

# Austrian pharmacy students' views, experiences and attitudes on an elective clinical pharmacy teaching event delivered in the English language

ANITA E. WEIDMANN<sup>1\*</sup>, INA DONAT<sup>1</sup>, ASTRID ORTNER<sup>2</sup>

<sup>1</sup>*School of Pharmacy & Life Sciences, Robert Gordon University, Aberdeen, United Kingdom*

<sup>2</sup>*Institute of Pharmaceutical Sciences, University of Graz, Graz, Austria*

## Abstract

**Introduction:** The World Health Organisation (WHO) and the International Pharmaceutical Federation (FIP) recommend emphasising clinical education within a balanced pharmacy curriculum. During the summer of 2016 the University of Graz (KFU), sponsored an elective English language teaching event on clinical pharmacy for undergraduate pharmacy students. This project aimed to evaluate the views, experiences and attitudes of Austrian students taking part in this clinical pharmacy teaching event.

**Methods:** A mixed method study using a quantitative questionnaire survey followed by qualitative semi-structured, one-to-one telephone interviews.

**Results:** The response rate to the questionnaire and telephone interview study was 67% (n=20) and 30% (n=6) respectively. Students were satisfied with the teaching event (very good: 90% (n=18); good: (10% (n=2). They felt inspired to learn more about clinical pharmacy in the future (100% (n=20)). Main themes included opportunity, relevance and the desire to shape their own future profession.

**Conclusion:** Students at KFU welcomed the opportunity to learn about clinical pharmacy at undergraduate level.

**Keywords:** *Austria, Clinical Pharmacy, English Language, Undergraduate*

## Introduction

Clinical pharmacy can be defined as “a health science discipline through which pharmacists provide patient care that optimises medication therapy, promotes health and prevents disease” (American College of Clinical Pharmacy, 2008). Pharmaceutical care was first defined by Hepler and Strand in 1990 in a bid to explore “Pharmacy’s opportunity to mature as a profession by accepting its social responsibility to reduce preventable drug-related morbidity and mortality” (Hepler & Strand, 1990: p.533-43). Since then the pharmacy profession has continuously evolved worldwide moving away from a traditional supply function to an individualised person centred care approach. The main driver for this is the provision of easier access to medication for patients, the prevention of adverse drug reactions, improved therapeutic outcomes and a reduction in medication wastage (Dalton *et al.*, 2017). As the orientation of the pharmacy profession is shifting to a person-centred practice across the globe there is a need for pharmacy education to adapt to include clinical education (World Health Organisation [WHO], 1993; Anderson, 2002). Both the WHO and the International Pharmaceutical Federation (FIP) recommend emphasising clinical education alongside sciences and practical experience in

an appropriately balanced curriculum (WHO, 1997; FIPed Global Education Report, 2013). However, undergraduate curricula in the European Higher Education Area (EHEA) to date still maintain a greater focus on basic sciences compared to clinical education (Nunes-da-Cunha *et al.*, 2016).

In the United Kingdom (UK), Standard 10 of the ‘Standards for the initial education and training of pharmacists’ set out by the General Pharmaceutical Council (GPhC) for undergraduate pharmacists includes the development of the ability to clinically evaluate the appropriateness of prescribed medicines; the provision, the monitoring and modification of prescribed treatment to maximise health outcomes and the optimisation of treatment for individual patient needs in collaboration with the prescriber (GPhC, 2011). Using the seven steps of the Systematic Approach to Pharmaceutical Care as a basis (Gather patient information; identify problems; prioritise problems; relate problems to medicines; define goals for problems; synthesise care plan – care issues/ actions & implement care plan) (Clinical Resource and Audit Group [CRAG], 1996) teaching often involves simulated or real patient involvement, objective structured clinical examinations (OSCEs) and placement

\*Correspondence: Dr. Anita Elaine Weidmann, *School of Pharmacy & Life Sciences, Robert Gordon University, Sir Ian Wood Building, Garthdee Road, Aberdeen, AB10 7GJ, UK. Tel: + 44 (0) 1224262547. Email: a.e.weidmann@rgu.ac.uk*

provision. These skills are further honed during the pre-registration year ensuring that the basic principles of clinical pharmacy are ingrained during the five-year undergraduate education programme (GPhC, 2011).

