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Pharmacy Simulation: A Scottish, Student-Led Perspective with Lessons for the UK and Beyond

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Abstract: Compared to the nursing and medical professions, simulation-based pharmacy education is a relatively new mode of supporting learning, although one that is growing rapidly to meet the training needs of a new generation of healthcare professionals. Within the UK (and particularly Scotland), access to the clinical environment through the more traditional route of placement is limited, and simulation offers a partial solution to this problem. As is well-established, simulation—if used appropriately—also offers excellent opportunities for enhancing patient safety, including allowing the exploration of the science of human factors. Given the high incidence of medication errors, pharmacists need to be included in any intervention for improvement of patient safety. It is true, however, that the “clinical environment” experienced by the practising pharmacist (especially in community pharmacy) is different from the typical nursing or medical situation. This, combined with a lack of understanding of the role of the pharmacist as a member of the wider healthcare team, means that there are additional considerations required when designing simulation-based learning activities. This commentary undertakes a narrative review of the current situation for pharmacy simulation, and considers how this may be developed to support the Scottish healthcare vision, whilst recognising that the issues raised are likely to be relevant across the sector.

Keywords: pharmacy simulation; Prescription for Excellence; students as co-creators; interprofessional education; feedforward; patient safety

1. Introduction

While the use of simulation in UK pharmacy courses is not new, it is true to say that there is a paucity of research in this area as well as a lack of consensus regarding its use. The picture is slightly different in the US, where a number of initiatives have given educators a clearer picture of pharmacy simulation practice [1,2]. While much of the evidence supporting the use of simulation is derived from medical and nursing courses, more recent reviews of simulation-based medical education paint a picture of an evolving and maturing discipline firmly rooted in medicine and nursing undergraduate programmes, but growing to embrace other disciplines. This, combined with its effectiveness as a vehicle for delivering interprofessional experiences, makes it likely that the use of simulation will continue to increase. It is recognised that evaluation of impact is an area where more work is needed: according to McGaghie and colleagues, who undertook an extensive review of simulation research in medical education spanning over 40 years, “outcome measurements are the greatest challenge now facing the field” [3].

The benefits of simulation are many, not least the fact that such activities can support students in skill acquisition without exposing patients to risk (therefore potentially improving safety). The level of control that can be exerted over the simulation environment (compared with “real” clinical situations) means that such activities can be embedded within the curriculum framework at all stages, offering students a uniformity of experience. If the activities are appropriately spaced, occur with sufficient frequency, are accompanied by appropriate feedback, encourage reflection through effective debriefing and are revisited with increasing complexity, then they underpin a truly spiral curriculum and support students in achieving competence in certain clinical skills [4].

In recent years, there has also been a growing awareness of the value of simulation for exploring the science of human factors in healthcare. Human factors recognises that understanding the relationship between people and their working environment (which includes the physical space, the tools they use and the people with which they work) is key to optimising performance in situations where failure is not an option. There is an increasing drive to see healthcare redefined as a high-reliability industry and to learn from the safety systems adopted in other such industries, including civil aviation and the nuclear industry [5]. Systems-centred approaches accept that error is unavoidable, but that processes can be designed not only to reduce the possibility of error, but also to facilitate enhanced detection and correction of errors that do occur.

However, it is acknowledged that there are number of points to consider in designing simulation-based activities if they are to deliver these benefits. Perhaps one of the most important is that learning outcomes need to be both clearly defined and measurable (and indeed measured) [6]. The simulation also needs to be valid: by this practitioners typically mean that the scenario should be a high fidelity approximation of clinical practice, although it is recognised that there can be much to gain from lower fidelity scenarios especially at early stages in undergraduate courses. Feedback needs to be for “feedforward”, in that it needs to be diagnostic and couched in the same terms as the learning outcomes, thus helping students to understand for themselves the difference between their performance and that which is defined in the learning outcomes. Furthermore, this feedback needs to support the student in exploring how this “performance gap” can be closed. Consequently, effective briefing and debriefing are critical to the success of the activity [7,8]. Finally, the effectiveness of simulation

