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Development of consensus guidance to facilitate service redesign around pharmacist prescribing in UK hospital practice

Keywords – pharmacist prescribing; consensus guidance; service redesign; secondary care; United Kingdom

ABSTRACT

Background

The last decade has seen a drive towards non-medical prescribing in the United Kingdom (UK). However, there is a dearth of any published literature on applying the principles of service redesign to support pharmacist prescribing in any sphere of practice.

Objective

To develop consensus guidance to facilitate service redesign around pharmacist prescribing.

Setting

UK hospital practice.

Method

The Delphi technique was used to measure consensus of a panel of expert opinion holders in Scotland. Individuals with key strategic and operational roles in implementing initiatives of pharmacy practice and medicines management were recruited as experts. An electronic questionnaire consisting of 30 statements related to pharmacist prescribing service redesign was developed. These were presented as 5-point Likert scales with illustrative quotes.

Main Outcome Measures

Consensus, defined as 70% of panel members agreeing (ranked strongly agree/agree) with each statement.

Results

Responses were obtained from 35/40 (87.5%) experts in round one and 29 (72.5%) in round two. Consensus in round one was achieved for 27/30 of statements relating to aspects of generic 'service development' (e.g. succession planning, multidisciplinary working, quality evaluation, practice development and outcome measures) and 'pharmacist prescribing role development' (e.g. education and future orientation of service). Issues of disagreement were around targeting of pharmacist prescribing to clinical specialities and financial remuneration for prescribing in the hospital setting.

Conclusion

Consensus guidance has been developed to facilitate service redesign around hospital pharmacist prescribing.

Impact of Findings on Practice Statements

- Consensus obtained from expert opinion holders relating to statements around aspects of generic 'service development' of pharmacist prescribing in secondary care (e.g. succession planning, multidisciplinary working, quality evaluation, practice development and outcome measures) and 'pharmacist prescribing role development' (e.g. education and future orientation of service) inform the implementation of pharmacist prescribing services in hospital practice
- The lack of consensus around issues of pharmacist prescribing being a general or specialist role, and remuneration of pharmacist prescribers indicate need for further widespread discussion.

INTRODUCTION

The last decade has seen a drive towards non-medical [non-physicians such as pharmacists and nurses] prescribing in the UK with legislation to allow implementation of supplementary prescribing (SP) and independent prescribing (IP). There are around 24,000 nurse independent prescribers, 2,500 pharmacist supplementary/independent prescribers and several hundred allied health professional (e.g. optometrists) supplementary prescribers in the UK [1]. These prescribers are practising in the management of chronic diseases (e.g. cardiovascular, respiratory and endocrine) or in the management of acute episodes of infection and minor ailments [2].

While pharmacist supplementary prescribers can manage any diagnosed condition and prescribe any drug as defined by a patient-specific clinical management plan, independent pharmacist prescribers can prescribe any drug for both diagnosed and undiagnosed medical conditions [3-5]. SP and IP aim to: improve patient care; increase patient choice; make full use of the skills of health professionals; and contribute to the more flexible team working across the National Health Service (NHS) [1,3].

Training programmes for pharmacist prescribers are provided by higher education institutions and are defined and accredited by the General Pharmaceutical Council. Programmes comprise two components: a university component equivalent to 26 days of full-time education; and a period of learning in practice of a minimum of 12 days under the supervision of a designated physician [6].

Successful completion of the IP course permits practise of both SP and IP.

Research conducted from the perspectives of pharmacist prescribers, physicians, patients who have experienced the services, other health professionals and the general public have largely generated positive findings [7-15]. However, many of these studies are limited by small sample sizes; sampling, recruitment, response and recall biases; and notably few have focused on secondary care. Given the scale of prescribing errors committed by junior doctors in hospital settings of

between 4.2 to 82% of patients or prescription charts [16], there is vast potential for pharmacist prescribing to impact patient care in terms of safe and effective prescribing and use of medicines. However, implementation of hospital based pharmacist prescribing requires clear and systematic planning, with defined and well communicated roles and responsibilities to ensure that services are sustainable. Several authors have specifically commented on the lack of clear strategic direction in hospital based pharmacist prescribing service developments [2,6,7,12-14].

There is a dearth of published research literature on applying principles of service redesign to support key innovations, such as pharmacist prescribing, in any sphere of hospital practice. The principles of service redesign have been articulated by the NHS in Scotland. Key points are that redesign should: be patient focused; involve all stakeholders; promote effective team working; and focus on improving the patient's experience and outcomes of care [17].

