Nurse Education Today 78 (2019) 1–4

Contents lists available at ScienceDirect

Nurse Education Today

journal homepage: www.elsevier.com/locate/nedt

Contemporary Issues

Preparing pre-registration nurses to be 'prescriber ready': Aspirational or an achievable reality?

ARTICLE INFO

Keywords:
Curriculum development
Nursing curricula
Nurse education
Nurse prescribing
Pharmacology education
Simulations

ABSTRACT

The Nursing and Midwifery Council (NMC), the professional body for U.K. registered nurses, midwives and nursing associates has recently proposed future nurses should be 'prescriber ready', in a move to ensure the nursing workforce can prescribe medicines soon after registration (NMC, 2018a). Considering this, the educational preparation requirements for future nurses requires consideration, particularly where it is incumbent on the University, or NMC Approved Educational Institution (AEI), to prepare nurses with sufficient knowledge and skills to enter an NMC approved non-medical prescribing programme from the point of registration.

This paper explores the new NMC educational and practice standards for nurses and the potential infrastructures required of the AEI where there is a responsibility under the NMC to develop a new, more progressive generation of 'prescriber ready' nurse. Excitingly, Universities and nurse educators are now tasked with ensuring future nurses can safely demonstrate an amalgam of nursing care, fusing traditional nursing expertise with skills which once remained the exclusive responsibility of the doctor, thus creating a new generation of hybrid practitioners.

1. Nurse prescribing: an international perspective

The concept of nurse prescribing was coined over fifty years ago, having first been introduced in the U.S.A. in 1969, as a measure to address rural healthcare (Hooker and Cipher, 2005). However, despite this, nurse prescribing gained slow momentum internationally, with the Royal College of Nursing (RCN) first documenting the possible U.K. implementation of it in 1978. The RCN suggested registered community nurses could provide better, more efficient care where the authority to prescribe wound dressings and topical creams was afforded (RCN, 1978). Following this, the U.K. Government commissioned a report aimed at investigating '*Neighbourhood Nursing*' (Department of Health and Social Security [DHSS], 1986), which examined the practice of community nurses. It was here, the official recommendation for community nurse prescribing was published, in a move to improve access to treatment for people nursed in the community, and to make better use of the nurses' time and expertise. Following this, the Department of Health (DoH) advisory group (DoH, 1989) was set-up to develop a model of nurse prescribing, which finally led to; *The Medicinal Products: Prescriptions by Nurse's Act* (1992). It was this legal framework, which ultimately paved the way for the first U.K. community nurse prescribers in 1994 (Luker et al., 1998).

Progressively, the U.K. has become the international pinnacle for nurse prescribing, offering the highest level of prescriptive authority for nurses worldwide, with the U.S.A., Canada and New Zealand offering statutes to permit similar prescribing practice (Ladd and Schober, 2018). However, the level to which nurses can prescribe internationally varies, with Spain, for example, restricting nurse prescribing to 'over-the-counter' products, and nurses in Germany, Italy and China being entirely prohibited from prescribing (Maier et al., 2018 & Romero-Collado et al., 2017). Despite this, while U.K. nurses were initially restricted to prescribe from a limited list of products, extensive prescriptive authority was approved in 2006, allowing certain specialist nurses the broad and unrestricted right to prescribe within their area of clinical expertise (DoH, 2006). Since then, research by Funnell et al. (2014), Bhanbhro et al. (2011) and O'Connell et al. (2009) has recognised fewer restrictions on nurse prescribing in the U.K., has ensured better access to treatment for people and has helped provide greater autonomy and broader career opportunities for nurses.

Despite some international hesitation to introduce nurse prescribing, there is currently little evidence to suggest it places people at higher risk when compared to the prescribing of others. Studies by Funnell et al. (2014) and Latter et al. (2012) found nurse prescribing to be appropriate and clinically indicated, despite some identified concerns regarding the standards of nurse prescribing education. Further, research by Latter et al. (2010) and Courtenay et al. (2007) uncovered a considerable acceptance for nurse prescribing amongst patients, with many reporting a significant improvement in the care received. However, nurse prescribing has received some criticism, which raises questions over the level to which nurses are educationally prepared to prescribe. While much of this criticism remains largely dated and anecdotal, some have suggested nurse prescribing undermines the medical profession and is "irresponsible and dangerous" (Day, 2005 p1159). Despite this, nurse prescribers have offered a pragmatic solution to the shortages of U.K. doctors, such as the example of Cuckoo Lane Practice in West London, which is an innovative and successful nurse-led general practice (Pearce, 2016). Examples such as this, demonstrate how nursing is evolving into an increasingly complex profession, assuming responsibilities which once fell solely within the remit of doctors. This therefore raises questions regarding the level to which future nurses are educationally prepared, given some will choose career paths which may arguably require an enhanced level of undergraduate study, and

https://doi.org/10.1016/j.nedt.2019.03.009
Received 2 November 2018; Received in revised form 11 February 2019; Accepted 27 March 2019

particularly when they will be able to enter prescribing programmes soon after registration.

