

The Role of Undergraduate Medical Students Training in Respect for Patient Confidentiality

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Abstract

Background: Encouraging professional integrity is vital in providing a standard of excellence in the quality of medical care and education, promoting a culture of respect and responsibility. The main objective of this work consisted of studying the relationship of medical students with the right to intimacy of patients in Spain, specifically analysing the conditions of accessing patients' Clinical History (CH).

Methods: A questionnaire was sent by e-mail to final-year students at 41 Spanish universities. It had 14 multiple choice and closed questions framed in 3 large blocks. The first one addressed basic general knowledge issues on the right to intimacy and the obligation of confidentiality. The two remaining blocks were made up of questions directed towards evaluating the frequency with which certain requirements and steps of action related to the students in attending the patient were performed, and regarding the guarantees in accessing and handling their CH both on paper and in the Electronic Medical Record.

Results: A total of 245 valid replies was considered. 67.8% of participants were women, with an average age of 24.05 ± 3.49 years. Up to 90.6% were aware that confidentiality affected the data in CHs, although 43.3% possessed non-anonymized photocopies of patients' clinical reports outside healthcare context, and only 49.8% of the students were always adequately identified. 59.2% accessed patients' CHs on some occasions by using passwords of healthcare professionals and 77.2% of them did not have patients' express consent and 71.9% accessed a CH that was not anonymised.

Conclusions: The role of healthcare institutions and universities is considered to be fundamental in implementing educational measures regarding the risks and ethical and legal problems arising from the use of CHs among professionals and students. A profound study of medical ethics is needed through the analysis of clinical cases, and direct exposure to situations in which the patient's confidentiality is questioned.

Background

The right to intimacy and the protection of health data deserve particular respect in the healthcare environment [1]. This duty mainly falls on the healthcare professional in charge of attending the patient, but we cannot obviate the fundamental role carried out by the Universities and healthcare institutions in training future professionals. It is crucial to promote professional integrity with the aim of providing a standard of excellence in care quality, and also at a medical education level, triggering a culture of respect and responsibility [2]. Various publications have pointed to the importance given by medical students to the patient's right to intimacy [3–5]. In Spain, a considerable number of students come into contact with patients and their respective personal data through syllabus clinical practice sessions in the different healthcare centres. This inspired the publication of the *Patient Intimacy Protocol* in 2017 [6] whose contents, among which the promotion of respect for patient confidentiality stands out, affect all Health Sciences students [7, 8]. The obligation of medical students is to strictly respect the confidentiality of the information contained in the Clinical History (CH) of patients regardless of its use. It should be

added the exemplary duty of those responsible for clinical teaching in considering that any medical act enshrines an important ethical value at all times [9]. They should supply the students with all the opportunities necessary for learning professionalism during clinical practice classes, taking the maximum advantage of the value of the hidden curriculum [10].

The main objective of this work consisted of studying the relationship of medical students with the right to intimacy of patients. To be specific, certain assumptions were analysed with respect to the conditions of access to information in CHs, by means of a questionnaire prepared by us.

Methods

A cross-sectional, descriptive and observational study was made, based on a questionnaire sent to students who were doing clinical practice sessions in the final year (6th) of Medicine at 41 Spanish universities. We based ourselves on issued figures of students enrolled in the first year 2014/15, and who in 2019/2020 would be in their 6th year, reaching a total of 7,127 [11]. In terms of this number and the proportion of places offered by each centre, a sampling per quotas was made to select the sample. A sampling size comprised by the sum of the quotas was calculated. In a random sample, 258 individuals were sufficient for estimating with a 95% confidence level, a population percentage of around 50%.

The questionnaires were voluntary and anonymous, although they included a series of sociodemographic characteristics: sex, age, and University at which they had carried out their practice work in the academic year 2019/20. The questionnaire [see Additional file 1] had 14 multiple choice and closed questions. Some of them were directly related to the *Patient Intimacy Protocol* with regard to student respect for the right to intimacy of the patient, and they were framed in 3 blocks. The first one was formed by the first two questions (Q-no. 1–2) and addressed general knowledge issues on the right to intimacy and the obligation of confidentiality. The two remaining blocks were made up of questions directed towards evaluating the frequency (always; often; sometimes; seldom; never) with which certain requirements of action related to the students in attending the patient were performed (3–8); and regarding the guarantees in accessing and handling their CH both on paper and in the Electronic Medical Record (EMR) (9–14). It was presented in four languages: Spanish, Catalan, Galician and Basque.