**Table I: Content summary of elective clinical pharmacy teaching event**

Elective clinical pharmacy teaching event (English language) (15h)	
Setting	Institute of Pharmaceutical Sciences, University of Graz (KFU), Austria.
Audience	Undergraduate Pharmacy students (all stages)
Aim	To provide the student with the ability to systematically synthesise, implement, and evaluate care plans for individual patients.
Content	Steps of the systematic approach to pharmaceutical care (Crag, 1996)
Nature of delivery	Mixture of didactic teaching, group work and real patient case scenarios
Assessment	Problem based learning assessment and student self-evaluation.

The undergraduate pharmacy curriculum in Austria differs considerably from the one in the UK. The focus is on pharmaceutical science subjects such as chemistry, biochemistry, pharmacognosy, pharmaceutical technology, pharmacology, microbiology, molecular biology, and research methodology, making Austrian pharmacists highly skilled scientists who are experts in the formulation and compounding of medicines and the development of new drug designs (Karl-Franzens-Universität Graz, 2013). In a largely privatised healthcare system, pharmacists have an important medicines supply function taking all economic aspects into consideration. In addition, many European countries are world leaders in the pharmaceutical industry sector with a focus on new drug design and development. In recent years, however, the profession in Austria has started to look at the inclusion of clinical pharmacy and its values to optimise patient care. In 2015, the president of the Austrian Pharmaceutical Council, Mag. pharm. Max Wellan, set out three key demands for clinical pharmacy in the future. These include the sufficient number of suitably qualified clinical pharmacists in hospitals across Austria, a strategic action plan for the development of clinical pharmacy, and the integration of pharmacists into the multidisciplinary team to optimise patient care (Österreichische Apothekerkammer, 2015). In Austria, education opportunities for a specialisation in clinical pharmacy exist for postgraduate students who wish to specialise in hospital pharmacy with little clinical pharmacy currently offered during the undergraduate curriculum (Österreichische Apothekerkammer, 2015). During the summer of 2016, the University of Graz sponsored an elective English language teaching event on clinical pharmacy for undergraduate pharmacy students. This afforded the students an opportunity to learn and

communicate in an officially accepted global scientific language with staff fluent in both English and German. The aim of the elective teaching event was to provide the students with the ability to systematically synthesise, implement, and evaluate care plans for individual patients based on the different steps of the systematic approach (Crag, 1996). The course content was developed and delivered by senior academic staff at the School of Pharmacy & Life Sciences at Robert Gordon University, Aberdeen (Table I).

This project aimed to evaluate the views, experiences and attitudes of Austrian undergraduate pharmacy students who took part in this 15-hour elective clinical pharmacy teaching event.

## Methods

### Design

A mixed method was used including a quantitative questionnaire survey to evaluate the perceptions and needs of the students followed by qualitative semi-structured, one-to-one telephone interviews with undergraduate Austrian pharmacy students to explore some key responses from the quantitative survey more in-depth.

### Setting

The study was carried out at the Institute of Pharmaceutical Sciences, University of Graz, Austria.

### Recruitment

An email was sent out detailing the purpose of the study and inviting all 30 undergraduate pharmacy students who attended the clinical pharmacy elective teaching event in July 2016, to take part. A link to the online survey questionnaire was included and students interested in participating were asked to follow the questionnaire link. Two email reminder invitations were sent at two-weekly intervals over a four week period during **September 2016**.

### Questionnaire development

A draft questionnaire in the English language informed by published best practice and current scientific literature was developed by a research experienced member of academic staff and reviewed for face and content validity by two experienced pharmacy practitioners and academics in the UK and Austria (McColl *et al.*, 2001). The pilot questionnaire contained sections on overall satisfaction, structure, content and assessment of the elective teaching event as well as questions about potential future events and demographic information. Questions were presented as five-point Likert-scales, multiple response and 'Yes/No' question types. An open question encouraging students to voice their personal

opinion on each section topic was also included (Table II). The pilot questionnaire was formatted in Snap 11 Professional® (software for web and email questionnaire design, publication, data entry and analysis) and included a starting page detailing the aim of the study and providing reassurance of confidentiality. The pilot questionnaire was emailed to three undergraduate pharmacy students in the UK to assess face and content validity. Pilot results did not result in any changes to the wording of the questions and results were not included in the final data analysis.

