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OP01: Interactive And Model Driven Teaching Pushes Students To Learn

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Introduction: On a course in pharmacokinetics, students have previously worked in groups to evaluate pharmacokinetic parameters. We have observed old solutions circulating and students not taking responsibility for the group's learning. In addition, the instructions have become so detailed that the students not necessarily reflect on why they perform the task.

Methods: An individual, interactive, model-based task has been developed to increase the student's responsibility and motivation and thereby obtain a better understanding for the subject. To get access to the next step in the task, students need satisfactory calculations and a personal reflection on what they have learned. Their data are summarised in a Summary of Product Characteristics for the drug.

Results: Since each student has a "unique" substance, the tutoring is held on a conceptual level. Limitations are integrated into the model to make it more reality-based, such as number of allowed blood samples, sensitivity of the analytical method etc. This force the students to reflect on how to best calculate the parameters required to proceed. With this approach, we guarantee individual examination. After implementation during spring 2014, one comment in the course evaluation was: "It was the best thing I have experienced. It was impossible to progress unless one had gotten it right, so one was forced to really understand." We have observed that students are better prepared and discuss at a higher level during the final seminar.

Conclusions: By distributing the responsibility for the learning to the students, and creating an environment where curiosity promotes learning, we've observed that students are better prepared and discuss at a higher level. The approach also supports oral and written progression.

OPO2: Collegial Discussions As Part Of Quality Assurance Of Pharmacy Students' Individual Research Project Theses

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Introduction and purpose: The assessment of students' individual research project theses has been a prioritised

topic at the Faculty of Pharmacy in recent years, resulting in initiation of collegial discussions. The Bachelor of Science in Pharmacy Programme was evaluated by the Swedish Higher Education Authority (SHEA) and was found to have inadequate quality, primarily based on a variable quality of the theses. The Master of Science Programme in Pharmacy was found to have high quality, although some of the theses were considered to have too low quality. The purpose of the collegial discussions was to achieve a higher degree of consensus among the teachers, to ensure a high quality of the assessment.

Material and methods: During two separate occasions, in 2012 and 2014, the teachers discussed randomly selected bachelor respectively master theses. The teachers first assessed the theses and graded them with *Fail, Pass or Pass with distinction*, then individually explained their grading. They group-wise decided on consensus grades and these were compared with the assessment by SHEA.

Results: The teacher's individual grades and the group grades varied. There was also a difference between teachers' and SHEA's assessment, where the teachers gave a lower grade in most cases. An interesting exception was seen for one of the bachelor theses that were assessed with inadequate quality by SHEA but the teachers consistently gave this thesis the highest rating of all the bachelor theses.

Conclusions: The assessment of project theses may vary between individuals as well as between groups and between faculty teachers and the Authority assessors. Even if faculty guidelines and assessment criteria exist, the interpretation of them may differ. Collegial discussions are important in order to visualise differences in assessment, striving to achieve a greater extent of consensus and to ensure a high quality of the students' project theses.

OP04: Implementation Of A Quality Assurance Program At The Faculty Of Pharmacy Of Lyon/ France

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Introduction: At the Faculty of Pharmacy of Lyon/France we started a Quality Assurance (QA) project based on the QA process of the International Conference of Deans of francophone schools of Pharmacy (CIDPHARMEF) in 2013/2014. The objective of the communication will be to present the two first steps of this QA project: (1) self-assessment of our Faculty and (2) assessment by international experts nominated by CIDPHARMEF.

Material and methods: We created a Committee where members from the teaching staff, the administrative staff, students and pharmacists practicing in community pharmacies, hospitals and industry were represented, in order to work out a self-assessment report according to ten themes, including the Faculty's missions, governance, resources, educational program, research training, research activities, continuing education and international cooperation. For each theme information was analysed by SWOT-method (Strengths, Weaknesses, Opportunities, Threats). This report and a report written by students of our Faculty were analysed in May 2014 by four experts from Faculties of Pharmacy from Canada, France and Lebanon. In June a five days visit by these experts allowed them to interview all stakeholders of our Faculty and University.

Results: The self-assessment report of 400 pages presented the main strengths and weaknesses for all themes. In their assessment report the experts pointed out 154 recommendations, the most important for the Faculty's missions, educational program and research. These recommendations allow us in 2014/2015 to develop an action plan including: priority setting, selecting actions and the person or group who will implement these actions and a schedule for 2015-2020.

Conclusions: The QA project is a boosting process that involves all actors of our faculty. It will allow us to ensure the adequacy of our students' training and the needs of society, and to improve (1) the quality of our education and (2) the employability of our students.

OP06: The Role Of Young Pharmacy - The Polish Pharmaceutical Society Students' Section In The Assurance Of High Quality Pharmacy Education

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Background: Young Pharmacy is a Students' section of the Silesian Branch of the Polish Pharmaceutical Society which functions at the Medical University of Silesia in Katowice. Young Pharmacy Sosnowiec deals with students' development on many levels as well as with integration of Pharmacy Students by participating and organising scientific conferences, lectures, meeting with representatives of many branches, organising international exchanges and co-organising health-oriented and cultural events at the University.

