

# Teaching and Learning Effect Analysis of Interprofessional training program for postgraduate pharmacists

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## Background

Insufficient communication and lack of integration between medical departments led to many adverse events. The purpose of Interprofessional Education (IPE) is to educate students how to enhance their ability toward Interprofessional Practice (IPP) and improve healthcare outcome for patients through the teamwork.

## Methods

Clinical teachers and students (postgraduate pharmacists) attended together at least three consensus meetings (Figure 1) between medical departments for a patient-based situation such as non-diluted dexmedetomidine-induced hypotension (Table 1). The data about teaching and learning effect were collected with a 5-point (threshold based on expert validity as 3, Table 2~3) questionnaire between April 2012 and November 2018. The outcome of two-way feedback between clinical teachers and students was evaluated with one-sample t-test by SPSS (Statistical Product and Service Solutions) 23.0.

TABLE 1 Patient-based situation involved in the interprofessional training program

1	Brain stroke	16	Bladder Cancer
2	Osteomyelitis in diabetic foot	17	Morphine and amphetamine withdrawal
3	Meningitis	18	Distant metastases in labia cancer
4	Pneumothorax	19	Pre-operative surgery consultation
5	Sigmoid Colon Cancer	20	Medication compliance in patients with heart failure
6	Brain stem hemorrhage	21	Asthma in Children
7	Liver cancer	22	Prevent Stroke Recurrence
8	Esophageal cancer	23	Acute ischemic stroke
9	Recurrent pneumonia in patients using respirators	24	non-diluted dexmedetomidine-induced hypotension
10	Bisphosphonate-related osteonecrosis of the jaws	25	Preterm delivery in twin pregnancy
11	Chinese medicine for respiratory infections	26	Necrotizing fasciitis
12	Excessive ventilation	27	Acute myocardial infarction
13	Rehabilitation of the first lumbar burst fracture	28	Right humeral shaft fracture
14	Vinorelbine-induced leukopenia	29	Periodontitis
15	Pre-eclampsia	30	Male Infertility



FIGURE 1

TABLE 2 Please evaluate student performance according to the following items.

	Very Poor	Poor	Fair	Good	Excellent
1. Understand the spirit of participating in the interprofessional training program.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2. Understand the expert composition of the interprofessional care team and the service they provide.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
3. Understand the referral process for the interprofessional care team.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
4. Understand and participate in operating the computer system which relevant to the interprofessional care team.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
5. Provide suggestions based on your own profession during the interprofessional care teams meeting.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
6. Ethics	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
7. Overall performance	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

TABLE 3 After you participate in the interprofessional training program, please write down your comments for improvement.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. The training you receive can increase your understanding of this interprofessional practice.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2. The training you receive can increase your understanding of common morbidities and diseases.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
3. The training you receive can increase your clinical expertise.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
4. The training you receive can enhance your ability to perform on clinical skills.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
5. The training you receive can enhance your communication skills with other professions.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
6. The training you receive can enhance your ability to cooperate and coordinate with other professions.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
7. You feel that the content of interprofessional education is appropriately arranged.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
8. You feel that the meeting time of interprofessional education is appropriate.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
9. You feel that the instructor qualification of interprofessional education is excellent.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
10. Please provide specific advices on " interprofessional education " for postgraduate training.					

## Results

52 questionnaires were collected for each patient-based situation. The average score was up to 3 for teachers assessing students and up to 4 for students assessing teachers. The improvement in knowledge and skill with the interprofessional training was found, for example, increase understanding of common morbidities and diseases ( $4.25 \pm 0.65$ ), improve communication skills with other professionals ( $4.12 \pm 0.58$ ), increasing the familiar to the referral process between medical departments ( $3.37 \pm 0.60$ ). The satisfaction of students with the interprofessional training was as follow: appropriately arranged learning content ( $4.21 \pm 0.64$ ), meeting time ( $4.00 \pm 0.74$ ), and instructor qualification ( $4.48 \pm 0.54$ ).

## Conclusion

Our results indicated that interprofessional training for a patient-based situation had a positive influence on students' ability of collaboration between medical departments. Several patient-based situations translated to IPE/IPP in our hospital were listed into a book and publication as the reference of teaching materials.