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RESEARCH ARTICLE

Assessment of a United States pharmaceutical care model for nursing homes in the United Kingdom

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Abstract
Objective To assess the suitability of an American model of pharmaceutical care for nursing home residents (The Fleetwood model) for application in nursing homes in the United Kingdom
Method Pharmacists (those from a hospital setting or involved in prescribing support), general practitioners, nursing home managers and advocates for older people were invited to participate in semi-structured interviews or focus groups. The American Fleetwood model was explained to all participants who were asked for their views and opinions on how such a model could be adapted for use in the UK setting. All interviews and focus groups were tape-recorded, transcribed verbatim and analysed using the framework method
Main outcome measure An adapted model of pharmaceutical care for use in UK nursing homes
Results There was general concern about prescribing in nursing homes, particularly in relation to psychoactive drugs. All participants were supportive of the proposed model of care and endorsed the greater involvement of pharmacists. However, participants also recognised that unlike pharmacists in the US nursing home setting for which the Fleetwood model had been developed, pharmacists implementing this approach in the UK would face major challenges in relation to access to records (medical and medication), prescribers and residents.
Conclusion The findings highlighted the key elements of access which will need to be considered if this model of pharmaceutical care is to be applied to nursing home residents in the UK.
Impact of findings on practice The model has been revised to take account of the challenges relating to access and will be tested in a randomised controlled trial.

Keywords Nursing homes · Prescribing · Pharmaceutical care · Qualitative research · United Kingdom

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Introduction

The United States of America (USA) has adopted a unique legislative approach to improving and monitoring the quality of care provided to residents of nursing homes [1]. This legislative approach, in the form of the Nursing Home Reform Act, embedded in a larger piece of legislation, the Omnibus Budgetary Reconciliation Act of 1987 (more commonly known as OBRA 87) was passed by the American Congress in response to reports of unacceptable standards of care [2]. One aspect of the legislation related to the inappropriate use of psychoactive drugs (notably antipsychotics, hypnotics and anxiolytics) which had purportedly been used as chemical restraints in order to sedate and subdue residents [3]. Pharmacists, known as consultant pharmacists in the US context, were responsible for ensuring that the OBRA regulations pertaining to psychotropic drugs were adhered to [2].

Extensive evaluation of the impact of OBRA 87 revealed that prescribing of these drugs was dramatically reduced after the introduction of the regulations [4–8].

However, it has been recognised that OBRA has resulted in a focus on poor prescribing (primarily psychoactive drugs), while excluding the promotion of evidence-based therapies for a range of prevalent medical conditions in elderly residents [9–12].

A report from the Office of the Inspector General (in the USA) in 1997 revealed that inadequate monitoring of all medicines in nursing homes was leading to unnecessary adverse medication events (e.g. overdose, use of drugs not appropriate in the elderly), falls and costly hospitalisations, and advocated ''*pharmacists' direct input to achieving optimal clinical outcomes*'' [13]. This has led to the development of the Fleetwood model of pharmaceutical care which seeks to improve prescribing in nursing home residents beyond the scope of OBRA legislation [14]. This is achieved through drug regimen review for inappropriate drugs or undertreatment, direct communication with prescriber, patient assessment, working as part of an interdisciplinary team in the nursing homes, and documenting a formalized pharmaceutical care plan for residents at high-risk (identified through a risk screen) for medication-related problems. An intervention study to assess the impact of the Fleetwood model has recently finished in the USA.

Prescribing in nursing homes (also known as care homes) in the UK has also attracted negative attention, with reports of excessive use of psychoactive drugs [15, 16]. Unlike the USA, there is no equivalent legislation to challenge the prescribing of such drugs and pharmacists are not required to monitor their use or indeed, the use of any other drugs.

As part of a long-standing research collaboration between two authors on this paper, (CMH and KLL, the latter being the principal investigator on the US demonstration project), an evaluation of the Fleetwood model in nursing homes in the UK (based in Northern Ireland) was planned. However, it was recognised that it would not be possible to directly transpose Fleetwood methodology to the UK setting because of the inherent differences between the nursing home setting in the UK and the USA. Therefore, it was decided to use a qualitative approach to ascertain the suitability of the US model for use in the UK, by seeking the views of professionals who were closely involved in the care of older people. A similar approach has been used before in studies in which qualitative work has been used in the development and delivery of interventions in randomised controlled trials [17, 18].

