General Practice Clinical Pharmacist Standards of Practice for Delivery of Polypharmacy and Chronic Disease Medication Reviews: A Consensus Study.

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Research Article

Keywords: Chronic Disease, Polypharmacy, Pharmacist Standards

Posted Date: October 18th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-959429/v1>

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Version of Record: A version of this preprint was published at International Journal of Clinical Pharmacy on March 23rd, 2022. See the published version at <https://doi.org/10.1007/s11096-022-01387-7>.

Abstract

Background

General practice in the UK is experiencing a crisis. Greater multidisciplinary working is a potential solution. The new general practice contract in Scotland encourages this and includes a new pharmacotherapy service to be delivered by General Practice Clinical Pharmacists (GPCPs). Consensus is lacking for the standards of practice for delivery of pharmacotherapy medication reviews (which are polypharmacy and chronic medication reviews) as part of this service.

Aim

To identify and validate standards of practice for polypharmacy and chronic disease medication (pharmacotherapy level 3) reviews conducted by GPCPs.

Method

A two-phased mixed-methods consensus methodology was used. Phase 1: An expert group of GPCPs (n=4) and clinical pharmacist managers (n=2) responsible for delivering the pharmacotherapy service used a Modified Nominal Group Technique to generate potential standards. Phase 2: Two-round Delphi survey involving GPCPs with ≥ 1 year of experience of working in general practice (n=159).

Results

The expert group identified 44 potential standards of practice for polypharmacy and chronic disease reviews. Practicing GPCPs indicated during the Delphi phase that the 44 standards were applicable to practice. The standards of practice covered seven main categories: skills, environment, qualifications, qualities and behaviours, knowledge, process and experience.

Conclusion

Practicing GPCPs indicated that the standards identified by the expert group are acceptable and valid for current practice and the delivery of polypharmacy and chronic medication reviews. The application of these standards to practice may help GPCPs and general practices to ensure equitable delivery of patient care.

Introduction

The recruitment crisis of doctors in general practice in the United Kingdom (UK) is well documented [1-3]. In part this is due to an aging patient population with complex needs and advances in medical care intensifying workloads, demands and pressures that compromise patient-centred care diminishing General Practitioners' (GPs) job satisfaction and health [2-4]. All of this, along with added pressures of COVID-19 pandemic is driving GPs away from the National Health Service (NHS), away from their professions, and away from patients [3, 5]. There is a need to redress these pressures; to enable a better work-life balance to allow GPs to fulfil personal responsibilities and needs [5, 6].

In the UK pharmacists have worked alongside GPs in general practices for over 20 years to improve patient care, outcomes and, more recently, free GP time and capacity [3, 7-11]. Consequently, across the UK, there is a drive to recruit more pharmacists to general practice and expand their roles to help general practice to continue to deliver patient services [12, 13]. The demand for General Practice Clinical Pharmacists (GPCPs) in Scotland has become more urgent since the introduction of the new General Medical Services (GMS) contract in Scotland in 2018, for full implementation by 2021 dependent on workforce availability [14]. This new contract includes a new three-tiered pharmacotherapy service to be delivered by GPCPs. Level 1 - 'core' service - includes authorising all prescription requests, immediate discharge letters, outpatient letters, medicine safety reviews and monitoring high risk medicines. Level 2 - 'additional advanced' service- includes medication reviews of ≥ 5 medicines and resolving high risk medicine problems with level 3 - 'additional specialist' service - including polypharmacy reviews and specialist clinics such as chronic pain, heart failure and diabetes clinics [14].

The GMS contract is clear on requirements to provide level 1 and 2 services, however, level 3 service necessitates definition as to how this service will be provided to ensure uniformity of care and patient safety. One of the ways this can be achieved is by developing a set of standards a pharmacist has to meet, in order to perform these tasks. A standard is a statement that provides a broad framework and describes how safe and effective care is delivered, hence providing support for pharmacists to improve and shape services [15].

Several sets of standards for pharmacy professionals are available from national organisations within the UK, North America and Australasia. Internationally, in 2012 the International Pharmaceutical Federation has published Global Competency Framework for Pharmacists which provided the basis for national standards set by many pharmacy regulatory bodies around the globe [16-19]. In the UK, General Pharmaceutical Council, Royal Pharmaceutical Society and Pharmaceutical Society of Northern Ireland published standards for safe and effective pharmaceutical care [20-23]. In 2016 both, Centre for Postgraduate Pharmacy Education and NHS Education for Scotland have published standards specifically for GPCPs and a GPCP competence framework respectively [24, 25]. All these publications have common themes such as patient-centeredness, good communication, multidisciplinary working, professionalism and speaking up about concerns. While a range of specialist clinical pharmacy service standards and competencies have been defined within the UK and elsewhere, a Canadian study is the only one that considered and developed competencies for pharmacists working in general practice [26-34]. This study however did not define standards of practice for the delivery of medication reviews, and hence more research is needed in this area.