The questionnaire was submitted to a panel of experts of 4 healthcare professionals. Next, we performed a pilot test on 15 students of Medicine at Córdoba University, in order to make several changes related to practical aspects of the questionnaire. To recruit participants, a final questionnaire was sent to students by e-mail. An anonymous answer stored in computerized form was generated automatically, to which only the experts had access. The period for giving in the sample was from November 2019 to March 2020.

The questionnaire and methodology for this study was approved by the Human Research Ethics Committee of the University of Córdoba (Spain). As per Spanish legislation and ethics committee approval, no written inform consent was required. Participants' consent was implied upon the completion of the questionnaire.

Statistical treatment was performed with the software 25 (IBM-SPSS). In addition to the descriptive analysis, a comparison of proportions was made between the different groups by Chi-squared (χ^2) tests for contingency tables. Values considered to be statistically significant were those whose level of confidence was over 95% ($p < 0.05$). A quality control was carried out to ensure that the sample obtained had a similar distribution of frequencies per age groups and sex to that of the population.

Results

Of the 7,127 students entering the degree of Medicine in the academic year 2014/15, 6.7% (N = 474) answered the questionnaire in the year 2019/20. A random selection was made for the study of the number of respondents representing each university according to the places that they offered, reaching a total of 245 valid responses. 90.2% (n = 37) of the 41 universities satisfied the optimal amount required of questionnaires, but we did not receive any response from 7.3% of them (n = 3) (Table 1). The general data of the sample were representative of the population that we started from; 67.8% (n = 166) of the participants were women and the average age was of 24.05 ± 3.49 years (range 19–56).

Table 1
Questionnaires (Q) requested and finally received in accordance with the places offered by each University.

	Places offered ^a	Q. Requested		Q. Received	
		n	%	n	%
Universidad Alfonso X el Sabio	120	4	1.6	4	1.6
Universidad Autónoma de Madrid	275	10	3.9	10	3.9
Universidad Católica de Murcia	90	3	1.2	3	1.2
Universidad Católica de Valencia	119	4	1.6	4	1.6
Universidad CEU Cardenal Herrera	120	4	1.6	4	1.6
Universidad CEU San Pablo	160	6	2.3	6	2.3
Universidad Complutense de Madrid	320	12	4.7	12	4.7
Universidad de Alcalá	373	14	5.4	14	5.4
Universidad de Cádiz	155	6	2.3	6	2.3
Universidad de Cantabria	120	4	1.6	4	1.6
Universidad de Castilla La Mancha (Albacete)	115	4	1.6	4	1.6
Universidad de Castilla La Mancha (Ciudad Real)	60	2	0.8	2	0.8
Universidad de Córdoba	120	4	1.6	4	1.6
Universidad de Extremadura	120	4	1.6	4	1.6
Universidad de Granada	253	9	3.5	9	3.5
Universidad de la Laguna	130	5	1.9	5	2.0
Universidad de las Palmas de Gran Canaria	135	5	1.9	5	2.0
Universidad de Málaga	170	6	2.3	6	2.3
Universidad de Murcia	200	7	2.7	7	2.7
Universidad de Navarra	210	8	3.1	8	3.1
Universidad de Oviedo	150	5	1.9	0	0
Universidad de Salamanca	203	7	2.7	7	2.7
Universidade de Santiago de Compostela	350	13	5.0	13	5.0
Universidad de Sevilla	320	12	4.7	12	4.7
Universidad de Valladolid	185	7	2.7	7	2.7

