

# Clinical Informatics in Pre-Registration Nurse Education

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**Abstract** This case study explores the pivotal role Clinical Informaticians in Nursing and Midwifery in Wales can have within pre-registration education. It underscores the necessity for nurses and midwives to adapt to digital transformations in healthcare delivery and discusses the potential digital career paths within the often-misunderstood domain of digital nursing. The initiative aimed to enhance awareness at both national and local levels, collaborating with educational institutions to incorporate digital education into pre-registration nursing programs. In partnership with the University of South Wales, sessions were tailored to the existing curriculum to highlight digital career opportunities and foster digital understanding among future nurses. The session design was aligned with course guidelines to emphasize the role of digital technology in quality improvement and leadership. Evaluations using interactive tools facilitated continuous improvement and provided insights, shaping the future of digital integration in nursing education

**Keywords.** Pre-registration Education, Student Nursing, Education, Digital Nursing, Clinical Informatics

## 1. Introduction

Clinical Informatics within Nursing and Midwifery in Wales is a new career pathway, often misunderstood by those who do not work within in, yet it is an important part of healthcare digital delivery. It is becoming more important that Nurses and Midwives have an immersive role in the digital transformation arena as identified in the Wachter Report [7] and echoed more recently by Day [2] and Baines [1].

The understanding of the role starts with those of us practicing within the role, opportunities were sought to develop awareness at national and local level of the role in addition to embed in pre-registration education. Therefore, as national nursing informatics leaders the opportunity was sought to collaborate with local higher education institutions to widen pre-registration nursing student awareness of digital change and digital roles.

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## **2. Case Study Description and Relevance**

The approach was made to colleagues in University of South Wales with an offering to develop teaching within modules of pre-registration nurse training to highlight digital career opportunities and enlighten students to the roles and responsibilities they may have regarding digital technology use, digital capability and being change ambassadors in nursing.

The Chief Nursing Officer for Wales discusses digital technology as an enabler for her priorities [6] that identifies the need for the nurses of the future to have more digital capabilities and awareness, as digital transformation becomes the 'golden thread' through the clinical delivery of healthcare, therefore it is prudent that there is awareness built at all levels including pre-registration.

There is currently no formal assessment of digital competency within pre-registration nursing, but a requirement to have knowledge and technical skills as part of their standards for proficiency [5]. Health Education and Improvement Wales (HEIW) have implemented a digital capability framework (DCF) [4], as a self-assessment tool suitable for all NHS staff, developed by a multidisciplinary team of HEIW and NHS Wales staff. Students also have access and are encouraged through the sessions to explore their own digital capabilities; they are signposted to training and ways to develop themselves once completed. The DCF, alongside further work within HEIW aims to develop the digital capabilities of the workforce in NHS Wales [3].

As Clinical Informaticians we are uniquely positioned to increase awareness of both clinical and technological developments to ensure that the clinical view is included in the development and use of digital technologies. Therefore, we act as 'translators' between the clinical and technical world; thus, reinforcing that digital nursing specialists are imperative to support healthcare to transform to digital ways of working and ensure in digital and that it meets the needs and demands of a clinical environment.

## **3. Project Design**

The sessions have been designed to complement the module course guidelines, such as linking data and digital as an enabler for quality improvement and linking digital leadership into development and early course modules. Collaboration with the universities to determine when the best time is within the curriculum to host the sessions to ensure they have the most impact.

The modules we teach within are within the first and third years of studies, thus content varies according to experience, module specs and exposure to systems within the clinical environment. We ensure there is a tie-in with the national Welsh Nursing Care Record, to ensure that students are exposed to visuals of the system and a secure testing environment to familiarize themselves with what they will see on hospital wards across Wales, this is usually delivered to students in a separate session prior to their first placement.

4. Execution

Expectations of the session are set at the beginning to mirror learning objectives, but also to encourage discussion, questioning and inquisitiveness about digital and exploration into its impact within nursing. The design of the sessions is about providing some evidence base, but also encouraging exploration of the topic with personal experiences of our roles and reinforcing our basis within clinical practice. Generating a session that is collaboratively led by us as facilitators and the students as contributors.

