

UNIVERSITÄT  
HEIDELBERG

UniversitätsKlinikum Heidelberg

INSTITUT FÜR PHARMAZIE UND  
MOLEKULARE BIOTECHNOLOGIE19th EAHP Congress, March , 26-28<sup>th</sup> 2014, Barcelona

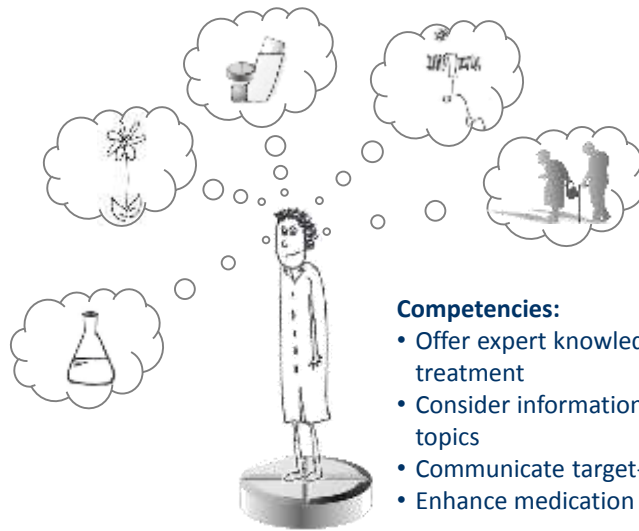
## H5 – Development in Pharmacy Education

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**Conflict of interest****No financial conflict of interest with regard to this presentation**



## Knowledge domains

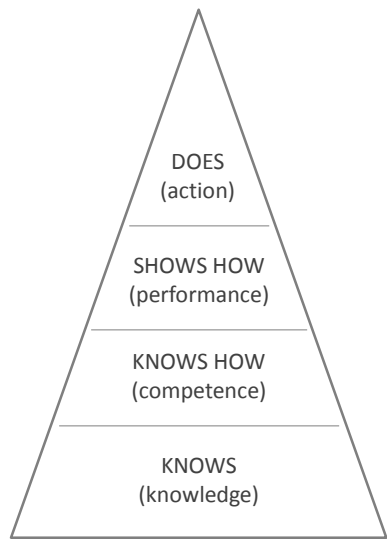


### Competencies:

- Offer expert knowledge on drug treatment
- Consider information on health-related topics
- Communicate target-group oriented
- Enhance medication safety



## Miller's Pyramide



**What do pharmacy students know about medication safety ?**



## Knowledge on Medication Safety

- Country-wide assessment of pharmacy and medical students' knowledge on medication safety



Supported by the Germany Ministry of Health (referring to task #10 of the „Aktionplan Arzneimitteltherapiesicherheit“  
Online survey March–September 2013  
Beyer, Jaehde, Seidling, Liekweg et al. unpublished



## Knowledge on Medication Safety

### Content

- 4 Questions on pharmacotherapy
- 4 Questions relating to patient safety
- 3 Questions relating to medication safety strategies
- 3 case reports

*20 min, voluntary participation*

### Response rate

- 1257 participants  
841/14200 medical students (5.9%); 416/2500 pharmacy students (16.6%)



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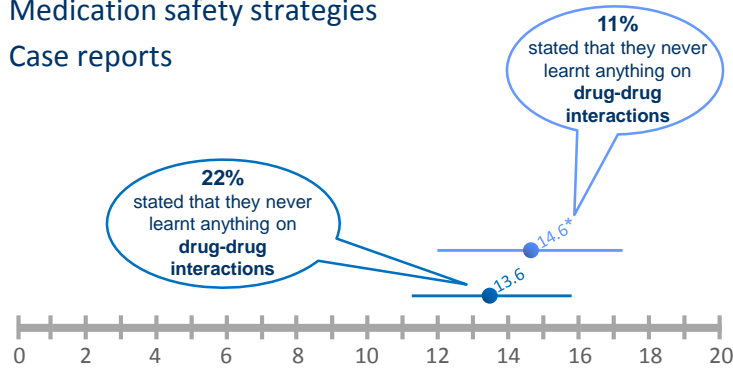