interventions needs to be robustly evaluated if we are to be able to demonstrate any evidence of impact. This means that educators implementing simulation activities should design in an evaluation element. This is perhaps the most difficult aspect of the problem—while there is a considerable body of evidence to indicate that simulation is effective in promoting task competence, how this “transfers to practice” is notoriously difficult to capture (reviewed in [3]). Additional complications arise when simulation is used in conjunction with different teaching modalities, such as using a simulated event as the starting element in a problem-based learning exercise. Other potential drawbacks of simulation include problems such as negative learning: inadequacies in the design of the simulator and/or scenario may result in missing (or false) cues that elicit inappropriate responses from participants. Failure to achieve psychological fidelity can also result in a loss of patient focus, which may promote unsafe behavior, while psychological fidelity without appropriate support can result in student distress if the scenario is of a traumatic nature [9].

From the above, it can be seen that designing effective simulation-based medical education is not easy, and requires expertise in many different areas [10]. For this reason, it seems that an almost universal barrier to the use of simulation is the education of teaching staff, something which McGaghie *et al.* describes as a “great unmet need” [3]. In summary, simulation can be described as a “complex service intervention that needs to be planned and practiced with *attention to organisational contexts*” (authors’ italics).

2. The Pharmacy Context: Drivers of Change

The 2013 Wilson and Barber review into NHS Pharmaceutical Care of Patients in the Community in Scotland [11] (and the subsequent Scottish Government response, Prescription for Excellence; [12]) outline a vision of longer healthier lives lived either at home or in “a homely setting”. Fulfilment of this vision will require an integrated approach to health and social care that aims to support the patient in self-management of his or her condition. Medication is the commonest form of healthcare intervention, and in Scotland it is estimated that up to 15% of hospital admissions are *drug related and preventable*. While one-third of these admissions are the result of non-adherence, over half are the result of either prescribing or monitoring errors. In addition to the direct impact on patient safety, there is also a significant financial implication [13]: £1 out of every £8 of NHS spend is on medicines, and it is estimated that approaching half of these are not used as intended by the prescriber. Certain patient groups are more vulnerable with respect to adverse medication effects. These include the elderly, as well as those suffering from multi-morbidity. This is likely to result from a combination of drug-induced side effects, but also because both age and illness have pharmacokinetic and -dynamic implications. Prescribing for the elderly is thus particularly complex and, given that the proportion of the population aged over 75 years is set to increase to over 60% within the next 20 years, is a significant problem for Scotland. Generally, multi-morbidity increases with age but a recent Scottish study involving almost 2 million patients suggested that it has a much earlier onset (10–15 years) for patients living in the most deprived areas compared with more affluent groups. Addressing healthcare inequalities must therefore be a priority. Given that medicines play such a critical role in health and wellbeing, it makes sense that pharmacists should be involved. The Scottish Government recognises that “pharmacists are highly qualified and skilled healthcare professionals... however, their full

potential is yet to be fully utilised”. A major part of the Route Map to the 2020 Vision for Health and Social Care [14] is a move to a new model of “Pharmaceutical Care” which is described as “a philosophy... for the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient’s quality of life.” In order to achieve this aim, by 2023 all pharmacists providing clinical care to patients must be NHS-accredited clinical pharmacist independent prescribers, a move that requires a significant change in practice: pharmacists need to be viewed by both patients and other healthcare professionals as being part of the wider healthcare team. This will be underpinned by the development of effective partnerships with patients and carers and also with other prescribing professionals, most notably general practitioners. Part of the vision is the concept of patients as “co-producers” of the outcomes in respect of the management of their own condition. Co-production is defined as “the process of active dialogue and engagement between people who use services and those that provide them, *putting the service user on the same level as the service provider*” (authors’ italics). This is likely to generate challenges for all those involved. The requirement for enhanced pharmacist skills will see an increased need for training for both pharmacy students and qualified pharmacists (as well as pharmacy technicians in extended roles). The key points of Prescription for Excellence are summarised in Table 1 below. It is worth noting that these issues are not unique to Scotland, and are relevant across the UK sector and beyond.

