# An Exploratory Study of Allied Health Students' Experiences of Electronic Medical Records During Placements

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## Abstract

**Background**    Allowing students to access and document in electronic medical records (eMRs) during clinical placements is viewed as critical for ensuring that graduates have a high level of digital proficiency prior to entering the workforce. Limited studies have explored student access to eMRs in health disciplines outside of medicine and nursing.

**Objective**    Our main objective was to examine allied health students' experiences and perceptions of the opportunity to develop eMR competencies during their placement, across a range of allied health disciplines and placement settings.

**Methods**    An explanatory sequential design was used, comprising a quantitative survey ($n = 102$) followed by qualitative semi-structured interviews ($n = 6$) with senior allied health students to explore their experiences and perceptions of eMR access during placements.

**Results**    Of the 93 students who responded to the question about their placement eMR, nine (10%) reported their placement site did not use an eMR and four students reported that they were not allowed to access the eMR during their placement. Most

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► electronic medical record
► allied health professional
► clinical placement

students (64%, 54 out of 84) accessed the system using their own credentials, but 31% (26 out of 84) used someone else's log-in and password. Students were satisfied with the eMR training and support received while on placement, but there was significant variability across sites on the level of training and support provided. All students believed that eMR access was beneficial for learning and preparation for work, improved delivery of care, taking ownership of work, and feeling responsible for patient care.

**Conclusion**    Providing students with access to eMRs during placements is fundamental to the development of a student's professional identity and to recognizing their role in the delivery of interprofessional patient care. For graduates to be equipped to effectively contribute to multi-disciplinary care in a digital health environment, universities need to work with practice partners to standardize and formalize eMR access, registration, training, and support, and to provide students with early exposure and training on eMRs in university courses.

## Background and Significance

Electronic medical records (eMRs) are becoming ubiquitous tools in health care, recognized for their ability to facilitate accurate and complete clinical documentation, support communication, and reduce adverse events via the provision of guidance and decision support to health professionals.[1–4] To build digital health capacity and capability in our future workforce and ensure that graduate students are equipped to safely and effectively use and integrate eMRs into clinical practice, early and progressive exposure to these tools has been recommended.[5] It is now widely acknowledged, including by key organizations such as the American Medical Association[6] and the Alliance for Clinical Education,[7] that allowing students to access and document in eMRs during clinical placements (or "clerkships") is critical for ensuring that graduates have a high level of digital proficiency prior to entering the workforce.

Studies of medical and nursing student placements show significant variability across settings in the types and volume of documentation performed by students into eMRs.[8–13] Organizational policies regarding student eMR access also vary across placement sites.[14] Several barriers to student eMR access and documentation have been identified, including, for example, university and hospital policies and processes, concerns about medical liability, and logistical issues (e.g., training and access).[8,10,12,15–17] A recent scoping review, which included seven studies that focused on medical and nursing students' digital technology experiences during placements, concluded that digital systems had the potential to support student learning and resulted in positive attitudes toward technology, but eMR training was often insufficient resulting in students feeling unprepared to use the eMR.[7]

Despite the growing literature in this area, limited studies have explored student access to eMRs in health disciplines outside of medicine and nursing and in environments outside of hospitals. Allied health professionals (e.g., physiotherapists and occupational therapists) comprise a large proportion of the health workforce, with estimates suggesting that over half of the U.S. health workforce and over 25% of the Australian health workforce are allied health professionals.[18,19] The practice of *integrated care,* recognized internationally as necessary for improving patient experience and health outcomes,[20] requires communication and coordination between inter-disciplinary providers, including allied health professionals.[21] eMRs are viewed as critical to facilitating integrated and coordinated care,[22] and early exposure and training on eMR are essential for equipping allied health graduates to effectively contribute to coordinated care.[23] To date, we know very little about the early preparation of allied health students to effectively practice in multi-disciplinary digital health environments. In this study, we set out to explore one aspect of this early preparation for allied health students: access to eMRs during placements.