Methods

Ethical approval was obtained for this study

Clinical pharmacists (care of the elderly specialists), prescribing support pharmacists (those who provide advice on prescribing to general practitioners (GPs) either on a part- or full-time basis), nursing home managers, GPs, and nursing home residents' advocates (representatives from leading charities for older people) were invited to participate. These participants were purposefully selected to inform the adaptation of the Fleetwood model because of their expertise and experience in working with older people, either through performing medication reviews in the hospital setting or as part of one-off projects in primary care, providing professional services to nursing homes or advocacy/lobbying services on behalf of nursing home residents.

Participants' views were sought through semi-structured interviews (clinical pharmacists and nursing home residents' advocates) and focus group discussions (prescribing support pharmacists, nursing home managers and GPs). The method of recruitment used for each group of participants and the choice of qualitative data collection method depended on the size of the potential sample frame and the working environment, geographical spread and participant availability.

The recruitment and data collection methods were as follows:

(i) Clinical pharmacists working in hospital-based Care of the Elderly units ($n = 9$) were identified by contacting the major hospital trusts in Northern Ireland and each was invited to participate by a personal telephone contact. Their views and opinions were sought by means of semi-structured interviews as they were only available during working hours and were geographically dispersed.

(ii) Prescribing support pharmacists, who had conducted medication reviews in nursing homes in Northern Ireland and who had similar experience to that required for the proposed intervention in the study ($n = 23$), were invited by e-mail to participate in focus groups. Three focus groups were planned to be held in convenient locations to facilitate attendance.

(iii) A database of contact details for nursing homes registered in Northern Ireland was constructed from information supplied by the Registration and Inspection Units (responsible for inspecting nursing homes) of each of the four Health Boards (the current administrative health units

in Northern Ireland). This was used to identify nursing homes for inclusion in the intervention study. Owing to the numbers of homes identified, staff from the Registration and Inspection Units were asked to identify nursing home managers with an interest in prescribing in nursing homes who could be asked to participate in the research project. These nursing home managers, all of whom were nurses, (n = 47), were contacted by letter and invited to participate in focus groups.

(iv) In each locality of Northern Ireland (sub-units of the Boards known as Local Health and Social Care Groups, n = 15), the locality prescribing adviser (pharmacist) was asked to identify local general practitioners (GPs) with an interest in prescribing in nursing homes. The GPs identified (n = 88) were contacted by letter and invited to participate in focus groups.

(v) Semi-structured interviews were conducted with leaders of the main charities for older people e.g. Age Concern, Help the Aged (in order to obtain the views of representatives of this patient group). Initially, two key individuals were identified, and during these interviews, the snow-balling technique was used in order to identify other individuals who could participate in interviews.

All participants were provided with an information sheet about the Fleetwood model at the time of invitation and written consent was obtained. A topic guide was developed which facilitated discussions and were largely based on the outline of the protocol for the American Fleetwood project. The topic guide consisted of the major elements of the Fleetwood model and formed the basis for discussion within the interviews and/or focus groups:

- Screening for residents at highest risk of adverse drug events
- Medication review and intervention
- Resident needs' assessment for pharmaceutical care
- Pharmaceutical care planning
- Direct communication with prescribers

The processes of data collection and analysis were continuous and iterative, until data saturation was achieved.

The interviews and focus groups were conducted between December 2004 and February 2005 and lasted approximately 40 and 90 min respectively.

All focus groups/interviews were audio taped, transcribed verbatim, read and coded independently by two researchers (SP and CMH) and in some cases, a final year pharmacy student.