### ***Semi-structured telephone interview schedule development***

Following the completion and analysis of the questionnaire survey, a semi-structured telephone interview schedule was developed based on the main sections of the survey and responses to the qualitative questions, with the aim to explore key results in more depth. The interview schedule was reviewed by two experienced pharmacy practitioners and academics in the UK and Austria followed by a separate pilot interview with one undergraduate pharmacy student in the UK. Piloting resulted in minimal changes to question wording and results were not included in the final analysis; core questions are listed in Table III.

### ***Data collection***

Responses to the electronic survey questionnaire were collected over a four-week period in October 2016. Following on from the survey any student who had indicated consent to participate in the semi-structured telephone interview was contacted (n=6) by email and requested to select a suitable time for the interview. Interviews lasted approximately 30 minutes and took place in October 2016. Telephone interviews were audio-recorded and transcribed *verbatim*, with a random sample of three transcripts checked for reliability of transcribing.

### ***Data Analysis***

The anonymised SnapSurveys database which logged all electronic survey responses was imported into an SPSS (vs.21) database and cleaned prior to analysis. Descriptive statistics and non-parametric *chi*-square were used to identify any significant association between variables ( $p < 0.05$ ) within the dataset. Data from the semi-structured telephone interviews were analysed using a framework approach (Smith, 2011) based on the topics from the interview guide. These themes were transcribed and presented using illustrative quotes. Each interviewee was assigned a consecutive code.

### ***Governance***

This research was approved by the Ethical Review Panel of the School of Pharmacy and Life Sciences, Robert Gordon University, Aberdeen, UK and the Ethical Review Panel at the University of Graz, Austria.

**Table II: Survey questionnaire relating to evaluation of the clinical pharmacy teaching event.**

<b>Overall Satisfaction</b>
How much did you enjoy participating in the Clinical Pharmacy event?
How satisfied were you with the University of Graz offering this teaching event in the English language?
How satisfied were you with the content of the Clinical Pharmacy teaching event?
Did the Clinical Pharmacy teaching event meet your expectation?
Would you recommend other students to attend this if it was offered again?
Do you have any additional comments about your <u>level of satisfaction</u> with the teaching event?
<b>Structure</b>
Being taught in the English language was appropriate.
The way in which the teaching was structured was appropriate to teach the basics of clinical pharmacy.
Mixing teaching with frequent tasks for me to complete helped me understand the material better
Being provided with all the materials including the answers helped me to listen more.
Having the answers helped me to understand the different tasks better.
The number of breaks during the two days were sufficient.
The number of teaching hours each day was appropriate.
Do you have any additional comments about <u>the structure</u> of the teaching event?
<b>Content</b>
I have a better understanding of what clinical pharmacy is.
I have a better understanding of how clinical pharmacy can be used in daily pharmacy practice.
Having a systematic approach to pharmaceutical care helps me to focus my own learning.
Including teaching on communication skills made me think about my own interaction with customers more.
The case studies provided were at the right level for me.
We were given enough resources (e.g. References) to find the answers to the different tasks.
Do you have any additional comments about <u>the content</u> of the teaching event?
<b>Assessment</b>
The method of assessment was appropriate.
Having to assess myself has taught me some valuable lessons.
I understand why I was given my mark for the teaching event.
The marking was fair.
I would have preferred to sit a written test for the assessment.
Do you have any additional comments about <u>the assessment</u> of the teaching event?
<b>The Future</b>
I would attend other clinical pharmacy event at the University of Graz if they were offered.
Which of the following topics would you like to learn more about if you were offered to attend a second teaching event?
The teaching event has inspired me to learn more about clinical pharmacy in the future.
Do you have any additional comments about <u>the future</u> teaching on clinical pharmacy you would like to do?
<b>About yourself</b>
What is your gender?
How many Semester have you studied Pharmacy at the University of Graz?
What was the main reason for you to participate in the Clinical Pharmacy teaching event?
Which branch of Pharmacy would you like to work in as a qualified Pharmacist?
<b>Your personal opinion</b>

