Interprofessional case-based learning for students in primary healthcare. A pilot study

Ulla Thörnblom[1], Zahra Akbari[2], Helena Sohlman[3], Christina B Olsson[4]

Abstract

Background: Demographic changes such as an ageing population and a growing prevalence of long-term conditions put emphasis on primary healthcare and on collaboration between different professions. Students should already during their initial training have the opportunity to learn with, from and about each other in order to improve collaboration and quality of care.

Aim: To test case based learning in interprofessional seminars as an educational method in primary healthcare.

Methods: All students doing their clinical placements in a network of about 40 health care units were invited to participate together with their supervisors. After reading the patient case they searched for evidence based information, reflected and formulated questions based on their profession. All information was analysed according to a cognitive structure on the white board and a care plan for the patient was discussed. A questionnaire was used to evaluate the seminars.

Results: Ten seminars were arranged, 50 students and 15 supervisors participated. The used method was appreciated; the participants rated 8 out of 10 (very satisfied) for overall impression, performance and factual content.

Conclusions: Case-based learning is a feasible method in primary healthcare that supports interprofessional learning and feels motivating for both students and supervisors. The method could be developed further.

Keywords: medical education, pedagogical method, critical thinking, clinical setting
Introduction

The ageing population and a growing prevalence of long-term conditions places increased demands on collaboration between different professional groups, especially in primary care (Bodenheimer, Wagner & Grumbach, 2002; Thistlethwaite, 2012). This calls for transforming the education of health care professionals from education in professional silos to education that enhances interprofessional collaboration. A vision is that clinicians have the knowledge, the ability of clinical reasoning and ethical conduct to work in patient- and population-centred health systems in a local as well as a global perspective. Professionals have to be flexible, adapt new knowledge and technologies and integrate that with expanding functions in home-based and community based care (Frenk et al., 2010).

Students should already during their initial training have the opportunity to experience interprofessional interaction (Thistlethwaite, 2012). According to the Centre for the Advancement of Interprofessional Education (CAIPE, 2002) 'Interprofessional Education (IPE) occurs when two or more professions learn with, from and about each other to improve collaboration and quality of care' [http://caipe.org.uk/resources/defining-ipe/]. A review by Zwarenstein, Goldman and Reeves (2009) shows that IPE facilitates positive interaction, enhances interprofessional collaboration and improves client care (Zwarenstein, Goldman & Reeves, 2009). Primary healthcare with different professions and a wide range of patients is a good learning environment for students to meet and collaborate in teams.

In one county in Sweden, eight Academic Primary Healthcare Centres (APHC) have been established. Each centre has a network of 30-40 health care units. The APHC is a cooperation between all institutions for education of health professionals in the county, and the County Council. The main aims of the APHC are to create good learning environments for an increasing number of students in clinical education, and for co-workers, to enhance continuing education and to increase patient-oriented research. One focus is interprofessional learning activities for teamwork that students, i.e. future co-workers, could benefit from. All institutions for education of health professionals in the county have overall interprofessional learning outcomes for students based on three levels (Table 1). Furthermore, a lecturer from one of the university colleges or university is assigned as a pedagogical resource one day a week to each APHC.

One pedagogical method for IPE is the use of "case" or patient histories from records or real life meetings (a further development of "The Harvard case method"). The method gives opportunities for acquiring greater knowledge by evidence based reflection when two or more professions with critical analysis look into medical, nursing or rehabilitation interventions. To analyse the ethical principles, medical and psychological knowledge, routines, laws, aims and values at the workplace will give the participants a common understanding of different ways to reason and act which can be used in their work. Case methodology is based on systematic problem-solving and the result is about advanced team-work. This model, with case seminars was used by Egidius in continuing interprofessional education for staff (Egidius, 2000). The methodology has also been used in the education of nursing students at one of the university colleges involved in the work with APHC.

