European Association of Faculties of Pharmacy (EAFP)

2020 Virtual Conference

EAFP EUROPEAN ASSOCIATION OF FACULTIES OF PHARMACY

SYNERGISM IN PHARMACY EDUCATION:
A NEW DIMENSION

9-11 November 2020

Conference Booklet

L-Università ta' Malta
Faculty of
Medicine & Surgery

Department
of Pharmacy

Scientific Committee

Lilian M. Azzopardi (University of Malta)

Andries Koster (Utrecht University)

Patrizia Santi (University of Parma)

Anthony Serracino-Inglott (University of Malta)

Dimitrios Rekkas (Kapodistrian University of Athens)

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Welcome to the EAFP 2020 Virtual Conference

The COVID-19 pandemic presented an unexpected scenario which posed challenges to education, healthcare systems and social fibre. All these three domains are very closely connected to pharmacy education. As pharmacy educators we have a social responsibility to oversee that competences developed during pharmacy and pharmaceutical sciences education are relevant to ensure preparedness, resilience and crisis management. The pandemic has brought to the forefront the importance of such skills in the pharmaceutical workforce who are contributing as front liners in healthcare services, participating in research and clinical trials for vaccines and playing key decision-making roles in ensuring safety in the use of medicinal products such as in the compassionate use of medicines for the management of COVID-19. A key contribution by pharmacists and pharmaceutical scientists is the 'anchoring' effect in that they are connecting with other professionals.

The theme identified for the 2020 EAFP Annual Conference of *Synergism in Pharmacy Education: A new dimension* emphasises the aspects of connection, collaboration and communication which have become more desirable during these times. Networking in pharmacy education through European and International platforms serves to share and reflect on successful stories and how barriers and challenges may be overcome. Guided by the people-focus of pharmacy curricula, exposing the importance of recognising facilitators of equality to access to health is a facet which also relies on synergism with economic and societal drivers.

The experiences of remote teaching brought forth as a result of the mitigation strategies to curtail the pandemic spread, has catapulted educators and students to improvise and innovate. Maximising on the innovation and sharing these experiences provides an opportunity to revolutionise teaching methods. Characteristic of pharmacy education is to maintain the team approach and to strengthen inter-professional education. Ensuring synergism with the needs of society is a way to ensure relevant education and social accountability of pharmacy education institutions. The way that digitalisation is transforming our lives provides an unquestionable pathway that needs to be taken into account within pharmacy education and research. The impact is wide-ranging: From quality and regulatory aspects of development and use of medical devices, telepharmacy, robotics for medicine distribution to digital communication. Digital technology is ingrained as a central part of the Z generation, which forms a large part of our student population. Digitalisation in pharmacy education is an opportunity to engage students and prepare them for the digital health, and most importantly how they can synergistically facilitate equity of access to digital health to all.

I look forward to the 2020 EAFP Virtual Conference as an occasion to network and brainstorm on experiences in innovation in pharmacy education and research.

Lilian M. Azzopardi

President, EAFP

Professor and Head, Department of Pharmacy

University of Malta

Scientific Programme

Monday 9 November	
14.00 - 14.45	**Opening Ceremony** **Welcome on behalf of EAFP** Professor Lilian M. Azzopardi, EAFP President **Welcome on behalf of Faculty of Medicine & Surgery, University of Malta** Professor Godfrey LaFerla, Dean **Welcome on behalf of University of Malta** Professor Tanya Sammut-Bonnici, Pro-Rector, Strategic Planning & Enterprise
14.45 15.15	***Plenary Session I: Networking in pharmacy education*** *Moderator:* Dr Francesca Wirth, University of Malta **Internationalisation of Pharmacy Education in the (Post) COVID Era** Professor Luciano Saso, Sapienza University, Rome, Italy President, UNICA network of the Universities from Capitals of Europe **Transforming pharmacy education through transnational partnerships** Professor Alan Lau, University of Illinois at Chicago, USA
15.30	**Plenary Breakthrough Session** *Moderator: Professor Anthony Serracino-Inglott, University of Malta* **Equality to access and empowerment to improve health and education** EU Commissioner Helena Dalli, Commissioner for Equality
16.00	**Round Table Discussion** *Moderators:* Professor Maria Margarida Caramona, University of Coimbra, Portugal Dr Francesca Wirth, University of Malta
16.30	**Closing**

Tuesday 10 November	
14.00	***Plenary Session II: Innovations in teaching as inspired by the pandemic*** *Moderator:* Dr Louise Grech, University of Malta **"Inclusive Innovations" – Responses to the "new-normal" in health professions education** Janusz Janczujowicz Medical University of Lodz, Poland, Association for Medical Education in Europe
14.25	*Students' perspective* **Soft-Skills: The Online Odyssey** Andreea Iordache, Educational Affairs Coordinator European Pharmaceutical Students Association
14.35	**Remote teaching, experientials and interprofessional webinars during the pandemic** Nicolette Sammut Bartolo, University of Malta
14.45	**Round Table Discussion** *Moderators:* Professor Jouni Hirvonen, University of Helsinki Dr Louise Grech, University of Malta
	Oral Presentations *Moderator:* Dr Maresca Attard Pizzuto, University of Malta
15.15	Experiential learning in a gamified simulation detected by semantic analysis *Denise Hope* School of Pharmacy and Pharmacology and Quality Use of Medicines Network, Griffith University, Gold Coast, Australia
15.30	Introduction of communication skills training program for pre-registration pharmacists in a tertiary hospital in Singapore *Loh Chee Pheng* KK Women's & Children's Hospital, Singapore
15.45	Pharmacy students' attitude towards academic dishonesty *Jurgita Dauksiene* Lithuanian University of Health Sciences, Drug Technology and Social Pharmacy Department, Kaunas, Lithuania
16.00	Implementation of the practical teaching of parenteral nutrition and cytotoxic drugs compounding to the pharmaceutical technology course *Witold Brniak* Faculty of Pharmacy, Jagiellonian University Medical College, Krakow, Poland Discussion
16.30	**Closing**

Wednesday 11 November	
	Moderator: Dr Francesca Wirth, University of Malta
14.30	**Uniting science, practice and education to improve global health** Professor Ralph Altiere University of Colorado, USA Chair, International Pharmaceutical Federation Education Professor Lilian M. Azzopardi, University of Malta
14.45	**The value of international mentorship** Eseosa Iyagbaye, IPSF Mentee, Nigeria
15.00	***Plenary Session III: Preparedness for the accelerated digitalisation era*** *Moderator:* Dr Janis Vella Szijj, University of Malta Professor Aukje Mantel-Teewisse, Utrecht University, The Netherlands
15.20	**Digital health in pharmacy education** Nilhan Uzman Lead for Education Policy and Implementation, International Pharmaceutical Federation
15.30	**Hospital pharmacies in the digital age – Views of the European Association of Hospital Pharmacists (EAHP)** Dr Steffen Amann European Association of Hospital Pharmacists, Director of Professional Development
15.45	**Round Table Discussion** *Moderators:* Professor Dimitrios Rekkas, University of Athens Dr Janis Vella Szijj, University of Malta
16.15	**General Assembly**
17.15	**Closing**

Post-Conference Webinar

Organised in collaboration with the Malta Pharmaceutical Students Association (MPSA)

Thursday 12 November 2020, 19.30-21.00

VACCINES IN THE PANDEMIC ERA

19.30-19.45 Introduction

Professor Lilian M. Azzopardi

Head, Department of Pharmacy, University of Malta and President, EAFP

Martina Fitzgerald

President, MPSA

Hon Dr Deo Debattista

Parliamentary Secretary for Consumer Protection

19.45-20.05 Reflections

Dr Chris Barbara

Clinical Chairperson, Pathology Department, Mater Dei Hospital, Malta

Developing Safe and Effective Coronavirus Vaccines

Dr Rodrigo Burgos

Clinical Pharmacist, Infectious Diseases, University of Illinois at Chicago, USA

20.05-20.30 Panel

Moderator: Martina Fitzgerald

Professor Mark Brincat, Obstetrics and Gynaecology

Aoife Huethorst, European Pharmaceutical Students Association

Katie Remmers, European Pharmaceutical Students Association

Bram Wagner, International Pharmaceutical Students Federation

Matthew Gauci, KSU, Marketing student

Jeremy Mifsud, MaltMUN, Law student

Sarah Zerafa, Malta Health Students' Association (MHSA)

20.30 Closing

Plenary Session I

INTERNATIONALISATION OF PHARMACY EDUCATION IN THE (POST) COVID ERA

Professor Luciano Saso, La Sapienza University, Rome, Italy

A strong global engagement of modern Faculties of Pharmacies is extremely important for different reasons, including: *Quality of Education* - It is well known that study or training periods abroad are very useful for students, doctoral candidates and residents, allowing them to get specific knowledge or training in fields not available or not well developed at the home institution. In addition, graduates with an experience abroad are usually more innovative and can help their university or their future employers to improve their educational, research or manufacturing activities. At the same time, increasing the number of foreign exchange students, degree seeking students and foreign professors can be very useful for the local students and staff members exposing them to the so-called "internationalisation at home". *Quality of Research* - Basic and clinical research can benefit significantly from international exchanges and co-operations thanks to the exchange of students, doctoral candidates, residents or staff members in the laboratories or hospitals and to the preparation of joint research projects which can also allow to obtain additional financial resources. *International reputation* - A strong international research is essential for the visibility and reputation of a modern Faculty of Pharmacy and is known to have a significant impact of international rankings such as QS[1], THE[2], ARWU[3] and others. *Quality of Hospital Pharmacies Care* - Since our modern societies are more and more intercultural, it is necessary to have in our hospitals pharmacists capable of communicating well in English and other languages and understanding how to interact with people coming from other countries and cultures.

The current COVID-19 pandemic is a tragic moment but it is offering universities the opportunity to move online many activities that traditionally were carried out only in-person. It is also a very good moment to *introduce innovative pedagogical techniques*. In many cases, universities still teach in a very traditional way while some changes are necessary, e.g. making the students to learn the main elements of the subject without asking them to learn by heart details that they will be able to easily find on the internet. As already happens in some universities, students could be allowed to use computers connected to the internet during the exams, formulating complex questions which require a very good knowledge of the subject without necessarily knowing all technical details. Indeed, any professional during his or her career will use the internet to search for information to prepare for any activity. Internet allows also to easily "flip the classroom", i.e. to ask the students to prepare at home before coming to the class just to ask questions to the teacher and discuss with the other

1 https://www.topuniversities.com/university-rankings

2 https://www.timeshighereducation.com/world-university-rankings

3 http://www.shanghairanking.com/

students about the assignment. Another revolutionary phenomenon is artificial intelligence (AI) which is already providing new powerful tools in many fields, including pharmacy. AI machines will soon perform many activities done today by humans and that should be taken into account when preparing our graduates. Very soon, many professionals, including pharmacist, will benefit from AI machines in such a way that even if "machines will not replace immediately humans", most probably, humans using intelligent machines will replace soon humans NOT using them". Of course, these developments will also create serious ethical problems which will require the pharmacy curriculum to be more and more interdisciplinary.

Some of challenges we are facing during this COVID-19 crisis do not have easy solutions, e.g. in-person *practical training of pharmacy students in laboratories and community pharmacies* and the *socio-economic divide* which affects very significantly the quality of education when we require our students to have state of the art IT devices and high-speed internet to fully benefit from the new online teaching and training techniques. To identify possible solutions to these difficult problems, it is very important for universities to collaborate very closely with each other and discuss them within university networks such as the UNICA network of the universities from the Capitals of Europe[4,] the M8 Alliance of Academies, Universities, and Health Centers[5] and Association of Academic Health Centers International (AAHCI)[6].

4 http://www.unica-network.eu/

5 https://www.worldhealthsummit.org/m8-alliance.html

6 https://www.aahcdc.org/

Biography

Professor Luciano Saso (luciano.saso@uniroma1.it) is a Member of the Faculty of Pharmacy and Medicine, Sapienza University of Rome, Italy (http://en.uniroma1.it/). He is author of more than 250 original scientific articles published in peer reviewed international journals with impact factor (H-index Google Scholar = 47, H-index SCOPUS = 39, Total Impact Factor > 500) working mainly in the field of oxidative stress and antioxidants. He coordinated several international research projects and has been referee for many national and international funding agencies and international scientific journals in the last 25 years. He has been Guest Editor of several Special Issues in the field, including: Chemistry, Biology, and Pharmacology of Modulators of Oxidative Stress in the Journal Oxidative Medicine and Cellular Longevity, Chemistry and Pharmacology of Modulators of Oxidative Stress in the Journal Molecules, Modulation of Oxidative Stress: Pharmaceutical and Pharmacological Aspects published in the journal Oxidative Medicine and Cellular Longevity, "Oxidative Stress as a Pharmacological Target for Medicinal Chemistry: Synthesis and Evaluation of Compounds with Redox Activity" published in the journal Current Topics in Medicinal Chemistry, "Synthesis, evaluation and pharmacological applications of antioxidants" published in the journal Curr Med Chem, "Antioxidant heterocyclic compounds in drug discovery and medicinal chemistry" published in the journal Mini reviews in medicinal chemistry, "Chemistry and biology of antioxidants" published in The Journal of Pharmacy and Pharmacology.

TRANSFORMING PHARMACY EDUCATION THROUGH TRANSNATIONAL PARTNERSHIPS

Professor Alan Lau, University of Illinois at Chicago, USA

Pharmacy practice has been shifting its emphasis from products and dispensing towards rational pharmacotherapy aimed to attain the best patient outcomes. Comprehensive medication management is now conducted by pharmacists practicing in interdisciplinary healthcare teams. To assume these evolving responsibilities effectively, pharmacists need to have the necessary skills and competencies. Faculty engaged with active clinical practice are necessary to teach pharmacotherapy and clinical skills and to serve as role models. Transnational partnerships have been set up to meet the demand for well-trained faculty/preceptor. For example, through the US-Thai Pharmacy Education Consortium, since 1994, >120 faculty members received Thai government scholarships to obtain doctoral degrees in US. Clinically faculty members also completed residencies and research fellowships. Alternately, individual institutions have set up collaboration with their own partners. Through these partnerships, foreign experts conduct training programs in host countries while faculty preceptors come to the USA for clinical education. Different programs are offered for students, pharmacists, faculty members and pharmacy directors, giving them tools for practice as well as inspiration for education and professional development. Pharmacists from many countries have thus been empowered with newly acquired clinical and practice skills, and became instrumental in transforming education and practice back home.

