

# Towards improving the quality of internships in medicine and allied health professions

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## Original article

## Abstract

**Introduction:** One of the important elements influencing the well-being of society is a highly educated, professional staff of the entire therapeutic team. Physiotherapists play a significant role in this team, which is why the higher education system is expected to make efforts to develop optimal education programs, including the development of practical skills. The purpose of this article is to present the Healint4All project, whose mission is to facilitate international internships for students of physiotherapy and other medical professions, which will allow high-class professionals in the healthcare sector to enter the job market.

**Material and methods:** A step-by-step process of creating a protocol for auditing places of clinical practice was prepared. Virtual, interactive teaching resources were developed to prepare auditors. A literature analysis, focus interviews in groups of academic teachers, practitioners, and students. A pilot study of the protocol in live environments was conducted.

**Results:** Both potential auditees (medical institutions) and auditors (universities) positively assessed the newly created tool. The recommendations included paying attention to transparency, simplicity, and linguistic correctness in all language versions of the protocol. It was suggested that the protocol, containing everything useful, should not be too long and would not burden the user with time.

**Conclusions:** In the opinion of students and experts who evaluated the Healint4All protocol, it will contribute to increasing the supply and quality of international placements offered by healthcare organizations throughout Europe, as well as simplifying the processes involved in organizing these for students, educational institutions, and healthcare organizations.

## Keywords

- higher education
- education of physiotherapists
- medical-related professions
- clinical internships
- learning in the patient's environment

## Contribution

- A – the preparation of the research project
- B – the assembly of data for the research undertaken
- C – the conducting of statistical analysis
- D – interpretation of results
- E – manuscript preparation
- F – literature review
- G – revising the manuscript

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## Article info

### Article history

- Received: 2023-10-27
- Accepted: 2023-12-05
- Published: 2023-12-20

### Publisher

University of Applied Sciences in Tarnow  
ul. Mickiewicza 8, 33-100 Tarnow, Poland

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### Conflict of interest

None declared.

### Financing

This research was co-funded by the European Union Project ref: 2020-1-UK01-KA2023-079155.

## Introduction

Clinical internships are one of the key elements of educating students of medical and related faculties. Both universities and healthcare institutions where these internships take place are obliged to make the best efforts to ensure that the quality of internships is as high as possible. In the modern world, which is very culturally diverse and allows easy movement in search of work, it is important that clinical practices can also take place in a medical institution distant from the university. This is in line with student demand and supports the creation of high-class international teams of professionals in the healthcare professions. However, there are certain difficulties in assessing the quality of placements by universities.

Assessing the quality of placements in clinical learning environments can present several challenges. One of the difficulties includes the subjectivity of the measurement. Evaluating the quality of clinical placements is subjective as it involves individual perceptions and experiences. Different stakeholders, such as students, clinical educators, and healthcare professionals, may have varied perspectives on what constitutes a high-quality placement. Another difficulty that auditors of clinical placements need to face is their complex nature. Learning environments where future healthcare professionals gain experience are multifaceted and diverse. They involve various factors such as the quality of supervision, teamwork, learning opportunities, atmosphere, and relationships. Assessing all these elements comprehensively and objectively in various environments such as hospitals, clinics, and community healthcare centres can be challenging. Each setting has its unique characteristics and challenges, making it difficult to develop a standardized assessment approach that applies uniformly across all settings. A further challenge is posed by the multiple dimensions of such an assessment. Evaluating the quality of clinical placements requires consideration of the educational aspects, professional development opportunities, patient care quality, and interprofessional collaboration, among other aspects. Incorporating all these dimensions into a comprehensive assessment framework within the scope of limited resources such as time, expertise and funding can be difficult. There are also certain ethical considerations to bear in mind. Assessing clinical learning environments involves collecting data from various stakeholders, including students, educators, and patients. Respecting confidentiality, privacy, and ethical considerations while gathering feedback

and evaluating the quality of placements can be challenging. Finally, a lack of standardized assessment tools that cover all essential aspects uniformly and allow for a cost-effective audit process is a major setback. Different tools may focus on specific dimensions or target specific healthcare professions, limiting the ability to have a comprehensive assessment approach.