Materials and methods: Young Pharmacy Sosnowiec, as a part of Young Pharmacy Poland, takes parts in organising nationwide projects such as 'Ask the Pharmacist...Diabetes'. Young Pharmacy participated in the nationwide preventive campaign: 'Ask the Pharmacist...arterial hypertension'. Another national project in which Young Pharmacy Sosnowiec will be involved is the celebration of Brain Awareness Week. Young Pharmacy Sosnowiec will also join the education and prevention event as a part of the European Immunisation Week. In June Young Pharmacy intends to organise Children's Day in order to familiarise Primary School Students with the profession of Pharmacists. During summer holidays Young Pharmacy Sosnowiec will take part in Student Exchange Program (SEP). In addition to nationwide events, Young Pharmacy Sosnowiec organises its own events. Over the recent several years Young Pharmacy Sosnowiec has been organising the event 'Pharmacist is a Human Too' in May, during which surveys about the danger of COPD, hypertension and addiction to nicotine are conducted. Another action is the event about cervical cancer prevention. Our initiative aims at informing patients about the danger posed by this kind of cancer by a direct contact with patients.

Conclusion: Young Pharmacy Sosnowiec by such actions seeks to change the way of perceiving the profession of a pharmacist and enhance the rank of pharmacists as professionals in the range of health care and students' development of Pharmacy Faculty and integration of Pharmacy Environment

OP07: Clean Room Teaching At UEF School Of Pharmacy: Improvement Of Teaching Based On Student Feedback

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Purpose: In the European Union, the medicines must be manufactured in clean rooms according to the Good Manufacturing Practice guidelines¹. For example, the aseptic preparation of sterile medicines requires skilful personnel who are qualified to work in the clean rooms. The aim of the present study was to improve the clean room teaching at the School of Pharmacy, in order to meet the needs of working life. The development was carried out in co-operation with Savo Vocational College.

Material and Methods: During the academic year 2012-2013, novel clean room exercises were included in two courses dealing with hospital and industrial pharmacy (intended for 3rd...5th year students). The former included a novel clean room exercise (2.5 hours contact teaching) while the latter included participation to the Cleanroom Pass[®] training course² (2.0 ECTS; web-based and contact teaching). Students' practical competences were evaluated by proficiency tests (aseptic hand washing and clothing validation, respectively). Written student feedback was collected.

Results: Based on the student feedback, the clean room exercise was considered as useful (48%) or very useful (44%) (2012; n=27); useful (72%) or very useful (23%) (2013; n=39) for the working life. The Cleanroom Pass training course² was considered as useful (40%) or very useful (60%) (n=10, 100%) for the future studies and working life. After two years of completing the Cleanroom Pass[®], nine of these students responded again. They had gained pharmaceutical working experience during or after their studies and, apart from one student, they considered the course as useful (56%) or very useful (33%) for the working life.

Conclusions: Based on the student feedback, the clean room exercise and the Clean Room Pass[®] training course² were included in the curriculum of students of pharmacy. It seems that the knowledge can be utilised especially at aseptic procedures of hospital pharmacies.

References:

¹European Commission: EudraLex – Volume 4: Good Manufacturing Practice guidelines (on-line). Available at: http://ec.europa.eu/health/documents/eudralex/vol-4/index_en.htm

²Savo Vocational College: Clean room training course (on-line). Available at: <http://puhdastila.fi/?q=content/english>

OP09: Supporting The Study Process Of Msc Pharmacy Students In The University Of Eastern Finland

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In Finland, studies in pharmacy are divided into two phases; first a three-year bachelor phase followed by a two-year master phase which differs extensively from bachelor's practice-oriented studies. MSc students select the main discipline in which they will focus (biopharmacy, pharmaceutical chemistry, pharmaceuticals, pharmacology, social pharmacy or toxicology), topics are scientifically oriented and there are many optional courses. In addition, teaching methods require that the students exercise self-discipline and learn time management techniques. It is important to appreciate that most of these MSc students are rather unaware of the tasks and skills needed by pharmacists, especially those working in sectors other than community pharmacy.

In order to support the students as they move to this more demanding type of study and also to equip them to apply for a job after they finish their studies, we have created a new course (two ECTS credits) which lasts for the entire 2-year period of master studies (4th and 5th years). The course has only a few lectures delivered at appropriate times in the two year course duration, instead the emphasis is placed on group meetings and individual discussions with teachers, and some assignments such as setting individual learning goals, and compiling a portfolio.

