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Pharmacy internship: The royal pathway to practice

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Abstract

Introduction: The pharmacy internship offers students the opportunity to interact with patients in the classroom. A project to improve the pharmacy internship, a six-month position in Belgium, has been launched at the Catholic University of Leuven (KULeuven). The aim was to implement self-directed guided learning as a total concept of teaching and learning. The methodology is based upon analysis, intervention and installation of a quality assurance program. Knowledge, skills and attitude are the outcome measures; the acceptance of responsibility is the process to be focused on.

Methods: Interventions consisted of pharmacy visits, local meetings with students and preceptors, development of a multiple step approach and constructing assessment instruments. At the same time networking between preceptors, the university and students was intensified.

Results: After two years, the results of the interventions based upon initial analysis are encouraging. The skills gained are positively welcomed and used to continuously feed the educational process as necessary.

Keywords: Assessment, community pharmacy, internship, outplacements, preceptors, pharmacy practice

Introduction

Although pharmacy schools provide students with the tools to become pharmacists, students may not learn how to use them before graduating. Apart from a growth in knowledge; judgement skills and confidence are benefits that may be more easily derived from guided practical experience (Popovich & Boh, 1991; Raisch, Holdsworth, Mann & Kabat, 1995).

In contradiction, encyclopaedic knowledge still prevails over practice skills and attitudes, and that knowledge is imparted by the traditional style of teaching, such as lecture, memorisation, and examination. The question remains how and when pharmacy students will turn that knowledge into practice.

Self-directed guided learning as a teaching and learning strategy

The teaching and research activities of academic staff are increasingly under scrutiny, and a process of “McDonaldisation” of universities may be a threat. “McDonaldisation” refers to introducing standardised learning activities for students, who have become consumers of an educational experience (Taylor & Harding, 2002). Self-directed guided learning can be seen as an alternative to “McDonaldisation” and has been accepted as a teaching and learning strategy at the KULeuven since 1999. It is defined as a total concept of academic education for the achievement of well-
defined educational goals. Most prominent are the self-initiated interpretation of research findings and the active participation in development of knowledge. Guidance by qualified tutors is an important element in this process. The final goal is to enable students to take professional and social responsibility (Shuell, 1988; 1990).

Pharmacy internship in Leuven: Problem definition

Until two years ago, the pharmacy internship in Leuven was managed mainly on an administrative basis. Students spent six months in a pharmacy registered for training. The main purpose was to obtain a legal certificate that was signed by the pharmacy preceptor. This certificate was, and still is, a conditio sine qua non to be graduated. Internship pharmacies are spread throughout the country, including the French and German-speaking parts of Belgium. In the past, there was no time or means for visits to the internship pharmacy locations, therefore, meetings with the internship preceptors were occasionally organised at the university. However, the distance between many pharmacies and Leuven hindered pharmacy representatives’ attendance. It is felt that these meetings can conform to both preceptors and students. The importance of the preceptor in the teaching and final assessment of the students. As the message of regular in vivo support during the internship will spread, these meetings will also attract more quality-minded pharmacists as candidate-preceptors.

The Bologna declaration was launched as a pledge to create “a European common market in higher education” (Bologna Process, 2003). The Academic Board strongly encouraged the faculties to implement this declaration, in addition to making the pharmacy curriculum fit into the Bachelor and Master Degree concepts. The previous degree program consisting of two years as a candidate in pharmaceutical sciences, plus three years of the pharmacy degree was changed to three years for the Bachelor and two years for a Master in Pharmacy. The Bachelor degree was not conceived to be a final stage; most of the basic sciences are now incorporated into it. Pharmacy practice-related items are only taught during the last two years while in the Master in Pharmacy program, of which the pharmacy internship takes six months. The pharmacy internship, therefore, gains considerable importance.

The question remained: to what extent was guidance corresponding with the learning objectives formulated during the internship? At the end of the pharmacy internship the intern pharmacist must be able to deal with prescriptions, taking into account patient-related factors (desire of information, readability, understanding), instruct and coach patients taking medicines, with special attention to risk factors (co-medication, morbidity, age, pregnancy), deal professionally with medicines and take all measures necessary to keep himself aware of pharmaceutical sciences related to drug therapy and initiate and perform searches starting from standard sources.

Objectives

The general objective is to study the implementation of self-guided, directed learning leading to an increase in student self-empowerment and confidence. This general objective can be translated into several questions, what does the actual teaching and training process look like; what kind of interventions can be made to implement self-directed guided learning in the internship; what are the possible results of the interventions; and what are prospects for the future.

