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# Educational Value of Doctor Trainee Employments ("Student Doctor") —A Questionnaire Study

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## Abstract

**Background: In Sweden, medical students can work as employed doctor trainees under supervision during medical school breaks. The aim of the present study was to evaluate the educational value of such employments, as well as to compare university and non-university positions. Method: A questionnaire was administered to all employed doctor trainees at Sahlgrenska University Hospital, Gothenburg, in 2003-2004 (n = 67) plus all students in last term medical school 2005 who had had such a position inside or outside this university hospital (n = 43). The questionnaire included questions on trainee position/s, as well as statements regarding the educational value. Result: 75 unique individuals returned a filled-in questionnaire (response rate: 78%). The respondents experienced the positions as valuable concerning gain in professional confidence (mean ± standard deviation: 3.9 ± 1.1; 1 = total disagreement to 5 = total agreement) and independence (3.9 ± 1.1), subsequent learning in medical school (4.3 ± 0.9), and future professional work (4.2 ± 1.0). The gain in professional confidence and independence was greater for those who had worked in a non-university hospital (n = 17) than in a university hospital (n = 29): 4.4 ± 0.6 *vs.* 3.6 ± 3.6, P = 0.011; 4.3 ± 0.7 *vs.* 3.6 ± 1.1, P = 0.038. Conclusion: Employment as a doctor trainee seems to facilitate subsequent learning in medical school and enhance professional progress; the latter is particularly prominent in non-university hospitals.**

## Keywords

**Doctor Trainee, Education, Medical Student, Professional Progress, Student Doctor**

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## 1. Introduction

An important task for medical schools is to prepare the students for the first stage in their working life. However, although the transition from medical student to junior doctor is a key step, there are remarkably few studies dealing with this important matter [1]. In 2003 Goldacre *et al.* reported that 41% of newly graduated British doctors did not experience themselves well prepared for their future work, and it was also postulated that there must be great differences between universities in the achievement of this goal [2]. A similar figure, 45%, was also recently reported from Sweden [3]. In order to facilitate the transition from a medical student to a junior doctor, most UK universities have some form of work-shadowing periods [4].

In Sweden the faculties and the students have tried various ways to increase the contact with future working fields. Some years ago, all students in medical school in the University of Gothenburg had to spend two weeks outside our university hospital, in order to gain professional experience [5]. This was appreciated but too expensive for the faculty. In rare cases and under certain conditions, medical school students have been allowed a special license to work as doctors. Apart from these opportunities to gain professional experience, medical students can be employed as doctor trainees ("student doctors"), e.g. during medical school breaks. These positions include general doctor work under supervision. Thus, a doctor trainee may for example take the medical history and the status of patients, participate in rounds, and read documents in patients' medical records.

In our region (The Region Västra Götaland), employments of doctor trainees occur at the university hospital as well as at non-university hospitals. Reasons for employing doctor trainees are principally to get manpower and to facilitate future recruitment [6]. Some hospitals and some departments have an organized system for doctor trainees, including introduction and formally advertised positions.

The position as a doctor trainee can be hypothesized to have an educational value. Indeed, medical students often call for increased clinical experience [2] [3], and this can be obtained during these employments. Most doctor trainees reported that a wish for increased clinical experience was the primary objective for their employment [6]. However, the potential educational value of doctor trainee positions has not previously been scientifically evaluated. Further, the educational value may differ between hospitals with a lot of medical students (university hospitals) and hospitals which more rarely have such students (non-university hospitals). Information on the educational value of doctor trainee positions could be of interest for medical education providers as well as for healthcare providers.

The aim of the present study was to evaluate the educational value of doctor trainee positions, as well as to compare university and non-university hospitals regarding this aspect.

## 2. Method

In the study, we included doctor trainees from two sources. First, we identified all doctor trainees employed at Sahlgrenska University Hospital during 2003 and 2004, by the use of a hospital employment register. In order to include also those who had worked outside the university hospital, we then identified, by the register and by personal knowledge of an in-class co-worker (MO), all last term medical students in the autumn 2005 who had worked as a doctor trainee.

A questionnaire was administered to all identified individuals, either by mail or delivered in person by MO. For those who responded to the questionnaire twice, *i.e.* those identified by both sources, the latest response was included. The questionnaire included questions on characteristics of the respondent (age and sex) as well as characteristics of his/her position/s/ as a doctor trainee (e.g. number and length of trainee occasions, and name of hospital/department categorized as either university or non-university hospital). The questionnaire also included statements to which the respondent was to grade his/her level of agreement from 1 (total disagreement) to 5 (total agreement). The statements concerned the respondent's experienced educational value from the position as a doctor trainee, considering for example professional confidence and independence as well as subsequent learning in medical school and impact on future professional work.