## Knowledge on Medication Safety

Pharmacy students  
Medical students

### Results

- Pharmacotherapy
- Patient safety
- Medication safety strategies
- Case reports



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## Knowledge on Medication Safety

### Results

- In general good results (however: bias)
- Large differences in the level of knowledge with regard to university location
- Smaller differences in the level of knowledge with regard to student type



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## Knowledge on Medication Safety

### Conclusion

- Enhancement of the knowledge on medication safety by development of a multiprofessional curriculum
- Enhancement of the knowledge on pharmacotherapy at the universities



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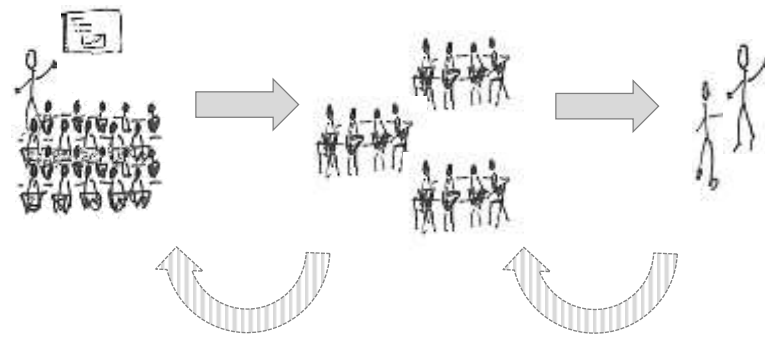


Teaching Example I

**90-hour course in patient-oriented pharmacy**  
**4th year pharmacy students, N=45**



Teaching Example I



**Gaps in knowledge and  
competences became evident  
retrospectively**



## Teaching Example I

## Objective Structured Clinical Examination

*Learning*

## Goals of the OSCL

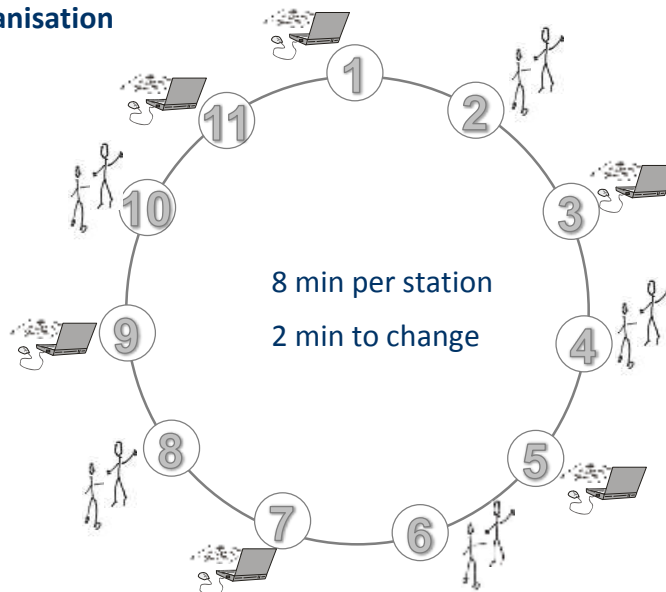
- Facilitate the practical application of skills and competences
- Provide feedback on achieved competences

Acad Med. 2002;77:932.



## Teaching example I

## Organisation





## Teaching example I

### Competences

### Tasks

### Tools

- 1

**Apply medication review techniques**

➔

**Assess a patient's medication with regard to drug-drug interactions**
  
- 2

**Communicate with nurses**

➔

**Provide drug information via phone (spontaneously)**
  
- 3

**Suggest an appropriate dosage adjustment**

➔

**Calculate patient's renal function and assess necessary dosage adjustments**
  
- 4

**Communicate with patients; take drug history**

➔

**Take a patient's drug history in a face-to-face situation**



## Teaching example I

### Instructions

**Aufgabe 8:**  
 Setting: Beratung öffentliche Apotheke  
 Situation: Scheinbar defekter Inhalator

**Situation:**  
 Studentenrolle tritt in die Rolle eines Apothekers in einer öffentlichen Apotheke ein.  
 Er erhält keine Anlaufinformationen.  
 Patient wird von einem Mitarbeiter begleitet, ein weiterer Mitarbeiter dokumentiert das Gespräch anhand der Checkliste.