Table 1. Scottish pharmaceutical care: drivers of change.

Drivers	Points for consideration
Challenges facing Scotland	<ul style="list-style-type: none"> • Ageing population; • Health inequalities; • Multi-morbidities; • Relationship between multi-morbidities and health inequalities; • Prevalence of medication errors
Vision for pharmacy	<ul style="list-style-type: none"> • Move to “pharmaceutical care” approach; • Person-centred, safe care, addressing the challenges; • New “distributed” model of pharmaceutical care; • Not confined to high street pharmacy; • May be delivered in a domiciliary setting • May be delivered remotely; • Supporting the treatment of chronic multi-morbidities; • “Clinical pharmacists” will be independent prescribers
Challenges for pharmacy	<ul style="list-style-type: none"> • Short time frame for realisation of vision (2023 for independent prescribing); • Urgent training need to be able to deliver; • “Knock-on” effect for both post- and undergraduate pharmacy education; • Lack of placement opportunity to deliver such clinical training; • Perception by other healthcare professionals of the pharmacist role; • Need to build interprofessional relationships; • Need for strong leadership; • Need to allocate resource at a time of austerity

3. Simulation as a Vehicle for Pharmacy Skill Development

Prescription for Excellence acknowledges that while the Scottish Schools of Pharmacy have increased their clinical and patient-related content, there is an urgent need to develop this further, especially with respect to the interdisciplinary elements necessary for pharmacists to establish themselves as an effective part of the healthcare team. Given the importance of the GP-pharmacist relationship, this will be best served by increased co-operation between schools of medicine and pharmacy. This presents significant challenges for pharmacy education in the UK, where the opportunities for placement are extremely limited, a situation which is already recognised as having a negative impact on the development of the skills new pharmacists will need in practice, including communication, conflict resolution, adaptability and the ability to “think on one’s feet [15].” Simulation can be (at least) a partial answer to this, and is likely to become increasingly important as we strive to deliver on Prescription for Excellence.

It is probably true to say that the US leads the UK in terms of utilising pharmacy simulation, and a number of initiatives have given educators a clearer evidence base to support practice in the US, including the recent report from the Society for Simulation in Healthcare (SSH). This report acknowledges the value of simulation as a “powerful tool that should be leveraged” to support the development of interprofessional educational (IPE) experiences, recognising the critical role that interprofessional working plays in delivering high quality, safe, patient-centred care [16]. One of the potential barriers identified (across the healthcare professional spectrum) was the notion of “role confusion”. Effective interprofessional working (and education) means that team members have to make full use of the knowledge, skills and abilities of each individual: this is difficult when the understanding is limited. Furthermore, this seems to be a problem that disproportionately affects pharmacy, and that erroneous role perception is a significant barrier to the expansion of the role of the pharmacist envisaged as part of the Scottish plan. Critically, there are studies suggesting that even pharmacy students are ignorant of the full remit of the pharmacist role [17–20].

US studies have shown pharmacy simulation to be effective in improving students’ basic knowledge and supporting them in skills development, as well as giving them opportunities to practice critical thinking, with some evidence to suggest that this improves clinical performance. Perhaps of greatest interest is the fact that simulation-based teaching and learning activities have been shown to decrease the incidence of medication administration errors [2]. However, consideration of this literature suggests that pharmacy simulation is used primarily to expose students to the same sort of high risk and/or rare scenarios that are used in medical education, but with the inclusion of a pharmacist on the healthcare team [4]. There are also a number of examples of computer-based simulations that deal with management issues, such as pharmacy systems, medication safety and quality [21]. Given the UK situation, it seems that there is a need to extend the use of simulation beyond this to allow students to explore the more “mundane” clinical situations typical of (particularly) the community pharmacy setting. This brings up a number of potential issues.