Aim

To identify and validate standards of practice for polypharmacy and chronic disease medication reviews (pharmacotherapy level 3) conducted by GPCPs.

Ethics approval

This study received ethical approval from Robert Gordon University School of Pharmacy and Life Science Research Committee, approval number # S225, on 20/12/19.

Methods

Design

Two-phase consensus study. Phase 1 applied a Modified Nominal Group Technique (NGT) to generate and achieve consensus of standards of practice for polypharmacy or chronic disease medication review via an expert group. Phase 2 was a 2-round Delphi questionnaire used to gain broader GPCP workforce consensus and validate the standards using Conducting and Reporting of Delphi Studies (CREDES) guidelines (supplementary file1) [35].

Setting

The UK NHS is a taxpayer funded healthcare system. NHS Greater Glasgow and Clyde (NHSGGC) health board provides healthcare services for a diverse population of 1.2 million people across a varied urban region containing 260 general practices. NHSGGC covers six Health and Social Care Partnerships (HSCPs) and in 2020 employed 159 GPCPs working in general practices.

Phase 1: Modified NGT.

A modified NGT was used, see Figure 1. The expert group was recruited from experienced GPCPs meeting the following inclusion criteria: experience running regular established clinics for ≥ 4 years and prescribing on a regular basis; and lead clinical pharmacists, responsible for service delivery were invited to participate as the expert group. Co-authors were excluded from participation to reduce bias. A study recruitment email was sent to all GPCPs via HSCP lead clinical pharmacists in January 2020. A reminder email was sent to encourage participation 2 weeks later. Purposive sampling was employed. The NGT was facilitated by the authors (KEP, PF, CJ and HH)

Data generation. Consensus methods such as NGT are frequently used for structured idea generation and achieving agreements in healthcare research, especially when little is known on the subject and the opinions of the experts in the field are sought with the benefit of equal participation [36, 37]. A traditional NGT is a structured face-to-face method of generating consensus involving four key stages – idea generation, round robin, clarification of ideas and voting/ranking [38, 39].

This study employed a modified NGT, applying electronic voting/ranking after face-to-face silent idea generation, round robin and clarification of ideas by the expert group (Figure 1). Similar generated standards were then summarised into single standards between round 1 and 2 of ranking. A standardised data collection form for the silent idea generation phase was developed by the lead author (KEP) and this and the modified NGT process were piloted by KEP and two co-authors (PF and CJ).

Data Analysis. The standards generated by each participant during the face-to-face meeting populated an electronic Google forms questionnaire and sent to each participant for ranking. This involved 2 rounds of ranking (Figure 1). A 5-point Likert-type scale ('strongly agree', 'agree', 'neutral', 'disagree' and 'strongly disagree') was used. Consensus was defined as $\geq 80\%$ of participants agreeing ('strongly agree' or 'agree') for a standard to be accepted. Where participants selected 'strongly disagree' or 'disagree', the – standard was rejected. Standards achieving consensus in round 2 populated the Delphi phase.

Phase 2: Delphi.

Delphi questionnaire allows for wide participation and anonymity with 2 rounds commonly used in the literature, because it is known that more than 2 rounds can create participation fatigue and reduce participation [40, 41], therefore a 2-round Delphi was conducted. The first round Delphi questionnaire was informed by the modified NGT compiled by KEP and piloted by PF and a GPCP working within NHSGGC.

All experienced GPCPs (≥ 1 year experience in primary care) were invited to participate. This was to allow for a broad and relevant consensus to be achieved. Convenience sampling was employed. Co-authors were excluded from participation to reduce bias. A study recruitment email was sent to all GPCPs via HSCP lead clinical pharmacists for round 1 (March 2020) and round 2 (September 2020 – delayed due to COVID-19 pandemic). The email outlined the study, provided a link for the online Webropol questionnaire and requested that participants completed it within a 2 week timeframe. Participants consent to participate was sought prior to completing the questionnaire.

Data Analysis. The participants rated the presented standards for inclusion using a 5-point Likert scale (see above). Consensus setting varies between NGT and consensus studies, with most common ranges quoted between 70-90% [42-44]. Consensus was defined as $\geq 70\%$ of agreement (agree/strongly agree – standard accepted) or disagreement (disagree/strongly disagree – standard rejected). Standards achieving consensus ($\geq 70\%$ agree or disagree) were removed before the second round. The results from the second round were analysed via the same method.