Biography

Alan Lau, PharmD, FCCP is Professor of Pharmacy Practice and Director of International Clinical Pharmacy Education at the University of Illinois at Chicago College of Pharmacy. He served on the Board of Director and as Chairman of the Renal Scientific Section of the American Society for Clinical Pharmacology and Therapeutics. Dr. Lau served as vice-chairman of the Nephrology/Urology Expert Committee of United States Pharmacopeia (USP) in 2007. In 2010, he was elected as a Distinguished Practitioner to the National Academies of Practice in Pharmacy. Since 2011, Dr. Lau has been working with the American College of Clinical Pharmacy on international program development and is now the International Program Director. He served as guest editor for a themed issue of the Journal of the American College of Clinical Pharmacy. Dr. Lau has been appointed guest professor at several universities in Asia as well as the University of Malta.

Plenary Breakthrough Session

EQUALITY TO ACCESS AND EMPOWERMENT TO IMPROVE HEALTH AND EDUCATION

Helena Dalli, EU Commissioner for Equality

Biography

Helena Dalli is the first EU Commissioner for Equality since December 2019. Her role is to deliver on the Union of Equality chapter within the Political Guidelines of President von der Leyen, by strengthening Europe's commitment to equality and inclusion in all of its senses. Prior to taking her role as Commissioner, Dalli held various political roles in Malta including Member of Parliament (1996 to 2019), Minister for European Affairs and Equality (2017 to 2019), and Minister for Social Dialogue, Consumer Affairs and Civil Liberties (2013-2017). She was also opposition Shadow Minister for public administration, equality, public broadcasting and national investments (1998-2013) and Junior Minister for Women's Rights in the Office of Prime Minister (1996-1998). Dalli holds a PhD in Political Sociology from the University of Nottingham, and lectured in Economic and Political Sociology, Public Policy, and Sociology of Law at the University of Malta.

Plenary Session II

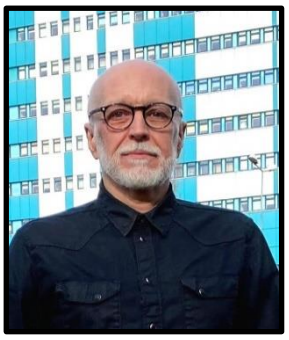
"INCLUSIVE INNOVATIONS" – RESPONSES TO THE "NEW-NORMAL" IN HEALTH PROFESSIONS EDUCATION

Professor Janusz Janczukowicz

Medical University of Lodz, Poland, Association for Medical Education in Europe

The unexpected COVID-19 pandemic affected private and professional lives of all populations, including patients, careers, health workforce, learners, and teachers. To respond effectively to these challenges, health professions curricula should adapt much faster to rapidly changing societal needs. The sudden shift towards Digital Health and Digital Education caused by the pandemics has a yet unassessed educational impact on knowledge, skills, and professional attitudes of all health professions. While working at international, national and local levels on adjusting education to the necessary digital acceleration, we should be constantly focusing our efforts on developing appropriate professional qualities of the European health workforce, including competencies related to patient centredness, empathy, communication and intercultural skills. An active involvement of all stakeholders, including patients, carers, and learners as partners in education is necessary for the further development of interprofessional education, to achieve the effective interprofessional practice. Moreover, there is a need to reframe our approaches to assessment and certification and to find the new balance between distance and face-to-face learning. Finally, we need to be especially sensitive to avoid enhancing the digital divide. Health professions education should aim at supporting the disadvantaged populations of learners, to assure "leaving no one behind in education".

Biography



Professor Janusz Janczukowicz is Vice Dean for Development of Education and Head of Centre for Medical Education, Medical University of Lodz, Poland. His expertise is in teaching, learning and assessment in health professions education with specific areas of interest including medical professionalism, social and intercultural competence, as well as gender, diversity, and inclusiveness in higher education. He has developed strategies for bringing the humanities to medical education and is a strong advocate of interprofessional education and involving patients as partners in health professions education. Janusz is the WHO Academy Quality Committee member and holds several roles at the international level, including the International Association for Medical Education (AMEE). He coordinates AMEE cooperation with WHO/Europe and serves on the European Institute of Innovation and Technology Health Strategic Education Board, and the European Institute of Women's Board of Directors. He is an expert for the Norwegian and Estonian agencies for quality enhancement in higher education.

SOFT-SKILLS: THE ONLINE ODYSSEY

Andreea Iordache, Education Affairs Coordinator, European Pharmaceutical Students Association

Making habits is hard, but breaking them is even harder. Once we get used to doing things in a certain way, it is not very comfortable to make changes. We all know that growth appears when we get out of our comfort zones, but sometimes we don't find enough motivation or energy to make this additional effort. What happens when externals factors, like a global pandemic, force us to change overnight our approach to different areas of our lives? We are forced to learn to adapt. And in the end, we may discover that it is important to give fresh air to the old ways of doing things. The presentation will showcase how EPSA managed to (re)create in an online environment the learning experience provided by live Soft-Skills Trainings and how pharmaceutical students in Europe welcomed this sudden change. Moreover, their opinion regarding the inclusion of Soft-Skills in the pharmaceutical curricula will also be presented, as well as a few of the initiatives that European Pharmaceutical Students Association (EPSA) is conducting related to the improvement of teaching across Europe.

Biography

Andreea Iordache is a recently graduated pharmacist from Romania and the current EPSA Educational Affairs Coordinator. She discovered early in her studies the passion for research and was involved in multiple projects. Over the years, she participated in numerous national and international events organized by students and professionals, where she had the chance to expand her pharmaceutical-related knowledge, but also to understand that a true healthcare professional should possess a wide range of Soft-Skills. In 2019 she became an EPSA Soft-Skills Trainer, motivated by the idea of guiding people towards discovering their full potential. During her studies, she had several internships in hospital pharmacy and pharmaceutical industry, in the Quality Assurance and Trial Monitoring Departments, which gave her a bigger insight into what is required from a pharmacy graduate. She recently moved to Brussels and started her internship within EFPIA (European Federation of Pharmaceutical Industries and Associations).

REMOTE TEACHING, EXPERIENTIALS AND INTERPROFESSIONAL WEBINARS DURING THE PANDEMIC

Dr Nicolette Sammut Bartolo, University of Malta, Malta

The COVID-19 pandemic presented a number of challenges to the academic community. The need to continue with the programme of studies resulted in a swift shift to digitalisation requiring students and academics alike to be technology ready for the implementation of synchronous online lectures and adaptation of experientials. The perception of remote teaching on students and academics was evaluated to establish the impact of shifting from traditional class-based teaching to online learning. The pandemic also led to opportunities for interprofessional collaboration through the development of webinars to present scientific evidence and reflect upon the challenges faced when navigating the science, myths and realities of the COVID-19 pandemic. The Webinars discussed current research related to the pandemic, such as the presentation of the infection and vaccine development. The webinars served as a platform where experts including virologists, immunologists and specialists in infectious disease amongst others, get together to discuss and present current information to health professionals.

Biography

Dr Nicolette Sammut Bartolo is a lecturer at the Department of Pharmacy of the University of Malta. In 2011, She graduated as a pharmacist from the University of Malta. In 2012 she joined the Department of Pharmacy as a Project Assistant and worked on a RTDI funded project which was conducted in collaboration with the local pharmaceutical industry. Dr Sammut Bartolo was awarded a distinction in Master of Science in Pharmacy degree in 2013. The research conducted for the Master degree focused on the production process of slow release pellets. In 2016, she completed a PhD with a dissertation on the development of pathways for synthetic steroids using green practices. Dr Sammut Bartolo is involved in teaching and research related to pharmaceutical technology and green practices and supervises a number of undergraduate and postgraduate students.

International Opportunities

FIP AND EAFP UNITING SCIENCE, PRACTICE AND EDUCATION TO IMPROVE GLOBAL HEALTH

Professor Ralph J. Altiere,[1] *Professor Lilian M. Azzopardi*[2]

1.University of Colorado, USA and Chair, International Pharmaceutical Federation Education (FIPEd)

2. University of Malta, Malta and Advisory Member, Academic Institutional Membership-FIP

During the 2020 Virtual Conference the International Pharmaceutical Federation has launched the ONE-FIP strategy and the FIP Development Goals that are focused to support the development of a global pharmacy workforce in the sciences, practice and education sectors. Specifically, within education, the FIP- Academic Institutional Membership (AIM), in partnership with the American Association of Colleges of Pharmacy, has developed the Global Academic Leadership Fellows Program (GALFP). The contributions of EAFP at FIP-AIM activities, the FIP Primary Health Care Agenda in the European Region and the FIP Digital Health in Pharmacy Education Survey are presented. The inter-relationship of EAFP activities with the FIP Global Development Goals and Actions is portrayed.

Biography

Professor Ralph J. Altiere is Dean of the University of Colorado Skaggs School of Pharmacy and Pharmaceutical Sciences in the USA. His academic career began as a scientist/researcher and educator and served as Associate Dean for Academic Affairs prior to his appointment as CEO Dean. He currently serves as chair of the AACP International Collaborations Task Force. Within FIP, he has served in leadership roles as President of the Academic Pharmacy Section (now immediate past president), member of the FIP Congress Program Committee, AIM advisory committee and Global Academic Leaders Fellows Program task force. He currently serves as Director of the FIP UNESCO UNITWIN program and its Center for Excellence in Africa. He has delivered invited presentations on pharmacy education to academic pharmacy organizations including IPSF in every WHO region of the world. He was appointed by FIP Council in September 2020 as Chair of FIPEd to lead FIP Education.

Biography

Lilian M. Azzopardi is a Professor of Pharmacy Practice and Head of Department of Pharmacy, Faculty of Medicine and Surgery at the University of Malta. Professor Azzopardi serves as chairperson of the Faculty of Medicine and Surgery Doctoral Committee. Professor Azzopardi has spearheaded major developments in pharmacy education particularly in pharmacy practice, clinical pharmacy and pharmacy practice research. She co-ordinates experiential learning for pharmacy students and has been leading the innovative post-graduate international doctorate in pharmacy offered by the Faculty of Medicine and Surgery of the University of Malta in collaboration with the University of Illinois at Chicago. She published several papers and books mainly related to quality systems, pharmacist interventions in patient care, and pharmacy education. She has received research awards by the International Pharmaceutical Federation (FIP) and the European Society of Clinical Pharmacy. She served as an ad-interim Director and a member of the Publications Committee of the European Society of Clinical Pharmacy and Deputy Dean of the Faculty of Medicine and Surgery at the University of Malta. She served as co-chair of the working group of the FIP Nanjing Statements on Pharmacy and Pharmaceutical Sciences Education and is a member of the advisory group of the Academic Institutional Membership (AIM) within FIP. She currently serves as President of the European Association of Faculties of Pharmacy.

THE VALUE OF INTERNATIONAL MENTORSHIP

Eseosa Favour Iyagbaye, University of Benin, Nigeria

Mentorship is a valuable tool that provides knowledge-exchange and career-advancement opportunities beyond local and international boundaries. The International Pharmaceutical Federation (FIP)'s Global Vision, Workforce Development Goals as well as Nanjing Statements, all highlight the need for models of education and training that ensure that pharmacy graduates and undergraduates have access to the highest quality education and training experiences possible. This has propelled the launch of several initiatives by the FIP, national and pharmacy practice organizations, targeted at enhancing needs-based knowledge-sharing, partnerships and mentorships to build capacity and pharmacy practice. This presentation focuses on the IPSF-FIP mentorship program as a reference point for recommendations on how international mentorship can be designed to advance pharmacy education and practice globally. Launched in 2019, the program is targeted at assisting pharmacy students and academic leaders to utilize the FIP Nanjing Statements and Pharmaceutical Workforce Development Goals (PWDGs) to advance academic programs to meet societal needs of their communities. The presentation highlights my goals and experiences, alongside those of a few pharmacy students and young pharmacists who have witnessed great results through international mentorships. Challenges and prospects in international mentorship are also included to influence more positive outcomes for preceptors, pharmacy professionals and students.

Biography

Eseosa Iyagbaye is a 5th year Pharm.D student at the University of Benin, Nigeria, and Vice President of her student association. She is an IPSF mentee with FIP, and has served in the IPSF African region twice, as part of the projects subcommittee. Eseosa is passionate about public health and works with her non-profit, CHRONmate, a network member of the NCD Alliance, to combat chronic/non-communicable diseases (NCDs) in low-middle-income regions through campaigns, health support programs, workshops and seminars. She also recently co-authored a scientific paper with the International Journal of Health Planning and Management (IJHPM) on the "Impact of COVID19 on access to Healthcare in Low-middle-income-countries: Current Evidence and Future Recommendations". She is a Millennium Fellow and Youth Ambassador of The ONE Campaign, a global advocacy organization campaigning to end extreme poverty and preventable diseases. At leisure, she hosts a podcast series, Healthy Waves with Eseosa, designed to promote health through digital media.

Plenary Session III

PREPAREDNESS FOR THE ACCELERATED DIGITALISATION ERA

Professor Aukje Mantel-Teeuwisse, Utrecht University, The Netherlands

The digital era is rapidly evolving, providing pharmacists all over the world with new opportunities to provide and improve pharmaceutical care. Apps, wearables, artificial intelligence and 3D printing are just a few of these new technologies that are increasingly used and promoted. Implementation in daily practice, however, largely depends on the willingness and ability to use these tools by pharmacists. Pharmacy Schools can play an important role in accelerating uptake by educating the future generation of pharmacists. They should not only teach them adequate knowledge about the technical aspects of these technologies, but also help them understand how to integrate these technologies in daily pharmaceutical care. This presentation sets the scene for a subsequent presentation on the results of a FIP survey among Schools, academics, students and practitioners which investigated current practices and needs.

Biography

Professor Aukje Mantel-Teeuwisse (PharmD 1998, PhD 2004) is professor of Pharmacy and Global Health at Utrecht University, the Netherlands. Aukje conducted her PhD studies at the Division of Pharmacoepidemiology and Clinical Pharmacology of Utrecht University. Thereafter she worked as an assistant and associate professor at the same Division. As Managing Director of the Utrecht Centre of Pharmaceutical Policy and Regulation she collaborates with WHO, WHO Collaborating Centres and other stakeholders in the field of pharmaceutical policies. Her research interests include global health, pharmaceutical policy analysis, drug regulatory science, and variation in medicines use across countries. She published > 145 articles in peer-reviewed journals on these topics. Aukje has been appointed Director of the School of Pharmacy at Utrecht University. In this capacity she is member of a number of (external) committees and working groups. She is involved in the bachelor and master Pharmacy programmes as well as in the master Drug Innovation programme.