To encourage collaboration from students during the session, we set out expectations of the session, as shown below<sup>2</sup>.

What we will do for you:	In return, what we expect from you:
<ul style="list-style-type: none"><li>• Build your awareness of digital career pathway.</li><li>• Build your awareness of digital nursing, nationally and locally.</li><li>• Build your awareness of how digital in nursing is more than an EPR.</li><li>• Discuss how digital can enhance clinical practice.</li><li>• Provide question opportunities.</li><li>• Answer questions openly, honestly and transparently.</li></ul>	<ul style="list-style-type: none"><li>• To be inquisitive</li><li>• To engage</li><li>• To ask questions</li></ul>

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Figure 1. Sample slide of expectations

5. Impact and lessons learned

The sessions are evaluated with student discussions and contributions enabled during the session again using a collaborative approach and interactive software such as MS Forms and Mentimeter, a visual interactive tool that encourages participation.

The programme was set up with the intention of learning lessons throughout therefore following evaluations changes were made to ensure the programme met the needs of the user whilst ensuring the key objectives were delivered. We use MSForms to collect this information anonymously to allow for freedom of opinion and have received a mixture of reviews regarding the sessions. The questions are structured to gain positive feedback, recommendations for future sessions and topics from the students as well as gaining information about what didn't go well during the sessions.

Evaluating the sessions in such a way also facilitates changes to our topics, teaching methods and use of technologies, and has changed the way we facilitate some

<sup>2</sup> [further slide examples to be shown during case study presentation at NI2024]

of the sessions, such as no longer offering them online, due to significant issues which impacted the students' learning.

Please let us know what went well	Please let us know what you feel didn't go so well, and what we could do to improve
No internet problems and well explained	Nothing
The IT did work. You were engaging. Interesting info	At this point I'm not sure how it will be useful in practice.
Happy it ran smoothly with no technical issues.	Nothing
Very clear information	All went well on this session
It did not go well for me as I had issues with my WiFi. It has been quite frustrating.	I thought it was good the issues were my end.
I enjoyed the mentimeter exercises.	N/A
Awareness about the importance of digital systems	It would be nice to see systems
The polls and menti app	Some students had issues with login
Explaining how data matters in nursing.	
The future of nursing in terms of technology	
Engaging with quizzes	None
Informative	I feel everything went well
Informative content, easy to understand more about digital nursing	N/A
Very informative	Na
Awesome tracing	Everything went on very well.
Very informative session	Only when digit works well then this will be effective
This session gave us information about the digital nursing. It good to have knowledge and understanding of digital.	NA
Everything	Everything is good
Really informative and interesting. Came away with new insights.	Nothing to note.
Everything	N/A
The Menti questions were thought provoking, seeing my colleagues views and discussing them. Also enjoyed learning about why a varied group of professionals benefit a digital nursing team.	I found it difficult to understand what digital nursing is. Lots of great information on the team and where they came from but a clearer explanation of digital nursing and what thd role involves would be helpful.
Really informative presentation	More interactive slides!
Presented well, information cleat and explained.	Takes time to roll out
Clearer understanding about what digital nursing is and how digital can influence future nursing standards.	Discussion around maternity when nobody in the room is maternity students.
Insightful information	Nothing

**Figure 2.** Sample of feedback results from one session

The sessions are used as a research opportunity with the students to gain knowledge about their feelings towards digital nursing, any fears, or barriers. They are informed during the sessions that their opinions are assisting us with shaping the landscape of use of digital within nursing and assisting with development of the roles in which we can influence this further.

We don't touch on some aspects of digital implementation, as course structure doesn't yet encompass this, but feel this is one aspect which could be built upon when academic requirements change to encompass the digital futures within healthcare.

Further 'spread and scale' of these sessions is in progress, with sessions provided across midwifery education and within Swansea University's MSc course in health informatics. There are plans to widen this to all higher education institutes across Wales, pending discussion with course leads and directors.

The importance of education at university level regarding digital transformation and implementation and the professional role of clinical informatics has been recognised, and as such, has now been included in our Clinical Informatics Professional strategy, currently in draft, within Digital Health and Care Wales.

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