Exploration of the Mismatch between “Ideal” and “Real” Clinical Environments

The lack of access to the clinical environment means that students' experience is limited, and is potentially compounded by the very short nature of the placements: students are likely to be there purely in an observational capacity and staff may well be “on their best behaviour”. There is a lack of opportunity to observe and reflect on the boundaries of acceptable practice. This can make it hard for newly qualified pharmacists to recognise when the practice environment has degraded to an extent that it is no longer safe. Simulation has the potential to go some way towards addressing this need, as well as helping students to develop and defend the values and ethics that will serve them well when it comes to standing up for patients' rights. This addresses some of the concerns raised in the Francis report [22] into the failings at Mid-Staffordshire hospital (and in the subsequent Keogh [23] and Berwick [24] reports). These issues were considered by an expert panel in the Guardian newspaper's recent online discussion into the changes needed in health and social care higher education to prevent such situations arising in the future [25]. The need to capitalise on observations from the workplace and use them as development opportunities was clear:

“We will teach you best practice, you will see variation, but we will help you to develop the skills to recognise when a variation is acceptable and when it is not.”

Such a focus also requires the existence of procedures that allow students to raise issues in an honest manner without fear of negative repercussions. These processes also depend on the student having adequate time for reflection, supported by appropriate briefing and debriefing. Considerable work is needed with respect to curriculum design if we are to provide pharmacy students with meaningful opportunities to engage in this way.

The discussion also raised the need for education in the science of human factors to be embedded in health care curricula to support the concept of high reliability described above. Interestingly, while this need has been recognised in healthcare generally with the publication of the National Quality Board's Human Factors Concordat [26], the UK pharmacy regulator (The General Pharmaceutical Council) is absent from the list of signatories. Human factors are highly relevant to pharmacy: there is considerable evidence to suggest that medication errors can be reduced by adopting very simple measures, such as the strategic localisation of calculators in areas where drug calculations are made [27,28].

A human factors approach also raises the idea of threat and error management (TEM), one of the tenets of civil and military aviation [29]. In this context, “threats” are the factors inherent in the system that make errors more likely (and/or make it more likely that any errors result in adverse outcomes). TEM is a systematic method that includes threat identification and amelioration as part of the process. Threat identification is perhaps easier when staff perceive the environment itself to be threatening: this is easy to appreciate when considering emergency medicine scenarios or, indeed, getting a fully loaded Airbus 380 off the ground, less so in more comfortable settings such as the community pharmacy.

It is clear that simulation has much to offer pharmacy education, especially with regard to the enhancement of both patient safety and the pharmacist role. However, its use must be carefully considered if the benefits are to be optimised. The following case studies have been chosen to illustrate some of the issues.

4. Case Studies

4.1. Context Is Everything

The authors are involved in a Higher Education Academy (HEA) Change programme which sought to explore the embedding of simulation in courses which do not normally make use of it (on any large or formalised scale) as a teaching and learning activity [30]. One of the pilot projects involved a simulation modeled on a community pharmacy-based cardiovascular risk assessment. As the project grew, more people (from a variety of professional backgrounds) were invited to join the team to add an interprofessional element. At an early meeting, it transpired that not all of the new team members had fully understood the detail of the risk assessment. When it became apparent that the near-patient testing involved taking blood from volunteer patients some of the team members expressed very strong concerns that invasive procedures like this contravened University—and possibly both professional and regulatory/statutory body guidelines. It did seem for a short while that it would be very hard to move forward! Further exploration revealed that this was not the case—the appropriate Health and Safety/ethical paperwork was all in place, and that there was no institutional or regulatory body legislation preventing such an approach. However, this notwithstanding, in nursing and midwifery, staff (quite rightly) generally adopted an approach that sought to avoid invasive procedures. This difficult patch actually turned out to be very fruitful for us as a team: it really underlined the importance of what we were trying to achieve by the end of the project: an understanding of the drivers that affect simulation delivery *in different courses*. Courses such as Nursing and Midwifery (which have plenty of access to the clinical environment) can afford to restrict invasive procedures to the clinic. Courses such as pharmacy may need to explore such procedures within the classroom, and local and national guidelines need to reflect these differences if opportunities are not to be lost.

