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Non-medical prescribing assessment – An evaluation of a nationally agreed multi method approach

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ABSTRACT

In the United Kingdom, legislation permits nurses and allied health professionals to prescribe for patients within their care. Preparation for this role includes learning, teaching and assessment that is embedded in practice, supervised by a designated medical practitioner (DMP) and evidenced in a reflective learning in practice portfolio.

Aim: The objectives were to explore; (1) which assessment in the practice portfolio was ranked most valuable in terms of achieving safe, effective prescribing practice and, (2) whether a practice based assessment (SDEP) was an acceptable alternative to an Observed Simulated Clinical Examination (OSCE).

Methods: Online surveys were conducted and follow up semi structured telephone interviews were conducted across 5 universities in Scotland with students, DMPs and line managers.

Results: Students ranked the learning log most valuable and DMPs and line managers ranked the SDEP most valuable. Survey and follow up interviews suggested that the portfolio provided the opportunity to develop prescribing skills and knowledge relevant to their specific clinical speciality. There was agreement amongst all participants that clinical assessment in the practice portfolio effectively enable non-medical prescribing students to evidence prescribing competence.

Summary: The novel use of the SDEP and reflective summary offers a viable alternative to an OSCE and was viewed as one of the most valued components of the assessment strategy.

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Introduction

Changes in patient and workforce demographics have resulted in substantial developments for UK and international health care policy and service delivery in the last few years. Public health and medical advances mean that patients are living longer with complex and enduring conditions and there is an increased need for care that is holistic, team based and delivered as close to home as possible (Coulter et al., 2013). Such changing needs have resulted in many opportunities for service redesign and development of roles in practice. In terms of professional roles, the opportunity for non-medical staff to become prescribers in their area of clinical expertise, has dramatically changed health care services and continues to do so. For patients and users of services this has the advantage of offering quicker and more efficient access to medications (Courtenay et al., 2011). For professionals who are qualified to do so, it makes better use of their skills, knowledge and expertise (Watterson et al., 2009, Department of Health (DOH), 1999, Health and Care Professions Council (HCPC), 2013). Prescribing has become an integral part of nursing practice globally with countries including the United States of America (USA), Australia, Netherlands, Spain, South Africa, Norway, and Sweden enacting legislation permitting the practice (Kroezen et al., 2012, 2011; Romero-Collado et al., 2014; Lim et al., 2014; Dunn et al., 2010).

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The UK is reported to have one of the most liberal prescribing legislation in the world (Kroezen et al., 2011). There are 2 mechanisms by which nurses and allied health professionals can prescribe in the UK, as an independent or supplementary prescriber. Since 1994 independent prescribing legislation has evolved from nurses prescribing from a limited formulary of medications to optometrists, pharmacists, podiatrists and physiotherapists and nurses prescribing any licensed and unlicensed medication within their professional competence (NICE, 2013). In accordance with amendments to the Misuse of Drugs Act (2015) pharmacy, nurse, podiatry and physiotherapy prescribers have recently been permitted to independently prescribe controlled drugs. Supplementary prescribing is a collaborative agreement between the independent (doctor or dentist) prescriber, supplementary (non-medical) prescriber and the service user. This tripartite agreement is set out in a Clinical Management Plan (CMP) which provides parameters within which the supplementary prescriber can initiate or titrate medications. With such liberal prescribing legislation patient safety is of paramount importance particularly because prescribing errors have been described as the single most preventable cause of patient harm (Williams, 2007). In the UK, medication errors are the third most common cause of patient safety events (Basey et al., 2014) and internationally prescribing errors are identified as an important cause of increased morbidity and mortality (Lewis et al., 2009). An in-depth investigation into the causes of prescribing errors by foundation year (FY) doctors (EQUIP study) reported the prescribing error incidence rate as 8.9% for doctors and 6.9% for nurses (Dornan et al., 2009).