	Places offered ^a	Q. Requested		Q. Received	
Universidad de Zaragoza	230	8	3.1	8	3.1
Universidad del País Vasco	270	10	3.9	10	3.9
Universidad Europea de Madrid	200	7	2.7	7	2.7
Universidad Francisco de Vitoria	120	4	1.6	4	1.6
Universidad Internacional de Catalunya	90	3	1.2	2	0.8
Universidad Miguel Hernández	130	5	1.9	5	1.9
Universidad Rey Juan Carlos	150	5	1.9	5	1.9
Universitat Autònoma de Barcelona	320	12	4.7	12	4.7
Universitat de Barcelona (C. Bellvitge)	140	5	1.9	5	1.9
Universitat de Barcelona (C. Clínic)	119	4	1.6	4	1.6
Universitat de Girona	80	3	1.2	3	1.2
Universitat de Lleida	120	5	1.9	0	0
Universitat de València	320	12	4.7	12	4.7
Universitat Jaume I	80	3	1.2	3	1.2
Universitat Pompeu Fabra	60	2	0.8	0	0
Universitat Rovira i Virgili	125	5	1.9	5	1.9
Total	7127	258	100	245	100
^a Places offered by each University in the academic year 2014/15					

Learning professional values

The first question refers to the right to intimacy. Up to 88.2% answered that they were related to the confidential nature of health data, as well as that information that patients had revealed and confided to them (73.9%). 61.2% of them responded correctly, i.e. pointing out all the options, but no statistical significance was observed in terms of the participant's sex ($p = 0.889$).

When asked about the obligation of confidentiality in Q-no. 2, 76.7% correctly marked all the options, with a statistical tendency being observed in favor of women ($p = 0.052$). The majority percentage came from the option on the data contained in the CH (90.6%), followed by keeping up that obligation even after the death of the patient (89.4%).

Requirements of action to be followed during attendance of the patient

For Q-no. 3, 78.8% affirmed having signed a commitment of confidentiality to carry out practice exercises.

When asked whether they knew the person in charge of supervising their practices classes in Q-no. 4, 75.9% answered positively as a fact that occurred regularly.

For Q-no. 5, 73.5% claimed to wear an identification tag generally during their practices classes, and no statistical significance was observed in relation to the sex of the subject ($p = 0.702$) (Fig. 1). However, in Q-no. 6 most of those who admitted not always wearing it ($n = 123$), indicated that this did not trigger any negative consequence for them from their tutor (90.2%).

In Q-no. 7, 49% reported that patients often could identify them as a student adequately, and 25.7% only sometimes (Fig. 1). Among those students who usually wore it, 71.1% were generally identified by patients ($p = 0.002$) (Fig. 2).

When asked whether there were more than 4 students attending a patient at the same time in Q-no. 8, they answered that it was rare (67.7%) (Fig. 1).

Guarantees in accessing Clinical History

For Q-no. 9, 59.2% ($n = 145$) stated that they had accessed the HME of patients using an authentication mechanism supplied by a healthcare professional. Only 16.6% of them, had obtained the patient's consent (Q-no. 10).

In Q-no. 11, 71.9% of the students referred to accessing patients' CHs with personal data dissociated from the clinics somewhat in habitually. No statistical significance ($p = 0.945$) was found with respect to those who had accessed the CHs.

As for Q-no. 12, 43.3% ($n = 106$) had possessed non-anonymized photocopies of patient's clinical record outside the health center. No significant differences were observed between those who possessed photocopies and those who answered questions 1 ($p = 0.188$) and 2 ($p = 0.649$) correctly. Only 10.4% of those who claimed to have such photocopies, claimed to have the patients' express consent (Q-no. 13).

Those students who answered Q-no. 14 because their Final Year Project (FYP) involved the use of clinical databases of patients for researching ($n = 136$), 49.3% indicated that the contained data were anonymized (Fig. 3).

Discussion

Learning professional values

The *World Federation for Medical Education* emphasizes the need to balance the academic capacities and the behaviour of medical students. It is aimed for them to undertake life-long learning and demonstrate their professionalism in the different roles of a doctor [12]. Professionalism includes respect for confidentiality of patients, constituting one of the basic skills that they have to develop and maintain both as undergraduate medical students and as doctors in their professional career [13].