At the beginning of the fourth year, students become acquainted with the faculty and major research areas in their selected discipline at an informal meeting. During the autumn semester, students meet the teacher-tutors both in groups and individually and are provided with detailed discipline-related information and the tutors can respond to the questions and concerns of the students. When setting their own goals and assessing their readiness for working as a pharmacist, the students interview a practicing pharmacist. At the end of the autumn semester of the fourth year, every student has a personal performance appraisal discussion with the discipline coordinator. The discussion is based on the student's personal study plan, an evaluation of his/her learning and feedback from the first quarter of the studies. During the spring semester of the fourth year, an event is organised in which pharmacists from all pharmacy sectors describe their work and careers.

Students spend most of the time in the fifth year conducting their masters thesis and at this point the role of their own supervisor is crucial. However, even during this phase, students have the possibility to meet also the teacher-tutors, either as a group or individually. At the end of the fifth study year just prior to graduation, students should present their completed portfolio revised such that it can serve when applying for employment.

The course is being piloted with students who have started their master studies in autumn 2014. Feedback is being collected both from students and teachers, so that the course can be better tailored to the needs of future students.

OP10: Aspects Of Quality Assurance: Nationwide Collaborative Work Around Learning Outcomes And Their Assessment

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Purpose: Specifying appropriate learning outcomes and then providing learning opportunities and assessments which allow students to demonstrate that they meet these learning outcomes is a key element of the quality assurance process (Hunters & Gatherers Project, 2012). The objective of this paper is to describe highly collaborative strategies which have been adopted in Australian pharmacy education which have provided opportunities for informal benchmarking of assessment items and assessment practices in a workshop environment.

Methods: Learning outcomes were developed through a series of workshops for academic pharmacy staff from nearly all universities in Australia, representatives from the accreditation body and pharmacy students in an iterative process of dissemination and seeking of feedback (Stupans *et al. in press*). These workshops have also provided opportunity for staff to work together to design and refine assessment items which address these

learning outcomes and to participate in informal benchmarking exercises.

Results: An open access website (Pharmacy Learning, ND) has been established which provides access to Learning Outcomes and published assessment items. Workshop participants have indicated that they have valued the opportunities to increase their knowledge of assessment and opportunities to engage in benchmarking exercises.

Conclusions: Beyond the focus on learning outcomes and their assessment, the process afforded through the workshops has provided a highly collaborative engaging approach to one of the elements of quality assurance.

References:

Hunters & Gatherers Project (2012). Office of Learning and Teaching (on-line). Available at: http://www.assuringlearning.com/good_practice.html. Accessed 15th January 2015.

Pharmacy Learning (ND). (on-line). Available at: <http://pharmacylearning.edu.au/>. Accessed 15th January 2015.

Stupans, I., *et al* (in press). Nationwide collaborative development of learning outcomes and exemplar standards for Australian pharmacy programmes. *International Journal of Pharmacy Practice*.

OP12: Ensuring The Quality Of A Study Programme: Two Paths To A Single Objective

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In ensuring the quality of a Pharmacy curriculum, as well as any study other programme, two separate goals have to be pursued.

One is setting, implementing, monitoring and evaluating quantitative criteria such as – in the case of Pharmacy – the number of courses, the ratio of compulsory and objective courses, the teacher/students ratio, standards of laboratory equipment and many more personnel, economic and technical benchmarks.

These, however, only set a minimal standard for every provider of the given type of education and do not guarantee the quality of the learning process, the inspiring environment needed to convey the necessary skills and knowledge and the standards of excellence today's pharmacists has to aspire to.

The second part of quality assurance is a trickier affair: often non-quantifiable, yet requiring more than intuition and well-meaning steps based only on personal opinions.

To tackle this challenge, the Faculty of Pharmacy of UVPS Brno, Czech Republic, initiated a process to ensure the high quality not only of its Pharmacy curricula on Master and Ph.D. level in both Czech and English, but also of its research activities, community outreach and other endeavours.

In a series of structured discussions first a set of distinct areas to monitor quality was established. A panel of experts in each area then had to reach consensus on both qualitative and quantitative criteria to pursue. This was still the beginning though. The most challenging part of the process was to not only establish a desired target values or states for each criterion, but to outline the process leading to reaching these objectives. Each process had to be split into several steps with a deadline, supervisor and means of monitoring.

Now we are in the next stage of monitoring, evaluating and resetting our goals. It is a complex process, but also an exciting one and one with the potential to make our Pharmacy curriculum up to the task expected of it by our students, teachers and community.

PP02: Faculty Seminar Series For Students Performing Bachelor's Essay - Focus On Oral And Written Progression

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Introduction: We've observed that students' knowledge of the writing process has decreased and during the last year, the Faculty of Pharmacy at Uppsala University has worked to improve the quality of the Bachelor essays. The aim was to provide students with tools, experience, and confidence in oral and written presentation, which results in increased quality of the essays.

Method: A faculty seminar series for students was developed which consists of an introduction and three seminars. At these seminars students presented their: 1) project plans; 2) the disposition; and 3) the finished essay. Students get feed-back from other student in a peer-moment and their presentations were recorded. Afterwards, the student and one seminar leader looked at the presentation and the student comments on their performance and what to improve in the next presentation. The project has been evaluated through questionnaires to students, supervisors and examiners.