## Objectives

This study aimed to examine allied health students' experiences and perceptions of the opportunity to develop eMR competencies during their placement, across a range of allied health disciplines and placement settings.

## Methods

This study used an explanatory sequential design, comprising a quantitative survey followed by qualitative semi-structured interviews. This design allowed quantitative results to be explored further and expanded on in the qualitative phase.[24]

Ethics approval was obtained from the University of Sydney's Human Research Ethics Committee (#2020/427).

### Part 1: Survey

#### Participants and Recruitment
Senior allied health students (who completed year 3 or 4 of their undergraduate degree or year 2 of their post-

graduate degree in 2019, total $n = 2,086$) from all professions educated within a health sciences school at a university in Australia were invited via email to participate in an online survey hosted on the Qualtrics XM Platform. Professions included exercise and sports science, occupational therapy, speech pathology, physiotherapy, diagnostic radiography, exercise physiology, and rehabilitation counseling. Invitations were also distributed via the University's Learning Management System and relevant university social media channels (e.g., Yammer group). A single reminder email was distributed 1 month following the initial invitation. Survey data were collected between August and December 2020.

### Placement Settings
Allied health students complete placements in hospitals, private practices, and clinics and also in non-health sectors like disability, social care, and education. In Australia, approximately 65% of public hospitals use an eMR, with limited implementations in private hospitals and clinics; however, uptake is rapidly increasing.[25] Different eMRs, including products, functionality, and configurations, are used across different settings.

The university of focus here is an accredited allied health education provider. As such, they are required to facilitate students' development of competencies to record and effectively communicate assessment and intervention outcomes and patient management decisions. During placements, allied health students learn through collaborative participation in direct patient care and this includes students entering these data into real patient records with the placement educators "signing off."

### Survey Instrument
The survey instrument was informed by previous student surveys,[9,11,16,17,26,27] reviewed by the multi-disciplinary research team, and piloted with two allied health students, who suggested minor wording changes to some items. The survey comprised four sections (demographics, setting details, eMR access during placement, and opinions and preferences for eMR access) and 18 items in total, including 13 tick-box items, four Likert scales, and three free-text boxes (see ►Supplementary Appendix A, available in the online version). Students were instructed to respond to survey items with respect to their final placement in 2019. All survey responses were optional. That is, it was not mandatory to complete any survey item.

### Analysis of Survey Responses
Responses were analyzed using descriptive statistics. As a variable number of students completed each item, results were presented with denominators for each item displayed. Responses to the free-text "additional comments" field were reviewed by one researcher (M.B.) and coded using a general inductive approach.[28] A second researcher (M.M.) independently checked over coding to ensure accuracy, and differences were resolved via a discussion process.

## Part 2: Interviews

### Participants and Recruitment
Semi-structured interviews were undertaken with a sample of students to explore their experiences of eMR access in-depth. To recruit participants, students were asked to provide their contact email at the end of the survey or to contact a member of the research team directly.

### Interview Guide
Interview questions were designed by the multi-disciplinary research team and informed by previous qualitative studies with students.[16,17] Questions were designed to allow further exploration of the areas covered in the survey and focused on two broad areas: (1) the student's placement experiences and (2) perceived benefits and risks associated with allied student access to eMRs during placements (see ►Supplementary Appendix B, available in the online version).

### Interview Recordings and Analysis
Interviews were conducted in October and November 2020 by a researcher with expertise in qualitative research and eMRs (M.B.). They were held via Zoom, audio-recorded, and transcribed verbatim. A general inductive content analysis[29] was initially undertaken independently by two researchers (M.B. and J.W.) to identify themes in de-identified transcripts. Researchers then came together to discuss identified themes, resolve any discrepancies, and organize themes into the three major components of the survey: (1) how eMRs are accessed and used, (2) training and support, and (3) benefits and risks.

Interviews continued until thematic saturation was reached.[30] Fourteen students indicated that they were interested in participating in an interview. Six responded to the follow-up email and agreed to take part. Students were highly consistent in their responses and as most discussed multiple placement experiences during the interview, thematic saturation occurred following six student interviews. Further follow-up with the remaining eight participants was, therefore, not required.