Consensus research methods are particularly suited to development of policies, quality indicators and professional norms and hence are highly appropriate to areas of service redesign [18]. These methods systematically gather expert opinion usually in areas where there is a lack of or incomplete evidence. There are several reports of the application of consensus approaches to non-prescribing related developments in pharmacy practice. These relate to: synthesis of criteria to assess the quality of documentation associated with the Medicines Utilisation Review in England [19]; to agree the definition of 'dispensing error' within community pharmacy [20]; to develop competencies associated with training needs in public health for Scottish community pharmacists [21]; and to generate a model of pharmaceutical care for the patient with type 2 diabetes mellitus in primary care [22]. In the USA, consensus studies have assisted the development of: components required for training of community pharmacists [23]; agreeing present and future challenges facing pharmacy executive [24,25]; and

formulating a list of clinically significant drug-drug interactions between oral anticancer drugs and concomitant therapies [26].

AIM OF THE STUDY

The aim of this research was to develop consensus guidance to facilitate strategic planning and service redesign around pharmacist prescribing implementation in UK hospital practice.

ETHICAL APPROVAL

The North East of Scotland Research Ethics Committee advised that there was no need for NHS ethical review. The study was approved by the Ethical Review Panel of the School of Pharmacy and Life Sciences at Robert Gordon University, Aberdeen, UK.

METHOD

Typical features of a Delphi approach are: an expert panel; a series of rounds in which data are collected, analysed and fed back; and opportunity for experts to use this feedback to reflect and revise their judgments. The Delphi approach was selected over other consensus methods, such as the nominal group technique, as it allowed data collection at a distance, avoiding the need for experts to meet face-to-face [27].

Expert opinion holders

Individuals in Scotland with key strategic and operational roles in implementing initiatives of pharmacy practice and medicines management in hospital were invited to be members of the expert panel. An introductory email was sent to all 14 NHS Directors of Pharmacy of health board geographical areas in Scotland. They were invited to express interest in participation and to also identify and forward the email to other key individuals in their organisation responsible for either non-medical prescribing, medicines related policy developments or holding

senior positions within drug and therapeutics committees. Individuals expressing interest were sent a formal invitation, including study information and consent form.

Questionnaire development

The first round of data collection in the Delphi technique usually centres on synthesis of statements to be used in later rounds. This was not necessary for two reasons: a narrative review of the published and grey literature on service development and redesign identified issues to be considered; and the findings of qualitative, focus group research conducted by members of the research team with hospital based pharmacists throughout Scotland. These aimed to understand their perceptions on the implementation of pharmacist prescribing generally and specifically relating to antimicrobials [28]. Findings facilitated development of criteria, organised into two groupings of 'service management' and 'pharmacist prescribing role specific'. These were presented as 30 statements with illustrative quotes obtained from previous qualitative work to provide contextualisation. An example is given in Box 1.

Five point Likert scales were used to measure strength of agreement or disagreement (options of strongly agree/agree/unsure/disagree/strongly disagree), with space for free text comments and also providing experts the opportunity to suggest additional statements. The draft questionnaire was tested for face and content validity by four individuals experienced in pharmacy practice research, consensus methods, pharmacist prescribing education and training, and pharmacist prescribing practice. Minor changes were made to the questionnaire.

Full study data collection and analysis

One week prior to the Delphi link going live, an email alert was sent to the experts. Round one data collection commenced with the web-link to the questionnaire being emailed, with one email reminder sent seven days later. Anonymous, completed questionnaires were submitted to a university web address. Following completion of round one, data were analysed for achievement

of consensus. Definition of consensus has been noted to be 'one of the most contentious components of the [Delphi] method' [29]. Von der Gracht recently reviewed the measurement of consensus in Delphi studies since the emergence of the technique in the 1960s. The three most widely used and simplest measures are: subjective analysis by the researchers; average percent of majority opinions cut-off rate; and certain level of agreement [30]. The latter approach was adopted in this study, with consensus defined as 70% agreement (ranked strongly agree/agree) with each statement. Von der Gracht notes that the percentage is rather arbitrary but should represent the majority of respondents and usually exceeds 60%.