DIGITAL HEALTH IN PHARMACY EDUCATION

Nilhan Uzman, Lead for Education Policy and Implementation, International Pharmaceutical Federation

Digital healthcare is perceived as a new and promising topic for all healthcare providers including pharmacists. This is an exciting time for the pharmacy workforce to benefit and capitalise on technological advances, especially in the era of COVID-19 as the health care is shifting towards digital. It is important for the pharmaceutical workforce to be able to understand, utilize, and operate the functions of digital and technologies and adapt their role with an evidence based and ethical perspective. The education and training of pharmaceutical workforce is crucial if any kind of successful digital transformation is to be seen. There is not much evidence found from the literature on the current skills and knowledge that pharmacists have on digital health. FIP has conducted a global survey on digital health in pharmacy education. The findings of this global survey will answer ''how current and future pharmaceutical workforce are being educated and trained to embrace the impact of technological revolution?''. The findings will result in a global report that aims to investigate and describe the readiness and responsiveness of education programmes to train pharmaceutical workforce on digital health and identify knowledge and skill gaps. At this presentation, the survey framework and preliminary findings will be presented.

Biography

Nilhan Uzman is a pharmacist trained in Turkey. She is the Global Lead for Education Policy and Implementation at International Pharmaceutical Federation (FIP). Her primary focus is developing FIP's strategy towards advancing pharmacy education globally, regionally and at country level and delivering the strategy by working closely with academics, educators, pharmacy schools, associations, health and education partners as well as young professionals and pharmacy students. Nilhan has established FIP's Women in Science and Education – FIP WiSE initiative to empower women in these fields to achieve their full potential. She is leading the FIP UNESCO-UNITWIN Programme, which aims at improving academic capacity, implementing needs-based education strategies and establishing enabling advocacy environments through institutional partnerships to advance education and the profession in selected countries. She is the Project Lead of FIP's Digital health in pharmacy education global survey and report.

HOSPITAL PHARMACIES IN THE DIGITAL AGE – VIEWS OF THE EUROPEAN ASSOCIATION OF HOSPITAL PHARMACISTS (EAHP)

Dr Steffen Amann, European Association of Hospital Pharmacists, Director of Professional Development

The topic of digital health has received increasing attention over the past couple of years. Hospital pharmacists acknowledged early on that European health systems are at the beginning of a journey in the direction of heightened application of digital services. Logistics, medication verification at admission and discharge, electronic prescribing, information exchange between hospital and community pharmacies and the use of single-unit does barcoding are only a few of the areas in which digital tools support the work of hospital pharmacists. The presentation of Dr Steffen Amann will explore the preparedness of the profession for the digitalisation era and share views of the European Association of Hospital Pharmacists (EAHP) on the digital transformation in the health sector.

Biography

Dr Steffen Amann is a Chief Pharmacist and currently leading the team of the hospital pharmacy in the Munich Municipal Hospital Group. For a decade he served on the Board of the German Society of Hospital Pharmacists (ADKA) before joining the Board of the European Association of Hospital Pharmacists (EAHP) as Director of Professional Development in 2017. Dr Amann studied pharmacy at the University of Würzburg and became licensed in 1992. In 1997, he obtained a doctoral degree in Medical Microbiology at the University of Munich. He graduated as a specialist in clinical pharmacy in 1998. His research focus is management systems and antimicrobial resistance. Also, he is active as EAHP's Board lead for digital health.

Abstracts

Oral Presentations

OP1: EXPERIENTIAL LEARNING IN A GAMIFIED SIMULATION DETECTED BY SEMANTIC ANALYSIS

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Introduction

An extended gamified simulation was developed as a capstone activity for a new Bachelor of Pharmacy (BPharm) program. The simulation aimed to provide an authentic learning experience in which students competitively ran face-to-face pharmacies, acting as autonomous pharmacists, to develop their professional and collaborative skills. The game delivered constant assessments scaffolded over time. Students conducted daily team debriefing meetings and wrote multiple individual reflective journals during the three-week simulation. The research aimed to evaluate students' experience of such an intensive and emotionally impactful learning activity.

Materials and Methods

All participants in the gamified simulation submitted text-based reflective journals (200 to 500 words). Content and thematic analysis was conducted on journal text using the Leximancer system, which allows for large volumes of text to be independently analysed, using semantic frequency and co-occurrence to automatically detect concepts and cluster them into themes [1].

Results

From 2016 to 2018, 733 reflective journals were submitted by simulation participants, including 94 full-time BPharm students and 29 part-time Master of Pharmacy students. Semantic analysis of the journal text revealed four primary themes: *teamwork*, *medicines provision*, *patient-centredness* and *future practice*. Leximancer heat-mapping identified teamwork as the most important theme, with component concepts related to daily collaborations. *Medicines provision* identified students' focus on case work, including dispensing and counselling, whereas *patient-centredness* was about providing care and information to the patient. *Future practice* as a theme identified students' translation of the experiential learning to their *future practice* and development of *real-life skills*.

Conclusions

Students' experience in a gamified simulation revealed that such an activity can aid in collaboration and team learning, help participants develop in their patient-centredness and translate to future professional practice.

Reference

1. Smith, A.E. and M.S. Humphreys, Evaluation of unsupervised semantic mapping of natural language with Leximancer concept mapping. Behavior Research Methods, 2006. 38(2): p. 262-279.

OP2: INTRODUCTION OF COMMUNICATION SKILLS TRAINING PROGRAM FOR PRE-REGISTRATION PHARMACISTS IN A TERTIARY HOSPITAL IN SINGAPORE

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Introduction

Effective communication by pharmacists with patients and with other healthcare co-workers is vital in improving patient safety, clinical outcomes and overall satisfaction. A communication skills training program was introduced into existing pre-registration pharmacist training framework at KK Hospital Outpatient Pharmacy with the objective to improve the communication skills of pre-registration pharmacists.

Materials and Methods

At the beginning of attachment, pre-registration pharmacists participate in:

- Self-reading of Patient-centered Communication Tools (PaCT) [1] & slides on communication
- Reflection of authentic communication challenges.

Mid-way through attachment, there is a discussion whereby each pre-registration pharmacist shares his/her communication challenge. Pharmacist-led discussion facilitates their understanding of PaCT relevant to their communication challenges. They also engage in role-plays that portray common communication issues to further explore how to apply PaCT.
After that, pre-registration pharmacists are given self-assessment to help them identify areas for improvement. Their interactions with real patients and other co-workers are assessed by pharmacists using modified PaCT (mPaCT).

Results

Two cohorts of 6 students each took part in this pilot training from May to December 2018. As a learning tool, 75% of pre-registration pharmacists found role-play and facilitated discussions more effective than self-reading. Self-assessment showed that pre-registration pharmacists recognized how to apply PaCTs. They were able to apply the communication tools learnt during their dispensing and interaction with co-workers.

Conclusions

Pre-registration pharmacists' communication skills showed improvement with the program. Communication challenges revealed by them are incorporated into self-learning slides for future cohorts. The program is currently being modified for pharmacy technicians.

Reference

1. Gloria R. Grice, Nicole M. Gattas, Theresa Prosser, Mychal Voorhees, Clark Kebodeaux, Amy Tiemeier, Tricia M. Berry, Alexandria Garavaglia Wilson, Janelle Mann, and Paul Juang (2017). Design and Validation of Patient-Centered Communication Tools (PaCT) to Measure Students' Communication Skills. *Am J Pharm Educ.* 2017 Oct; 81 (8): 5927

OP3: PHARMACY STUDENTS ATTITUDE TOWARDS ACADEMICAL DISHONESTY

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Introduction

Academic honesty is an ethical principle based on openness, confidence, respect, integrity and responsibility, which is applicable to academic activities. Academic dishonesty is relevant problem that penetrates all areas of science and studies. There is an increasing number of studies showing that there is a direct relationship between the way of students behave at education institutions and how often they tend to be ethical and honest in their work environment. The main aim of the study was to reveal the attitude of the pharmacy students towards academical dishonesty.

Materials and Methods

The qualitative and quantative methods were combined. First stage: interview with thirteen 5th year of pharmacy students helped to indentify the reasons for cheating, attitude towards cheating collegues and expectations towards academical regulations. Second stage: The questionnaire was created based on qualitative research and distributed among I-III year pharmacy students.

Results

Academic dishonesty is widespread among students of the pharmacy students (97.8%). Students are distributed into two main categories: having a long cheating experience that has already begun in high school (85,1%) and having a short cheating experience, which has begun in higher education institution(14,9%). The most common way of cheating is the use of aditional means (notes, drawers, mobile phone, smart bracelets, etc.) at time of lectures and exams (67%). Another prevalent way of cheating is to copy other student work (75,8%). The most uncommon way of cheating is buying various tasks for money (3,3%). The main factors of cheating , regardless of the average and the course, are good grades (62.7%) and excessive workload (76.9%). The most effective preventive measure of academic dishonesty – is teachers attention to all educational activitie (32%). The student's expellion from university is too strict and ineffective as a preventive measure (3%).

Conclusions

Academic dishonesty is a very revelant problem among students , which is manifested in various ways of cheating due to different incentives. In order to avoid the problem, it is necessary to take new preventive measures that would encourage student to be honest academically.

OP4: IMPLEMENTATION OF THE PRACTICAL TEACHING OF PARENTERAL NUTRITION AND CYTOTOXIC DRUGS COMPOUNDING TO THE PHARMACEUTICAL TECHNOLOGY COURSE

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Introduction
The mission of the Jagiellonian University Faculty of Pharmacy is to train qualified personnel, experts in the field of Pharmacy. The Faculty offers our students about 100 courses, half of which are obligatory and should cover specific learning outcomes described in the National Education Standards Preparing for the Profession of Pharmacist. Four pharmaceutical technology courses include 320 teaching hours, among which 70 hours are devoted to sterile preparations compounding. The program of this course has changed. We are considering raising the level of education, so that students acquire experience and competence in preparing sterile medications for an individual patient that are not commercially-available.

Materials and Methods
In order to achieve the outcomes established in the National Standards, a cooperation with both hospital pharmacies and industry was strengthened. The teaching staff participated in series of professional training for pharmacists. An automatic compounder for the preparation of parenteral nutrition admixtures and a scale with the appropriate software for cytotoxic drugs compounding have become available in the university's cleanroom area for students teaching. Installed equipment was the same as used in hospital pharmacies, therefore it enabled simulation of real environment in practical training. Moreover, experienced hospital pharmacists were involved in the practical training.

Results
The opportunity to prepare parenteral nutrition admixtures and cytotoxic drugs in simulated real-like conditions allows students to develop practical skills and competences to adhere to the National Standards. Moreover, it serves as an undergraduate basic training before the 6-months internship. The overall satisfaction of students from the course, and their motivation to study was greatly improved after the changes.

Conclusions
Implementation of the practical teaching of parenteral compounding into the pharmaceutical technology course improved the quality of the education and increased the ability to develop practical skills needed for the future practice and work in hospital pharmacy.

Abstracts

Poster Presentations

P1: EDUCATIONAL NEEDS ASSESSMENT TO DESIGN A TRAINING FOR GREEK PHARMACISTS TO DELIVER A PUBLIC HEALTH SERVICE

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Introduction

Pharmacists are in a great position to help individuals make a behavioural change. Communication is a fundamental skill of pharmacists, as it benefits the pharmacist-client/patient relationship. The patient-centred approach is recommended for effective communication. Greek pharmacists tend to use a paternalistic approach in their consultations (1), which does not favour the patient-centred approach. This study aimed to identify the current knowledge and educational needs of Greek pharmacists regarding obesity and running a weight-management service.

Materials and Methods

All pharmacists in Patras were informed through the PAA about the study. Semi-structured interviews were conducted face- to-face, each lasting for roughly 15 minutes. The interview schedule included 7 open-ended questions as well as demographic information. Upon data collection, interviews were transcribed verbatim, and then anonymised. Interviews were analysed using a mixed analytical method including thematic and content analysis. The study was ethically approved by the Kingston University's Ethics Committee and by the Pharmaceutical Association of Achaia (PAA).

Results

Twenty-six pharmacists (mainly males 61.5% (n=16)) participated. Pharmacists explained that their current knowledge is based both on their university studies and their working experience and they think that it is not enough as they stated that their knowledge level on obesity and weight-management is minimal to moderate (n=19) without any specialised knowledge on the topic. Most pharmacists (n= 11) suggested that the training format should be in the form of lectures followed by group discussion. On the issue of how many sessions they felt were needed, 16 participants estimated that one to two sessions would be adequate. Interestingly, 15 participants stated that there was no need for refresher training.

Conclusions

To our knowledge, this was the first and only study identified Greek pharmacists' educational needs and training preferences to design a training model allowing them to expand their clinical role in offering pharmacy-led public health services.

Reference

1. Peletidi A, Nabhani-Gebara S, Kayyali R. The role of pharmacists in cardiovascular disease prevention: Qualitative studies from the United Kingdom and Greece. J Res Pharm Pract 2019;8:112-22.

P2: EXPERIENCE OF HEALTH TECHNOLOGY ASSESSMENT IMPLEMENTATION IN THE EDUCATIONAL SYSTEM IN UKRAINE

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Introduction

The Ministry of Health of Ukraine is currently actively implementing the Health Technology Assessment (HTA) as the positive experience of European countries to determine priorities in the Ukrainian healthcare system. HTA is a scientific approach for determining the list of medicines and medical services that are expedient to finance and procure by the state at the expense of taxpayers. The need for highly qualified health technology experts to effective implementation the National program is a topical issue in the Ukrainian universities educational process. Therefore, the assessment of current potential of educational programs for this need was the purpose of the study.

Materials and Methods

It was used the method of analysis of the current state of HTA training in Ukraine, comparison with other leading countries of the world and forecasting further perspectives in this field.

Results

HTA is a multidisciplinary process that summarizes information about the medical, social, economic and ethical issues related to the use of a health technology in a systematic, transparent, unbiased, robust manner. According to the issue it was determined the target audience who need HTA training program: Ministry of Health experts, members of tendering committees of medical institutions or formulary commissions, medical practitioners, pharmacists, patient organizations, medical and pharmaceutical graduates. Nowadays, there are some professional and powerful resources of Ukrainian HTA training, based as on National Universities, so is Private HTA Academy. Priority in the training program made on the modern methodology of organizing and conducting HTA, conducting scientific search (evidence medicine) and decision-making process.