The HEALINT4ALL project, which is a continuation of the HEALINT project, was created to address the difficulties and to facilitate student mobility for high-quality clinical practice. In this project, academic teachers, professionals from the medical professions and allied health professions (henceforth AHPs), students of these faculties, and practitioners dealing with health education and higher education from five countries and six institutions cooperate. In pursuit of the project's goal, a digital interactive tool for auditing clinical placements was created for the needs of higher education in medical and AHPs. The audit protocol was prepared in English, Finnish, Greek, Spanish, and Polish (i.e., the languages of all project partners) to facilitate its widespread use.

To achieve the intended goal, the following stages of work were adopted:

1. To map and innovatively adapt newly established Audit Protocol and Support tools to suit the Higher Education needs for wider application to medicine, and AHPs.
2. To develop a digital interactive audit tool, which can be used in situ, supported by access to a central database, which can be easily managed by a provider and suit multi-professions.
3. To develop a virtual interactive learning and teaching resource for auditor preparation and update, which can be cascaded and incorporated into self-directed and blended learning.
4. To add further languages of the European Union and incorporate partners' integration of the tools in all languages to facilitate wide use across multi-professions.
5. To execute an ongoing programme of intensive dissemination and impact evaluation in order to establish the HEALINT Tools and subsequent IWA as the gold standard audit tool for the assessment of clinical placements supporting international mobility by all healthcare professionals.

The two parts of the paper attempt to evaluate the resulting digital, interactive audit tool created within the Healint4All project by comparing it to other instruments in existence and analysing case studies based on piloting the tool in live environments.

## Part 1. Analysis of available literature on evaluating clinical learning environments

To gather sources containing existing tools evaluating clinical learning environments the following steps described by Paré and Kitsiou were used:<sup>1</sup> formulating research objective(s), searching existing literature, screening for inclusions. The search strategy included the following concepts whose first letters make up the PICOT acronym: the population (P); intervention (I); comparison of interest (C); outcome (O), and time (T).<sup>2</sup> The research question formulated by the researchers was: “Which tools evaluating clinical learning environments in medicine and other (professions allied to medicine) PAMS are available since 2010 for a comparison with a new instrument?”

The search was carried out from December 2020 till December 2022.

The following search string was developed:

“healthcare professions” or “health care professions” or “health care professionals” or dietetics or medicine or nursing or physiotherapy or optometry or “occupational therapy” or pharmacy or dentistry or biogenetics or radiography

AND

“clinical learning environment” or “organisational climate” or “work-integrated learning” or “clinical learning” or “placement learning” or “organisational work climate” or “practice placement” or “transfer environment” or “learning climate”

AND

Instrument or questionnaire or tool or survey or “self-administered questionnaire” or scale or inventory or evaluation or assessment or measurement

Fifteen scientific databases were used, including Medline with Full Text; PsycINFO; Cumulative Index to Nursing and Allied Health (CINAHL) with full text; Educational Resources Information Centre (ERIC); PsycINFO; Academic Search Ultimate; PsycTESTS; Health Source: Nursing / Academic Edition; Science Direct; SocINDEX with Full Text, and PsycARTICLES.

98 articles, Reports, and online tools were identified. The documents were screened against the inclusion criteria. The inclusion criteria comprised of the following:

- Sources that described the evaluation of the clinical learning environments.
- Sources with reference to an tool used to describe the value of the clinical learning environments.

- Sources without questionnaires, but containing the contents used to evaluate the clinical learning environments.
- Sources with full-length questionnaires.
- Tools available in English .