Carlisle, Cooper and Watkins (2004) found that IPE enhanced reflection about and cooperation with other professions in their daily work (Carlisle, Cooper & Watkins, 2004). The aim of this work was to test case based learning in interprofessional seminars as an educational method in primary healthcare. The intention was to offer an interprofessional learning activity where participants learned with, from and about each other through clinical reasoning, problem solving and patient management. Ethical permission was not required for this educational development work. The study follows the ethical guidelines stipulated in the Declaration of Helsinki (World Medical Association Declaration of Helsinki Ethical Principles for Medical Research Involving Human Subjects).
participants were anonymous when filling out the evaluation questionnaire. They were informed that participation was voluntary and that the results would be presented on a group level where no single participant could be identified.

Methods

The organizational structure of Academic Primary Healthcare Centres gave the opportunity to gather students and supervisors from different professions and different units. The model with case seminars was used in primary healthcare, primarily for students but supervisors also participated. Inviting supervisors was seen as a way to better introduce the staff to interprofessional learning. The course coordinators for all programmes had given their consent that the students could participate in the case seminars during their clinical placement.

The case seminars, three to four each semester, were scheduled during the weeks when there were as many students as possible doing their clinical placements in the area. Invitations were sent out by e-mail to students present at the actual time and also to their supervisors. In the invitation purpose and goals for the learning activity were described. It was requested that students and supervisors answered the invitation if they wanted to participate. The seminars took place at the APHC.

The authentic case which was used in the seminars was built on a patient home visit and turned into an anonymous paper case. A lecturer or an adjunct clinical lecturer was responsible for and facilitated each seminar. At the introduction to the seminars, the purpose of the seminar as an interprofessional learning activity was highlighted. Thereafter the participants took part of a written narrative summary of medical/nursing care history. This case method is problem-based and student-centred and promotes active learning. The students and supervisors had the opportunity to reflect and formulate questions based on their profession before searching the web for evidence based information. After individually reading the case they formed smaller interprofessional discussion groups. During the final part of the seminar all participants met and shared the information with a cross-professional dialogue according to a cognitive structure on the white board, see Table 2. The cognitive structure for analysis of the case was used as model for the seminars and could be seen as a problem-solving process (Egidius, 2000). This method bridges theory and clinical practice and is an example of deliberation. Here participants examine their positions in the encounter with others and the factuality of the arguments and reasoning sustainability are of importance. Participants exchange ideas through open dialogue aimed at skills and knowledge development (Egidius, Egidius, Erwander & Kalén, 2013). A proposed care plan for the patient was discussed. Each seminar lasted for approximately two and a half hours depending on the number of participants.

A questionnaire with rating scales and open-ended questions was created for evaluation of the case-based seminars. The participants estimated their impressions of the seminar with respect to overall impression, performance and factual content on a 10-point scale, where 10 stands for "very satisfied" and 1 stands for "not satisfied". The questionnaire also contained four open-ended questions. 1) What new insights do you take with you from this seminar and how do they relate to your previous knowledge? 2) What was the best thing with this seminar? 3) How could the seminar be improved? 4) Other comments?

Results

From September 2012 to December 2013, ten interprofessional case seminars were arranged at one APHC. In total 50 students (13 medical students, 6 nursing students advanced level, 23 nursing students, 1 occupational therapy
student and 7 physiotherapy students) and 15 supervisors (3 general practitioners, 3 district nurses, 3 occupational therapists, 4 physiotherapists and 1 dietician) participated.

Sixty-four (98%) individuals responded on the questionnaire for evaluation. The mean value for overall impression was 8, for performance 8, and for factual content 8. For a summary of the answers to the open-ended questions, see Table 3. Overall the participants thought the case seminars were useful and had helped in gaining a deeper understanding for other professions' role in the daily work with person-centred care.

**Discussion**

Ten case seminars were carried out where both students and supervisors participated. The students studied different programs and were at different levels and supervisors belonged to different professions. The overall experiences from both organizers and participants were positive.

From the responses it seems that the participants found case based seminars to be a useful pedagogical method for interprofessional learning in primary healthcare. Collaboration about a patient case resulted in an increased and better focus on the patient and gave the participants knowledge about how different professions could plan for effective treatment and/or rehabilitation. According to Popil (2011) case studies promote student-centred active learning where participants practice their ability to think critically and to analyse through discussions (Popil, 2011). The small interprofessional groups in this study is a good example of when participants learn from each other and not only with and about the other. According to a BEME systematic review both students and supervisors enjoy case-based learning, it is motivating and enhances the students learning (Thistlethwaite et al., 2012). Furthermore, the facilitator gave the participants the possibility for brainstorming and asking open-ended questions. According to the review the students become more active when open-ended questions are used (Thistlethwaite et al., 2012).