Results were collated for each statement and fed back. The second round retained the same format as round one; at this stage, experts had the opportunity to reflect on and potentially revise their responses, but only for either those statements where the pre-set level of agreement had not been achieved or for new statements derived from round one comments. Based on the levels of agreement achieved, there was no need for a third round of data collection.

RESULTS

Of those 40 experts who returned consent forms, 35 (87.5%) responded to round one. Roles are described in Table 1, with some individuals having multiple roles. Experts were directors of hospital services, directors of pharmacy, chairmen of area drug and therapeutics committees, pharmacist prescribers, and pharmacist/non-pharmacist authors of local non-medical prescribing policies. Consensus in round one was achieved for 27/30 of statements, as shown in Table 2. Very high levels of agreement (>90%) were achieved in areas of: objectively assessing the need for pharmacist prescribing, with focus on the potential for improved patient care and better use of resources; involving those pharmacists likely to be prescribing in discussions around planning and implementation; considering integrated care across the primary and secondary care interface;

defining and communicating the pharmacist prescribing role; clinical governance related activities; and supporting pharmacist prescribers in delivering their roles. The following comments were provided for those statements not achieving consensus.

Statement - encourage the development of non-medical prescribing multidisciplinary teams

Comments suggested that the emphasis of the statement should be altered to reflect the need for involvement of the wider healthcare team,

'non-medical prescribing should be based around a central multidisciplinary team, each member contributing. Extra teams would dilute, diffuse and potentially confuse lines of communication and I consider them unnecessary.' (pharmacist prescriber)

'would be dangerous as it appears to promote establishing a team to rival medical prescribers. We must work with medics and develop consistent approaches and standards.' (director of hospital services)

Statement - encourage all hospital pharmacists to prescribe in any specialty

Diverse comments were received reflecting divided opinions on those pharmacists to be trained as prescribers. Some viewed prescribing to be little change to the existing clinical role,

'clinical pharmacy involves giving prescribing advice to prescribers [physicians]. I consider pharmacist prescribing to be only a small step further since already the responsibility has been there but not 'signed for' directly.' (pharmacist prescriber)

'prescribing is the future for all hospital pharmacist practitioners. There will be a period pre and post registration where prescribing should be strictly supervised but following a foundation training period all hospital pharmacists who have direct to patient pharmaceutical care responsibilities should prescribe.' (director of hospital services)

while others noted the need to target prescribing training based on experience, areas of practice, desires and patient need.

'my indecision over ALL hospital pharmacists prescribing is due to (a) new entrants to hospital pharmacy from other sectors and (b) newly qualified pharmacists who will need mentoring before taking on this role.' (director of hospital services, pharmacist prescriber, pharmacist author non-medical prescribing policy)

'pharmacist prescribing is not suitable for all areas of patient care. There are areas that are ideal, e.g. intensive care and clinics. In other words specialist areas.' (pharmacist prescriber)

'I do not think it is something we should force upon pharmacists. Prescribers should want to prescribe, but I feel it opens up many doors and enhances their role within the multidisciplinary teams. It is part of my practice that I enjoy and get a great deal of job satisfaction with.' (pharmacist prescriber)

One noted the need for strategically planned service redesign,

'in my view pharmacists should only prescribe when a suitable service model exists and they have sufficient post registration training. A lot of our prescribing problems arise because most junior doctors learn prescribing on the job.'
(pharmacist prescriber, pharmacist author non-medical prescribing policy)

Statement - ensure that pharmacist prescribers are financially compensated in line with their added responsibilities

Opinion was divided between those favouring and those against remuneration,
'it is not legal or ethical to pay someone to prescribe. Pharmacists should see it as part of their expanded patient care role.' (pharmacist prescriber)

'other non-medical prescribers, in particular nurses, are not financially compensated for this responsibility. Prescribing should be based on patient need not rewards.' (non-pharmacist author non-medical prescribing policy)

'In terms of financial remuneration - absolutely agree as at this level you are a clinician who happens to be a pharmacist rather than a pharmacist who prescribes.' (pharmacist prescriber)

In round two, participants were asked to rate agreement with two unchanged, one slightly altered and one new statement. Twenty-nine responses (72.5%) were received. Results are given in Table 3.

DISCUSSION

Key findings of this research are that high levels of consensus were obtained for almost all statements relating to aspects 'service development' and 'pharmacist prescribing role development'. Issues of disagreement were around targeting of pharmacists and clinical specialities, and financial remuneration for prescribing in the hospital setting.