4.2. Achieving Realism Is not Easy: A Student View

“The (main advantage of simulated patient scenarios, clear to both students and staff, is that they allow for a safe environment in which to make error and learn from it. At university, this environment is often quiet and private making it easy for the student to focus solely on the patient, creating the ‘gold standard’ of consultations. This is a good lesson to learn, but does not effectively simulate a pharmacy environment and reality. Traditional ‘gold standard’ models of simulation are effective in early years of the undergraduate Master of Pharmacy (MPharm) course where students develop the skills required for patient-pharmacist interaction. However, continuation of the same model throughout the four years prepares students for an environment that does not exist”.

“Having had ten years of experience in community pharmacy as a dispenser before entering the undergraduate MPharm course, I approached patient simulation with doubt as to how much learning I would gain. The scenarios can be awkward, stilted and are obviously scripted to some degree. The patients are relatively standardised and respond in a controlled manner giving information to further the discussion in a format that is usually very logical and sequential. As a student, I believe it is easy to predict the direction of a simulation allowing you to study and prepare appropriately. In addition, simulated patients allow the interaction to progress until the student brings the conversation to a close. There are usually no time constraints and the simulated patient is willing to interact for the duration of

counsel. In reality, the level of patient participation varies dramatically. Many lead busy lives, and are often hurried and impatient, which can lead to challenging conversations where the important points must be delivered quickly and effectively”.

“My fear is that by experiencing unrealistic simulations students will enter the real world believing that they must adhere to the format and structure formed through such scenarios. Trying to achieve the ‘unachievable’ and maintain the ‘gold standard’ has potential to result in dissatisfaction, negativity, low morale and possibly unsafe working environments”.

“I believe that the creation of a busy pharmacy environment with noise and distraction is integral to simulating a patient-pharmacist scenario. Pressure, demands and time constraints are increasing in the workplace, creating barriers to effective communication. Therefore I feel we should simulate to reflect reality. Simulations should be more than patient consultation and exhibiting of clinical knowledge, they should be designed to build upon skills of team-working, leadership and risk reduction”.

“Integrating into a team, gaining trust and building morale are essential skills for a pharmacist practitioner. From personal experience I can say that a dysfunctional team is a potential risk to patient safety. With this in mind, I believe that incorporating ‘Threat Error Management’ as seen in the aviation industry and applying it to pharmacy simulations may result in students that become more risk averse. Creation of the ‘threat environment’ where the simulated conditions increase the likelihood of error or failure is the key to developing an understanding of risk management. I believe it is in the interest of the profession to develop practitioners with skills to ‘see and fix’ (or, indeed, prevent) where they have the technical expertise to define and reduce risk in the healthcare setting”.

“Simulation should be designed to reflect real-life where non-technical skills such as team-working, communication and delegation are challenged alongside technical and clinical decision making. I believe that it is essential that students develop skills to concisely convey accurate and important information to a patient who is also being distracted by the hustle and bustle of the environment, a common barrier to effective communication in practice. Similarly, students should be exposed to the pressure and demands a pharmacist receives from the business to ‘sell’ services and in-store initiatives to lock-in patients. Such services include managed repeat services and other profit-based incentives such as loyalty cards and product promotions. Pharmacists are, at times, offered perverse incentives to perform well in the ‘selling’ of services. The implementation of such reward systems causes conversations to drift from topics of medication and disease into the realms of retail and sales. I feel that students should be armed with the essential skills to be able to strike a balance between giving advice and promoting business ensuring that their overriding priority and focus is patient safety. Overall, I feel that university provides realistic clinical situations yet unrealistic pharmacy environments. I believe we need to bridge the gap between education and practice so that students are prepared and ready to meet the public as effective pharmacists”.