88.6% of the respondents were aware that the obligation of confidentiality affected the most intimate physical and mental health data, also considering those contents in CHs (90.6%) (test results, genetic data...). It also includes any information assigned to a physical person for health purposes that identifies them univocally [14]. Although it had a majority response, it was not so frequently selected by the students (85.7%). Recently some deficiencies have been described related to the knowledge of the obligation of confidentiality [5, 15, 16]. Other authors mention final-year students who show little respect for the patients' confidentiality compared to other obligations, this being more marked in male students [17]. In this work the women also responded more correctly to the concept of confidentiality although with no statistical significance. The need to reinforce the competency-based education [18] in study plans has been proposed, as well as implementing measures oriented towards developing the study of Medical Ethics. This subject presents some differentiated characteristics, so that it would be necessary to go deeper into the analysis of the professional conduct guides [15]. A theoretical training is recommended, which is based on the analysis of clinical cases in which problems related to confidentiality arising in clinical practice are posed, as well as a direct exposure to situations in which the patient's intimacy is questioned [19, 20].

Requirements of action to be followed during attendance of the patient

Medical students endorse their obligation to respect the human dignity, freedom of choice and intimacy of the patient [14] by signing a commitment to confidentiality at the beginning of the practice exercise period in the healthcare institution. The Faculties of Medicine should inform the healthcare institution about the students who are going to do practice exercises. Most of the participants had done so although a non-negligible percentage admitted that they had not (17.1%).

The direct intervention of the student on the patient is a key element. Thus it would be vital for both the patients and the rest of the healthcare professionals to be aware of the presence of persons in training during patient attendance, so that the institution has to take on the responsibility of giving the student a card/tag permitting their identification [6]. Patients confer great importance on knowing who is participating in the medical process [21] and this study shows that only approximately a half were always suitably identified, and a large number of them who did not wear the tag (90.2%) did not refer to any negative reactions from their tutor. The presence of students may also be a conditioning factor, and this raises different positions. Some professionals contend that patients cannot refuse their intervention in an educational institution like a university teaching hospital, whereas others believe that there is a direct presumption of patient's consent if the latter does not actively oppose it. The *Protocol* demands that

express consent should be obtained authorizing their presence during medical attendance, and that their number should be limited in attending one same patient [6]. Most of the patients usually accept the participation of students [22], although, in certain specialist treatment, the patient's response could be conditioned by their sex [23]. This study did not permit to make that inference, but 64.5% declared that the patients usually expressly knew their condition of being a student and this was significantly related to wearing a tag.

In order to ensure the fulfillment of all the requirements described the healthcare institution itself will designate a tutor, who will be the person of reference whom the student should address [6]. Despite the circumstances in the healthcare system not always being favourable, the figure of the tutor is considered to be highly relevant [23], not only as a supervisor but for the feedback and assessment work with the student when acquiring practical skills in a safe and thoughtful atmosphere [24, 25]. 75.9% of the participants usually knew who the tutor in charge during the practice exercises, which was especially positive.

Guarantees in accessing Clinical History

The *Protocol* expressly prohibits EMR access to students [6]. The reasons could be based on the fact that in CHs on paper it is not possible to look for the records of different patients at the same time, or several medical attendance episodes of one same individual, or easily duplicate or edit the data [27]. These results contrasted significantly with the legal precepts, since over half the participants assured that they accessed the CH of patients on some occasion (59.2%) without the patients' express consent (77.2%).

In countries like Germany some hospitals have facilitated the use of the CH to final-year students [28]. Similarly, in the United Kingdom the team in charge of attending the patient including the students, can access the CH without the patient's express consent [27, 29]. In the United States, its use has been permitted for years [30] and it increased to 96% of the centres in 2016. Guimarães et al. [31] made various proposals for encouraging the use of the CH among students in Portugal. In countries in which standard access is authorized, it is generally considered as an advantageous tool for the learning process [32, 33]. It permits making a long-term follow-up of patients from diagnosis up to the treatment, even once the direct relationship is over. However, this post-control has caused some ethical reactions related to the duty of training students in the right to intimacy and autonomy of patients [34–36]. Students need to access the CH to develop their abilities in its use and maintenance, as well to understand the nuances of the EMR itself during a medical consultation [37]. Besides, the handling of the CH is analogous to learning based on clinical cases, so that, in addition to promoting good professional conduct, it permits a more active participation of the student in their training by directly applying theoretical knowledge on real cases [38–40]. Although the advantages are obvious, other authors have pointed out that this type of action may be potentially harmful for the patient, so that their interests would have to be prioritized in the absence of an additional benefit to the educational objectives of the student [41, 42].