Some participants proposed that IPL, like patient cases, should be used earlier in training/education since they found it very valuable. There are conflicting views whether IPE should be used at an early stage in the students training or if a professional identity should be established first (Carlisle et al., 2004). However, studies have shown that IPE, apart from promoting understanding of other disciplines (Hammick, Freeth, Koppel, Reeves & Barr, 2007; Jacobsen & Lindqvist, 2009) also enhances knowledge and skills in the own profession (Hylin, Lonka & Ponzer, 2011; Oandasan & Reeves, 2005).

Based on our experience the patient case should be authentic and carefully chosen so that it provides a challenge for all participants from different professions. The case was supposed to be open-ended to stimulate the discussion, it was considered more trustworthy to use an authentic patient. At the end of the seminars several of the participants wanted to know "what happened with the patient later?" so that they could confirm their proposed interventions. According to the Harvard tradition cases should be authentic and open-ended with alternative solutions.

The logistics and the organizing of the case seminars was a challenge and took time to accomplish. The geographical area was quite big and sometimes an hour of travelling with public transportation was required, which was an excuse not to attend the seminars. In the future, the plan is to increase the number of case seminars at different healthcare units in the area which will increase availability. Moreover, it was difficult to find a time for the seminars that suited all participants and units. Sometimes it was hard for the supervisors to participate due to work schedule. To "put the seminars on the map" the same schedule, weekday and time has been used. To alter time and day in different units might allow for more participants. The length of the on-going seminars could also be extended,
quite often discussions were not finalised due to lack of time (current seminars took 2.5 hours). The seminars were advertised to managers and supervisors at the beginning of each semester; hence, participation could be planned ahead which was appreciated. Future case seminars will also be advertised on the APHC’s webpage that is under construction.

Case based seminars made it possible to engage several students in an interprofessional learning activity at the same time. Nursing students were most frequent at the seminars since they are the biggest group and have longer placements but other categories of students also participated.

The supervisors attending the seminars participated actively and showed great interest, some of them attended several seminars. Collaborative practice varies to a great extent between different clinics/units. Since many clinicians themselves have been trained as "silo practitioners" it has been suggested that clinicians should be part of the interprofessional learning process (Carlisle et al., 2004). This is seen as a way to facilitate collaboration and to counteract conflict when students want to practice what they have been taught in a clinical environment. Interprofessional education and collaborative practice are interdependent (D’Amour et al., 2004) and there is a need for a practice environment where the theory can be applied, otherwise, interprofessional education will be ineffective in the long run (Drummond, Abbot, Williamson & Somji, 2012). The comments on the evaluation revealed that the participation of supervisors was highly appreciated by the students; one student even thought it was required. In the future there is a need to find a way to make even more supervisors attend. Luckily at the APHC there were adjunct clinical lecturers from different professions, when one category of supervisors or students was lacking an adjunct clinical lecturer could step in and represent the professional knowledge that was missing.

To develop the patient case further, one thought is to try a different approach where a couple of students do a home visit to a patient. When they come back to the health centre they present the patient case from the home visit to a bigger group of fellow students in a case seminar as described above. This will give the students the possibility to gain a deeper knowledge with an interprofessional discussion based on their own experience of an authentic case. Furthermore, the idea of inviting English speaking international students in exchange programs to participate has been discussed. It should be taken into account though, that seminars in English might reduce the activity of other participants not so fluent in English. International students would probably add other dimensions and perspectives to the discussions; however, it is important that the aim of the student-centred seminars does not get lost.

It should be noted that the overall interprofessional learning outcomes apply to educational programmes (covering several semesters) and might not be fulfilled at one single case seminar. The evaluation form used in this study did not intentionally capture the interprofessional learning outcomes. The form merely gave an idea of the interprofessional learning environment and of the method used. However, the results encouraged us to continue with case seminars and to develop them further. To use an evaluation form that captures interprofessional and communicative competencies is desirable.