Therefore, to protect patients, prescribing educational programmes necessitate a highly complex process of study, and assessment processes need to mirror such complexities. Compared to Ireland, New Zealand and the USA, UK programmes are shorter, have lower entry requirements and are not necessarily aligned to advanced practice programmes (Kroezen et al., 2011). These lower requirements in the UK do not appear to negatively affect clinical outcomes (Latter et al., 2012) and a recent study suggests that non-medical prescribers are satisfied with the educational preparation they receive (Smith et al., 2014). Although most countries where non-medical prescribing is permitted have guidelines and standards to which educational institutes design their programmes (Kroezen et al., 2011) it has been reported that there is variation in methods of programme delivery and assessment (Lim et al., 2007). This variation may pose a risk to patient safety and reduce movement of staff from region to region. To minimise risk, Scottish universities adopted a national approach to non-medical prescribing assessment. This assessment strategy includes learning in practice, a 'live' practice based assessment and academic written evidence. The assessments include a theory based examination and 6 assessments presented in a learning in practice portfolio of evidence (the portfolio) (Table 1). The portfolio demonstrates clinical prescribing competence relevant to their area of practice and is assessed clinically by students' DMP and academically assessed by the University.

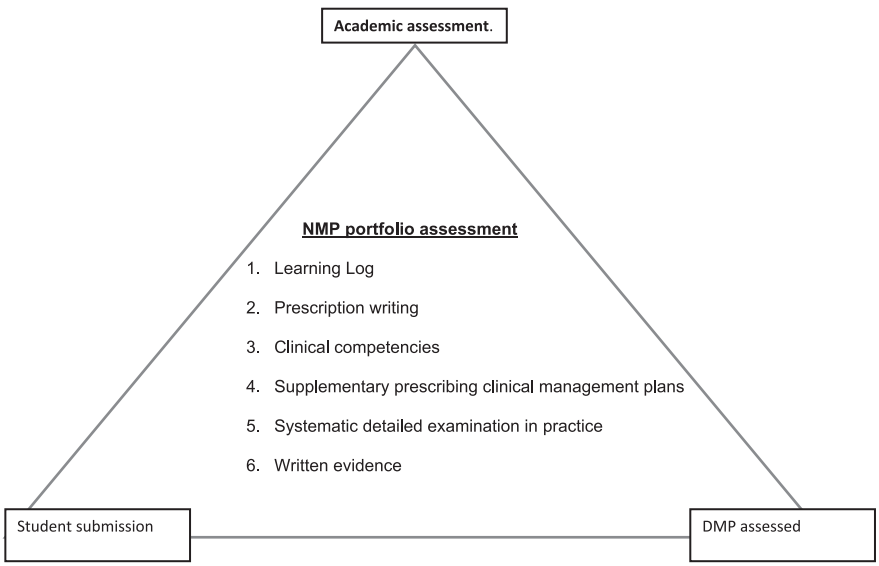
An assessment not widely used outside Scotland is a live practice based assessment, the systematic and detailed examination in practice (SDEP). Practice based scenarios have been reported in the non-medical prescribing literature (Forward and Hayward, 2005) however a recent systematic review of 47 articles (Kamarudin et al., 2013) noted none of the non-medical prescribing studies assessed competence in 'live' prescribing scenarios; instead, they assessed practice in a simulated environment. This assessment method was introduced to non-medical prescribing programmes in Scotland in 2007, takes place in practice with a service user and is assessed by the DMP. A written account of this examination is presented in the portfolio as part of the academic assessment. With professional re-approval scheduled for 2012 and no formal evaluation of the SDEP it was felt timeous to explore the value of this and other aspects of the assessment strategy contained within the portfolio. Therefore this study explored the non-medical prescribing portfolio assessment strategy in Scotland from the perspective of students, DMPs and line managers. It was part of a wider study, funded by the Scottish Government which explored key stakeholders views of the learning in practice experience and portfolio assessment.

Background

The portfolio and learning in practice

Learning in practice is integral to all aspects of nurse, allied health professional, pharmacy, and medical education and based

Table 1
Multi method approach to assessment.