Results: The students experienced that the seminars gave them good support and trained their critical thinking. They also appreciated the training in performing presentations. Approximately 80% of students took part of the individual feedback for their presentations. These students reflected upon and concluded that they gradually performed better. The supervisors experienced that students were better prepared and more focused on their meetings, and that the students had a better disposition of the essays.

Conclusions: We observed an increased awareness of students' knowledge of how to perform a Bachelor's essay and all students improved their presentation skills. Despite the resource intensive work with reoccurring individual feedback, we believe that the project improves for students, supervisors and examiners. We have

achieved the goal of a quality improvement since we guarantee the project plans and have better prepared students.

PP03: Harmonisation Of Educational Programs Of Spscpa Of Russian Federation And KaznmU Named After S.D.Asfendiyarov Mh Rk On Training Of Personnels For Pharmaceutical Industry

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Introduction: Supporting the traditions of classical pharmacy and assimilation of innovative technologies, available in the world practice of pharmaceutical education, Kazakh national medical university, named after S.D.Asfendiyarov (KazNMU), carries out human resource development oriented on the needs of the country economic and social development, internationalisation of education and harmonisation with the leading Institutions of pharmaceutical profile, in part with the Saint Petersburg State chemical and pharmaceutical academy (SPSCPA).

Materials and methods:

Material: Joint educational program for technologists of pharmaceutical production.

Methods: comparative analysis of educational programs of university-partners, questionnaire poll of social partners, employers.

Results: the comparative analysis of university-partners educational programs preparing specialists for pharmaceutical industry has demonstrated general regularities and distinctive peculiarities of these programs. One credit in KazNMU (test unit of labour intensiveness) is equal to 45 hours, in SPSCPA - to 36 hours. The cycle of general and foundation disciplines of the first course as a whole has identities in sequence of disciplines studying and in credits amount. The amount of obligatory disciplines credits on two, three, four courses in KazNMU is less than in SPSCPA, in this connection it is necessary to complement missing credits with similar elective disciplines. The results of the conducted analysis have shown that the current examinations in SPSCPA, expressed in credits, are distinctive peculiarities in comparison with KazNMU, where only final state attestation is expressed in a credit that leads to considerable divergence in the volume of credits and hours for the main educational programs.

For correlation of credits amount in all KazNMU disciplines it is necessary to take into account this fact and positively settle the problem for offsetting of credits under ECTS system. The distinctive peculiarity of two educational programs is an intermediate attestation of all disciplines in KazNMU in examination form, whereas according to the educational program of SPSCPA, the

disciplines with the volume of more than three credits are subjected to the intermediate attestation in the form of examination. Types of practice coincide on educational courses, educational practice is provided on 3rd course in both institutions, work and pre-graduation practice is on the 4th course. Final State attestation (three credits) in KazNMU is conducted at two stages - computer testing (examination on specialty, consisting of three profiling disciplines) and writing, defence of diploma work.

Conclusion: Thus, the joint educational program will be worked out and approved in accordance with modern requirements, the program will allow to graduate specialists for pharmaceutical industry of Russia and Kazakhstan in the nearest future. This program will promote the expansion of academic mobility of students, passing of practice on the bases of pharmaceutical profile, receipt of double diplomas.

References:

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Akanov, A.A., Abirova, M.A., Dathayev, U.M. & Ustenova, G.O. & Shopabayeva, A.R. (2011) Model of pharmaceutical education in KazNMU named after S.D. Asfendiyarov: modern state and prospects of development. Book Model of pharmaceutical education in KazNMU named after S.D. Asfendiyarov Almaty, p104.

PP04: Students' Perception Of Risk In Pharmacy

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Purpose: To evaluate the perception of risk in pharmacy amongst undergraduate pharmacy students studying at the University of Malta.

Material and Methods: A 30-minute presentation about risk in pharmaceutical processes was given to undergraduate pharmacy students attending an annual live-in organised by the Malta Pharmaceutical Students Association. Before the presentation was delivered, students were asked to describe their perception of the term 'risk in pharmacy'. They were also provided with a documentation sheet listing various pharmaceutical scenarios and were asked to rate the level of their perceived risk in each case. After the presentation, students were asked whether their perception of the impact of risk in different pharmaceutical processes changed after having been exposed to the subject.

Results: Fifty-four students following different pharmacy course years participated in the workshop. The three scenarios associated with most risk as perceived by the students are dispensing the wrong drug because prescription is illegible (n=46), not calibrating pharmaceutical equipment leading to false positive results

(n=32) and accepting expired medicines from patients (n=31). There were no statistically significant differences between responses of pharmacy students in different course years ($p>0.050$). Students' perception of risk include the probability of failure in any pharmaceutical operation, the responsibility of the decision-making process, the consequences patients face if pharmacists dispense the wrong drug, the occurrence of adverse drug reactions and the dangers associated with the incorrect storage of medicines. There was a statistically significant difference ($p=0.000$) between understanding of risk in pharmacy, perception of the impact of risk in different pharmaceutical processes and interest to read more about risk in pharmacy before and after the presentation.