2. Nurse prescribing education

In 2006, the NMC published *Standards of Proficiency for Nurse and Midwife Prescribers* (NMC, 2006), these standards established the entry criteria and educational standards for prescribing programmes, delivered through AEIs. Traditionally, the V100/ V150 or community practitioner nurse or midwife prescriber qualification supports community nursing roles, such as health visitors and district nurses, allowing them to prescribe dressings and topical creams. Often, these community nurses may complete the V100/V150 qualification as part of the health visitor or district nurse educational programme. Likewise, other nurses can complete this same prescribing programme, provided they can demonstrate a minimum of two years' experience within an appropriate and defined area of practice. Conversely, those specialist nurses with defined clinical expertise, can complete a V300 or independent/ supplementary prescribing qualification, providing extensive and unrestricted prescriptive authority. Currently, under the 2006 educational standards for independent/ supplementary prescribing, these nurses are required to demonstrate a minimum of three years post qualification experience, with a minimum of one-year experience within the areas of practice the nurse wished to prescribe.

In contrast to British standards however, countries such as the U.S.A., Canada and Australia, restrict nurse prescribing to specialist nurses with a master's degree (Kroezen et al., 2012), with further restrictions in some other countries such as Israel, which forbid nurses from entering into prescribing programmes, unless they hold a minimum of five years' nursing experience (Dong-Lan et al., 2018). The relevance of this is important to consider, given the NMC has announced in their 2018 educational standards (NMC, 2018a; NMC, 2018b), registered nurses from 2019, may apply to undertake the V100/V150 prescribing programme immediately following initial registration with the NMC, enabling nurses who complete the programme, registered prescribing status within six months. Further, under these same standards, nurses may also apply to undertake an independent or supplementary prescribing programme twelve months following registration as a nurse, allowing those who complete the prescribing programme, extensive prescriptive authority within eighteen months of becoming a registered nurse. For some, these changes to the NMC entry requirements for prescribing programmes is an exciting prospect, which may offer a more imaginative and entrepreneurial outlook to career development for student nurses. However, it nevertheless requires AEIs and educationalists to consider the infrastructures required, and the necessary changes to nursing curricula, if future nurses are to be adequately prepared to be 'prescriber ready', at the point of registration.

3. Pharmacology

Irrespective of the discussed reported positive impact nurse prescribing offers to people and nurses themselves, the upskilling of the profession will require a new and innovative approach, in order to ensure future nurses are 'prescribing ready'. However, despite this, the challenges of reaching this goal must be realised, mainly where evidence has raised questions regarding the education of nurses.

Many studies have questioned the quality of prescribing education for nurses. Research by Latter et al. (2007), Baird (2001) and Luker et al. (1998) have highlighted shortfalls with students acquiring adequate knowledge regarding the assessment and diagnostic skills required to prescribe safely. Similarly, studies by Gill et al. (2019), Preston et al. (2019), Smith et al. (2014) and Latter et al. (2010) have also identified significant gaps in the pharmacological knowledge of student nurses and qualified nurses who are undertaking prescribing programmes. It is therefore essential to consider the questions this raises, particularly given newly qualified nurses entering prescribing programmes in the future, will arguably hold less nursing experience, given their limited exposure to practice.

In a recent study by Khan and Hood (2018), which explored the student's perspective of pharmacological teaching within pre-registration nursing curricula, a majority of students supported an increased level of pharmacological education within their programme, despite the perceived level of difficulty it presents. The findings of this study compare with earlier studies by Latimer et al. (2017), Page and McKinney (2007) and Manias and Bullock (2002), who suggest AEIs have appropriately, in support of person-safety, placed emphasis on the principles of safe drug administration, rather than equipping students with the pharmacological underpinnings associated with the broader complexity of medicines management. However, ensuring 'prescriber readiness', is not merely limited to the students' level of pharmacological knowledge. As cited earlier, students will also require an enhanced level of knowledge regarding assessment and diagnostic skills, to prepare learners with undertaking clinical assessments which go far beyond the practice of prescribing.