## Results

### Part 1: Survey
In total, 102 responses were received, representing a response rate of 5% (if all invitations were received and read). The majority of respondents were aged 18 to 24 years (71%, 72 out of 102) or 24 to 34 years (23%, 23 out of 102), and 82% (84 out of 102) were female. ►Fig. 1 shows the distribution of respondents across the seven allied health professions.

In total, 38% (39 out of 102) of respondents indicated that they were undergraduates, 30% (30 out of 102) were postgraduates, and 32% (33 out of 102) had graduated from their allied health degree in 2019.

The most frequent setting of respondents' final 2019 placement was a metropolitan inpatient setting (44 out of 95), followed by metropolitan private practice (11 out of 95).
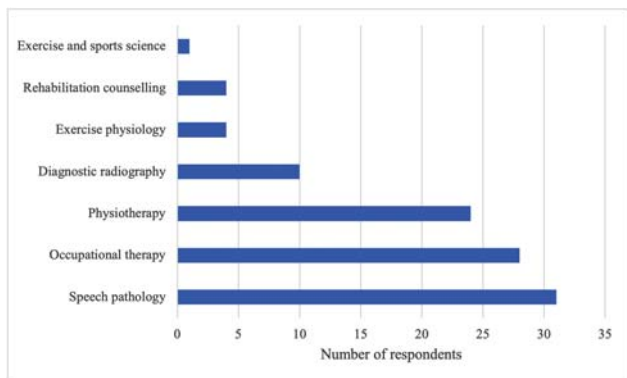
Fig. 1 Number of student responders in each allied health profession.

Eleven students reported completing their placement in a regional or rural health district.

### Access to eMRs During Placements

Only 93 students responded to the item which asked whether or not their placement site used an eMR. Of these, nine students reported their site did not use an eMR and were directed to end the survey. Data on these nine students and their placements appear in ►Table 1. Only two of these students completed their placement in a non-health setting. Of the remaining 84 students that accessed an eMR, 44% (37 out of 84) did not know the name of the eMR used in their placement setting.

Only four students reported that they were not allowed to access the eMR during their placements. Three of these students completed their placement in a metropolitan inpatient setting and one in a community setting. Of the students who reported that they were allowed to access the eMR, 64% (54 out of 84) accessed the system using their own credentials and 31% (26 out of 84) accessed the eMR using someone else's credentials (log-in and password). ►Fig. 2 shows the components or data that students accessed and entered into the eMR during their placement. Students reported that they were able to access most components of the eMR but rarely

Table 1 Student and setting details for respondents who indicated that their final 2019 placement setting did not use an eMR

| | | Number of students |
|---|---|---|
| Profession | Speech pathology<br>Physiotherapy<br>Diagnostic radiography | 5<br>3<br>1 |
| Stage of degree in 2020 | Undergraduate year 3<br>Post-graduate year 2<br>Graduated | 3<br>3<br>3 |
| Placement setting | Metropolitan inpatient<br>Private hospital<br>Community (e.g., school)<br>Metropolitan private practice<br>Regional private practice<br>University clinic | 2<br>2<br>2<br>1<br>1<br>1 |

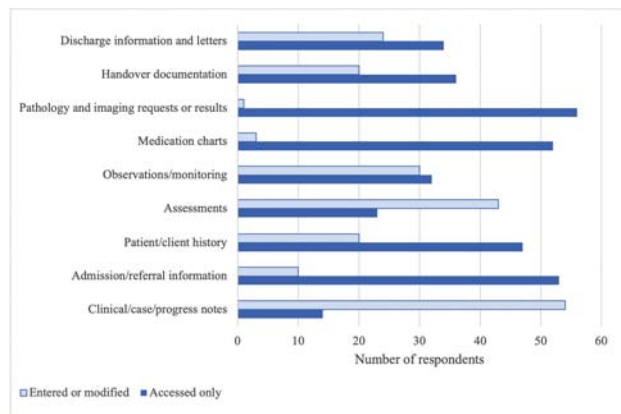Abbreviation: eMR, electronic medical record.