Materials and methods

In general, the concept of continuous improvement of quality was the leading thought. As the timeline did not allow us to do a baseline measurement during one year, we started from an intervention-directed approach of reality and conceived a project. Based on a project plan interventions were made and followed by an evaluation. Reflecting on the results led to consolidation or adaptation when and where necessary (Korthagen & Wubbels, 1995). The implementation flowchart is show in Figure 1.

Pharmacy visits

To achieve this goal of identification of guiding and learning variables, the technique of dialogue guided by a semi-structured interview was used (Sie, Bates, Aggarwal & Borja-Lopetegi, 2003). The schedule for the interview was developed using the descriptors of the Stufflebeam sequence adapted to the pharmacy internship (Stufflebeam, 2002; Figure 2). Discussion topics included, recruiting the student in the pharmacy (context), planning the internship activities and the way of guiding (input), adherence to a well-defined learning process (process control), and the results obtained (product oriented).

Apart from the interview, the pharmacists had to respond to a written form with personal data and their opinion about their relation with the university. This form was sent by post before the visit took place and was returned during the visit.

Pilot testing was carried out in four pharmacies. The interviews were tape recorded and entirely reconstructed, leading to a final guidance form. Each visit was carefully planned and announced; however after 40 interviews, all pharmacies (n = 89) were visited.
The purpose of making a multiple step schedule was to give a note of guidance to the internship preceptors and their interns. This schedule should encourage preceptors to organise reflection rounds on a regular basis (at the end of each step) with the student (Vanderveen, Haxby, West & Schuff, 1995). At the same time it was a kind of contract in order to ensure that all of the activities necessary for training were covered. Elements from the structured interview were used for process reconstruction and compared with the learning objectives of the internship. This resulted in a multiple step proposal, to support the growing process of the intern.

Local meetings with students and internship preceptors

The purpose of the local meetings was to reinforce the network formed by preceptors and teachers at the university, explain the concept of the internship, and explain the way students would be evaluated.

Students and internship preceptors were invited to attend meetings in locations geographically spread throughout the Flemish speaking part of Belgium. At least two teachers from the university were present. A large amount of time was made available for discussion, which facilitated communication and replaced a centralised approach to the internship with a “humanistic” decentralised one.

Intermediary and final evaluation form

An intermediary evaluation report (report upon the growing process) was deemed necessary in order to encourage the young pharmacist to actively control his own development with regard to skills, practice, knowledge and attitude. This form is completed by the preceptor and discussed with the student. The intermediary report was followed by a final evaluation completed by the preceptor (and staff if appropriate). This report met several criteria including, reflecting on the learning objectives of the pharmacy internship, facilitating the translation of the answers into a score for the student, and being easy to interpret and quick to reply.

Feedback to students

Feedback was related to reports on compounding and patient medication records. The purpose of giving feedback was to create clarification regarding the way scores would be constructed. At the same time, this feedback had to encourage the students to correct their reports, rather than discourage them with a one-way judgement.
Quality assessment

A questionnaire among the students was designed to evaluate the quality of guidance. The purpose of this questionnaire was to inform the preceptors and the education team about strengths and weaknesses of the internship guidance, enabling interventions or changes if necessary.

Results

Pharmacy visits

The intervention plan commenced after 89 internship preceptors where visited. The items discussed during the semi-structured interview were: intake procedure, planning of the internship, process control and final product definition (Stufflebeam, 2002). Elements being reported included selection, planning and evaluations.

A well-defined selection criteria for intern placement is not a common procedure. Only 25 preceptors (27%) selected the candidates on one or several criteria with 8 of 25 using more than one criterion for selection. Criteria mentioned were (in decreasing order):

\[ n = 14 \]
\[ n = 8 \]
\[ n = 4 \]

... I knew the student before or the candidate is one of the children of a colleague

... I got a good impression of the candidate during an intake conversation with emphasis on vision and points of interests

... I feel a good “affinity” between myself and the candidate

If there was no preference by the preceptor, students were accepted on a “first come, first serve” basis. Planning by the preceptor before the start of the internship was nearly absent, only 8 of 89 preceptors engaged in any planning. Preceptors tended to rely upon a stepwise or topic-based approach and the process control was routine-based. Preceptors generally did not follow a formal schedule, but instead had students unpack daily orders to gain knowledge of medicines and other products. A highly variable procedure with respect to counselling was observed. In a very limited number of cases, the student was “forced” to perform from the first day on, but mostly there existed some reluctance to allow a non-experienced student to be in contact with the patients early on. In some cases, the student was not able to work with patients at all. The university now provides the interns with information stating their position in the pharmacy and encouraging them to facilitate communication with patients.