Conclusions

Effective implementation progressive innovation HTA requires the involvement of highly qualified specialists, which is a promising area of development in the healthcare.

P3: ENHANCING STUDENT UNDERSTANDING OF GRADING CRITERIA

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Introduction

On the course, Advanced pharmacotherapy we use written grading criteria, for student learning and exam assessment. Rust et al. showed that students who undertake a pre-assessment workshop, marking and discussing an exemplar assignment, performed significantly better than those who didn´t participate in the workshop (1). Inspired by this we decided to implement a similar approach to enhance student understanding of the criteria and stimulate learning.

Materials and Methods

In 2016, we implemented an optional workshop, a few days before the written exam. Working in small groups of 3-4 students, they first look at a written exam from a previous semester and then assess an anonymized student answer, using the grading criteria. The workshop ends with a whole class discussion about the grading. We use the regular course evaluation to get students´ feedback.

Results

69 % of workshop participants passed the written exam on the first attempt, compared with 46 % non-participants. Differences may be influenced by selection bias, i.e. those more likely to attend the workshop might also be more likely to perform well on the exam. Based on course evaluations, students appreciate the workshop. Average score is 5.2 on a 6-level scale, with comments like “gives a good insight in assessment and grading” and “gave a deeper understanding of how answers can differ, why you get the different grades and how teachers reason when assessing.”

Conclusion

Results indicate that the approach may be a good way to help the students understand the grading criteria and by that enabling them to reach the learning outcomes and pass the exam, but impact of the potential selection bias must be further explored.

Reference

1. Rust C, Price M, O´Donovan B. Improving Students’ Learning by Developing their Understanding of Assessment Criteria and Processes. Assess Eval High Educ. 2003;28(2):147-164.

P4: CRITIQUE OF A PUBLISHED STUDY DURING ADVANCED EXPERIENTIAL PLACEMENTS

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Introduction

The post-graduate Doctorate in Pharmacy degree, run by the University of Malta in collaboration with the University of Illinois, Chicago, enables students to carry out a six-week advanced experiential placement. Doctorate students can opt for a Medicines Information placement during this time. Providing drug information is an essential responsibility of pharmacists, and pharmacists need to be skilful in information retrieval, interpretation and clinical application. One of the aims of the placement is for the development of critical appraisal skills of literature.

Materials and Methods

A published study related to a topic encountered during clinical practice is chosen by the preceptors. The article is selected from a peer-reviewed journal based on its clinical relevance or educational value. The study is assigned to the doctorate students during their experiential placement and the preceptor explains the aims of the task. Students are expected to apply critical literature evaluation skills simulating real-life situations and are assessed for reporting, analysing and appraising scientific research.

Results

Presentation of the article using slides helps to convey the data under discussion. During the presentation of the article, students deliver the fundamentals of the published study focusing on the hypothesis, study design including study type, population, randomization, inclusion and exclusion criteria, methodology including outcome measures, results, interpretation including limitations, strengths and weaknesses and clinical context. This activity evaluates students' understanding and ability to critique published clinical studies in addition to enabling an academic discussion with preceptors and other pharmacists.

Conclusions

In a time where information is constantly being presented, it is a challenge to assess the validity, reliability and relevance of information. This educational activity enables students to improve knowledge and critical appraisal skills to analyse presented information as well as keep up to date with published literature.

P5: ENQUIRY-BASED LEARNING IN ADVANCED PHARMACY PRACTICE EXPERIENTIAL ROTATIONS

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Introduction

During the Advanced Pharmacy Practice Experiential offered by the University of Malta for the post-graduate Doctorate in Pharmacy programme, students are challenged with enquiry-based learning during a hospital-based Medicines Information rotation. This approach enables the engagement of students with a complex clinical scenario by using the enquiry process.

Material and Methods

The preceptor develops a training plan at the start of the rotation based on the students' self-reported strengths, interests and areas for improvement. During the rotation students are presented with a range of real-life medicines information enquiries. Topics delved into include: parenteral drug administration, toxicology, therapeutic drug monitoring, palliative care, travel medicine and prescribing in special populations such as paediatrics, liver disease and renal impairment. Different levels of enquiry complexity are presented for discussion starting from basic data retrieval up to the interpretation of data, analysis and expressing a professional opinion following the six levels in Bloom's Taxonomy.

Results

Students exercise their verbal and written communication skills through phone scenarios, presentations in front of an audience and in the documentation of queries. Students engage in a minimum of 10 medicines information cases per 6-week rotation. Two of these cases are shaped in a structured, reflective format for students to draw on the literature and one case is presented as a case-based discussion. Preceptors highlight best practice in information delivery through regular assessment and feedback. This fosters engagement by students to explore different avenues of information and experience collaborative work.

Conclusions

The benefits of enquiry based-learning are multifaceted as it promotes critical thinking and self-directed learning. This represents a training opportunity that enables students to participate in advanced pharmacy practice activities by incorporating research into the medication use process.

Reference

1. Cuellar L, Ginsburg D. Preceptors Handbook for Pharmacists, 3rd ed. Bethesda, MD: American Society of Health-System Pharmacists; 2016.

P6: ENTRUSTABLE PROFESSIONAL ACTIVITIES (EPAS) FOR DISTANCE-BASED GLOBAL DOCTOR OF PHARMCY (PHARM.D.) AND MASTER OF SCIENCE (M.S.) STUDENTS

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Introduction

Core EPAs for New Pharmacy Graduates were developed by the American Association of Colleges of Pharmacy (AACP) to promote practice-ready graduates. The University of Colorado Skaggs School of Pharmacy recently introduced EPAs for entry-level students (2017), and mid-career, distance-education, post-baccalaureate PharmD and MS students (2019) curricular pathways/programs. We report results of EPA evaluations by our distance students.

Materials and Methods

Available EPAs included AACP Core EPAs, designed for entry-level Advanced Pharmacy Practice Experience (APPE) readiness, and more robust, faculty-driven, school-specific EPAs for mid-career PharmD and MS students with greater skill levels and local practice needs. Students may complete EPAs at Introductory Pharmacy Practice Experience (IPPE) sites, work settings, and APPE sites. Students must complete 20 EPAs, with a minimum number in each of six practice domains. For each EPA, students and preceptors rate level of entrustment. To pass, both must rate entrustment at a level 3 (action with reactive supervision), of five levels (1=observation only, 5=teaches others). Students must choose 10 EPAs for further refinement. Data are tracked through the school's learning management system (eValue™).

Results

Summer and fall 2019 semesters reveal 31 EPAs completed by 5 students (4 countries). Three are refined skills; 16 have been preceptor-assessed. Mean entrustment scores: all=3.90(n=31), graded=3.75(n=16) by students; 3.40(n=16) by preceptors. Score comparison: preceptor<student=18.75%; preceptor>student=6.25%; preceptor same as student=75.00%; 15/16 EPAs approved. Number of EPAs by Domain: Patient care provider=13, Interprofessional team member=1, Population health promoter=2, Information master=4, Practice manager=2, Self-developer=0. Additional results forthcoming.

Conclusions

Faculty-driven, school-specific EPAs allow global, mid-career pharmacists to practice wide-ranging skills that meet passing entrustment levels. EPA choice allows mid-career global students to meet professional development and local practice needs, while aligning with several of the International Pharmaceutical Federation's Nanjing Statements and Workforce Development Goals. Consideration of local needs and opportunities should occur when offering EPAs.

P7: THE USE OF INTERNATIONAL NONPROPRIETARY NAMES (INN) TO FACILITATE LEARNING PHARMACOLOGY

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Introduction

INN are widely used in pharmacology teaching to help students recognize the mechanism of action of drugs or the therapeutic group to which they belong. However, many students are not aware of the INN nomenclature system[1]. The aim of this work was to explain to students the system of INN nomenclature, so that they would have a better understanding on the meaning of drug names and hence, whenever possible substituting rote learning by meaningful learning.

Material and Methods

Four groups of students were selected: two were second year Dentistry students enrolled in *Pharmacology* and two groups of Pharmacy students (year four and year five) enrolled in *Pharmacology and Clinical Pharmacy* or *Pharmaceutical biotechnology,* respectively. Year 5 Pharmacy students and one of the Dentistry groups were given at least one formal lecture on INN nomenclature and INN stems at the beginning of the academic year (trained); whereas the other two groups did not receive it (untrained). At the end of the semester, all students were asked to fill a short anonymous questionnaire and 240 did so.

Results

More students untrained in the use of INN nomenclature reported having difficulty learning and retaining drug names (89% untrained *vs*. 55% trained; χ^2 test, $p<0.001$). Receiving INN training helps students to recognise the pharmacological properties of certain drugs (73% trained vs. 47% untrained; χ^2 test, $p<0.001$). Similar percentages of students realized that INN stems helped them to better study and understand pharmacology (85% trained *vs.* 79% untrained; χ^2 test, $p=0.28$).

Conclusions

Student understanding of the INN nomenclature system helps them to learn and retain drug names and allows them to recognize the pharmaceutical properties of certain drugs. It also helps students to learn pharmacology in a more meaningful and solid manner.

Reference

1. Chui WK, et al. (2017) Naming of medicines: survey about International Nonproprietary Names (INN). WHO Drug Information Vol. 31, No. 4, 2017

P8: ASSESSMENT OF COMPETENCIES ACQUIRED BY PHARMACY STUDENTS USING OBJECTIVE STRUCTURED CLINICAL EXAMINATION (OSCE)

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Introduction

Acquisition of competencies in pharmacy education is of great importance if we are to train good pharmaceutical practitioners. Because of its reliability and validity, OSCE has become the standard for evaluation of clinical skills in pharmacy students in many countries[1].
We describe the application of OSCE for assessing several key competencies among pharmacy students in the last two academic years (2017-19).

Material and Methods

A five-station validated OSCE was implemented. The competencies tested in these OSCE included *inter alia* student knowledge, patient counselling and communication (communication skills) and acquisition and implementation of technical/clinical skills.

Results

During the two academic years 2017-19 assessed, 72 students were evaluated using five OSCE stations/year. Altogether 13.5% of competencies assessed were communication skills, technical/clinical skills corresponded to 35% whereas the remaining 51.5% assessed knowledge acquisition. A survey among participating students showed a high level of satisfaction (4.95/6). Students felt OSCE was adequately structured and assessed the clinical/communication skills needed for a professional pharmacist.

Conclusions

OSCE is an important tool for assessment of clinical competence and complements traditional examinations. Furthermore, it allows verification of clinical and technical abilities as well as communication skills among future pharmacists, which otherwise are extremely difficult to assess.[2]

References

1. Shirwaikar A. Objective structured clinical examination (OSCE) in pharmacy education - a trend. Pharmacy Practice, 2015; 13(4):627.
2. Harden RM, Gleeson FA. Assessment of clinical competence using an objective structured clinical examination (OSCE) Med Educ. 1979; 13(1):41–54.

P9: UTILISING MULTIPLE ACTIVE LEARNING STRATEGIES TO MAXIMISE STUDENT ENGAGEMENT

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Introduction

It has been recognised since the 1600s that students tend to learn more if teachers spend less time teaching and the students spent less time passively listening[1]. Pharmacy students have sometimes found nutrition a challenging topic to engage with as they do not always perceive the relevance to future practice or the significance of social influences on health behaviours. In the delivery of teaching on this topic a range of different active learning strategies were introduced in 2018/19 to increase student engagement and to provide diverse opportunities for learning within and outside the classroom.

Materials and Methods

A range of strategies were utilised to increase student understanding of both scientific and social aspects of nutrition through independent learning, interactive large group teaching, workshops and seminars. These included reviewing on-line news articles, watching screencasts with embedded quizzes and on-line polling. All students attended a workshop, consisting of eight workstations involving different relevant activities. A second large group teaching session helped consolidate their learning including a debate on controversial issues relating to obesity. Integration with the scientific elements of the curriculum was achieved through co-delivered case study-based workshops. Student feedback on the sessions was collated and evaluated.

Results

All students positively evaluated the workshop, with the two most popular workstations being:

Oral Nutritional Supplements: trying supplements gave them “an insight into the patient’s perspective”

Naso-gastric (NG) feeding: observing a drug-feed interaction “made me think about the thought that must go into safely administering medicines through the NG tube”.

Conclusions

Overall, student engagement and feedback were positive, with students being able to actively contribute to discussions and debates on both scientific and social factors relating to nutrition. The use of these strategies is ongoing.

Reference

1. UK Centre for Materials Education (2012) Active Learning. Higher Education Academy [Available at: https://www.heacademy.ac.uk/system/files/active-learning.pdf]

P10: INTERACTIVE ROOFTOP GARDEN FOR LEARNING MEDICINAL PLANTS

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Introduction

Studies have revealed that knowledge of plants, especially medicinal plants, has decreased over the years. In order to simplify the learning process, it is necessary to create an accessible herb garden on the rooftop of Tallinn Health Care College with labelled plants. The aim of the research is to create a novel educational and interactive tool for the rooftop garden of Tallinn Health Care College to increase awareness on medicinal plants and their effect on the human body.

Materials and Methods

The research is based on scientific data of 60 plants, that is entered into the Plantsmap database. Each plant entry is linked to a QR code. The following plant data was added: Latin and Estonian plant names, synonyms, taxonomic units, botanical information and information on the active ingredients in the plant and its usage. All plants were labelled with common and scientific names and also QR-codes.

Results

Rooftop garden at Tallinn Health Care College is a popular place for students to relax. The interactive learning environment encourages students to learn about plants individually and at suitable times. The database can be reviewed by a specialist and updated regularly by adding new information and pictures of plants. The learning tool is accessible to all visitors with a mobile application for scanning QR-codes.

Conclusions

The existence of a rooftop garden in the college allows students to explore the plants independently. QR-code plant labels facilitate access to evidence-based information. As a result, students become more aware of the plants and their use, the learning process is flexible and interactive.

P11: PARTNERING IN PHARMACY EDUCATION: THE SUCCESS OF SLOVAK PHARMACY STUDENTS IN COMPOUNDING PHARMACEUTICAL PREPARATIONS

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Introduction

With inter-connectivity and competitiveness developing rapidly, new opportunities are emerging for the educational system. Compounding individual drug formulations represents an inseparable component of the pharmaceutical technology curriculum at the Faculty of Pharmacy, Comenius University in Bratislava ("FPharm CU"). Increasing demand for personalised pharmaceutical products has led to a revival in pharmaceutical compounding. The present case study aims to demonstrate an innovative approach in education processes via a synergy between academy and practice.