After reviewing the literature the following 21 tools have been identified as matching the inclusion criteria:

- Clinical Learning Environment Inventory (CLEI-19).<sup>3</sup>
- Chuan & Barnett’s Questionnaire.<sup>4</sup>
- Inter-professional Clinical Placement Learning Environment Inventory (ICPLEI).<sup>5</sup>
- Postgraduate Hospital Educational Environment Measure (PHEEM).<sup>6</sup>
- N2N Healthy Work Environment tool.<sup>7</sup>
- Clinical Learning Environment, Supervision and Nurse Teacher Evaluation Scale (CLES-T).<sup>8</sup>
- Self-Developed Instrument.<sup>9</sup>
- Clinical Placement Evaluation Tool (CPET).<sup>10</sup>
- Educational Climate Inventory (ECI).<sup>11</sup>
- Clinical Learning Environment Inventory (CLEI).<sup>12</sup>
- Dental Clinical Learning Environment Instrument (DECLEI).<sup>13</sup>
- Brazilian-Portuguese version of Seelig’s Resident Questionnaire.<sup>14</sup>
- Dutch Residency Educational Climate Test (D-RECT).<sup>15</sup>
- Collaboration of Clinical Learning Environment (CCLE).<sup>16</sup>
- Primary Healthcare Clinical Practice Learning Environment.<sup>17</sup>
- IWA 35:2020 Quality of learning environments for students in healthcare professions – Requirements for healthcare education providers in care settings.<sup>18</sup>
- HEALINT Protocol – Requirements for traineeships’ placements in the healthcare sector;<sup>19</sup> ApprenticeshipQ Assessment Tool.<sup>20</sup>
- Apprenticeship Quality Toolkit [online]. Learn to Work;<sup>21</sup> Learntowork.eu Booklets on Apprenticeships www.learntowork.eu.<sup>22-25</sup>
- ILO Toolkit for Quality Apprenticeships. Vol. 2: Guide for practitioners for developing, implementing, monitoring and evaluating apprenticeship programmes.<sup>26</sup>

The analysis of the tools has shown that the placement of medicine and PAMs students in clinical settings is crucial for their learning to apply their theoretical

knowledge and develop professional competence. After reviewing the literature, four main factors have been identified that are commonly considered important for creating a high-quality clinical learning environment. These pillars, namely atmosphere, teamwork, workload, and available learning opportunities, contribute significantly to the students' learning experience. Clinical settings have been proven to provide authentic and valuable educational experiences. The atmosphere within a clinical setting plays a role in the students' job satisfaction and the quality of their learning. A positive team spirit and effective teamwork among healthcare professionals enhance the atmosphere and provide opportunities for students to observe and learn from their team members' vocational skills. Also, teamwork is essential for the functioning of the team, as it involves collaboration among students and other health science professionals. The workload in the clinical learning environment affects patient-centered care and student learning. The availability of learning opportunities is crucial for students to apply their knowledge and achieve their clinical learning goals. It also seems important for education institutions to assess clinical facilities to ensure that they offer the necessary support and learning opportunities for students' clinical learning outcomes.

The majority of the tools discussed in this evaluation were created to measure different aspects and purposes of the Clinical Learning Environment (CLE). For example, the Clinical Learning Environment Inventory (CLEI) was developed to evaluate students' perceptions of the social climate and its impact on their learning outcomes. The Clinical Learning Environment scale (CLE) assesses the various factors influencing student learning in the professional setting, while the Clinical Learning Environment and Supervision (CLES) instrument focuses on students' perceptions of the clinical learning environment in terms of supervision and atmosphere, with a further adaptation to measure the role of the nurse teacher. Additionally, the Clinical Placement Evaluation Tool (CPET) and Primary Healthcare Clinical Practice Learning Environment tool were developed to measure nursing students' perceptions of the primary healthcare environment and the quality of clinical placements.

In the context of medical practitioners, three instruments were identified. The Dutch Residency Educational Climate Test (D-Rect) and Postgraduate Hospital Educational Environment Measure (PHEEM) assess the learning environment of post-graduate medical students, with D-Rect incorporating socio-cultural concepts and PHEEM examining the physical, emotional, and intellectual components of the clinical learning

environment. The Dundee Ready Education Environment Measure (DREEM) was designed for use with undergraduate medical students and focuses on various aspects such as learning perceptions, teachers, academic self, atmosphere, and social self. However, DREEM is considered more suitable for measuring the learning environment in a preclinical setting rather than a complex clinical facility. The Dental Clinical Learning Environment instrument (DECLEI) specifically measures the suitability of dental clinical learning environments.