The ability of the student to perform in the pharmacy was the main objective, if the preceptor can leave his pharmacy to the graduating pharmacist during the holiday season, the training process is considered to be a success. This situation creates potential opportunities for the student to gain employment in the pharmacy they are interning in.

Actions to be taken

Evaluation and reflection lead to a multiple step approach in order to give equal opportunities to all students. Initiation of the counselling activity was considered to be an important event in the internship. Meetings with preceptors and students were planned as another action.

Development of a multiple step approach

Five main consecutive steps were considered, each followed by a reflection. The main elements of the five steps consisted of a conversation between preceptor and his intern, a statement regarding the attitude, skills and knowledge acquired, and how to go about implementing the next step in the student’s educational path. The multiple step approach is published in the booklet for guidance, which preceptors are given and which replaces a former much smaller, non-step-related brochure. It is also available on the web site of the faculty (Verstraeten & Laekeman, 2003).

Step 1: Preparing

Fifty percent of the students looked for an internship pharmacy in the immediate neighbourhood of Leuven, however, only 20% of the students live in this area. It can, therefore, be hypothesised that a number of good remote preceptors are not given the opportunity to train students in their pharmacies. During the third year of the Bachelor program, students are told to look for their ideal potential internship location and conditions. They have access to an extended list of candidate preceptors throughout Belgium and their attention is drawn upon internship pharmacies out of the Lueven area. The students are free to pose suggestions of new preceptors not included in the list. The faculty supplies them with a folder helping them to explain the benefits of being involved in the internship to the candidate preceptor and to describe the responsibilities to be taken by the preceptor. Candidate preceptors are encouraged to have an intake conversation with their apprentice. A short stay in the pharmacy during the summer holidays after the third year in the Bachelor program and a consecutive reflection is encouraged. A list of important courses and their content is communicated to the preceptors to give them an idea of what the student should know when starting the internship. The students are asked to test their knowledge of over the counter (OTC) preparations through access to a self-administered online test via their student account.
The obtained results can be registered, but it is clearly stated that results are not taken into consideration for the evaluation of the internship.

Step 2: Getting started

Student knowledge of current drugs is limited when they begin their internship. For this reason, it is recommended that students are to unpack newly arrived drug deliveries at the pharmacies. Before filling out medicines, students train themselves daily by reading prescriptions and observing the preceptor.

Step 3: Going forward

Students begin counselling patients during this step. Gradually, and with the preceptor watching closely, students perform their own counselling duties. When delivering OTC drugs, they respect a shortened version of the “WWHAM-questions” (WWHAM, Who—What—How long—Actions undertaken—current Medication used?) (Blenkinsopp & Paxton, 1998). The students write a medication management report of a self-selected patient and make written research and manufacturing protocols of recipes (i.e. formulas to be compounded in the pharmacy).

Step 4: Achieving

Students now perform independently at this stage. They are encouraged to ask themselves critical questions related to therapeutic or technological aspects when comparing several drugs. The students get more responsibility with regard to the administrative aspects of pharmacy practice.

Step 5: Behaving like a responsible pharmacist

At the end of Step 5, training is considered complete and students should be able to run a pharmacy independent of the preceptor.

Preceptors did not strictly follow the suggested sequence, instead, the program functioned more as a guarantee for inclusion of necessary acts during the internship.

Local meetings with students and internship preceptors

As most of the instructions were made available online beforehand, there was plenty of room for dialogue and exchange of ideas. The number of tasks imposed on students was perceived as too high by students and preceptors. The same complaint uttered by the preceptors is mostly originating from comparison of internship programs between universities. According to their findings, Leuven is imposing the heaviest load on apprentice students.

Preceptors asked for more impact on the evaluation that was submitted for the performance of their intern. Opening an in vivo local discussion forum was strongly appreciated.

Intermediary and final evaluation form

Evaluation reports were based upon the learning objectives and mainly focused on skills, knowledge and attitudes.

The intermediary report consists of statements to be scored on a five-point scale. The process of growing toward responsibility is the determining factor. The marks to be given are:

- A, Item (skill, knowledge, attitude) acquired
- B, Item not yet fully acquired but close to achievement
- C, Item not acquired but the student is on his way
- D, The student started towards acquirement of the item mentioned
- E, The student did not yet start working on the item mentioned

Scores for some of the items are visualised in Figure 3. The final evaluation report was made from existing questionnaires. There was a total of 28 questions, each scored on a four-point scale: A, very good; B, good; C, modest; and D, weak. The quotations given by the preceptors tended to be towards the higher end and were Poisson rather than normally distributed (Figure 4).