Restricting complete access to the whole evolution of the patient and assigning levels according to the year of the student's training [27] have been proposed for establishing some limits guaranteeing the

educational finality. However, these premises should, in turn, safeguard the patient's autonomy [38, 43]. Therefore, rather than directly constrain the access, the ultimate solution to the problem could be the same as in the countries where it is permitted, i.e. to request the patient's consent.

One notable aspect in this study previously described, is that students accessed the patient's CH by employing the authentication mechanism of a health professional [44]. It clearly emphasizes the vulnerability of the health system, which is becoming increasingly more complex and fragmented, and in which the quality and safety in attending patients have become the principal foci of attention [45]. Spanish legislation does not even contemplate student access to them, so that neither does it propose solutions to these problematic types of situations. In the United Kingdom, a similar phenomenon was described in primary medical care attention, so that, it was proposed to assign to each student a unique digital identity, that leaves an indelible and identifiable mark and is therefore susceptible to being traced [27]. To counteract the above-described conduct, it is esteemed to be a priority for the healthcare institutions to apply educational and even motivational measures [46] to take responsibility for the risks and ethical and legal problems arising from their employment by students [44, 47, 48].

The law is somewhat more flexible with regard to the records kept on paper. Present data reveal the high frequency with which most of the students (71.9%) could reach the CHs without the personal and clinical data of the patients being previously dissociated, something that is contrary to what has been pre-established. The aim is to preserve anonymity unless the patients themselves have expressly consented to it, which would seem to be the definitive solution so that the student's training is not undermined. If the use of this information has a teaching finality, the anonymization of the CH is also mandatory, although only a 49.3% alleged that they received anonymized clinical data of patients to do their FYP [6].

Around 43.3% of the students disposed of copies of non-anonymized CH reports of patients outside the healthcare sphere, without in most cases obtaining the patients' consent (82.1%). The frequency of this phenomenon did not agree with the fact that a very high percentage (90.6%) of them were aware of the obligation of confidentiality that protected those data. Although copies were probably supplied by the doctor in charge of the patient, the students accessed that material outside the healthcare institution. The fact that they took part in such situations could be the cause of the students having a greater tendency to consider certain unprofessional acts as being acceptable behaviour after their practice work [49]. Hence, the importance of the hidden curriculum throughout pre-degree training can be deduced, in order that the students incorporate modes of behaviour taken from those of their professors/tutors beyond the contents of the formal curriculum.

Conclusions

A large majority of the medical students were aware that the obligation of confidentiality affected the most intimate health data, and also those contents in the CH. However almost a half, possessed copies of non-anonymized CH reports of patients outside the healthcare environment, and were always adequately identified.

Despite the *Patient Intimacy Protocol*, over half the participants accessed the CH of patients on some occasion by using the password of a health professional; 77.2% of them had not obtained the patients' express consent, and they frequently had access to CH that were not anonymized. In both cases, it would be more recommendable to establish a direct protocolized request to ask for the patient's consent, and not to restrict the students' access completely. The role of healthcare institutions is fundamental, not only to ensure measures of control on the clinical documentation, but also to apply educational measures when assuming the ethical and legal problems arising from their employment by students. Finally, university centres should promote a profound study of medical ethics by means of a theoretical training based on the analysis of clinical cases related to confidentiality, together with direct exposure to situations in which the intimacy of the patient is being queried.

Abbreviations

CH: Clinical History

EMR: Electronic Medical Record

FYP: Final Year Project

Q: Questionnaires

Declarations

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Authors' contributions

All authors contributed to the study conception and design. Material preparation was performed by FL and EGL. Data collection and analysis were performed by RRM and CMBA. The first draft of the manuscript was written by CMBA and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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Availability of data and material

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request after approval from all the authors.