**Table III: Core questions of semi-structured interview schedule****Overall Satisfaction**

What motivated you to take part in it?  
 What did you hope to get out of it and was that achieved?  
 What did you think about it being offered in the English language?  
 Most students said they would recommend other students to attend this teaching event if it was offered again? Why do you think it is important for others to attend?

**Structure**

Can you tell me your honest opinion what you thought of the 2-day format, the time of year, choice of weekend teaching and/ or the number of hours/ breaks in each day?  
 How did you find the materials?  
 What was your opinion on the format of some teaching followed by frequent activities for you to do?

**Content**

If you could re-design the session what would you love for us to do differently or include?  
 What did you gain from the inclusion of communication skills teaching for your own professional practice?  
 Some of your peers suggested that the case studies may have been a little too complex. What are your thoughts on this?

**Assessment**

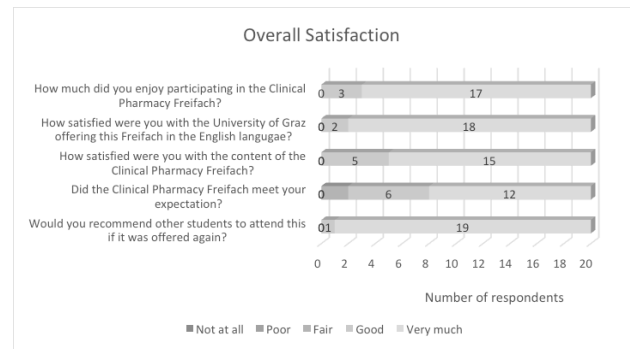
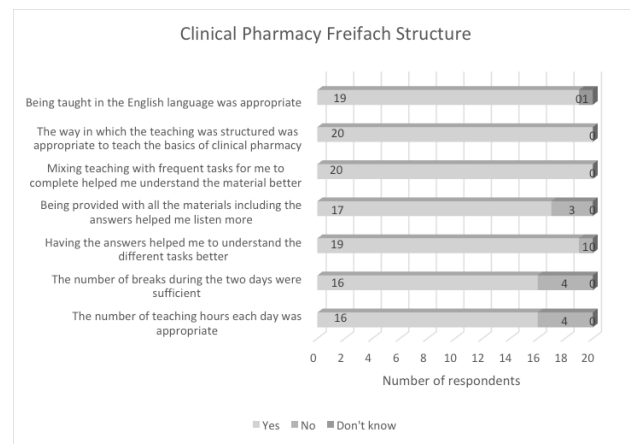
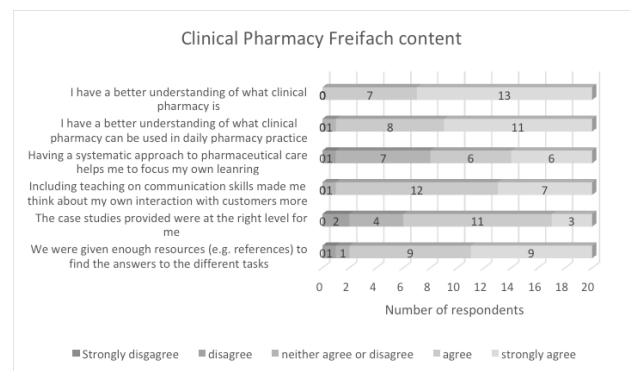
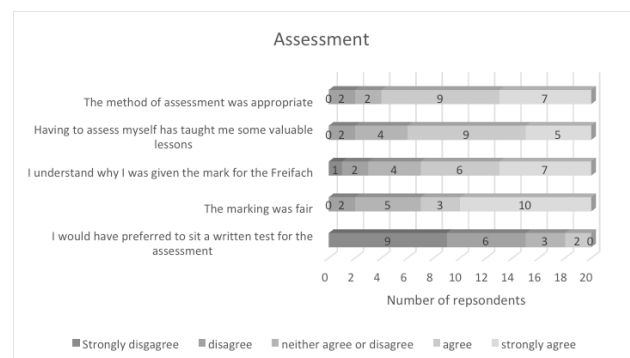
What did you make of the way the teaching event was assessed?  
 How do you think the assessment could have been done differently and why?  
 A lot of students found the one-to-one feedback very useful. What are your thoughts on this?