This is the first published research to apply a consensus approach to aid strategic prescribing development and implementation within hospital. Strengths of this study are the involvement of expert opinion holders, the high levels of participation in both rounds of data collection and the development of consensus statements based on prior qualitative research.

Findings should be interpreted with caution since data were collected in Scotland and hence may not be generalisable globally, particularly given the marked differences in healthcare structures and organisation. However, it is most likely that issues relating to aspects such as succession planning, multidisciplinary working, quality evaluation, outcome measures, education and future orientation of services will be relevant to other professional groupings, other countries and healthcare systems. Reliance on the Directors of Pharmacy to identify experts may have introduced recruitment and response biases, particularly since those with negative views may not have been recruited.

While the high levels of consensus may indicate an element of acquiescence response bias and a potential lack of specificity, statements were grounded in both the published literature and prior qualitative work.

Very high levels of agreement were achieved, largely in areas of service management, which have direct relevance to the principles of service redesign [17]. Emphasis was placed on objective pharmaceutical needs assessment relating to the needs of patients, the multidisciplinary team, the organisation and the profession. Similar levels of agreement were achieved for defining the role of the pharmacist prescriber and the scope of prescribing, effective communication, and developing and implementing the service within a clinical governance framework. This is very much in line with the stepped approach recommended as part of health needs assessment [31].

Lack of agreement around the two issues of targeting pharmacists to train as prescribers and remuneration for prescribing are not surprising, and reflect the findings of others researching pharmacist prescribing implementation in the UK. These describe the underuse of skills following training as a prescriber, a lack of organisational recognition of the role of pharmacist prescriber, absence of any succession planning to ensure continuity of service and issues around funding [7,12,14]. There is therefore a clear need for a strategic and planned approach to service redesign which involves all key stakeholders and importantly not just those likely to express positive and supportive views. This is particularly the case if prescribing is to extend beyond those innovators most likely to take up the challenges and risks associated with change. Given the high levels of consensus obtained in this research, there is an opportunity to use the statements to develop a toolkit to assist service redesign around pharmacist prescribing within the hospital setting. Such a toolkit could be used in a strategic way and in advance of implementation of a new service such as prescribing.

Interestingly, criteria that have been associated with role development in other areas of the nursing literature including research activity, leadership qualities and

consultancy [32], were not raised by expert members and may reflect the infancy of the pharmacist prescriber's role in hospitals. However, these are key issues to ensure development of leadership skills and to focus on research evaluation to contribute to the emerging evidence base.

Evaluation based research is warranted to determine the success of these consensus statements or toolkit in terms of utility, applicability, and how they impact service design, implementation and associated patient outcomes. There is also potential to contextualise these statements for primary care pharmacist prescribing developments.

CONCLUSION

Consensus guidance has been developed, which could be used to inform service redesign around the implementation of pharmacist prescribing within hospital settings.

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CONFLICTS OF INTEREST

There are no conflicts of interest to declare.

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Box 1- an example of criterion, statement and illustrative quote relating to service redesign

Criterion

Service development, multidisciplinary working.

Statement

Involve all key members of the multidisciplinary team who are stakeholders when planning the strategy for pharmacist prescribing.

Illustrative quote

'...we shouldn't just have that [regarding pharmacist roles] discussion with pharmacy; it should be held in a multidisciplinary setting, because we are very good in pharmacy to tell other folk what we think they should do, but we're not very good at actually listening about what we should do, that would differ with different specialities and different hospitals, there will be different gaps, so you have to tailor to local circumstances.'

Table 1- description of expert panel member roles (n=35) (*some respondents had multiple roles hence >35)

| Role | N* |
|---|-----------|
| Director of pharmacy | 4 |
| Director of hospital services | 3 |
| Chairman of area drug and therapeutics committee | 4 |
| Non-pharmacist author of local non-medical prescribing policy | 5 |
| Pharmacist author of local non- medical prescribing policy | 10 |
| Pharmacist prescriber | 15 |