Material and Methods

The study involved sixty 4^{th}-year students of the Master's programme Pharmacy, two academic staff members of FPharm CU, and an external partner, namely Fagron, a.s., CZ (belonging to the Dutch pharmaceutical compounding company Fagron, BV), ("Company"). The educational tool was based on direct communication between them. Firstly, the Company was invited to participate in educational activities, specifically lectures and hands-on training. The students were required to engage in drug formulation compounding, to meet quality standards and other required characteristics. Secondly, eleven students participated in a local compounding competition, followed by an international competition organised between the four existing Faculties of Pharmacy of the Czech and Slovak Republics. The FPharm CU was represented by three students, who won the international round. Performance criteria included theoretical knowledge, practical skills and students' personal approach.

Results

The study resulted in penetration of theory into practice, with the principal outcomes being high performance, motivation and innovations in compounding. In addition, the students from the FPharm CU in Bratislava won the international competition.

Conclusions

This case study highlighted the potential usefulness of public-private partnerships. It led to the identification of talent, the improvement of motivation and performance, and the identification of innovations in teaching, and is likely to offer win-win solutions for all stakeholders.

P12: Introducing in Pharmaceutical Studies the Risk Concept: From Art to Science

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Introduction

Risk management is an evolving aspect in different pharmaceutical scenarios. Risk represents stages in science where imagination plays a significant part. The science of risk in pharmaceutical processes was, until recently, mostly unmarked and unexamined as a scientific process. Students following courses at the Department of Pharmacy within the University of Malta undertook different projects related to risk in pharmaceutical processes to reflect through practice fieldwork on the concept of risk.

Materials and Methods

Students following the Bachelor of Science in Pharmaceutical Technology (BSc Pharm Tech) and Master of Science in Pharmacy (MSc Pharmacy) programmes carried out a project on an aspect related to risk and risk management. Different research methods were used to gather scientific knowledge on the concept of risk.

Results

Research on the area of risk was undertaken by seven students from 2017 onwards, with three students following the Master of Science in Pharmacy degree and four following the Bachelor of Science in Pharmaceutical Technology degree. Pharmaceutical technology students contributed to research in areas related to the risk in the pharmaceutical industry risks in pharmaceutical processes, perception of risk among pharmaceutical stakeholders and the risk of using returned medicines. Master students contributed to research in areas related to risk of data integrity of electronic records in the pharmaceutical industry, risk assessments in pharmaceutical processes and risk management in the manufacture of solid oral dosage forms Students adopted different data collection methods, including questionnaires, interviews and focus groups.

Conclusions

Through this teaching model, students participated in research projects undertaken in collaboration with stakeholders including the pharmaceutical industry, health professionals and patients. This provided the opportunity to students to understand implications of the science of risk in pharmaceutical processes and to reflect on the perspectives of society of risk identification and mitigation strategies.

P13: DEVELOPMENT OF AN APPLIED COURSE IN BIOCHEMISTRY FOR PHARMACY STUDENTS

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Introduction

Students reading for a Bachelor of Science in Pharmaceutical Sciences at the Department of Pharmacy at the University of Malta follow a compulsory study unit in biochemistry. The study unit consists of 4 ECTS and is delivered via lectures during the second year of studies. The aim of the academic review was to update the biochemistry study unit to reflect an approach to integrate the basic scientific concepts with the application to patient conditions and pharmaceutical aspects.

Materials and Methods

The principal topics to be covered in the study unit were identified and the material for the lectures was developed by clinical academic staff who could relate the scientific aspects to relevant aspects in pharmacy.

Results

Topics included were: 1) Transmission of information focusing on neurotransmitters and pharmacogenetics (8 hours), 2) Metabolic pathways including endocrine control, lipid metabolism, carbohydrates (8 hours) and 3) Physiological processes covering inflammatory reactions, cancer, cardiac signalling, fluid and electrolyte balance and aspects of toxicology (10 hours). The topics were delivered through lectures with clinical examples so as to support students to grasp the fundamentals and apply them within pharmaceutical contexts. The sessions were delivered by nine members of staff each focusing on their area of clinical experience.

Conclusions

The revised study unit presents the scientific foundations merged with the implications for practice and is an attempt to help students break the silos in the teaching model. Assimilating basic scientific principles within clinical sciences provides an example of how students will be putting their competences to use in their pharmaceutical career.

P14: DEVELOPMENT OF COMPETENCES AND SKILLS DURING PHARMACEUTICS PRACTICAL SESSIONS

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Introduction

The activities undergraduate students are exposed to should equip them with transferrable skills which can be applied during daily working routine. The pharmaceutics practical sessions which form part of the Bachelor of Science (Honours) in Pharmaceutical Science, are a good opportunity to ingrain good practices in students.

Materials and Methods

A handbook was developed for pharmaceutics practical sessions. The introduction part of the handbook outlines good laboratory practices including the use of appropriate safety gear, Standard Operating Procedures (SOPS), Material Safety Data Sheets (MSDS), presenting results and good documentation practices. Students are presented with the instructions to follow during the respective practical and the scheme used for marking.

Results

Students follow two practical sessions in the first and second year of the undergraduate program and three sessions during their third year. Each session is 3 hours long. Before attending practical sessions, students are required to read the SOPs and MSDS which are highlighted in the respective practical description. SOPs and MSDS are made available to students online and in printed format in the laboratory. At the end of each practical, students have to clean the work area and glassware and separate any waste generated according to the type of waste. Criteria used to assess students include whether the student was wearing the required safety garments, participation in practical work session, documentation practices, and the calculations and inferences reached by the student.

Conclusions

The developed practicals focus on developing competences in following quality systems, laboratory procedures, documentation and report writing.

P15: NOVEL CORONAVIRUS (2019-nCoV) SEMINAR FOR HEALTHCARE PROFESSIONALS: AN INTERDISCIPLINARY ACADEMIC INITIATIVE

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Introduction

The Academy for Patient Centred Excellence and Innovation in Regulatory Sciences, under the auspices of the Malta Medicines Authority (MMA), serves as a central platform to disseminate aspects of research and innovation as well as engage healthcare professionals in the work of the Medicines Intelligence and Access Unit and the Advanced Scientific Initiatives Directorate, within the regulatory authority. The Novel Coronavirus outbreak, reported in December 2019 in the Chinese city of Wuhan, presented a challenge to bring together healthcare professionals for interdisciplinary exchange of expertise, response plans and sharing of concerns.

Materials and Methods

The MMA Academy, in collaboration with the Superintendence of Public Health within the Ministry for Health, organised an interactive seminar for healthcare professionals on the Novel Coronavirus (2019-nCoV), in February 2020. Information on the seminar was disseminated through the media platforms of the MMA and via email to healthcare professionals. Key academic experts from the areas of pharmacy, virology, pathology, public health, infection disease and health promotion, addressed this seminar in an effort to consolidate a unified information strategy for prevention and control.

Results

Over one hundred professionals working in the public and private health sector, including doctors, dental surgeons, nurses, pharmacists and medical lab scientists participated actively in the seminar. The science, myths, realities, laboratory and clinical diagnosis, infection control, protective exigencies and the prepardeness of the Maltese Health Authorities to counteract this global health emergency were presented. Posters distributed to aid in a public awareness campaign through pharmacies and clinics were well received.

Conclusions

Collaboration, training and effective communication between various disciplines in the healthcare sector are especially important in response to emerging infectious diseases. This interdisciplinary, interactive approach to education can enhance scientific knowledge at an individual level and aid in the development of successful clinical practices, development of skills, integrating knowledge and fostering teamwork across various disciplines.

P16: UNDERSTANDING PHARMACOGENETICS AND DRUG INTERACTIONS THROUGH CASE-BASED EXAMPLES

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Introduction

Pharmacogenetics of drug metabolism is progressing in community and primary care settings, presenting a challenge to integrate applied aspects in pharmacy curricula. Phenoconversion, where the metaboliser status predicted by genotype is altered through drug interactions, is often overlooked, warranting further consideration within pharmacy programmes of study.

Materials and Methods

Case studies from 44 patients on amitriptyline, an established medicine with pharmacogenetic connotations, were selected as pedagogical resources to explain drug-gene, drug-drug, and drug-drug-gene interactions. Data included results of analytical (genetic/chemical) and clinical investigations for the patients who were recruited from Mater Dei Hospital, Malta, following ethics approval and written informed consent. An interactive exercise on three case-based scenarios was integrated in a two-hour seminar delivered to second-year pharmacy students. The teaching model included presentation of applied biochemistry basics followed by hands-on understanding of pharmacotherapeutic implications.

Results

In the cases presented, CYP2D6 inhibition by concomitant drugs (particularly paroxetine) was linked to higher-than-expected serum concentrations of amitriptyline and its active metabolite nortriptyline in the recruited subjects, explaining almost 50% of variation ($P<0.01$). Through the selected case studies, students could identify the impact of genetic variants and the co-administration of CYP inhibitors, on drug-metabolising enzyme activity and individual patient outcomes. The seminar evaluation highlighted that the real-case scenarios helped students understand not only the applied aspects but also the fundamental principles of pharmacogenetics.

Conclusions

As the genomics era endures, it is crucial to impart a practical grasp of how clinical pharmacology, embracing real-world patients and the polypharmacy challenge, should complement pharmacogenetics in making precision medicine a working reality. Leveraging research findings from local investigations provides an opportunity for students to learn from examples having familiar therapeutic regimes and clinical settings. A case-based learning experience enables future pharmacists to comprehend the translational value of the field of study, appreciating their prospective role in spearheading effective implementation for patient care.

P17: PROACTIVE SUPPORT TO MAXIMISE MPHARM STUDENT WELLBEING AND PERFORMANCE: 4 YEARS OF IMPACT

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Introduction

In 2015 a bespoke wellbeing and support programme was developed in collaboration with student support services to address high levels of MPharm student anxiety and stress[1]. A range of workshops and resources were designed to address stressors identified by the students themselves; anxiety associated with Objective Structured Clinical Examinations (OSCEs), pressures of professionalism and work-life balance. Subsequently the programme has evolved to include maths anxiety support. The aims of the programme which was embedded within professional skills modules are to improve student wellbeing, develop resilience and to maximise academic performance.

Materials and Methods

The programme has been evaluated since its introduction, and to date over 1000 students have participated. All workshop participants complete evaluation forms and key themes have been identified from student feedback utilising thematic content analysis.

Results

92% of students attending the workshops would recommend them to their friends; with 96% gaining a better understanding of how their wellbeing relates to performance. 96% learnt useful strategies for the future. Over the last 4 years common themes demonstrating the personal impact of the workshops have been identified, including:

The importance and relevance of wellbeing: *"Important to take care of yourself as a future healthcare professional in order to deliver the best service possible to patients"*

Importance of gaining perspective: *"To know that the difficult situations have been overcome before"*

Identifying personal issues with wellbeing: *"I always feel guilty when I'm not studying- now I know that taking time out is actually ok- it is me being a professional".*

Conclusions

The programme continues to evolve and develop and other schools within the institution are recognising the benefits of embedded, bespoke wellbeing initiatives.

Reference

1. Evans M, Ward N. Building resilience and improving wellbeing in pharmacy students: a collaborative approach. University and College Counselling Journal 2018; 17 (1): 173 – 189.

P18: ADVANCE – A THREE-STAGE BLENDED LEARNING PROGRAMME IN THE ATMP DEVELOPMENT

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Introduction

Advanced therapy medicinal products (ATMPs) offer unprecedented promise for the long-term management and even cure of diseases, especially in areas of high unmet medical needs. However, the translation from research into patient benefit faces many challenges and requires the involvement of many stakeholders including academic researchers, start-ups, biotech industry, regulatory and health technology assessment (HTA) agencies and patient representatives. ADVANCE is a 30-month training project, supported by Erasmus+ Programme of the EU with the objective to develop a learning programme supporting early-career biomedical scientists to develop a holistic vision of the complex processes and translate scientific advances into patient-oriented standards of care.

Materials and Methods

The "next generation of ATMP developers" – early-career biomedical academics (PhDs, Postdocs) – are the core target group for the programme. The three-stage blended learning programme consists of three complementary and interconnected modules all addressing key challenge areas in ATMP development: (1) online course for teaching "basic" scientific knowledge; (2) webinars for in-depth scientific knowledge and skills, combined with career coaching; and (3) face-to-face workshops for training transversal skills and competences.

Envisaged results

Both the webinars and the online course will be free of charge and available to a broad audience. The three curricula (1-3) will be complemented by digital credentials and a sustainability plan. The programme aims to have an impact on enhancing the quality of knowledge, transversal skills and competences trained and relevant for the biomedical labour market, increasing the participants' employability in the field, and fostering the interaction between innovative research and development and education.

Conclusion

Successful implementation of curricula and sustainability-oriented design of the project anticipates long-term benefits in terms of improvements in public health due to better trained professionals who will drive effective and accelerated ATMP development and offer safe and affordable treatments for patients with high unmet medical needs.

https://eatris.eu/projects/advance/

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P19: RENEWAL OF THE COMPETENCY-BASED PHARMACY CURRICULUM AT UTRECHT UNIVERSITY

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Introduction

The pharmacy curriculum in the Netherlands is offered as a 6-year program, equally divided over a 3-year bachelor plus 3-year master in Science. Both programs are offered as competency-based curricula in which disciplinary fields have been integrated around disease or context-oriented themes. The Utrecht pharmacy curriculum is research- and profession-oriented and includes a 5-month research internship as well as 26-weeks of training in community or hospital pharmacies. Research innovations like cell- and gene therapy as well as the altered professional landscape of pharmacists' demand for continuous renewal of the Utrecht pharmacy curriculum.

Materials and Methods

The Utrecht pharmacy curriculum was developed in close alignment with the new pharmacy competency framework for the Netherlands. Learning outcomes of the renewed curriculum were organized around discipline-based (bachelor) and competency-based themes (master).

Results

Over the course of 2016-2019, the new pharmacy curriculum was introduced in both bachelor and master simultaneously, without affecting the enrollment of new students (~200 bachelor students and ~130 master students annually). Educational concepts like inquiry-based and experiential learning were introduced, along with a stronger focus on academic and professional skills. The accreditation organisation of the Netherlands and Flanders (NVAO) rated both programmes as 'Good' in 2019.

Conclusion

Utrecht University managed to implement a new competency-based curriculum in a relatively short time frame. As a next step, the performance of students in practice will be surveyed.

