlage, Arbeitsweisen und Anwendung klassischer qualitativer und quantitativer Verfahren zur Analyse von Arzneistoffen, Hilfsstoffen und Schadstoffen (Kationen, Anionen und Neutralstoffen) einschließlich der Arzneibuch-Methoden; Analytik funktioneller Gruppen organischer Verbindungen; Instrumentelle pharmazeutische Analysenverfahren einschließlich spurenanalytischer Verfahren: Grundlagen, Arbeitsweisen und Anwendungen elektrochemischer, thermoanalytischer, radiochemischer, chromatographischer, optischer und spektroskopischer Verfahren zur qualitativen (Identifizierung und Strukturaufklärung) und quantitativen Analyse; Validierung von Analysenverfahren; Qualitätssicherung.	GER	
CHEM	Theoretical and practical knowledge of important classical analytical chemical techniques (various titration principles, Kjeldahl-analysis and gravimetric methods) along with a short introduction to spectroscopic techniques and chromatography.	DEN	

	Practical experiments such as titrations (acid base, redox, argentometric, complexometric, non-aqueous, Karl Fischer), Kjeldahl analysis, UV-Vis spectroscopic analysis, loss on drying and thin layer liquid chromatography. Theoretical and practical knowledge of important instrumental analytical techniques (techniques of separation, spectroscopic techniques and electrochemical techniques). Practical experiments of a number of chromatographic techniques such as gas chromatography, high performance liquid chromatography, ion-exchange chromatography. The following spectrochemical methods are included: UV-visible and infrared spectrometry, fluorescence spectroscopy, atomic absorption and flame emission spectrometry. Also capillary electrophoresis, potentiometry with ion selective electrodes, voltammetry and flow injection analysis are included in the course. A small project introduce the student to make plans for laboratory work and independent decisions.		

Appendix 15. List of documents - Pharmine Catalogue

Pharmine Catalogue

ACLF	Framework / Word doc	CoDEG_09
Advanced and Specialist Practice Project Report_GLF_terminology	Word doc	CoDEG_09
Advanced Service Competency Framework	PDF	DoH_05
Application form 2008: Lifelong Learning Programme Sub-programmes – Multilateral Projects, Networks, Accompanying measures –	PDF	Pharmine_08
ARS Agences Régionales de la Santé	PDF	Laroque_07
Assessments V8 Aug 09	Word doc	CoDEG_09
Australia Competency Framework	Word doc	SHPA_03
Australia_news_Shpa announces work on a national competency project	Word doc	SHPA_09
BachReport	PDF	Bach_08
Bibliography	Word doc	Obiols_09
Big picture diagram (WP3/WP4)	PowerPoint	Obiols_09
Canada competency framework (Models standards of practice for Canadian pharmacists)	Word doc	NAPRA_03
Clinical topics resource pack V5	Word doc	CoDEG_09
Competencies for Chlamydia (doc 1) Screenings and Treatment Enhanced Service using the GLF	Word doc	CoDEG_09
Competencies for Chlamydia (doc 2) Screenings and Treatment Enhanced Service using the GLF	Word doc	CoDEG_09
Content guide final amend re HAG	Word doc	CoDEG_09
DAP guide V3	Word doc	CoDEG_09
Denmark_Copenhagen	PDF	Fjalland_Apr09
Dummy Form FLF	Word doc	Obiols_09
Easy_to_understand	Excel	JamesDavies_09
E Directive prof recog 2005_36_EC_05.09.07	PDF	EU Parliament_07
Farmacia Hospitalaria	PDF	ComisionNacionalFarmaciaHospitalaria_99
First Output	SPSS	Svarcaite_09
FLF	Word doc	Obiols_09
France competences for Pharmacien Ind	PowerPoint presentation	Tchoreloff_07
FrenchSystem_Luc's_emails	Word doc	Obiols_09
GLF	Framework / Word doc	CoDEG_05
GLF_ACLF_TLF_terminology	Word doc	CoDEG_09