Fig. 2 Reported information or data accessed and entered/modified into the electronic medical record by students during their placement.

entered or modified pathology, imaging, or medications. The most frequently reported entry into the eMR were patient progress notes.

Most students (81%, 54 out of 67) reported receiving an orientation or demonstration of the eMR, with many also indicating that they completed eMR training (27 out of 67) or other training (e.g., on privacy and confidentiality, 25 out of 67). Most students (69%, 49 out of 71) were satisfied with the quality of the orientation or training received and most (79%, 56 out of 71) felt prepared to use the eMR during placement. Only five students indicated that did not feel prepared at all to use the eMR.

The most frequently reported issues impacting student access to eMR were insufficient computers/devices being available (26 out of 54), not being trained to use the eMR (17 out of 54), the eMR system being down or broken (15 out of 54), and not having the skills to use the eMR (10 out of 54). Of the four students who reported that they were not allowed to access the eMR during their placement, two provided reasons for this: one indicated their clinical educator did not allow them to access the eMR and the other indicated that they were not trained and did not have the skills to use the eMR.

### Perceptions of eMR Access During Placements

The majority of students reported that access to the eMR during their placement had had a positive impact on care (96%, 69 out of 72), their learning (96%, 69 out of 72), the student-clinical educator relationship (79%, 56 out of 71), student – client relationship (81%, 58 out of 72), and their experience with other information systems (82%, 50 out of 61). Only two students indicated that the eMR had had a negative impact—this was to the student – clinical educator relationship.

When asked how important it was for allied health students to access and enter data into eMRs during placements, 97% (72 out of 74) of respondents reported that access was "very important" or "important" and 84% (62 out of 74) reported that data entry into the eMR was "very important" or "important." No student indicated that they believed eMR access and data entry was not important.

### Free Text Responses

In total, 31 students provided additional comments about their placement experience. The majority of comments ($n = 20$) comprised reasons for why access to eMRs was beneficial, with most students explaining that it was important for learning. For example *"I think being able to access/learn how to use EMR as a student is a really valuable skill that definitely assists with the transition from uni to work"* [Physiotherapy student] and *"I think it is an important factor of learning how to input notes and structure documentation once students graduate"*[Occupational therapy student]. Another common benefit was seen to be preparation for professional work: *"Being able to access and enter data into the EMR.. prepares me for my career as an [Occupational Therapist] OT"* [Occupational therapy student]. Other reported benefits included facilitating the understanding of the patient case and feeling connected to the team.

Other comments described students' experiences while on placement, with some explicitly explaining that their experience was setting dependent: *"However it does depend on the placement site"*[Exercise physiology student]. Some students also made recommendations on how to improve their eMR experience, most frequently that students receive training on how to use the eMR as part of their university classes: *"There needs to be some practice/teaching at uni about eMR used in hospitals and how to navigate this, where we should be looking, how to write progress notes in this format, as it very different to everything I had previously done and my educators seemed disappointed and expected me to know how to use it"* [Speech pathology student].

### Part 2: Interviews

Of the six students who participated in an interview, two participants were occupational therapy, two were speech pathology, one diagnostic radiography, and one was a physiotherapy student. Interviews ran for on average 18 minutes (range 15:00–20:34 minutes). Themes from interviews were highly consistent with results from the survey. Illustrative quotes for each theme appear in ►Table 2.

### How eMRs Were Accessed and Used During Placements

Most students reported that they used their student credentials to access the eMR, but this appeared to be setting dependent. Some students reported that their placement educator logged them into the system and one student explained that they used their educator's credentials themselves to access the eMR because no technical support was available (see ►Table 2). Of note, two of the six interview participants reported experiencing problems with their student accounts while on placement.