P20: BACHELOR´S DEGREE FINAL PROJECT, AN OPPORTUNITY TO EXPLORE DIFFERENT CAREER POSSIBILITIES

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Introduction

The Bachelor´s Degree Final Project (FP) is an obligatory subject of 6 ECTS credits for the Degree in Pharmacy at the University of the Basque Country (UPV/EHU). Students must perform an original piece of work that integrates and develops the received training contents, capacities, competencies and skills acquired in the Degree (1). Nevertheless, the Dean´s Office, who coordinates this subject, considers the FP as an opportunity for the students to explore different career possibilities, and promotes other modalities of FPs as an alternative to the bibliographical review about a topic. In that case, the FP involves a practical work on a topic developed during the compulsory Internship period or an experimental work carried out in a research group. This strategy is in accordance with some of the cross-curricular competencies defined by the UPV/EHU (2).

Materials and Methods

To accomplish with this goal, the Faculty of Pharmacy reached a large number of agreements with research groups, private companies and public institutions. Besides, voluntary Internships was promoted for those students interested in these new FP modalities.

Results

FPs carried out about topics dealing with the Internship period or regarding an experimental work increased satisfactorily, being 11 % of the FP defended in the 2015-16 academic year and 25 % in the 2018-19 academic year. Accordingly, the number of agreements with hosting institutions also increased between 2015 and 2019.

Conclusions

The promotion of innovative FP modalities allowed the students to acquire a broaden vision of their professional possibilities, particularly of those concerned with the research career.

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P21: ESTABLISHMENT OF COMPETENCE CENTER IN PERSONALIZED MEDICINE – THE IMPACT ON PHARMACY STUDENTS EDUCATION

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Introduction

There has been a recent interest in competency-based education in health professions education, including pharmacy. This paradigm focuses on creating specialists with competencies that best meet societal needs. Many countries have already adopted competency-based pharmacy education by construction and implementation of curricula and accreditation criteria of pharmacy programs. The transformation of traditional pharmacy education into competency-based education offers several advantages but is also associated with substantial implementation challenges. The concept of personalized medicine offers numerous opportunities to pharmacists, and pharmacists have specific knowledge, skills and abilities that make them uniquely suited to promote the use of personalized medicine as a clinical tool.

Materials and Methods

In the Medical University – Plovdiv, a competence center for personalized innovative medicine (PERIMED) was established in 2018. The competence center aimed at creating innovative research and educational infrastructure focused on one of the priority axes at national and European level - health related technologies. The activities at the competence center are in line with patient-centered health strategies.

Results

Students are involved in research and innovation activities intended for implementation in the field of personalized medicine, with focus on oncology, onco-hematology, intensive medicine, development of novel drug delivery systems for targeted therapy, bio-engineering technologies and biosensors. The learning outcomes will be accompanied by promoting research and attracting talented students in the relevant field. Moreover, conditions for scientific capacity improvement will be provided.

Conclusion

Implementation of competency-based pharmacy education is a long-term, and complicated process, which requires student commitment and institutional stability. All stakeholders involved (teachers, students, and employers) pointed out the need to update teaching practices according to the rapidly developing knowledge in various fields of pharmacy profession.

P22: CHANGES IN TEACHING AS A CONSEQUENCES OF MODERN REALITY

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Teaching is one of the basic elements of educational planning. Changes in teaching at all levels of education are normal consequences of technological development and modern reality. In order to improve the educational achievements of students at the university, it becomes necessary to use new methods and teaching procedures based on original strategies promoting active learning. The dominant form of lectures should change form through frequent use of conversations and discussions. The good used teaching method motivates students to learn, and puts them in a situation where they perceive themselves as the authors of the answer. The fundamental change should be the transfer of pressure from the teacher as a knowledge provider to the student as a buyer of knowledge and skills. The student is to become an active seeker in a modern educational process.

Applied teaching strategies based on participants' activities must be able to standardize the idea and practical action, taking into account various learning styles, methodologically correct teaching of discipline-specific content, promoting group interaction, stimulating reflection and metacognitive activity, support for readiness to perform tasks and motivation to learn, observation and motivation of students, among others knowledge, learning styles.
Given the practical experience necessary to achieve the right professional competences, educational methods must include primarily discussions and debates, fieldwork and workshops. Interactive activities, demonstrations combined with exercises, which increase the attention and concentration of students during classes are important in the implementation of active teaching. The inclusion of modern technologies introduces new thinking about effective teaching. It also increases the possibilities of new experiences for students that will lead further than traditional teaching methods. The involvement of television, language laboratories, electronic systems and devices can be used as an aid in the presentation, demonstration, problem solving in the teaching and learning process and in the assessment process.

P23: EFFICIENCY OF TEACHING CHEMICAL DISCIPLINES TO PHARMACEUTICAL STUDENTS BASED ON THE SYNERGETIC APPROACH

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Introduction

The relevance of improving quality of basic chemical knowledge among students of pharmaceutical specialties is due to the fact that, in the conditions of modernization of pharmaceutical education in Ukraine, it is necessary to provide an innovative approach to teaching, taking into account the trends in a modern synergetic paradigm in pedagogy, the priority being to create optimal conditions for personal development.

Materials and Methods

The experiment involved 989 2^{nd}-3^{rd}-year students of the Pharmaceutical faculty of the Bogomolets National Medical University in the academic years of 2017/2018 and 2018/2019. The students of the control group received traditional training in Biochemistry and the study group – according to the system of innovative teaching. During the IV-V semesters, knowledge checks and various types of written works were systematically performed; students' satisfaction with classes and teaching technologies was assessed using the CSI (customer satisfaction index) methodology. At the end of the course on the discipline, testing, questioning of the students and analysis of the level of biochemical knowledge formation were carried out, i.e. coefficient of mastering of the course content was calculated. The efficiency coefficient for innovative technologies was calculated as the sum of the mastering coefficient and the student satisfaction index. The following study methods were used: testing, questioning and methods of mathematical statistics.

Results

The analysis of the results showed the following:

1. The level of knowledge formation in the study group was 0.855 ± 0.025 and 0.65 ± 0.01 in the control group. At the end of the IV semester, the mastering coefficient was higher in the study group, compared to the control group, by an average of 0.2; at the end of the V semester - by 0.22.
2. The satisfaction index was higher in the study group, compared to the control group, by an average of 0.191.
3. The efficiency coefficient for innovative teaching technologies was higher than the efficiency coefficient for traditional technologies by an average of 0.197.

Conclusions

The implementation of a synergistic approach, i.e. updating the contents, methods and forms of training, taking into account the factors such as openness, self-organization, self-development, nonlinear thinking, management, self-management, etc., promotes the improvement of the quality of teaching chemical subjects to the students in the process pharmacist training, compared to the traditional system.

P24: DEVELOPMENT OF PHARMACEUTICAL CARE PRACTICAL SKILLS DURING PHARMACY INTERNSHIP

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Introduction

Pharmaceutical care (PC) is the identification, resolution and prevention of potential drug related problems. It is important to develop PC practical skills to assure quality provision of care. In the Pharmacy curriculum at the University of Tartu the content of six months` pharmacy internship was redesigned in 2017 to provide more focused practicing of PC. The aim of this study was to evaluate the implementation of redesigned pharmacy internship by outcomes associated with experience of pharmacy students in provision of PC practical skills.

Materials and Methods

A study sample consisted of 5-th year pharmacy students who completed pharmacy internship in 2018 and 2019 (n=45). An international 20-item survey instrument (1) was adapted and students' perceptions of PC skills (10 items), functions (5 items) and outcomes (5 items) were collected before and after pharmacy internship by using 5-point Likert scale (1 strongly disagree to 5 strongly agree). For data analysis the Mann-Whitney test was used.

Results

Statistical comparison of pre- and post-internship evaluation results demonstrated that perception of most of the survey items was significantly improved after pharmacy internship. In the pre-test the mean score of perception about PC skills was 3.44±0.34 and in the post-test 4.38±0.29; $p \leq 0.01$. Of the PC functions identification, understanding and solving of drug related problems improved (all p=0.01). Students perceived their increased role in improvement of patients´ quality of life and reducing the treatment costs (both p=0.01).

Conclusions

Based on students` perception, during pharmacy internship their PC practical skills have significantly improved. Results demonstrate that updated pharmacy internship course has been successfully implemented.

Reference

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P25: EYE AND CLICK TRACKING TO EVALUATE ENGAGEMENT IN COMPUTER-BASED SIMULATION

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Introduction

Student engagement represents the time, involvement and quality of effort students invest in productive learning activities and is closely linked to the cognitive aspects of learning. Computer-based simulation provides replicable, cost-effective learning approaches in safe environments. Student engagement with computer-based simulation may be challenging to assess. Eye tracking performance has been linked to engagement of attention and recent affordability of equipment such as Gazepoint® hardware and software allows for physiological engagement to be investigated. The aim of this study was to explore the feasibility of using eye and click tracking to evaluate engagement in computer-based simulation.

Materials and Methods

The feasibility study employed Gazepoint® gaze tracking equipment during a computer-based simulation, based on a community pharmacy request for emergency contraception. The simulation used digital avatars for the patient, pharmacist and doctor with audible questions and responses. Participants flexibly navigated the simulation and received feedback from the pharmacist avatar. Physiological engagement during the simulation was recorded using the Gazepoint® video-based eye tracker and post-analysis of the recorded mouse tracking and clicks.

Results

Twelve third year pharmacy students participated. The Gazepoint® data recordings for the entire simulation were reviewed by two observers. Participants' eye tracks were displayed as heat maps or fixation maps and identified areas of interest and time spent on task. Most participants showed engagement with the simulation, with 83% focused on the patient avatar when speaking. Participants' navigation and directional choices in the simulation were accurately determined by observation of mouse movement and clicks. An outcome of this study is the suggestion that future simulation design might consider operation within a standardised screen to enable calibration in the timing of participants' gaze fixations.

Conclusions

Gazepoint® eye and click track recordings showed promise in identifying students' physiological engagement during computer-based simulation. Participants' navigational choices could inform future simulation development.

P26: ECOLOGICAL MOMENTARY ASSESSMENT IN A GAMIFIED SIMULATION

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Introduction

The perceived stress of health professional students influences their confidence and motivation to learn. An extended gamified simulation was developed as a capstone learning experience in a Bachelor of Pharmacy program, designed to provide engaging real-world practice experience. Students competed in teams, assumed the pharmacists' roles and were responsible for all patient-centred outcomes, as determined through continual assessment. Such a high-stakes and intensive activity has the potential to induce student stress. The aim of this study was to use ecological momentary assessment (EMA) to capture real-time student experience and behaviours during the simulation, limiting recall bias[1].

Materials and Methods

Student participants completed periodic EMAs during the 3-week gamified simulation. Five participants per day received digital prompts to undertake the EMA in Microsoft Forms. Each EMA involved self-reporting momentary stress on a 5-point Likert scale (from 1 'not at all' to 5 'extremely'), recording the preceding activity in free text and selecting their degree of physical activity (sedentary, light activity or moderate-to-vigorous activity). Pearson's Correlation analyses were conducted in SPSS 22.

Results

In total, 355 EMAs were completed by 28 students. Activities recorded were coded into seven groups: administrative, verbal, dispensing, clinical case, team discussion, observation and non-cognitive. The highest self-reported stress was associated with verbal activities, which included simulated patient counselling and clinical telephone calls. While there was no significant relationship between stress and gender, day or week of the game, student stress had a small positive correlation with simulation activity (r=.262, p<0.01) and a moderate correlation with level of activity (r=.320, p<0.01).

Conclusions

Using EMA provides a valuable, non-invasive way to determine student stress and has potential to identify students at risk. The method would suit repeated measure studies.

Reference

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P27: PHARMACY STUDENTS' OPINION ABOUT THE OBJECTIVE STRUCTURED CLINICAL EXAMINATION (OSCE) IN POLAND

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Introduction

In the last decade OSCE is widely implemented into the pharmacy curricula worldwide. Our team developed OSCE as a final exam in Pharmaceutical Care course for 5th year pharmacy students. The aim of the study is to compare the opinion of pharmacy students with the results of the exam.

Materials and Methods

We used the self-administered structured questionnaire to obtain opinion about the exam. The respondent students, who took their OSCE exam for the first time. The questionnaire was administered to students just after he/her finished the exam. All students were informed that the survey is anonymous and voluntary, and he/she has right to refuse participation.

Results

Almost 95% of students admitted that information about the organizational aspect of the exam and instructions at individual stations were understandable. Most students indicated the stations 5 (identification of DRP) as the one on which they will get the worse grade and about half of respondents indicated the same station as the most stressful. As a less stressful most students indicated the station 1 (patient interview), the same station they indicated as a station where they expect to receive the best grade. The analysis of OSCE results showed that the best average grade (>73%) was observed at station 3 (education about medicine), which less than half of respondents indicated as the one, where they expect the best grade. The worse results (average grade <60%) were observed at station 5 as it was predicted by students.

Conclusions

Students were positive about organization of the OSCE and found it quite well simulating the real professional situation. The actual and projected by students' results of exam were only partly consistent, which may indicate that students are not able to self-assess the level of competences and compare it with the expectations of their future employer.

P28: EVALUATION OF ERASMUS EXPERIENCE FOR PHARMACEUTICAL TECHNOLOGY STUDENTS

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Introduction

During the third year of studies, students reading for a Bachelor's degree in Pharmaceutical Technology degree have the opportunity to carry out an eight-week placement at a European university, under the Erasmus programme. During this period, students participate in research projects in University laboratories. Students are followed-up virtually during the mobility, by tutors from the sending institution to support them to develop learning skills during the placement.

Materials and Methods

A self-administered questionnaire was disseminated to pharmaceutical technology students to evaluate their Erasmus experience. The questionnaire consisted of ten closed-ended 5-point Likert scale questions, ranging from strongly agree to strongly disagree. The questionnaire evaluated how the experience helped students develop, in what aspects did the tutors from the sending institution help during the virtual tutorials and whether they would recommend the experience to other students.

Results

Ten out of 11 students enrolled in the third year of the Pharmaceutical Technology program went on Erasmus during the scholastic year 2019/2020. Seven students answered the questionnaire. Students agreed that the Erasmus experience helped them to develop academically (n=6) and personally (n=6), to gain (n=6) and improve (n=5) laboratory skills and to extend their network of fellow students and friends (n=4). Students agreed that tutorials helped in guiding them to keep records of daily activities (n=3) and that tutors helped with logistical (n=4), academic (n=4) and personal (n=3) issues experienced during the Erasmus experience. All students agreed that given the choice they would recommend the experience to other students.