GLF Functional Requirements	Word doc	Svarcaite_09
GLF Language Sensitive	Excel	Svarcaite_09
GLF Taskforce meeting Oct 09	Word doc	CoDEG_09
Glossary of terms	Word doc	Obiols_09
Higher Level Practice in Clinical Pharmacy Specialities. Application of the ACLF and Implications for Consultant Pharmacists	Word doc	Obiols_09
Initial education	PDF	Ordre National des Pharmaciens_05
James_work	Word doc	Obiols_09
JPBclincurric guide 2008 with learning support	Word doc	CoDEG_08
Kick-off_Minutes_Feb09	Word doc	Pharmine_Feb09
LarcherReport	PDF	Larcher_08
ListAttendance	Word doc	Pharmine_09
Mapping of Advanced Services to GLF final	Word doc	CoDEG_05
MicrobiologiaParasitologioa	PDF	BOE_06
Minutes HEI Leads 27th Aug	Word doc	CoDEG_09
Mucklow_02	PDF	Mucklow_02
Outline for PHARMINE Project	Word doc	JamesDavies_09
PAYMENTformTRAVEL	PDF	Pharmine_09
Pharmacien industriel – Elaboration du eferential de compétences	PDF	Tchoreloff_07
Pharmacy Practitioner Development Across Europe	Word doc	JamesDavies_09
Pharmine Catalogue	Excel spreadsheet	Obiols_Oct09
PHARMINE newsletter French competency frameworks for Pharmacy 1208	PDF	Pharmine_08
PHARMINE newsletter French LMD Santé 1208	PDF	Pharmine_08
PHARMINE presentation	PowerPoint presentation	Pharmine_09
PHARMINE presentation. Practicalities	PowerPoint presentation	Rombaut_09
Pharmine_WP3	PowerPoint presentation	Bates_09
Pharmine_WP4	PowerPoint presentation	Bates_09
Plan_frances	Word doc	Obiols_09
ProgressReport_Pharmine	PDF	Pharmine_Jan09
ProgressReport for Pharmine	PDF	Pharmine_08
Questionnaire on Pharmacists Activities	Word doc	IvanaSilva_Jun09
Raw data	SPSS	Svarcaite_09
Responses from FIP Global Pharmacy Workforce Survey	Word doc	Bruno_09
Recognition of professional qualifications	PDF	EU Parliament_05
SALF – Specialist and Advanced Level Framework	Word doc	Obiols_09
Slides_for_Roberto	PowerPoint presentation	Bates_09
Spanish System	PowerPoint Slide	Obiols_09

Spanish_System	Word doc	Obiols_09
Summary_Spanish System Specialisation in Hospital Pharmacy	Word doc	Obiols_09
Summary_French	Word doc	Obiols_09
Surveying Pharmacy Practice in Europe_MScThesis	Word doc	Svarcaite_09
Surveying Pharmacy Practice in Europe_MScThesis	PDF	Svarcaite_09
TLF	Framework / Word doc	CoDEG_09
Translation industry competencies FRANCE	Word doc	Tchoreloff_07
Working	SPSS	Svarcaite_09
Working_recoded	SPSS	Svarcaite_09
Working towards educational consensus_WP3_WP4	PowerPoint presentation	Bates_09
What is CPD and when to begin	PowerPoint presentation	Silva_Sep09

Appendix 16. Glossary of Terms

Glossary of Terms

Behavioural competency: Typical behaviour observed when effective performers apply motives, traits or skill to job relevant tasks.

Clinical Governance: A framework through which NHS organisations are accountable for continuously improving the quality of their services and safeguarding high standards of care by creating an environment in which excellence in clinical care will flourish.

Competence: Ability to carry out a job or task.

Competency: A quality or characteristic of a person related to effective or superior performance. It is made up of many things such as motives, traits and skills.

Continuing Education (CE): A structured process of education designed or intended to support the continuous development of pharmacists to maintain and enhance their professional competence. CE does not necessarily equate to adequate learning to attain the competence of the professional. Hence continuing professional development (CPD) is increasingly adopted by the profession world-wide as the way to ensure professional competence.

Continuing Professional Development (CPD): Self-directed, ongoing, systematic and outcomes-focused approach to learning and professional development.

Evidence-Based Practice: Using good quality evidence to make sound clinical decisions

Facilitator: One who encourages self-directed learning.

Higher Level: A greater level of organisational complexity than that of the pharmacist's team (as defined above).