4.3. Lack of Clarity with Respect to the Role of the Pharmacist

Two important components of team working are an understanding of each other’s roles, combined with respect for these roles. Students need opportunities to learn more about these other roles, and perhaps engage in activities that require them to take a different perspective. An understanding of the different roles of healthcare professionals (and the specialist knowledge and skills possessed by each

group) also underpins the notion of “knowledge trading”. As described above, the role of the pharmacist within the healthcare team is one of the least well understood, and this is partly due to a lack of shared understanding within the profession [31]. Pharmacists who trained some years ago are less likely to see themselves as “people who care for patients” than newer graduates, emerging from a “health professional” course. This can make the approach to involving pharmacists as members of interprofessional health teams somewhat piecemeal, depending on local circumstances, rather than being directed by any sort of national policy. We would argue that this is a lost opportunity. Clearly there is a need to develop empathy and respect for different healthcare roles, as well as providing increased opportunity for relevant IPE, including activities which promote a wider understanding of the knowledge, skills and role of the pharmacist. This was a significant issue in an IPE ward simulation exercise that included pharmacy students as part of the team:

Staff view: The Nursing and Midwifery Council Education Standards document articulates the expectation that “professionals should be able to work, where appropriate, in partnership with other professionals, support staff, service users and their relatives and carers” ([32]; Competency 4), an understanding common across all the professions regulated by the Health and Care Professions Council [33]. Such collaborative working increases patient safety and we therefore ventured to find a way that students could work together on complex tasks. The challenge lay in providing realistic cases that reflected the reality of practice that would challenge the students to work together interprofessionally. The solution was simulation using ward-based scenarios of patient cases that all healthcare professionals could engage in. We wanted to explore the experiences, attitudes and perceptions of different pre-registration health professions students participating in an interprofessional ward simulation and ascertain the impact of an interprofessional ward simulation on students’ attitude towards interprofessional learning and skills development.

A project team, funded by the HEA, developed an interprofessional simulated ward activity and students from the final years of: Diagnostic Radiography, Pharmacy, Occupational therapy, Physiotherapy, Nutrition and Dietetics and Nursing were invited to take part. Data was collected through the Readiness for Interprofessional Learning Scale (RIPLS) questionnaire [34] and focus groups. Later those students who had been on placement were engaged with semi structured interviews to discover if their IPE ward simulation had affected their practice, using an approach based on a modified version of the Kirkpatrick evaluation model [35]. Five final year pharmacy students engaged in the simulation, although because they did not attend placement in this academic session they were not interviewed. Pharmacy students attending the focus groups described the experience as highly beneficial and asserted that all pharmacy students should be offered the opportunity to participate. The rationale for this belief seems to stem from the psychological fidelity of the experience: pharmacy students described how the usual role play on the MPharm takes place between themselves and tutors who are known to them. In addition, the role play normally takes place in a small teaching room, rather than a ward or community pharmacy mock up, providing an unrealistic context. Furthermore, the subject of the discussion is normally known to them, giving them the opportunity to revise the topic (inhaler technique, for example) in advance. Conversely, the ward based scenario was not revealed to them until they received a referral telephone call. Volunteer patients were unknown to them and played their roles convincingly. The normal routine of the ward continued around them—even the noise level added to the realism of how communication with the patient must continue, even when distractions are

occurring. The IPE ward simulation therefore offered the opportunity for the pharmacy student to role-play in a more realistic way and one that would happen in practice. The steepest learning curve they described was in relation to the experience of autonomous practice:

Student view: “I was invited to take part in the ward simulation described above. We had no prior knowledge of the scenarios we would be faced with and were asked to attend the ‘pharmacy office’ and await a call from the nursing handover. At the time I was quite nervous as I felt unprepared and feared I would be challenged with something simple and be unable to provide the correct information which—as a fourth year student—could be embarrassing. It was like one of those nightmares where you end up in an exam and don’t know any of the answers! In order to gather my thoughts I asked the other pharmacy student to take the first call”.

