

# OHP-022: Advances in Pharmacy Education in Germany: Evaluation of a ward-based clinical teaching course

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## Objectives

The pharmaceutical profession changes towards patient-centered care. To provide students with the necessary clinical competencies, a new subject was implemented into the national pharmacy course curriculum (AAppO) in 2001 [1]: "Clinical Pharmacy". Publications of the German Pharmaceutical Society (DPHG) [2,3] emphasize the importance of a practice-oriented education including patient contact and the involvement of teacher practitioners. Clinical courses are well established in the pharmacy course curriculum in countries like the UK or USA [4,5] and increasingly established within Europe [6]. To systematically evaluate the benefits of bed-side teaching in a German university hospital setting a randomized teaching and learning study was carried out.

## Methods

A course was created consisting of class-room teaching and practical teaching on a psychiatric ward in small student groups. The course focused on applying clinical pharmacy knowledge as well as patient and interprofessional communication techniques. Learning objectives included: taking medication histories, identification and handling of drug-related problems and pharmaceutical counselling of psychiatric patients. University lectures in Clinical Pharmacy were adjusted to prepare students theoretically. The 42 students of the control group only participated in the theoretical part ("Preparation lecture") while the 42 students of the intervention group took part in the complete course. The effects were assessed by an objective structured clinical examination (OSCE) [7] consisting of five practical and five theoretical tasks testing for clinically applied knowledge and communication skills. In addition, a questionnaire was conducted asking for students' opinions about course structure, relevance of teaching content and overall satisfaction.

Course module	Learning content
Preparation lecture (1.5h)	<ul style="list-style-type: none"> <li>Definition of medication therapy management and drug therapy review</li> <li>Tools for a drug therapy review                             <ul style="list-style-type: none"> <li>SOAP (subjective and objective patient data, assessment: identification of drug-related problems, plan: handling of drug-related problems)</li> <li>Medication appropriateness index [8]</li> </ul> </li> <li>Example of a drug therapy review (presentation)</li> <li>Introduction to the psychiatric ward</li> </ul>
Preparation seminar (1.5h)	<ul style="list-style-type: none"> <li>Communication with (psychiatric) patients</li> <li>Pharmaceutical problems on psychiatric wards</li> <li>Drug therapy review performed in small student groups (paper case)</li> </ul>
Ward-based placement - Day 1 (4h)	<ul style="list-style-type: none"> <li>Drug therapy review on the ward including taking a drug history                             <ul style="list-style-type: none"> <li>Gathering and assessing pharmaceutical relevant information</li> <li>Performing a patient interview</li> <li>Identification and handling of drug-related problems</li> </ul> </li> </ul>
Ward-based placement - Day 2 (4h)	<ul style="list-style-type: none"> <li>Counselling of a psychiatric patient regarding drug therapy including                             <ul style="list-style-type: none"> <li>Important counselling topics, e.g. adherence</li> <li>Individualization and prioritization of content</li> </ul> </li> </ul>

Figure 1: Overview of course structure and content

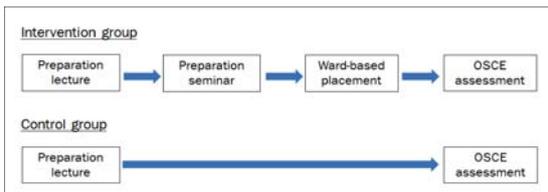


Figure 2: Study design

## Practical task no. 3

The patient Martin Läufermann (41 years old) was admitted due to torn ligaments to the surgical ward yesterday. He takes lithium for his depression. You are the ward pharmacist and are checking the current prescribed medication:

Lithium	450mg	One tablet twice daily
Hydrochlorothiazide	25mg	Two tablets in the morning
Metoclopramide	10mg	One tablet three times a day

While asking the patient about his medication you recognize a strong tremor. Moreover, the patient complains about blurred eye-sight and sweating. Metoclopramide was started for heavy nausea. Mr. Läufermann has taken hydrochlorothiazide for two weeks due to high blood pressure.

After checking for interactions you discuss the problems with the responsible doctor and suggest medication changes.

Figure 3: Example of an OSCE practical task

## Results

The intervention group achieved a significantly better overall result in the OSCE assessment (46.4±9.5 vs. 28.2±9.0 of 90 marks; p<0.001) with most positive effect in assessed communication skills (27.4±5.4 vs. 16.3±6.0 of 40 marks; p<0.001). The performance in the theoretical tasks was improved but unsatisfying in both groups considering the maximum score (12.1±4.1 vs. 8.1±3.2 of 30 marks; p<0.001). In the questionnaire 93% of the students rated the course as practice-orientated, 90% felt better prepared for patient contact and 92% gave a positive answer when asked for overall impression. Many students suggested an extension of the course in the free text field of the questionnaire.

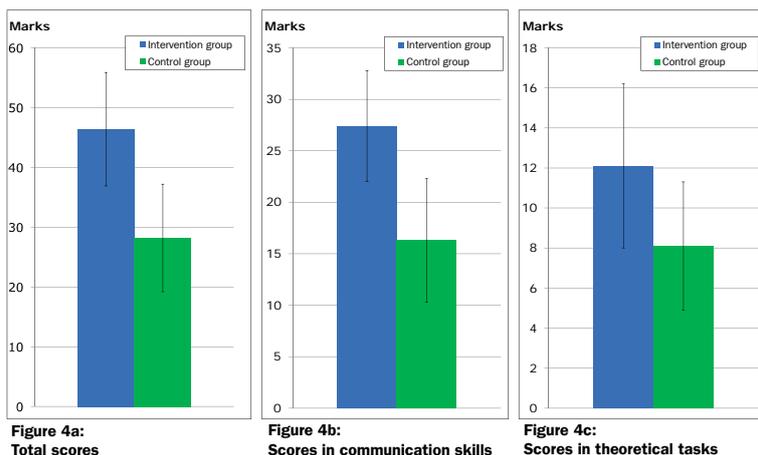


Figure 4a: Total scores

Figure 4b: Scores in communication skills

Figure 4c: Scores in theoretical tasks

Questions	Strongly agree/agree	Don't know	Disagree/strongly disagree
I was interested in the course generally.	84%	14%	1%
The contents of the course were practice-orientated.	93%	3%	4%
I feel better prepared for a position in clinical pharmacy.	78%	13%	9%
I feel better prepared for patient contact.	90%	4%	7%
The course structure was good.	90%	11%	0%
The teaching methods were well chosen.	88%	11%	1%
I felt well prepared by the preparation lecture and seminar for the teacher practitioner course.	67%	24%	9%
I felt well prepared by the lectures "clinical pharmacy" held in university in the previous year.	57%	24%	18%
My overall impression of the teacher practitioner course is positive.	92%	3%	4%

Figure 5: Selected survey questions

## Discussion & Conclusion

The results of this quantitative teaching study suggest significant learning benefits in communication skills. This positive result is supported by the student questionnaire: the overall satisfaction of the students was high. Further studies are required to optimize course structure and to increase the effect in knowledge-based clinical pharmacy skills. In conclusion, the usefulness of bed-side teaching in pharmacy student education was shown. Hence, the implementation of a ward-based clinical teaching course as a mandatory course in the pharmacy curriculum in Germany is advisable.

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