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upon professional requirements and competencies (Nursing and Midwifery Council (NMC), 2006, General Medical Council (GMC), 2013, Health and Care Professions Council (HCPC), 2013). Educators and clinicians have long grappled with how students may demonstrate the required knowledge and clinical abilities for practice. In 1990 Miller advocated multiple strategies for assessment in order to capture the complexities of practice in the field of medicine. His pyramid of knowledge, competency, performance and action, are as relevant today (Miller, 1990). Academic portfolios of evidence are one way that students are able to demonstrate their learning and combined with practical assessments, it is suggested that they can be an effective means of demonstrating clinical competence (O'Sullivan et al., 2012). Although portfolio development has been reported as time consuming to complete and difficult to offer consistency in grades awarded (Norman, 2008; Brennan and Lennie, 2010), students also recognise the value of reflection upon practice (Davis et al., 2009). A study of 114 dietetic students from 11 English universities, viewed portfolios as a satisfactory method of assessment (Brennan and Lennie, 2010). In a qualitative analysis of portfolios submitted by 35 post graduate doctors in Sweden, it was suggested that this method of assessment provided an opportunity for reflection on professional and ethical issues (Haffling et al., 2010). In the context of non-medical prescribing, studies have reported that students have felt prepared for practice on qualification (Boreham et al., 2013) and have discussed approaches to prescribing assessment (Nuttall, 2013; McEwan and Taylor, 2007) but none of these reported the effectiveness of assessment in the context of safe prescribing practice.

OSCE and 'live' practice based assessment

The OSCE is suggested to be a valid and reliable tool for evaluating the skills of undergraduate prescribing students (Mucklow et al., 2012). It has been viewed as the cornerstone of health care professional assessment for a number of years as it provides a standardised approach to assessment (Byrne and Smyth, 2008; Rushforth, 2007; Jefferies et al., 2007). However there are a number of limitations to this form of assessment for non-medical prescribing students. Students are recruited from a range of specialities, professional disciplines and fields of nursing practice. To design a 'one size fits all' prescribing scenario for an OSCE is challenging. Non-medical prescribing students' experience, background and prior education will determine whether the emphasis of their prescribing practice is on medicines review, emergency treatment or prescribing over a longer period of time. Therefore a practice based assessment was considered by course leaders in Scotland as an alternative. This introduction of the SDEP were supported by a small scale qualitative study carried out in the UK of 35 non-medical prescribing students by Forward and Hayward (2005) which compared the OSCE to a practice based assessment. Results suggested that students preferred the latter and, when combined with a portfolio demonstrating achievement of learning outcomes, was more meaningful. However the effectiveness of the assessment in the context of achieving safe and effective prescribing practice was not described. This study intended to address this gap in the literature.

The current study

The aims of this study were to:

1 Explore which of the assessments contained within the portfolio was the most effective in the context of developing safe effective prescribing practice from the perspective of students DMPs and line managers.

2 Investigate whether the SDEP was an acceptable alternative to the OSCE.

This research proposed take into account not just the student views but also DMPs and line managers. Student feedback is integral to curriculum development (Parrish and Crookes, 2014; Goldfarb and Morrison, 2014), therefore to explore the assessment strategy from the student's perspective was central to the study's design. The views of DMPs were of particular importance given a recent a systematic review which reviewed the implementation of non-medical prescribing in 7 countries (Kroezen et al., 2011). It reported that, out of the 7 countries reviewed, the UK and Ireland had a unique approach to assessment whereby medical staff (DMPs), rather than nurses, assessed clinical competence. As a result their views of the assessment warranted exploration. Kroezen et al. (2011) also suggested non-medical prescribing may not be fully implemented in practice partly due to uncertainty about educational preparation. Line managers have responsibility to monitor and support prescribing governance post qualification, therefore their perspective on the educational preparation of students was important to ensure they agreed that practitioners were adequately prepared for safe effective prescribing practice post qualification.

Ethical considerations

The study was conducted following ethical approval by Dundee University Ethics Committee and this approval was endorsed by Edinburgh Napier, Glasgow Caledonian, University of West of Scotland and Robert Gordon Universities in July 2012. Institutional ethical codes of conduct were followed which included providing written information to participants about the study and ensuring all collected data was stored in accordance with the Data Protection Act (1998).

Study participants

The study took place in summer and autumn 2012. Study participants were September 2011 students (n = 120), DMPs (n = 100) and managers (n = 100) enrolled on Nursing and Midwifery Council (NMC) accredited non-medical prescribing programmes in five Universities in Scotland.

Methods

The study was in two stages. Stage one comprised of an online survey and stage two comprised of follow-up telephone interviews with a purposive sample of stage one participants.