Analysis of the transcripts was performed using the framework method [19]. All transcripts were read and reread to enhance familiarisation with the content. The main themes were identified and coded according to the outline of the Fleetwood approach. Participant responses were mapped on to the elements of the American model, but with consideration being given to the adaptations required for the UK setting as recognised and discussed by the participants. This framework approach was considered appropriate to this study as the objectives were set in advance i.e. adaptation of the care model for use in the UK. Aspects of the final adapted model were agreed upon by all authors.

Results

Twelve semi-structured interviews were conducted with clinical pharmacists (n = 6) and resident advocates (n = 6). Seven focus groups were convened: three with prescribing support pharmacists (n = 5, 5 and 4 per group), two with general practitioners (n = 4 per group) and two with nursing home managers (n = 4 and 6 per group). A total of nine clinical pharmacists were invited to participate in semi-structured interviews and six of these consented to be interviewed. The interviews took place at the hospital where each of the pharmacists worked. Of the twenty three prescribing support pharmacists who were approached to participate in the study, twelve refused or were unable to attend because of unsuitable dates. One group was held in the west of Northern Ireland and two were held in the east to facilitate participation and reduce travelling time. Six semi-structured interviews were conducted with resident advocates. Four of these took place at the charity organisation where the advocate normally worked; two advocates chose to be interviewed at the School of Pharmacy, Queen's University Belfast. Two focus groups were conducted for both GPs and nursing home managers in the east and west of Northern Ireland to accommodate participants' travelling arrangements. Of the seventeen GPs who had given consent to participate, eight attended the focus groups. Of the twelve nurse managers who had consented to participate, ten attended the focus groups. Tables 1–4 summarise the characteristics of the study participants. The main themes that arose from the analysis related to general views on medication use in nursing homes and the adaptations required to allow the model to be used in the UK.

Table 1 Characteristics of clinical and prescribing support pharmacists who participated in the study

Focus Group / Semi-structured interview	Pharmacist type	Number of participants	Sex	Average number of years registered as a pharmacist	Average number of years working in prescribing support or care of the elderly
Focus group 1	Prescribing support	4	All female	14.4	4.0
Focus group 2	Prescribing support	4	All female	14.6	5.5
Focus group 3	Prescribing support	5	All female	14.3	6.0
Semi-structured interviews	Clinical	6	5 female, 1 male	14.7	6.6

General views on medication use in nursing homes

All participants commented that nursing home residents were exposed to excessive prescribing that was poorly managed.

''They're a vulnerable group and they're on a lot of medication'' [prescribing support pharmacist (PSP) 14]

''Patients coming from the nursing home tend to come in on a huge lot of medication and it's not uncommon to have patients on maybe 19 or 20 items'' [Clinical Pharmacist (CP)2]

''Nobody takes responsibility'' [PSP6]

''My impression would be that it's prescribed and that's it for, for life'' [Advocate (A)2]

All prescribing support pharmacist focus group participants referred to the overuse of psychoactive drugs suggesting that these drugs were prescribed for the convenience of nursing staff, which was also reported by the GPs. Many participants raised concerns over the use of these drugs, particularly with regard to their potential to cause adverse reactions with serious consequences for the elderly e.g. over-sedation and falls.

''Doctors have said to me-''look I don't really want to prescribe temazepam, but they want it and it's very difficult to refuse so 9 times out of 10 they would be prescribing it'' [PSP5]

Table 2 Characteristics of older person advocates who participated in the study

Number of participants	Sex	Average number of years working with charity organisation
6	All female	12.3

''There's too many hypnotics, it seems to be that if they make a noise out of turn you know sleeping tablets is requested and there has to be too many'' [GP5]

''They (antipsychotics) *are definitely overprescribed especially for behavioural aspects''* [A3]

''It's not a pill for all ills now, it's a pill for all side effects'' [Nursing Home Manager (N)2]

Medication review was not routinely undertaken, but was viewed by participants as a way of improving prescribing, reducing errors and potentially reducing workload.

''We don't have any, any way of actively reviewing to see if they're still getting what you've given them for diarrhoea three months previously. Wee things like that'' [GP2]

Greater involvement of pharmacists was supported by all participants.