Giving feedback on students’ reports

Detailed feedback was given on the medication management reports by the academic internship supervisor. The students received a one-page feedback with a score, and their original reports were annotated. The medication management reports were scored on seven parameters (Lawrence, 2002). These included, structure and format, writing skills, analysis of the patient, critical analysis of the facts, recommendations for the patient, use of knowledge and synthesis performance. The score obtained for the first report on patient medication records was the deciding factor in the question about whether second one needed to be completed. The cut-off quote was set at $12.5/20 for this purpose. Thirty-six of ninety-one students did not achieve the minimal quote of 12.5/20 and had to redo or correct the report. In the latter group, there was remarkable improvement after blind evaluation of the second reports as compared to the first ones. Apart from one, all students did better the second time. The mean scores were also better for each of the items (Figure 5).
Guidance quality assessment

Expectancy toward the internship was mostly related to professional self-empowerment: 59% expected to function independently in a community pharmacy by active participation in internship activities. A more positive view was expressed by 29%: the preceptor was seen as the person teaching “everything he knows” to his pupil; this expectancy was met in 76% of the cases. A strong majority (88%) would recommend their internship pharmacy to friends. Whereas preceptors considered the university’s support as being moderate (29%), or well to very well (40%). Students were less positive, their opinion varied between very bad to bad (35%) to moderate (51%) and well (7%).

Guidelines were appreciated (79%) to highly appreciated (94%) by preceptors and students, respectively, but only 53% of the preceptors were willing to follow them, in contrast with the students (92%). Reports about compounding were considered as being relevant to very relevant by 47% of the preceptors and 26% of the students. For medication management reports, the figures were 87 and 92%, respectively. Solving administrative pharmacy problems was considered as being relevant to highly relevant by preceptors (63%) and students (70%).

The workload was considered to be good to very good by 39% of the preceptors, but 83% of the students considered it heavy to very heavy.

Discussion

As already stated by Popovich and Boh (1991), a uniform internship environment does not exist. Environment, preceptors and students play a role, and
even these variables cannot be taken as reference, as their importance can differ from one situation to the other. With this variability in mind, the research questions set in the beginning came to the following conclusions.

What kind of teaching and training process can be identified?

Selection criteria used by preceptors is scarce, and if it does exist, students can be discussed. The current workflow of a pharmacy is the main driving force, but this means that the student has to comply with the circumstances and that real teaching is arbitrary. A discussion regarding intervention by the university could potentially be very helpful. Historically, the cultivation of pharmacists was done in pharmacies, as pharmacy was thought of as a trade rather than a profession. The emphasis has been shifted from pure practice, during an academically oriented teaching program, to scientific performance with the emergence of pharmaceutical sciences as a very young discipline within the beta- and gamma-sciences.

As a consequence the teaching and learning platform shifted from the pharmacy to the university. The time spent in practice settings declined from 50% 150 years ago to 10% at present.

On the other hand, the apparent absence of a well-defined teaching program in the internship pharmacies does not mean that preceptors do not have any teaching skills. Some of them, especially in the city of Leuven, have a history of tutorial experience. The humanistic approach of an individual internship should not be underestimated. A very strong personal relationship can grow, and preceptors can remain in contact with their former pupils for the rest of their lives. Some of the preceptor interviews took more than two hours and deviated to a monologue about more than 20 years of guiding practice. At the same time an unwritten final goal could be felt when talking to the preceptors, as they are evaluating their students from their proper viewpoint as a pharmacy owner or responsible pharmacist. The question emerges how far the candidate pharmacist can be trusted as a responsible person. If trust develops, preceptors often ask their students to operate their pharmacy during the holiday period, or even offer them employment and future professional perspectives.

The most important message to be taken home from this analysis is to give the preceptors educational, but also humanistic, assistance where needed. An intervention by the university must be facilitating, instead of imposing, in teaching theory and practice. This is in agreement with the concept of self-directed guided learning.

Figure 4. Results obtained on final evaluation forms.

Figure 5. Results of the medication management reports. 1, structure; 2, writing skills; 3, patient analysis; 4, critical approach; 5, use of knowledge; 6, therapeutic recommendations; 7, synthesis skills. There is a significant difference between first and second reports for all criteria (P < 0.001).
What kind of interventions can be made in order to implement self-directed guided learning in the internship and what are the actual results of it?