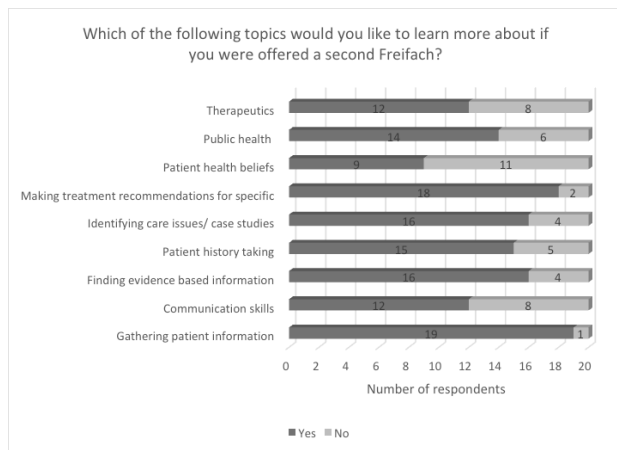
**The Future**

If you could have three wishes for clinical pharmacy at KFU in the future, what would they be and why?  
 Some suggested a collaboration between KFU and the MedUni Graz what are your thoughts on this?  
 How are you hoping to use your clinical knowledge in the future?

**Results****Quantitative survey**

The evaluation questionnaire survey achieved a 67% response rate, with 20 out of 30 students who attended the clinical pharmacy teaching event taking part in the survey. Overall student satisfaction was very high (very good: 90% (n=18), good: (10% (n=2)) with participating students stating that they felt inspired to learn more about clinical pharmacy in the future (100% (n=20)). Topics such as gathering patient information (95%; n=19), making treatment recommendations (90%; n=18); identifying care issues (80%; n=16); finding evidence based information (80%; n=16) and patient history taking (75%; n=15) were identified as areas on which students would like more information. Responses to the survey questionnaire are provided in Figures 1-5.

**Figure 1: Student Satisfaction with the 15h Clinical Pharmacy teaching event****Figure 2: Students views on the structure of the teaching materials****Figure 3: Students views on the overall content of the teaching event****Figure 4: Students views on the assessment at the end of the teaching event**

**Figure 5: Students views on addition clinical teaching content to be included**

### Qualitative themes

Six (30%) out of the 20 students who participated in the questionnaire survey agreed to take part in the telephone interview study.

#### Opportunity:

All respondents thoroughly enjoyed participating in the two-day teaching event *"It was a great experience and I would be glad, if you could make more courses in clinical pharmacy. I told my colleagues from the new bachelor course in pharmaceutical sciences about this course, and they were all interested"* [P003] and appreciated the KFU offering this teaching event in the English language recognising the relevance to their future professional development. *"As English is the scientific language used in my field of studies I think it was [...] time the university offered a course in English"* [P002]. The students expressed a strong desire to have more educational opportunities in clinical pharmacy and even expressed a desire to include inter-professional education aspects *"I wish there will be many further electives of this kind - maybe there could be a cooperation between RGU, KFU and MedUniGraz in future because in my opinion it's essential to involve some medical students as well in order to raise their awareness"* [P001].