Conclusion: Inferences derived from this study show a positive measurable outcome on students' understanding of risk in various pharmaceutical processes following this workshop.

PP05: Assessing The Quality Of The Education At The Department 'Organisation And Economics Of Pharmacy'

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Introduction: The Department 'Organization and Economics of Pharmacy' of the Faculty of Pharmacy, Medical University provides training courses in History of Pharmacy, Higher mathematics, Medical Devices, Social Pharmacy and Pharmaceutical legislation, Pharmacoeconomics and Pharmaceutical care.

Material and methods: A standardised questionnaire was applied to selected students by random number generation. The questionnaire is developed by the Faculty Commission for assessment of quality of education.

Results: As a result of the questionnaire survey of students in respect to the disciplines and ways of teaching in two consecutive school years, we can summarise the following results: 1) There is a prevailing positive assessment of students in all disciplines at the department: - from the 171 completed questionnaires positive assessment of the subjects is 93.6% (160 questionnaires), and negative assessment is only 6.4% of the students. Similar results are shown on the assessment of ways of teaching - 73.68% gave a positive assessment, and 26.3% give a negative assessment of some of the criteria, such as not allowing for the application of new knowledge acquired; not enough motivation for the students actively to participate in class and negative evaluation of a different opinion from that of the teacher.

Conclusions: Based on these results it can be concluded that students realise the importance of their feedback to improve and update teaching in the department, which are due to their active participation in the survey. Compared to other years students have tried to highlight specific recommendations that drive teachers to appropriate steps to improve teaching.

PP06: Devising Laboratory Practical Sessions For Core Clinical Skills

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Purpose: The aim was to devise laboratory practical sessions which stimulate and support pharmacy students in developing fundamental clinical skills.

Materials and Methods: Five learning outcomes for the practical sessions were set and a practical sessions workbook was developed. The practical sessions were intended for small-group two-hour sessions for students in the first year of the pharmacy course to be held on campus in a clinical skills teaching laboratory. The laboratory is equipped with diagnostic devices, training simulators and other learning resources which aim to enhance and compliment the students' learning experience. The sessions are delivered by a pharmacist who gives a demonstration of the appropriate technique for each skill, followed by supervision of the students whilst performing the skill/s themselves on training simulators or on their colleagues.

Results: Practical sessions for blood glucose measurement, urinalysis, blood pressure monitoring, body mass index measurement and administration of intradermal, subcutaneous and intramuscular injections were devised, incorporating emphasis on health and safety precautions during each session. The learning outcomes of the practical sessions are: to enable students to develop high levels of competence in following basic health and safety precautions when handling biological fluids and sharps, to provide an environment for instructional teaching combined with hands-on practical application, to equip students with core clinical skills and knowledge for their clinical placements, to demonstrate an ability to think critically during the practice of these skills, and to effectively document and communicate data of the outcome of the clinical skill performed.

Conclusions: The newly introduced practical sessions, intended to complement the theory of the module with hands-on practice, will be evaluated by the students using a self-administered questionnaire to assess whether the learning outcomes are being attained and to promote further development of these practical sessions.

PP07: From Erasmus To Erasmus+. Evolution In The Faculty Of Pharmacy, University Of Salamanca

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Purpose: The Erasmus+ programme builds on the achievements of more than 25 years of European programmes in the fields of education, training and youth, covering both an intra-European as well as an international cooperation dimension. In the field of higher education, Erasmus+ supports actions targeting

cooperation with Partner Countries. One of the main actions is the 'Mobility of individuals' (under Key Action 1) promoting the mobility of learners and staff from and to Partner Countries. In this context, the aim of this study was to evaluate the impact of Erasmus+ from 2012-13 academic year (before the program) to 2013-14 academic year (implemented program) at the Faculty of Pharmacy, University of Salamanca.

Material and Methods: Student mobility (studies and training) and staff mobility, as well as the evolution of agreements with other universities were evaluated.

Results: The mobility of students (studies) of Pharmacy with respect to the total mobility of the students of all the university was 7.7% in 2012-13, and 11.1% in 2013-14, meaning an increase of 49%, while the mobility decreased by 32.9% in the University of Salamanca in the same period. On the other hand, applications for the Traineeships Program increased by 266% from 2012-13 (3) to 2013-14 (11). The mobility of staff increased 100%. Since the implementation of the program, our Faculty has established new agreements with other universities; it has been observed an increase of 34%.

Conclusions: The decrease in the University of Salamanca may be due to the uncertainty involved in the introduction of a new program. However, our results demonstrate a successful implementation of the program in the Faculty of Pharmacy. We believe that a good diffusion and increased range agreements have contributed to these successful results.