Recognizing the importance of inter-professional learning, the Inter-Professional Clinical Placement Learning Environment Inventory (ICPLEI) was developed to assess an inter-professional environment, particularly in hospital wards for nurses and medical practitioners. However, this instrument lacks measurement of clinical supervision and the impact of meaningful relationships, bullying, quality of clinical settings, and availability of learning opportunities. To address this, the Collaboration of Clinical Learning Environment (CCLE) scale was subsequently developed by Hooven to specifically measure collaboration aspects within the CLE.

Among the available instruments, the CLES+T is the only one that examines all the important constructs. However, the dimensions related to the involvement of clinical nurse teachers and nurse coordinators have received less attention. The CLEI, CLES, and CLES+T questionnaires, which have been utilized in various learning environments, also have certain limitations. These limitations include the lack of assessment of feedback provided to students, students' satisfaction with tutoring strategies, and the role played by different professionals in students' learning.

The IWA 35:2020 is a protocol which regulates the quality of learning environments for students in healthcare professions. It contains internationally agreed requirements for healthcare education providers in care settings. It was developed as by the International Organization for Standardization (ISO), based on the HEALINT project Protocol, with a set of comprehensive criteria to evaluate student-based learning in medical professions. The ApprenticeshipQ Online Tool is a self-assessment instrument, with criteria to evaluate apprenticeships in any sector. Criteria used in the tool were based on learntowork.eu criteria published as The Apprenticeship Quality Toolkit. It is a standard in two parts with requirements to evaluate the management of apprenticeships in any sector, both on the side of the educational organization and from the perspective of the placement provider. Learntowork.eu Booklets on Apprenticeships is a set of 4 booklets with guidelines to manage apprenticeships at their different life-cycle

phases. Although they do not constitute an evaluation tool per-se, they can, however, be used as reference for criteria to verify if tasks relevant to the management of apprenticeships is being performed and with the adequate approach. While there are several general frameworks developed into online tools to date, none of them has been dedicated to placements of students of medicine and PAMS except the Healint4All.

## Part 2. Analysis of cases based on piloting the Healint4All online tool in live environments

### Material and methods

The aim of the analysis was to evaluate the clinical practice audit tool developed within the HEALINT4ALL project. The participants of the study were seven auditors and ten auditees who, as volunteers, agreed to participate in the study. The auditors completed the auditor's training designed to acquaint the participants with the auditing process and the auditing tool. Both the auditors and the auditees were informed about the purpose of the study and how it was conducted. They could ask questions and receive appropriate explanations and withdraw from participation in the study at any time without giving a reason. Participants acting as auditors included representatives from Satakunta University of Applied Sciences in Pori, Finland, the University of Nottingham and Middlesex University from the UK, the University of Applied Sciences in Tarnów, Poland, the Medical School from Cyprus, the School of Medicine of Aristotle University of Thessaloniki in Greece and a clinical hospital from Alicante, Spain. Respondents in the auditee role were representatives from the University of Alicante, Spain, Satakunta University of Applied Sciences in Pori, Finland, Aristotle University of Thessaloniki, Greece, University of Applied Sciences in Tarnów, Poland, Medical School from Cyprus, a clinical hospital from Spain, two rehabilitation centres from Poland, a healthcare centre from Finland and a paediatric surgery department from Cyprus.

The study consisted in completing the demo version of the auditing protocol while being either the auditor or the auditee, as declared before, and then answering the questions of a dedicated questionnaire. The questionnaire was a proprietary tool developed jointly by all HEALINT4ALL project partners and was available in five language versions – English and the national

languages of the consortium partners. Each question on the questionnaire could be answered in a short answer; YES, NO or a longer answer in the form of a description. The questionnaire consisted of 11 questions. The questions concerned the usefulness of the tool for the purpose of the project, user-friendliness, accuracy, acceptability, clarity of message and wording, workload and time required to complete the protocol, level of student support in the learning process, and overall impression of the tool.