4. Assessment & diagnostic skills

The level to which student nurses require educating in the clinical assessment of people should be considered, particularly given future students will be required to demonstrate a much broader level of competence. For example, under the new standards for pre-registration nurse education (NMC, 2018a), students must be educationally prepared to perform chest auscultation and interpret blood profiles and electrocardiograms, in addition to being 'prescriber ready'. Considering this, a prerequisite before becoming a prescribing nurse, is the ability to demonstrate competence in the assessment of people, something which has remained integral to pre-registration nurse education (NMC, 2014 & NMC, 2018a). However, while competence or proficiency is a nebulous concept to define, clarity is required to gauge what measures will be taken to assess the competence or abilities of a newly qualified nurse, who wishes to commence a non-medical prescribing programme. Perhaps, the current level of nurse education regarding clinical assessment and diagnostic skills will be sufficient, or, should AEIs consider the infrastructures required to deliver teaching strategies which sufficiently prepare students for prescribing programmes?

5. Nurse educators

While AEIs are undoubtedly responsible for preparing pre-registration nursing students with a level of pharmacological and clinical assessment education and skills, these knowledge and skills are integral to current nursing practice, despite any new educational standards. While the concept of 'prescriber ready' may initially seem a challenge to AEIs, part of the solution should be an opportunity for reflection, ensuring any future curricula is robustly adapted, to prepare students to consider medicines beyond the typical administrative paradigms, which may arguably place additional emphasis on polypharmacy and pharmacovigilance, including person-centred and prudent healthcare principles. However, if future nurse education requires a greater depth of clinical assessment and pharmacological teaching, the ability to deliver this within existing infrastructures may nevertheless be considered challenging, for example, where Universities have limited access to pharmacists to deliver taught content, or where educators are themselves not familiar with nurse prescribing. Further, since nurse education is also supervised and taught within clinical practice, questions may be raised regarding the ability to deliver effective practice supervision concerning pharmacology or prescribing, regardless of the student's ability to work alongside other professionals who can prescribe.

While there is limited historical evidence of the mass upskilling of nurse educators to facilitate new curriculum changes, such as delivering a more intensely pharmacological focussed programme, some educators

may question their ability to deliver what is required. Moreover, with broader changes to the new nursing curriculum, such as the inclusion of many new clinical procedures, such as those cited earlier, educators and practice assessors are likely to require some pragmatic investment, if students are to receive the very best education and experience.

Given AEIs have been offered a new and exciting opportunity to develop the future and arguably a more 'advanced' and dynamic nursing workforce, there should first be a celebration of current achievements, and the excellent teaching and research which is taking place in nurse education within the U.K. (Quacquarelli Symonds, 2018). While pre-registration nursing students may require a new more progressive curriculum, there is much to be celebrated. That said, AEIs now have a crucial responsibility in the re-shaping of curricula, developing conditions which sufficiently educate nurses, taking into account the students' current and future potential and despite any infrastructural issues required.

6. Curriculum design

Assuming AEIs are providing some of what is already required to prepare student nurses to be 'prescriber ready', given pharmacology and assessment is not foreign to nursing, some thought towards teaching methodologies may nevertheless be required to optimise student learning. A recent systematic literature review by Gill et al. (2019), which explored best practices for teaching pharmacology to nurses, found online learning, simulation and integrated methods of teaching have the most impact on pharmacological knowledge. Moreover, the study found simulation-based education in particular, greatly improved the students' knowledge and skill acquisition, which would arguably lend itself to teaching the application and skills associated with pharmacology and prescribing. However, the study also found more extensive benefits with the use of methodologies such as online learning, including flexibility, convenience and reduced didactic content delivery, all of which had a positive impact on the students overall learning experience. Further, while the use of online learning may offer benefits for students, it may also provide a practical solution, where for example, there may have previously been a focus on delivering pharmacological teaching within the classroom environment.

Given simulation and online methods are a possible pragmatic solution to the teaching of knowledge and skill, this could be delivered through a blended approach, combining online learning with *Simulated Scripted Analysis,* whereby the development of real patient scenarios and scripted debriefing tools could enable and support students to practice, combining knowledge with skill (Gill et al., 2019 & Gum et al., 2011). Implementation of such teaching strategies, which are often common within medical curricula (Bartlett et al., 2017 & Dent et al., 2017), could support teachers to provide transformative learning opportunities, which may optimise the learner's ability to think critically with clinical problem solving and diagnostic decision making. Further, it could offer student nurses broader, more original learning opportunites, which consequently may reduce the risk of error in a number of diverse situations.