**Ausgangssituation:**  
 Patient bittet aufgrund der Apotheke um Rat, dass ein Inhalator kaputt ist und nicht funktioniert. Er hat das Gerät dabei und zeigt es dem Apotheker (Novolizer).

**Aufgabe gibt der Patient wie folgt Auskunft:**

- Hatte vorher nur ein Doxycyclin noch keine Erfahrung mit Pulverinhalatoren
- Hat den Novolizer 4/12 Letzt eingenommen
- Anwendung wurde ihm wieder vom Arzt noch vor der Apotheke erklärt
- Anwendung von Doxycyclin wurde ihm damals erklärt, aber er überprüft, fühlt sich demnach sicher bei der Anwendung, da es für ihn „unkompliziert“ war
- Verschrieben ihm 400 mg Doxycyclin (WfG: Budesonid)

**Zur Verfügung stehende Hilfestellung für den Studierenden:**  
 Novolizer-Demonstrationsgerät mit Anleitung  
 Fachinformation Budesonid/Novolizer  
 AEDA Checkliste zur korrekten Beratung zur Arzneimittel-Anwendung

### Assessment

OSCE - Training  
 30.03.2014  
 Kooperationspartner: Klinische Pharmazie  
 Universität Heidelberg

**Aufgabe 8 - Checkliste**  
 Name: \_\_\_\_\_

**INHALT:**

Aktion	Check	Kommentar
Nachfrage Erfahrung mit Inhalatoren/ Novolizer		
Nachfrage wie lange Novolizer in der Anwendung		
Nachfrage ob Anwendung erklärt wurde		
Achsendemonstrationsgerät Anwendung erklären:		
1. Patrone einsetzen/ Wechseln		
2. Schutzkappe entfernen		
3. Inhalator nach Druckfunktion prüfen/ Funktion prüfen		
4. Aufrechte Körperposition über dem Gerät		
5. Tief einatmen		
6. Inhalator wegstecken lassen		
7. Mundstück mit Lippen dicht umschließen und tief und tief einatmen (evtl. zweite Spritze abgeben)		
8. Atem 5-10 Sekunden einhalten		
9. Atem über Nase oder Lippenbremse ausatmen		
10. Schutzkappe wieder aufsetzen		
Achsendemonstrationsgerät Anwendung zeigen lassen		
Hinweis auf regelmäßige Reinigung		
Hinweis auf Zähne putzen/ etwas essen/ Mund ausspülen nach GC		
Hinweis niemals in Inhalator zu atmen		
Hinweis auf Unterschiede in der Anwendung von DA und PI		
Hinweis Geräteigenschaften (Körperhaltung, Patronewechsel, Zählfenster)		

Teilpunkte: \_\_\_\_\_

**AUFTRETEN** (aufgabe von nicht aufwendend (1) bis ausgehört (5))

	1	2	3	4	5
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**Souveränität**

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**Klare Kommunikation**

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Teilpunkte: \_\_\_\_\_

**GESAMTpunkte:**





## Teaching example I

### Results

- **Qualitatively**
  - High acceptance of the students
  - High self-reported knowledge gain
  - Unfiltered opportunity to assess the student's performance
  - Unfiltered feedback on the effectiveness of previous teaching sessions
- **Quantitatively**
  - No impact on test results at the end of the term

