



## A survey of student nurses' and midwives' experiences of learning to use electronic health record systems in practice



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### ABSTRACT

**Aim:** The study aimed to investigate student nurses' and midwives' experiences of learning to use electronic health records (EHR) in practice.

**Background:** Good record keeping and documentation are integral to nursing and midwifery practice. As EHRs become more widespread, student nurses and midwives need opportunities to access and learn how to use them in practice.

**Method:** A survey of nursing and midwifery students was conducted using questionnaires ( $n = 215$ ) and three focus groups: one with midwifery students ( $n = 6$ ); one with mental health nursing students ( $n = 5$ ) and one with adult nursing students ( $n = 6$ ). The University research ethics committee approved the study. The questionnaire data were analysed using SPSS v19. The focus group data were analysed thematically following transcription.

**Results:** The results presented relate to two themes: 1) Preparation for using EHRs and skills development; 2) Access to EHRs and involvement. Students had variable experiences in relation to opportunities to access and use EHRs, training on EHR systems used in practice and guidance from mentors. Some mentors had concerns about students' legitimacy to access EHRs and verification of students' EHR entries was a challenging issue in some areas.

**Conclusion:** To promote opportunities for students to develop competence in using EHRs in practice, training on EHR systems in use, and clear processes for authorised access, are needed. Following the survey, the University and practice partners collaboratively established formalised EHR training for students with clear governance procedures for access and use.

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### Introduction

Nurse educators are responsible for preparing students to be fit for purpose and practice. Good record keeping is integral to nursing and midwifery practice and is essential for safe and effective care (Nursing and Midwifery Council [NMC] 2009a). United Kingdom (UK) public healthcare providers ('National Health Service [NHS] Trusts') continue to use paper-based health record systems in many areas but England's National Programme for Information Technology (IT) aims to introduce electronic health records (EHRs) country-wide (Sheikh et al., 2011). Student nurses and midwives are thus increasingly likely to encounter EHRs during practice-based learning. At the authors' university, informal feedback indicated that students had difficulties in accessing and using EHRs in

practice, which could hinder students' record-keeping skills development. This paper reports on a survey which investigated students' experiences of EHRs in practice, as a basis for improvements, and presents two themes: preparation for using EHRs and skills development, and access to EHRs and involvement. Two further themes which emerged from the focus groups only, ('Benefits of EHRs for care delivery' and 'Concerns about EHR systems') will be reported separately. The midwifery students' experiences were reported in detail in another article and include a theme unique to the midwifery students: 'incongruence between EHRs and the concept of 'normality' in childbirth (Brooke-Read et al., 2012)'.

### Background

In the UK student nurses and midwives must achieve competencies in record-keeping and documentation, in electronic format where applicable (NMC, 2009b, 2010). The students' practice

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learning is supervised and assessed by mentors who are registered nurses and midwives who have undergone NMC-approved mentorship preparation (NMC, 2008). University-based education supports students in developing competence, particularly through simulated practice (Freeth and Fry, 2005; Baillie and Curzio, 2009a), and can contribute to developing EHR skills (Kennedy et al., 2009; Jones and Donelle, 2011). Nevertheless, the clinical environment plays an essential role in developing competence (Midgley, 2006).

Traditionally patients' health records were paper based and student nurses and midwives learned record keeping skills by entering information under mentors' supervision. The NMC (2009b) published standards for record keeping to promote quality record keeping and quality care; these standards apply to both paper and electronic records. Studies have revealed that nurses' record-keeping standards need improvement (Waterhouse, 2008; Law et al., 2010) thus pre-registration preparation for these skills is important. However Jones and Donelle (2011) assert that there is little known about nursing students' EHR-related skills and knowledge.

Internationally, EHR systems are being implemented and evaluated (Lee, 2008; Green and Thomas, 2008; Zwaanswijk et al., 2011). In 2002, England's Department of Health proposed a strategy for a national EHR system and in 2005, the NHS 'Connecting for Health' was formed to support the EHR agenda. Currently NHS Trusts are implementing various EHR systems but the national project has encountered difficulties and the future of EHRs within the NHS is under review (Sheikh et al., 2011).