Stage one – online survey

A 15 item survey was developed by non-medical prescribing course leaders for students, DMPs and line managers. This comprised of both open and closed questions. The initial questionnaire was based on course feedback from previous students, components of the portfolio and research evidence related to portfolio assessment. The survey was reviewed by non-medical prescribing strategic leads and course leaders and agreed changes implemented. The final version was uploaded onto the Bristol Online Survey (BOS). This survey tool has been designed for use in academic institutes and provides a platform for administering and analysing survey and research data. The final online questionnaire was piloted with a course leader and a sample of current prescribing students to assess time to complete, comprehension and ease of use before distributing to participants.

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The link to the survey was distributed to all eligible participants and included an electronic consent form. They were given six weeks to complete the questionnaire with a reminder email sent at 3 and 5 weeks.

The survey consisted of four main sections relevant to the portfolio assessment; (1) demographic data which related to professional background, area of speciality and, for students, whether they had completed the programme of study; (2) an invitation to rank 6 components of the portfolio assessment in terms of which most clearly demonstrated safe effective prescribing practice; (3) free text comments to further explore the rationale for the participants highest and lowest ranked assessment; (4) an invitation to participate in stage 2 of the study and to submit a contact email address.

Stage 2 – follow up telephone interviews

Following a preliminary analysis of stage one data follow-up interviews were conducted with a purposive sample of consenting stage one participants. A topic guide was developed by the research team based on themes identified from stage one survey data. The aim of this was to verify and provide a more in-depth explanation of the themes identified. Sampling of stage two participants was based on professional background and whether they worked in primary or secondary care.

Data analysis

In stage one a preliminary descriptive analysis of survey responses was generated using the BOS programme. Data relating to ranking was directly extracted from the BOS and reported. Free text comments within the surveys were analysed thematically using a 15 point checklist described by Braun and Clarke (2006). All data sets were read repeatedly, and then extracts from the themes were hand coded and manually organised into categories to reflect original research aims. Themes were then checked against each other by 2 researchers (RP and SG) and back to the original data until it was agreed that themes emerging from data were internally coherent, consistent and distinctive.

In stage two semi structured interviews were digitally recorded, transcribed verbatim and verified by the research team. All data were analysed thematically as in stage one and manually organised into categories to reflect themes identified in stage one. Stage one and stage two themes were presented to other members of the research team who compared them with the original data sets and verified that extracts from the data accurately represented identified themes of both data sets.

Results

In stage one a response rate of 38% (n = 121) was obtained with 29% of students (n = 67), 22% of DMPs (n = 28) and 11% (n = 26) line managers responding to the survey. Of these 9% (n = 29) participants did not complete the survey. To ensure that all participants' views were taking into account, data from incomplete and completed surveys were included in the analysis.

In stage 2, 9% (n = 28) of those participating in phase 1 agreed to take part. Of those, 75% were students (n = 21), 14% managers (n = 4) and 14% DMPS (n = 4) Following purposive sampling three students; one allied health professional, one specialist community practitioner and one specialist hospital based practitioner were selected to participate. Due to small number of DMPs and line managers agreeing to participate all were invited. Three DMPs; (2 general practitioners and one hospital consultant) and one line manager from private practice were recruited.

Quantitative responses

Participants were asked closed questions regarding the sector they worked in and if students had successfully completed programme. Table 2 illustrates the background of those participating in the survey. 97% student respondents (n = 65) successfully completed the programme.

Ranking of assessment

In terms of achieving safe and effective prescribing practice students ranked the 78 h of learning in practice as the most effective. Line managers and DMPs ranked the SDEP as the most effective. The least effective in achieving safe practice according to students were supplementary prescribing clinical management plans, with others ranking written evidence as least effective. Students ranked written evidence as third most effective.

Qualitative themes

Themes extracted from stage 1 and 2 were categorised under the following themes.

1 Contextualisation of the generic principles of prescribing
2 Verification of competence by expert prescribers
3 Written evidence to support competence.

Contextualisation of the generic principles of prescribing

The learning log was ranked as most effective by the students and this was verified in follow-up interviews. The learning log was described as 'an invaluable tool for prescribing practice' which 'encourages reflection and allows mentors to see where there might be learning gaps'.

Amongst students, the least effective was the requirement to demonstrate competence as a supplementary prescriber through a CMP. This assessment was felt to have no clinical application due the diminishing use of supplementary prescribing in practice and was viewed as a paper exercise rather than related to practice. This was particularly evident in those working in secondary care.