**Conclusion**

This pilot study highlighted case-based learning as an interprofessional learning activity in primary healthcare. A method that can be recommend and that can help students become future collaborative practitioners through dialogue and critical reasoning. Both students and supervisors were positive and found this approach motivating, especially when several categories of students participated. As stated earlier, the patient cases should be authentic and challenge all professions. With good planning the logistical problems may be minimized. The method could be further developed.
Take Home Messages

- Case-based seminars work in Primary healthcare settings and give the students the opportunity to improve important extended knowledge in interprofessional learning.
- The person-centred case should be authentic and chosen carefully to challenge participants from different professions.
- Students can be at different levels of education but they ought to have interprofessional learning outcomes.
- Attendance of supervisors from different professions is beneficial.

Notes On Contributors

Ulla Thörnblom (corresponding author), MScPH RNM is a lecturer at The Red Cross University College, Huddinge, Sweden and assigned as "pedagogical resource" to Hässelby Academic Primary Healthcare Centre.

Zahra Akbari MSc OT, is an adjunct clinical lecturer at Hässelby Academic Primary Healthcare Centre, Department of Neurobiology, Care Sciences and Society, Division of Occupational Therapy, Karolinska Institutet, Stockholm, Sweden.

Helena Sohlman MSc RPT, is an adjunct clinical lecturer at Hässelby Academic Primary Healthcare Centre, Department of Neurobiology, Care Sciences and Society, Division of Physiotherapy, Karolinska Institutet, Stockholm, Sweden.

Christina B Olsson PhD RPT, is the interprofessional coordinator of clinical education, continuing education and patient-oriented research at Mörby Academic Primary Healthcare Centre and a lecturer at Department of Neurobiology, Care Sciences and Society, Division of Physiotherapy, Karolinska Institutet, Stockholm, Sweden.

Acknowledgements

We would like to thank the personnel at the library of the Red Cross University College for reading and commenting on formalities in the manuscript.

Bibliography/References

Bodenheimer, T., Wagner, E. H., & Grumbach, K. (2002). Improving primary care for patients with chronic illness. JAMA, 288(14), 1775-1779.

http://dx.doi.org/10.1001/jama.288.14.1775

Carlisle, C., Cooper, H., & Watkins, C. (2004). "Do none of you talk to each other?": the challenges facing the implementation of interprofessional education. Med Teach, 26(6), 545-552. doi:

http://dx.doi.org/10.1080/61421590410001711616

D'Amour D, Oandasan I. 2004. IECPCP framework. In: Interdisciplinary education for collaborative, patient-
centred practice: research and findings report. Oandasan I, D'Amour D, Zwarenstein M, Barker K, Purden M, Beaulieu MD, et al (eds.). Ottawa, ON, Health Canada. pp. 240-50.

Drummond, N., Abbott, K., Williamson, T., & Somji, B. (2012). Interprofessional primary care in academic family medicine clinics: implications for education and training. Can Fam Physician, 58(8), e450-458.

Egidius, C. (2000). Casemetodik: lärande i vardagsarbete: tre goda exempel [Case Methodology: learning in everyday work: three good examples]. Livslångt lärande [Lifelong learning]. Skåne county council: Malmö, Sweden.

Egidius, C., Egidius, H., Erwander, B., Kalén, P. (2013). Vägen till specialist, handledning och lärande för läkare i ST [The road to a specialist, tutoring and learning for doctors in speciality training] (pp. 77-110). Lund, Sweden: Studentlitteratur AB

Frenk, J., Chen, L., Bhutta, Z. A., Cohen, J., Crisp, N., Evans, T., Zurayk, H. (2010). Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. Lancet, 376(9756), 1923-1958.

Hammick, M., Freeth, D., Koppel, I., Reeves, S. & Barr, H. (2007). A best evidence systematic review of interprofessional education: BEME Guide no. 9. Med Teach, 29, 735-51.

Hylin, U., Lonka, K. & Ponzer, S. (2011). Students' approaches to learning in clinical interprofessional context. Med Teach, 33, e204-10.