Conclusions

The Erasmus experience enables students to develop academically and personally. The tutorials can be further structured based on the findings of this study so as to standardize the support provided to all students following a mobility placement.

P29: A COMMON TRAINING FRAMEWORK FOR HOSPITAL PHARMACY IN EUROPE

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Introduction The aim of the Common Training Framework (CTF) for hospital pharmacy is to achieve automatic professional qualification recognition for hospital pharmacists across EU countries, meaning that learning outcomes and competencies received by specialisation in hospital pharmacy in one European country will be recognised throughout Europe. There are 4 key benefits that a CTF for hospital pharmacy will achieve in Europe:

- the patient benefit;
- improving labour mobility and the benefits that arise from that;
- a benchmark for all European countries to strive for; and,
- a vital strategic tool for realising the European Statements of Hospital Pharmacy adopted in 2014.

Materials and Methods

- Develop a framework via a working group consisting of hospital pharmacists from across Europe.
- Review of the framework through an online Delphi consultation involving other healthcare professionals.
- Creation of 3 Working Groups and a steering committee to work on the project.
- Engage with national authorities and relevant stakeholders to obtain their support for the project.
- Creation of a project plan to make CTF a reality

Results

- EAHP adopted a final framework in 2017 containing 24 competences, 87 knowledge items and 136 behaviour competences.
- EAHP has support from all its 35 national member associations (via endorsement letters)
- 1st CTF Meeting of national authorities took place at 24th EAHP Congress in Barcelona (March 2019).
- EAHP has gathered relevant information on national hospital pharmacy specialisations programmes
- EAHP has developed project plan to move forward including the development of a CTF Roadmap

Conclusions

The CTF Project (reflecting national and regional realities) meets the need identified for training in competencies required to achieve the level of practice identified in the European Statements of Hospital Pharmacy. This will lead to improved patient care. Additionally, the free movement of specialised hospital pharmacists will be enabled.

P30: THE CURRICULA MAPPING FOR ETHICS AND LEGISLATION TOPICS IN PHARMACY AND LABORATORY BIOMEDICINE PROGRAMMES AT FACULTY OF PHARMACY UNIVERSITY IN LJUBLJANA

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Introduction

To meet public expectation, university programmes are moving towards a quality system based on competences. The Faculty of Pharmacy in Ljubljana runs 2 Master's programmes, Pharmacy - PHAR (5 years) and Laboratory Biomedicine - LBM, (3+2 years). Both profiles are expected to work in the health care system and perform demanding tasks related to patient care. As such, faculty programmes should develop ethically minded professionals with an appropriate level of regulatory understanding.

Materials and Methods

Two rounds Delphi methodology was used by group of 5 experts involved in both programmes. Curricula, as written in the accreditation documents, have been reviewed for topics of ethics and legislation related to ethical questions. A 5-point Likert scale was used for evaluation: 0= not covered at all, 1=poor, 2=fair, 3=good, 4=very good. During the second round, consensus was achieved.

Results

Searched topics were written in 14 out of 59 syllabuses of PHAR and in 9 out of 57 syllabuses of LBM programme. The consensual evaluation showed that topics were covered “very good” in 1 PHAR and 2 LBM courses, “good ” in 1 PHAR course, “fair to good” in 1 LBM course, “fair” in 4 PHAR courses, “poor to fair” in 2 LBM courses, “poor” in 9 PHAR and 4 LBM courses. Among PHAR courses, 6 were mandatory and 8 elective, in range of 3-30 ECTS but mainly 5 ECTS. Among LBM courses, 5 were mandatory and 4 elective, in the range of 3-14 ECTS.

Conclusions

The simultaneous mapping of PHAR and LBM programmes showed that topics of ethics and corresponding legislative are well covered in both programmes. This is only the first step of the evaluation. Comparison of intended, perceived and achieved competences as evaluated by students, graduates, teachers and employers would be very useful to improve the programmes and their performance.

P31: DIGITAL GAMING IN TEACHING PHARMACY VOCABULARY

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Introduction

Given the crucial role of technical vocabulary knowledge for subject learning in pharmacy education, there is a need for effective technical vocabulary teaching approaches. However, at tertiary level classes, motivational aspect is mostly ignored. We hypothesize that integrating digital game-based activities into classroom may provide learners a positive learning experience that can increase their learning. This study aims to investigate the influence of in-class digital game-based activities on pharmacy students' technical vocabulary learning performance and explore their perceptions.

Materials and Methods

In this experiment study, the effectiveness of 2 approaches (in-class digital gaming and no in-class digital gaming) to vocabulary teaching was compared. Forty-seven second-year pharmacy students participated in the study over a period of 15 weeks (experimental group=21; control group=26). 400 technical vocabulary were targeted. Data was collected through 2 vocabulary tests, and a 12-item questionnaire developed by Dizon (2016) based on the technology acceptance model (TAM).

Results

A Mann-Whitney U test showed that there was a significant difference both in the first ($U=101.5$, $p=0.000$) and second vocabulary test scores ($U=153.5$, $p=0.010$) between the experimental and control groups. The calculated effect sizes were 0.536 and 0.378, respectively. This suggests that in-class digital gaming have a moderate to large effect on technical vocabulary learning. Results of the questionnaire administered indicated that students had positive perceptions about the digital tool used.

Conclusions

In short, in-class digital gaming was found to be a useful approach to learning technical vocabulary as shown by the significant differences found in the vocabulary test scores between the experimental and control groups. Equally important is the finding that the level of perceived usefulness was higher in the experimental group which suggest that in-class experience influence technology acceptance and use behaviors in tertiary level learners.

P32: *UNIVERSALUT* HEALTH FAIR: AN EFFECTIVE EXPERIENTIAL TEACHING METHODOLOGY

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Introduction

There is a clear need for hands-on learning that face our students to real situations. With *Universalut*, a health fair prepared *at hoc*, the students were set in a real environment in contact with citizens to put into practice the acquired competences. Moreover, the university approaches society, spreading healthy lifestyles among the population.

Materials and Methods

The Faculty/University services contact the council of Valencian Community cities to organize a (health) fair. It consists of several workshops, both for adults and children, showing some professional services of pharmacists. The city council has to provide urban furniture and a safe environment. Volunteer staff is involved in the supervision of the preparation and actual performance of workshops, that are carried out by students. The students voluntarily enroll and receive 1.5 ECTS for participating. The preparation of the workshops and its materials includes different methodologies of teaching-learning such as role-playing, design of infographics, reflecting on contents, with high impact on motivation. Students from other health science grades are also invited to participate in order to facilitate teamwork and interdisciplinary learning.

Results

The project began 2018-2019 course with two health fairs. On April 8th, 2019 around 40 students and 7 professors made *Universalut* possible in Ontinyent. On April 13, 2019, 70 students and 11 teachers participated in Villar del Arzobispo, where companies and associations joined. 11 different workshops were carried out by Pharmacy students, while 7 were performed by Human Nutrition and Dietetics students and 7 were implemented by Food Sciences students.

During 2019-20, three cities expressed interest in receiving *Universalut* and took the compromise. A total of 136 Pharmacy students enrolled for the training stage.

Conclusions

Universalut promotes learning of students while transmitting evidence-based health education, bringing the university closer to society. *Universalut* participants are highly satisfied with the outcomes.

P33: SIMULATION-BASED BLOOD PRESSURE MEASUREMENT TRAINING FOR PHARMACY STUDENTS

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Introduction

Simulation-based training is an educational technique that complements didactic teaching to support the development of necessary clinical skills and competencies for pharmacy students before completing their professional training. The aim was to evaluate pharmacy student perception of simulation-based blood pressure (BP) measurement training.

Materials and Methods

BP measurement simulation involves having an arm anatomically similar to the arm of a human subject and allows a student to practice the same skills and techniques in measuring BP as executed on a human subject. Systolic and diastolic BP and volume settings are adjusted using an external control panel allowing for variability as seen in clinical practice. An evaluation questionnaire consisting of ten 5-point Likert-type questions (Strongly disagree to Strongly agree) was disseminated to all 22 first-year undergraduate pharmacy students after the practical session using the BP simulator. Descriptive statistics were calculated.

Results

Twenty students (16 female, 4 male, mean age 20.5 years, range 18-30 years) completed the questionnaire. All the students agreed that the BP training simulator promotes innovative and interactive learning and enhanced their learning experience. Nineteen students agreed that the simulator is an effective teaching tool which will impact positively on their future practice and 19 students would recommend the simulator to be used in future practical sessions.
The students agreed that the simulator promoted self-confidence in technique for actual patient situations (n=18), helped to transform theoretical knowledge into clinical skills (n=18), helped to identify challenges in the technique before actual practice (n=16), was realistic (n=16) and user-friendly (n=15).

Conclusions

The simulation-based BP measurement training promoted confidence in the first year students reading for a degree in pharmacy before they embark on real-life blood pressure measurement scenarios in patients.

P34: A PHARMACY GRADUATE PERSPECTIVE OF THE INVOLVEMENT OF PATIENTS AND CARERS IN THE DESIGN AND DELIVERY OF THE PHARMACY UNDERGRADUATE CURRICULUM

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Introduction

There is increasing support for active teaching by involving patients and carers in health-related undergraduate teaching. Within pharmacy, the aim is for patients and educators to work synergistically to improve learning and teaching of future pharmacists. The School of Pharmacy and Life Sciences (PALS) has been reviewing teaching of undergraduate students to involve patients and carers sharing their experiences about their condition in a 4th year module. This study aimed to evaluate this innovative teaching method within pharmacy education by exploring pharmacy graduates' perspectives of the involvement of patients and carers in the design and delivery of the pharmacy curriculum.

Materials and Methods

This study utilised semi-structured telephone interviews with recent PALS graduates who had provided their contact details prior to completing their studies and consented to participate. The interview schedule was developed based on the research aim, an extensive literature review and peer discussion, then piloted to ensure its credibility and validity. Interviews were recorded and transcribed verbatim. Thematic analysis was conducted independently by two researchers to identify key themes.

Results

Thirteen participants were interviewed who had all experience of active teaching. Many highlighted the need for more sessions in undergraduate teaching that incorporates active teaching. They perceived this as a way to improve their learning by complementing the topics delivered using more traditional teaching methods. This allowed them to better apply their knowledge and skills thus better equipping them and providing them with more relevant information for practice. However, pharmacy graduates were uncertain about patient and carer involvement in the design of the pharmacy undergraduate course.

Conclusions

Pharmacy graduates positively viewed patients' and carers' active involvement within the pharmacy curriculum and highlighted many benefits such as consolidating learning. In view of this evidence, it is planned to further embed active teaching within the pharmacy curriculum.

P35: 75 YEARS OF THE FACULTY OF PHARMACY OF THE MEDICAL UNIVERSITY OF LUBLIN – THE PILLAR OF PHARMACY EDUCATION IN EASTERN POLAND

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Introduction

The Faculty of Pharmacy of the Medical University of Lublin was created in 1945. It has a long tradition in teaching pharmacy and dissemination of knowledge in the field of pharmaceutical sciences. Due to significant scientific effectiveness, the Faculty is recognized as the leader among the Faculties of Pharmacy in Poland with the highest A+ category.

Materials and Methods

First, after public consultation, the work of appointed committees and with the consent of academics and students, the mission and the Faculty's development strategy has been specified. Second, results of the annual ranking of The Center for Science and Technology Studies, University of Leiden, Netherlands which assesses universities' scientific performance on the basis of bibliometrics should be mentioned. For the first time, it includes a gender balance metric that calculates the proportion of women among the number of paper authors.

Results

1) The mission of our Faculty includes conducting scientific activity and educating students while maintaining the principle of compliance of science and didactics and constant improvement of the quality of teaching together with dissemination of knowledge in the field of pharmaceutical sciences. 2) The Faculty's development strategy includes diversity of study programs, openness to the socioeconomic environment, mobility of academic staff and students (about 20 Erasmus Plus agreements), leading to strengthening the Faculty's position. 3) The Medical University of Lublin, especially the Faculty of Pharmacy, obtained the highest rate of scientific works, whose authors are women (56%) according to the annual Leiden ranking *(source: Nature 2019, Leiden Ranking).*

Conclusions

Among the strengths of the Faculty are a relatively young teaching and research staff consisting mostly of pharmacists, women in principle, high quality of education, effectiveness in research grants in the domain the pre-clinical drug testing. Our Faculty can be considered the pillar of pharmacy education in Eastern Poland.

P36: INTERNATIONAL PHARMACEUTICAL FEDERATION (FIP): UNITING SCIENCE, PRACTICE AND EDUCATION TO IMPROVE GLOBAL HEALTH

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Introduction

Under new leadership of Catherine Duggan, CEO, and Dominique Jordan, President, FIP has developed a renewed vision, mission, strategic plan and global development goals that will be shared in this presentation. Under the moniker of "One FIP," FIP is the only international organization that combines science, education and practice under one roof.

Methods and Results

To solidify its unique role, FIP is creating close partnerships with WHO, UN, WHPA, Bill and Melinda Gates Foundation and World Bank to champion universal health coverage and primary health care from prevention to NCDs management to innovation using the combined three assets of One FIP. To broaden its global impact, FIP embarked on regional conferences with member organizations, first in Amman Jordan for the EMR and a second in Ankara Turkey for the European Region with additional conferences scheduled in the years ahead. During the Ankara Conference, EAFP contributed to a session to reflect on pharmacy education that empowers graduates who can merge science with practice to contribute to advancement of pharmaceutical services.

Within the context of pharmaceutical needs, recognizing the impact of technology on pharmacy and healthcare is becoming more and more of an urgent priority. To address this emerging need, a new Technology Forum was established within FIP and the theme of the 2020 Seville Congress was to specifically address the Technological Revolution and its Impact on Pharmacy and Health Care but was postponed to 2021 due to the COVID-19 pandemic. In its place, FIP delivered the FIP Virtual 2020 conference. Of particular interest to EAFP members was the virtual AIM Global Academic Leaders Forum (GALF). A new initiative was launched at virtual GALF 2020 to promote leadership development in academia. AIM together with AACP established the Global Academic Leadership Fellows Program to develop emerging academic leaders to be launched in 2021. FIP AIM delivered an abbreviated online version of this leadership program, the first session presented at the virtual 2020 GALF with three other sessions available asynchronously via the FIP website.

Conclusion

Through establishing these collaborative networks, FIP is an international driving force to support achievement of better outcomes and greater impact for advancing pharmacy worldwide.