Results

Demographics

The NGT expert group participants consisted of 4 GPCPs and 2 lead clinical pharmacists. All participants were female; median age 42 (range 37 to 53) years old, with a median of 13 years (range 7 to 20) experience working in general practice. All had additional postgraduate qualifications and were independent

prescribers with experience of running a range of medication review clinics; 67% (n=4) currently delivered patient facing clinics.

The Delphi phase captured responses from 59 (37%) and 86 (54%) GPCPs practicing in NHSGGC, for round 1 and 2 respectively (Table 1). Respondent characteristics were similar for round 1 and 2. They were of similar ages, the majority were female, had gained extra postgraduate qualifications and were prescribers. A similar proportion of GPCPs had experience in running clinics in both groups. In round 2 fewer clinicians reported that they currently ran medication review clinics.

Standards generation

Phase 1: modified NGT.

The expert group initially generated 121 standards during the silent generation and the round robin phases. Clarification of ideas and the first round of ranking rejected 25 standards: 13 due to duplication; 8 relating to medication review 'time'; 4 that related to governance (supplementary file 2).

The remaining 96 standards were collapsed/summarised into 47 standards in seven categories - Table 2. Of the 47 standards: 11 (23%) related to 'Skills', 9 (19%) to 'Environment', 7 (15%) 'Qualifications', 6 (13%) 'Process', 6 (13%) 'Qualities and Behaviours', 5 (11%) 'Knowledge' and 3 (6%) 'Experience'. Ranking round 2 then resulted in 3 standards not reaching consensus and being rejected, two of which related to 'Process' and one to 'Environment'. The 44 standards reaching consensus in round 2 populated the Delphi phase.

Phase 2: Delphi.

The first round was completed by 59 (37%) GPCPs, and the second-round by 86 (54%). Consensus was reached during the second-round, all 44 standards proposed by the expert panel being accepted.

'Skills' was the largest category with 11 standards. These focused on, but were not limited to, taking a holistic patient-centred view when carrying out level 3 reviews, as well as demonstrating the ability to manage complex patients and balance risk and benefits when prescribing and deprescribing. There was also emphasis on signposting and non-pharmacological interventions, the ability to interpret test results for relevant conditions and good time management.

'Environment' was the next largest category (n=8). These standards focused mainly on 2 areas, firstly, peer support and mentoring for all GPCPs from pharmacists and the wider multidisciplinary team. Secondly, a culture of support within practice 'to allow full polypharmacy reviews to be conducted' that incorporated flexibility for repeat appointments within practices and the capacity to conduct reviews in the setting that was 'most suitable for patients' e.g. the patients home.

The 'Qualifications' category (n=7), indicated that the GPCPs performing level 3 polypharmacy reviews should be qualified independent prescribers, with up-to-date knowledge and be competent prescribers. Participants demonstrated consensus that GPCPs should have relevant postgraduate qualifications and undertake appropriate additional training such as consultation, communication and relevant clinical examination skills training, suicide prevention training and behaviour skills training.

'Qualities and Behaviours' standards (n=6) focused on GPCPs demonstrating self-awareness, self-motivated and the ability to work independently, but were aware of their own limitations and sought help appropriately. Demonstrating good team working and drawing on individual multidisciplinary team members' strengths and knowledge was also considered to be important.

'Knowledge' standards (n=5) highlighted the importance of understanding the GPCP role within wider general practice and healthcare team, and the ability to work within different general practice structures and systems. A knowledge of local/national formularies, guidelines and resources to support clinical practice. However, 'Process' (n=4) orientated standards focused on quality improvement, for the GPCP service and personal development through self-reflection and audit practice, as well as ensuring that good documentation was in place. Lastly, 'Experience' standards (n=3) concentrated on relevant experience that the pharmacists should have in order to deliver effective and efficient service, such as GPCPs having relevant experience in clinical assessment and examination, running clinics and managing caseloads.

Discussion

Key findings

This study identified and validated 44 standards of practice specific to performing polypharmacy and chronic disease medication reviews in general practice. All 44 standards identified by the expert panel reached consensus and were accepted by the Delphi participants, who were experienced GPCPs that are expected to deliver these medication reviews.

The standards covered seven main categories: skills, environment, qualifications, qualities and behaviours, knowledge, process and experience and concentrated on good communication and patient centeredness with ability to manage complex patients, leadership and team work as well as the ability to work independently. Some new standards, specific to complex polypharmacy and chronic disease medication reviews in general practice were also identified.