### 2.1. Ethical Considerations

The work was carried out in accordance with the Declaration of Helsinki, including, but not limited to there being no potential harm to participants, the anonymity of participants was guaranteed, and the informed consent of participants was obtained. Since the study focused on the educational value of the offered positions as doctor

trainee and no sensitive personal data were registered, the Ethical Review Act was not applicable and no ethical approval obtained.

### 2.2. Statistics

Statistical analyses were conducted using SPSS 12.0. All respondents were included in the descriptive analysis. Individuals responding "4" or "5" were categorized as having agreed to the statement. In a subgroup analysis, the Mann-Whitney test was used to compare results from the university hospital and the non-university hospitals. In this analysis, we excluded students who had ≥1 years to finish medical school and individuals who had held more than one (1) position. Values are presented as mean ± standard deviation. A P-value < 0.05 was considered significant.

## 3. Result

A flowchart of available and included doctor trainees is presented in **Figure 1**. A total of 67 doctor trainees were identified through the Sahlgrenska University Hospital register, and an additional 29 students who had worked as doctor trainees were identified among the last term medical school students.

A total of 75 individuals returned a filled-in questionnaire (response rate: 78%; mean age: 28 years; 67% female; **Table 1**). The respondents had had 1 - 4 positions (mean: 1.3) as a doctor trainee, the mean length of the first one being 6.7 weeks. In all, twelve of the respondents (16%) had been employed in hospitals with an organized system for this form of employment.

The respondents experienced the positions as valuable concerning professional confidence and independence, subsequent learning in medical school and future professional work (**Table 2**). In all, 51 (out of 75 respondents; 68%) agreed to a gain in confidence, 39 (59 respondents; 66%) to a gain in independence, 63 (73 respondents; 86%) to a gain in subsequent learning in medical school, and 42 (53 respondents; 79%) to a gain for future professional work.

**Table 1.** Characteristics of doctor trainees. Values are presented as mean ± standard deviation or number of respondents (percentage).

| | Overall analysis n = 75 | Subgroup analysis | |
|---|---|---|---|
| | | University hospital n = 29 | Non-university hospital n = 17 |
| Age | 28 ± 3.6 | 28 ± 3.1 | 28 ± 4.1 |
| Female sex | 50 (67) | 19 (66) | 11 (65) |
| Positions as doctor trainee | 1.3 ± 0.6 (range: 1 - 4) | NA | NA |
| Formally organized doctor trainee position | 12 (16) | 1 (3.4) | 5 (29) |
| Weeks of first employment | 6.7 ± 2.8 (range: 3 - 24) | 7.1 ± 2.5 | 6.2 ± 1.3 |

NA, not applicable.

**Table 2.** Doctor trainees' opinions on different aspects of the educational value of the position. The respondent was to grade his/her level of agreement from 1 (total disagreement) to 5 (total agreement). Values are presented as mean ± standard deviation.

| | Overall analysis n = 75 | Subgroup analysis | | |
|---|---|---|---|---|
| | | University hospital n = 29 | Non-university hospital n = 17 | P-value |
| I feel more professionally confident | 3.9 ± 1.1 | 3.6 ± 1.1 | 4.4 ± 0.6 | 0.011 |
| I have more easily been able to work independently | 3.9 ± 1.1 | 3.6 ± 1.1 | 4.3 ± 0.7 | 0.038 |
| I have benefit for subsequent learning in medical school | 4.3 ± 0.9 | 4.1 ± 1.1 | 4.2 ± 0.8 | 0.89 |
| I have been better prepared for future professional work | 4.2 ± 1.0 | 4.0 ± 1.2 | 4.4 ± 0.6 | 0.39 |