''I mean obviously the GP is very much about diagnosing the condition, em, but I think the expertise in the pharmacy is getting the best solution to that, the best pharmaceutical solution.'' [A5]

''..... *and my experience is that pharmacists are much better at that* (medication review)'' [GP1]

''So you know a specialist, somebody coming in there and looking at all the medication you know who knows medication, the pharmacology inside out, outside in, that's their job (a pharmacist), *that's bound to be a bonus and it definitely will improve care''* [N9]

Participants recognised that the main adaptations of the Fleetwood model required in the UK related to issues of pharmacists' access to records (including medical and medication records), access to prescribers

Table 3 Characteristics of GPs who participated in the study

Focus Group	Number of participants	Sex	Average number of years registered	Average number of years working in the NHS*	Average number of years working as a GP
Focus group 1	4	1 female, 3 male	22.3	21.5	18.0
Focus group 2	4	1 female, 3 male	23.5	21.5	13.8

* National Health Service

Table 4 Characteristics of nursing home managers who participated in the study

Focus Group	Number of participants	Sex	Average number of years registered as a nurse	Average number of years working in theNHS*	Average number of years working in theprivate sector / other	Average number of years as a nursing homemanager
Focus group 1	4	All female	31.5	11.5	13.5	7.2
Focus group 2	6	5 female, 1 male	19.5	6.0	12.3	6.3

* National Health Service

and access to nursing home residents. These aspects are described below.

Access to records

As part of the US Fleetwood project, pharmacists had on-site access to centralised comprehensive computer patient records when performing medication review. In the Northern Ireland study, a common computer record is not available. Gaining access to accurate information was reported to be complicated as various GPs from each practice made home visits to different individual residents and utilised different methods of communication and documentation. Prescribing support pharmacists considered that the GP practice notes were the best ones to commence data collection and medication review.

''I think the practice notes were best to start with 'cause they were the most comprehensive I think .....sometimes they (GP and nursing home medication records) *were completely different in cases''* [PSP12]

In their previous work in nursing homes, prescribing support pharmacists consulted three sources of records: those held by the GP, nursing home and the community pharmacist. This often raised problems as invariably none of the records matched as indicated above. One of the prescribing support pharmacists felt that the nursing home notes were too vague to be beneficial when conducting a review.

''I have never found them to be a great help now I must admit I've found them quite sketchy'' [PSP5]

Prescribing support pharmacists agreed that the resident's full clinical picture was required when conducting a medication review, necessitating access to both clinical notes and the full medication history.

''I think it's important to have access to all the information but to have access to, em, recent U&E results, blood pressure measurements and if there's any drugs that have a narrow therapeutic window to have recent plasma concentration or blood concentration'' [PSP9].

The lack of a medical history or accurate drug history for newly registered nursing home residents or those recently discharged from hospital back to a nursing home compounded problems with prescribing.

''I still have this bugbear of secondary prescribing being enforced on me, you know, I would have thought a consultant geriatrician would've sort of drastically cut drugs, you know, but whenever we get discharge from physicians or more you still find there are 6, 7, 8, 9, 10 drugs.'' [GP7]

Advocates thought that the information obtained to enable a medication review to be performed was critical.

''Carers will often come to us with suspicions about how medication is being managed but actually very little real information or knowledge about exactly what is going on with the person that they're concerned about'' [A4]

I think the main information they would need would be information probably from the staff or from the relatives about you know, about how someone takes the medication'' [A4]

Access to prescribers

Prescribers in the US setting are often employees of nursing homes, and there is more regular consultation between doctors and pharmacists. In the UK, GPs, usually from multiple practices, prescribe for residents and there is little formal pharmacist contact. In undertaking this new model of care, the prescribing support pharmacists felt it would be necessary to involve the GP at all stages. The pharmacist should provide written justification of all clinical recommendations and there should be some way for the GP to provide written acknowledgement that they had considered the recommendations.

''All with the aim of improving care for the patient but also within the practice and the risk management end of things'' [PSP9]

All pharmacists preferred direct communication with prescribers, describing it as the optimum method; this view was also shared by GPs.