Strengths

To the authors' knowledge, this is the first study to identify and validate standards of practice and hence standardise polypharmacy and chronic disease medication reviews in general practice. Groups of maximum seven participants have been recommended for NGT [35]. The purposive sample of six participants was small enough to have a close face-to-face discussion, yet large enough to include a broad range of expertise. All the standards generated by

the expert group (NGT) were accepted by the GPCPs (Delphi) which adds to the study's validity. The participant demographic in this study was in keeping with the recent Scottish survey of the pharmacy workforce in general practice which described mostly female GPCP population (82%) with two thirds being IPs (68%) [9]. We report comparable 86-90% female population, with a higher percentage of IPs (83-90%), which may be explained by further encouragement for independent prescriber qualifications in recent years and the fact that we selected more experienced pharmacists for our study.

Limitations

The response rate to Delphi of 37% (n=59) (round 1) and 54% (n=86) (round 2) may be considered low but is comparable to previous studies [34, 40]. The study was conducted during COVID pandemic which affected participation. In round 2 of Delphi much lower number of pharmacists reported current experience of clinics (32%) compared to round 1 (69%) and this can be explained by second round being conducted in the middle of pandemic, where many routine clinics had been cancelled. This study did not include the multidisciplinary team within the GP practice.

Interpretation.

There are a number of implications for policy and practice. The standards generated in our study were similar to those published by FIP, American College of Clinical Pharmacy and those from Canada and Australia as well as locally in the UK and the Canadian study where the competencies generated for pharmacists working in primary care focussed on patient care specifically in relation to medication related needs [16-19, 34]. They listed patient-centeredness and effective communication and collaboration with MDT, colleagues' professionalism and up to date knowledge.

Some of the standards presented in this study are, however, differed from the above publications, likely due to this study concentrating on identifying standards of practice specifically for conducting of polypharmacy and chronic disease reviews in general practice setting. The 'Qualifications' and 'Knowledge' categories for standards necessitated the pharmacist performing polypharmacy and chronic disease medication reviews to be a qualified independent prescriber, having completed specific examination and assessment courses as well as consultation skills training and suicide prevention training. Although relevant to UK practice, such skills may not be relevant in other healthcare systems. Additional communication standards in the skills section were also identified such as the use of motivational techniques, brief interventions and understanding that sometimes no change is appropriate and 'planting a seed' to prepare for the future changes may be just as important. The Scottish Government's policy for achieving excellence in pharmaceutical care aligns closely to similar policies in North America and Australasia [45-48]. These policies focus on the utilisation of pharmacist's expertise in medicines to allow their full integration into multidisciplinary health care teams thus delivering the best therapeutic outcomes for patient's health and quality of life [45-48]. The standards that the participants identified and validated in this study may aid the successful implementation of integrated multidisciplinary working to meet these local, national and international vision.

Research from America, Canada and the UK suggests there are several factors affecting pharmacist's ability to take on new responsibilities such as independent prescribing in particular (in the UK) and integrating new roles of pharmacists into multidisciplinary teams [49-54]. These are lack of confidence due to lack of clear role definition and lack of peer and management/ structure support and/ or integration into multi-disciplinary team. There is also initial nervousness from medical colleagues with regards to pharmacists' training and ability [1]. Recent evidence shows that the appropriate use of competency frameworks can improve the performance of pharmacists [55]. Thus, the production of GPCP standards may provide the first step needed to maximise the performance and effectiveness of the pharmacist clinics, by ensuring uniformity and consistency of how these clinics are delivered.

Further research

Further work would be required to establish optimal implementation processes for these and other standards by assessing and providing the environmental and professional conditions necessary for evidencing the standards and also linking them to nationally approved competency frameworks for advanced pharmacists [25, 28]. Additionally, further research is required to explore how to standardise the time resource needed for these reviews, as no consensus was reached on this.

Conclusions

This study identified the standards of practice for polypharmacy and chronic disease medication reviews in general practice. The identified standards covered seven categories -skills, environment, qualifications, qualities and behaviours, knowledge, process and experience. Similarly, to other standards for pharmacists within the UK and internationally, they concentrated on good communication and patient centeredness with ability to manage complex patients, leadership, team work as well as the ability to work independently. Some new standards, specific to polypharmacy and chronic disease medication reviews in general practice were also identified.

The production of GPCP standards will likely maximise the performance and effectiveness of the pharmacy service, as well as ensuring uniformity and consistency of service delivered. Further research is required into how to standardise the time resources needed for the delivery of the polypharmacy and chronic disease medication reviews.

Declarations

We declare we have no conflict of interests. We have received no external funding.