> *"There is no place for clinical management plans in my practice, therefore only completed because it was a requirement for the portfolio." (Student.54)*

> *"..The CMP within supplementary prescribing was not relevant in secondary care inpatients"(DMP.1)*

> *"... Do not use CMPs therefore this was inappropriate and very stressful / time consuming for the staff" (Line Manager.16)*

Table 2
Demographic data online survey participants.

Practice area/ Respondents.	Student (n = 67)	DMP (n = 28)	Line manager (n = 26)
NHS primary	53.7% (n = 36)	50% (n = 14)	50% (n = 13)
NHS secondary	41.8% (n = 28)	46.4% (n = 13)	46% (n = 12)
Non NHS	3% (n = 2)		
Other	1.5% (n = 1)	3.6% (n = 1)	3.8% (n = 1)
Successful completion of assessments	97% (n = 65)	N/A	N/A

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Verification of competence by expert prescribers

Verification of competency by expert prescribers through an assessed live consultation (systematic and detailed examination in practice) was ranked most effective by DMPs and line managers who felt this assessment prepared them well for their future prescribing role. It was felt to *"prepare the student for the rigorous and stringent demands of being a nurse prescriber."*

The approach to prescribing assessment resulted in students demonstrating safe and effective practice.

> *"I am impressed how careful, thoughtful and reflective my students have been and how seriously they take the role of the prescriber and the risks and benefits that medicines can bring…. "(DMP.9)*

To be assessed and deemed clinically competent by an expert in their specialist area of practice was also ranked highly amongst students and allowed them to be observed in practice and was felt to be *"very beneficial as this is true to practice within my clinical area."*

Interview results suggested that observed clinical assessment was valued higher than paper based assessment, for example the written reflective summaries:

> *"…prescribing is a practical and complex skill so practical assessments are the most valuable… observation more valuable than reading over work. "(DMP.2)*

Written evidence to support competence

The written evidence to support clinical competence was ranked least effective by DMPs and line managers. Those that ranked the written evidence as the least effective method of achieving safe and effective prescribing practice felt that it was stressful, time consuming and an academic exercise rather than an integrated assessment of theory and practice.

> '[Written evidence] *seems largest stressor for students here; this is valuable as a reflective tool but brings little in terms of practical competence.' (Line Manager.9).*

It was felt that it may not be a true reflection of students' ability to prescribe:

> *"[The written evidence]……can be put together in way to make a poor candidate appear considerably stronger than they are*"(DMP.5)
>
> *"I lost my life for 2 months. I think if the fact that prescribing would make my role so much easier I would have given up" (Student.1)*

Although these statements were echoed by some student survey participants, the portfolio was ranked third highest and a larger number felt that the written evidence developed knowledge in their specialist area of practice and consolidated underpinning theory.

> *"I felt [the written evidence] gave the best indication that my learning had been effective. It showed that I had achieved the clinical competencies and how my learning in practice had allowed me to achieve the competencies. It also showed how I would integrate these new skills into my day to day practice" (Student.28).*

This was echoed by DMPs who felt that the written work was important but had to be contextual,

> *"I think it has to be kept very relevant to the post that they're doing and where they expect to be after they're qualified, so it's about the relevance of the written work…not all areas are relevant to some people, so it should be some areas should be optional" (DMP.1).*

Discussion

The findings from this study highlight a number of issues related to a multi-method approach to portfolio assessment.

53.7% of student respondents were based in primary care and 41.8% in secondary. Line managers and medical practitioners were equally distributed between primary and secondary care. This decrease in student recruitment from primary care is consistent with previous studies which have reported a gradual shift from primary to secondary care (Ahuja, 2009; Courtenay et al., 2007, 2012). This can perhaps be attributed to changes in legislation in 2006, and with non-medical controlled drug prescribing aligned with medical prescribing recruitment from secondary care is likely to remain high.