Hospital: Licensed establishment primarily engaged in providing medical, diagnostic, and treatment services that include physician, nursing, and other health services to in-patients and the specialized accommodation services required by in-patients.

Life Long Learning: All learning activity throughout life, with the aim of improving knowledge, skills and competence, within a personal, civic, social and/or employment-related perspective.

Mentor: One who advises on how skills should be performed in the workplace.

National Priorities: Health care priorities identified in the Government's Public Service Agreement.

Outcome: Performance indicator based on standards that are measurable; often demonstrated through products or behaviours.

Peer Review Activities: Expert opinion is sought to undertake a review of published work(s) in the pharmacist's area of practice.

Pharmaceutical Care: The responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life.

Qualified Person: The Qualified Person (QP) is essential to the safe control of medicines and needs to have extensive training and in-depth critical understanding of all the aspects associated with pharmaceutical manufacturing. The primary legal responsibility of the Qualified Person (QP) is to certify batches of medicinal products prior to use in a clinical trial (human medicines products only) or prior to release for sale and placing on the market (human and veterinary medicinal products).

Role Model: One whose behaviour is copied by a learner Specialist Pharmaceutical

Sector: Major field of professional activity in a defined environment such as community, industry, hospital, administration and academia.

Team: The staff (pharmacy or multidisciplinary) or care group with which the pharmacist works most closely.

BIBLIOGRAPHY

Albanese, M.A., Mejicano, G., Mullan, P., Kokotailo, P., Gruppen, L. (2007) Defining characteristics of educational competencies. *Medical Education*, **42:3**, 248-255.

Antoniou, S., Webb, D.G., McRobbie, D., Davies, J.G., Wright, J., Quinn, J., Bates, I.P. (2004) General level competency framework improves the clinical practice of hospital pharmacists: final results of the south of England trial. *International Journal of Pharmacy Practice*, **12(suppl)**, R22-23.

Antoniou S, Webb DG, McRobbie D et al. (2005) A controlled study of the general level framework: results of the South of England competency study. *Pharmacy Education*: **5**: 201-7

Attewell, J., Blenkinsopp, A., Black, P. (2005) Community pharmacists and continuing professional development – a qualitative study of perceptions and current involvement. *Pharmaceutical Journal*, **274**, 519-524.

Austin, Z., Marini, A., Croteau, D., Violato, C. (2004) Assessment of pharmacists' patient care competencies: validity evidence from Ontario (Canada)'s quality assurance and peer review process. *Pharmacy Education*, **4**, 23-32.

Barnett, R. (1992) The limits of competence: knowledge, higher education and society; Buckingham, *Society of Research into Higher Education*: Open University Press.

Bates, I.P., McRobbie, D., Davies, J.G., Webb, D.G. (2004) Why we need a defined career structure in place of informal progression. *Pharmaceutical Journal*, **272**, 283.

Bourlioux, P. (1995) – The Bourlioux Report. Add reference – ask Bart.

Bowden, J., Marton, F. (2004) *The University of learning: Beyond quality and competence*; 1st Ed. London: RoutledgeFalmer.

Brussels, BE., Brown, M., Sadia K (2007) How does one become a qualified person, *Tomorrow's Pharmacist*, 28-29.

Davies, J.G., Webb, D.G., McRobbie, D., Bates, I.P. (2002) A competency-based approach to fitness for practice. *Pharmaceutical Journal*, **268**, 104-106.

Davies, J.G., Bates, I., Healey, R., Webb, D.G., McRobbie, D. (2004) Fit for purpose? Pharmacy graduates' perceptions of their readiness to undertake clinical pharmacy activities. *International Journal of Pharmacy Practice*, **12 (suppl)**, R17.

Department of Health (DoH). (2004) *Knowledge and Skills Framework (KSF)*; London: DoH.

Department of Health (DoH) (2005) Choosing health through pharmacy – a programme for pharmaceutical public health 2005-2015; London: DoH.

Department of Health (DoH) (2008) *Pharmacy in England: Building on strengths, delivering the future*. London: DoH.

Department of Health (2009) 150 years of the Annual Report of the Chief Medical Officer: on the state of public health 2008. London: DoH; 2009

Dreyfus HL, Dreyfus SE (1986). Mind over Machine. Oxford: Blackwell.