- *staff-intensive*
- *only feasible with few students?*



## Teaching Example II

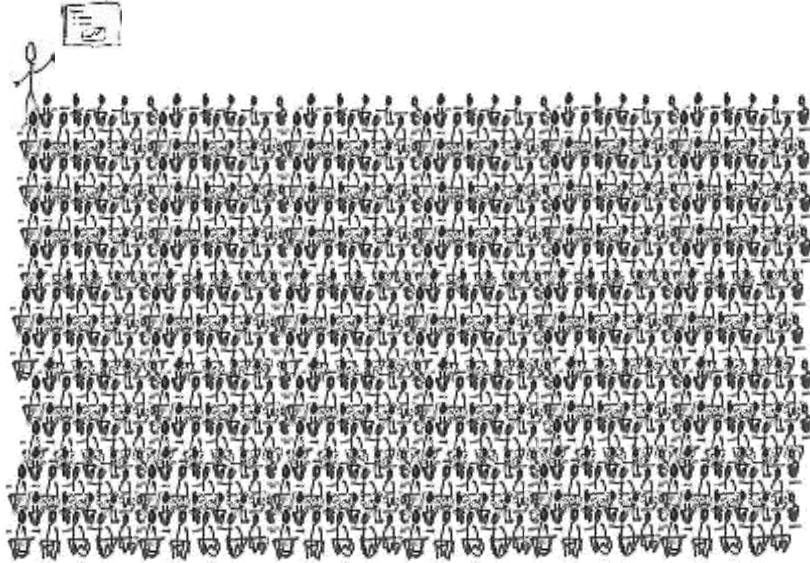
**Two-week course in pharmacy practice**

**5th year pharmacy students, N=200**



## Teaching Example II

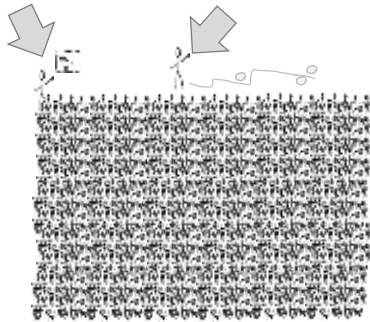
Is the OSCL still feasible?



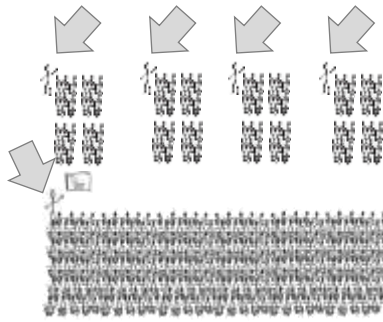
## Teaching example II

### Organisation

• Before



• After



Tasks comparable to previous OSCL, however no face-to-teacher situations



## Teaching example II

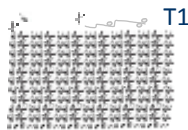
### Assessment

- Written, anonymous, 4-item multiple choice survey on common tasks of pharmacy practice, e.g.
  - If a patient reports an adverse drug reaction, how do you proceed?
- Assessment after two teaching sessions with different didactic methods:
  - T0 = standard teaching
  - T1 = OSCL teaching



## Teaching example II

### Results



Participants who filled out the questionnaire

N= 180

N= 66  
thereof 26 already at T0

No significant differences in response choices, except for:

Physician-pharmacist collaboration

15.5%

vs.

3%\*

would discuss treatment choices (after an adverse drug event) only with the patient instead the prescribing physician

42.2%

vs.

26.9%

would ask the physician to prescribe „something else“ in case of an drug-drug interaction instead of making a suggestion



## Conclusions

- Country-wide assessment in Germany revealed restricted knowledge in medication safety, yet no differences in medical or pharmacy students
  - ➔ **Preparation of multiprofessional teaching courses**
- Country-wide assessment in Germany revealed that knowledge gaps in pharmacotherapeutic knowledge depend on University and are still prevalent
  - ➔ **Objective structured clinical learning appears a feasible method to teach and enhance engagement of practical skills, even in large groups**

**Thank you very much for your attention!**

Thank you to all participants both students and teachers in the participating in the OSCL and filling out the questionnaires.

Thank you to the team who did the country-wide knowledge assessment.