The results were saved as an EXCEL file and analysed in terms of the number of YES, NO answers and the analysis of open statements.

### Results

The results of the questionnaire, which explored the opinions of seventeen respondents using a demo version of the auditing protocol developed as part of the Healint4All project, are presented below. For better presentation, an attempt has been made to distinguish between the opinions of respondents in the role of auditors and those in the role of auditees. As the results are qualitative, they are presented in descriptive form. The responses to each question are presented in the order in which they were asked in the questionnaire.

#### *Do you feel the language of the tool is accessible?*

Six auditors agreed that the language of the tool is accessible, although one added that there is space for improvement, clarification, and simplification. One auditor stated that the language of the protocol was not accessible in his opinion.



**Figure 1.** The language of the tool according to auditors and auditees

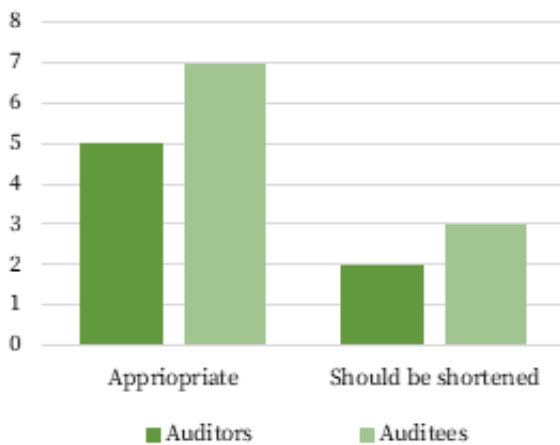


Three auditees expressed the opinion that the language of the tool is sometimes difficult to understand. The reason is a very specific vocabulary and abstract terms so questions sometimes require a moment's reflection before their content becomes clear. Another auditee pointed out that for some questions they would like to answer 'yes' to one part of the question and 'no' to another part of the question, which is not possible. The remaining six auditees found the protocol to be written in accessible language.

*Do you feel the length of the tool is appropriate?*

Five auditors concluded that the length of the protocol was appropriate. However, two auditors felt that the tool could be more compact and shorter.

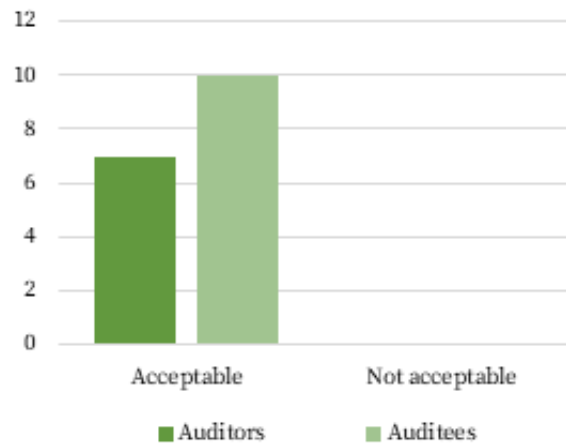
Also among the audited, seven participants believed that the length of the questionnaire was appropriate. Three of the auditees replied that the questionnaire could be a bit shorter, but in its current form it is also not overwhelming.



**Figure 2.** The length of the tool according to auditors and auditees

*Do you feel the workload on the auditor / auditee is acceptable?*

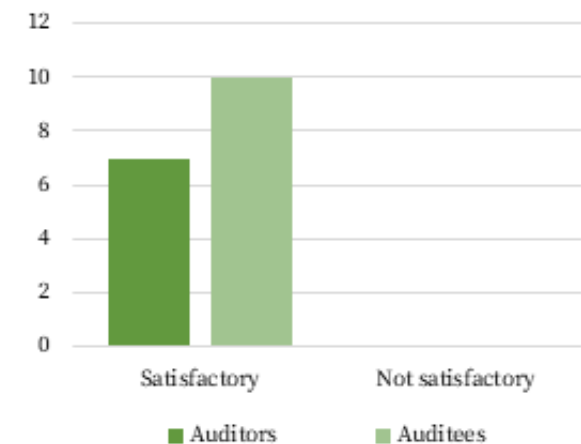
All auditors confirmed that the protocol workload is acceptable. Auditees also found the workload of completing the protocol to be acceptable. However, they pointed out that it takes some time and needs to be planned well (not when the apprenticeship is in progress). Respondents found it beneficial that the completion of the protocol can be interrupted, saved and continued later.