Students described a small number of instances where they had read-only access to the eMR, but in most cases, students said that they documented in the eMR themselves, with their educators co-signing their work before it became visible in the system. All students reported accessing patient notes and history (e.g., previous scans) and documenting in progress notes.

### Training and Support Provided During placements

The eMR training and support students received during clinical placements was highly dependent on placement setting and the placement educator. Most students reported receiving a demonstration from their placement educator on how to use the eMR and some students said they completed a tutorial, an online module, or were provided with an eMR manual. Despite this training, some students reported feeling unprepared to use the system.

All students explained that ongoing eMR support was primarily provided by their placement educator, but some students reported difficulties in accessing or asking for help.

### Perceived Benefits and Risks of Allowing Students to Access an eMR

All students said that the primary benefit of accessing eMRs during placements was learning and preparation for work. Other frequently reported benefits were improved delivery of care, taking ownership of work, and feeling responsible for patient care.

The primary risk associated with students using an eMR during placements was perceived to be students inappropriately accessing content.

### Recommendations for Future Students

Most students discussed the need for additional training, both in university classes and while in clinical settings to better prepare and support students to use eMRs during placements. For example, students suggested providing students with access to simulated eMRs while at university and providing tips in lectures on how to use eMRs. While on placement, students suggested providing students with a manual or booklet on the eMR and providing more standardized training:

> *"I think it would be good to standardize that process a bit more, because it's very dependent on the time that your clinical educator has and the way that they teach. I think some people are, just go do it.. you'll figure it out, just click around and you will find it. Versus some people might sit you down and actually go through, these are the important things. Because it's such a big system, I think you really need to be able to orientate around what's important and what's not so important for you as a clinician, otherwise, it can become really overwhelming. So I think, yes, some sort of standardization of that probably would help."* [Speech pathology student 5]

## Discussion

The survey and interviews revealed that more than half of allied health students were given their own log-in credentials and given read and write access to eMRs during their placements. When using the eMR, students typically documented progress notes into the patient record and these were reviewed and signed off by their placement educator before being visible to other users in the system. Students

**Table 2** Participant quotes to illustrate key themes that emerged from interviews

| Theme | Illustrative quote |
|---|---|
| eMR access and use | |
| Used their own credentials | "I was given a staff link, username and password, I guess, so I could access notes, just like a staff member could." (Occupational therapy student 3) |
| Used their educator's credentials | "For the whole six weeks, I actually used my supervisor's password, which we're not supposed to. But that was kind of the only thing that we could do, because there was no technical support… they gave me their login.. not what they're supposed to do but it's just not practical for them to log in all the time." (Speech pathology student 5) |
| Encountered problems logging in | "My account had been set up incorrectly as a staff account rather than a student account. And, and then they had trouble transferring, back, giving me access… it was an absolute nightmare… It took a few days or even a week to fix that, during which time I couldn't access eMR, which was difficult for trying to plan sessions." (Occupational therapy student 3) |
| eMR training and support | |
| Initial demonstration from educator | "Once I got to placement, my supervisor had to take me through how to access everything…it was just my supervisor sort of showing me as I went, the things I needed to know." (Occupational therapy student 3) |
| Setting dependent | "It's just dependent on your clinical educator. So my clinical educator sat down with us two, the two students, and kind of just flicked through the important parts." (Speech pathology student 5) |
| Felt unprepared to use the eMR | "At the beginning, I was quite lost. And so if there would be other students sitting there, I'd ask them, like, oh, how did you do this? How did you do that? But eventually, I picked up, yes. But it was only just referring to other students and figuring it out myself and using the handbook that was next to the computers." (Speech pathology student 6) |
| Ongoing support from educator | "If I did need help than the supervisor was there." (Physiotherapy student 4) |
| Difficulty asking for help | "Whenever I worked in a hospital kind of environment where the staff is a lot larger, I found it a bit difficult to ask certain staff, could you help me go through the eMR? Because they seem a bit more, I wouldn't say rushed, but they seem less patient in teaching that kind of stuff, especially eMR. If you were talking about something to do with the imaging side of things … yeah, they're more willing to go through that. But if it's something to do with digital technology, eMR, that kind of thing, I felt like, it might be a bit more difficult to get a very structured kind of lesson in that area." (Diagnostic radiography student 2) |
| Benefits and risks of students using the eMR | |
| Benefit: Learning and preparation for work | "I feel like it's good to have exposure early on, even from first year just to see the real world, that's the point of placements…You having that patient, seeing them, and then it's still part of the skill of trying to put all that what you've done into words, into a database, how to communicate with other health professionals. I feel like it's a really good skill just to start from first year." (Physiotherapy student 4) |
| Benefit: Patient care | "But if we didn't have access to that, and we had to rely on somebody else. I mean, yeah, there'd be a lot of problems in the process of delivering care to a patient." (Speech pathology student 6) |
| Benefit: Ownership of work | "I think being able to add in your own information is really helpful, in a sense that I think it really does come back to ownership… I really need to take ownership of that note, and I need to put in the effort to make sure that that is really quality work and that I'm going to be proud of showing that to my colleagues in a way and I think that really just ups the amount of effort and the quality of the work that I put out just because I'm really owning the work that I'm putting out there." (Speech pathology student 5) |
| Risk: Misuse | "I feel like there's probably some students could be a bit immature about it… they might get on and start reading patients who aren't theirs or.. yeah, that kind of thing. I think it has a potential for misuse." (Occupational therapy student 3) |