References

1. Nelson P, Bradley F, Martindale A. *et al.* Skill-mix change in general practice: a qualitative comparison of three 'new' non-medical roles in English primary care. *British Journal of General Practice* 2019; 69: 489-498
2. Baird B. Is general practice in crisis? Big election questions. The Kings Fund 2017. <https://www.kingsfund.org.uk/publications/articles/big-election-questions-gp-crisis> (8 July 2021, date last accessed)
3. Maskrey M, Johnson C, Cormack J. *et al.* Releasing GP capacity with pharmacy prescribing support and new ways of working: a prospective observational cohort study. *British Journal of General Practice* 2018; 68: 735-742
4. Doran N, Fox F, Rodham K, *et al.* Lost to the NHS: a mixed methods study of why GPs leave practice early in England. *British Journal of General Practice* 2016; 66: 128-135
5. Lachish S, Svirko E, Goldacre MJ, *et al.* Factors associated with less than full-time working in medical practice: results of surveys of five cohorts of UK doctors, 10 years after graduation. *Hum Resour Health* 2016; 14: 62
6. Norman R, Hall JP. The desire and capability of Australian general practitioners to change their working hours. *Med J Aust* 2014; 200: 399–402
7. Lowrie R, Lloyd S, Mcconnachie A. *et al.* A cluster randomised controlled trial of a pharmacist-led collaborative intervention to improve statin prescribing and attainment of cholesterol targets in primary care. *Public Library of Science ONE* 2014; 9: e113370
8. Johnson C, Thomson A. Prescribing support pharmacists support appropriate benzodiazepine and Z-drug reduction 2008/2009 – experiences from North Glasgow. *Clinical Pharmacy* 2010; 3 (Supp1)
9. Stewart D, MacLure K, Newham R *et al.* A cross-section survey of pharmacy workforce in general practice in Scotland. *Family Practice* 2019; 37:206-212
10. Hunt V, Anderson D, Lowrie R, *et al.* A non-randomised controlled pilot study of clinical pharmacist collaborative intervention for community dwelling patients with COPD. *NPJ Prim Care Respir Med* 2018; 38
11. Mackie CA, Lawson DH, Campbell A. *et al.* A randomised controlled trial of medication review in patients receiving polypharmacy in a general practice setting. *Pharm J* 1999; 263: R7
12. Scottish Government. *Primary care investment: Three – year funding to support front-line community care.* 2015. <http://www.govopps.co.uk/50m-scottish-primary-care-investment/> (9 July 2021, date last accessed)
13. NHS England. *More than 400 pharmacists to be recruited to GP surgeries by next year.* 2015. <https://www.england.nhs.uk/2015/11/pharmacists-recruited/> (1 May 2021, date last accessed)
14. The Scottish Government. *The 2018 General Medical Services Contract in Scotland.* Edinburgh. 2017. <https://www.bma.org.uk/what-we-do/committees/general-practitioners-committee/scottish-general-practitioners-committee>. (1 May 2021, date last accessed)