**Figure 3.** The workload of completing the protocol according to auditors and auditees

*Do you feel that the system properly addresses auditing student support?*

All auditors and auditees, without exception, stated that the system properly addresses auditing student support. None of the respondents added any additional comment on this issue.

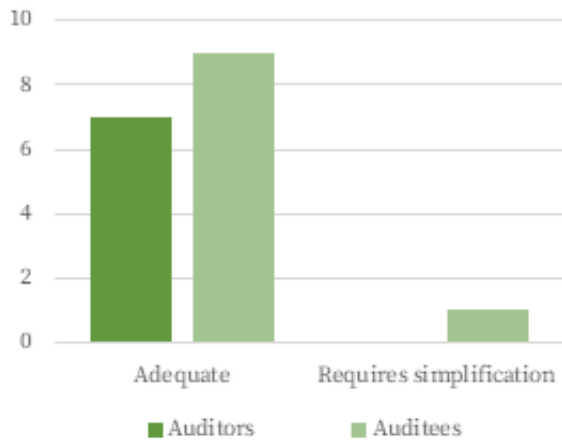


**Figure 4.** Tool support for placement students according to auditors and auditees

*Do you feel that the system properly addresses auditing opportunities for students to develop profession-oriented skills?*

All auditors and nine auditees agreed that the system created in the Healint4All project properly addresses auditing opportunities for students to develop profession-oriented skills. However, one auditor added that the system would benefit from simplification. There

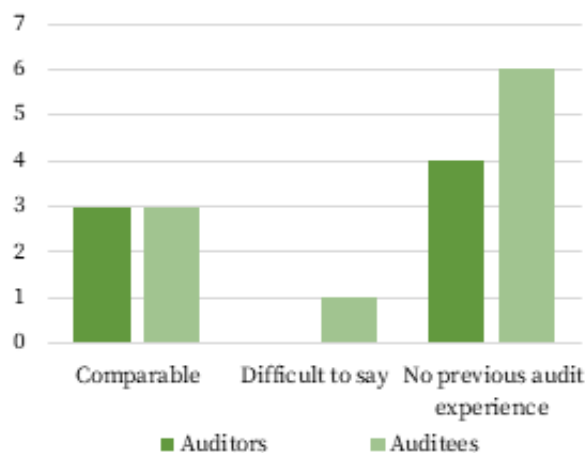
seem to be some overlaps. Only one auditee replied that they were not sure whether this tool adequately supports the development of students' profession-oriented skills.



**Figure 5.** Opportunities of the tool to support students in developing profession-oriented skills according to auditors and auditees

*Is the outcome of the audit comparable to other audits carried out in this institution?*

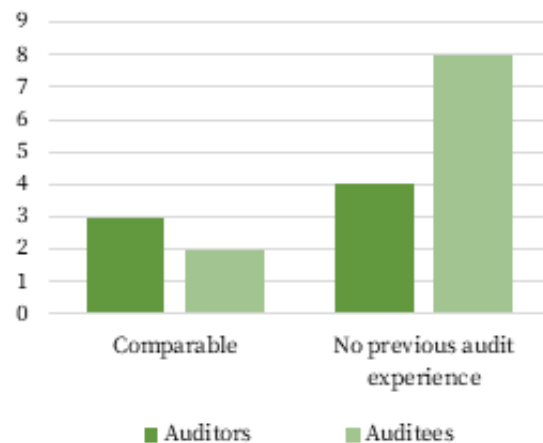
Four auditors and six auditees had no previous audit experience. One of the auditees stated that audits have been carried out in their institutions, but those haven't been specifically targeted this unit, so it is difficult to assess whether the audit results would be comparable. The remaining respondents (three auditors and three auditees) agreed that the outcome of the audit was comparable to other audits carried out in their institution.