Jacobsen, F. & Lindqvist, S. (2009). A two-week stay in an Interprofessional Training Unit changes students' attitudes to health professionals. J Interprof Care, 23, 242-50.

Karolinska Institutet, Board of Education (2011). Interprofessional learning outcomes. Retrieved 10th June, 2016 from the Karolinska Institutet,

Oandasan, I. & Reeves, S. (2005). Key elements of interprofessional education. Part 2: factors, processes and outcomes. J Interprof Care, 19 Suppl 1, 39-48.

Oandasan, I. & Reeves, S. (2005). Key elements of interprofessional education. Part 2: factors, processes and outcomes. J Interprof Care, 19 Suppl 1, 39-48.

Popil, I. (2011). Promotion of critical thinking by using case studies as teaching method. Nurse Educ Today, 31(2), 204-207.
Thistlethwaite, J. (2012). Interprofessional education: a review of context, learning and the research agenda. Med Educ, 46(1), 58-70.

http://dx.doi.org/10.1111/j.1365-2923.2011.04143.x

Thistlethwaite, J. E., Davies, D., Ekeocha, S., Kidd, J. M., MacDougall, C., Matthews, P., Clay, D. (2012). The effectiveness of case-based learning in health professional education. A BEME systematic review: BEME Guide No. 23. Med Teach, 34(6), e421-444.

http://dx.doi.org/10.3109/0142159X.2012.680939

Zwarenstein, M., Goldman, J., & Reeves, S. (2009). Interprofessional collaboration: effects of practice-based interventions on professional practice and healthcare outcomes. Cochrane Database Syst Rev(3), CD000072.

http://dx.doi.org/10.1002/14651858.CD000072.pub2

Appendices

Table 1. Examples of overall interprofessional learning outcomes as established by Karolinska Institutet, Board of Education (2011).

| Level | Interprofessional learning outcomes |
|-------|-------------------------------------|
| 1     | The student should be able to identify and describe the skills of the professionals with whom they will collaborate in their future professional activities |
| 2     | The student should be able to collaborate with other professionals to achieve improved health, and more efficient care and rehabilitation |
| 3     | The student should be able to analyse and reflect on how collaboration between different professionals contributes to increased safety and improved health |

Table 2. Whiteboard model for the analysis of a patient case according to a cognitive structure (Egidius, 2000, Egidius et al., 2013). Translation by the authors.

| Cognitive structure for analysis |
|----------------------------------|
| This we know- facts about the specific case/actual situation. What has actually happened? Excerpts from the text. Who is involved? Are there different emotions and values about the situation? Are there different interpretations? |

| Description of the problem | Analysis of the problem | Analysis of interventions | Decision making |
|---------------------------|-------------------------|---------------------------|-----------------|
Problem: event, situation, conditions that are unsatisfactory  
Different explanations or hypothesis about why problem occurred  
What will happen if we don’t do something?  
More information needed about the case  
Proposed actions and motives of the various treatment options  
Expected impact/outcome, consequences and risks of the proposed interventions  
Who will do what and when?

Ethical and legal aspects. Other frameworks that limit the freedom of action. Psychological, medical, organizational, economic, cultural aspects.

Questions to answer and expand upon.

Table 3. Summary with examples of answers and comments from the Evaluation questionnaire (n=64).

| Question                                                                 | Summary of answers and comments                                                                 |
|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| What new insights do you take with you from this seminar and how do they relate to your previous knowledge? | Different professions see the patient's needs in different ways. 
The case seminars highlight thoughts and perspectives of other professions. 
Team work and collaboration result in an increased and better focus on the patient. 
Learning to think analytically about a patient case, identify and solve problems. |
| What was the best thing with this seminar?                              | To discuss together in a group and take part in other professions' opinions, something I have been missing during my training/education and have been asking for. |
|                                                                         | The overall picture about the care of the patient, the inter-professional aspect is very good. |
| How could the seminar be improved?                                      | Students from several different professions.                                                    |
|                                                                         | To have more time would be good.                                                              |
| Other comments?                                                         | Case seminars should be used earlier on in the training/education.                            |
|                                                                         | It is desirable that supervisors participate.                                                  |

Declaration of Interest

The author has declared that there are no conflicts of interest.