The purported benefits of EHRs are that they enable immediate health information access by multiple care providers (House of Commons Health Committee, 2007), better enable interdisciplinary collaboration (Green and Thomas, 2008) and improve efficiency and quality of care (Zwaanswijk et al., 2011). Healthcare staff have identified that EHR information is legible, more accessible and more easily retrieved (Sheikh et al., 2011). However, in 2011, the UK's National Audit Office concluded that EHRs' expected patient benefits have not been demonstrated. EHR systems have been considered cumbersome and time-consuming (Laitinen et al., 2010) and impractical, technically complex and expensive (Greenhalgh et al., 2008). There are also concerns about safety of information exchange and the reliability and quality of patient data (Zwaanswijk et al., 2011). Studies of nurses' responses have reported overall positive attitudes (Huryk, 2010) but some dissatisfaction with EHRs' user-friendliness (Stevenson et al., 2010), concern about dehumanisation of patient care (Huryk, 2010) and about practicalities and impact on workload (de Vlieghe et al., 2010).

Student nurses and midwives need opportunities for accessing and using the record systems used in practice, which increasingly include EHRs, in order to develop their competence. This study aimed to investigate nursing and midwifery students' experiences of learning to use EHRs. The research questions were:

- How prepared do student nurses and midwives feel for participating in paper and electronic record keeping in practice?
- What are the barriers, if any, to student nurses' and midwives' access to, and use of, EHRs in practice?
- What are student nurses' and midwives' experiences of learning to use EHRs in practice?

## Methods

A project team was established, comprising university academic staff, NHS Trust education leads and student nurses and midwives.

## Design and data collection

The survey used questionnaires and focus groups and was conducted on one university campus. All student nurses and midwives who had had at least one NHS practice placement in hospital and/or community settings, were invited to participate ( $n = 350$ ). Developed from the literature, the questionnaire was piloted with the project team student members and revised following feedback. Some questions invited fixed responses, such as 'Yes/No'; the other questions used a Likert scale. The questions related to background information (field of practice, year on course); preparation for record-keeping; access and use of health records. The questionnaires were completed during December 2010–March 2011 and there was a response rate of 61% ( $n = 215$ ). Students were also invited to provide contact details if they were interested in participating in a focus group and had had at least one EHR exposure. Organising the focus groups was problematic due to the students' university and practice schedules. These were held in field of practice groups as the research team believed the discussions could be better focused on their specific experiences. Three focus groups were held between March–June 2011: Focus Group A: five mental health students; Focus Group B: six midwifery students; Focus Group C: six adult nursing students. Only two child nursing students expressed interest in taking part in a focus group and the project team considered that this was insufficient for a focus group. Each focus group lasted about 1 h and was audio-recorded, with participants' permission. The facilitator asked open questions, with follow-up probes, about students' experiences of EHRs, their preparation for accessing and using EHRs, and any barriers to accessing and using EHRs.

## Ethical considerations

The University research ethics committee approved the study proposal. Information sheets were distributed in the classroom, with questionnaires being circulated about one week later, for anonymous completion by students willing to participate. Focus group participants completed written consent forms prior to taking part. Data were kept securely on password protected computers.

## Data analysis

The questionnaire data were entered into SPSS v19 and analysed using descriptive statistics. Pearson's Chi-square was used to examine associations between variables where appropriate, for example, whether there was a relationship between the students' year on the course and their access to EHRs. The focus group recordings were analysed manually by the research team using thematic analysis, applying Patton's (2002) framework of: reviewing all data, developing codes from the data and applying these codes to the data and developing themes with sub-themes. The research team initially worked together on the qualitative data analysis, identifying tentative codes and possible themes and sub-themes. Then three team members worked separately on the analysis of each focus group transcript. The whole team then reviewed the themes and sub-themes across the transcripts to concur the themes.

## Results

Of the 215 questionnaires returned, 51% ( $n = 110$ ) were from adult nursing students; 24% ( $n = 51$ ) were from mental health nursing students; 13% ( $n = 28$ ) were from midwifery students and 12% ( $n = 26$ ) were from child nursing students. The focus group themes were reviewed in relation to the questionnaire results and

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