Ranking of assessments

Assessments favoured by clinicians are those which are contextual to real world prescribing. The learning log and SDEP were ranked most effective by managers, DMPs and students and qualitative data suggested that this was because it was directly related to clinical skills and knowledge post qualification. Perhaps it is not surprising that it is valued by clinicians who are responsible for verifying and providing safe effective prescribing practice. Moreover the practice based assessment is aligned to NMC standards of proficiency (NMC, 2006) and directly related to professional competence. This is consistent with findings in previous literature (Forward and Hayward, 2005) however further evaluation of its effectiveness in the context of attaining safe and effective practice through outcome based studies would strengthen the argument for widening the use of this assessment to other competency based programmes. There are limitations in using this assessment in isolation as it may not explore the evidence to support the decision making process nor does it provide critical reflections on the holistic consultation (Driessen, 2008). Non-medical prescribing programmes in Scotland have addressed this limitation by triangulating the SDEP with a written reflective commentary. This encourages the student to consider the feedback provided by the DMP and service user or significant other in addition to presenting the evidence base to support the prescribing decision. This triangulated approach takes the positive aspects of clinical and academic assessment whilst compensating for the weaknesses of each and overall appears to be positively received. Results from this study suggest that the SDEP is an acceptable alternative to OSCE particularly when there is a broad range of disciplines and professions enrolled on one programme.

Students ranked development of clinical management plans as part of supplementary prescribing as least effective in developing safe and effective prescribing practice. This may reflect a change in practice since the extension of independent prescribing legislation, or may be a reflection of the change in student demographics from primary to secondary care. Although previous research has supported the view that supplementary prescribing may be beneficial for novice prescribers (Cooper et al., 2008) it is generally viewed a cumbersome form of prescribing which has the potential to restrict practice (Courtenay et al., 2012; Courtenay and Carey, 2008). This research has provided further evidence that supplementary prescribing may no longer be a necessary form of prescribing for non-

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medical prescribers. A national survey of all independent and supplementary prescribers would fully establish the frequency and utility of supplementary prescribing. This would inform whether a dual independent and supplementary prescribing entry on the NMC register is still necessary. An added benefit of separate entries is that student non-medical prescribers could focus on clinically relevant prescribing in their portfolio rather than having to demonstrating academic competence of a skill that now appears to have limited practical application.

Line managers and DMPs ranked the written evidence as least valuable in terms of demonstrating safe effective prescribing practice yet students ranked it as third most important. Compilation of the written reflective evidence in the portfolio involves the application of prescribing theory to students own practice through a process of critical reflection. The data suggests that for students it provides an opportunity to apply prescribing theory to their own area of practice. The portfolio verifies that the clinical evidence has been rigorously assessed by expert practitioners in practice, meets the required academic level and also equips the student with the skills to take responsibility for their own professional development (Joyce, 2005; Sturmberg and Farmer, 2009; Tochel et al., 2009). However, other respondents were sceptical in terms of relevance to practice and time spent compiling evidence. This may be for 2 main reasons; the written evidence is a personal reflection of students' own learning and although significant to them, external parties may not appreciate its value or relevance to professional practice. Secondly clarity in terms of the aims, guidance and longer term benefits associated with the written evidence may not have been clearly articulated to managers and DMPs. One way that may reduce scepticism is for universities to provide evidence of long term benefits in the context of continuing professional development and revalidation (Scholes et al., 2004). The argument for continuing with portfolio assessment may also be strengthened if there was empirical evidence that demonstrated changes in the student's knowledge and abilities and linking this to patients' outcomes. This would provide evidence of its value in the development of safe effective prescribing practice (Buckley et al., 2009).

The strengths of this study are two fold, firstly it has systematically obtained a broad range of views of students, DMPs and managers involved in non-medical prescribing programmes in Scotland. Secondly, this is the only multi-centre study in the UK that has rigorously explored the value of assessment associated with non-medical prescribing programmes since legislative changes in 2006. There are limitations to the study – the participant numbers were small and concentrated on one cohort of students, their managers and DMPs and as a result may limit the generalizability of findings. However this study may inform the design and direction of future of non-medical prescribing research in the UK.

Conclusion

The novel use of assessment in practice, which is reflected on in the portfolio of evidence, offers an alternative to OSCE and, along with a practice learning log are the most valued parts of the current prescribing assessment strategy. There was agreement amongst all stakeholders that the use of portfolios effectively enable non-medical prescribing students to evidence prescribing competence in practice, however evidence contained in it had to be relevant to practice. This study has made 3 main recommendations for education and practice: (1) to continue to develop and evaluate the use of the SDEP, (2) to explore the continued value of a dual independent and supplementary prescribing qualification and (3) to consider how to evaluate the changes in students' knowledge and abilities during the course of portfolio development.

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