15. General Pharmaceutical Council. *Standards for pharmacy professionals* 2017. https://www.pharmacyregulation.org/sites/default/files/standards_for_pharmacy_professionals_may_2017_0.pdf (1 May 2021, date last accessed)
16. International Pharmaceutical Federation. *Pharmacy Education Taskforce. A Global Competency Framework* 2012. https://www.fip.org/files/fip/PharmacyEducation/GbCF_v1.pdf (1 May 2021, date last accessed)
17. Pharmaceutical Society of Australia. *National competency Standards Framework for Pharmacists in Australia* 2016. <https://www.psa.org.au/wp-content/uploads/2018/06/National-Competency-Standards-Framework-for-Pharmacists-in-Australia-2016-PDF-2mb.pdf> (7 July 2021, date last accessed)
18. Pharmaceutical Society of Australia. *Professional Practice Standards.* 2017. <https://www.psa.org.au/wp-content/uploads/2018/08/Professional-Practice-Standards-v5.pdf> (7 July 2021, date last accessed)
19. National Association of Pharmacy Regulatory Authorities. *Professional competencies for Canadian pharmacists at entry to practice* 2014. https://napra.ca/sites/default/files/201708/Comp_for_Cdn_PHARMACISTS_at_EntrytoPractice_March2014_b.pdf (20 July 2021, date last accessed)
20. General Pharmaceutical Council. *Standards for Pharmacy Professionals* 2017. https://www.pharmacyregulation.org/sites/default/files/standards_for_pharmacy_professionals_may_2017_0.pdf (10 July 2021, date last accessed)
21. Royal Pharmaceutical Society. *A Competency Framework for all prescribers* 2016. <https://www.rpharms.com/Portals/0/RPS%20document%20library/Open%20access/Professional%20standards/Prescribing%20competency%20framework.pdf?ver=2019-02-13-163215-030> (10 July 2021, date last accessed)
22. Royal Pharmaceutical Society. *The RPS Advanced Pharmacy framework (APF)* 2013. <https://www.rpharms.com/Portals/0/RPS%20document%20library/Open%20access/Frameworks/RPS%20Advanced%20Pharmacy%20Framework>. (1 May 2021, date last accessed)
23. Pharmaceutical Society of Northern Ireland. *THE CODE Professional standards of conduct, ethics and performance for pharmacists in Northern Ireland* 2016. <https://www.psni.org.uk/wp-content/uploads/2012/09/22504-PSNI-Code-of-Practice-Book-final.pdf> (1 May 2021, date last accessed)
24. Centre for Pharmacy Post Graduate Education. *Developing clinical pharmacists in general practice. The national learning pathway* 2016. https://www.cppe.ac.uk/wizard/files/developing_career/cppe%20hee%20general%20practice%20pharmacist%20learning%20pathway%203rd%20ed (1 May 2021, date last accessed)
25. National Education for Scotland. *General Practice Clinical Pharmacist Competency & Capability Framework - A User's Manual* 2016. https://nesvleprdstore.blob.core.windows.net/nesndpvlcsmprdblob/43cfd66-9ea5-46df-b806-11886ecdb1ef_2016-09-02%20Competency%20framework%20for%20pharmacists%20final.pdf?sv=2018-03-28&sr=b&sig=1VvVoDYR2ajmDNu%2FtMa37ReUT7x8Z%2B9iv9%2FghTZ5Yg8%3D&st=2019-08-25T15%3A48%3A09Z&se=2019-08-25T16%3A53%3A09Z&sp=r (1 May 2021, date last accessed)