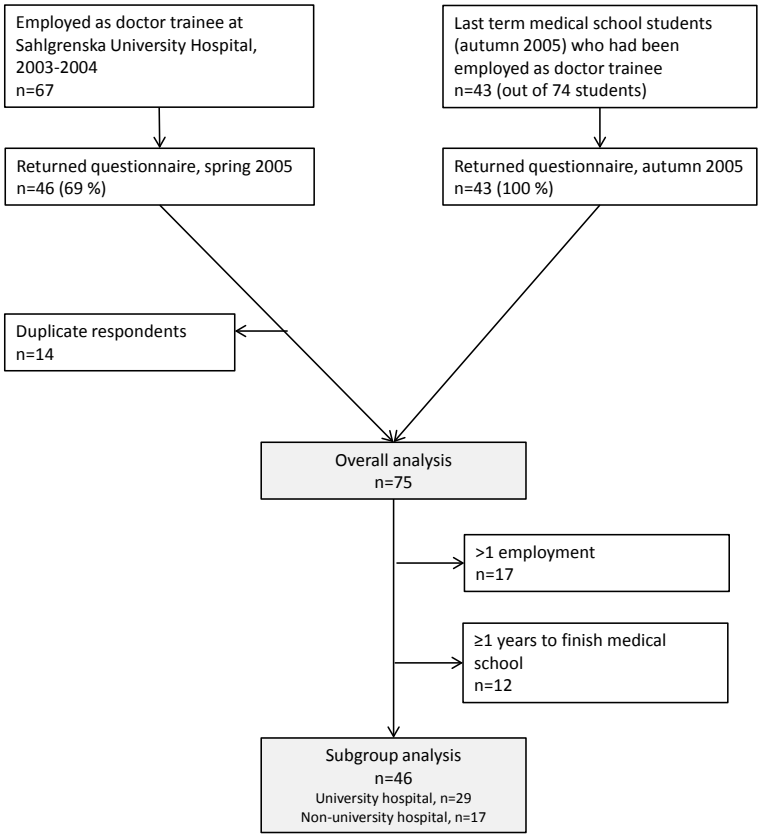


**Figure 1.** Flowchart of participants.

In the subgroup analysis, the gain in professional confidence and independence was greater for individuals who had worked in non-university hospitals compared with those who had worked in university hospitals (**Table 2**). In all, 16 (17 respondents; 94%) *vs.* 16 (29 respondents; 55%) agreed to a gain in confidence, 13 (15 respondents; 87%) *vs.* 12 (25 respondents; 48%) to a gain in independence, 14 (17 respondents; 82%) *vs.* 23 (28 respondents; 82%) to a gain in subsequent learning in medical school, and 14 (15 respondents; 93%) *vs.* 15 (22 respondents; 68%) to a gain for future professional work.

## 4. Discussion

This questionnaire study provides evidence on the educational value of being employed as a doctor trainee. Indeed, the high response rate and the relatively large sample size, taking into account the scarcity of such employments, make this study unique. In fact, our study shows that, irrespective of setting for the employment (university or non-university hospital), about eight in ten respondents had benefits for subsequent learning in medical school and future professional work. Further, the respondents reported benefits in professional confidence and independence. Our results are in line with the conclusions by Brennan *et al.* [7], who reported that the stress of transition from the role of student to that of practicing doctor was reduced by the level of clinical experience gained in the undergraduate years. The benefits were particularly prominent when employed in a non-university hospital where about nine in ten respondents agreed to have gained from the position.

An important explanation for the professional gain of doctor trainee positions may be that the students have to work and act alone as a doctor trainee under supervision, that is, not in a group as in many other student activities. This may be even more evident in non-university hospitals. Further, the fact that they have professional duties may promote the personal development.

The professional gain was most evident after a doctor trainee position in a non-university hospital. This finding may encourage decision-makers in such hospitals, who may have recruitment as a primary objective. Further, colleagues in non-university hospitals, where medical students are rare, may find the presence of students

stimulating and therefore be more prone to provide educational content. Moreover, hospitals outside the university have few super specialists and thus require broad knowledge and independence from their personnel. This kind of knowledge may be more close to the students' needs at this stage of their career. Further, the supervising doctors, who act as models for the doctor trainees, may work more independently. It may also seem reasonable to assume that such a doctor would act upon a student's self-assessed deficiencies in the transition from student to doctor [8]. An additional explanation for the differences found may be that doctor trainees at university hospitals may be prone to continue a rather passive student role with the risk of disregarding small specialities [9].

It would have been of interest to compare our results with others, but as far as we know the system with employed student doctors has not been reported or developed in this way in other countries. However, it is interesting to note El-Sayeh's observation [10] that patients tend to accept a trainee's presence if they are addressed as student doctors or trainee doctors, as oppose to medical students. He also claimed that a trainee, although not employed, would make a greater effort to appear interested, smart and punctual when given a "student doctor" status.

An apparent limitation of our results is that only a part of the students apply for and succeed in getting the position as a doctor trainee, and it seems logical to assume that these students are the best-motivated ones. This may affect the generalizability of our results. Furthermore the various positions were individually and not randomly chosen, and other factors as gender, ethnicity [11] and social background [12] may act as confounding factors. Another limitation is that our data only reflect the students' opinion. It would also be of interest to get the faculty's and future employers' point of view. Indeed, such analyses could provide more "objective" data on the learning progress of the students.

## 5. Conclusion

Doctor trainee positions seem to be of value for subsequent medical school education as well as professional progress. Since employers also experience benefits from these positions, like gain of manpower and future recruitment, it seems reasonable to formalize this system and offer all medical students the opportunity to work as a doctor trainee ("student doctor").

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## Disclosure

The authors declare that they have no competing interest.

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