#### Relevance:

Students were able to understand the wider relevance for pharmacy practice in Austria. *"It gives an insight of how pharmacy could work in Austria too"* [P003]. They recognised that aspects of clinical pharmacy such as communication skills and pharmaceutical care planning are important for all practice sectors and that these skills are directly relevant to their own future practice. *"I think doing care planning and what you told us about clinical pharmacy is really necessary [...] and it shows that we are caring for patients"* [P003]. *"Talking to total*

*strangers is really difficult. You are nervous and you don't want to make any mistakes"* [P004]. Students expressed a strong desire to have more opportunities to extend their knowledge of clinical pharmacy but also recognised the limitations of the logistics citing time and expertise as common barriers. *"It would be nice if we could have more clinical pharmacy teaching at the University"* [P003]. *"Maybe it could be integrated into the new Masters course in pharmacy as "Pflichtfach" or as a "gebundenes Wahlfach"* [P002].

#### Shaping the future profession:

While students attending the teaching event were already interested in the subject of clinical pharmacy they were frustrated with the current lack of clinical pharmacy within professional practice and the lack of enthusiasm for change which not only integrates clinical pharmacy into daily practice but also makes pharmacists part of the multidisciplinary healthcare team. *"We couldn't really do the things that are possible in Scotland for example because it is just different in Austria"* [P001]; *"Doctors and Pharmacists have to work together and there really is no connection at all right now and I think that can definitely be improved and should be"* [P001]. The students recognised that the governing body is already looking into providing more opportunities to extend roles for clinical pharmacists *"the Apothekerkammer is starting to think in that direction"* [P004] and were keen to support this development *"I want to contribute to the clinical pharmacy in Austria in the future. I don't know how it will look like but I know that there will be plenty to do"* [P003].

Other themes identified included the advantages of the clinical pharmacy teaching event structure compared to current conventional teaching experiences, complexity of case studies and the use of a self-assessment method as part of the marking scheme. However, no new information in addition to questionnaire survey results was obtained.

### Discussion

This evaluation study showed that the students appreciated the opportunity to gain basic knowledge of clinical pharmacy during their undergraduate curriculum. From the qualitative comments, it is evident that students would welcome more clinical pharmacy education opportunities as they can see the relevance to their own future professional practice. Many students have the ambition to drive the integration of clinical pharmacy forward and are open to changing existing working relationships with other healthcare professionals in order to improve overall patient care.

While no other published literature reports of clinical pharmacy teaching events at undergraduate level in Austria have been published, many similar initiatives exist across Europe. In 2007, the University of Tromsø

evaluated their provision of clinical pharmacy teaching during the undergraduate pharmacy curriculum in 100 registered Norwegian pharmacists (Loennechen *et al.*, 2007). Their findings mirror the results presented in this study showing a strong desire to use real patient case studies, to impart problem solving skills through group work, to be taught by pharmacist practitioners and to learn jointly with medical students. In 2001, the University of Bonn (Germany) introduced a teacher practitioner to successfully integrate pharmacy education and practice in their undergraduate pharmacy curriculum (Strohkirch *et al.*, 2003). They found that this approach greatly enhanced the students' ability to apply the pharmaceutical sciences to complex practice problems. It also increased the students' confidence when working as a patient care provider mirroring the desire of the students participating in this study to have joint teaching events with other healthcare professionals. Most published initiatives however focus on furthering clinical education in postgraduate students. A four-week programme in clinical pharmacy was launched between the University of London and the University of Tübingen (Germany) in 1997 (Ehrensberger *et al.*, 2005). An evaluation survey of all participants between 1997 and 2001 (n=102) showed that participation in the education event had a positive impact on their daily professional practice citing increased satisfaction with their work or a higher level of confidence when working with doctors as the main benefits. Projects implemented as a result included co-operation with the multidisciplinary team during ward rounds and patient counselling/education activities. However, time constraints, lack of support and financial constraints presented the main barriers to a successful and sustained implementation of clinical pharmacy services across all settings. While the educational value to both undergraduate and postgraduate pharmacy students' own professional development is evident one key finding in the study presented is the strong desire to have more inter-professional education opportunities with medical students and other healthcare professionals. A position statement by the Gesellschaft für Medizinische Ausbildung (GMA) on inter-professional education for the health care professions states that the Austrian health reform in 2013 aims for a paradigm shift that will lead to appropriate modifications in the education programmes for all health professions (Walkenhorst *et al.*, 2015). It promises that by 2016, the first changes to education in response to this health reform should be implemented and that 'core competencies for inter-professional collaborative practice' should be drawn up (IPECEP, 2011). No published reports detailing any early experiences with the development or implementation of such an inter-professional education for the health care professions in Austria exist.