Abbreviation: eMR, electronic medical record.

were generally satisfied with the level of eMR training and support they received while on placement, but there appeared to be significant variability across sites on the level of training provided, ranging from formal tutorials to an informal demonstration from an educator or the provision of a student manual. This resulted in some students feeling unprepared. Most day-to-day eMR support was provided to students by placement educators, and consequently, if educators were busy, unapproachable, or unknowledgeable, student eMR queries and needs remained unmet.

These findings, particularly the variability in access, training, and support provided to allied health students across sites, are consistent with previous studies focused on nursing and medical student eMR experiences.[5,9,17] This suggests

that challenges faced by organizations in ensuring all students are credentialed, have access, and are appropriately trained for eMR use during placements are pervasive. The results add to this literature and highlight a critical need for dedicated resources, particularly workforce capacity (training and information technology [IT] staff), to ensure students receive consistent eMR exposure and support across placement settings, and are adequately prepared for clinical practice.

A key result from the survey was that nearly a third of students used their educator's log-in to access the eMR during their placement. International literature shows that this practice, although at odds with international standards for information security in health (ISO Standard 27799), appears to be commonly adopted by both students and health care provdiers.[10,31,32] For example, in a survey of preceptors and medical students undertaking family medicine clerkships in the United States, one-third of preceptors reported using their own credentials to log students into the eMR.[10] The use of another person's credentials to access health information has been identified to be one of the most common breaches of data protection and patient confidentiality, with the potential to jeopardize both record accuracy and patient care.[32] The current findings add to this literature and suggest that additional IT resources, and improvements to the eMR registration process to allow for quick, easy, and streamlined credentialing of students, may minimize this unsafe practice.

The absence of standardized training and formal pathways for seeking assistance during placements resulted in students relying on their placement educators for eMR support. As a result, it is possible that students learned not only "good" eMR skills from their educators but also inefficiencies and eMR workarounds. A large number of studies have shown that health care providers often work around eMRs or use eMRs in sub-optimal ways, to avoid extra steps, slow processes, or systems.[33–35] Exposure to these sub-optimal workflows are likely to result in students learning and adopting these unintended ways of working in their own practice,[36] which may adversely impact the delivery of safe patient care. Formal training and the availability of ongoing eMR support from recognized system trainers or super-users would ensure "correct" habits are formed in the early stages of a student's eMR journey.