Ethics approval and consent to participate

The questionnaire and methodology for this study was approved by the Human Research Ethics Committee of the University of Córdoba (Spain). As per Spanish legislation and ethics committee approval, no written informed consent was required. Participants' consent was implied upon the completion of the questionnaire.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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Figures

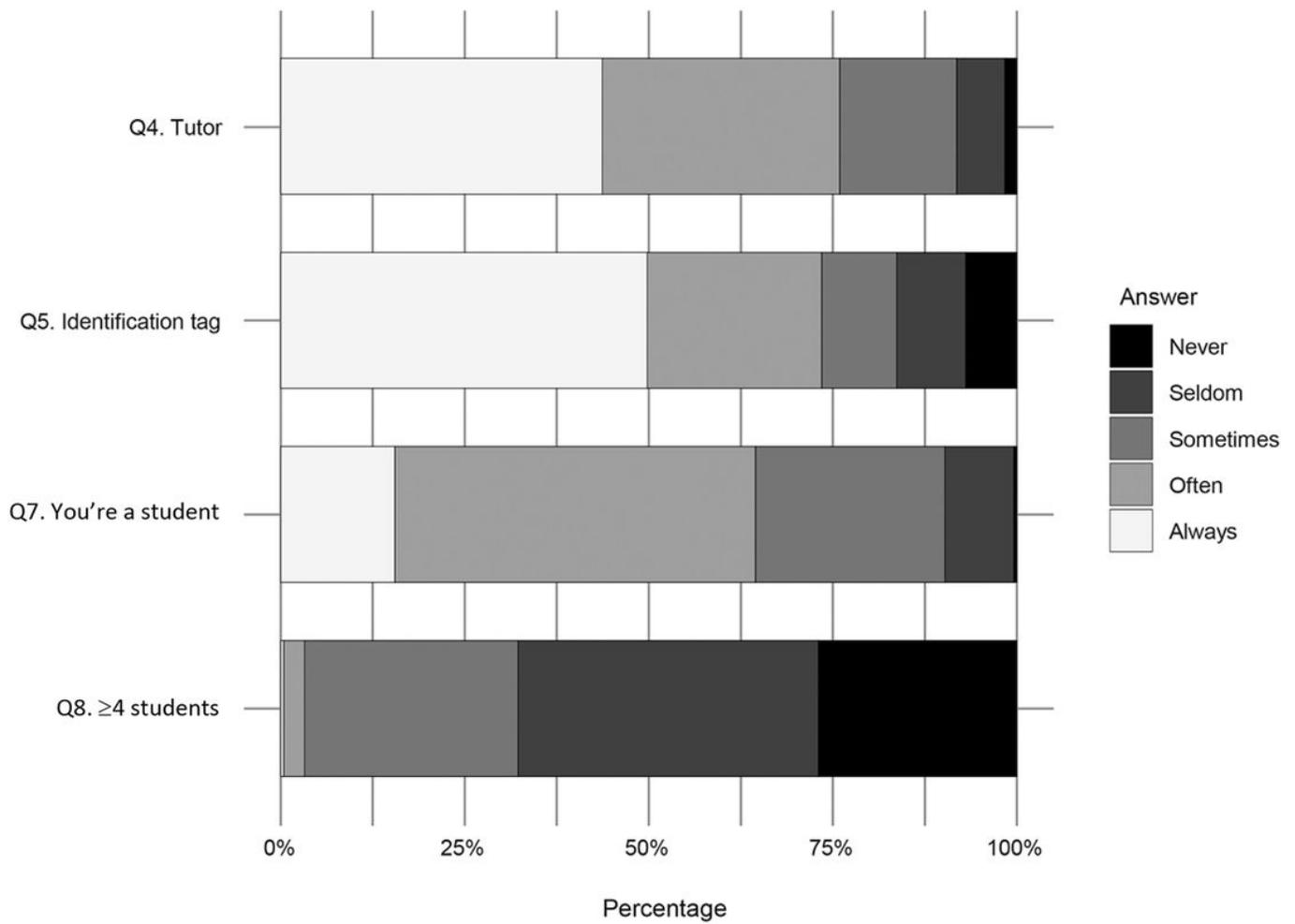


Figure 1

Frequency of the requirements demanded with respect to students in attending to patients. Q: question.