“Whilst waiting for my call the supervisor came in to the ‘office’ and said ‘I have three patients I would like you to see’. I followed him to the nurses’ station and he pointed out the beds the patients were in and told me that they all required analgesia and that he had no further information. The ward appeared chaotic with people fleeting about and everyone looked like they knew what they were doing. It was overwhelming as I did not quite know what was expected of me. When I asked for the patient notes I was told they would be at the end of the patient’s bed”.

“I went to visit my first patient who was asleep in her bed. Immediately I was faced with a dilemma... ‘Do I wake the patient and try to get a medicines history or would I be impacting on her care by doing so?’ I decided to wake her by calling her name. When she didn’t respond, I put my hand on her shoulder which I quickly realised I shouldn’t have done. I explained to the patient who I was, my role and that I was going to review her chart. The patient consented, and mentioned that she was ‘quite sore’. She also mentioned that her mouth was dry, and my natural instinct was to get her a drink. However, on the way back from the water dispenser my mind was racing, ‘Can I get a drink for this patient? Is she nil by mouth? Am I just introducing another source of infection to the ward by bringing in a glass of water?’ I decided against giving her the glass of water and disposed of it. Reviewing her chart I could see that she was on two medications, dihydrocodeine and paracetamol. I explained to the patient that I would speak to her doctor and see if I could obtain fentanyl patches for her. She seemed happy with this suggestion but also quite confused as she was unsure if she had had surgery or not. Due to her confusion and her dry mouth I believed it was best to discuss these issues with a nurse. I knew from coursework that I should be transferring the information to the nurse using the SBAR approach but I couldn’t remember what the A stood for, ‘was it action or assessment?’ I told the nurse about my observations and she noted them. Walking away from the patient I realised that I had taken for granted that her medication record was up to date and that medicines reconciliation had already been carried out”.

“My second patient was occupied at the time so I was unable to visit her”.

“After my initial shock with the first patient scenario, I felt more confident about approaching the third patient and it helped that he was awake. I introduced myself and looked over his notes, which stated that he was confused and I knew I would be unable to obtain an accurate medication history from him. Again his list of medication was dihydrocodeine and paracetamol, and I delved into my BNF to make sure the medication was appropriate. I asked him if he was in pain but he began rambling and said sometimes he was. In order to be more specific I asked him to describe it on a scale of one to ten, to which he replied ‘6’, which I didn’t feel warranted any immediate changes. I tried to obtain a

medicines history from him and amidst his rambling he said he got his medicines from a local Boots pharmacy. I was delighted as I felt I had found a more accurate source. However the clock went and the event was over”.

“Leaving the ward I met a fellow pharmacy student who noted that I looked stressed. I asked him about his experience and he said he felt lost but thought it was worthwhile. It was interesting to note that he wasn’t aware that he could communicate with the other health care professionals. Stemming from this remark I realised that no other health care professional had contacted me during the session. Considering there were no medical students on the ward I thought pharmacists would have been the next port of call especially when it came to pain management. It struck me that, whilst some pharmacy students are unaware of what their role is in hospital pharmacy, so too are other healthcare professionals”.