### Strengths and limitations

This is the first small scale teaching evaluation study of its kind published by an Austrian university. The sample size is very limited and results are not generalisable to all

undergraduate pharmacy students at KFU or other universities in Austria. Non-respondents' bias is not accounted for as students who took part self-selected as being interested in learning about clinical pharmacy. Further the study is limited by its response rate for both the questionnaire survey and the telephone interview. Non-respondent bias and researcher bias is not accounted for and data saturation was not achieved during the qualitative telephone interviews.

### Recommendations for practice

There is scope to make clinical pharmacy teaching opportunities available to undergraduate pharmacy students at KFU as either elective options or as part of their curriculum teaching. Future teaching activities should be designed with social constructivism theory in mind to ensure the students' confidence in their critical thinking skills enables them to become better life-long learners (Kang *et al.*, 2010), a skill crucial in an ever changing landscape of pharmacy practice.

### Conclusion

This small scale teaching evaluation study has demonstrated that students at KFU who took part in the teaching event may welcome the opportunity to extend their undergraduate education to include clinical pharmacy. Many may also have the ambition to drive the integration of clinical pharmacy forward in Austria.

### References

- American College of Clinical Pharmacy. (2008). Definition of Clinical Pharmacy (online). Available at: <https://www.accp.com/stunet/compass/definition.aspx>. Accessed 24<sup>th</sup> November, 2016.
- Anderson, S., (2002). The state of the world's pharmacy: a portrait of the pharmacy profession. *Journal of Interprofessional Care*, 16(4), 391-404.
- Clinical Resource and Audit Group [CRAG]. (1996). Clinical Pharmacy in the hospital pharmaceutical service: a framework for practice. The Scottish Office. HMSO.
- Dalton, K. & Byrne, S. (2017). Role of the pharmacist in reducing healthcare costs: current insights. *Integrated Pharmacy Practice Research and Practice*, 6, 37-46.
- Ehrensberger, U., Vassel-Biergans, A., Dhillion, S., Heide, L. & Taxis, K. (2005). Evaluation of a British-German postgraduate course in clinical pharmacy. *Pharmacy Education*, 5(00), 1-6.
- General Pharmaceutical Council [GPhC]. (2011). Future pharmacists. Standards for the initial education and training of pharmacists (online). Available at: [https://www.pharmacyregulation.org/sites/default/files/GPhC\\_Future\\_Pharmacists.pdf](https://www.pharmacyregulation.org/sites/default/files/GPhC_Future_Pharmacists.pdf). Accessed 24<sup>th</sup> November, 2016.