The combination and development of such simulated teaching could also be considered with wider interprofessional and collaborative partners, such as allied health professionals and medical students (Jakobsen et al., 2017 & Wietholter et al., 2017). This added dimension may further optimise the students' learning, presenting a heightened level of realism, and by offering all students valuable insight into the complexity of each others' role. When combined with the NMC's acknowledgement of the value of simulation in some circumstances within pre-registration nursing curricula (NMC, 2018a), this could provide students with safe, experiential learning opportunities.

7. Conclusion

With nursing becoming far more advanced, and with recognition that nurses are of the calibre to deliver a whole range of skills which were once exclusive to medicine, AEIs have a responsibility to adapt or re-design nursing curricula, irrespective of the challenges presented. While for some, the concept of a more sophisticated, advanced nurse who can prescribe and manage the ever-increasing complex needs of people, may initially seem an unrealistic challenge, AEIs are likely to be delivering much of what is required to educate and transform nurses into the modern hybrid nurse, albeit requiring some evaluation of potential infrastructures. With some acknowledgement of the impact on learning of various teaching strategies, such as those which increase the level of combining knowledge with skill, and by including opportunities for inter-professional learning, AEIs and their educators can ensure future students are sufficiently prepared for the exciting challenge ahead, in adopting the varied and complex roles as contemporary, hybrid nurses.

Funding source

N/A

Conflict of interest

N/A

Ethical approval

N/A

References

Baird, A., 2001. Diagnosis and prescribing: the impact of nurse prescribing on professional roles. Prim. Health Care 11, 24–26.
Bartlett, M., Gay, S.P., Kinston, R., McKinley, R., 2017. Taking on the doctor role in whole-task simulation. Clin. Teach. 15 (3), 236–239.
Bhanbhro, S., Dreenan, V., Grant, R., Harris, 2011. Assessing the contributions of prescribing in primary care by nurses and professionals allied to medicine: a systematic review of the literature. Biomed. Cent. 11 (1), 330–340.
Courtenay, M., Carey, N., Burke, J., 2007. Independent extended and supplementary nurse prescribing practice in the UK: a national questionnaire survey. Int. J. Nurs. Stud. 44 (7), 1093–1101.
Day, M., 2005. UK doctors protest at extension to nurses' prescribing powers. Br. Med. J. 331 (7526), 1159.
Dent, J., Harden, R,.M., Hunt, D., 2017. A Practical Guide for Medical Teachers, 5thEd. Elsevier, London.
Department of Health, 2006. Nurse Prescribing Training and Preparation: Extended Formulary Nurse Prescribing and Supplementary Prescribing. Department of health, London.
Department of Health & Social Security, 1986. Neighbourhood Nursing: A Focus for Care, Cumberledge Report. Department of Health, London.
Department of Health, 1989. Report of the advisory group on nurse prescribing (Crown Report). Department of Health, London.
Dong-Lan, L., Chun-Mei, L., Hui, L., Xiao, X., Hong-Jing, Y., 2018. The necessity and possibility of implementation of nurse prescribing in China: an international perspective. Int. J. Nurs. Sci. 5, 72–80.
Funnell, F., Minns, K., Reeves, K., 2014. Comparing nurses' and doctors' prescribing habits. Nurs. Times 110 (29), 12–14.
Gill, M., Andersen, E., Hilsmann, 2019. Best practices for teaching pharmacology to undergraduate nursing students: a systematic review of the literature. Nurse Educ. Today 74, 15–24.
Gum, L., Greenhill, J., Dix, K., 2011. Sim TRACT: a reflective conceptual framework for simulation debriefing. J. Transform. Educ. 9 (1), 21–41.
Hooker, R., Cipher, D., 2005. Physician assistant and nurse practitioner prescribing: 1997-2002. J. Rural. Health 21 (4), 355–360.
Jakobsen, R, B., Gran, S, F., Grimsmo, B., Arntzen, K., Fosse, E., Frich, J. C. & Hjortdahl, P. (2017) Examining participant perceptions of an interprofessional simulation-based trauma team training for medical and nursing students. J. Interprof. Care Vol. 32, No. 1, pp.80–88.
Khan, E., Hood, P.A., 2018. Nurses' perspectives on pharmacology: why, what and at which point of the curricula should education be delivered? Br. J. Nurs. 27 (10), 546–553.
Kroezen, M., Francke, A.L., Groenewegen, P.P., Van Dijk, L., 2012. Nurse prescribing of medicines in Western European and Anglo-Saxon countries: a survey on forces, conditions and jurisdictional control. Int. J. Nurs. Stud. 49 (8), 1002–1012.
Ladd, E., Schober, M., 2018. Nurse prescribing from the global vantage point: the intersection between role and policy. Policy Polit. Nurs. Pract. 19 (1–2), 40–49.
Latimer, S., Hewitt, J., Stanbrough, R., McAndrew, R., 2017. Reducing medication errors:

teaching strategies that increase nursing students' awareness of medication errors and their prevention. Nurse Educ. Today 57, 7–9.
Latter, S., Maben, J., Mayall, M., Young, A., 2007. Evaluating nurse prescribers' education and continuing professional development for independent prescribing practice: findings from a national survey in England. Nurse Educ. Today 27 (7), 685–696.
Latter, S., Blenkinsopp, A., Smith, A., Chapman, S., Tinelli, M., Gerard, K., Little, P., Celino, N., Granby, T., Nicholls, P., Dorer, G., 2010. Evaluation of Nurse and Pharmacist Independent Prescribing. (Department of Health Policy Research Programme Project).
Latter, S., Smith, A., Blenkinsopp, A., Nicholls, P., Little, P., Chapman, S., 2012. Are nurse and pharmacist independent prescribers making clinically appropriate prescribing decisions? An analysis of consultations. J. Health Serv. Res. Policy 17 (3), 149–156.
Luker, K.A., Austin, L., Hogg, C., Ferguson, B., Smith, K., 1998. Decision making: the context of nurse prescribing. J. Adv. Nurs. 27 (3), 657–665.
Maier, C., Koppen, J., Busse, R. & Munros. (2018). Task shifting between physicians and nurses in acute care hospitals: cross-sectional study in nine countries. Hum. Resour. Health Vol.16, No.24, pp.1–12.
Manias, E., Bullock, S., 2002. The educational preparation of undergraduate nursing students in pharmacology: clinical nurses' perceptions and experiences of graduate nurses' medication knowledge. Int. J. Nurs. Stud. 39 (8), 773–784.
Nursing and Midwifery Council, 2006. Standards of Proficiency for Nurse and Midwife Prescribers. London: Nursing and Midwifery Council.
Nursing and Midwifery Council, 2014. Standards for Competence for Registered Nurses. London: Nursing and Midwifery Council.
Nursing and Midwifery Council, 2018a. Future Nurse: Standards of Proficiency for Registered Nurses. Nursing and Midwifery Council, London.
Nursing and Midwifery Council, 2018b. Standards for Prescribing Programmes. Nursing and Midwifery Council, London.
O'Connell, E., Creedon, R., McCarthy, G., Lehane, B., 2009. An evaluation of nurse prescribing: part 2: a literature review. Br. J. Nurs. 18 (22), 1398–1402.
Page, K., McKinney, A., 2007. Addressing medication errors: the role of under graduate nurse education. Nurse Educ. Today 27 (3), 219–224.
Pearce, L., 2016. Nurse-led general practice blazes a trail. Nurs. Stand. 30 (26), 22–23.
Preston, P., Leone-Sheehan, D., Keys, B., 2019. Nursing students perceptions of pharmacology education and safe medication administration: a qualitative research study. Nurse Educ. Today 74, 76–81.
Quacquarelli Symonds, 2018. QS Top Universities. Available from: https://www.topuniversities.com/university-rankings/university-subject-rankings/2018/nursing.
Romero-Collado, A., Raurell-Torreda, M., Zabaleta-Del-Olmo, E., Rascon-Hernan, C., Homs-Romero, E., 2017. Nurse prescribing in Spain: the law and the curriculum. Nurs. Health Sci. 19, 373–380.
Royal College of Nursing, 1978. District Nurses Dressings. Unpublished Report to the Royal College of Nursing (RCN), from the Community Nursing Association of the RCN. (Copy in RCN Archives).
Smith, A., Latter, S., Blekinsopp, A., 2014. Safety and quality of nurse independent prescribing: a national study of experiences of education, continuing professional development and clinical governance. J. Adv. Nurs. 70 (11), 2506–2517.
The Medicinal Products: Prescriptions by Nurse's Act, 1992. c.27. Available from: https://www.legislation.gov.uk/ukpga/1992/28/pdfs/ukpga_19920028_en.pdf.
Wietholter, J.P., Grey, C., Howard, C., Johnson, B., 2017. N., Sween, R. & Rowlands, A, E. Interprofessional collaborative practice through an adult medicine based simulation. Journal of InterprefessionalInterprofessional Education & Practice. 9, 21–26.

Stephen Prydderch, @sbprydderch
Bangor University, Bangor, Gwynedd, North Wales, LL57 2DG, UK
E-mail address: s.prydderch@bangor.ac.uk.