**Figure 6.** Comparison of the tool with other audits carried out in the institution according to auditors and auditees

*Is the outcome of the audit consistent with other audits carried out in this institution?*

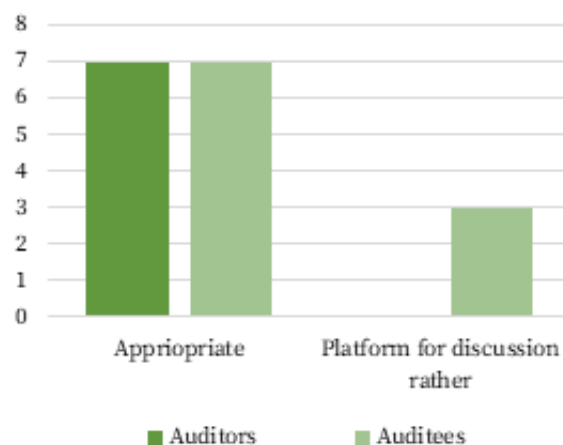
Four auditors and eight auditees had no prior experience to assess the consistency of the proposed protocol with other audits. Those respondents who had such an opportunity positively assessed the consistency of the results of the protocol with other audits.



**Figure 7.** Coherence of audit results with other audits carried out in the institution according to auditors and auditees

*Does the tool allow for interaction among those involved in the learning process?*

All auditors and seven auditees assessed that the protocol allows for interaction among those involved in the learning process.

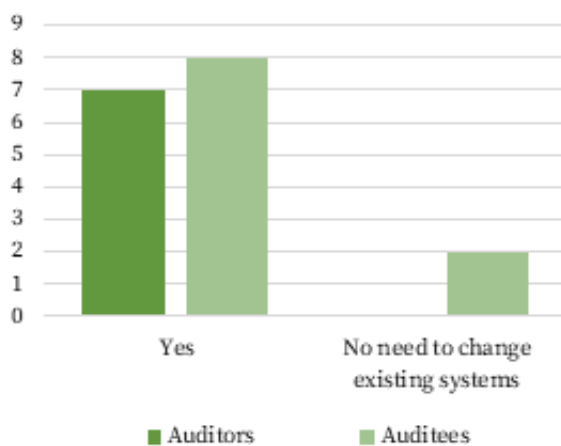


**Figure 8.** Possibilities of the tool to create interaction between those involved in the learning process according to auditors and auditees

The remaining auditees (three votes) said that the protocol could be a platform to start discussions, generate ideas and create opportunities for development rather than a place to interact with the students during internships in progress.

### *Would you recommend the tool to other colleagues / institutions?*

All seven questioned auditors and eight auditees expressed their readiness to recommend the presented protocols to their colleagues and institutions with which they cooperate. One of the auditees noted that if an organization already has a proven and reliable way of auditing, there is no need to change it.

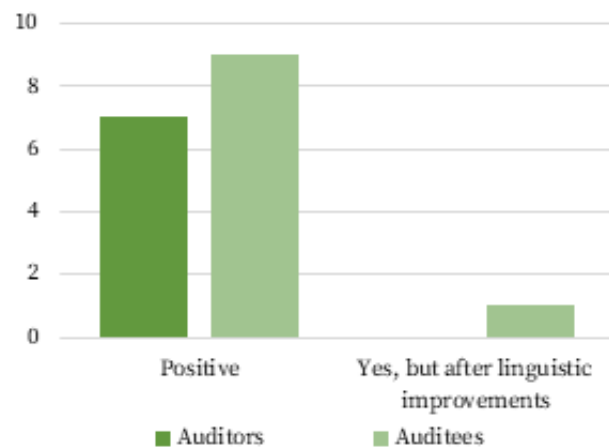


**Figure 9.** Readiness to recommend the tool according to auditors and auditees

Also, adding a new auditing tool to an existing one does not seem to be justified, because it multiplies bureaucracy. However, creating an optimal and common auditing tool for as many institutions as possible would be the gold standard.