26. Forsyth P, Warren A, Thomson C. *et al.* A competency framework for clinical pharmacists and heart failure. *International Journal of Pharmacy Practice* 2018; 27:424-435
27. Carrington C, Weir J, Smith P. The development of a competency framework for pharmacists providing cancer services. *Journal of Oncology Pharmacy Practice*. 2011; 17: 168-178
28. Murphy L, Chang F, Dattani S, *et al.* A pharmacist framework for implementation of the Canadian Guideline for Opioids for Chronic Non-Cancer Pain. *Canadian Pharmacy Journal (Ott)* 2019; 152:35-44
29. Raymond C, Wazny L, Sood A. Standards of Clinical Practice for Renal Pharmacists. *Clinical Practice* 2013; 66: 369-74
30. Boullata J, Holcombe B, Gervasio J. *et al.* Standardized Competencies for Parenteral Nutrition Order Review and Parenteral Nutrition Preparation, Including Compounding. The ASPEN Model. *Controversies in Critical Care Nutrition Support* 2016; 31:548-555
31. Mackler E, Segal E, Muluneh B. *et al.* 2018 Haematology/Oncology Pharmacist Association Best Practice for Management of Oral Oncolytic Therapy: Pharmacy Practice Standard. *Journal of Oncology Practice* 2019; 15 : e346-e355
32. Rollins C, Durfee S, Holcombe B. *et al.* Standards of Practice for Nutrition Support Pharmacists American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Task Force for Revision of Nutrition Support Pharmacist Standards: 2008. *Nutrition in Clinical Practice* 2008; 23:189-194
33. Tucker A, Ybarra J, Bingham A *et al.* American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Standards of Practice for Nutrition Support Pharmacists. *Nutrition in Clinical Practice* 2015; 30:139-146
34. Kennie-Kaulbach N, Farrell B, Ward N. *et al.* Pharmacist provision of primary health care: a modified Delphi validation of pharmacists' competencies. *BMJ Family Practice*. 2012; 13: 1-9
35. Junger S, Payne SA, Brine J, *et al.* Guidance on Conducting and REporting DELphi Studies (CREDES) in palliative care: Recommendations based on a methodological systematic review. *Palliative Medicine* 2017;31(8):684-706
36. McMillan S, King M, Tully. How to use the nominal group and Delphi techniques. *International Journal of Clinical Pharmacy* 2016; 38.:655-626
37. Jones J, Hunter D. Consensus methods for medical and health services research. *Brittish Medical Journal*. 1995; 311:376-380
38. Perry J, Linsley S. The use of nominal group technique as an evaluative tool in the teaching and summative assessment of the inter-personal skills of student mental health nurses. *Nurse Education Today*. 2006; 26:346-53
39. U.S. Department of Health and Human services Centres for Disease Control and Prevention. Gaining consensus Among Stakeholders through the Nominal Group. *Evaluation Briefs* 2018; 7
40. Boulkedid R, Abdoul H, Loustau M, *et al.* Using and Reporting the Delphi Method for Selecting Healthcare Quality Indicators: A Systemic Review. *Public Library of Science One* 2011; 6:e20476
41. Diamond IR, Grant RC, Feldman BM, *et al.* Defining consensus: A systematic review recommends methodologic criteria for reporting of Delphi studies. *Journal of Clinical Epidemiology* 2014; 67:401-409
42. Hsu CC and Sandford BA. The Delphi technique: making sense of consensus. *Practical Assessment Research and Evaluation* 2007; 12: 1-8
43. Sample J. Nominal Group Technique: An Alternative to Brainstorming. *Journal of Extension* 1984; 22:1-4
44. Foth T, Efsthathiou N, Vanderspank-Wright B, *et al.* The use of Delphi and Nominal Group Technique in nursing education: A review. *International Journal of Nursing Studies* 2016; 60:112-120
45. Canadian Pharmacists Association. *Blueprint for pharmacy: designing the future together* 2008. www.pharmacists.ca/content/about_cpha/whats_happening/cpha_in_action/pdf/BlueprintVision.pdf (3 March 2021, date last accessed)
46. American College of Clinical Pharmacy. *A vision of pharmacy's future roles, responsibilities, and manpower needs in the United States* 2000. *Pharmacotherapy* 2000;20 :991-1020
47. Jorgenson D, Penm J, MacKinnon N. Future vision for the pharmacy profession. *Canadian Pharmacist Journal* 2017; 150:355-358
48. Pharmaceutical Society of Australia Ltd. *Pharmacists in 2023: for patients, for our profession, for Australia health system* 2018. https://my.psa.org.au/servlet/fileField?entityId=ka17F0000000xyIQAQ&field=PDF_File_Member_Content__Body__s (5 May 2021, date last accessed)
49. Rosenthal M, Austin Z, Tsuyuki RT. Are Pharmacists the Ultimate Barrier to Pharmacy Practice Change? *Canadian Pharmacists Journal / Revue des Pharmaciens du Canada* 2010; 143:37-42
50. Fisher J, Kinnear M, Reid F, *et al.* What supports hospital pharmacist prescribing in Scotland? – A mixed methods, exploratory sequential study, *Research in Social and Administrative Pharmacy* 2018, 14: 488-497
51. Zhou, M., Desborough, J., Parkinson, *et al.* Barriers to pharmacist prescribing: a scoping review comparing the UK, New Zealand, Canadian and Australian experiences. *Int J Pharm Pract* 2019, 27: 479-489
52. Rosenthal MM, Austin Z, Farrell J, *et al.* Overcoming our nature and nurture. *Canadian Pharmacists Journal / Revue des Pharmaciens du Canada* 2017; 150:5-7
53. Maddox C, Halsall D, Hall J, *et al.* Factors influencing nurse and pharmacist willingness to take or not take responsibility for non-medical prescribing. *Research in Social and Administrative Pharmacy* 2016.12: 41-55
54. Rokib T. Pharmacist led care in General Practice (PLAGE) Study. Pharmacy Research UK. <https://pharmacyresearchuk.org/wp-content/uploads/2017/01/Pharmacist-led-care-in-General-Practice.pdf> (8 March 2021, date last accessed)
55. Udoh A, Bruno-Tomé A, Ketut Ernawati D, *et al.* The Effectiveness and Impact on Performance of Pharmacy-related Competency Development Frameworks: A Systematic Review and Meta-Analysis. *Research in Social and Administrative Pharmacy* 2021.