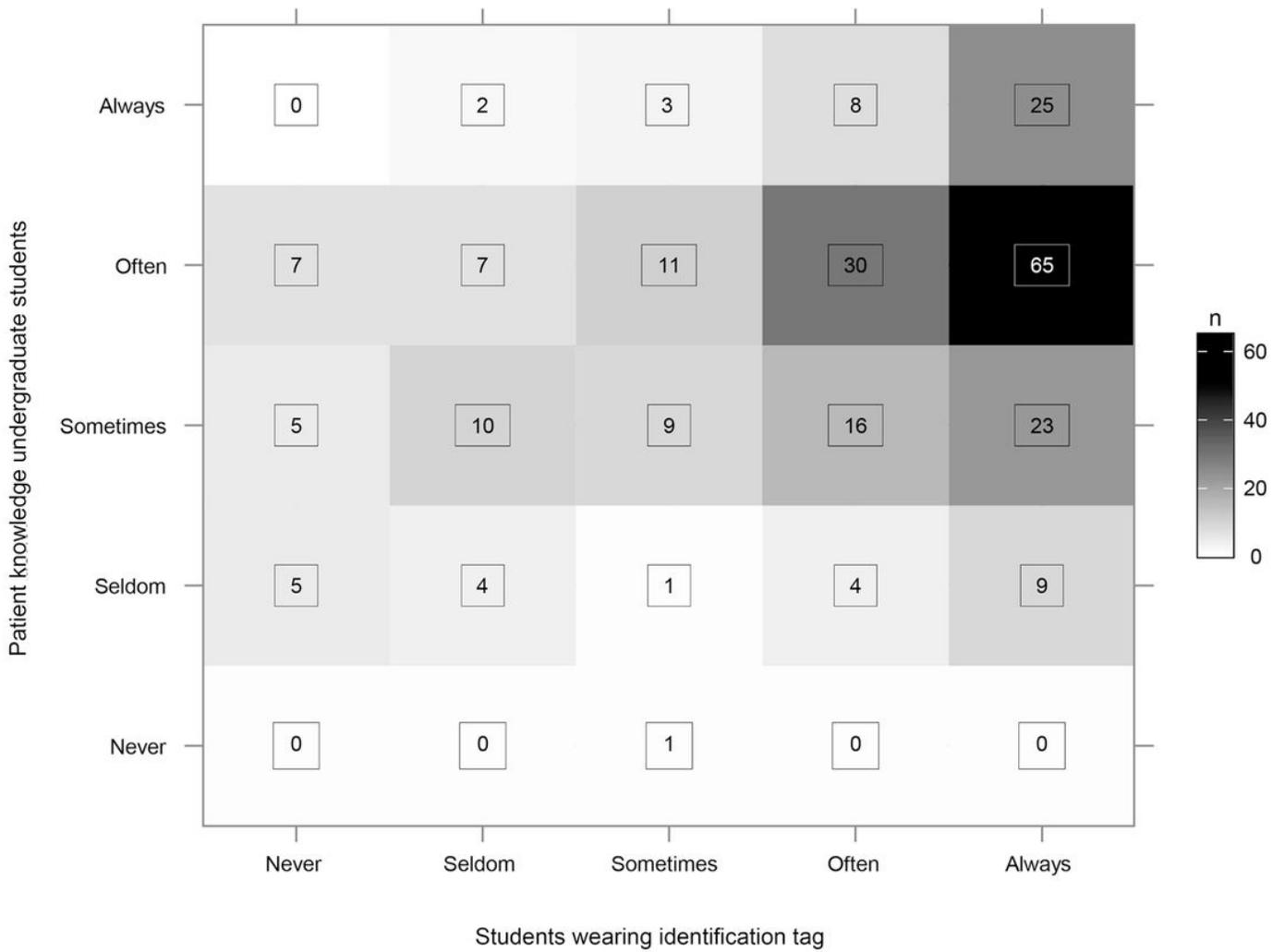


Figure 2

Frequency with which the patients identify the students from their identification tag (*p=0.002).