''There's eh less opportunity for problems I think, that you're actually talking to somebody face-to-face'' [PSP5]

''*It has to be, you couldn't do that over the phone, definitely not it would have to be face-to-face''* [GP1]

''*You have no idea the number of forms arriving on our desk and each one is very important to the patient, but there's just so many of them. So I think the notion of form filling and things like that just is bad. I think you just really need to communicate directly with, with the person...''* [GP8]

It was suggested by one prescribing support pharmacist that if written communication was clear, direct discussions between the GP and pharmacist would only be required to clarify areas of misunderstanding. However, the majority of prescribing support pharmacists considered letters and notes the least effective method of communicating with GPs.

''I couldn't get GPs face-to-face time to do that, I was leaving recommendations documented on paper for them to action or agree. It was only if they had made a note or wanted to speak to me or needed clarification was needed, that there was face-to-face'' [PSP8]

''I think letters and sort of hoping a GP will come across a Post It Note® on a kardex, you might as well forget'' [PSP9]

Nursing home managers identified the GP as the key player to the success of a pharmaceutical care service. They also favoured face-to-face discussions with the GP about residents' medication-related problems and that solutions should be agreed and documented in the patient care plans. They thought that the pharmacists were more likely than nurses to gain access to the GP.

''*I think it's important to go back to the prescriber and say 'look do you realise that this is inappropriate?''*' [N9]

''If GPs are sent a letter it's likely to be shelved. Sometimes letters don't even get as far as the GPs, they get as far as receptionists and that's... there's no guarantee'' [N8]

The advocates considered that the relationship between the pharmacist and the GP was very important to establish in order to facilitate better communication.

''That's (relationship with the GP) *going to be the crux of the whole thing and I think it will stand or fall by how this is done''* [A4]

''I think one-to-one is always better, but it's not always cheaper'' [A1]

Access to nursing home residents

US pharmacists see residents occasionally to assess their pharmaceutical care needs and this was reinforced in the Fleetwood study. In UK nursing homes, pharmacists currently have little, if any contact, with residents. Participants suggested that pharmacists should liaise with nurses, carers and members of the primary care team to facilitate contact with residents. One prescribing support pharmacist highlighted how they were aware that medication problems existed owing to a lack of residents' assessment within homes.

''Yeah there are a few problems around that in the XXXX Board, em, patients not being able to swallow their tablets or capsules or whatever and the nurses being asked to split them em, open them up or whatever which is obviously outside the product licence and the nurse is afraid of getting into trouble for that.'' [PSP4]

According to the participants, direct resident contact was vital to gain insight into their perspectives and understanding of their treatment, but they acknowledged this may not be appropriate in some

circumstances. A number of participants thought it would be beneficial to involve family members in the assessment process.

''You'd probably want to discuss it with the patient and find out their perspective'' [PSP7]

''They're (the relatives) *so close to the patient and, you know, they know a lot about them and how their condition is changing''* [CP1]

''*The family, if there is any, again that might be a, might be a well maybe involve the family too''* [GP4]

One GP thought that residents needed a medical assessment for pharmaceutical care needs, while others thought that a nurse was the best person to assess residents.

The majority of nurse participants agreed that nurses were well placed to assess a resident's pharmaceutical care needs. Nursing home managers commented that the majority of residents did not know the range of medication that they were on, so it may be difficult for a pharmacist to assess their pharmaceutical care needs just by speaking to residents directly.

''I know the majority of my residents wouldn't be able to comprehend'' [N1]

''''Cause you know the resident, you're working with them, you see the changes, you know'' [N4].

An example was given about a resident with Parkinson's disease who was refusing to have his four laxatives reduced; in this case the nurse felt that a personal visit from a pharmacist to speak to the resident would have made a difference to the resident's understanding of the problem.

''But maybe somebody like the pharmacist coming in, might make a difference to that particular gentleman, he might see it from a different perspective you know'' [N4]

Discussion

This qualitative approach enabled participants, with their in-depth knowledge of the clinical and social needs of older people, to contribute to the refinement of this American model of care. All participants were in favour of greater pharmacist input into prescribing in nursing homes and this has been borne out by previous survey work in which nursing home staff and community pharmacists supported the role of the pharmacist in this care setting [20, 21]. Participants were also in favour of the proposed model, but recognised that it would not work in its current form because of differences in care delivery between the USA and Northern Ireland.