PP10: Recent Advances In Pharmaceutical Education At Medical University – Plovdiv, Bulgaria

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Medical University–Plovdiv has been a prestigious educational and scientific centre in the system of higher medical education for seven decades. MU-Plovdiv has been granted the International Quality Certificate ISO 9001: 2008; it is a bearer of European Best University Award 2013 and European Best University Library Award 2014.

The Faculty of Pharmacy at MU–Plovdiv is one of the four faculties in Bulgaria enrolled in pharmaceutical education. It was founded in 2003 and since then it has marked a significant growth in various aspects. The Faculty includes seven departments. Students are admitted after passing entrance examinations and ranking according to student score. The Master of Pharmacy course covers 4.5 years (nine semesters) plus six months of pre-graduation practical training. The training of pre- and postgraduate students in different subjects is provided in well-equipped modern laboratories, which guarantees high scientific level of the teaching activities. Students obtain diplomas after sitting State Examinations before a State Commission of Examiners. A European Diploma supplement is issued as well, which enables its holder to work in any country within the European Union. The

Faculty of Pharmacy at MU–Plovdiv is aiming to a leadership position lately in terms of students' number, bilingual education (in Bulgarian and English), curricula optimisation, competitive study conditions, and excellent students environment.

One of the basic structures within the University, the International Cooperation Division, aims to develop academic and research work through active exchange with foreign universities, transforming the University into advanced knowledge institution and desirable destination for education, and participation in international projects and programs. The university has signed contract agreements with 82 foreign universities from over 23 European countries, Turkey and USA. Participation in various programs encourages knowledge transfer in education, provides better opportunities to increase skills and competence of students and contributes to their self-esteem as professionals.

PP11: Recent Advances In Pharmaceutical Education In Medical University Plovdiv, Bulgaria In The Last Five Years

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Currently there are more than 1,500 students in Bulgaria enrolled in pharmacy education in the four faculties of pharmacy. The Faculty of Pharmacy of the Medical University Plovdiv is aiming to a leadership position lately in terms of students number, bilingual education (in Bulgarian and English), optimisation of curricula, competitive study conditions, and excellent student environment.

The objective of this review is to provide an outlook of the current status and recent advances of pharmacy education at Medical University Plovdiv. The University's database was used and analysed.

The Faculty of Pharmacy at the Medical University Plovdiv was founded in 2003 and since then it has marked a significant growth in various aspects.

A significant growth in bilateral agreements with various institutions for international cooperation was observed regarding both students and teaching staff mobilities. As a result, a considerable progress in academic staff professional development was accomplished and contribution to students' experimental skills improvement and self-esteem enhancement as professionals was achieved.

As a result of the latest permanent development and investment of Medical University Plovdiv, the Faculty of Pharmacy has turned into an attractive opportunity both for resident and foreign students to gain knowledge in the field of pharmaceutical sciences providing highly qualified and competitive professionals. However, further efforts are necessary for students to be encouraged to complete postgraduate programmes and doctoral studies following higher education.

PP12: Internal And External Quality Assurance Process For Doctoral Education At Medical University Of Silesia In Poland

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Introduction: According to the strategic aims of Bologna Declaration, in postgraduate education new challenges have emerged. Creation of the European Higher Education Area (EHEA) implies a necessity of changes in the area of Polish higher education system with quality assurance in postgraduate education representing a key priority.

Material and methods: Quality enhancement processes are prominent features in doctoral education at the Medical University of Silesia in Poland. Doctoral education differs significantly from the first and second cycles and includes two components: traditional study programme and original research heavily dependent on the relationship between a doctoral candidate and a supervisor. Thus, Medical University of Silesia has developed a system of quality assurance based on the self-evaluation of the two above mentioned parts of doctoral education.

Results: The quality of the educational part is assessed by a regular review of the study programme, monitoring the academic staff didactic and research activities as well as by paying attention to the doctoral candidates' participation in the self-assessment quality procedure. Another aspect of internal quality assurance is related with clear rules and procedures on access to doctoral education. The evaluation of research component includes regular monitoring of Ph.D. student's progress. After one year, an interim evaluation of the Ph.D. project is carried out. Doctoral candidates present and discuss their dissertation project progress with the general public at the University and prepare a written summary of the results. Internal quality assurance system is closely related with external assessment and accreditation. The quality of education provided by Medical University of Silesia is monitored and regularly evaluated by the State Accreditation Committee and the Accreditation Commission for Medical Universities.

Conclusions: Enhancing quality of doctoral education has become increasingly important, however much still remains to be done in order to create competitive and comparable European space for doctoral education.

PP13: Developing Health Promotion Competences With Educational Materials On Healthy Eating

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Purpose: Develop health promotion competences through the design and development of educational material on healthy eating focused on populations at risk of malnutrition.