If the need for backing preceptors and students is partly humanistic, we support in vivo encounters. The internship pharmacies are scattered throughout the country and local meetings were, and are, scheduled in order to enhance mutual understanding. These meetings can be considered to be an extension of the personal interviews and regular visits of the pharmacies. Still a greater part of the evening consists of one-way instruction by the academics. This should change to a lively dialogue, and in the near future distance-learning will be implemented and local co-ordinators will play a more important role.

It can be asked how purposeful the multiple step approach has really been as a guidance tool for the preceptors. As described earlier, the workflow in the pharmacy is the determining factor in daily practice. The steps described are an index offered to both preceptors and students. If all steps are taken, there exists a guarantee for having fulfilled the criteria related to skills, knowledge and attitude. Regular reflections upon the process of learning are more important than the suggested sequence. Reflection can be considered to be the metacognitive part of the training. Metacognition plays a central role in lifelong learning (Katajavuori, Hirvonen & Lindblom-Ylänne, 2003). A not too distant goal is to let the students develop a learning portfolio, and reflection is an essential component of this type of portfolio. Other goals include: identification of personal learning needs, development of personal learning strategies, turning knowledge to practice and mentoring (Grant & Dornan, 2001).

Furthermore, the multiple step approach facilitates the assessment of the training process and is appreciated by students and preceptors. Assessment remains an important factor in the education process by guiding learning and is sometimes referred to as the hidden curriculum (Godfrey, 1995; Van der Vleuten, 1996). Emphasis is put on the understanding and application of knowledge during the internship, which fosters deep-level learning. The evaluation report, which follows after the student has been in the position for three months, especially gains importance. Intermediary evaluation is not new; it has been used before in the experiential training for pharmacy students in a managed healthcare system (Kradjan, Andrews, Dawson & Penna, 1990). Our intermediary evaluation form takes the character of a discussion document. As the results emerge, the preceptors become more critical about their quotes. If the student gets more “D’s and “E’s than “A’s, the preceptor and student are contacted personally by telephone and/or visited in order to mediate where possible. If mediation is effective, the final evaluation by the preceptor will improve considerably. During the local meetings it is emphasised that this evaluation should be as honest and unbiased as possible.

Complaints were voiced about the workload imposed by the university. Both preceptors and students asked for more freedom, time and a change from a quantitative to qualitative approach. The number of reports made by the students has declined since the internship project started. For the medication management records, conditional reporting exists (i.e. the student is dispenses from a second report if the first was satisfying). Fewer reports means more time for in-depth feedback from the preceptor to the student. The written evaluation report and numerical quote on the medication record evokes a high level of appreciation from students and preceptors. Although this way of evaluating takes about 2 weeks of working time by the evaluator, it generates a very useful discussion and teaching document for all parties engaged in the process of guided self-study. The members of the internship committee are discussing a further reduction in the number of reports, with stronger feedback from the preceptor as an educational outcome. However, they feel that a limited number of tasks imposed by the university will be needed in order to enrich the global evaluation of the student.

What kind of questions and prospects for the future?

There is a discrepancy between knowledge and skills, and/or attitude, toward taking responsibility in pharmaceutical practice settings. For 4 years the students are trained scientifically and theoretically with only personal consequences: pass or fail. The opinion given by the educators at the university relies mainly on a question and answer basis with questions being related to knowledge and intellectual skills. The pharmacy internship offers a great opportunity for academic growth, but it comes after many years of protected observation.

Acquiring capable students is another issue, which pertains to an interesting experiment started at the University of Helsinki. In 2000, a new curriculum was set up in order to relieve the shortage of pharmacists in Finland (Katajavuori et al., 2003). The curriculum had to attract candidates from other health sectors into community pharmacy. The intake procedure included a review of former study results, work experience and a personal interview. The curriculum is perceived to be similar to a Master’s program of three years. Basic sciences are taught over a two-year period consisting of two 13 week training programs each year.

As there exists, no short-term prospect for a drastic change of the curriculum to offer more opportunities to excel early on, the internship will remain at the end of the curriculum. In addition, students will be better prepared to choose a quality pharmacy for their
professional pharmacist will be sustained throughout the pharmacy setting. Through this, the attitudinal encouragement through positive experiences will never sit down on a cold one anymore — and that is well; but also she will never sit down on a hot stove-lid. She will never sit down on a hot stove-lid. She will never sit down on a hot stove-lid again — and that is well; but also she will never sit down on a hot stove-lid again — and that is well; but also she will never sit down on a hot stove-lid — and stop there; lest we be like the cat that sits down to get out of an experience only the wisdom that is in it.