European Federation of Pharmaceutical Industries and Associations (EFPIA) (2007) The pharmaceutical industry in figures.

Epsein, R.M., Hundert, E.M. (2002) Defining and assessing professional competence. *Journal of the American Medical Association*, **287**, 765-769.

Faculty of Neonatal and Paediatric Pharmacy (2002) *General Paediatric Competencies*. College of Pharmacy Practice, Faculty of Neonatal and Paediatric Pharmacy.

Faculty of Prescribing Medicines Management (2002) *A Competency Framework for Members and Associates*. Faculty of Prescribing Medicines Management

Govaerts, M.J.B., Educational competencies or education for professional competence? (2008) *Medical Education*, **42**, 234-236.

Hyland, T. (1997) Reconsidering Competence. *Journal of Philosophy of Education*, **31(3)**, 491–503.

Knowles, M.S.; Holton, E.F.; Swanson, R.A. (1994) The adult learner. Elsevier, Burlington, USA; San Diego, USA; London, UK.

Leung, W.C. (2002) Competency based medical training. *British Medical Journal*, **325**, 693-696.

McRobbie, D., Webb, D.G., Bates, I.P., Wright, J., Davies, J.G. (2001) Assessment of clinical competence: designing a competence grid for junior pharmacists. *Pharmacy Education*, **1(2)**, 67-76.

Meadows N, Webb DG, McRobbie D *et al*. Developing and validating a competency framework for advanced pharmacy practice. *Pharm J* 2004; **273**: 789-792

Miller GE. The assessment of clinical skills/competence/performance. *Acad Med* 1990; **65**(suppl): S63-S67

Mills, E.R., Bates, I.P., Davies, J.G., Lyall, H. (2004) A pilot study to evaluate professional and clinical competence in a community pharmacy setting. *Pharmacy World and Science*, **26**, A31-32.

Mills, E.R., Farmer, D., Bates, I.P., Davies, J.G., Webb, D.G., McRobbie, D. (2005) Development of an evidence-led competency framework for primary care and community pharmacists. *Pharmaceutical Journal*, **275**, 48-52.

National Prescribing Centre (NPC) (2000) *Competencies for pharmacists working in primary care*; 2nd Ed, London.

PCCP Network (2003) A Competency Framework for Community Health Pharmacy Services. The Primary and Community Care Pharmacy Network.

Pharmaceutical Society of Australia (2003) Competency Standards for Pharmacists in Australia in 2003.

Pharmacy Council of New Zealand (2006) Competence standards for the pharmacy profession. Pharmacy Council of New Zealand. Wellington, New Zealand.

RPSGB (2003) Competencies of the future pharmacy workforce. Royal Pharmaceutical Society of Great Britain, London.

Schön DA. The Reflective Practitioner: how professionals think in action. London: Temple Smith, 1983

Spencer, L.M., Spencer, S.M. (1993) *Competence at work: Models for Superior Performance*; New York: John Wiley & Sons Inc.

Taylor, B. (2005) Developing a national framework of pharmacists with special interests. *Pharmaceutical Journal*, **275**, 290-293.

Unwin, L. (2004) Twenty-first century vocational education in the UK: What would Dickens think? *Pedagogy, Culture and Society*; **12(2)**, 75-199.

Webb, D.G., Davies, J.G., Bates, I.P., McRobbie, D., Antoniou, S., Wright, J., Quinn, J. (2003) Competency framework improves the clinical practice of junior hospital pharmacists: interim results of the south of England trial. *International Journal of Pharmacy Practice*, **11(suppl)**, R91.

Webb, D.G., Davies, J.G., McRobbie, D., Bates, I.P., Wright, J. (2004) Adopting a strategy for practitioner development. *Hospital Pharmacist*, **11**, 104-108.

Weightman, J. (1994) *Competencies in action*; Institute of Personnel and Development. London.

Whiddett, S., Hollyford, S. (2000) *The Competencies Handbook*; Institute of Personnel and Development, 1st Ed, London.

Whiddett, S., Hollyford, S. (2002) *A practical guide to competencies: how to enhance individual and organisational performance*; Chartered Institute of Personnel and Development, 2nd Ed, London.