- Hepler, C.D. & Strand, L.M. (1990). Opportunities and responsibilities in pharmaceutical care. *American Journal of Hospital Pharmacy*, **47**, 533-543.
- FIPEd Global Education Report. (2013). Available at: [http://www.fip.org/files/fip/FIPEd\\_Global\\_Education\\_Report\\_2013.pdf](http://www.fip.org/files/fip/FIPEd_Global_Education_Report_2013.pdf). Accessed 16<sup>th</sup> February, 2017.
- IPECEP [Interprofessional Education Collaborative Expert Panel]. (2011). Core competencies for the interprofessional collaborative practice: Report of an expert panel. Washington D.C., *Interprofessional Education collaborative*, 2011.
- Kang, L.-O., Brian, S. & Ricca, B. (2010). Constructivism in pharmacy school. *Currents in Pharmacy Teaching and Learning*, **2**(2), 126-130.
- Karl-Franzens-Universität Graz. (2013). Mitteilungsblatt der Karl-Franzens-Universität Graz. Curriculum für das Diplomstudium Pharmazie und der Karl-Franzens-Universität Graz. Available at: [https://static.uni-graz.at/fileadmin/nawi/Bilder/Pr%C3%BCfungsreferat/Pr%C3%BCfungsprotokolle/Formulare/Studienplaene/Studienplan\\_B449\\_13W.pdf](https://static.uni-graz.at/fileadmin/nawi/Bilder/Pr%C3%BCfungsreferat/Pr%C3%BCfungsprotokolle/Formulare/Studienplaene/Studienplan_B449_13W.pdf). Accessed 24<sup>th</sup> November, 2016.
- Loennechen, T., Lind, R., McKellar, S. & Hudson, S. (2007). Clinical pharmacy curriculum development in Norway: Pharmacists' expectations in the context of current European developments. *Pharmacy Education*, **7**(1), 19-26.
- McColl, E., Jacoby, A., Thomas, L., Soutter, J., Bamford, C., Steen, N., Thomas, R., Harvey, E., Garratt, A. & Bond, J. (2001). Design and use of questionnaires: a review of best practice applicable to surveys of health service staff and patients. *Health Technology Assessment*, **5**(31), 1-256.
- Nunes-da-Cunha, I., Arguello, B., Martinez, F.M., Fernandez-Limos, F. (2016). A comparison of patient-centred care in pharmacy curricula in the United States and Europe. *American Journal of Pharmaceutical Education*. **80**(5):83.
- Österreichische Apothekerkammer. (2015). Expertentreffen bei den Onkologischen Wintergesprächen in Graz (online). Available at: <https://www.apotheker.or.at/internet/%5Coeak%5Cnewsprese.nsf/lookupDocuments/C20956F0B701421BC1257DDA003AAD97?OpenDocument>. Accessed 24<sup>th</sup> November, 2016.
- Österreichische Apothekerkammer. (2015). Verordnung der Österreichischen Apothekerkammer betreffend die Weiterbildung zur Fachapothekerin oder zum Fachapotheker für Krankenhauspharmazie. Krankenhausfachapotheker- Weiterbildungsordnung (KhFA-WbO 2015) (online). Available at: [http://www.apotheker.or.at/internet/OEAK/NewsPresse\\_1\\_0\\_0a.nsf/agentEmergency!OpenAgent&p=909452BDC0EE189FC1256EC5002CB3B5&fsn=fsStartHomeFachinfo&iif=0](http://www.apotheker.or.at/internet/OEAK/NewsPresse_1_0_0a.nsf/agentEmergency!OpenAgent&p=909452BDC0EE189FC1256EC5002CB3B5&fsn=fsStartHomeFachinfo&iif=0). Accessed 24<sup>th</sup> November, 2016.
- Smith, J. (2011). Qualitative data analysis: the framework approach. *Nurse Researcher*, **18**(2), 52-62.
- Strohkirsch, A.M. & Jaehde, U., (2003). The role of the teacher-practitioner in integrating pharmacy education and practice: a pilot project in Germany. *Pharmacy Education*, **3**, 1-5.
- Walkenhorst, U., Mahler, C., Aistleithner, R., Hahn, E.G., Kapp-Fröhlich, S., Karstens, S., Reiber, K., Stock-Schröer, B. & Sottas, B., (2015). Position Statement GMA Committee – Interprofessional Education for the Health Care Professions. *GMS Zeitschrift für Medizinische Ausbildung*, **32**(2), 1-19.
- WHO [World Health Organisation]. (1993). The role of the pharmacist in the health care system. Report of a WHO consultative group. New Delhi, India, 1988. Report of a WHO meeting, Tokyo, Japan, 1993 (online). Available at: <http://apps.who.int/medicinedocs/pdf/h2995e/h2995e.pdf>. Accessed 16<sup>th</sup> February, 2017.
- WHO [World Health Organisation]. (1997). The role of the pharmacist in the health care system. Preparing the future pharmacist: curricular development. Report of the third WHO consultative group on the role of the pharmacist, Vancouver, Canada, 1997. Geneva: World Health Organization; 1997. (online). Available at: <http://apps.who.int/medicinedocs/pdf/s2214e/s2214e.pdf>. Accessed 16<sup>th</sup> February, 2017.