Allied health students were overwhelmingly supportive of providing students with read and write access to eMRs during placements. Students viewed access to eMRs as important and identified several benefits associated with eMR access, including learning and preparation for clinical practice, improved patient care, and a feeling of ownership or responsibility for clinical documentation. These benefits are consistent with those that have been reported by medical and nursing students in previous studies.[5] They also highlight that the competencies gained with eMR access not only relate to a particular eMR system (e.g., how to enter a note) but also comprise fundamental capabilities in clinical documentation, effective integration of the eMR into clinical workflow, and the development of professional identity, including full participation in patient care.

A concerning result which emerged from the survey was that a small proportion of students attended health placement sites, including hospitals, private practices, and clinics, with no eMR or were not permitted to access the eMR at all during a placement. Although students attend a variety of placement settings across their degree course and it would be unlikely that students receive no exposure to eMRs across all their placement visits, this finding highlights the importance of providing students with additional opportunities to interact with an eMR throughout the curriculum, not exclusively while on placements. This is consistent with the most frequently reported recommendation from students in the current study: to embed eMR training in university courses. The integration of academic or simulated eMRs into university curricula would enable the development of eMR-related competencies in students prior to or concurrently with placement eMR exposure, but several challenges have also hampered this integration (e.g., cost, training).[37,38] The use of simulated eMRs for education is gaining momentum internationally,[12] but uptake in Australia is in its early stages.

### Limitations

This study was conducted at one university and the response rate was low; therefore, results may not be generalizable to other Australian states or international settings. Given the low response rate, care should be taken when interpreting results. Utilizing a survey is likely to result in biases associated with self-report, but student responses were anonymous and the interviews allowed in-depth exploration of student experiences and views. Only six student interviews were completed, but students were highly consistent in their responses as all had experienced variability in their placement visits. The study did not evaluate students' prior knowledge or experience with eMRs, and this likely impacted students' perceptions of the training and support they received.

## Conclusion

To our knowledge, this was the first study to explore allied health students' experiences and perceptions of the opportunity to develop eMR competencies during their placements. Importantly, this study revealed that providing students with access to eMRs during placements is fundamental to the development of a student's professional identity and to recognizing their role in the delivery of interprofessional patient care. For graduates to be equipped to effectively contribute to multi-disciplinary, coordinated care in a digital health environment, universities need to work with practice partners to standardize and formalize the eMR access, registration, training, and support students receive during placements. Providing students with early exposure and training on eMRs in university courses, in addition to placements, would also facilitate learning and preparation for clinical practice.

## Clinical Relevance Statement

This study revealed that allied health students receive variable exposure to and training on eMRs during clinical placements. For graduates to be equipped to effectively contribute to multi-disciplinary, coordinated care in a digital health environment, universities need to work with practice partners to standardize and formalize the eMR access, registration, training, and support students receive during placements.

## Multiple Choice Questions

1. When accessing eMRs during placements, most allied health students:
   a. Used their educator's log-in credentials to access the eMR
   b. Were given read-only access to eMR systems
   c. Turned to their placement educator for training and support
   d. Had trouble accessing computers

   **Correct Answer:** The correct answer is option c. Most students received training or a demonstration from their educator and indicated that they would ask their educator questions if they ran into trouble while using the eMR. Most students were given their own log-in credentials and were able to both read and write into the eMR. Although some students indicated they had trouble accessing a computer, this was not reported to be a barrier by most students.

2. Key benefits of being able to access the eMR during placements were identified to be:
   a. Learning and preparation for work
   b. Improved safety and quality of care
   c. Improved efficiency and fewer workarounds
   d. Improved safety and continuity of care outside placement settings

   **Correct Answer:** The correct answer is option a. Students identified a range of benefits of being able to access the eMR during placements but the primary benefit was viewed to be learning and preparation for clinical practice, including clinical documentation, effective integration of the eMR into clinical workflow, and the development of professional identity, including full participation in patient care.

### Protection of Human and Animal Subjects
The study was performed in compliance with the World Medical Association Declaration of Helsinki on Ethical Principles for Medical Research Involving Human Subjects and was reviewed by the University of Sydney's Human Research Ethics Committee (#2020/427).

### Conflict of Interest
None declared.

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