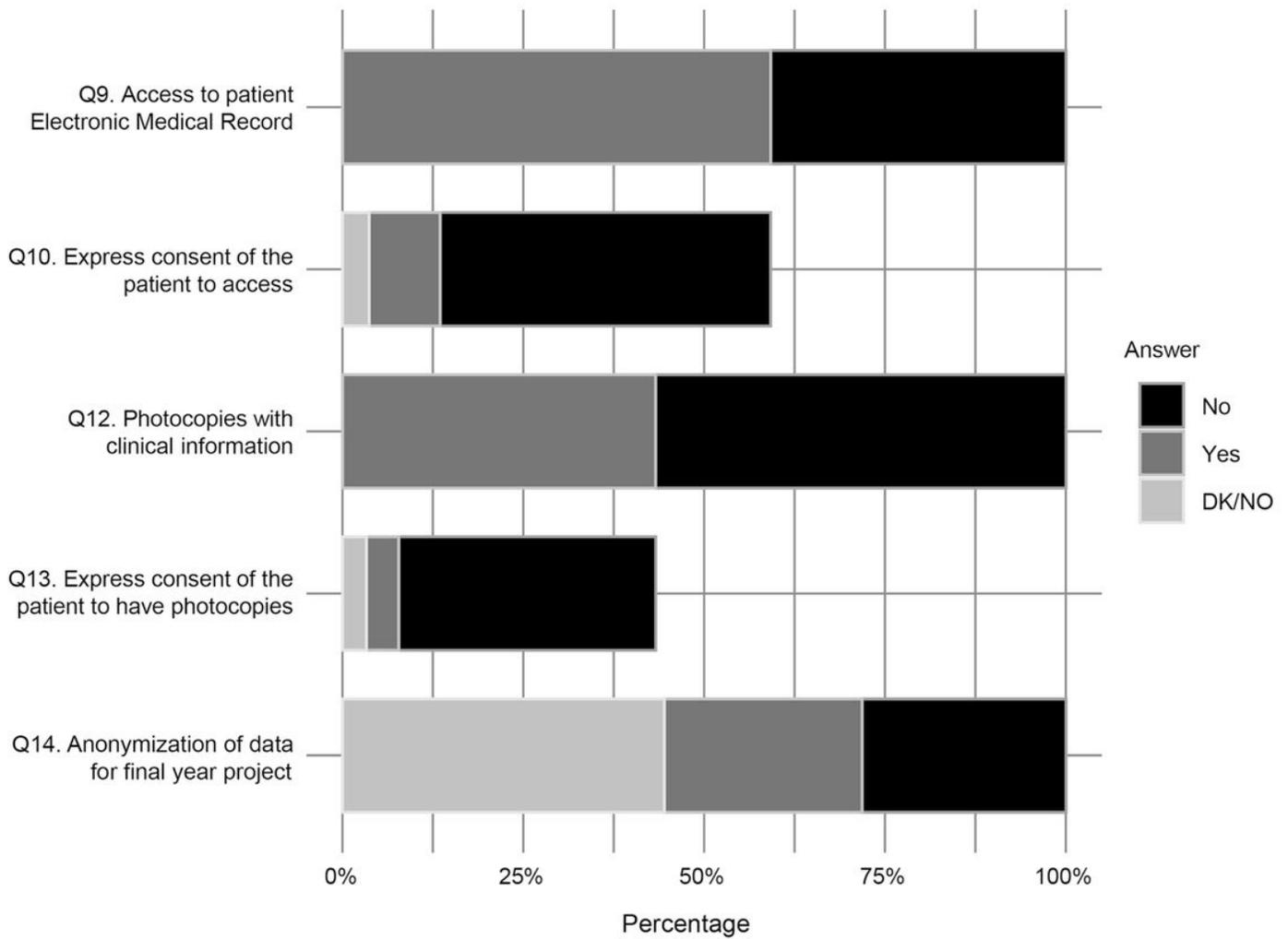


Figure 3

Access to, and management of, clinical documentation by the student. Q: question.

Supplementary Files

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