Qualitative methods have previously been used to refine interventions in conjunction with randomised controlled trials [17, 18, 22]. The Medical Research Council in the UK has commended the use of qualitative approaches in developing so-called complex interventions[23] and this is precisely the approach which has been taken here. Qualitative research in this context helped to delineate and define the intervention, particularly in terms of producing an approach that would work outside the USA.

Importantly, the findings highlighted that in principle, the model was acceptable and applicable to the nursing home setting in Northern Ireland, but access emerged as the key consideration for model adaptation. Nursing home care in the USA is somewhat more integrated[14, 24] with health care professionals largely working exclusively in this environment. In Northern Ireland and the rest of the UK, nursing home care sits at the interface between primary, secondary and social care, with most medical input coming from GPs. Community pharmacists are largely responsible for medication supply, but more intense pharmacy clinical input is usually lacking [24]. This is also the case in a number of other European countries [25, 26].

In order to deliver a comprehensive, holistic pharmaceutical care service as intended by the Fleetwood model, pharmacists will require access to records, prescribers and residents. Records, both medical and medication, are essential to compiling a complete clinical picture of the resident, but in the UK, are often incomplete and inaccurate. This problem has been recognised in a number of other studies[27–29] and can lead to medication errors. Pharmacists participating in the future intervention phase of this study will be alerted to the need for careful scrutiny of all documentation (particularly GP and nursing home records) related to the residents' medical and medication history.

Participants also recognised the need to involve the prescribing GP in the pharmaceutical care process and this will require the establishment of pragmatic lines of communication. Face-to-face communication was seen as the most effective way to achieve this, but it may not always be possible because of GPs' working patterns. Practice pharmacists who work within GP practices in the UK have easy access to prescribers because of their close working relationships and on-site availability of records [30, 31]. Pharmacists who deliver this intervention are unlikely to have this kind of pre-established relationship, and the best approach to achieve this will need to be considered.

Perhaps the more contentious issue was pharmacist contact with residents as part of this intervention model. Pharmacists in US nursing homes have this access[14, 24] and from a clinical standpoint, this may be seen as a valuable element in the assessment process. In the UK setting, pharmacists have little contact with nursing home residents[20, 21] and some participants, notably nursing home managers, queried the value of increased contact as part of the new model of care. Clearly, nursing staff (all grades) have regular contact with all residents and will recognise marked changes in physical and cognitive functioning. It could be argued that pharmacists, because of their specialised pharmaceutical knowledge, will be able to assess certain pharmaceutical issues such as inability to adhere to certain formulations or use a particular device because of poor manual dexterity. Previous work has shown that contact between nurses and pharmacists in nursing homes in one area of the UK consisted of supply services and seeking advice on correct administration and storage of medicines; there was little advanced clinical input [20]. It may be the case that pharmacist access to residents will be undertaken when required, rather than on a regular basis. Furthermore, the high prevalence of dementia in nursing home residents often means that they are not able to respond to questions and nursing home staff, or close family may need to be consulted.

As a result of the study, the US version of the Fleetwood model has been refined to facilitate access as described above. Twenty-two nursing homes have been recruited into the study and have been randomly assigned to intervention and control arms; resident consent is currently underway. At the time of writing, pharmacists who will be delivering the intervention, have undergone training in the process to be undertaken during the course of the randomised controlled trial. These pharmacists (some of whom have had previous experience of medication review in nursing homes) have been advised of the need to access records in both the nursing home and relevant GP record, to undertake face-to-face discussion with GPs if possible, and to liaise with nursing home staff in relation to the assessment of the pharmaceutical care needs of the residents.

Conclusion

A qualitative approach has been used to present and refine a US model of pharmaceutical care. The findings highlighted the key elements which required further adaptation and these have been noted in the revised model which will be tested in a randomised controlled trial in 22 nursing homes.

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