### *What is your overall impression of the usability of the tool?*

All seven auditors and nine auditees were positive about the audit protocol. One auditee added, however, that the demo presented still needs linguistic improvements, but that the idea and content are good. Another auditee stated that the use of the protocol requires training.



**Figure 10.** Overall impression of the tool according to auditors and auditees

### *Do you have any other comments?*

Both auditors and auditees were encouraged to provide comments on the audit protocol. The feedback provided is listed below.

A very good start for an internationally developed audit tool. The tool would benefit from “slimming down” making sure that it is not too long and rechecking the translations and even the English version would benefit from clarification.

The tool should be improved in terms of the colours (as it is very equal in all parts and this could be confusing at some points). By using different colours, it will be more comprehensive. Especially for those profiles that can be sometimes auditors and sometimes auditees.

Language could be simplified to be more accessible, especially as it will be used by many countries. The protocol is quite long, but the amount of detail is appropriate for international placements. Legal and insurance teams at each organization would need to approve use of the platform before anyone would use it. I would recommend the tool for international placements, but it is too long and detailed for local/regional placements.

I think the questions should be arranged in such a way that they ask specifically about the situation of the respondent's institution, and there was only one statement in one question.

Because the question pages are quite long, it would be good to have a save button next to the questions when scrolling the page (follows along as you scroll).

It's good that you can contact us via the form if you want to provide any feedback or encounter any problems while using the tool.



## Discussion

Each university educating students in medical and related professions is obliged to provide students with a place where they can do clinical practice. Educational standards clearly indicate how many hours and what type of practice should be realized, as well as what knowledge and practical skills a student should acquire. The main goals of clinical practice are to build the student's professional competencies by integrating the theoretical knowledge acquired during the studies with clinical practice, developing practical skills in the real patient environment, and increasing the student's social competencies.

Students keep written documentation during their practice and are assessed by their mentors, but they should also be able to comment on the quality of the practice. Students assess, for example, whether they were sufficiently acquainted with the specifics of work in the institution, whether their mentor was kind, substantive, and competent, and whether the mentor presented them with the rules of occupational health and safety. Practice coordinators indicated by the University should evaluate a medical institution that is a potential place for clinical practice. Sometimes it is difficult because of the number of such placements (difficulties related to time and financing of the coordinator's work). The adoption of a common international auditing tool by universities and medical institutions that are places of clinical practice for students would make a pronounced difference: it would reduce costs for universities, increase student mobility, and first of all, allow students to maintain high-quality clinical practice, which translates into a high level of education.

More than half of the respondents had not previously experienced similar audit tools for clinical placements. However, everyone welcomed the presented protocol with great interest. The few doubts were related to concerns related to the length of time needed to complete the protocol and clarity of the language/understanding of the questions.

## Summary and recommendations

Respondents, both auditors, and auditees, positively assessed the idea of creating a protocol common to many international institutions for auditing places of clinical practice for students of medical-related professions. Respondents in the role of auditors had fewer comments and approached filling in the protocol with more openness. Auditees had more doubts about the

length of the proposed audit tool and pointed out the need to become more familiar with it. All respondents indicated the need to care for linguistic correctness, the greatest possible transparency, and simplicity. However, the idea was described by everyone as good and useful.

Overall, the following recommendations have been formulated for further deployment of the auditing tool:

- It is recommended that the audit be carried out periodically to ensure comparability of the results.
- The length and timing of the tool need to be considered while planning the audit – ample time should be foreseen for both the auditees and the auditors.
- The audit process needs to be planned well in advance to avoid periods when teaching/training activities are less intense.
- Since the auditors and auditees might not have not had any experience of being either the former or the latter, emphasis should be placed on training prospective auditors and auditees and giving them the possibility to discuss the language of the audit tool with more experienced colleagues to avoid misunderstanding or confusion.
- Ample time needs to be foreseen for the prospective auditors and auditees to reflect on the training.

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