“On reflection of the evening I realised I had little confidence in my abilities as a pharmacist. Although I have a BSc in Pharmacology and have been told during coursework that my knowledge of clinical interactions is of a high standard, I lacked confidence in relaying the information to a patient for fear that I may get something wrong and cause harm. I was dissatisfied with my performance because I only visited two out of the three patients and was not sure if I had prioritised appropriately. I was also disappointed because I had undertaken several hospital placements during my summer vacations and assumed I would have been more prepared to handle these sorts of situations. However, one problem I have noticed with summer placements is that students are often not given responsibility for their learning and it can be easy to take a passive role and merely observing someone else interact with a patient. In addition, many hospital pharmacists are not trained or informed on how to teach students and thus may lack the skills necessary to deliver key information successfully. In my experience being placed in the IPE environment is a lot different to any preconceptions one may have of the role of a hospital pharmacist. At University we are given the privilege of several weeks to analyse case studies by reading over SIGN/NICE guidelines, researching interactions/causes for abnormal lab results and then preparing care plans for our course of action. In this real-life setting I was expected to deliver this information in a matter of minutes. Even more worryingly as a result of the stressful situation, I had disregarded basic infection control and did not sanitise my hands entering/exiting the ward or moving between patients. Considering the current lack of IPE interactive activity during my degree and based on my performance at the ward simulation event I now have some concerns about entering my pre-reg[istration] year”.

4.4. Students as Co-Producers

From the above, it can be seen that in developing team-based learning activities, it is critical to acknowledge the importance of involving *all* members of the team. The patient voice is critical, but so too are the voices of our trainee healthcare professionals. They are uniquely placed to give real feedback on how teaching and learning activities actually support (or otherwise!) their experience in practice. In order to achieve such longitudinal evaluation, universities need to be involved with the transition phase between education and practice which, at the moment, is quite clearly demarcated in pharmacy, although this may well change if the proposed 5-year integrated undergraduate pharmacy course becomes a reality. Certainly pharmacy students need access to a rich and varied IPE programme that includes an appropriate professional mix. In the same way that outcomes can be improved by

seeing patient and healthcare professional as equals, educational outcomes can be enhanced by seeing students and staff as partners in learning. Involving students in designing teaching and learning activities lends itself particularly well to simulation: there are particular stresses and anxieties around participation in such activities, and it is hard for staff to truly understand this. At the Robert Gordon University (RGU), a team of undergraduate pharmacy students have formed a student-led learning enhancement team, and as part of this they have formed a student chapter of the Institute for Health Improvement (IHI), a not-for-profit organisation which provides a shared platform for healthcare professionals and students to learn from each other, thus supporting patient safety. One of their first activities was participation in a webinar with Professor Don Berwick, where they had the chance to explain some of their ideas around the use of simulation in pharmacy education to enhance patient safety. Professor Berwick was very interested in this work, and has tasked the group with designing a learning activity based around a video exploring a healthcare professional apologising to a patient (or carer) following a medical error. The authors believe that this approach could be particularly effective in allowing students to actively explore the sorts of issues around professional identity that are exemplified by the earlier case studies presented in this paper.

5. Conclusions

It can be seen that simulation offers a number of opportunities to support pharmacy education, and also that special considerations exist. We believe that these could best be addressed through a pharmacy simulation special interest group which we are in the process of establishing. A number of UK Schools of Pharmacy have expressed interest in joining such group, and it has also been very encouraging in that we have been approached by a number of groups representing other health care professions who are keen to involve pharmacists in their IPE activities. We hope to begin the process of developing pharmacy-specific resources by bringing together all the relevant stakeholders, including patient groups as part of an initiative supported by the HEA. Our short-term aim would be to develop a “Compendium of Effective Pharmacy Simulation Practice”, consisting of an editorial-type section, discussing points for consideration before developing simulation activities (particularly those we believe are likely to be particularly relevant to pharmacy) and then a selection of case studies from across the country (or indeed internationally). This would provide an excellent opportunity for pharmacy staff across the UK and beyond to share best practice and to showcase their institutional specialities. We would envisage having a special section in this where work involving “students as partners” could be highlighted.

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Conflicts of Interest

The authors declare no conflict of interest.

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