Tables

Table 1. Delphi phase, respondent characteristics.

Characteristics	Round 1 (n=59)	Round 2 (n=86)
Age, median (range) years	39 (26 to 60)	38 (25 to 63)
Gender, female, n (%)	51 (86)	77 (90)
Postgraduate qualifications, n (%) ^[1]	38 (64)	56 (65)
Independent prescriber, n (%) ^[2]	53 (90)	71 (83)
Masters, n (%)	23 (27)	19 (32)
Clinical Diploma, n (%)	25 (29)	13 (22)
Clinical Certificate, n (%)	10(12)	7 (12)
Previous experience running clinics, n (%)	52 (88)	74 (86)
Current experience running clinics, n (%)	36 (61)	24 (28)
Experience in primary care, median (range) years	6 (1 to 22)	4 (1 to 23)

Table 2. Standards for practice generated during NGT phase ranking round 2 (n=6) and Delphi phase round 2 (n=86) by category.

NES: NHS Education Scotland. KSF: Knowledge skills framework GPCP: General Practice Clinical Pharmacist.

- Consensus reached, ≥80% agreement in NGT and ≥70% in Delphi phases.
- ◆ Consensus not attained (NGT phase)
- * Standards that did not achieving consensus Delphi round 1, but achieved consensus

Figures

Standards of Practice	NGT	Delphi
Skills		
1. Demonstrates patient-centred approach (ability to involve patient in decisions relating to their care and ensure patient understands their care plan).	●	●
1. Demonstrates holistic view of patient.	●	●
1. Demonstrates good listening skills.	●	●
1. Demonstrated the ability to manage complex patients.	●	●
1. Demonstrates an understanding that sometimes no change is appropriate at this point, 'planting the seed' to prepare for the future.	●	●
1. Demonstrates ability to assess and balance risk and benefits of prescribing or de-prescribing.	●	●
1. Demonstrates ability to effectively safety net when changes are made to medication.	●	●*
1. Demonstrates understanding of where to signpost patients as non-pharmacological interventions are often just as important as pharmacological ones.	●	●
1. Demonstrates motivational techniques beneficial for encouraging self-management and lifestyle change for most chronic disease areas.	●	●
1. Demonstrates the ability to interpret test results relevant to conditions (e.g. ECG, spirometry, bloods).	●	●
1. Demonstrates good time management – ability to work within agreed time frames.	●	●
Environment		
1. Has peer support – everyone has a mentor or appraisal additional to Knowledge Skills Framework.	●	●
1. Has network of support people/experts to ask if you need advice including multidisciplinary support, peer support from other pharmacists and GPs.	●	●
1. Participates in peer review in specialist areas. Discussing cases with a peer or another clinician with expertise in a particular clinical area to review competence and practice and ensure in-line with peers.	●	●
1. Has mentor/advisor that could be called upon for advice.	●	●
1. Has support from practices and buy in from other practice prescribers to ensure sustainability of prescribing services and changes made to patients' medication.	●	●
1. Has adequate time to allow full polypharmacy reviews to be conducted.	●	●
1. Where necessary has flexibility for repeated appointments with patients.	●	●
1. Has flexibility to conduct reviews in patients' homes if appropriate i.e. the place most suitable for the patient.	●	●
1. Has Royal Pharmaceutical Society membership is optional but may be advantageous as opens mentoring support and clinic information.	◆	

ECG: Electrocardiogram GP: General Practitioner

● Consensus reached, ≥80% agreement in NGT and ≥70% in Delphi phases.

◆ Consensus not attained (NGT phase)

* Standards that did not achieving consensus Delphi round 1, but achieved consensus in round 2.

Standards of Practice (Continued)	NGT	Delphi
Qualifications		
1. Qualified independent prescriber, with up-to-date knowledge and prescribing competence in the area in which they prescribe.	●	●
1. Has relevant post graduate qualifications depending on individual career path (e.g. clinical or GPCP framework).	●	●*
1. Has completed consultation skills training (NES and video recording including feedback)		
1. Has completed NES clinical examinations course (and advanced if relevant to clinical area).	●	●
1. Has completed NES communication course.	●	●
1. Has completed suicide prevention training.	●	●*
1. Has completed behaviour skills training.	●	●*
Qualities and Behaviours		
1. Demonstrates self-awareness, self-motivated and the ability to work independently; understands own limitations and when (and where) to seek help.	●	●
1. Demonstrates effective team working drawing on individual strengths.	●	●
1. Takes responsibility for own actions.	●	●
1. Demonstrates confidence to challenge issues appropriately (e.g. behaviours, prescribing, patient care etc.)	●	●
1. Demonstrates honesty.	●	●
1. Demonstrates leadership (e.g. clinic development/patient care).	●	●
Knowledge		
1. Has understanding of role within a wider team and how the team functions as well as ability to work within individual GP practice structures and systems.	●	●
1. Has knowledge of local and national formularies and guidelines.	●	●
1. Has knowledge of new/progressing evidence.	●	●
1. Has good understanding of resources to support clinical practice.	●	●
1. Has understanding of brief interventions.	●	●
Process		
1. Demonstrates evidence of quality improvement, via self – reflection/audit against specified standards. Intervals yearly or bi-yearly.	●	●
1. Demonstrates evidence of reflection and continuous assessment – as an individual and with peers.	●	●
1. Undertakes significant event analysis.	●	●
1. Produces clear documentation throughout.	●	●
1. Undertakes regular self-reflection of prescribing.	◆	
1. Informs if unable to meet deadlines.	◆	

Experience

1. Has experience and utilises relevant clinical assessment and examination skills.	●	●
1. Has experience in running clinics.	●	●*
1. Has experience managing case load in therapeutic area.	●	●*

Figure 1

Modified Nominal Group Technique process.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [Supplementaryfilesforsubmission.docx](#)