Methods: Developed by 3rd year students (n=112) registered in Nutrition and Food Science course at the Faculty of Pharmacy during 2012-2013. The steps taken were:

1. Creation of teams (5-8 students/team)
2. Identify target population
3. Design and development of materials according to:
 - a) Objectives
 - b) Relevance and adequacy of information
 - c) Accuracy and precision of information
 - d) Accessibility, understanding and acceptability of language, presentation
 - e) Adequacy to the prevention or reduction of prevalence of nutrition-related diseases, always in the context of healthy life habits
4. Evaluation: Projects were evaluated by using a previously validated model. The evaluation allowed detecting the level of nutritional knowledge of the courseware designers and evaluators.

Results: After conducting nutritional surveys to different groups, 20 educational projects were developed. These projects had different formats such as posters, magazines, videos, games, dietary guidelines. They included information about healthy eating in selected population groups or how to prevent certain pathologies related to food intake (see Table). The material was concise, colourful, with a clear written and iconographic language, easy to interpret and keep in mind.

Conclusions:

- High level of satisfaction among students, in spite of these practices requiring an extra effort.
- Transmission of essential nutritional knowledge in different physiological situations and for the prevention of various nutrition-related diseases.
- Achievement of skills perceived by students as useful for their professional practice as health educators.
- Development of a critical thinking and applicability to real life

Topic	Number of projects
Healthy eating	2
Pregnancy	2
Children	3
Adolescent	6
Adult	1
Elderly population	2
Athletes	1
Crohn's Disease	1
Obesity	1
Osteoporosis	1
Celiac disease	1
Down's syndrome	1

PP14: Quality Assurance Of Postgraduate Specialisation Courses Conducted By The Faculty Of Pharmacy With The Division Of Laboratory Medicine In Sosnowiec Of The Medical University Of Silesia In Katowice

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Introduction: The Faculty of Pharmacy with the Division of Laboratory Medicine in Sosnowiec, Poland educates students on four majors area: pharmacy, medical analytics, biotechnology and cosmetology. Furthermore, on the basis of the accreditation given by the Minister of Health, the Faculty offers postgraduate specialisation courses for pharmacists in the field of retail pharmacy. Moreover, on the basis of the Regulation of Minister of Health the University educates laboratory diagnosticians in 4 areas: medical laboratory diagnostics, medical laboratory transfusiology, medical microbiology and medical hematology.

Materials and Methods: Assuring high quality of postgraduate education is a planned, multi-faceted and systematic process directly connected with maintaining and enhancing the quality of theoretical and practical professional training of pharmacists and laboratory diagnosticians. The existing internal system of quality assurance refers to all phases and aspects of the postgraduate specialisation courses and takes into account numerous forms of educational outcome verification included in proper national programmes of specialisation. The process is supervised by the Committee, which is to conduct the internal education quality assessment and which cooperates with all Scientific Supervisors of particular specialisation courses. Positive verification of knowledge, acquired skills and social competencies, conducted among people specialising in different areas, allows these people to take the National Specialisation Exam. An integral part of the quality control process of specialisation courses is a system of survey researches carried out among both the participants of trainings and lecturers. These researches are conducted with respect to such principles of ethics and methodology of social research as: voluntary character, anonymity, confidentiality and transparency of results. Proposals of action for education quality enhancement are prepared on the basis of the results obtained from the mentioned surveys.

Conclusion: The internal system of quality assurance of specialisation professional courses, is not limited to controlling but rather focuses on enhancing the education quality.

PP18: Development Of A New Pharmaceutical Analysis Course

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Introduction: The study unit offered for third year pharmacy students on pharmaceutical analysis was re-designed to focus on extraction and analysis of drugs from biological fluids. The study unit consists of two ECTS and is delivered via 14 hours of lectures.

Method: The new study unit contains topics dealing with bulk separation techniques such as centrifugation and crystallisation and instrumental separation techniques namely chromatography. Special focus is given to sample preparation, extraction and analysis of drugs from biological fluids and matrices. Students following the newly developed study unit for the first time were asked to rate the course content and delivery of lectures via an independent review.

Results: Out of a total of 43 students, 37 gave feedback about the study unit. Thirty- five students agreed that the study- unit was of help in strengthening the knowledge and skills relevant to the area of study. Thirty five students also agreed that the outline of the study unit was followed and expected learning outcomes presented in the study unit description were achieved. Thirty students thought that there was a link between this study unit and the remaining units of the pharmacy course. All students found the study unit to be well organised. Twenty six students found the lectures to be intellectually challenging and 33 students agreed that lectures were understandable and stimulating. One student suggested the inclusion of practical sessions linked to the lectures given. If given a choice, 28 students would recommend this study unit to other students.

Conclusion: The developed course was positively evaluated by the students and suggestions to include practical sessions will be considered.

PP20: Increasing Student Participation And Theory Application In Pharmaceutical Technology Lectures

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Introduction: The application of theory in practical scenarios enhances the learning process and makes it more enjoyable and stimulating for students. The Bachelor of Science (Honours) degree in pharmaceutical technology was launched by the Department of Pharmacy at the University of Malta in 2011. Within this course two study units dedicated to aspects of pharmaceutical processes in production were developed. A class presentation related to a real case scenario was introduced to increase student participation and application of theory during the lectures.