| Criteria | Statements | % strongly agree/agree |
|---------------------------|---|------------------------|
| Service Management | | |
| Succession Planning | - Undertake a systematic and objective assessment of pharmaceutical needs in order to identify gaps in the current service delivery and patient care | 97 |
| | - Outline ways in which prescribing may improve patient care or encourage better utilisation of staff skills and resources | 100 |
| | - Have a strategy ¹ in place that is based on available national guidance and that would establish how prescribing is to be implemented | 94 |
| | - Ensure that any strategy in place may be applicable across different practice settings and areas of care. This implies that the service is generic and transferable. | 77 |
| | - Consider the benefits and limitations of both pharmacist supplementary and independent prescribing and determine which would be best suited to deliver the service in different areas of care. | 86 |
| | - Involve pharmacists likely to be prescribing in planning discussions to ensure they have both sufficient background information to prescribing prior/prescribing course to implement prescribing. | 91 |
| | - Consider in which practice settings it may be more feasible to introduce, implement and monitor prescribing. | 97 |
| | - Consider procedures that would allow the smooth and safe transition of patients from secondary to primary care for prescribing. | 91 |
| Multiprofessional Working | - Involve all key members of the multidisciplinary team when planning the strategy for prescribing. | 97 |
| | - Determine how likely it is for other key members of the multidisciplinary team to accept prescribing. | 89 |
| | - Promote a good understanding of the prescribing role among other members of the multidisciplinary team. | 100 |

Table 2 – Round one, percentage of respondents agreeing (strongly agree or agree) with Delphi statements (n=35)

| | | |
|--|---|----|
| | - Promote clearly defined roles for prescribing within the multidisciplinary team. | 94 |
| | - Promote clearly defined lines of communication relating to prescribing for the multidisciplinary team. | 97 |
| Quality Evaluation | - Encourage the development of non-medical prescribing multidisciplinary teams. | 66 |
| | - Establish that systems are in place (defined, documented and regularly reviewed) to promote patient safety and encourage quality patient care associated with prescribing in line with the 'Clinical Governance Framework for Pharmacist Prescribers and Organisations Commissioning or Participating in Pharmacist Prescribing' and any other local governance structures or strategies. | 97 |
| | - Ensure that legal responsibilities and accountabilities are defined and documented within the strategy and have taken into account the "Professional Standards and Guidance for Pharmacist Prescribers" which are part of the Pharmacist Code of Ethics | 91 |
| Practice Development | - Consider any changes in current pharmacy service provision in secondary care that may be needed to support the development of a prescribing service. | 97 |
| | - The strategy should include ways of assessing outcomes to measure any positive or negative impact of the role on other health care professionals. | 80 |
| Outcome measures | - The strategy should include ways of assessing outcomes to measure any positive or negative impact of the role on other health care professionals. | 80 |
| Pharmacist Prescribing Role Development | | |
| Education | - Provide support for pharmacists during training or pharmacists who are planning to train to be prescribers. | 94 |
| | - Provide clearly defined pharmacist competencies to help pharmacists achieve and maintain competency when prescribing ('Maintaining Competency in Prescribing', National Prescribing Centre). | 91 |
| | - Clearly define the level and type of experience required to prescribe in different specialties. | 80 |

| | | |
|---|---|---|
| Future orientation of service | - Provide the necessary opportunities for education and training following qualification as a prescriber. | 97 |
| | - Ensure that pharmacists are able to demonstrate competence on an on-going basis to prescribe in their area of practice. | 94 |
| | - Ensure that the preparation for the role has taken into consideration the pharmacists' individual views and attitudes. | 70 |
| | - Provide the necessary mentoring scheme to pharmacists who are prescribing. | 97 |
| | - Encourage all hospital pharmacists to prescribe in any specialty. | Consensus not reached (17% agree; 43% disagree) |
| | - Encourage the development of prescribing specialist roles. | 80 |
| - Ensure that pharmacist prescribers are financially compensated in line with their added responsibilities. | Consensus not reached (60% agree; 11% disagree) | |

Table 3 – Round two, percentage of respondents agreeing (strongly agree or agree) with Delphi statements (n=35)

| Statements | % strongly agree/agree |
|---|------------------------|
| - Unchanged from round one - encourage all hospital pharmacists to prescribe in any specialty. | 21 |
| - Unchanged from round one - ensure that pharmacist prescribers are financially compensated in line with their added responsibilities. | 55 |
| - Altered slightly from round one- encourage participation of pharmacist prescribers within multidisciplinary prescribing teams | 90 |
| - New statement for round two- ensure that appropriate pharmacists are selected for the prescribing role by taking into consideration their individual views and attitudes towards pharmacist prescribing | 90 |