P37: PARTICIPATION IN THE UNIVERSITY INTRODUCTION DAY IS IMPORTANT FOR RECRUITMENT OF PHARMACY STUDENTS IN ICELAND

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Introduction

The University introduction day (UID), where all the universities in Iceland advertise their study programmes, is held for all potential students yearly. The Pharmacy programme (BS and MS degrees) is only taught at the University of Iceland within the Faculty of Pharmaceutical Sciences. Advertisement of this study programme, such as at the UID, is the responsibility of the Faculty's study board. However, the success of student recruitment during this UD was unclear, prompting the study board to analyse why students chose this study programme and if the UID aided in their decision.

Materials and Methods

First-year students enrolled in the BS pharmacy programme fall 2019 were asked to participate in an online questionnaire during orientation week. Specific and open-ended questions were asked relating to why they chose this study programme and if they attended the UID.

Results

28 out of 44 enrolled students (63.4 %) participated in the survey. 92.8 % of the participants were starting their first University programme, of which 61.5 % attended the UID. Interestingly, over 35% of the participants had a friend already enrolled in the Pharmacy programme, showing that the influence of other students is crucial and perhaps underestimated. The main reasons why the students chose this programme was because they considered pharmacy to be an interesting subject with god job prospects after graduation. Many participants also answered that they chose this field of study due to their interest in chemistry.

Conclusions

Although the recruitment rate has never been a concern for the Faculty, advertisement of the Pharmacy programme is important for attracting students to the programme. As over half of the participants in this study attended the UID, the presence of pharmacy students and faculty members at the UD is evidently significant.

P38: TO DEVELOP A MOBILE APP ON ALL PLATFORMS - DOCUMENTING CLINICAL PHARMACIST INTERVENTIONS

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Introduction

There are various U.S. studies evaluating the impact of pharmacists attending 'Rounds'. In U.K. hospitals, ward pharmacy services are traditionally provided by pharmacists undertaking daily visits to their allocated ward (s). During these ward visits, pharmacists discuss medication-related issues and make recommendations to medical staff, nursing staff and patients as necessary. These contributions to patient care are typically termed 'interventions'. A Pharmacist Intervention was defined as: 'any verbal or written communication between a pharmacist and a physician, undertaken with the intention on influencing prescribing'. Clinical pharmacy interventions have been shown to optimize therapeutic outcomes for patients in conjunction with other health-care professionals. The percentage of hospital pharmacists who regularly log their interventions varies from 50 to 72% across countries with no difference by speciality. Clinical pharmacists with postgraduate qualifications seem to document significantly more interventions compared to those without and they contribute more interventions.

Materials and Methods

A Mobile App on all platforms, namely, IOS and Android, is being developed to enable documentation of clinical pharmacist's interventions at the bedside. The Mobile App structure will include several fields/dropdown menus as multiple select, belonging to four groups, namely: Demographics; Details of Medical Admission; Clinical Pharmacy Interventions with definitions; and Cost Savings.

Results

The Mobile App is being developed.

Conclusions

Development of a Mobile App on all platforms entitled: Documenting Clinical Pharmacists Interventions.

P39: PUBLIC PERCEPTION OF PHARMACISTS AS IMMUNIZERS

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Introduction

The profile of services provided at pharmacies is constantly changing. For decades pharmacists have not been merely dispensing medicines but providing additional services to patients and society. Pharmacy is very often the first encounter with health care services for patients and in peripheral regions it might be the only place to get medical advice. Research has shown, that patients perceive pharmacists as respected specialists with sufficient knowledge and are pleased with additional services, such as monitoring of health indicators, speed tests, counselling and immunization. Estonian influenza vaccination coverage in 2017 was 4%, being the lowest in the European Union.

Materials and Methods

The survey was conducted during 2 weeks within the vaccination pilot project in October and November 2018 at 6 different pharmacies in Tallinn, Estonia. The survey consisted of 22 questions, it was voluntary and anonymous, including only adult patients who were vaccinated at pharmacies. The data was collected via E-Formular database interface or paper questionnaires according to participant's preferences. Descriptive statistics was used to analyse data.

Results

During the first pilot project 248 participants participated in the survey. Half of them were vaccinated against influenza for the first time. 98% considered pharmacy a suitable facility for vaccination and 88% would accept pharmacists as immunizers. 95% of participants would vaccinate in pharmacies. Although 69% declared that immunization services are easily accessible without pharmacies, they chose to be vaccinated at pharmacies and 43% considered visiting a physician inconvenient during working hours.

Conclusions

Estonian public is interested in accessing vaccination services via pharmacies. Pharmacists are perceived as trustworthy health care workers, who should possess the permit to vaccinate. Influenza vaccination coverage in Estonia was significantly improved due to the pilot program.

P40: DEVELOPMENT OF AN ANALYTICAL METHOD FOR THE SIMULTANEOUS DETERMINATION OF GLYCOPEPTIDES, VANCOMYCIN AND TEICOPLANIN USING HIGH PERFORMANCE LIQUID CHROMATOGRAPHY COUPLED MASS SPECTROMETRY IN HUMAN URINE

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Introduction

Vancomycin and teicoplanin appertain to the glycopeptide class, remaining high on the list of antibiotics for the treatment of hospital infections by resistant bacteria. The present study aimed to develop an analytical method using High Performance Liquid Chromatography (HPLC) coupled Mass Spectrometry (MS) for the simultaneous determination of these two compounds in biological fluids, in particular human urine.

Materials and Methods

Several chromatographic parameters were examined for the development and optimization of the analytical method for the determination of the two compounds such as the type and temperature of column, the type and flow rate of mobile phase, the type of elution, the gradient elution system and the selection of the desired ion fragments with the appropriate cone voltage. Solid Phase Extraction (SPE) was carried out for the pretreatment of urine specimens and various conditions were studied in order to recover vancomycin and teicoplanin spiked concentrations.

Results

The developed analytical protocol showed a good resolution between vancomycin and teicoplanin with retention times 6.966 and 7.976 min respectively. For the validation, the method indicated linearity with $R^2 \geq 0.9990$ while the intra-day and inter-day precisions were estimated with maximum coefficient of variation (%CV) values equal to 6.5920%, which are below the 10%. Limits of detection (LOD) and quantification (LOQ) were estimated between 0.0252 – 0.785 mg/L and 0.0764 – 2.4197 mg/L respectively. %Recovery at low and high concentrations of vancomycin and teicoplanin was examined in water samples, ranging from 64 to 121%, showing relatively good recoveries.

Conclusions

Successful development of analytical protocol using HPLC-MS for the simultaneous determination of vancomycin and teicoplanin in urine, that showed good linearity, repeatability and accuracy such as low values of LOD and LOQ. However, the developed Solid Phase Extraction protocol requires further study to achieve better recoveries in the range of 80-100%.

P41: ATTITUDES OF ESTONIAN PHARMACISTS ABOUT PHARMACY-LED VACCINATION PROGRAMS

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Introduction

Estonia has the lowest flu vaccination coverage in the EU. Many countries have improved the vaccination coverage by including pharmacists as immunization providers. The aim of the study was to determine the readiness of Estonian pharmacists to provide vaccination services in pharmacies and to identify the needs of self-reported in-service training of pharmacists.

Materials and Methods

The survey was conducted 2 months after the "Vaccination pilot project at pharmacies" among employees of the four largest pharmacy chains in Estonia. The survey was conducted in an online environment e-Formular, participation in the survey was voluntary and anonymous. The questionnaire contained 29 questions, of which multiple-choice, open-ended or scaled questions. Descriptive statistics were used to analyze the data and the e-Formular environment was used for the primary statistical analysis of the characteristics. Analyzing the data describes the association with background variables such as age, sex, length of service, vaccination attitudes etc.

Results

313 pharmacists took part of the survey. Most pharmacists were not ready to provide vaccination services at the pharmacy themselves. The reasons given by the pharmacists who opposed the vaccination were: lack of appropriate training; lack of time and/or available space; unwillingness to touch patients or get in contact with blood; excessive workload and responsibility; lack of interest and competence. At the same time, many respondents noted that the availability of adequate training programs would encourage them to provide vaccination services.

Conclusions

To involve pharmacists in the provision of vaccination services in pharmacies, it is necessary to develop a training program that gives all the required knowledge and skills for immunization.

P42: A STUDY OF PHARMACY-BASED TICK-BORNE ENCEPHALITIS VACCINATIONS

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Introduction

Tick-borne encephalitis (TBE) is a viral disease that can damage the central nervous system and cause neurological disorders, with symptoms including nausea, hearing loss, paralysis and disruption of balance and memory. Over 10,000 patients are hospitalized annually as a result of contracting TBE, and the only effective prevention method is vaccination. Offering vaccinations in pharmacies increases the amount of protection against illness as pharmacies can be more convenient and accessible for the patient.

Materials and Methods

The survey was conducted during 2 weeks within the TBE vaccinations in May 2019 at 3 pharmacies in Tallinn that participated in the 2019 TBE campaign. The survey consisted of 13 multiple choice and scaled-response questions, it was voluntary and anonymous, including only adults who were actively receiving a vaccination at a participating pharmacy.

Results

Of the 103 participants, approximately 50% had not received the TBE vaccination before, and 28% had used the pharmacy vaccination services before. 38% of surveyed individuals indicated that vaccination services are more accessible at a pharmacy, and almost half of respondents said that visiting the doctor's office is problematic during working hours. Nearly all (99%) participants consider the pharmacy vaccination services necessary and would use these services in the future.

Conclusions

It is important to broaden vaccination services across all pharmacies in order to increase the accessibility of vaccines, raising additional awareness on the impact and preventative measures against infectious disease. Pharmacies can have an important role in vaccination campaigns and raising awareness amongst the public on the benefits and availability of vaccinations for diseases such as TBE.

P43: QUANTITATIVE ANALYSIS AND COMPARISON OF PESTICIDE RESIDUE IN GREEN TEA

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Introduction

Green tea is one of the most consumed drinks in the world. It is often consumed daily as it has no specific pharmacological effects. Due to the high intake of green tea, it is important to determine the safety of the tea. The aim of the research is to study green tea, its properties, the impact of pesticides on human health, to analyze the content of pesticide residues in green tea sold in retail and their compliance with the limits set in the European Union.

Materials and Methods

The sample consisted of 5 green teas without additives. Samples were prepared according to the QuEChERS method (EN 15662) and analyzed with gas chromatography-mass spectrometry method. The results were compared within the limits established by the EU.

Results

Four out of five samples were found to contain pesticide residues. Two of the five samples showed traces of pesticides. One sample did not contain any pesticides at all. Two samples were found to contain pesticides above the maximum level authorized in the European Union. One sample was found to contain four pesticides and one pesticide trace. Three of the five pesticides found are banned in the European Union. Four of the six pesticides identified in the study are banned in the EU - hexachlorobenzene, bifenthrin, fenpropathrin and permethrin.

Conclusions

Green teas sold in Estonia contain traces of pesticides. None of the sampled teas contained pesticide residues above the EU standards, although some pesticides found are prohibited in the EU. Further research is needed to determine the rate of pesticide residue transmission into beverage during brewing.

P44: PHARMACISTS' PERCEPTION OF ELECTRONIC CIGARETTES: A QUANTITATIVE STUDY AT COMMUNITY PHARMACIES IN SELANGOR

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Introduction

Electronic cigarettes, a popular battery powered device mimicking conventional cigarette is being used widely by Malaysians. Pharmacists has a role to play on the education of safety and effectiveness of e-cigarettes. This study was aimed to determine community pharmacists' knowledge, attitude and perception towards e-cigarette.

Materials and Methods

This is a quantitative study involving community pharmacist in the state of Selangor. Adopted questionnaire were distributed to the respondents.

Results

Respondents were chosen randomly by visiting community pharmacies around Selangor. Majority of the respondents (97.9%) are aware of e-cigarettes. As for their perception of e-cigarette use among Malaysians, pharmacists ranked 'to help quit smoking conventional cigarette' (43.3%) and 'to be used socially or recreationally' (42.3%) as equally 'important'. Most of them agreed that informative campaign should be conducted to create awareness on the pros and cons of e-cigarettes (49.5%), thus agreed to volunteer themselves to participate in the awareness campaign (64.95%). As for the effectiveness of e-cigarettes, majority of respondents ranked it as 'moderately effective' (44.3%). From the safety aspect, majority of pharmacists disagreed that e-cigarettes do not cause any adverse effect (75.3%). Pharmacists indicated it is very important for patients on e-cigarettes to have counselling (73.2%) and they have raised concerns on the safety of e-cigarettes especially the toxic level of e-liquid.

Conclusion

The study was carried out to get an understanding of the community pharmacists' perceptions of e-cigarettes in terms of their awareness, safety, reason for use, and effectiveness. The perceptions of community pharmacists on e-cigarettes were based prominently on ensuring the utmost care and safety for their patients. For this reason, a training for pharmacists pertaining to e-cigarettes is recommended.

P45: INNOVATIVE TEACHING METHODS IN TALLINN HEALTH CARE COLLEGE

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Introduction

Tallinn Health Care College (THCC) is a higher education institution offering training in the field of health in Estonia. The year 2015 has opened opportunities for implementing novel teaching methods in THCC. Based on the needs of the Assistant Pharmacist curriculum, the innovative modern laboratories and simulation training facilities were supported by the EU funding measure "Modernization of the infrastructure of applied higher education and teacher training". Through innovative methods, students are involved through problem and simulation training in a variety of real situations faced by pharmacists in their daily work, preparing them for applying their academic knowledge while working.

Materials and Methods

In 2016, new laboratory and simulation training facilities with a pharmaceutical profile were opened, allowing new, playful and learner-oriented methods to be integrated into the study at a study-pharmacy, a laboratory of analytical chemistry, rooftop garden and e-learning environment.

Results

The use of innovative methods has produced good results. Students' desire to participate in projects has increased. Studying at the rooftop garden with interactive tags is a great way to gain knowledge in phytotherapy. In addition, students can consolidate the knowledge by studying plant composition in both the microscopy and instrumental analysis laboratory. Practical learning is also supported by integration of e-learning environments and tools into a variety of subjects. A number of practical graduation theses have been carried out and students have won prizes for their research studies. Positive feedback has also come from employers.

Conclusions

The use of innovative teaching methods in pharmacy assistant curriculum has the potential to rise students´ motivation and learning skills, provides better opportunities for more diverse pharmaceutical education, broader mind and critical thinking in pharmacy education. It also motivates students to continue studies.

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