Method: Theoretical material covered during lectures for modules on production of active pharmaceutical ingredients (APIs) and production and operations management was reviewed. A case presentation was developed for each study unit according to the material covered.

Results: For the production of APIs study unit, students were divided into groups and a drug was assigned for each group. Students had to research different synthetic methods for the selected drug and present findings to the class. During the presentation, each step of the synthesis was described, highlighting the role of each reaction component. The different synthetic methods were also compared. For the production and operations management module, students were divided into two groups. Each group was assigned a scenario and represented a pharmaceutical company; each student had a separate task. Tasks assigned included the development of a facility layout and production and laboratory schedules.

Conclusion: Development of these case presentations helped students better understand the theory learned during lectures by applying this knowledge to practice. Research and presentation skills are also developed, which can be applied to other modules and may also be useful in the students' future professional career.

PP21: Re-Inforcing The Background Of Knowledge Of New Students Of Pharmacy Degree

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Purpose: For several years, professors who participate in the teaching of first course of Pharmacy Degree have observed a wide variability in the incoming students' knowledge of basic areas such as Physics, Chemistry and Mathematics. This fact makes it difficult for the teaching-learning process of first course subjects, such as Physical Chemistry, Inorganic and Organic Chemistry and Applied Mathematics. This largely determines the success on these subjects of the first-year students as well as it complicates the full learning of specific topics in subjects of advanced courses of the degree. With the aim of improving, adapting and getting similar previous knowledge in the majority of the students, we think it is worth to evaluate and overcome this problem. For this reason, we have developed a strategy structured in several steps:

- (1) Evaluating the knowledge of the incoming students in topics needed for a better understanding of the first course subjects.
- (2) Developing on line didactic material with those "needed basic contents", directed to a self-learning process of the new students.

Material and Methods: We have elaborated a test containing different questions related to basic aspects, which are necessary for a good understanding of Physical Chemistry, Inorganic Chemistry, Organic Chemistry and Applied Mathematics, corresponding to the first year of Pharmacy Degree. New incoming students have been asked to answer the test. The test is anonymous and has

been carried out in the very first day of the course, before any teaching hour, by all the new students.

Results: The results of the test have been evaluated in terms of:

- a) Knowledge by Topics
- b) General knowledge

The results clearly show a great variability in the knowledge and also a difference in the level of knowledge by topics. Based on these results we are currently developing virtual material to teach the necessary basic concepts.

Conclusion: It is worth assessing and improving the level of knowledge of the first course students in basic subjects. It would be necessary to communicate these results to secondary school teachers in order to obtain a more homogeneous preparation.

PP24: Experiencing Pharmacy Life In Ghana Through IPSF

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In September 2014 I travelled to Ghana through IPSF SEP (Student Exchange Program). For a month and a half I was an intern in the Surgery and Emergency Department, and in the Chest Clinic at the Komfo Anokye Teaching Hospital in Kumasi. I also worked as a community pharmacist intern and attended some classes in the KNUST (Kwame Nkrumah University of Science and Technology). During my internship I have observed that Ghana's School of Pharmacy curricula is more oriented in MEDISCI by introducing courses such as pathology and immunology. The academic staff is fully qualified with MSc's and PhD's and students full of dreams and aspirations. Also both Hospital and Community pharmacies are really well organised and adequately equipped and the relations between patients and pharmacists are really close. Exchange programs such as SEP should be encouraged by all. It's now more than ever that students need to collaborate, share knowledge, exchange ideas, leave behind stereotypes and finally improve pharmacy education and training.

PP25: A New Internal Quality Assurance System At Comenius University In Bratislava – Evaluation Of The Faculty Of Pharmacy

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Introduction: Comenius University in Bratislava has completed the development of an Internal Quality Assurance System (INSYZAKUK – Interný systém

zabezpečenia kvality Univerzity Komenského v Bratislave) in 2014. The process started with consultations with experienced European experts in this field.

Material and Methods: All 13 faculties of the University implemented the new internal quality assurance system into their specific conditions and evaluated their activities. The system is divided into three main spheres: education, science, and management.

Results: We will show the evaluations of the Faculty of Pharmacy in the field of education activities in this presentation. This evaluation included the long term experiences as well as trends and tendencies in several areas of education activities, *e.g.* credits distribution within obligatory and obligatory-elective courses, students' interest in obligatory-elective courses (total, average per year, respective courses), prerequisites in courses for state exams, success in passing exams (grades statistics), continuous assessment of students' study results, expel rates, theses evaluations, students' mobility (Erasmus, *etc.*), students' feed-back questionnaires evaluation, admission process and successfulness.

Conclusions: The evaluations identified trends in the faculty development. A SWOT (strengths, weaknesses, opportunities and threats) analysis of the three studied spheres builds a basis for the faculty management further activities with the perspective for a sustainable development.

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